

DOCUMENT RESUME

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Cooperative Actions Result in More Economical Computer Acquisition and Improved Security at the New Orleans Computer Center. LCD-77-118; B-146864. December 23, 1977. 21 pp. + 3 appendices (15 pp.).

Report to Rep. Jack Brooks, Chairman, House Committee on Government Operations; by Elmer B. Staats, Comptroller General.

Issue Area: Automatic Data Processing; User Requirements and Systems Specifications for Software (105); Federal Records Management (1400); Federal Procurement of Goods and Services; Definition of Performance Requirements in Relation to Need of the Procuring Agency (1902).

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Congressional Relevance: House Committee on Government Operations; Senate Committee on Agriculture, Nutrition, and Forestry.

Authority: Privacy Act of 1974.

The Department of Agriculture was remiss in not following prescribed procedures for acquiring a computer system which was needed at its New Orleans Computer Center. However, the agency's cooperation with GAO has enabled the acquisition to proceed with resultant savings to the Government of about \$7.5 million. The cooperation also helped to establish a new software conversion method which may achieve additional savings.

Findings/Conclusions: The large volume of personnel records and the \$2 billion of financial transactions that flow through the New Orleans Computer Center and the National Finance Center annually were found to be vulnerable to manipulation, making strengthening of security at the centers the paramount consideration. Exposure of these records could result in violations of the Privacy Act of 1974 and financial losses to the Government. Recommendations: The Secretary of Agriculture should: agree with the General Services Administration to purchase the new computer system through the Automatic Data Processing Revolving Fund; document the new computer system acquisition to facilitate monitoring and evaluating the proposed method for handling software conversion; report to the Chairman of the House Committee on Government Operations, the Administrator of General Services, and GAO on experience in using the proposed method of effecting program conversion and the results achieved; and reevaluate the security program of the New Orleans Computer Center and the National Finance Center to assure that all needed safeguards are implemented before the new computer system becomes fully operational. (Author/SC)

*REPORT TO THE HOUSE COMMITTEE  
ON GOVERNMENT OPERATIONS  
BY THE COMPTROLLER GENERAL  
OF THE UNITED STATES*

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**Cooperative Actions Result In  
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Computer Center**

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Agriculture has begun to correct security deficiencies noted in GAO's review. Meanwhile, the New Orleans Center's security program should be reevaluated to insure that the controls needed to safeguard personal data and financial operations are planned for use when the system becomes fully operational.

04537





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

B-146864

The Honorable Jack Brooks  
Chairman, Committee on  
Government Operations  
House of Representatives

Dear Mr. Chairman:

Your January 17, 1976, letter requested that we review the Department of Agriculture's plans to upgrade equipment at its five computer centers and that we determine whether the procurements were justified and should have been conducted noncompetitively.

We have previously reported on proposed procurements for the Washington, St. Louis, Kansas City, Fort Collins, and New Orleans Computer Centers. The previous report on the New Orleans Computer Center covered a planned noncompetitive upgrade which was canceled at the time of our review. This report covers the Department's proposal to competitively procure a new computer system at that location. It also includes for your information a Comptroller General Decision B-189752 and B-190222, November 29, 1977, concerning a protest of the competitive procurement by the Burroughs Corporation. (See app. II.)

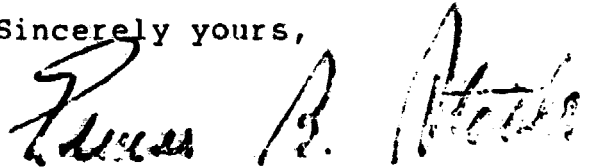
While this report completes your requested reviews, we plan to report to the Congress on our evaluation of the application of the new method for handling software conversions in procurements discussed in the report. We feel the new method has potential for improving competition in other computer acquisitions.

At your request, we did not take the additional time needed to obtain written agency comments. The matters covered in the report, however, were discussed with agency officials, and their comments are incorporated where appropriate.

During these several reviews, we have worked closely with your staff. Their advice and assistance were most helpful in analyzing the computer procurements. If you desire, we could brief you on the overall results of our evaluations of the important automatic data processing issues affecting the Department of Agriculture.

As arranged with your office, we are sending copies of this report to the Chairmen of the Senate Committee on Governmental Affairs and its Subcommittee on Reports, Accounting, and Management; the Senate Committee on Agriculture, Nutrition, and Forestry; and the Subcommittees on Agriculture and Related Agencies of the Senate and House Committees on Appropriations; the Acting Director, Office of Management and Budget; the Secretary of Agriculture; and the Administrator of General Services. Copies will also be available to other interested parties who request them.

Sincerely yours,

A handwritten signature in black ink, appearing to read "James B. Atchafalua". The signature is written in a cursive style with a large, prominent initial "J".

Comptroller General  
of the United States

D I G E E T

The Department of Agriculture's proposed computer system for its New Orleans Computer Center is needed to handle the center's increasing workload. However, in planning to acquire the system, the Department substantially overstated the center's workload and planned to lease the system, even though analysis showed that purchase was more economical.

GAO worked with Agriculture officials to reduce workload estimates to a more realistic level and to revise the acquisition plan to allow for purchasing the new system.

In addition, the Department's plans for handling the software conversion requirements associated with the acquisition were inconsistent with Federal Management Circular 74-5 and congressional guidance. (See p. 3.)

As a result, a new method for handling software conversion was jointly developed by GAO and Agriculture. This action should allow freer competition and an opportunity for the agency to award the conversion to the offeror submitting the most advantageous proposal based upon price and technical considerations.

These actions should save the Government at least \$7.5 million during the life of the new system. (See pp. 5 and 8.)

Security at the New Orleans Computer Center and the National Finance Center needs to be improved before the computer system becomes fully operational.

The safeguards used in automatic data processing operations are presently inadequate to assure confidentiality of personal data as required by the Privacy Act of 1974 and

to protect the financial operations of the Finance Center. (See p. 12.)

Security deficiencies existed in the physical, technical, and administrative controls employed at the center. GAO discussed them with Agriculture officials who concurred with GAO's observations. These officials have begun to correct deficiencies and to prepare a new security plan. (See pp. 13, 14, 17, and 19.)

While Agriculture was remiss in not following prescribed computer system acquisition procedures, its cooperation with GAO has enabled the acquisition to proceed with the incorporated modifications. (See p. 20.)

Strengthening security at the centers is paramount because the large volume of personnel records and the \$2 billion in financial transactions which pass through the centers are vulnerable to manipulation. Exposure of these records could result in violations of the Privacy Act of 1974 and financial losses to Government. (See p. 20.)

GAO recommendations on which these constructive actions are based will be found on page 20.

GAO will review and evaluate Agriculture's report on the conversion effort and will transmit its appraisal to the Congress.

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## ABBREVIATIONS

ADP	automatic data processing
ADS	Office of Automated Data Systems
ANSI	American National Standards Institute
ARS	Agricultural Research Service
COBOL	Common business oriented language
FIPS	Federal Information Processing Standard
FORTRAN	Formula translator
GAO	General Accounting Office
IBM	International Business Machines Corporation



## GLOSSARY

This glossary defines terms that may not be defined in the text. Items in brackets [ ] specify the context in which the terms apply.

<u>Access</u> [data file]	The ability to communicate with (input to or receive output from), approach, or make use of. Data access is often categorized by combinations of read, write, or execute.
<u>Benchmark</u>	A procedure for evaluating and measuring the performance of computers relative to each other. Computer selection may partially be based on performance time and cost of executing benchmark problems.
<u>Central processing unit</u> [CPU]	That part of a computing system that contains the circuits for interpreting and executing instructions. The CPU includes the control and arithmetic units and an internal storage area.
<u>COBOL</u>	( <u>C</u> ommon <u>B</u> usiness <u>O</u> riented <u>L</u> anguage)  A higher-level language used in business data processing to express data manipulation and processing problems in an English narrative form. The intention of the language is to directly present any business problem to any suitable computer.
<u>Code</u>	An ordered list or lists of successive instructions which will cause a computer to perform a particular process.
<u>Command</u>	A code used to represent specific operations which may be or will be performed by a computer.
<u>Conversion</u> [application software]	Changing existing application software to an acceptable form for a different hardware system. Work involved is substantially minimized by the use of higher-level languages.

<u>Data file</u>	A collection of related records arranged according to a key which is contained in each record. In payroll processing, for instance, a group of items relating to one employee form a record, and all of an employee's records form a file.
<u>Data terminal</u>	A hardware unit which permits input and output from one location to another other than the central computer room.
<u>Encryption</u>	The process of coding information to conceal its meaning; to make plain text unintelligible.
<u>FORTRAN</u>	(Formula Translator)  A high-level language designed to facilitate preparing computer programs which are used to perform mathematical computations.
<u>Higher-level language</u>	A programming language which is independent of the limitations of a specific computer. Such languages adapt the computer to the needs of the programmer.
<u>Integrity</u> <u>[computer program]</u>	Assurance that under all conditions a specific program will work as intended. Integrity involves reliability (fraud and error) and security (resource and privacy protection) problems.
<u>Interactive mode</u>	Operating a computer so that the user has intimate control of his work and may make modifications or enter data between execution steps.
<u>Online processing</u>	Pertaining to fast-response realtime computer processing, which obtains data from an activity or a process, performs computations, and returns a response rapidly enough to control, direct, or influence the outcome of the activity or process.

Preprocessing

To edit data prior to processing. For example, to edit input data to be used in a computer run.

Random accessing  
[data files]

Pertaining to a storage device whose access time is not significantly affected by the location of the data to be accessed; thus, any item of data which is stored online can be accessed within a relatively short time.

Regression analysis

A statistical method used to study the relationship between variables in the hope that any relationship that is found can be used in making predictions of a particular variable.

Remote batch  
processing

A technique in which items to be processed are collected into groups (batched) for processing from a location away from the central computer room using a terminal.

Table

A collection of data, usually arranged in an array where each item in the array is uniquely identifiable by some label or by its relative position. Items in a table are easier to locate or identify and so provide a ready reference.

## CHAPTER 1

### INTRODUCTION

On January 17, 1976, the Chairman of the House Committee on Government Operations requested that we review a series of proposed computer system acquisitions for five U. S. Department of Agriculture computer service centers. The acquisitions, three of which were to be noncompetitive, were for replacement computer systems for the centers. The chairman requested that we determine whether Agriculture could justify the replacements and whether they had to be made noncompetitively. (See app. I.)

One of the computer systems which was to be acquired noncompetitively was for the New Orleans Computer Center. It was to be leased in November 1976 to provide the center with sufficient data processing capacity until January 1978 when Agriculture planned to have a new, competitively acquired computer system operational.

We reviewed the proposed interim acquisition as requested and found no immediate need for a replacement system. Subsequently, Agriculture agreed to suspend the interim acquisition and began to plan for the competitive acquisition. In December 1976, we reported these matters to the chairman (LCD-77-101, Dec. 1, 1976). We also informed him that we were continuing our review of Agriculture's plan for the competitive acquisition and agreed to report the results to him at a later date. This report is our response to that agreement.

### THE NEW ORLEANS COMPUTER CENTER

The New Orleans Computer Center is one of five regional centers operated and managed by the Department of Agriculture's Office of Automated Data Systems (ADS). The New Orleans Center provides data processing support almost exclusively to the Department's National Finance Center. The Finance Center's current workload includes Agriculture's payroll and personnel, administrative payments and collections, and pilot central accounting systems. Other computer users include the Animal and Plant Health Inspection Service, the Office of Audit, the Soil Conservation Service, and the computer center itself, which uses some of its own resources for internal management. This data processing support is cost reimbursable to users. The computer center is equipped with one IBM-360/65 computer and two IBM-7080s. In addition, one IBM-360/40 and two IBM-1401s provide support to the IBM-360/65 and IBM-7080 systems.

## COMPUTER ACQUISITION CRITERIA

Federal Management Circular 74-5, July 30, 1974, prescribes policies and procedures for agencies to follow in acquiring automatic data processing (ADP) equipment. Some of the Circular's requirements, applicable to the proposed procurement, include:

- The need for new equipment shall be based on well-documented general systems and/or feasibility studies.
- A comparative cost analysis of alternative methods of acquiring equipment is to be made to determine which alternative is least costly.
- Procurement, including conversion costs, must be handled to avoid undue biases or predispositions which may prejudice open competition.
- Conversion costs may be considered in selecting equipment to the extent that such costs are clearly essential to continuing agency needs, taking into account the probable economic life of the resources to be converted. Due consideration must also be given to the possibility of redesigning current systems and software. Furthermore, the bases for such conversion cost must be clearly delineated in the solicitation documentation.

Agencies are required to fully document all the above considerations.

## CHAPTER 2

### SAVINGS ACCOMPLISHED THROUGH PROCUREMENT REVISIONS

The Department of Agriculture's proposed new computer system for its New Orleans Computer Center is needed to allow the center to continue processing its increasing workload. However, in preparing for the acquisition, the Department (1) substantially overstated the center's workload and (2) planned to lease the new system although its analysis showed that purchase would be more economical. Furthermore, the Department's plans for handling the software conversion requirements associated with the acquisitions were inconsistent with Federal Management Circular 74-5 and congressional guidance.

We presented these matters to Agriculture officials and worked with them to reduce workload estimates to a more realistic level and to revise the acquisition plan to allow for purchasing the new system. In addition, we jointly developed an approach for handling application (programs) software conversion which should result in freer competition and give the Department the opportunity to award the conversion to the offeror submitting the most advantageous proposal based upon price and technical considerations. These actions, which are discussed below, should save the Government at least \$7.5 million during the life of the new system.

### NEED FOR NEW COMPUTER SYSTEM

The New Orleans Computer Center needs a new computer system because current systems will be incapable of processing anticipated workload beyond early 1978.

In order to process current workload, the center operates its systems 21 shifts a week at near capacity. The center has made numerous systems enhancements to process that workload. The enhancements made to the IBM 360/65 system have enabled it to generate about 300 productive hours 1/ a month. Such productivity is far above previous estimates of this computer system's capabilities.

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1/ Computer time available for processing user workloads after providing system maintenance and computer operating overhead. All references to productive hours in this report are stated in IBM 360/65 equivalents.

The applications currently being processed on the IBM 360/65 are slated for major growth over the next 3 years. New applications are being added to the administrative payments and collections system. In addition, the central accounting system for the Department is scheduled for full operation during this period.

The IBM 360/65 cannot accommodate this anticipated growth. Both the payroll and personnel system and the administrative payments and collections system are tightly integrated internally. Both will also be integrated with the central accounting system when it is fully operational. Consequently, processing portions of these systems at another Department computer service center, to avoid an upgrade, is not practical.

The IBM 7080 and the IBM 1401 computers, which are used to operate the department's payroll and personnel systems, are outmoded models which have not been in production since 1964. The first models were marketed in 1961 and 1960, respectively. Currently, these computers are experiencing substantial downtime due to maintenance problems. In addition, IBM has announced discontinuance of maintenance support for the IBM 7080 by December 1979. For these reasons, Agriculture believes that the old system must be replaced by later model equipment.

ADJUSTED WORKLOAD ESTIMATES MAY SAVE ABOUT  
\$1.6 MILLION IN COMPUTER ACQUISITION COSTS

In October 1976 the Office of Automated Data Systems completed a requirements analysis for the proposed competitive computer system acquisition. Our evaluation of that analysis showed that the workload was substantially overstated. We reduced the workload estimate by about 27 percent, as shown in the table that follows.

Revisions to Workload Requirements  
(Average monthly productive hours)

<u>Users</u>	<u>Initial projection</u>	<u>Revised projection</u>	<u>Reduction</u>	<u>Percentage of total initial projection</u>
National Finance Center	653	519	134	15.1
Agricultural Research Service	82	0	82	9.2
Animal and Plant Health Inspection Service	39	a/30	9	1.0
Other users	<u>110</u>	<u>91</u>	<u>19</u>	<u>2.1</u>
Total	<u>884</u>	<u>640</u>	<u>244</u>	<u>27.4</u>

a/This projection may be reduced by an additional 22 hours if the Animal and Plant Health Inspection Service retains its plan to acquire minicomputers to process its applications.

We estimated that the overstatement would have resulted in additional equipment procurement cost of about \$1.6 million over the 6-year life of the computer system. The estimate represents the difference between the cost of the 884 workload hours projected by ADS and the revised projection of 640 hours. The cost of the hours was computed by using an industrywide average cost of equipment associated with 1 hour of computer time.

Workload estimate not based on system studies

Overstatements of workload occurred primarily because ADS did not adhere to the computer acquisition policies and procedures prescribed by Federal Management Circular 74-5. Specifically, ADS and the system users did not document their determinations of need based on the results of general systems and/or feasibility studies. We found that ADS had requested that users provide estimates of anticipated workload either in terms of productive computer hours or in work requirements which may be converted to computer hours. It did not require that users support their estimates but accepted written and oral statements of need.



ADS officials told us that they followed this practice because they believed that users could best estimate their workload requirements. This approach, which appropriately recognized user responsibility for identifying needs, did not provide assurances that workload estimates were realistic. It did permit overstatements of estimates which were to be included in the analysis. These overstatements are disclosed below.

In reviewing workload projections of the National Finance Center, the largest user, we found that the projections were not supported by any analytical study. The projections were estimates which were based on invalid computer production rates and inflated base workload requirements. Further, the projections did not predict how many productive computer hours would be needed on the anticipated implementation dates of some applications but instead assumed that the entire workload for such applications would exist on the first day of the new computer system's life. We found that the use of these factors resulted in an overstatement of the Finance Center's workload requirements. The overstatement could have been disclosed had ADS required the Finance Center to document the projections.

After discussing the inadequacies with ADS officials, we worked with them to decrease their workload estimates by 15 percent.

Other users also were unable to provide documented studies for workload projections they furnished to ADS. ADS, in its October 1976 requirements analysis, had stated that two of those users' requirements were "intuitively concluded." We found that requirements were overstated for the New Orleans Computer Center which uses the computer for administrative purposes. We worked with ADS on these user requirements and effected an overall reduction of about 19 hours, 2 percent of the projected workload.

We also found that ADS included in its workload projections approximately 100 computer hours per month 1/ for Agricultural Research Service applications which were being processed or planned for processing at other computer facilities. These applications, which were being processed at the ADS Washington Computer Center, were included without

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1/Represents the peak number of hours projected for these applications. This appears as 82 average hours on p. 5.

ADS determining, through appropriate study, whether transfer and processing of ARS applications to the New Orleans Computer Center would be more economical.

ADS used inappropriate techniques to develop projections

ADS employed inappropriate techniques in converting some user workload estimates to computer requirements and in preparing overall computer requirement projections.

ADS computed payroll and personnel computer requirements by comparing IBM-7080 wall clock hours required to process these applications to the internal speed 1/ of an IBM-370/168 central processor. Using this logic, ADS estimated that 250 productive hours 2/ monthly would be needed to process these applications when they are fully operational. No valid relationship exists between wall clock hours and internal computer speeds, especially when comparing two different types of computer. ADS's revised assessment of payroll and personnel requirements concluded that a maximum of 162 hours 3/ monthly would be adequate to process these applications.

ADS also inappropriately applied a regression analysis projection in an attempt to provide additional support for its overall requirement projections. The ADS projection, which was a maximum of approximately 1,000 productive hours monthly, had not been adjusted for this particular situation which involved rapid growth during the projection base period, which did not reflect future growth. ADS's final projection of a maximum of 726 4/ productive hours monthly, which was compiled by analyzing individual workload segments, underscores the deficiencies of this analysis.

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1/Speed at which a central processing unit can execute commands.

2/Represents the peak number of hours projected for these applications. This number is included in the 653 average hour projection on p. 5.

3/Represents the peak number of hours projected for these applications. This number is included in the 519 average hour projection on p. 5.

4/Represents the peak number of hours projected for these applications. This appears as 640 average hours on p. 5.

## OVER \$5.9 MILLION WILL BE SAVED BY PURCHASING COMPUTER SYSTEM

ADS planned to lease the new computer system for 5 years although its lease/purchase analysis showed purchase was more economical. According to ADS officials the decision to lease the system was made because Departmental funds were not available, and General Services Administration officials who oversee the ADP Revolving Fund, indicated that they would not give ADS a commitment to purchase the system through that fund.

We found that by purchasing the system and extending its economic life to 8 years, <sup>1/</sup> the Government could save about \$9.5 million over the life of the system. After discussing extension of the system's life with ADS officials, we concurred on the use of a 6-year economic life based on the official's belief that they could not readily project the system's workload beyond that time. Using the 6-year life, we computed Government savings of over \$5.9 million for the system life.

General Services Administration officials told us on November 23, 1976, that the ADP Revolving Fund had sufficient funds available to purchase the system. As a result, they have agreed to purchase of the system. ADS was investigating this purchase alternative.

## NEW METHOD FOR SOFTWARE CONVERSION

Operating the new computer system will require converting approximately 1 million lines of program code. This coding is primarily written in the IBM version of COBOL--a common high-level programming language--for processing by the IBM 360/65 computer system. The language will be converted to a version of COBOL that can be processed by the new system. ADS considered this conversion as a cost of acquisition. Therefore, initial planning included conversion costs as an integral part of the computer system solicitation. However, the plan did exclude from this solicitation most of the payroll and personnel system program code which is processed on the IBM computer system because that system will be redesigned rather than simply converted.

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<sup>1/</sup>Government agencies generally use an economic life of 8 years in determining whether to lease or purchase computer systems.

The plan for handling the IBM-360/65 program conversion was not consistent with the guidance provided in Federal Management Circular 74-5 (see pp. 2 and 3) and House Report 94-1746, 94th Congress, 2nd Session (1976) which recommended that conversion costs not be considered in evaluating equipment bids, except for programs that have been converted to standardized higher-level languages. In relation to this procurement, the higher-level languages include only COBOL and FORTRAN, which have been standardized by the American National Standards Institute (ANSI). The Federal Government has adopted COBOL as a Federal Information Processing Standard (FIPS). The program conversion planning was inconsistent in that it (1) did not allow software vendors to compete for the conversion portion of the procurement (This action, in our view, did not constitute the full and free competition required by FMC 74-5.) (2) did not restrict allowable conversion costs to cover programs written in standardized COBOL or FORTRAN, and (3) did not consider programs' remaining useful lives as qualifying factors for including such programs in the conversion proposal. Furthermore, the proposed approach tended to favor the incumbent equipment vendor because the incumbent would be considered, generally, to incur the least conversion costs.

Because of its significance in the competitive procurement process, we worked with ADS to develop a new method for contracting for software conversion as part of the computer system acquisition competition. The method, which is consistent with the cited guidance, is a two phased acquisition. It requires the interested computer equipment vendors to bid on the conversion project as a separate part of their computer equipment proposals. The winning vendor must place its conversion proposal in competition with proposals submitted by software firms in the second phase of the acquisition. The major features and advantages of the new method are listed below.

### Major features

- Conversion would be a "mandatory option" in the competitive procurement of computer equipment. A hardware vendor would have to quote a separate price for the conversion part of the procurement, and Government acceptance of the bid would be optional. All equipment vendors will also be required to offer, as a mandatory option, two persons as conversion monitors. The Government may require these two persons to monitor the conversion even if the conversion is not done by their employer, the equipment vendor.

- After an award for equipment has been made, indicating the targeted computer system is identified, a solicitation document for conversion would be issued to software vendors. At this time, the successful equipment vendor would be allowed to give his "best and final offer" for conversion.
- Application programs, to be considered for conversion in the competitive solicitation, must be written in standard COBOL or FORTRAN languages (FIPS or ANSI). Where both FIPS and ANSI standards exist for the same language, the FIPS standard shall govern. In addition, banning vendor-unique software routines probably is not feasible in the current technical environment. However, when such routines are encountered during the conversion and reprogramming is needed to replace them, such reprogramming shall use only standard-defined language whenever possible.
- When conversion to the new system requires the new vendor to use software routines which are new to the vendor, such use shall be documented because it will eventually affect other system procurements. Such documentation of these routines on a new system will include a trade-off analysis showing the effects of the unique routine (e.g., faster execution or use of less storage space) are sufficient to offset the added effort that will be necessary for the eventual conversion.
- Programs must be needed by the agency. ADS review will confirm this with user agency management.
- Programs must have an economic life equal to or greater than the target computer system's life.
- Programs must be running on the existing computer system at the time the Delegation of Procurement Authority by the General Services Administration is granted.
- Redesign shall be given preference over conversion for portions of the software inventory which are inappropriate for conversion, such as software which was originally written for obsolete hardware systems. Also, analysis by which a redesign decision is made must be documented, and the documentation must be retained.

## Major advantages

- Places Government in a stronger competitive position in which it retains its options.
- Meets Federal policy and regulation requirements.
- Opens competition to both equipment and/or software vendors.
- Considers only real "out-of-pocket" costs in evaluating equipment proposals.
- Establishes firm guidelines as to the proper subjects for conversion.
- Requires Government to think through and develop better plans for conversion.
- Eliminates unfair bias in evaluating equipment proposals which can be attributed to conversion.
- Eliminates software vendors' objections (especially those specializing in conversion), based on their previous exclusions, from submitting an offer on conversion when new computer equipment has been installed.
- Pressures installations to edit their inventories of applications software and documentations.

The General Services Administration has concurred with this new method. The method has been incorporated into the request for proposals for the New Orleans Computer Center's new computer system. Freer competition should result, and the agency will be able to award the conversion to the offeror submitting the most advantageous proposal based upon price and technical considerations. We believe the new method has the potential for achieving substantial savings for the Government.

Because the new approach to software conversion is innovative and has potential advantages, we plan to evaluate its applications in this acquisition to determine if it can be used in other Government computer system acquisitions.

## CHAPTER 3

### NEED TO IMPROVE SECURITY

Security at the New Orleans Computer Center and the National Finance Center needs to be improved before the new computer system becomes operational. Improvements are needed in physical, technical, and administrative controls to assure confidentiality of personal data, as required by the Privacy Act of 1974, and to protect the financial operations of the finance center. Those controls are not now adequate, in our opinion, to provide such assurance and have not been given sufficient consideration by ADS in planning for the new computer system.

#### WHY IMPROVEMENTS ARE NEEDED

The National Finance Center's payroll and personnel system and its administrative payments and collection system process payroll and personnel records for the Department's 130,000 employees and handle financial transactions amounting to almost \$2 billion annually. The center plans to redesign these systems to operate on the new computer system.

The new computer system will feature online processing, remote batch processing, and random accessing of data files with data terminals to update files and to provide inquiry capability. These features will make the data processing operations more sophisticated and the payroll, personnel, and financial systems more vulnerable to manipulation. Extensive use of terminals in an interactive mode will, in addition to making the system more accessible to users, give potential penetrators opportunities to manipulate personnel and financial transactions and associated files to their benefit. To minimize this threat, appropriate physical, technical, and administrative controls are needed for the total system environment.

The data processing operations are now batch-oriented, but terminals with interactive capability are used for pre-processing data, programing, and limited interrogation of certain data files. We found that the safeguards used in these operations are limited and inadequately used. We believe that they are insufficient for present operations and will not provide adequate protection in the more sophisticated environment of the new system unless improvements are made. Security deficiencies we found are discussed below.

## Physical security

Physical security at the New Orleans Computer Center and the National Finance Center is inadequate to prevent unauthorized access to the centers and to specific areas and equipment within the centers. Security is also inadequate to prevent circumvention of internal controls for the purpose of committing acts such as theft, vandalism, tampering with or improper physical access to information. We found that improvements are needed in the guard service and the identification badge system.

### Guard service

The computer and finance centers are enclosed by a 6-foot high wire fence which is guarded at all entrances 24 hours a day. The guards control access to the complex by checking each vehicle for an authorized permit. Employees and visitors entering the complex must have special identification badges. The effectiveness of these controls is dependent solely on the diligence of the guards. Many times we were allowed to enter the complex without proper identification badges and even though our vehicle permit had expired.

No other checkpoints exist after entering the complex. No permanent guards patrol the entrance of the building where the centers are located to recheck identification and to inspect packages and briefcases. No full-time receptionists announce visitors or guide them to appropriate offices. In addition, we noted that electronic devices, such as closed circuit television and intrusion detectors, are not used to monitor the many entrances to the buildings and that secondary door entries remain unlocked during the working day.

The guard service needs to be evaluated as it functions within the facility to determine improvements needed. The evaluation must consider the cost of improvements in relation to the value of the physical assets and information files, the type and sensitivity of personal information maintained or processed about employees, and the potential for penetration of the system by individuals desiring to obtain information or to disrupt processing.

### Identification badge system

Employees and visitors are issued identification badges to control their movements within the computer and finance centers. Employee badges show the employee's photograph and are marked to indicate which employees have access to



computer operations--the only restricted area in the centers. The visitor badge allows access to all but computer operations areas. This includes data terminal as well as financial operations areas.

The effectiveness of the badge control system is dependent upon the willingness of the employees to challenge any individual not displaying proper identification. This is particularly true since no guards or checkpoints exist within the centers. We observed employees on numerous occasions who were not wearing badges. Employee challenges of these people appeared nonexistent. We tested this control system on a number of occasions by walking through operating areas without badges. We were never stopped or challenged.

We further noted that administrative control of employee and visitor identification badges was also ineffective. We found no accounting system for visitor badges, and they could be easily retained after a visit is completed.

The identification badge system needs to be strengthened to become effective. Employee training should be given on challenging procedures, and attention should be given to establishing restricted areas and control points, administrative procedures, and interfacing the system with improved guard services.

### Technical controls

Technical controls include those built into a computer system for data terminal access which limit terminal use privileges and maintain program integrity. Controls were inadequate to perform those functions. In addition, improvements or new controls had not been adequately considered or planned by ADS for the new system.

### Data terminal controls

The present data processing operation uses 126 terminals that have the capability to access data files. Of these, 97 are operated by the National Finance Center while the balance are operated by the Animal and Plant Health Inspection Service and the Soil Conservation Service. The Finance Center's terminals are used for program development, data entry and inquiry, and off-line preprocessing of financial transactions.

We found that the technical controls used in the terminal operations were primarily passwords to activate terminals and a time control to deactivate a terminal when it has not

been used for a period of time. The controls used do not preclude unauthorized access to sensitive data and do not limit the user's capabilities to those functions and data files necessary for completion of work. We found that:

- Data terminals were located in open and unsecured areas. This could permit unauthorized use.
- All terminals accessing the system could be used to read from or write to any data file. Many terminals did not need such broad functional capabilities to perform required work.
- Employees were not restricted as to the data files they could access. They were not restricted to those data files which were necessary to perform their duties.
- File passwords or command codes were not used to restrict access to certain data files.

We reviewed the proposed request for proposals to assess the type of security and privacy controls that would be provided with the new computer system. The proposed request for proposals contained a number of security requirements which, we concluded, were ambiguous and not sufficiently definitive to assure that the system is or can be made suitable for processing sensitive or personal information. For example, the request stated that the contractor would deliver a configuration of high quality and design that has been determined error free by acceptable standards. The request did not define what were considered "acceptable standards," thus subjecting the requirement to many interpretations as to what constitutes adequate offerer response. Another requirement was stated in negative terms: "The system must provide protection \* \* \* to prevent unauthorized use \* \* \*" Such negative requirements should be translated by the offerer into positive criteria which specify what will be done under various conditions. As noted above, this subjects the requirement to a wide range of interpretations.

In addition we found that many security specifications were incomplete in that specified controls were inadequate to accomplish the stated purposes without additional features. For example, one specification required the system to store and maintain tables of program identifiers, access categories, authorized users, and terminal and file passwords in order to control terminal operations. The specification did not provide for protecting the table itself through encryption or other means to prevent unauthorized accessing.

Another specification requires a control to prevent application programs from dumping or printing data from other systems and/or other programs. However, the specification did not require a similar control to prevent a program from dumping data from work areas within the computer's main memory that are assigned to other users. The specifications needed to be rewritten to provide more complete control.

Further, we found that ADS was not planning to require competing vendors to demonstrate the reliability of proposed security features. Without benchmarking those features, the center will not have assurance that the new computer system will have the needed capabilities for developing reasonable protection against unauthorized access to the system and its data files.

### Computer program integrity

Proper control procedures for programmers are needed because programmers have both the technical ability and the opportunity to manipulate the computer system and data files without readily being detected. The controls should isolate the programmers from the system by (1) requiring that all computer programs and program changes be approved, submitted for independent testing and evaluation, and placed on the system under tightly controlled procedures, (2) preventing programmers from operating computer room equipment, and (3) monitoring all programmer activity to include periodic verification of the programs residing on the system files.

We found that controls on the finance and computer center's programmers were practically nonexistent. We noted in our reviews that:

- Programmers were allowed to test their own programs. By not controlling these tests, management is relinquishing an important means of assuring program integrity.
- The computer center had no adequate program for certifying the accuracy or propriety of programs written by programmers. The Finance Center, however, did have established procedures, which were not effectively followed. Programs had not been independently tested to assure that they would do what they were authorized to do and nothing more. Certification procedures consisted mainly of a check to see whether programs met certain standards.

--Schedulers frequently ran production work using programs from the test library rather than from the production library where supposedly "certified" programs are stored.

--Programers were allowed unrestricted access to the computer equipment.

### Administrative controls

Administrative controls consist of management constraints, operational procedures, accountability procedures, and supplemental controls established to provide an acceptable level of protection for sensitive data.

### Key card system

Entry to the computer room housing the primary equipment--the IBM 360/65, the two IBM 7080 computers, and the IBM 360/40--is restricted through use of a magnetic key card system. In order for a key card system to be effective, only persons with a legitimate need to enter the computer room should be issued cards. Furthermore, effective administrative controls must be maintained on outstanding cards.

By reviewing the listing of outstanding key cards, we found that cards had been issued to secretaries, job schedulers, programers, and equipment vendors who did not have legitimate need to enter the computer room freely. We observed that key cards assigned to job schedulers were not personally retained but rather were readily available on a hook for anyone's use. We also found, by examining the listing, that not all key cards were accounted for. This lack of control permitted key cards to be indiscriminately used by persons other than those to whom the key cards are issued.

We also found that there are no controls over entry to the room which houses the IBM 1401 computers which are used to process the payroll and personnel data. Neither locks nor door guards are used to restrict entry to this room. Anyone who enters the complex could enter the room without being challenged.

Administrative controls over the key card system need to be improved to assure that only authorized personnel use them. Further, consideration needs to be given to extending the key card system to the IBM 1401 computer room or to providing other physical controls to protect the IBM 1401.

## Security planning

The New Orleans Computer Center, in cooperation with the National Finance Center and the other users, needs to prepare a new security plan. The plan, which was approved by ADS in February 1977, is inadequate for providing the needed safeguards for the new computer system operations.

The security plan is inadequate primarily because it is based on the operating environment of the computer complex that is going to be replaced and the limited capacity and the technological constraints of the present equipment. Those restrictions limit the types of security controls that the center can implement, and this is reflected in the plan. For example, the plan recognizes that users need to be restricted as to the data files they can access but states that appropriate technical control cannot be implemented under present conditions due to the capacity and capability of the IBM-360/65 system. In lieu of the needed technical control, the plan requires the users to place administrative restrictions on the use of terminals which access sensitive programs or data.

Further, the plan does not adequately provide for safeguards or controls which are not dependent on computer capacity or technology. The plan is generally limited to descriptions of the physical and administrative controls that have been implemented. It does not address the adequacy of those controls nor does it provide for improvement or development of new controls that may be needed to maximize security. For example, the plan does not address the adequacy of the physical access controls, which we found in need of improvement, or the need for secondary controls within the computer and finance centers, such as employing an internal guard service, locking entrances, using detection and monitoring devices, and establishing identification checkpoints.

With the new computer system, the center will have sufficient computer capacity and capabilities. This should enable the center and its users to develop more comprehensive technical controls and should provide an opportunity for improving existing physical and administrative controls and for developing new ones where needed. To do this the center, in conjunction with the users, needs to assess security fully and to begin preparing a new security plan so that improved and new controls will be ready for implementation when the new system becomes operational in 1978.

## Proposed agency actions

We discussed the various security deficiencies with ADS and finance center officials. They concurred with our observations and have initiated actions to correct those deficiencies related to physical security and employee controls that do not require computer capacity in order to be implemented. They have also begun to prepare a new security plan to provide for additional safeguards, including the technical controls that will be needed when the new computer system becomes operational. Further, ADS has revised the security specifications in the proposed request for proposal to incorporate our suggestions and plans to require vendors to benchmark their proposed safeguards.

## CHAPTER 4

### CONCLUSIONS AND RECOMMENDATIONS

#### CONCLUSIONS

The Department of Agriculture was remiss in not adequately following prescribed computer system acquisition procedures. However, its cooperation during our review has enabled its proposed acquisition to proceed with incorporated modifications. This joint effort will result in substantial savings to the Government and in strengthening security for New Orleans Computer Center and National Finance Center operations.

Strengthening security at the centers is paramount. We had found that the large volume of personnel records and the \$2 billion of financial transactions that flow through the centers annually are vulnerable to manipulation. Their exposure could result in violations of the Privacy Act of 1974 and also financial losses to the Government.

While we recognize that improvements have been initiated, we believe that the Department also needs to reevaluate the center's security program before the new computer system becomes fully operational. The reevaluation should examine the total system to assure that the safeguards implemented and planned minimize the risk of loss or misuse of information and also protect assets. The cost of implementing these safeguards should also be considered.

Regarding the new method for handling software cover-  
sion, its adoption and the existing requirement for agencies to use higher-level programming languages could help to resolve the Government-wide problem of sole-source computer system acquisitions caused by agencies writing programs in programming languages which are more readily adaptable to specified manufacturers' computers. Because of this potential and the savings that may be achieved, we plan to monitor and evaluate its application.

#### RECOMMENDATIONS

We recommend that the Secretary of Agriculture:

- Agree with the General Services Administration to purchase the new computer system through the ADP Revolving Fund.

- Document the new computer system acquisition to facilitate monitoring and evaluating the proposed method for handling software conversion. This should include recording discussions and negotiations with various vendors and any interfacing problems that may be encountered during the conversion.
- Report to the Chairman, House Committee on Government Operations, the Administrator of General Services, and us on Agriculture's experience in using the described method of effecting program conversion and the results achieved.
- Reevaluate the security program of the New Orleans Computer Center and the National Finance Center to assure that all needed safeguards are implemented before the new computer system becomes fully operational.



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January 17, 1976

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The Honorable Elmer B. Staats  
 Comptroller General of the United States  
 Washington, D. C. 20548

Dear Elmer:

I remain concerned over the Department of Agriculture's ongoing ADP procurement policies and practices.

In the wake of the cancellation of USDA's major ADP systems procurement, which was designed to replace existing equipment, USDA has commenced a program of upgrading such existing equipment by means of sole-source procurements. To date, noncompetitive upgrades have been announced for USDA's St. Louis and Ft. Collins computer centers. It is believed that similar type upgrades will be initiated at USDA's other three computer centers.

The GAO recently issued a well documented report describing USDA's failure to justify the need for new equipment. I question, therefore, whether data exists upon which USDA can now justify the initiation of this nation-wide upgrade. I am further concerned over the noncompetitive nature of these proposed upgrades.

I would appreciate your reviewing USDA's proposed procurements at their five computer centers with a view to determining whether USDA can now justify the upgrades, and also whether such upgrades need be non-competitive.

Thank you for your assistance in this matter.

Sincerely,



Jack Brooks  
 Chairman

**DECISION**

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

**FILE:** B-189752, B-190222 **DATE:** November 29, 1977

**MATTER OF:** Burroughs Corporation

**DIGEST:**

1. Requirement in RFP that hardware vendors must submit price for mandatory option for software conversion does not constitute unreasonable restriction on competition, because, despite allegation that hardware vendors are being forced into software field, RFP contained no restriction on sub-contracting.
2. Contention that evaluation criteria are misleading, ambiguous and subjective is found to be without merit, because, upon review, criteria adequately advise offerors of manner in which proposals will be evaluated and evaluation of proposals is essentially a subjective judgment.
3. Possibility that ceiling price on award under software solicitation will eliminate competition from software vendors, where purpose of ceiling price is to assure lowest total system cost to Government, does not outweigh requirement that Government obtain its needs at lowest total cost.
4. Competitive advantage of incumbent contractor need not be equalized where advantage does not result from Government preference or unfair action.
5. "Unbalanced Prices" clause in RFP, which was supplemented by list of three criteria which would be utilized to determine if proposal was unbalanced, complies with past GAO decisions that offerors should be advised of standards or guidelines which will be employed in deciding whether prices are unbalanced.
6. Failure to disclose amount of ceiling price which must not be exceeded for offerors under solicitation to be eligible for award is not objectionable because ceiling price is equivalent to Government estimate which will be used to decide reasonableness of prices submitted and there is no requirement that Government estimates be disclosed.

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7. Whether or not contracting officer has made determination under FPR § 1-3.807-3(b) that there is adequate price competition, there is nothing objectionable in requiring cost and pricing data to be submitted with proposals since cited regulation makes it discretionary with contracting officer as to when data will be requested and data will be utilized in deciding whether proposals are unbalanced.
8. Where RFP excludes certain nonallowable software conversion efforts, which will be competed under separate procurement, protest that separate procurement may not result in lowest cost to Government is denied, since overall effect of separate procurements is to increase competition and thereby give Government best opportunity for obtaining lowest cost.

Burroughs Corporation (Burroughs) has protested the award of any contracts under request for proposals (RFP) Nos. 00-77-R-26 and 00-77-P-41 issued by the Department of Agriculture.

RFP 00-77-R-26 is for the procurement of a computer system for the Department of Agriculture Kansas City Computer Center to replace and consolidate the existing computer systems at the Kansas City and the St. Louis Computer Centers. RFP 00-77-R-41 is for the procurement of a computer system at Agriculture's New Orleans Computer Center. Since both protests filed by Burroughs involve the same grounds, they have been consolidated into this single decision.

Both procurements employ a similar method of obtaining the hardware equipment and software conversion effort. An RFP is issued to hardware vendors for the hardware requirements of Agriculture. Also included in the RFP is a mandatory option for the software conversion effort which must be offered by the hardware vendors in order for their proposals to be determined acceptable. The software conversion must be separately priced from the hardware costs. Following the award under the RFP, which is based on technical acceptability and lowest overall cost for both hardware and software conversion, another solicitation is issued to software firms solely for the software conversion effort. After a technical review of the software proposals, either a separate award for the software is made under the second solicitation or the option is exercised under the first solicitation depending on the costs involved. A ceiling price for the software solicitation is obtained by subtracting the low hardware vendor's

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total system cost less its conversion cost from the second low hardware vendor's total system cost. The separate software solicitation will be awarded only if the cost is less than the ceiling price obtained by the above formula. The ceiling price is not disclosed until after the software award.

Burroughs' first basis of protest is that the RFP's utilize a new and unusual contracting technique which could have an adverse impact on Federal competitive bidding and on computer hardware and software vendors. In these procurements, both the hardware requirements and software conversion effort are mandatory items upon which a hardware vendor must submit a proposal. Burroughs argues that this method of procurement does significant violence to the traditional method of procuring computer services. By using this method, Agriculture is forcing a hardware vendor into the software field in order to remain competitive. If a hardware vendor does not desire to become involved in software, the only option is to make a collateral arrangement with a software firm. Burroughs contends this result is contrary to Federal procurement law and regulations, both in letter and spirit.

The reason for this procurement approach, according to the General Services Administration (GSA), which issued a Delegation of Procurement Authority (DPA) to Agriculture approving this manner of procurement, and Agriculture, is to assure the lowest total system cost to the Government. While it is unfortunate if certain hardware vendors forego competing in the procurement because of the mandatory software portion, the inclusion of the requirement is not an unreasonable restriction on competition. Here, as will be discussed infra, the Government is retaining the option as to whether purchasing the entire system from one firm or purchasing components from various suppliers offers the lowest cost to the Government. Moreover, there is no prohibition in the RFP's forbidding hardware vendors from subcontracting the software portion of the procurement if they chose to do so. Accordingly, our Office has no objection to the requirement that a hardware vendor must also offer to perform the software conversion effort.

Burroughs cites a portion of a House Government Operations Committee position paper, entitled "Basic Principles Governing the Management of P.L. 89-306," to support its position that hardware vendors should not be required to propose a conversion effort. The cited portion states:

"Following the procedures prescribed by GAO and GSA in the USDA Kansas City procurement, vendors must be required to bid separately on software conversion. To further assist

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agencies in evaluating realistic software needs and software conversion costs, there is a need to support and adequately fund the Software Conversion Program . . . . By separating software procurement from hardware, the element of undue competitive advantage that might otherwise accrue to a hardware vendor of an in-place system would be eliminated. (Emphasis added.)"

Burroughs asserts that the language, "vendors must be required to bid separately on software conversion," should be interpreted to mean those vendors who choose to bid on software must be required to bid separately on the software conversion. Burroughs contends that realistic software costs will not be obtained by forcing all hardware vendors to bid on conversion costs.

We believe Burroughs' position is a tortured interpretation of the clear meaning of "vendors must." GSA and GAO obtained the same meaning from the phrase as Agriculture did and the congressional committee which issued the position paper was aware of this interpretation and has raised no objection to software being a mandatory option.

Burroughs' second basis of protest is that the evaluation criteria contained in the RFP's are misleading and ambiguous. Paragraph G.7.7 of the RFP's relating to software and data conversion states, in part, "The offer for software and data conversion will be part of the overall evaluation of this proposal." In amendment A-09 to RFP -16, the following question was posed by an offeror and responded to as follows by the contracting officer:

"QUESTION:

- "7. It is our understanding that the technical evaluation section of the Conversion RFP (00-77-R-29), including its points structure, will not be included in the final evaluation of the Hardware RFP (00-77-R-26). The result being that only the price of the Conversion will be evaluated. Furthermore, after the hardware award is made and the target system announced, the winning hardware vendor's response will be evaluated again and at this time the

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technical evaluation, with its concurrent point structure, will be applied. Is this interpretation correct?

"ANSWER:

"7. It is the intent of the Government to fully evaluate the technical proposal of the OEM for conversion prior to award of the hardware RFP. A technical score will be assigned during the hardware evaluation for purposes of future evaluation under the conversion RFP. However, the score will not affect the award of the hardware RFP except that the conversion must be at an acceptable as is level. The price for conversion will be negotiated during overall negotiation of the hardware RFP. After award of the hardware RFP, the only area open to the OEM vendor is a price reduction of his offered cost for conversion."

Burroughs states it desired further clarification of the evaluation criteria and filed a protest letter with the contracting officer concerning the criteria and was advised by the contracting officer that:

"1. The solicitation-evaluation criteria are stated on pages 14 and 15 of RFP-00-77-R-29. The conversion response to the hardware RFP must be in an 'acceptable as is' condition by completion of negotiations and call for best and final.

"2. Only one set of evaluation criteria will be utilized in the two phases of the procurement. The criteria, as already stated, are stated on pages 14 and 15 of RFP-00-77-R-29."

Burroughs argues that the evaluation criteria contained on pages 14 and 15 are totally subjective in nature and, while appropriate for the software portion of the procurement, clearly miss the benchmark evaluation of the hardware portion of the procurement, against which the industry is used to competing.

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The evaluation criteria contained in the RFP for software conversion, which were made a part of the hardware RFP, are as follows:

"SECTION D - EVALUATION AND AWARD FACTORS

"A. Evaluation

- "1. Initial Review. Vendors' proposals will be reviewed first to ascertain if they satisfy all stated requirements. Those proposals that meet all requirements will then be evaluated on the basis of a uniform selection criteria and weighting technique.
- "2. Two-Phase Evaluation. Proposals will be evaluated in two phases, the first on technical and experience factors. The second on the results of Phase I evaluation and on cost. Only those proposals which are judged to be technically qualified in Phase I evaluation will be further evaluated under Phase II.
- "3. Relative Values. Points have been assigned to the selection criteria on Phase I evaluation. During the evaluation process a score will be developed for each proposal by each member of the selection committee. The evaluation process will include a review of each offeror's proposal and a personal interview, if such interview is deemed to be necessary by the Government.

"B. Phase I Evaluation 1. 100 Points

- "1. Personnel Qualifications 30 Points
  - "1.1. Relative experience of the team - 25 points
  - "1.2. Mix of skills of proposed personnel - 5 points
- "2. Experience of Firm and Corporate Management 15 Points
  - "2.1. Degree of general corporate experience - 5 points
  - "2.2. Level of management participation - 5 points
  - "2.3. Quality, extent, depth, and variety of prior experience - 5 points

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- "3. Technical Approach to the Statement of Work 40 Points
- "3.1. Degree of use of conversion aids proposed - 10 points
  - "3.2. Conceptual soundness of approach - 15 points
  - "3.3. Schedule and plan to implement the approach - 10 points
  - "3.4. Use of project management techniques - 5 points
- "4. Responsiveness and thoroughness of Proposal 15 Points
- "4.1. Responsiveness and thoroughness of proposal - 5 points
  - "4.2. Innovative approaches in proposal - 10 points
- "C. Call For Best and Final Offer. All offerors who pass Phase I evaluation will be requested to furnish a 'Best and Final' cost figure for the proposal. Upon receipt of the 'Best and Final' price, the Government will proceed to Phase II evaluation.
- "D. Phase II Evaluation. Each successful offeror submitting a 'Best and Final' offer will have his proposal evaluated using a formula assigning 50 percent weight to the technical portion (Phase I) and 50 percent weight to the cost portion of the proposal. Using the lowest proposal cost as base, the offeror receiving the highest weighted score in Phase II evaluation will be eligible for award pending a preaward survey, if deemed necessary by the Government, and a positive determination of responsibility by the Contracting Officer."

Regarding the contention that the evaluation factors are totally subjective, our Office has always recognized that the evaluation of proposals is essentially a subjective judgment. 52 Comp. Gen. 198, 209 (1972), and Decision Sciences Corporation, B-182558, March 24, 1975, 75-1 CPD 175. Further, we find that the statement in the



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RFP in paragraph G.7.7 and the answer to question 7 in amendment A-09 adequately advised offerors of the manner in which their proposals would be evaluated. When a hardware vendor submitted its proposal, the software portion of the proposal will be evaluated in accordance with the above criteria. However, the score arrived at following this evaluation is not utilized in determining the successful hardware vendor. An offeror's software proposal must be technically acceptable (at an "acceptable as is" level) to be eligible for award consideration. The hardware award is made to the offeror with technically acceptable hardware, determined during a benchmark demonstration, and software who offers the lowest total system cost. Then, during the evaluation of the software RFP, the successful hardware vendor's software score, arrived at during the evaluation under the first RFP, is used to compute the 50-percent technical and 50-percent cost award formula to determine if the software conversion option under the hardware contract should be exercised.

Upon our review, we conclude that the RFP adequately advises offerors of the evaluation factors to be employed and the manner in which the successful offerors will be selected. National Health Services, Inc., B-186186, June 23, 1976, 76-1 CPD 401, the decision cited by Burroughs for the proposition that offerors must be advised of the evaluation factors to be used, is distinguishable from the instant fact situation. In the procurement considered in the cited decision, the agency only advised offerors that award would be based on "price and other factors" and the solicitation did not contain detailed evaluation criteria similar to that quoted above.

Next, Burroughs argues that the ceiling price on the possible award of the second or software RFP will effectively eliminate any meaningful participation by technically competent software vendors. The ceiling price, as noted above, is the difference between the successful hardware vendor's total system cost (hardware and software) less the cost of software conversion and the next low offeror's total system and award will be made under the second solicitation only if the cost is below the established ceiling price. Burroughs states that since conversion prices must be evaluated in the fifth month of the cost evaluation model (thereby incurring a

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high present value factor), Agriculture is encouraging hardware vendors to understate their true conversion costs or bury them in the hardware portion of the proposals. These factors, contends Burroughs, could lead to an unreasonably low ceiling price which would necessitate rejection of otherwise valid software proposals and, therefore, would be unreasonably restrictive of competition.

Interrelated with the above basis of protest are two more separate bases which must be considered together with the ceiling price argument.

First, Burroughs states that the RFP gives an unwarranted advantage to the incumbent contractor because the incumbent's conversion cost will be substantially lower than any other hardware vendor's. Because the incumbent could show the Government that little or no cost would be involved in conversion, subsequent offers by the software industry against the resulting ceiling price would be an academic exercise.

Secondly, Burroughs argues that the unbalanced price criteria contained in RFP -26 and in the answer to question 63 in amendment A-08 are misleading and confusing to offerors and emasculate the concept and understanding of "unbalanced bidding." The RFP contained the following clause at paragraph B.9.3 relating to unbalanced offers:

"B.9.3. Unbalanced Prices

"An offer which is unbalanced as to prices for the basic and optional quantities may be rejected. An unbalanced offer is one which is based on prices significantly less than cost for some systems and/or items and prices which are significantly overstated for the other systems and/or items. In determining an offer which is unbalanced as to prices, the Government will evaluate separate charges, if any, which the Government will incur for failure to exercise the options."

Question 63 and the answer were as follows:

"QUESTION:

"63. How will you determine a proposal to be unbalanced?"

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"ANSWER:

"63. A proposal will be measured as being unbalanced by applying three criteria:

- "a) the Government estimate;
- "b) the historical data submitted by the vendors (conversion only); and
- "c) the competitive range established by all the vendors.

"a) The Government has established an estimate for the performance of the conversion effort. Significant deviation from this estimate will be a reason for deeming a proposal unbalanced.

"b) The historical data submitted by the vendor for conversion will reflect labor rates, overheads, G&A, and other costs incident to the performance of work. Should a vendor drastically reduce a negotiated price without technical support for such reduction he may have his proposal declared unbalanced.

"c) The competitive range is effectively established by the various vendor-participants in the RFP. If a vendor has a significant deviation from the established competitive range for unit as well as total cost the proposal may be declared unbalanced.

"One, two or all three factors may be utilized in determining a proposal to be unbalanced as to prices."

Burroughs argues that vendors do not know if the above three criteria relate to unbalancing between the hardware and software proposals or within the hardware and software proposals. Burroughs concludes by stating that it does not see any relation between the three criteria announced in question 63 and determining unbalancing as between "prices and optional quantities" addressed in paragraph B.9.3.

Initially, the purpose of the ceiling price formula is to avoid the possibility of separate awards being made under the two solicitations at a total system cost which exceeds the second low hardware vendor's total system cost under the first RFP. While Burroughs argues that the ceiling price will eliminate competition

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from software vendors, we do not find this factor to outweigh the requirement that the Government obtain its needs at the lowest total cost. See Martin & Turner Supply Company, 54 Comp. Gen. 395 (1974), 74-2 CPD 267.

Regarding the contention that by evaluating the conversion prices in the fifth month of the cost evaluation model, resulting in a high present value factor, the Government is encouraging the understatement of conversion costs, we believe this is based on erroneous information. In amendment A-09 to RFP -26, the contracting officer in response to question No. 3 regarding the date to be used for price proposal evaluation stated:

"\* \* \* the conversion portion of the solicitation will be evaluated in Month 1 of the system life. \* \* \*"

Our Office has often recognized that firms may enjoy a competitive advantage by virtue of their contract incumbency. As long as the advantage does not result from Government preference or unfair action, there is no requirement for equalizing competition by taking into consideration these types of advantages. See Kay and Associates, Incorporated, B-187521, March 4, 1977, 77-1 CPD 163, and Aerospace Engineering Services Corporation, B-184850, March 9, 1976, 76-1 CPD 164. We have found no evidence of preference or unfair action in the instant procurements.

Concerning Burroughs' allegation relating to unbalancing of proposals, we believe the unbalancing clause relates to both examples given by Burroughs in its protest. The hardware proposal must be balanced between the hardware, support, maintenance and various special plans offered and the software proposal likewise balanced. Also, the hardware and software proposals must be balanced between themselves. In other words, all items offered must carry their share of the cost.

As to the unbalancing clause itself, we believe it sufficiently advises offerors as to the criteria to be employed in judging whether a proposal is unbalanced. In past decisions of our Office, we have stated that merely advising bidders or offerors that unbalanced proposals will be rejected does not adequately inform offerors of the standards or guidelines which will be utilized in reaching such a

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decision. Without such guidelines, any determination by an offeror in preparing its proposal would necessarily be subjective in nature rather than objective. See Mobilease Corp., 54 Comp. Gen. 242 (1974), 74-2 CPD 185; Standard Services, Incorporated, B-182294, April 8, 1975, 75-1 CPD 212, and Burroughs Corporation, 56 Comp. Gen. 142 (1976), 76-2 CPD 472. The three guidelines or criteria stated in response to question 63 adequately comply with the above requirement.

With regard to Burroughs' concern that the incumbent could submit a low conversion cost, under the above criteria (particularly historical data), the incumbent, as well as other offerors, will have to justify the amount shown for conversion or risk being rejected as unbalanced.

Burroughs has raised several additional grounds of protest in relation to RFP's -41 and -44 for the New Orleans Computer Center.

Burroughs argues that RFP -44, the software solicitation, does not advise software vendors that they are competing with the hardware vendor's proposal under RFP -41, that a ceiling price exists and what that price is. Agriculture has advised that when the award is made under RFP -41 for the hardware, an amendment will be issued to RFP -44 advising the software vendors of the targeted system and of the ceiling formula to be used. The manner in which the ceiling price is arrived at will be explained; however, the amount of the ceiling will not be disclosed. To disclose the ceiling price would result in an auction under the software solicitation according to Agriculture.

Therefore, software vendors will be advised of the ground rules of the solicitation. As concerns the failure to reveal the amount of the ceiling, we do not believe this is required. In effect, the ceiling price will be utilized by Agriculture to determine the reasonableness of the prices offered under RFP -44 much the same as a Government estimate. There is no requirement for the Government to disclose this type of information and, in some instances, disclosure of a Government estimate is prohibited specifically. See, for example, section 18-108 of the Armed Services Procurement Regulation (1976 ed.). See also Nicolai Joffe Corporation (Reconsideration), 56 Comp. Gen. 230, 238 (1977), 77-1 CPD 9.


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Burroughs objects to the requirement that the hardware vendors must submit cost detail breakdowns for their conversion proposals because this information is not required by section 1-3.807-3(b) of the Federal Procurement Regulations (1964 ed. amend. 138) where there is adequate price competition and that the requirement puts an unwarranted burden on the offerors. FPR § 1-3.807-3(b) states that cost and pricing data need not be obtained where the contracting officer determines in writing that there is adequate price competition. Whether or not the Agriculture contracting officer has made such a determination, the cost and pricing data can still be requested since the cited regulation makes it discretionary with the contracting officer and the data will be utilized to determine whether proposals are unbalanced. Therefore, we see nothing objectionable in requiring the data.

Burroughs also questions the exclusion from the software RFP of nonallowable conversion costs and including only allowable conversion costs. The allowable conversion costs are those involving high level (COBOL or FORTRAN) language conversion and the nonallowables are the conversion efforts to other than high level languages. Burroughs argues that these nonallowables will be procured under a third solicitation and, therefore, because of this third procurement, the system may not be procured at the "lowest total cost."

Nonallowables were excluded from the software solicitation to enhance competition and remove an unfair advantage which the incumbent would have because of vendor unique languages in existing programs. By restricting the software proposals to high level standard languages, more firms are able to compete for the software award. By obtaining more competition for the system, the Government has the best opportunity for obtaining the lowest system cost. We recognize, however, that treating the nonallowable conversion effort in this manner may not result in the lowest overall cost to the Government. This situation is analogous to instances where agencies have decided not to consider the cost of changing contractors in evaluating proposals, which we have found to be within the agency's discretion. 49 Comp. Gen. 98 (1969) and 50 *id.* 637 (1971). Therefore, and since the overall effect will be to increase the competition and to obtain for the Government the resulting benefits, we do not find the treatment of the nonallowable conversion effort to be objectionable.

Accordingly, our Office has no objection to the procurement method being utilized by Agriculture and Burroughs' protest is denied.

Deputy   
Comptroller General  
of the United States

PRINCIPAL OFFICIALS OF THE DEPARTMENT  
OF AGRICULTURE RESPONSIBLE  
FOR ADMINISTERING THE ACTIVITIES  
DISCUSSED IN THIS REPORT

	<u>Tenure of office</u>	
	<u>From</u>	<u>To</u>
<b>SECRETARY OF AGRICULTURE:</b>		
Robert Bergland	Jan. 1977	Present
John A. Knebel	Nov. 1976	Jan. 1977
John A. Knebel (acting)	Oct. 1976	Nov. 1976
Earl L. Butz	Dec. 1971	Oct. 1976
<b>ASSISTANT SECRETARY FOR ADMINISTRATION:</b>		
Dr. Joan S. Wallace	Dec. 1977	Present
J. Fred King (acting)	July 1977	Dec. 1977
J. Paul Bolduc	Feb. 1976	July 1977
Joseph R. Wright, Jr.	Mar. 1973	Feb. 1976
<b>DIRECTOR, OFFICE OF AUTOMATED DATA SYSTEMS:</b>		
Raymond J. Long (acting)	July 1977	Present
Henry W. Meetze	Jan. 1975	July 1977