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UNITED STATES GENERAL ACCOUNTING OFFICE
WASHINGTON, D C   20548

RESOURCES AND ECONOMIC
DEVELOPMENT DIVISION

NOV 2 8 1973

Mr. Kenneth E. Frick
Executive Vice President
Commodity Credit Corporation
Department of Agriculture

Dear Mr. Frick

In connection with our financial audit of the Commodity Credit
Corporation, we surveyed controls over the processing of data on the
Corporation's grain inventory through the Department of Agriculture's
automated data processing (ADP) system at Kansas City, Missouri. We
reviewed control guidelines, interviewed officials concerning com-
puter operations, reviewed system documentation, tested controls over
computer program changes, and inspected computer facilities.

SYSTEM OPERATIONS AND CONTROLS

Three departmental offices are responsible for operating seg-
ments of the system. The Agricultural Stabilization and Conserva-
tion Service's Prairie Village, Kansas, Commodity Office, located
near Kansas City, prepares and maintains computer programs for
directing processing operations. That agency's Data Systems Field
Office in Kansas City maintains the control cards for instructing
the computer and converts original data into machine-readable form.
The Department's Office of Information Systems Computer Center in
Kansas City then processes the data through its computer and retains
control of magnetic tapes on which the data is recorded.

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

--the machines,

--the machine programs,

--the system personnel,

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--the data entering the system,

--the processing of the data in the system, and

--the end products produced by the system.

Generally, the controls built or programmed into the Kansas City computer system were adequate. Management controls over certain manual aspects of the system, however, need to be strengthened to increase their efficiency and effectiveness and to minimize the possibility of improper manipulation of information thereby lessening the potential for irregularities. Our survey showed that better controls were needed to provide for

--current documentation of revisions and timely updating of the basic computer tapes,

--restricted access to computer data and instructions, and

--greater security of backup data files.

A discussion of these matters follows.

BEST DOCUMENT AVAILABLE

NEED FOR CURRENT DOCUMENTATION
AND TIMELY UPDATING

The Prairie Village Commodity Office did not integrate program revisions into basic computer tapes in a timely manner and did not always maintain documentation to support program revisions. 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 to understand and review the system and, in the absence of the original programmer(s), facilitates making program changes or reprogramming efforts to improve machine efficiency.

Computer programs for directing data processing operations generally consisted of control decks, program run books, and basic ADP tapes supplemented by sets of revision cards.

Control decks of punched cards contain certain control totals and instruct the computer on how to read into memory the computer programs--usually recorded on magnetic tape. Revision cards inserted into a control deck are then used to modify a program stored in the computer.

Program run books provide basic program information, such as narrative descriptions of program objectives, flow charts, and diagrams of the logic or reasoning for the program steps. Revision cards provide instructions for changes to the basic computer tapes and should be supported by documentation in the run books. Computer programs are difficult to revise if such changes are not adequately documented.

Our survey showed that some of the control decks contained numerous revision cards—some were several years old—which had not been integrated into the basic computer tapes and that documentation in support of some of the revisions was not available. If these undocumented revision cards should be lost, altered, or mutilated, the computer program could yield erroneous results regarding inventory transactions and could provide defective control over inventories.

Recommendation

We recommend that program revisions be integrated into basic computer tapes at reasonable intervals and that supporting documentation be systematically maintained.

NEED FOR RESTRICTED ACCESS TO COMPUTER DATA AND INSTRUCTIONS   BEST DOCUMENT AVAILABLE

The Kansas City Data Systems Field Office did not restrict access by programmers to the control decks of punched cards. One of the 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 Kansas City Data Systems Field Office can nullify the effectiveness of all other system controls, both machine and manual. In the Department's ADP system, the duties of the programmers and the persons who maintain the control decks of cards for instructing the computer are separate and distinct organizationally—the

programmers are employees of the Prairie Village Commodity Office, the persons who maintain the control decks of cards are employees of the Kansas City Data Systems Field Office. In actual practice, however, programmers of the Prairie Village Commodity Office have access to the control decks maintained by the Kansas City Data Systems Field Office.

We found that the programmers were routinely adding revision cards to the control decks. We did not find any instance, however, where programmers had altered or manipulated the data or instructions to the computer.

Recommendation

We recommend that, to strengthen internal control, access by programmers to the control decks of punched cards maintained by the Kansas City Data Systems Field Office be restricted.

NEED FOR GREATER SECURITY OF BACKUP DATA FILES

The Kansas City Office of Information Systems Computer Center did not provide for adequate security of backup data files. To prevent loss of data in the event of a fire or other disaster in the confines of the computer room, the computer center creates and stores duplicates of tapes containing computer programs and master files. Backup programs are important in a computerized system to provide for the continuation of the computer operations in the event the primary system is destroyed. The backup programs and master files should therefore be stored at a location away from the primary system so that they would survive any destruction of the primary system.

The Kansas City Office of Information Systems Computer Center stored its duplicate programs and master files in safes near the computer room.

Our survey disclosed that once the voluminous transactions have entered the records which constitute the master computer files, detailed transaction files and related detailed listings are not retained for any great length of time. Therefore, we believe that if master files were destroyed reconstructing them to a current state through reexecution of the steps of data collection, data validation, and computer file updates, would be difficult and might be impossible.
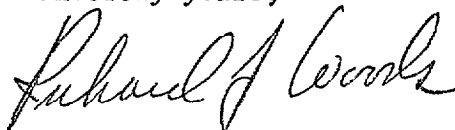
Recommendation

To improve the security of data and related programs, we recommend that arrangements be made with the Director, Office of Information Systems, to have the neces ary files stored where they would not be susceptible to damage. destruction, or to a period of inaccessibility, incidental to damage to or destruction of the computer facility and adjacent areas.

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We appreciate the courtesies and cooperation given to our representatives during the survey and would appreciate being advised of the actions taken on our recommendations. Copies of this letter are being furnished to the Director, Office of Information Systems, and the Inspector General, Department of Agriculture.

Sincerely yours,

Richard J. Woods
Assistant Director