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The Army's standard civilian payroll system, the model for a system which may replace Department of Defense payroll systems now paying about \$15 billion annually to one million civilians, does not contain adequate procedures and controls to prevent erroneous or fraudulent payments. Findings/Conclusions: The standard system now being implemented by the Army continues to have many of the same problems reported in earlier GAO reports, including: lack of an adequate separation of duties; incomplete and outdated documentation showing how the system works; lack of sufficient edit checks to detect missing or invalid data; and heavy reliance on manual procedures and controls to assure accurate processing of data through the system. The Army has taken or plans to take actions to eliminate most of the weaknesses and is reevaluating the feasibility of a single Defense civilian payroll system. Recommendations: The Secretary of Defense should direct the Secretary of the Army to: revise Army Regulation 37-105 and the standard system Users Manual to provide for adequate separation of duties; revise the standard system to provide that a list of all permanent pay changes be forwarded directly to the personnel office each pay period and that prepunched timecards be routed directly to timekeepers; incorporate additional edit checks into the Army's standard system in order to detect unusual situations; and revise the standard system to better use computer capabilities to control payroll processing. All needed improvements should be made to the Army's standard system before it is used Defense-wide. (Author/SC)

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REPORT TO THE CONGRESS

BY THE COMPTROLLER GENERAL
OF THE UNITED STATES

Need To Apply Adequate Controls In The Army Standard Payroll System Prior To Implementation Defense-Wide

Department of Defense

The Army's standard civilian payroll system, the model for a system which may replace Department of Defense payroll systems now paying about \$15 billion annually to 1 million civilians, does not contain adequate procedures and controls to prevent erroneous or fraudulent payments. Many weaknesses are the same as GAO previously reported to the Congress.

The Army has taken or plans to take actions to eliminate most of the weaknesses and is also reevaluating the feasibility of a single Defense civilian payroll system. GAO is recommending that the Army's system be improved before it is used Defense-wide.



COMPTROLLER GENERAL OF THE UNITED STATES
WASHINGTON, D.C. 20548

B-146856

To the President of the Senate and the
Speaker of the House of Representatives

This report describes improvements needed in the Army's standard payroll system, which may be used as the standard payroll system for all Department of Defense activities.

We believe that one system, if feasible, should promote efficiency and accuracy in payroll processing.

We made our review pursuant to the Budget and Accounting Act, 1921 (31 U.S.C. 53), and the Accounting and Auditing Act of 1950 (31 U.S.C. 67).

We are sending copies of this report to the Director, Office of Management and Budget; the Secretary of Defense; the Secretaries of the Army, Navy, and Air Force; and the Director, Defense Logistics Agency.

A handwritten signature in black ink, reading "Lewis B. Atchafalua".

Comptroller General
of the United States

D I G E S T

The Department of Defense has selected the Army's standard civilian payroll system as the model for a system which may be used for all Defense components. Defense pays 1 million civilians about \$15 billion annually. Improvements are needed in the Army's system before it is implemented Defense-wide.

The types of weaknesses in the Army's system have been pointed out in previous GAO reports to the Congress on civilian pay operations in the Army and throughout Defense. Although GAO was told that the reported problems would be corrected, action had not been taken on all recommendations.

The standard system, now being implemented by the Army, had the following major deficiencies:

- The system did not adequately separate duties, a basic principle of internal control in any payroll system. All payroll processing functions for a group of employees, including control over both permanent and temporary changes, were handled by one payroll clerk. Such systems are more susceptible to errors and unauthorized or fraudulent payments than those in which these duties are divided among several employees. (See pp. 5 to 7.)
- Documentation, i.e., the flow charts and other data that show how the system works, was incomplete and outdated. Complete documentation is needed for operating, management, and review personnel to fully understand and evaluate the system and its internal controls, to maintain continuity of operations, and to obtain Comptroller General approval of the system, as required by law. (See pp. 9 to 11.)

--The system did not include enough edit checks to detect missing or invalid data. Also, edit checks could be readily bypassed. Well-designed edit checks written into computer programs greatly reduce the possibility of erroneous or incomplete data being entered into the system. (See pp. 7 to 8.)

--The system relied heavily on manual procedures and controls to assure accurate processing of data through the system. Better use of automated controls such as batch totals, predetermined control totals, and an automated suspense file for rejected data would improve system efficiency and internal control. (See ch. 4.)

GAO is making recommendations for improvements to the Army's standard system. (See pp. 7, 9, 14, and 16.) The Army generally agreed with GAO's recommendations and said that corrective actions would be initiated.

The military services have made progress in standardizing their systems which has resulted in reducing the number of payroll systems in operation. For example, in the last 2 years, the Army reduced the number of pay systems from 54 to 12 and the Navy reduced systems from 57 to 10. The Air Force uses one system to pay all its civilians.

Whether the military services will eventually be required to convert to one Defense-wide standard system depends largely on the results of a study the Army is now performing. The Army will reassess the cost effectiveness and feasibility of the original concept of one standard payroll system.

Since inception of the project, Defense has vacillated in its support for implementation of one standard system. To help assure orderly progress of standardizing civilian payroll systems, Defense must make a firm decision as to the degree of standardization that should eventually be accomplished. To facilitate this decision, the Army's study

should be thorough and objective. GAO plans to evaluate the study when completed.

GAO believes that one system, if feasible, should promote efficiency and accuracy in payroll processing.

GAO is recommending that all needed improvements be made to the Army's standard system before it is used Defense-wide.

Defense officials indicated that the Army would be required to make all important changes to improve system controls before implementation Defense-wide.

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CHAPTER 1

INTRODUCTION

In September 1974 the Assistant Secretary of Defense (Comptroller) advised the military departments and Department of Defense agencies that, based on results of a task group study, Defense civilian payroll systems would be standardized. Subsequently, the Assistant Secretary directed that the Army's system would be used as the basis for the standard Defense system. Currently, there are about 1 million Defense civilian employees being paid approximately \$15 billion annually.

We reviewed the Army's system to determine if control weaknesses disclosed in our earlier payroll system reviews were corrected in the development of the new system and if the system would be adequate for Defense-wide use. We evaluated the adequacy of internal controls over preparation of payroll and leave data, conversion of data into computer input form, and automated processing of data including detection and correction of missing or erroneous data.

The law requires such systems to be submitted to the Comptroller General for approval. The Army has not yet submitted its payroll system. It plans to submit design documentation by August 1977.

We performed our work at the Office of the Comptroller of the Army; U.S. Army Computer Systems Command; Fort Sam Houston, Texas; Fort Belvoir, Virginia; Fort Benjamin Harrison, Indiana; and Fort McPherson, Georgia.

CHAPTER 2

PROGRESS TOWARD STANDARDIZATION

In August 1974 a Department of Defense task group study concluded that one standard Defense civilian payroll system would

- save money,
- allow uniform interpretation and application of regulations and requirements at one level for all Defense civilians,
- provide a better opportunity for regionalization of pay activities, and
- require obtaining Comptroller General approval of only one pay system rather than many.

Such a system would also facilitate internal review, as auditors would need to know only one payroll system.

After announcing the decision to develop a standard civilian payroll system for Defense in his September 1974 memorandum, the Assistant Secretary of Defense (Comptroller) asked Defense components for suggestions on how to best achieve the standardization. Based on comments from the components, the Assistant Secretary directed in a February 1975 memorandum that standardization be accomplished in a two-step process. During the first step the military components were to develop and install standard payroll systems internally. This was to be followed by standardization Defense-wide, with the Army's standard system as the model.

Under the first of the two-step process, the military services made substantial progress in reducing the number of payroll systems.

When the decision to develop a standard Defense system was made, the military services were operating more than 100 different payroll systems to pay its 1 million civilian employees.

In February 1975 the Army had 54 separate civilian payroll systems. Since then, the Army's system has replaced 43 systems and as of April 30, 1977, about 68 percent of the civilians within the Army were being paid about \$3 billion annually by the standard system.

Navy officials said that the Navy was operating 57 systems when it was told to standardize. By April 30, 1977, the Navy was paying most of its more than 300,000 civilians approximately \$4.7 billion annually using 10 automated systems. Officials said that the Navy was working toward a goal of eight separate systems by the time a standard Defense system is implemented.

The Air Force had been operating a standard civilian payroll system since 1968 which covered most of its employees. In November 1976 the last civilian payroll operation was converted to the standard system so that now the entire Air Force civilian strength of approximately 250,000, with an annual salary of about \$4.1 billion, are being paid from one system.

After the Assistant Secretary announced plans to standardize pay systems, a Defense working group, consisting of representatives from major Defense components, was made responsible for identifying needed modifications to the Army system. In the ensuing months members of the group expressed concern over the desirability of implementing one standard system. One major problem was that because all of the Defense components do not have the same kind of automatic data processing equipment, creating and maintaining payroll computer programs for the different equipment would probably be difficult and costly. Defense officials also said that some payroll systems are now integrated with personnel systems and cost accounting systems. Since the Army's standard payroll system will not accommodate these features without a major modification, some question exists as to the value of implementing the standard system.

Defense officials also said that now that the Air Force has one standard payroll system for all of its civilian employees and because of the time elapsed since the original study, the Air Force wants another study made of the feasibility of one standard Defense system before it incurs the expense and effort of converting.

In view of the above, the Assistant Secretary, in June 1976, announced that he was directing the Army to conduct a study to determine

--whether the original conclusions regarding the desirability of implementing one standard Defense system were still valid and

--the feasible approaches to implementing a single standard system.

The study was to be completed in December 1976. The Army, however, has encountered delays. Defense officials said they are pressing for completion of the study by the end of the fiscal year.

CONCLUSION

To some degree Defense has vacillated in its support to implement one standard payroll system. To insure orderly progress towards standardizing civilian payroll systems, Defense needs to make a firm decision on standardization after the Army reports on the study, scheduled for completion before the end of the fiscal year. To facilitate this decision, the Army's study should be thorough and objective.

In view of the Army's study, directed by the Assistant Secretary of Defense (Comptroller), we are not making any specific recommendations. We will, however, evaluate the study and its conclusions and recommendations when completed.

CHAPTER 3

FAILURE TO CORRECT PREVIOUSLY REPORTED

PAYROLL SYSTEM DEFICIENCIES

In two reports to the Congress (FGMSD-75-15, Mar. 24, 1975, and FGMSD-75-26, Oct. 9, 1975), we noted serious internal control weaknesses in the military services' payroll systems. Defense and Army officials agreed that improvements were needed and that the Army's standard system, which would be the model for the standard Defense system, would contain the necessary controls.

In another report to the Congress (FGMSD-76-27, Apr. 27, 1976), we pointed out that a high potential exists for computer-related crimes. In 69 instances involving improper use of computers in Federal programs, the Government incurred losses of over \$2 million because controls over the systems were inadequate. Computer-related crimes can be hard to detect because there are fewer written records and fewer individuals involved in computer operations. Therefore, it is important that adequate controls be included in automated systems. We believe that improved controls in the Army's standard system would reduce the possibilities of erroneous or fraudulent payments. However, our review of the system showed that the following previously reported deficiencies still exist.

INADEQUATE SEPARATION OF DUTIES

One basic principle of internal control is the division of critical functions between two or more persons. Errors are more likely to be detected when duties are separated, and fraud is less likely to occur when it depends on collusion.

In our report to the Congress on the Military District of Washington pay system (FGMSD-75-26, Oct. 9, 1975), we pointed out that Army Regulation 37-105, which governs civilian pay operations, did not provide for adequate separation of duties. The regulation provides that a payroll clerk will have total responsibility for all payroll processing operations pertaining to a group of employees, including maintaining control records. In response to our recommendation for revision of the regulation to provide for adequate separation of duties, the Acting Assistant Secretary of the Army, in his July 18, 1975, letter, said that the regulation would be revised with implementation of the new Army standard

system. The standard system had since been implemented at many installations, but the regulation had still not been revised.

Consistent with the regulation, the standard system's Users Manual also specified that the payroll clerk will have total responsibility for all payroll processing pertaining to an assigned group of civilian employees. Payroll clerks were also responsible for controlling both permanent changes from the personnel office (i.e., new hires, promotions, separations, and other personnel actions) and temporary changes (i.e., cash awards, one-time pay adjustments, or leave charged during a pay period), and correcting without supervisory review, invalid or incomplete data detected by the computer.

In addition, no feedback was provided to the personnel office showing what permanent pay changes were processed. As a result, the personnel office was not aware of whether all and only authorized permanent changes to payroll records were recorded. Further, the Army's standard system automatically provided prepunched timecards for each employee each pay period, but the prepunched cards were routed through the payroll section on the way to the appropriate timekeeper. To reduce the possibility of timecards being processed for fictitious employees, prepunched timecards should be sent directly to timekeepers, bypassing the payroll section.

Because of these weaknesses in the Army's standard system controls, a high potential for errors and unauthorized or fraudulent payments exists. For example, a pay clerk could establish a pay record for a fictitious employee, and because the pay clerk has control over all processing functions, and no feedback to the personnel office on permanent changes is recorded, a paycheck could be printed for the fictitious employee without detection. Pay clerks could also process, with little chance of detection, other changes including promotions, cash awards, or adjustments to leave balances for any employee in the group.

Conclusion

To prevent possible errors or fraud, the Army's regulation governing civilian payroll operations and standard system documentation should be revised to provide adequate control over payroll operations, including review and control over the critical payroll processing steps.

Recommendation

We recommend that the Secretary of Defense direct the Secretary of the Army to revise Army Regulation 37-105 and the standard system Users Manual to provide for adequate separation of duties. Further, the system should be revised to provide that:

- A list of all permanent pay changes be forwarded directly to the personnel office each pay period for verification that all actions were recorded.
- An independent review of temporary changes and correction of rejected data be made by a control clerk or supervisor.
- Prepunched timecards be routed directly to timekeepers.

Agency comments

The Assistant Secretary of Defense (Comptroller) in an April 21, 1977, letter (see app. I) generally concurred with our findings, conclusions, and recommendations and provided detailed comments from the Army. The Army said a draft revision of Regulation 37-105 has been prepared and is being reviewed by field commands. The draft provides for more detailed separation of duties, including independent review of temporary changes and correction of rejected data. The Army also stated that a change will be incorporated into the revised regulation providing for better control over prepunched timecards. Further, Defense has developed a system change request to report all permanent payroll changes to the personnel office for verification.

INSUFFICIENT EDIT CHECKS

Computer programs should contain sufficient edit checks to detect missing or invalid data to help assure that data entering the payroll system is accurate and reliable. To determine the extent of edit tests included in programs of the Army's standard system, we processed numerous simulated payroll transactions through the system and found conditions we believe should have been detected by edit checks but were not.

Examples of test transactions not detected by the Army's standard system, including several which were pointed out in our previous reports, follow.

- We simulated a payment to an employee at a base rate inconsistent with his grade and step. The test showed that the employee would have been paid the erroneous amount.
- Using a temporary change transaction card, we simulated a payment to an employee of \$9,999.99 for 1 biweekly pay period. This amount exceeds the maximum biweekly salary permitted for General Schedule employees.
- We simulated payments that, if processed as actual payments, would have violated Federal regulations which state that an employee cannot receive more than 80 hours of basic (straight time) pay or 32 hours of Sunday pay in a biweekly period.
- We simulated a promotion higher than grade 5 for a General Schedule employee before his year in grade had expired. Civil Service regulations require that a General Schedule employee above grade 5 must be in a grade at least 1 year before promotion to the next higher grade.
- We entered codes into the computer (i.e., symbols representing information in a brief form) which, according to system documentation, were invalid. In several cases the system accepted the invalid codes, some of which resulted in a simulated erroneous payment to the employee.
- We simulated a payment to an employee for 380 hours (80 hours regular time and 300 hours overtime) in a pay period and no error message was printed.

We also found that the edit checks included in the Army's standard system could be avoided by using cards normally used to process a temporary pay change (i.e., leave used, cash award, etc.) and that the Army's system did not print messages for temporary changes processed. As a result, edit checks could be bypassed with little chance of detection.

Conclusion

The Army's standard system did not include sufficient edit checks to detect erroneous or incomplete data entering the system. Many of the test transactions that we processed through the system without detection during our recent review were the same as those used in earlier reviews. The results of these tests were included in reports to the

Congress. We consider such checks to be an essential part of a payroll system, particularly a standard system, and believe prompt action should be taken to see that they are installed.

Recommendation

We recommend that the Secretary of Defense have the Secretary of the Army incorporate additional edit checks into the Army's standard system to detect unusual situations such as those discussed above. Also the system should be revised to alert management when edits have been avoided.

Agency comments

In the enclosure to the Assistant Secretary's April 21, 1977, letter, the Army said that additional edit checks will be incorporated into the system.

NEED FOR IMPROVED SYSTEM DOCUMENTATION

The Army's standard system was not fully documented. Problems of inadequate system documentation were also included in our two previous reports to the Congress on payroll systems in the military services.

System documentation should describe the system objectives, the flow of data through the system, the processing steps, and their interrelationships. Adequate documentation is required to (1) permit operating, management, and review personnel to understand the system's design and operations, (2) evaluate internal controls, and (3) facilitate continuity in maintaining and operating the system, especially when personnel turnover is a problem. Complete documentation is also needed to obtain Comptroller General approval of the system design.

Our review showed that four of the six volumes of documentation for the Army's standard system were incomplete, unclear, and out of date, as described below.

1. Users Manual. The system's Users Manual, which prescribes forms and procedures for processing payrolls, contained the following deficiencies:

--Instructions on how payroll control registers should be prepared were inadequate.

- Detailed procedures for correcting errors detected by the computer were not provided.
2. Operations and Scheduling Manual. This manual, which provides the data processing personnel with detailed information necessary to schedule the system, operate the computer, and generate output, contained the following deficiencies:
 - Instructions for data processing personnel were not sufficient. For example, adequate information regarding the files necessary to process data, the number of copies, and specific disposition of reports were not clearly provided.
 - Programs necessary to run the various processing cycles were not clearly identified.
 - Procedures were not clearly provided on how to reestablish the status of information being processed without rerunning the entire cycle in case of an unscheduled interruption.
 3. Subsystem Analysis Manual. This manual, which describes the system's files and data elements, had the following deficiencies:
 - Changes in the files being used had not been incorporated into the manual. We identified 17 files which had been added to the system but were not described in the manual and 29 files which were no longer in use in the system but had not been deleted from the manual.
 - Changes to the format of some files had not been incorporated into the manual.
 4. Program Documentation Manual. This manual is intended to provide detailed documentation for all programs in the system. Following are some of the deficiencies noted in this manual:
 - Changes in programs being used in the Army's standard system were not reflected in the manual. Of 68 active programs, 13 were not documented and 6 programs in the manual were no longer in use.

--Program logic flow charts showing tasks performed by a program were insufficient.

--Types and purposes of edit and validation routines in the Army's standard system were not adequately described.

Conclusions

Documentation in the Army's standard system needs to be completed, updated, and clarified to insure that operating, management, and review personnel have a basis for understanding the system and how it operates.

Agency comments and our evaluation

The Army said that it would update and complete system documentation for three of the four manuals we found inadequate. The Army believes the Operations and Scheduling Manual to be adequate. We noted that it was necessary for several users of the standard system to augment the manual's instructions so that operating personnel would know what was required of them.

Recommendation

We recommend that the Secretary of Defense direct the Secretary of the Army to update and complete all system documentation, including the Operations and Scheduling Manual, to clearly provide system objectives, data flow, processing steps, and their interrelationships.

CHAPTER 4

MORE EFFECTIVE USE OF

COMPUTER CAPABILITIES NEEDED

The Army's standard system does not use efficiently the computer's capabilities. As a result, the system relies heavily on manual procedures and controls to assure that data is properly processed. Detection of errors would be more effectively and efficiently accomplished if automated controls were used more extensively.

CONTROL OVER REJECTED DATA NEEDS IMPROVEMENTS

In the Army's standard system, rejected items appear on an error listing and, although pay clerks are responsible for correcting the erroneous data, there is no automated suspense file to help assure that all corrections are made.

An effective method for controlling rejected data in an automated system is through the use of an automated suspense file. Such a file contains all invalid or incomplete information rejected by the system. Items in a suspense file continue to be printed until corrected.

In the Army's system, documents are submitted for processing only when there is a change affecting an employee's pay or leave status. If no input documents are submitted, employees are automatically paid and accrue leave at their normal rate. This is known as an exception reporting system. It is particularly susceptible to errors if proper controls over rejected items are not established, since failure to quickly correct data rejected by the computer can result in erroneous payments to employees.

BETTER CONTROL OVER SOURCE DATA AND DOCUMENTS NEEDED

Two techniques often used in automated systems to help assure complete and accurate processing of data are (1) batch totals and (2) predetermined control totals. The Army's standard system does not effectively use either.

Batch totals, representing the number of documents in a group being processed, provide an effective way to assure that all source documents are recorded. These totals should be determined when documents are prepared and should accompany the documents throughout the processing cycle. For

example, timekeepers should count the number of timecards submitted to the payroll section. Pay clerks can then verify that all timecards submitted by timekeepers are received, and in turn, can compute a cumulative total for all timekeepers which can be used to assure that all documents are entered into the machine.

Another technique often used in automated systems to assure complete and accurate processing of information is to determine the total for a selected data field in a group of source documents and then compare them with totals generated by the computer. Although the Army's standard system provides for use of such predetermined control totals, pay clerks must manually compare these amounts to totals generated by the computer. A more efficient method would be to enter the manually predetermined totals into the computer for automatic comparison to machine-generated totals after payroll processing.

OTHER MANUAL PROCEDURES SHOULD BE AUTOMATED

Several other procedures were being performed manually which should have been automated. For example, the Army's standard system does not maintain records on advanced sick and annual leave. As a result, pay clerks must maintain manual records on persons who are in such leave categories. Also, the number of days worked by limited appointment employees, that is, hired for a set period of time (usually not to exceed 90 days), must be maintained manually.

Full use of computer capabilities by automating as many procedures as possible, increases the efficiency and reliability of the system.

INEFFICIENT PRINTING OF MASTER EMPLOYEE RECORDS

The Army's system does not provide an efficient method for printing master employee records. The records reflect all pay information on an employee for the year. Under the Army's system, the option exists for the computer to produce master records for all employees in a cycle, or not to produce any master records.

To get only selected master records printed (i.e., those involving a change in pay or leave), a special input card for each record desired must be prepared and submitted. This is a time-consuming process. As a result, to obtain

selected records without preparing and submitting input cards for each record, installations we visited were printing master employee records for all employees every pay period.

For example, at one installation, where 6,000 civilians were being paid, producing master records for all employees required approximately 4 hours of print time per pay period. Since this installation averaged only about 1,100 changes per pay period, approximately 80 percent, or more than 3 hours of print time per pay period could be saved if master records were automatically printed on an exception basis.

A more desirable approach would be to program the computer to automatically produce a master employee record only when there is a change to an employee's pay or leave status.

CONCLUSION

The Army's standard system should better use computer capabilities. Automation of manually performed functions would improve system efficiency and the reliability of output.

RECOMMENDATION

We recommend that the Secretary of Defense direct the Secretary of the Army to revise the Army's standard pay system to better use computer capabilities to control payroll processing, including techniques such as batch totals, predetermined control totals, automated suspense files for rejected data, printing of master employee records on an exception basis, and, to the extent possible, automating functions now performed manually.

AGENCY COMMENTS

The Army generally agreed with our findings and recommendations and said that action has been taken or is planned to provide for the specific controls we suggested, including use of batch totals and predetermined control totals. In addition, the Army will provide for more efficient use of the computer capabilities, including printing of master employee records and automating certain manually performed functions. Although the Army agrees that controls over rejected data need improvement, the Army says that it is not necessary to institute an automated suspense file to achieve the improvement.

While we believe that an automated suspense file is an effective method of control, an alternative method would be acceptable if it adequately controlled rejected data.

CHAPTER 5

ADDITIONAL SYSTEM CHANGES NEEDED

In addition to correcting the deficiencies discussed in chapters 3 and 4, the Army must resolve certain system change requests made by users of the system and certain requirements identified by a Department of Defense working group.

REQUESTS FOR SYSTEM CHANGES FROM USER ACTIVITIES

Since early 1974, when the Army's standard system was being tested, a continuous flow of system change requests from user activities experiencing payroll processing problems has resulted in a growing backlog of unresolved items at the Army design center. Many of these change requests involve improved control features. At June 30, 1976, there were 260 unresolved system change requests.

Examples of problems covered by the requests follow.

- The system was deducting health benefits, group life insurance, optional insurance, bonds, allotments, charity deductions, and union dues from lump sum annual leave payments to employees being separated. Only Federal, State, city, and social security taxes should be deducted from lump sum leave payments.
- The system did not properly handle unused leave balances for an employee transferring to another location. Leave balances for transferring employees should be carried over to the new location. Under the Army's standard system, however, the employee was paid for any unused leave at the time of transfer.
- We recognize that any new system will require changes during implementation and in the early stages of operation. However, during our review, when the Army's standard system had been operating for nearly 3 years, unresolved requests for system changes were still increasing. After our review, Army officials said that as of April 30, 1977, there were 325 unresolved requests for system changes or an increase of 65 since June 30, 1976.

REQUIREMENTS IDENTIFIED BY DEFENSE WORKING GROUP

To identify modifications needed in the Army's system, including requirements of the various military components, the Department of Defense Standard Civilian Payroll System Working Group, was established. The group consisted of representatives from the Army, Navy, Air Force, and Defense Supply Agency. At April 30, 1977, the group had identified 70 requirements. Some of these follow:

- Developing computer programs to meet the requirements of the Fair Labor Standards Act. For example, the act states that overtime for employees must be computed in two ways and the employee paid in accordance with the higher of the two results. The Army's standard system does not automatically make this dual computation.
- Redesigning and expanding the master employee record to provide information to meet needs of all military services.
- Determining requirements for interface with other automated systems such as accounting and budgeting.

Many of the requirements the Defense working group identified would improve control and should be included in any automated payroll system.

CONCLUSION

If it is decided that one standard payroll system will be implemented Defense-wide, it is important that the Army's standard system (which would be the model for the Defense-wide system) be strengthened first to help prevent errors and unauthorized or fraudulent payments.

RECOMMENDATION

Accordingly, we recommend that the Secretary of Defense see to it that before the Army's system is used Defense-wide (1) the recommendations listed in chapter 3 are implemented and (2) those system change requests made by users and requirements identified by the Defense working group which pertain to strengthening system controls are fully resolved.

AGENCY COMMENTS

The Army advised that the backlog of system change requests will be reduced and that emphasis is being placed on acting on the more important requests for change. The Army also said that changes requested by the Defense working group have been reviewed. Those determined to be a significant improvement either have been or will be programed into the system. In general, the Army is taking action on our recommendations for improved controls.

Defense officials advised that the Army would be required to make all important changes to improve system controls before implementing the system Defense-wide.



COMPTROLLER

ASSISTANT SECRETARY OF DEFENSE
WASHINGTON, D.C. 20301

21 APR 1977

Mr. Donald L. Scantlebury
Director, Financial and General
Management Studies Division
U.S. General Accounting Office
Washington, D.C. 20548

Dear Mr. Scantlebury:

This is reply to your letter to the Secretary of Defense regarding your report, dated February 11, 1977, "Need to Implement Adequate Controls in the Army Standard Payroll System Prior to Implementation Defense-Wide," (OSD Case #4548).

The Army is taking the necessary action to improve its standard civilian payroll system. Details are provided in the Enclosures to this letter.

We concur with the report subject to the following comments and recommended revisions:

1. Page i. DIGEST. Recommend replacement of the first two sentences with: "The Department of Defense, which pays approximately one million civilians about \$15 billion annually, has selected the Standard Army Civilian Payroll System (STARCIPS) as the baseline for a system which could eventually be used by other Services. Improvements to the procedures and controls are needed to STARCIPS, however, before it could be implemented Defense-wide." (See GAO note, p. 27.)

2. Page ii. Reference the first three sentences in the paragraph starting with: "The military services are . . ." Recommend replacement with: "In recognizing the need to improve civilian payroll systems, the Department of Defense studied the feasibility of standardization. As a consequence of the study and subsequent deliberations, a determination was made to approach the possibility of standardization by a two-step process. As a first step, the payroll systems are being converted to Service-designated standard payroll systems. Concurrently, a Defense work group, under Army leadership, is developing changes needed to improve and upgrade STARCIPS. This will make it usable by the other Military Services. The second step is the accomplishment of an economic analysis to determine whether it would be beneficial or economical for the other Military Services to convert from their internally designated standard payroll systems to STARCIPS after it is upgraded."

(See GAO note, p. 27.)



We would appreciate being advised of any situations noted by you, in addition to those cited as examples on pages 8 and 9 of the report, which require the establishment of edit checks. Your comments and suggestions have been helpful in improving STARCIPS.

Sincerely,

A handwritten signature in cursive script that reads "Fred P. Wacker". The signature is written in black ink and is positioned to the right of the typed name.

Enclosure (5)

AS

(OSD Case #4548)

FINDING: Inadequate Separation of Duties

To prevent possible errors or fraud, the Army regulation governing civilian payroll operations and standard system documentation should be revised to provide adequate control over payroll operations, including review and control over the critical payroll processing steps.

RECOMMENDATION:

We recommend that the Secretary of Defense direct the Secretary of the Army to revise Army Regulation 37-105 and the standard system users manual to provide for adequate separation of duties. Further, the system should be revised to provide that:

- a. A listing of all permanent changes affecting pay be forwarded directly to the personnel office each pay period so it can verify that all actions were recorded.
- b. An independent review of temporary changes and correction of rejected data be made by a control clerk or supervisor.
- c. Prepunched timecards be routed directly to timekeepers so that timekeepers be provided a listing of all prepunched timecards prepared.

ARMY COMMENT:

The initial draft revision of AR 37-105 has been completed and is in the process of being distributed for MACOM review and comment. Included in the revision is a more detailed separation of duties than contained in the current AR. In addition, the requirement for a separation of duties was published in the October 1976 and February 1977 issues of the US Army Finance and Accounting Center's ALL POINTS BULLETIN.

- a. A System Change Request has been developed by the DODSCIPS Working Group that will provide a report of all permanent changes to the personnel office for verification.
- b. The revised AR 37-105 will contain provisions for an independent review of temporary changes and correction of rejected data. Finance Officers will be advised of these requirements prior to final publication of AR 37-105.
- c. Concur in the concept of timecards by-passing civilian pay clerks. Do not, however, necessarily agree that the data processing unit should be made responsible for this function. A necessary change will be incorporated in the revised AR 37-105 to accomplish this function.

(OSD Case #4548)

FINDING: Insufficient Edit Checks

The Army's standard system does not include sufficient edit checks to detect erroneous or incomplete data entering the system. Many of the test transactions that we processed through the system without detection during our review were the same as those used in earlier reviews and included in reports to the Congress. We consider such checks to be an essential part of a payroll system, particularly a standard system, and believe prompt action should be taken to see that they are installed.

RECOMMENDATION:

We recommend that the Secretary of Defense have the Secretary of the Army incorporate additional edit checks into the Army's standard system to detect unusual situations such as those discussed above. Also the system should be revised to alert management when edits have been avoided.

ARMY COMMENT:

While edit checks are included in the system to preclude fraudulent payments; action is being taken to include the additional edit checks recommended by GAO. Further, as part of the SCR review process, edit routines will be incorporated wherever necessary.

(OSD Case #45)

FINDING: Need for Improved System Documentation

Documentation in the Army's standard system needs to be completed, updated, and clarified to insure that operating, management, and review personnel have a basis for understanding the system and how it operates.

RECOMMENDATION:

We recommend that the Secretary of Defense direct the Secretary of the Army to update and complete system documentation to clearly provide system objectives, data flow, processing steps, and their interrelationships. Documentation for the standard system should provide:

Users Manual:

- a. Instructions on how payroll control registers should be prepared.
- b. Detailed procedures for correcting errors detected by computer.

Operations and Scheduling Manual:

- a. Adequate instructions for data processing personnel.
- b. Identification of programs required for the various processing cycles.
- c. Detailed procedures to restart processing in case of an unscheduled interruption.

Subsystem Analysis Manual:

- a. Description of all files currently used in the system.
- b. Deletion of descriptions of all files no longer used.

Program Documentation Manual:

- a. Documentation on all programs currently in the system.
- b. Deletion of documentation on all programs no longer used.
- c. Program logic flow charts for each program.
- d. Description of the types and purposes of all edits in the system.

ARMY COMMENT:**Users Manual:**

- a. Concur in the findings that the Users Manual does not provide

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adequate instructions on the preparation of payroll control registers and detailed procedures for correcting errors detected by computers.

b. Final publication of the revised AR 37-105 which incorporates the procedures contained in the Users Manual will contain more specific instructions in these areas.

Operations and Scheduling Manual:

a. Non-concur that the Operations and Scheduling Manual contains inadequate instructions for data processing personnel. The Operations and Scheduling manual is presently used at 61 installations. The limited number of SCRs that have been received to correct deficiencies does not support the finding that the instructions are not sufficient.

b. Files and programs necessary to run any Standard Army Civilian Payroll System (STARCIPS) job are identified in the manual, as is the disposition of all reports. Number of copies and ultimate disposition of reports are properly included in the Users Manual.

c. Automated restart procedures were added to the system in December 1976 to reestablish the status of information being processed without re-running the entire cycle. Prior to this, manual restart procedures were available to field operators.

Subsystem Analysis Manual (a-b):

The Subsystem Analysis Manual has been completely updated to reflect the current STARCIPS and will be maintained to reflect future changes as they are made.

Program Documentation Manual (a-d):

Concur in the finding that the Program Documentation Manual provides detailed documentation for all programs in the system. A concerted effort is underway to update the manual and to maintain it on a current basis.

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FINDING: Need for More Effective Utilization of Computer Computations

The Army's standard pay system should provide for better utilization of the capabilities of the computer. Automation of functions now performed manually would improve system efficiency and the reliability of output.

RECOMMENDATION:

We recommended that the Secretary of Defense direct the Secretary of the Army to revise the Army's standard pay system to provide better utilization of computer capabilities to control payroll processing, including:

- a. Using batch totals to provide better control over the flow of source documents.
- b. Programming the computer to accept and automatically compare selected predetermined control totals to totals generated by the computer.
- c. Establishing an automated suspense file for all erroneous or invalid data rejected by the computer to make sure that data is corrected and re-submitted on a timely basis.
- d. To the extent possible, automating functions now performed manually, including maintenance of advanced annual and sick leave balances and the recording of the number of days worked by limited appointment employees; and
- e. Programming the computer to automatically print master employee records on an exception basis, i.e., whenever there is a change to the individual's pay or leave status.

ARMY COMMENT:

- a. Improvements can be made to internal controls over the flow of documents throughout the processing cycle. A project has been established to develop detailed operating procedures and methods, e.g., batch totals, that will bring civilian pay documents under the same type of controls as employed by the Army's military pay system.
- b. The DODSCIPS Working Group is currently working on a requirement to identify those areas where the computer can be programmed to automatically compare selected predetermined control totals to those generated by the computer.
- c. Concur in the need to improve control over rejected data. We do not concur, however, in the necessity to design and program an automated suspense file into the system to achieve the improvement. STARCIPS operates on the technique of updating transaction files after editing in the daily cycle. Each time the daily cycle is run all transactions are re-edited and error listings produced. Master files are updated and pay is computed only

() Case #4548)

after all errors are corrected and/or the user decides to correct in a subsequent cycle. The same would be true in an automated suspense file; errors will print out only when the cycle is run. Under either method, the user has the option of rerunning until error free or proceeding with pay computation. This flexibility should be retained to permit pay offices to override minor errors to meet pay deadlines. In this regard, STARCIPS includes an Adjustment and Supplemental Pay Cycle for use in adjusting pay in these instances.

d. An SCR has been developed by the DODSCIPS Working Group that will provide an automated accounting of advanced annual and sick leave and to provide to management the amount of advanced leave used and remaining balance each pay period. The system is being changed whereby limited appointment employees will be identified with a not to exceed date or hours whichever is applicable. The system will automatically discontinue payment whenever an employee exceeds the termination date or total hours. In addition, other areas have been identified that are presently being accomplished manually that should be performed automatically, e.g.; Summary and Certification Sheet preparation, changes in leave category, and automated increase in optional insurance premium.

e. The current system design automatically prints master employee records in the absence of user input to preclude it. As this represented an additional workload, most users did not prepare the required input and allowed the system to print all the records whether needed or not. The resulting wasteful printing of employee records was identified and a system change was developed to print the master employee record on an exception basis. This change is scheduled for implementation in April 1977.

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FINDING: Additional System Changes Needed

Procedures and controls in the Army's standard civilian payroll system, which has been selected as the model of a standard Defense system, must be improved to reduce the possibilities of erroneous or fraudulent payments. Many of the weaknesses in the Army's system are the same as the deficiencies reported to the Congress twice before. In addition, the Army must address the numerous unresolved system change requests from user activities and the requirements identified by the Defense working group, particularly those pertaining to improvement of system controls.

RECOMMENDATION:

We recommend that the Secretary of Defense see to it that, prior to implementing the standard Army system Defense-wide (1) the recommendations listed in chapter 3 are implemented and (2) those system change requests made by users of the system and those requirements identified by the Defense working group which pertain to strengthening system controls are acted upon and fully resolved.

REQUESTS FOR SYSTEM CHANGE FROM USER ACTIVITIESARMY COMMENT:

STARCIPS was approved for extension in August 1975. Since that time, STARCIPS has been extended to 61 sites, spanning nine major commands. This accelerated pace is unequalled by any other multi-command standard system in the Army today. During the extension period as installations were converted to the system, additional variables were detected that were not contained in the initial design of the system. The extension of the system has resulted in the input of SCRs from each new user as variances were detected between features in STARCIPS and their previous command unique system. Many of the SCRs can also be classified in the "nice to have" category. Emphasis has been directed to accommodate requirements critical to user's processing of civilian pay by prioritizing outstanding SCRs and to broadcast resulting system changes through an orderly process. It is agreed that the backlog should be reduced. However, evaluation of the performance of a system must be based on the content of the SCRs received and not on the number received.

REQUIREMENTS OF OTHER MILITARY SERVICESARMY COMMENT:

The Defense working group has processed 54 system change requests to upgrade the Army's standard system to meet the requirements of the various Department of Defense components. These system changes were reviewed by the Army and where determined to represent a significant improvement to STARCIPS they have been and are being programmed into the system for broadcast to all Army activities without waiting for full development and implementation of the Defense system.

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Such changes are: Fair Labor Standards Act; Federal Employees Compensation Act; new Earnings and Leave Statement, expansion of the master employee record.

Note: Defense officials advised that these changes were recommended so that the report would not indicate that Defense had definite plans to implement a single payroll system. The intent of the change has been incorporated in the report.

PRINCIPAL OFFICIALS
RESPONSIBLE FOR ADMINISTERING ACTIVITIES
DISCUSSED IN THIS REPORT

	<u>Tenure of office</u>	
	<u>From</u>	<u>To</u>
<u>DEPARTMENT OF DEFENSE</u>		
SECRETARY OF DEFENSE:		
Dr. Harold Brown	Jan. 1977	Present
Donald H. Rumsfeld	Nov. 1975	Jan. 1977
Dr. James R. Schlesinger	July 1973	Nov. 1975
ASSISTANT SECRETARY OF DEFENSE (COMPTROLLER):		
Fred P. Wacker	Sept. 1976	Present
Terence E. McClary	June 1973	Aug. 1976
<u>DEPARTMENT OF THE ARMY</u>		
SECRETARY OF THE ARMY:		
Clifford L. Alexander, Jr.	Feb. 1977	Present
Martin R. Hoffman	Aug. 1975	Feb. 1977
Howard H. Callaway	May 1973	July 1975
ASSISTANT SECRETARY OF THE ARMY (FINANCIAL MANAGEMENT):		
Jack E. Hobbs (acting)	Apr. 1977	Present
Hadlai A. Hull	Mar. 1973	Apr. 1977
COMPTROLLER OF THE ARMY:		
James J. Leonard (acting)	June 1977	Present
Lt. Gen. John A. Kjellstrom	July 1974	June 1977