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Need For Improvements In The Automated Payroll System Of The Department Of Housing And Urban Development

**UNITED STATES
GENERAL ACCOUNTING OFFICE**

FGMSD-75-31

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JUNE 18, 1975



UNITED STATES GENERAL ACCOUNTING OFFICE
WASHINGTON, D.C. 20548

DIVISION OF FINANCIAL AND
GENERAL MANAGEMENT STUDIES

B-115363

The Honorable
The Secretary of Housing and
Urban Development 23

Dear Madam Secretary:

This report describes the need for improvements in the automated payroll system of your Department.

We have discussed our findings in this report with members of your staff, including representatives of the Office of the Inspector General, Office of Finance and Accounting, Office of Personnel, Office of Automatic Data Processing Operations, and Office of Automatic Data Processing Systems Development. We were told that a new payroll system was being designed and was expected to be operational in April 1976. We have not reviewed the new payroll system but were assured by members of your staff that the weaknesses we identified in the existing system will be corrected in the new system.

When the design of your new system is completed, you should submit it, preferably before implementation, to the Comptroller General for approval, pursuant to the Budget and Accounting Act of 1950.

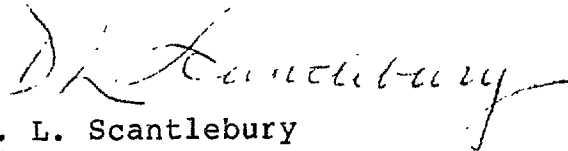
We invite your attention to the fact that this report contains recommendations to you which are set forth on pages 11, 15, 22, 25, and 29. As you know, section 236 of the Legislative Reorganization Act of 1970 requires the head of a Federal agency to submit a written statement on actions taken on our recommendations to the House and Senate Committees on Government Operations not later than 60 days after the date of the report and the House and Senate Committees on Appropriations with the agency's first request for appropriations made more than 60 days after the date of the report.

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✓ We are sending copies of this report to those four committees and to your Inspector General and Assistant Secretary for Administration. Copies are also being sent to the Director, Office of Management and Budget; the House Committee on Banking and Currency; and the Senate Committee on Banking, Housing, and Urban Affairs.

Sincerely yours,



D. L. Scantlebury
Director

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ABBREVIATIONS

HUD	Department of Housing and Urban Development
GAO	General Accounting Office

GENERAL ACCOUNTING OFFICE
REPORT TO THE SECRETARY OF
HOUSING AND URBAN DEVELOPMENT

NEED FOR IMPROVEMENTS IN THE
AUTOMATED PAYROLL SYSTEM OF THE
DEPARTMENT OF HOUSING
AND URBAN DEVELOPMENT

D I G E S T

WHY THE REVIEW WAS MADE

GAO reviewed the automated computer payroll system used by the Department of Housing and Urban Development (HUD) to

- determine whether it could be relied on to produce an accurate payroll and
- identify existing control weaknesses, particularly in the automated part of the system, which should be corrected and incorporated in the new payroll system currently being designed.

FINDINGS AND CONCLUSIONS

A number of errors and overpayments, disclosed by both GAO and HUD, were found in the Department's pay system. Although these were not large, the errors show that additional basic controls are needed to safeguard the proper disbursement of money.

Controls are especially important in an automated system because the computer normally does the work previously performed by several individuals. The safeguards and cross-checking traditionally afforded through separation of duties among employees are minimized in automated systems.

Counting and controlling the number of records to be processed (record counts), developing arithmetic totals to compare input data with processed data (predetermined control totals), checking the validity or accuracy of data within the computer (edit checks), restricting

access to the computer room and computer programs, and implementing an effective internal audit are the types of controls needed to make sure that no documents are added or lost during processing and that errors or irregularities are detected and corrected before checks are issued.

Examples of errors found were that

- paychecks were issued to persons not entitled to receive pay; i.e., to employees who had not worked, had separated, or had died (see p. 8);
- employees received duplicate paychecks (see p. 19);
- employees were paid the wrong amounts (see pp. 9 and 21);
- leave was being accrued at an incorrect rate (see p. 10); and
- withholding information was reported to the Internal Revenue Service under a nonexistent or dummy social security number (see p. 17).

Duties of payroll and personnel office employees were not adequately separated nor was access to computer programs within the Office of Automatic Data Processing Operations restricted to help reduce the risk of unauthorized change or manipulation. (See pp. 13 to 15 and 24 and 25.)

To demonstrate the risk involved where controls were missing or ineffective, we entered simulated documents into the computer and showed that existing control procedures would not prevent us--or HUD employees--from

- arbitrarily increasing or decreasing employees' sick and annual leave balances (see p. 14);
- increasing annual salary rates by amounts up to \$9,999 and processing payments based on these incorrect rates (see p. 14);
- giving an employee a step increase before he was eligible (see p. 15);
- reactivating an employee's inactive pay record, preparing the information necessary to issue a paycheck, and altering year-to-date totals concealing evidence that such a check had ever been issued (see p. 20); and
- introducing invalid and erroneous information into the computer system for processing (see pp. 23 and 24).

The controls in a well-designed system would normally be expected to prevent these actions from producing incorrect paychecks or other erroneous results or, as a minimum, identify these items for management review.

HUD corrected the major control weaknesses revealed in the existing system. Other weaknesses GAO revealed will be corrected in the design of HUD's new payroll system that is scheduled to become operational in April 1976.

RECOMMENDATIONS

The Secretary of Housing and Urban Development should make sure that

- the new payroll system does not have the weaknesses in automated controls that are in the existing payroll system and which are discussed in the body of this report (see pp. 11, 15, 16, 22, and 25) and

--the internal auditors (1) monitor the design of the new payroll system to help insure that adequate controls and audit trails are established in the system and (2) review the system on a continuing basis after it becomes operational to help insure that the controls remain effective (see p. 29).

AGENCY ACTIONS AND UNRESOLVED ISSUES

HUD officials generally agreed with GAO's recommendations and are correcting in the design of the new payroll system the specific control weaknesses discussed in this report. HUD expects this system to become operational in April 1976. (See pp. 12, 16, 22, and 26.)

HUD's Office of Inspector General agreed to actively monitor the design of the new payroll system and to review it on a continuing basis after it becomes operational. (See p. 29.)

HUD plans to submit the new system to GAO about October 1975 for design approval so that GAO can evaluate (1) the adequacy of the internal controls and (2) whether the system meets other requirements prescribed by the GAO Policy and Procedures Manual for Guidance of Federal Agencies.

CHAPTER 1

INTRODUCTION

The Department of Housing and Urban Development (HUD) employs about 17,000 people on a full-time basis--3,400 in its headquarters in Washington, D.C., and 13,600 at regional and field offices throughout the United States. HUD processes its payroll on a central computer system located in its headquarters. The 1973 payroll totaled about \$267 million.

The computer system was originally developed by the Federal Housing Administration in 1963 and was modified in 1967 for use in all HUD offices. HUD is currently designing a new automated payroll system which should provide greater efficiency and internal control. This new system, which is called terminally operated personnel payroll system, is expected to become operational in April 1976.

Under the existing payroll system, HUD's regional administrative staffs provide personnel services to field employees. Local timekeepers keep track of each employee's hours worked and sick and annual leave taken. Each timekeeper's work is reviewed and approved by supervisory personnel before the recorded information is submitted by each field office to headquarters for computer processing. The regional administrative staffs prepare and send the necessary personnel information to headquarters for computer processing.

The headquarters personnel and payroll offices provide similar services to HUD's headquarters' employees and process the HUD-wide payroll. These offices are also responsible for reviewing for accuracy, the outputs of biweekly computer processing.

GAO has established basic standards for Federal payroll systems. These standards require that all entitled employees receive prompt and accurate salary payments and that the agency maintain reliable payroll records. To meet these basic requirements, HUD's system should contain sufficient controls to insure an effective automated payroll system.

The controls in HUD's automated payroll need strengthening to help make sure that the biweekly payroll is accurate and reliable. Controls are especially important in an automated system because computers normally do the work previously done by several individuals. As a result, the safeguards and cross-checking afforded through separation of duties are minimized. In manual systems, experienced payroll clerks intuitively recognize errors and irregularities; however, controls and checks must be built into a computer system for it to detect errors or irregularities. Therefore it is important that computer programs contain both comprehensive instructions for processing transactions and effective programmed controls or checks for recognizing and rejecting errors or irregularities. Because many instances of computer abuse have become evident in recent years, managers should be increasingly concerned about this need for better controls.

PURPOSE OF REVIEW

Under the Budget and Accounting Act of 1950, GAO is responsible for reviewing executive agency accounting systems to determine whether these systems conform to the accounting principles, standards, and related requirements prescribed by the Comptroller General. The act also provides that these systems, when found adequate, be approved by the Comptroller General. GAO's approval is given in two steps.

1. A statement of accounting principles and standards is approved.
2. The design of the accounting system is approved.

Later, GAO reviews the operating system to see if the approved system has been implemented and if it is serving management needs.

A statement of accounting principles and standards and a general design for HUD's accounting system were approved in 1968 and 1970, respectively. The design for the payroll segment of HUD's system, which is the subject of this report, had not been submitted to GAO for review.

The objective of our review was to determine whether (1) HUD had designed and carried out the existing automated

payroll system in accordance with the accounting principles and standards prescribed by the Comptroller General, (2) the manual and automated controls in HUD's payroll system were adequate to insure that all entitled persons were paid appropriate amounts, and (3) the system produced accurate and reliable personnel and payroll records. We were interested in identifying any existing control weaknesses, particularly in the automated part of the system, which should be corrected and incorporated in the new payroll system, currently being designed.

We concentrated our review on evaluating system operating procedures and computer controls. It included a review of the system's design, an evaluation of manual personnel and payroll procedures, a test of programmed controls, and a computer analysis of information in the automated personnel and payroll files. Our review covered procedures and controls in effect during fiscal year 1974.

CHAPTER 2

IMPROVED CONTROLS NEEDED OVER SOURCE DOCUMENTS

HUD's procedures for controlling the preparation and processing of time and attendance records, personnel actions, and payroll change documents containing information needed to calculate employee leave and earnings are not effective. For example, time and attendance reports are not accounted for and predetermined control totals are not developed over important payroll data to help make sure that reports or information are not added or lost during computer processing. As a result, HUD does not have adequate insurance that source documents are properly prepared and processed and that persons entitled to receive pay are paid the proper amounts.

Numerous errors had been made in preparing source documents for computer processing. Although some errors were detected and corrected, others were processed, which resulted in payments to employees not entitled to receive pay, payments in the wrong amounts to employees, and accrual of one employee's leave at an incorrect rate.

--In 1973, 211 checks totaling \$53,200 were returned to HUD after being issued to employees not eligible to receive the pay.

--In a test of 30 of 1,300 separated-employee files we identified 1 employee who had been overpaid \$859 in severance pay.

--In another test of 64 of 1,507 pay records, we found 1 employee was accruing leave at an incorrect rate.

Because of ineffective source document controls, similar errors could go undetected and erroneous paychecks could be issued that might never be returned.

IMPORTANCE OF SOURCE DOCUMENT CONTROLS

GAO standards for Federal payroll systems require that systematic control procedures be applied to all source documents containing information used by the computer to calculate employees' earnings, benefits, deductions, and

net pay. Controls are needed to insure that

--no documents are added or lost during processing and

--errors and irregularities in preparing and processing information contained on these documents are detected and corrected before checks are issued.

Systematic control procedures should be applied to time and attendance reports, payroll changes, and personnel actions. Time and attendance reports are used to report hours worked and leave taken. Payroll changes are used to post pay entitlement rates and manually computed pay amounts to employee master computer payroll records. Personnel actions are used to create employee records on the automated personnel and payroll master files and to update and delete pay entitlement data on employee records.

Methods for providing control of
time and attendance and payroll change reports

There is a relatively simple method to control time and attendance and payroll change reports. There are two steps to this method. The first is to count the number of reports created and compare this number with corresponding totals derived after each processing operation. This will insure that no reports are added or lost during processing. Such a control is particularly important in HUD's system because the computer issues biweekly paychecks to active employees for 80 hours' regular work although no time and attendance reports are submitted for processing. A computer listing is produced identifying employees paid without a time and attendance report processed through the computer. To prevent issuing paychecks to employees who are in a nonpay status, it is necessary that accurately prepared time and attendance cards be processed.

The second step is to develop an arithmetic total for one or more quantitative fields of information on a source document and compare it with corresponding totals derived after each processing operation. For example, totals could be derived by adding the hours worked and leave taken, as shown on page 6.

ILLUSTRATIVE TIME AND ATTENDANCE CARDS

NAME	SOCIAL SECURITY NUMBER	HOURS WORKED	LEAVE TAKEN
Able, John Q.	906-40-4211	40	0
Baker, Peter F.	935-40-5621	36	4
Smith, Clyde N.	943-72-5482	48	0
Tango, Joe D.	924-07-1019	0	40

CONTROL TOTALS - - - 124 44

By comparing these control totals with the corresponding totals derived during processing, management has additional insurance that no documents were added or lost and that the information on the source documents was processed. GAO standards suggest that, to provide adequate controls, control totals be developed on social security numbers, number of employees, hourly rate, normal gross pay, deductions, and all the time and attendance input.

IMPROVED CONTROLS NEEDED FOR TIME AND ATTENDANCE RECORDS

HUD has no adequate control for making sure that the proper number of time and attendance reports are received from timekeepers prior to biweekly payroll processing.

HUD uses two types of time and attendance reports--an optical character recognition report and a standard 80-column punched card. Information on the optical character recognition report is read directly into the computer by

use of optical character recognition equipment. Information on the punched-card reports is keypunched onto the card so the computer can read and process the data.

As part of biweekly payroll processing, the computer produces preprinted copies of both types of records for all active employees listed on the master payroll file. These preprinted records are distributed to timekeepers for recording hours worked, leave taken, leave without pay, and separations. HUD payroll clerks follow a different procedure for handling optical character recognition records versus punched-card records.

Clerks do not count or record the number of optical character recognition records distributed to timekeepers to be used later for comparison with the number returned by timekeepers. Consequently, clerks have no way of determining whether the proper number of records are returned for processing. Clerks do, however, count the number of optical character recognition documents they send to the computer room. These counts are checked against corresponding totals derived after computer processing. Although this latter procedure helps insure that no documents are lost and that the same number of documents submitted are processed, it does not insure that quantitative information contained in the documents is processed. To obtain this type of insurance, arithmetic totals for quantitative information should be developed and compared with corresponding totals derived during actual processing.

For punched-card time and attendance reports, HUD payroll clerks do not make record counts to determine whether all reports are returned by timekeepers for processing. Although timekeepers provide record counts and arithmetic totals for hours worked and leave taken for each batch of records returned, payroll clerks do not use these totals for control purposes. Instead, they develop different arithmetic control totals of hours worked and leave taken by organization code and payroll block. These totals are compared with corresponding totals after computer processing. This procedure is followed because it enables clerks to check

their own work. Although some measure of control is achieved, the procedure is not fully effective because:

- Payroll clerks are permitted to verify their own work, which reduces control afforded through separation of duties. We found that some payroll clerks changed their arithmetic totals without resolving discrepancies, to agree with computer prepared totals.
- Payroll clerks' arithmetic control totals are compared with corresponding totals after a check issue tape has been sent to the Treasury disbursing office. If any errors are detected through this comparison, corrections are delayed until the following pay period because the checks have already been issued.

HUD's records for calendar year 1973 show that 211 paychecks were returned after being issued to persons not entitled to receive pay. They included

- 94 checks totaling \$21,700 issued to separated employees,
- 78 checks totaling \$16,800 issued to employees who had not worked, and
- 39 checks totaling \$14,700 issued to former employees who had died.

Agency officials said that these errors could have resulted from failure to process time and attendance reports through the computer or from processing improperly coded time and attendance reports. In our opinion, controls over source documents could have helped prevent the issuance of these paychecks. The lack of a systematic procedure for controlling time and attendance source documents precludes HUD from having positive evidence that payments are made only to entitled employees.

IMPROVED CONTROLS NEEDED
FOR PAYROLL CHANGE RECORDS

HUD's procedures do not insure that payroll changes are properly prepared and processed before paychecks are issued.

The procedure of clerks' reviewing each transaction after payroll processing is completed is not fully effective or efficient because:

- It does not provide for error detection before checks are issued.
- Correction of errors after checks are issued requires extra effort because another change record must be prepared and processed and employees must be billed to recover any overpayments.
- Visual verification of payroll transactions is not fully reliable for detecting errors. Reliability tends to decrease as the number of changes increases. At HUD, as many as 1,800 payroll changes have been processed in 1 pay period.
- Transactions are verified by the same payroll clerk who prepares and processes the change.

Written payroll changes are prepared by payroll clerks and sent to a contractor for keypunching onto standard 80-column cards. When payroll change documents and related punched cards are returned, payroll clerks verify that they have received all the payroll change documents. However, no arithmetic totals are developed to verify that all information is correctly keypunched or that the information is subsequently processed through the computer.

Numerous errors in transcribing and processing data have resulted in erroneous payments. For example, in 1 pay period, HUD failed to process 300 payroll changes. This omission was not detected until after the erroneous paychecks were issued. Corrections had to be made.

In our test of 30 of 1,300 separated-employee files, we found that 1 employee had been overpaid \$859 in severance pay. The amount had been properly calculated in a regional office but was incorrectly transcribed and entered into the automated payroll system. This error was not caught by visual verification. We brought the error to HUD's attention, and the former employee was billed for the overpayment.

Use of arithmetic controls would, in our opinion, detect similar errors and would require less time than visual verification.

NEED TO REDUCE MULTIPLE-TRANSCRIPTION OF
PERSONNEL ACTIONS

HUD's method for entering personnel action information into the computer has resulted in numerous errors. As a result, erroneous data has been entered into the master records and used in computing employee benefits and earnings.

At HUD information on personnel actions is transcribed several times before it is in computer readable form. It is first transcribed from the original documents onto coding sheets, next onto paper tape, then onto punched cards, and finally onto magnetic tape. Each of these steps is subject to human error. To identify errors, personnel clerks visually compare the source documents with a computer listing of the information recorded by it on the personnel file. In a special 14-month test, HUD clerks found 5,700 errors. These errors were caused by failure to enter all data from the source documents coding sheets and by mistakes in key-punching data from the coding sheets onto paper tape.

To find out whether errors had been processed undetected, we made a special analysis testing the accuracy of pay entitlement information contained in the master payroll records. We evaluated the reasonableness of employees' sick and annual leave balances by comparing current balances with totals employees could have earned based on their date of birth and service computation dates recorded on the master payroll records. With a special computer program, we identified 1,507 employees with leave balances greater than, equal to, or as high as 80 percent of, the amount of leave that could have been earned. We reviewed 64 of the 1,507 cases in detail.

--Leave data was correct in 54 cases.

--Erroneous dates of birth or service computation dates were entered on master records in nine cases. As a result, one employee was accruing leave at an incorrect rate; his leave record showed less annual leave than

he was entitled to receive. Four other employees had not been credited with up to 2 years' Federal service. Errors in the four remaining cases had not yet caused an adverse effect.

--One service computation date was omitted without any adverse effect.

We provided HUD with a listing of the 1,507 cases and it agreed to follow up.

These types of errors would have less chance of occurring if the system were designed to minimize the number of times that input data is transcribed before it is computer processed.

CONCLUSIONS

HUD's current procedures and controls for handling payroll source documents are inadequate for minimizing errors and insuring proper preparation and processing of all required input documents. Controls should be expanded and strengthened to help reduce errors and to help produce more accurate and reliable records.

RECOMMENDATIONS TO THE SECRETARY OF HOUSING AND URBAN DEVELOPMENT

We recommend that, to help provide positive evidence that personnel and payroll data are properly entered into the system and accurately processed, action be taken to insure that the new payroll system, when implemented, will provide for

- maintaining record counts over time and attendance and payroll change records;
- maintaining predetermined arithmetic control totals for social security number, number of employees, hourly rate, normal gross pay, deductions, and all the time and attendance input; and
- minimizing the number of times information from personnel actions or other source documents is transcribed for computer processing.

AGENCY ACTIONS

HUD officials informed us that punched-card time and attendance reports were no longer being used and the optical character recognition time and attendance reports were being used exclusively to report hours worked and leave taken. In converting to the exclusive use of optical character recognition reports, a system of record counts was established to help insure that no documents were added or lost during processing.

HUD officials advised us that in the new terminally operated personnel payroll system

- payroll changes will be entered on a daily basis for computer processing via terminals and that strict controls will be established over terminal operations;
- a comprehensive system of predetermined control totals will be included in the system design; and
- information from source documents will be transcribed to a code sheet and then entered from the code sheet, via a terminal, into the computer for processing.

CHAPTER 3

DUTIES OF PAYROLL AND PERSONNEL EMPLOYEES

NEED TO BE SEPARATED

The HUD Payroll Office is permitted to perform all phases of a transaction, except adding a person to the payroll, without the intervention of the Personnel Office as a cross-check. For example, the Payroll Office Staff is permitted to change both pay entitlement and summary payroll information recorded in the master pay record. Pay entitlement information includes the employee's basic pay rate, leave balance, and step-increase eligibility. Summary payroll information includes year-to-date totals of gross pay, deductions, and net pay. Since these duties are not separated among different offices, it would be possible for a payroll clerk to issue a bogus check and to conceal it by altering the master pay record.

GAO's standards for Federal payroll systems provide that responsibility for duties should be appropriately separated to provide proper internal checks on performance and to minimize opportunities for carrying out unauthorized or otherwise irregular acts.

HUD'S PROCEDURES DO NOT PROVIDE FOR ADEQUATE SEPARATION OF DUTIES

It is sometimes necessary to manually calculate pay entitlement rates and the amounts paid to employees because an unusual circumstance precludes automatic computer processing. For example, when retired Federal employees are rehired by HUD, the correct pay entitlement rate is manually determined because the basic annual salary rate is reduced by the amount of the employee's annuity. Other circumstances requiring manual pay calculations are error corrections, retroactive salary amounts, lump-sum separation allowances, and exceptionally large overtime payments. Frequently, instead of processing the manually computed payments through the regular computer payroll cycle, a special supplemental form is sent to the Treasury disbursing office to pay the employee. This latter procedure is also followed if the

employee's master pay record has not yet been established on the computer file.

When HUD's payroll transactions are processed during the regular biweekly cycle, details are automatically posted to the year-to-date totals and the net pay amount is recorded on a tape which is sent to the Treasury disbursing office for issuance of a check. However, when pay computations have to be made manually and a special supplemental form is sent to the Treasury disbursing office to effect payment, payroll clerks subsequently post details to year-to-date totals by processing a payroll change document.

HUD payroll clerks making these manual pay calculations also keep time and attendance records, see that the payroll is processed, review and correct errors and exceptions, and manually post the computed data to employee master payroll records. Because all the actions required to pay the employee are handled by one office, a clerk could, for example, increase an employee's pay entitlement rate and have the computer system issue a larger check than an employee is entitled to. The clerk could later correct the pay entitlement rate and alter the year-to-date totals in the employee's payroll record to show the issuance of a normal payment. Although the results of these actions would be reflected on various reports, verification is usually done by that same clerk.

To further demonstrate hazards in permitting the same office to change pay entitlement rates, alter year-to-date totals, and control payroll processing, we prepared a "test deck" of simulated payroll transactions and processed them through HUD's system. This was to determine whether the system had controls that would reject erroneous data. Without rejecting or identifying it for later management review, the computer system permitted us to

- arbitrarily increase or decrease employees' sick and annual leave balances,
- increase employees' annual salary rates by amounts up to \$9,999 and process payments based on these amounts, and

--give one employee a step increase before he was eligible.

Our simulated transactions included time and attendance and payroll change records containing invalid and erroneous information. We used the same types of documents, manual payroll procedures, and computer programs HUD used to process a payroll. Instead of using HUD's "live" computer files, we created copies of the personnel and payroll files for use in our tests.

CONCLUSIONS

At HUD, the duties involved in establishing pay entitlements and processing the regular biweekly payroll need to be adequately separated to help reduce the risk of unauthorized payroll manipulation. In addition, the payroll system should include suitable control features to insure that all payments are properly included in the year-to-date totals in the master payroll records. To the maximum extent possible, manually computed payments should be processed through the computer for automatic recording in the computerized payroll file. When separate manual payments are necessary, positive controls outside the computer are needed to insure that details are posted to the proper records.

RECOMMENDATIONS TO THE SECRETARY OF HOUSING AND URBAN DEVELOPMENT

We recommend that, to help provide adequate separation of duties and to improve control over manually computed payments, action be taken to insure that when the new system is implemented:

- The Personnel Office will have sole responsibility for initiating and entering pay entitlement rates into the payroll records. The Payroll Office should not be permitted to perform these functions.
- All changes or updates made to year-to-date totals as a result of separate manual pay calculations or any other calculations made outside the normal bi-weekly payroll process will be processed through the

computer as a separate run. Subsequent reviews should be made by individuals other than those who initiated the transactions.

- A temporary payroll record should be established on the automated payroll file for new employees who do not yet have permanent records established. This procedure would preclude the need for separate manual calculations and would permit the employees' pay to be processed and controlled through the computer during the regular biweekly cycle.

AGENCY ACTIONS

HUD officials told us that when the new terminally operated personnel payroll system is implemented:

- Only the Personnel Office will be permitted to enter pay entitlement rates into the payroll records.
- Updates to year-to-date totals will be made separately from normal biweekly payroll processing.
- A skeleton master payroll record showing a minimum of about eight items of information will be established when an employee is hired to permit the employee's pay to be processed and controlled through the computer. The system will continually request additional information until all items needed for a permanent master pay record have been entered into the computer.

CHAPTER 4

CONTROLS OVER COMPUTER PROCESSING

AND RECORD MAINTENANCE NEED IMPROVEMENT

HUD's system uses two basic files--the personnel and payroll files--to record and process payroll transactions. Personnel data needed to compute employee leave and earnings is transferred from the personnel file to the payroll file. This makes it important that the personnel data be accurate and promptly posted in the payroll file.

We found errors in the information recorded on the payroll master file. Some of these errors resulted in overpayments. In one case, inaccurate withholding information was reported to the Internal Revenue Service.

We also found that separated-employee records were kept on the active master payroll file until the end of a calendar year, to facilitate preparation of tax withholding statements. Usually separated-employee records are promptly removed from the active file, to reduce the possibility of processing transactions on an inactive file.

NEED FOR BETTER CONTROL OVER USE OF DUMMY SOCIAL SECURITY NUMBERS

HUD's payroll system uses social security numbers to identify and pay employees. The computer will not process a pay action unless a social security number is recorded on the master payroll file. To pay new employees who do not yet have a social security number, dummy numbers are assigned and recorded on the master file.

We evaluated HUD's procedures for handling dummy social security numbers by reviewing those numbers on the payroll file as of December 5, 1973. We found that one employee had quit before obtaining a valid number. As a result, his earnings and taxes withheld were reported to the Internal Revenue Service under the dummy number. No formal procedures were established or followed to preclude reporting payroll information to outside agencies under incorrect social security numbers.

NEED FOR BETTER CONTROL OVER
PROCESSING OF SEPARATION NOTICES

HUD has not established adequate controls to insure that employee separation notices are promptly recorded in the master payroll file. As a result, overpayments have been made.

When an employee is separated, prompt action is necessary in recording this action in both the master personnel and payroll files to stop further salary payments. Prompt action is particularly important in HUD's system because an employee is automatically issued a paycheck for 80 hours of work, unless an appropriate document is prepared and processed stopping such a payment for an employee in nonpay status.

At HUD, the Personnel Office prepares and processes a personnel action record through the computer to record an employee's separation on the master personnel file. The computer deletes the separating-employee's record from the personnel file and transfers it to an historical personnel file. The computer, however, does not delete the separating-employee's record from the payroll file during this process. Instead, the Personnel Office prepares another document and sends it to the Payroll Office for processing. The Personnel Office does not have a control to determine whether the Payroll Office receives or processes these separation notices.

We compared personnel and payroll files for one pay period, to determine whether any separated employees remained on the payroll file. We found 81 names that appeared on the master payroll file twice. We gave HUD the complete list for review. Our detailed audit of 13 cases showed:

- In eight cases, the names were properly recorded. Several employees had the same name and they were properly recorded and identified by different social security numbers.

--In five cases, the same employee was listed on the file twice but under different social security numbers. Four employees had received duplicate payments for up to five pay periods and were overpaid a total of \$3,600. These five employees appeared on the file twice because their records initially had been recorded under incorrect social security numbers. To correct the files, HUD separated the employee under the incorrect social security number and rehired him under the correct social security number. In correcting the social security numbers the records showing the incorrect numbers were not deleted from the payroll file. HUD was attempting to collect \$300 which was still outstanding.

Payroll officials said that the computer was not programed to automatically record an employee's separation on both master files because a separation code had to be entered in the pay record. This action would preclude automated issuance of the employee's last check. We believe posting could be done automatically by recording a temporary separation code in the master pay record. This temporary code could be replaced by a final separation code after the employee's last check had been issued.

NEED TO REMOVE OR SEGREGATE
SEPARATED-EMPLOYEE'S RECORD FROM
THE ACTIVE PAYROLL MASTER FILE

Normally an employee's pay record is either segregated by means of special codes or removed from the active master payroll file when he separates. This is a well-established procedure in many payroll systems because it reduces the possibility of processing transactions against a separated-employee's record.

In HUD's system, separated-employee records are removed from the master personnel file and transferred to an historical file. However, the separated-employee records are retained on the master payroll file until the end of the calendar year, to facilitate preparing income tax withholding statements.

We analyzed the master payroll file as of December 9, 1973, to determine how many inactive records were on the active master pay file. We found over 6,200 inactive records on the file, including

- over 900 records that did not show any employee separation date,
- over 1,300 records of employees who separated between 1969 and 1972, and
- over 3,900 records of employees who separated during 1973.

We gave HUD a list of the inactive records and it agreed to follow up.

To demonstrate the potential hazard of leaving separated-employee records in the master file, we processed simulated transactions against the master payroll file and were able to

- reactivate an employee's record;
- prepare information necessary to issue a check; and
- alter year-to-date totals, thus removing evidence that such a check had ever been issued.

NEED FOR PERIODIC RECONCILIATION OF PERSONNEL AND PAYROLL FILES

Periodic reconciliation of information in the personnel and payroll master files is an effective means for identifying discrepancies and correcting errors. When used on a systematic basis, it can help insure that information is promptly transferred between the files so that only current information is retained for use in calculating earnings and leave.

HUD does not reconcile the information in its personnel and payroll master files because the automated payroll system is not designed to do this. Manual reconciliation is not practicable. However, special computer audit programs, such as those we used for testing the system, are available and can compare data and identify differences in the two files.

To demonstrate the advantages of such a reconciliation, we used a special computer audit program to compare selected items of information contained in the personnel and payroll master files. For one payroll period, we compared social security numbers, grades and steps, and position numbers and found 951 discrepancies. We gave HUD a list of all discrepancies for review. We analyzed 100 discrepancies and found that

- 35 consultants no longer employed by HUD were listed on the payroll file even though they had been deleted from the personnel file;
- 3 employees no longer employed by HUD were listed on the personnel file but not on the payroll file;
- 1 employee was listed as a GS-11/6 on the payroll file and as a GS-11/5 on the personnel file; this employee was incorrectly listed on the payroll as a GS-11/6 for 21 months and as a result, was overpaid \$832, which HUD is attempting to collect;
- 3 employee payroll files included incorrect social security numbers although the correct numbers were listed on the personnel file; and
- 1 record was listed on the payroll file without an employee's name.

The remaining 57 discrepancies resulted from failure to automatically record employee separations on the personnel and payroll files in the same pay period or from using different codes in these files to identify special pay rates, such as for reemployed annuitants.

CONCLUSIONS

Controls over the prompt recording of social security numbers and of employee-separation notices need to be improved. Records for separated employees are not adequately segregated on the active payroll file to preclude the processing of transactions against the separated-employee's records. Also, the personnel and payroll files are not periodically compared to identify discrepancies and inconsistencies for followup and correction of errors.

RECOMMENDATIONS TO THE SECRETARY OF HOUSING
AND URBAN DEVELOPMENT

We recommend that, to help maintain the integrity and improve the reliability of payroll and personnel records, action be taken to insure that when the new system is implemented

- a followup procedure is established by the Personnel Office to insure that all new employees promptly obtain a social security number;
- a systematic procedure is established to remove or segregate, by means of special codes, all separated-employee records from the active payroll file when the employees separate; and
- a systematic procedure is established to periodically reconcile and compare the current personnel and payroll files to automatically detect discrepancies and inconsistencies.

AGENCY ACTIONS

HUD officials said that they would establish a followup procedure to insure that all new employees promptly obtain a social security number.

HUD officials told us that the new system was designed to use a combined personnel and payroll master record and that therefore the possibility for discrepancies between personnel and payroll information would be eliminated.

HUD officials further told us that the new system was designed to prevent manipulation of information in separated-employee master records. A separation code will be put in the employee's master personnel-payroll record at the time he or she separates. This separation code will allow a separated-employee's record to be updated only with details of final personnel and payroll actions, such as a lump-sum leave payment. A separated-employee's file will be reactivated only for other types of transactions through direction of the appropriate Personnel Operations Division in the field or headquarters offices.

CHAPTER 5

NEED FOR MORE EFFECTIVE EDIT CHECKS

AND BETTER CONTROL OVER COMPUTER PROGRAMS

Computers operate by a set of instructions referred to as a program. Computer programs should include instructions necessary to calculate employees' pay as well as edits or controls to insure that information being entered is correct. Since the programs actually control and process payroll information and calculate pay, access to these programs is usually restricted to prevent unauthorized changes.

Edit checks and controls in HUD's payroll programs are limited and not as effective as they should be. Consequently, the computer will accept erroneous and invalid data. Also, HUD does not adequately restrict access to its payroll computer programs and related documentation.

NEED FOR BETTER EDIT CHECKS

To evaluate the effectiveness of present edit checks in HUD's payroll computer programs, we created and processed through the computer a test deck of simulated time and attendance, payroll change, and personnel action reports containing various combinations of incomplete, incorrect, and invalid information. To see if these transactions would be rejected by HUD edits, we processed the test deck against a copy of HUD's master personnel and payroll files. The following resulted.

- The computer accepted personnel actions containing invalid (1) office codes, (2) position codes, (3) birth dates, and (4) annual salaries as high as \$99,900 with incompatible GS grades and steps.
- The computer processed payroll changes that contained basic rates of pay which did not correspond with the GS grade and step. In one case we paid a GS-4, step 5, \$9,999 a year more than he was entitled to.

- The computer accepted an invalid Combined Federal Campaign code and withheld a \$99.99 biweekly deduction from the employee's check.
- The computer accepted an invalid union dues code and withheld a \$99.99 biweekly deduction from the employee's check.
- The computer recorded an invalid health benefit enrollment code, an invalid registration number, and invalid employee and agency deduction amounts.
- The computer accepted an invalid bond cost code and deducted an invalid amount from the employee's check.
- The computer processed a time and attendance report for 80 hours of holiday pay.
- The computer processed a time and attendance report for 80 hours of Sunday pay, even though an employee is limited by law (FPM 990-2) to 32 hours in a biweekly pay period.

Some, but not all, of these errors or inconsistencies were identified on exception lists. It is significant that all the incorrect data was accepted into the computer for use in further processing. Although it is important to print error messages when incorrect information is identified, edit checks can be put into computer programs to identify and reject the above types of invalid information. Errors identified are usually printed out for correction and reentry into the system.

NEED FOR IMPROVED CONTROLS OVER COMPUTER PROGRAMS

Generally, it is an accepted standard practice for computer programs, related operating instructions, and program documentation to be kept in a library and issued to authorized persons only when needed. Operating instructions are usually kept separate from program documentation needed for making changes to the programs. Changes to programs are usually further controlled by a process of review and approval.

At HUD, the payroll computer programs are stored in the IBM 1401 computer room¹ along with the operating instructions and program documentation. Consequently computer operators have unlimited access to computer programs, program documentation, and payroll information used in the biweekly processing. HUD computer center personnel said they stored the payroll computer programs in the computer room because the tape library was on a different floor and it was inconvenient for computer operators to get the programs.

CONCLUSIONS

The edit checks built into HUD's payroll programs are too few and are ineffective. The computer will accept almost any kind of incorrect or invalid data. It is important for errors to be identified and corrected as early as possible in the processing cycle; otherwise, they may result in incorrect payments to employees.

Access to computer programs is not adequately restricted to minimize the possibility of unauthorized changes.

RECOMMENDATIONS TO THE SECRETARY OF HOUSING AND URBAN DEVELOPMENT

We recommend that, to help insure that only valid and accurate payroll data is accepted and processed by the computer, necessary action be taken to insure that the new payroll system includes sufficient edit checks to reject from further processing those time and attendance, payroll, and personnel change records containing invalid or incorrect data.

We recommend that, to help reduce the possibility of unauthorized changes to computer programs, computer program tapes and card decks be removed from the computer room and stored in a library for release to authorized persons when required for processing.

¹HUD has two computer rooms, one for its IBM 1401/7074 computer system and a second for its UNIVAC 1106 computer system. The programs and data files used in the UNIVAC 1106 computer system are stored in and controlled by a library.

AGENCY ACTIONS

HUD officials told us that the design of the new payroll system included extensive edit checks to reject from further processing the time and attendance, payroll, and personnel change records containing invalid or incorrect data.

HUD officials also told us that they were in the process of refurbishing the computer room to provide for improved security over the computer system and files. Program documentation is not available or allowed in the computer center, and source program files will be obtainable on request by authorized personnel only.

CHAPTER 6

OPPORTUNITIES FOR IMPROVING INTERNAL AUDIT OF THE AUTOMATED PAYROLL SYSTEM

The Office of Inspector General has made limited audits of the automated portions of the payroll system. Its internal auditors have made audits which have concentrated on evaluating the controls over preparing and entering information for computer processing and over computer outputs. It has not, however, thoroughly tested controls in programs used to compute pay amounts. The Inspector General's staff has not actively monitored the design and development of HUD's new payroll system.

Section 113 of the Accounting and Auditing Act of 1950 (31 U.S.C. 66a) requires the head of each executive agency to establish and maintain systems of accounting and internal controls, including internal audit, to provide effective control and accountability over all funds, property, and other assets for which the agency is responsible.

In planning the scope of our audit, we reviewed the most recent internal payroll audit completed by the Office of Inspector General in January 1973. This audit covered the manual payroll procedures, controls, and tests of the validity and accuracy of selected individual pay entitlements and transactions. The audit, however, did not evaluate the controls in the automated portions of the system. In discussing the internal audit coverage of payroll operations, HUD officials told us that the internal auditors had previously reviewed the system and had issued a report in August 1968. This report discussed controls over preparing personnel and payroll data for computer processing, computer outputs, and computer edit checks of personnel and payroll input data. The report did not discuss the controls included in computer programs used to compute pay amounts. The internal auditors concluded that the payroll system's manual and machine controls were adequate for insuring the accuracy of computation and propriety of payroll transactions.

The Office of Inspector General said that it expected to concentrate on reviews of automatic data processing controls during fiscal year 1974. For example, in a February 1973 survey report on HUD's automatic data processing operations, the Office of Inspector General identified audit areas including (1) production control and scheduling, (2) equipment use, (3) automatic data processing contractual agreements, (4) input-output controls, (5) documentation controls, (6) Automatic Data Processing Services Management Advisory Committee activities, and (7) supply procurement practices.

Our review of computer program controls in HUD's automated payroll system, as discussed in previous chapters of this report, showed that they need to be improved.

A 1974 GAO publication entitled "Internal Auditing In Federal Agencies" states that internal audit staffs should be involved in the design of new systems, particularly automated ones, so they can make suggestions before the systems are put into effect. Internal audit participation in the design effort helps to insure that adequate controls are established in the system and helps to avoid costly changes after a new system has been installed.

Representatives of the Office of Inspector General have not actively participated in designing and developing HUD's new payroll system. Their participation is essential to make certain that computer control deficiencies in the existing system are corrected in the new system's design.

CONCLUSIONS

In our opinion, many of the problems with the existing system could be prevented from recurring in the new system if the HUD internal auditors would devote part of their effort to seeing that effective controls are provided for in the design of the new system.

RECOMMENDATIONS TO THE SECRETARY OF HOUSING
AND URBAN DEVELOPMENT

We recommend that the Office of Inspector General (1) monitor the design of the new payroll system to help insure that adequate controls and audit trails are established in the system and (2) review the system on a continuing basis after it becomes operational to help insure that the controls remain effective.

AGENCY ACTIONS

Officials of the Office of Inspector General told us that they would review the controls in the design of the new payroll system and that they would review the system on a continuing basis after it is implemented.

PRINCIPAL OFFICIALS OF THE
DEPARTMENT OF HOUSING AND URBAN DEVELOPMENT
RESPONSIBLE FOR ADMINISTERING ACTIVITIES
DISCUSSED IN THIS REPORT

	<u>Tenure of office</u>	
	<u>From</u>	<u>To</u>
SECRETARY OF HOUSING AND URBAN DEVELOPMENT:		
George W. Romney	Jan. 1969	Feb. 1973
James T. Lynn	Feb. 1973	Feb. 1975
James L. Mitchell (acting)	Feb. 1975	Mar. 1975
Carla A. Hills	Mar. 1975	Present
ASSISTANT SECRETARY FOR ADMINISTRATION:		
Harry T. Morley	Mar. 1972	June 1973
Vincent J. Hearing (acting)	June 1973	Oct. 1973
W. Boyd Christensen	Oct. 1973	May 1974
Thomas G. Cody	May 1974	Present
INSPECTOR GENERAL:		
Charles G. Haynes	Jan. 1972	Present

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