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Need For Improved Controls In The
Automated Central Payroll System
Of The Department Of Agriculture

B-146951

UNITED STATES
GENERAL ACCOUNTING OFFICE

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NOV. 29, 1971



UNITED STATES GENERAL ACCOUNTING OFFICE

WASHINGTON, D.C. 20548

CIVIL DIVISION

B-146951

Dear Mr. Secretary: 40

This is our report on the need for improved controls in your automated central payroll system. The report contains recommendations to you for attaining the improved controls.

Your attention is invited to section 236 of the Legislative Reorganization Act of 1970 which requires that you submit written statements of the action taken with respect to the recommendations. The statements are to be sent to the House and Senate Committees on Government Operations not later than 60 days after the date of this report and to the House and Senate Committees on Appropriations in connection with the first request for appropriations submitted by your agency more than 60 days after the date of this report. We shall appreciate receiving copies of the statements sent to these Committees.

A copy of this report is being sent to Congressman L. H. Fountain pursuant to his request. Copies of this report are being sent today to the Chairmen, House and Senate Committees on Government Operations; the Chairmen, House and Senate Committees on Appropriations; and the Senate Appropriations Subcommittee on Agriculture and Environmental and Consumer Protection; the Director, Office of Management and Budget; and the Office of the Inspector General.

Sincerely yours,

A. T. Samuelson
Director, Civil Division

The Honorable
The Secretary of Agriculture

D I G E S T

WHY THE REVIEW WAS MADE

The General Accounting Office (GAO) is required by law to review from time to time accounting systems of executive agencies. This review of the automated central payroll system of the Department of Agriculture was undertaken accordingly. The review did not include a payroll audit.

The Department's payroll system processes annual payrolls of about \$1.2 billion for about 100,000 employees. The system is operated by the Department's Management Data Service Center at a cost of about \$4.3 million annually.

FINDINGS AND CONCLUSIONS

The network of controls in an automatic data processing system is the key factor to the reliability of the system and the products it produces. The controls built or programmed into the Department of Agriculture computer to ensure the accuracy and reliability of the input data and its processing generally were functioning properly and the processing of the payroll usually produced reliable results. Management controls over certain manual aspects of the system, however, need to be strengthened to increase its efficiency and effectiveness and to minimize the possibility of improper manipulation of the information in the system and thereby lessen the potential for irregularities.

GAO noted that there was a need to provide for

- proper segregation of duties between the programming and computer operations of the system (see p. 6);
- current documentation for the primary system to facilitate future revisions and management review (see p. 8);
- an adequate and safe backup system for contingency use in case the primary system was destroyed (see p. 8);
- more effective programs to improve controls over (1) the maximum number of hours for which an employee could be paid in a pay period, (2) overtime payments, (3) payroll deductions for savings bonds, and (4) retirement deduction rates (see p. 9);
- supervisory review of manual pay operations to ensure that established procedures were properly implemented to prevent duplicate payments and overpayments (see p. 12);

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--adequate control over incoming and rejected documents to ensure that all documents were received at the center and that all documents rejected by the computer were properly corrected before reentry into the system (see p. 12); and

--a periodic review of agency reporting needs and the usefulness of the reports produced by the payroll system (see p. 14).

RECOMMENDATIONS OR SUGGESTIONS

Although the center has corrected or is correcting some of the weaknesses, GAO is making a number of recommendations to the Secretary of Agriculture to strengthen management controls over the payroll system by taking additional actions necessary to correct the weaknesses in the system as described in this report. (See p. 15.)

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ABBREVIATIONS

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| GAO | General Accounting Office |
| OIG | Office of the Inspector General, Department of Agriculture |

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CHAPTER 1

INTRODUCTION AND SCOPE

The Department of Agriculture's payroll system, which was centralized in 1961, is operated by the Department's Management Data Service Center in New Orleans, Louisiana. Automatic data processing equipment of the Agricultural Stabilization and Conservation Service, located in the same building as the center, is used in processing the payroll.

The center provides data on payroll, personnel, leave, budget, and accounting to the constituent agencies and organizations of the Department. The center also develops appropriate data for submission to other Federal agencies, such as the Civil Service Commission and the Internal Revenue Service, and to State taxing authorities, health insurance carriers, labor unions, and charitable organizations.

The constituent agencies' and organizations' personnel offices and time and attendance control units submit the necessary personnel and payroll information to the center for the payment of employees. The center processes the payroll and maintains accounts on amounts paid, deductions made, and leave accrued. From this data, magnetic tapes are produced for use by U.S. Treasury Disbursing Offices in issuing payroll checks and bonds. Other payroll deductions are sent to the proper organizations.

The center processes the payroll and related data for an average of 100,000 employees biweekly. The payroll amounts to about \$1.2 billion annually. The cost of operating the system is about \$4.3 million annually. Over 400 computer programs are used to process the payroll and related data on two large-scale computers and several medium-sized computers. In a few special cases, payments are processed manually at the center.

In addition to time and attendance reports for the approximately 100,000 employees, the center receives and processes biweekly about 35,000 personnel and other documents from over 9,000 reporting offices. The system produces

biweekly about 300 outputs in various forms, such as print-outs or reports, magnetic tapes, and punched cards.

The Department's payroll system was approved by the Comptroller General in September 1967. Our current review was made to examine into the controls incorporated in the system and the effectiveness and accuracy of the system in producing the payroll and related reports and data for the constituent agencies and organizations of the Department. We did not audit the Department's payroll. The review was made at the center, which is located in New Orleans, Louisiana, and at 16 reporting offices of the Department of Agriculture.

The matters in this report were discussed with center officials and with officials of the Department's Office of Budget and Finance. Their comments are included in the body of the report where appropriate.

CHAPTER 2

NEED TO STRENGTHEN MANAGEMENT CONTROLS

OVER THE PAYROLL SYSTEM

The objectives of controls in an automatic data processing system are to ensure that the system (1) accepts and processes only valid data, (2) processes such data completely and accurately, and (3) produces the necessary information, records, and reports. To attain these objectives, controls are needed over such elements of the system as

- the machines,
- the machine programs,
- the system personnel,
- the data entering the system,
- the processing of the data in the system, and
- the output products that are produced by the system.

Although the control techniques to be employed depend upon individual conditions and requirements of each system, the adequacy of the network of controls present in a system is, in the final analysis, the key factor in determining the reliance to be placed on the system.

Our review showed that generally the controls built or programmed into the computer to ensure the accuracy and reliability of the input data and its processing were functioning properly and that the processing of the payroll usually produced reliable results. Management controls over certain manual aspects of the system, however, need to be strengthened to increase its efficiency and effectiveness and to minimize the possibility of improper manipulation of the information in the system and thereby lessen the potential for irregularities. Our review showed that better controls were needed to provide for

- restricted access to equipment and data,
- current documentation for the primary system,
- an adequate and safe emergency backup system,

- more effective programs for certain transactions,
- supervisory review of manual pay operations,
- adequate controls over incoming documents, and
- a periodic review of agency reporting needs and the usefulness of reports produced by the payroll system.

A discussion of these matters follows.

ACCESS TO EQUIPMENT AND DATA

One of the most essential elements of effective internal control in a computerized operation is the separation of duties of individuals concerned with systems planning and programming from those concerned with day-to-day operation of the system. In a computerized operation, many of the procedures which ordinarily would be included in a conventional system of checks and balances are eliminated.

Consequently data can be altered or manipulated without leaving a readily discernible trace. Small, even minute, changes could result in substantial irregularities and a programmer or a computer operator could make such changes with access to the data for only a minute, or even seconds. The weaknesses in this element of internal control at the center can nullify the effectiveness of all other system controls, both machine and manual.

In the center's system, the duties and operations of the programmers and the computer operators are separate and distinct organizationally--the programmers are center employees; the operators are employees of the Agricultural Stabilization and Conservation Service. In actual practice, however, programmers at the center have access to the computer and to data files and computer operators have access to program run books which describe the objectives and detailed operation of the programs.

With this access to the computer and payroll data, the programmer or the computer operator could alter or manipulate the data or the instructions to the computer. Center officials told us that this access was necessary because

programmers and computer operators needed to make changes during payroll runs to meet critical deadlines.

Department officials disagreed with the need to restrict the access of the programmers and computer operators to each other's operations. The officials told us that restricted access would cause delays and additional costs and that the risk of loss because of unrestricted access was not significant. The officials could not specify the amount of additional costs involved or the basis for their belief that the risk of loss was not significant.

We believe that, in a payroll operation involving the expenditure of about \$1.2 billion annually, there is an inherent risk of loss which warrants the incurrence, if necessary, of additional costs to preserve the integrity of the payroll. In our opinion, such costs need not be excessive and are justifiable as normal operating expenses to provide adequate control over the payroll expenditures of the Department.

DOCUMENTATION FOR THE PRIMARY SYSTEM

Complete, comprehensive, and current documentation on system operations is necessary for the continued efficient operation and success of any data processing system. Such documentation permits management and others to understand and review the system and, in the absence of the original programmer, facilitates certain operations, such as making program changes or reprogramming to improve machine efficiency.

The center has not maintained a current record of the essential elements of its computer programs and the logic followed in the programs. Our review of 33 of the center's major payroll programs showed that only five programs were completely documented. The remaining programs had deficient documentation, such as outdated or nonexistent run books, and numerous undocumented changes.

Program run books provide basic program information, such as narrative descriptions of the program objectives, flow charts of the documents, and diagrams of the logic or reasoning for the program steps. Poorly documented run books are difficult to revise, especially if the changes have to be made by other than the original programmer. Of the 33 programs which we reviewed, seven had no run books and nine had no narrative descriptions of the program objectives. The logic diagrams of 12 programs were either outdated or nonexistent. Without this basic documentation, it is difficult to modify programs. During our review, the center established documentation standards for its run books and program changes and started updating the documentation for the programs.

MAINTENANCE OF EMERGENCY SYSTEM

The center did not have adequate backup programs and run books for emergency use nor did it have adequate facilities to preserve such items. Backup programs and run books are important in a computerized system to provide for continuation of the computer operations in the event the primary system is destroyed. The backup programs and run books should be stored at a location away from the primary system

so that they would ordinarily survive the destruction of the primary system.

Of the 33 programs which we reviewed, 14 had no backup run books and 14 had outdated run books. The backup run books were stored in an open hallway directly across from the regular run books and therefore were susceptible to destruction simultaneously with the primary system. Most emergency program tapes were stored in a vault located in the same building as the center. Center officials told us that the vault was not fireproof.

The documentation standards issued by the center during our review included standards for the preparation of backup programs and run books. Also the center has started to update documentation on several of the backup programs. At the conclusion of our review, center officials told us that they had obtained space at a distant location to store backup programs and run books.

MORE EFFECTIVE PROGRAMS FOR INCREASED CONTROL OVER CERTAIN TRANSACTIONS

Our tests of the system's internal processing controls showed that certain revisions of the computer programs were needed to provide more effective control over (1) the maximum number of hours for which an employee could be paid in a pay period, (2) overtime payments, (3) payroll deductions for savings bonds, and (4) retirement deduction rates.

Number of hours

Generally payroll systems should be programmed to reject for manual review a time and attendance report showing a number of hours worked in excess of a predetermined limit. The predetermined limit for a biweekly system should be the total of the normal 80-hour work period plus a reasonable allowance for overtime work appropriate to the circumstances. The center's predetermined limit is 280 hours, an equivalent of 20 hours a day over a 14-day period. Such a high limit negates the control that it is intended to provide.

Department officials told us that consideration would be given to the feasibility of setting a lower limit.

Overtime

The program permitted personnel to be paid for overtime at their base rate which at certain grade levels was higher than the overtime rate permitted by law. A center official told us that the program was corrected to prevent payments at higher than the legal rate.

Bond deductions

The programs for bond deductions needed to be revised to eliminate continuous bond carry-overs. When an employee authorizes a change in his biweekly bond deduction, a residual amount from previous deductions may remain in his account as a permanent carry-over unless specific action is taken to clear it.

On the basis of our review of about one third of the carry-over balances as of August 22, 1970, we estimated that 460 employees each had a constant carry-over balance sufficient to purchase a bond and that 2,000 other employees had constant carry-over balances of lesser amounts. We estimated also that the carry-over balances of the 460 employees totaled \$13,000. These funds would have been sufficient to purchase bonds having a total face value of about \$15,000. The carry-over balances of the 2,000 other employees totaled \$12,500.

At the completion of our review, center officials told us that the bond deduction program had been revised to eliminate constant carry-overs and that refunds had been made to the appropriate employees.

Retirement deductions

The programs for retirement deductions needed also to be revised. In several instances, employees were overpaid because deductions were made at social security rates rather than at higher civil service retirement rates. The employees had converted from positions covered by the social security program. The center, however, continued to make

deductions on the basis of social security coverage after the conversion.

Department officials told us that this situation was the result of improper coding of personnel change documents by the field offices. They stated that they would reemphasize to the field offices the need to correctly code such documents.

SUPERVISORY REVIEW OF MANUAL OPERATIONS

The center needed to strengthen supervisory reviews over manual operations to ensure that procedures were properly implemented. Because of inadequate supervisory reviews over manually prepared documents, center personnel had processed several duplicate payments and overpayments.

For example, 12 employees stationed in a Forest Service office received duplicate payments totaling about \$3,000 for one pay period in 1970. The center processed the first payment on the basis of telephone information because the employees' time and attendance reports were late. The center paid the employees again when the time and attendance reports were received in a subsequent pay period. Although the center had established a mechanical control to prevent this type of overpayment, a center employee had not coded the time reports properly to utilize this control. A supervisory review of the coding on a test basis might have shown that the mechanical control was not being adhered to.

Also employees who manually computed severance payments for persons whose jobs had been abolished had not always recorded appropriate information in the records to prevent overpayments. For example, the amounts and dates of all severance payments were not always recorded correctly on the individual pay records. A supervisory review of the records might have shown that the records were incomplete and that procedures to prevent erroneous payments were not being followed.

Although these errors had been noted previously by center or field office personnel and had been corrected, the center had not taken any action to eliminate the cause of these errors. In a discussion of these matters, center officials informed us that supervisory reviews of manual payments would be made to prevent recurrence of such errors.

CONTROL OVER INCOMING AND REJECTED DOCUMENTS

Controls over payroll documents received from the Department's reporting offices were not adequate to ensure (1) that all documents were received at the center and processed through the system and (2) that documents rejected

by the computer were properly corrected before reentry into the system.

Incoming documents

The center had not established adequate procedures for ascertaining that it had received all incoming documents. Instead, if the employee's pay was not received or if the amount was incorrect, the center relied on the reporting office or the employee affected to notify it.

We noted that, in several instances, documents submitted by reporting offices for bond deductions and optional life insurance deductions had not been received by the center. Because the center was not aware that the documents were missing, it had not adjusted its master files until notified by the reporting office or the employee affected that the changes had not been made. Also the reporting offices had to submit duplicate documents to provide for the deductions which had been requested previously.

Because all offices submitting payroll documents to the center are required to group or batch related documents being submitted at the same time, we believe that an effective control would be provided if the center were to acknowledge receipt of the batches. All batches are accompanied by a transmittal slip containing control totals relating to the number of documents contained in the batch. After verifying the batch control totals, the center could return a copy of the transmittal slip to the reporting office to acknowledge receipt of the batch.

Department officials disagreed with the need for positive control over incoming documents and stated that they believed that their present method of control by exception was adequate. In our opinion, the present method inherently lacks control and can result in such irregularities as terminated employees continuing to be paid or promoted or demoted employees being paid at incorrect rates. In the case of missing time and attendance reports, the employees' pay could be delayed until duplicate reports could be processed manually.

Rejected documents

The weakness in controls over rejected documents primarily involved time cards which were rejected by the computer because they did not meet the requirements for processing. Initially the time cards and other documents were subject to batch control totals and to supervisory review to ensure that the data was properly entered and processed. After being rejected by the computer, however, the data was corrected and reentered by the same employee who corrected the document without being reviewed or made subject to batch controls.

Although our review showed no irregularities resulting from this weakness, the lack of controls over rejected documents could be especially critical with respect to time cards. For example, employees having access to these documents could increase the number of hours shown on their own time cards or otherwise change pertinent data to result in higher pay for themselves or others. We discussed this matter with center officials who told us that supervisory reviews of selected document corrections would be made prior to reentering the data into the system. They told us also that a control being instituted provided for the pay of center employees to be test checked and for any unexplained variances to be questioned.

REPORTING

The payroll system was centralized in 1961. Since that time the Department has not effectively determined whether the reports produced by the payroll system and furnished to its agencies are needed or used. Our review and a review by the Department's Office of the Inspector General (OIG) in 1968 showed that numerous reports were being furnished to agencies which did not need or use them. Because resources used to produce the reports are wasted if the reports are not used, we believe that the Department should periodically review the need for and the use made of the reports produced by the center.

Our interviews with officials at 16 field offices showed that many of the reports they received from the center were not being used and that report needs varied from

office to office, although the offices may have been within the same agency. For example, at two of the four personnel offices we visited, the monthly report entitled "Report of Retirements" was not being used. Also a biweekly report entitled "Position Organization Listing" was not being used at two of these offices. Officials at one of the personnel offices told us that only one of the 13 reports they received from the center was needed.

The 1968 OIG audit showed that, of the 79 reports included in its review, 41 were not being used by some of the offices receiving them. For example, the audit showed that, at four of the 15 personnel offices visited, a semiannual report entitled "Summary of Promotions for Past Six Months," was not being used and that a quarterly report entitled "Roster of Employees" was not needed or used at eight of the 15 personnel offices.

The OIG audit report recommended that the Department require that all constituent agencies survey and report annually on their needs for payroll and personnel reports. Although this recommendation was not specifically adopted, the center mailed questionnaires in October 1968 to the recipients of each of the reports requesting that the users evaluate the need for the reports and suggest improvements. Only a few questionnaires were returned and the survey was not pursued further. The survey did not result in the center's making any changes in the number and type of reports it produced.

In our opinion, it is important that the Department periodically evaluate the reports produced by the system and furnished to the agencies to determine whether the reports are needed and are used to contribute to effective management. Department officials told us that they would analyze reporting requirements with the objective of putting the reporting activity on a more effective basis.

RECOMMENDATIONS TO THE SECRETARY OF AGRICULTURE

To strengthen management controls over the payroll system, the Secretary should provide for

- proper segregation of duties between the programming and computer operations of the system,
- current documentation for the primary system to facilitate future revisions and management review,
- an adequate and safe backup system for emergency use in case the primary system is destroyed,
- more effective programs to improve control over certain transactions,
- supervisory review of manual pay operations to ensure that established procedures are properly implemented,
- adequate controls over incoming and rejected documents to ensure that all documents that are received at the center and all documents that are rejected by the computer are properly corrected before being reentered into the system, and
- a periodic review of agency reporting needs and the usefulness of the reports produced by the payroll system.

Copies of this report are available from the U. S. General Accounting Office, Room 6417, 441 G Street, N W., Washington, D.C., 20548.

Copies are provided without charge to Members of Congress, congressional committee staff members, Government officials, members of the press, college libraries, faculty members and students. The price to the general public is \$1.00 a copy. Orders should be accompanied by cash or check.