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STATEMENT OF  
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BEFORE THE

SUBCOMMITTEE ON LEGISLATION AND NATIONAL SECURITY  
COMMITTEE ON GOVERNMENT OPERATIONS  
HOUSE OF REPRESENTATIVES

HSE 01506  
HSE 01500

ON

[AIR FORCE "PHASE IV" COMPUTER SYSTEM ACQUISITION PROGRAM]

Mr. Chairman and Members of the Subcommittee:

We appreciate your invitation to be here today to discuss the results of our review of the Air Force "Phase IV" program. With me today are Walter Anderson, Senior Associate Director, and Carl Palmer, Group Director, in our Financial and General Management Studies Division.

Introduction

The Air Force's overall objective in the Phase IV program is to provide cost-effective, responsive and reliable computer support for a variety of its base-level administrative and operating functions. The Phase IV acquisition is intended to provide a safe transition of current applications software and responsive computer support, growing as needed for up

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to twenty years (1983 up to 2002). This is to be done by acquiring about 229 fixed-site computer systems to replace the existing base-level Phase I (Univac) and Phase II (Burroughs) computer systems located at about 118 air bases and stations around the world. The specific objectives of the program are:

- (1) replacement of current computer systems with new software compatible computer systems from a single manufacturer's product line;
- (2) consolidation of the replacement computer systems within a single data processing facility under a single manager, where feasible; and
- (3) provision of modular, add-on growth to the replacement computer systems to support future workload growth.

In simple terms, they plan to put in two new computer systems that can run the same computer programs, at most major air bases. It should be noted that potential personnel reductions were not a stated objective of the program.

#### Background

The Air Force has been pursuing a program of standardizing its base-level data processing support for almost two decades. Phase I of this program began in 1962 with standardizing the base-level supply function. In the late 1960's, the Phase II program began standardizing the non-supply functions, such as accounting, finance, personnel, and maintenance. Phase III was the Air Force effort to standardize its major command management programs.

In 1969, the Air Force began studying how future base-level computer systems processing needs should be met. This effort also began with an approach of supply/logistics versus other applications. However, in December of 1973, and again in 1975, the Secretary of Defense restricted future ADP resource funding and twice directed the Air Force to submit one plan to satisfy all base operating needs. In April 1976, after cancellation of its two prior efforts, the Air Force initiated the Phase IV program to meet the Secretary's directive.

The Phase IV life cycle costs, according to the official Air Force budget estimates, will be about \$4 billion for the period of fiscal year 1976 through 1995. This amount includes approximately \$600 million for ADP equipment and maintenance and over \$50 million for site construction to house the systems in a single facility at most bases. Continued operation of the existing computer systems until their replacement, by about 1985, is estimated to cost about \$1.5 billion. The remaining \$1.8 billion is the estimated operating cost for the new computer systems which is predominantly the cost of the personnel to manage and operate the computer systems.

These cost estimates are stated in constant, fiscal year 1977 dollars. They do not include any provision for cost growth or inflation. In addition, the official program cost estimates do not include costs for the years from 1996 through the year 2002 even though this period is part of the Air Force's stated program life. The estimates also do not include the costs

of any replacement or augmentation acquisitions over the life of the program, or the cost of utilities and facilities maintenance. These cost elements should normally be included in a total life cycle cost estimate. If these cost elements were included in the total estimate it would exceed \$5 billion, based on a projection of the Air Force budget estimates in constant dollars.

As of February 1979, the Air Force estimate shows a minimal savings of only \$10 million over the baseline estimate for continuing to operate the existing computer systems. This low amount of savings is due principally to the acquisition approach and the official position of minimal personnel reductions even with the collocation of the two new computer systems in one facility at nearly all bases.

#### Our Review

As requested by your letter of March 20, 1979, we reviewed the following aspects of the Phase IV program:

- (1) the Air Force requirements for two computer systems at most bases to replace the existing computers;
- (2) the small number of vendors reputed to be actively pursuing the Phase IV competition; and
- (3) the Air Force's handling of unsolicited proposals from the Burroughs Corporation (an incumbent vendor);

and other problems.

We made our review at the Headquarters of the Air Force and five of the major commands, the project manager's office,

the Air Force computer acquisition center, and at 14 air bases.

We reported our preliminary findings to your office in briefings on June 12th, July 9th, and August 27th, as well as, discussions at other times. As you know, we were inhibited in completing our review at several points by Air Force delay in turning over key documentation which they termed "source selection sensitive" and by the difficulties in obtaining summaries of key base-level operating statistics on the current Phase I and Phase II programs. We thank you, Mr. Chairman, for your help in obtaining this documentation.

At this time, I would like to discuss briefly the three primary points we investigated and then submit for the record a more detailed summary of the results of our review.

Our review was fast-paced, and we directed it to the specific questions stated in your request. Thus we did not address the broader management oversight issues at the Department of Defense and General Services Administration which we understand are also a subject of these hearings.

As requested, we have not reviewed our findings, conclusions, and recommendations with the Air Force.

The Need for Two  
Systems at Most Bases

The Air Force's stated requirement for two complete computer systems at most major air bases (about 105 locations requiring 210 systems):

- has never been justified as mission essential or an operational necessity;
- was established without an adequate study of user requirements; and
- would probably result in 600 million to 1 billion dollars in additional cost over the 20 year expected life of the program.

The Air Force Audit Agency questioned the lack of justification and need for two computer systems at most air bases in an interim report on the Phase IV program in February 1979. The auditors noted that this requirement might cost \$250 million more than a single computer system alternative for the 12 year operational period covered by the Air Force economic analysis and had not been determined to be mission essential or a real need. In its response to the report, the program management stated that "two processors" were needed at most major bases in order to:

- (1) improve responsiveness to on-line users and allow flexibility for greatly expanded on-line processing,
- (2) enhance computer system availability,
- (3) alleviate disruptions caused by processing of classified information, and
- (4) reduce overall program risk by an incremental installation and conversion at each base.

While this explanation provides some rationale for two processors (central processing units), it does not respond to the question of why two separate computer systems are needed. Further, this explanation is not based on approved base-level requirements or any detailed study of these requirements. A staff paper has been recently prepared to buttress these arguments, yet no detailed study of base-level requirements has been made to determine the actual needs and the expected courses of future growth and development. Both the prior studies of base-level computer system support and the Phase IV program planning studies were not supported by a detailed analysis of the functional needs at the bases.

To put our work in perspective, I would like to explain that the Phase IV request for proposals calls for two separate computer systems to be located in most cases in two different facilities. Yet, the stated objective and the current plans call for collocation of nearly all computers. One computer system, termed the "X1 system," is to support the standard base supply system, and the other, termed the "X2 system," is to support almost all other functional applications, such as personnel, payroll, accounting and finance, engineering, and maintenance. The Air Force estimates that 116 "X1 systems" and 113 "X2 systems" will be required at initial installation starting in 1983. These applications, supply and all others, are presently supported by the incompatible Univac and Burroughs computer systems, with back-up Univac and Burroughs computer systems at only a small number of the 118 installations.

For the past two decades, back-up support has been provided by required agreements or ad hoc arrangements with other bases.

Our review of current ADP operations at the bases and currently validated or projected requirements indicates:

- A single computer system can be acquired "off the shelf" that would effectively handle all of the on-line and other processing requirements of the Air Force.
- Current base-level computer systems have been quite reliable, considering their age, and generally have been available for use when needed. We found adequate data processing support had been provided even though the Burroughs and Univac machines are incompatible and applications cannot be switched from one to the other. While some hardware problems have occurred, none that we know of has ever been so severe as to warrant extensive back-up capabilities at each base.
- The small amount of classified data processing, averaging less than 1 percent of the workload, is now being performed with minimal impact on users, and base officials stated that it would not change much during surge or crisis conditions.
- The risks associated with software conversion are being minimized by the dual vendor acquisition approach and the extensive testing of converted software in the transition phase. Any further risk reduction possible by installing two computer systems is, in our view, too small to justify the added costs.



The Air Force has stated that it needs two computer systems at each location to get a very high degree of assurance that it will have continuous computer support. They apparently desire near 100% assurance that they will have an operating computer system at all times. One stated objective is to collocate the two or more computer systems in the same facility in nearly all cases so the question is not one of redundancy to protect against attack, destruction, or site environmental failure. The question is one of computer system reliability and availability.

Ninety-five percent reliability is a stated requirement in the Phase IV request for proposals; there is no corresponding requirement stated for availability. We believe that manufacturers could provide this -- or an even higher level of reliability with current technology -- without the expense of two separate computer systems. We also believe that manufacturers can provide a high level of computer system availability, but it is not a stated requirement in the request for proposals.

Added cost of the  
Air Force approach

The Air Force currently intends to initially lease and then purchase the computer systems at the most economical point in time. We estimate that the Air Force approach of replacing the existing computer systems with two separate computer systems at the 105 bases and single computer systems at other locations would incur about \$663 million in additional cost over a twenty year span as compared to a one-system approach.

The primary savings of a one computer system approach over the Air Force budget estimates for a two-system approach are in the cost of equipment acquisition and maintenance (about \$240 million), site construction (about \$40 million), and personnel required to manage and operate the computer systems (about \$383 million). We estimate the cost of a one computer system approach for 12 years would be about \$420 million less than the current Air Force life cycle cost estimate which is based on two computer systems.

We made these estimates of savings for a one computer system approach by comparing the cost of the required number of computer systems to the Air Force's official life cycle cost estimate for 12 operational years. Our estimate is based on current technology, medium-sized computer systems, using the same assumptions as the Air Force's official life cycle cost estimate.

The assumptions in the Air Force cost estimate are, in our view, somewhat optimistic. If the Phase IV competition were to result in purchase-to-lease cost relationships similar to the current Phase II contract, it is distinctly possible that the Air Force might lease the new systems for twenty years, that is, the initial eight-year contract and two six-year optional extensions. If so, we estimate the additional cost of having two computer systems instead of one for each major base would exceed one billion dollars (in constant FY 77 dollars) for the 20 years of the program.

Small number of vendors  
pursuing the competition

The Air Force management has described Phase IV as a model competitive acquisition. It is the largest computer system acquisition program ever attempted by the Government. It is a major system acquisition by any definition. However, the acquisition strategy and approach, while funding a "fly-off" between two vendors, does not incorporate the mission needs definition or competitive exploration of alternative computer system designs judged essential by the Commission on Government Procurement and incorporated into OMB Circular A-109 guidance on major system acquisitions. In our opinion it suffers from the lack of these key elements and from the extensive set of very detailed specifications, mandatory for a responsive proposal. We also believe two key sets of these specifications--for the two systems per base and for remote computer terminals--are restrictive to competition above and beyond any valid Air Force requirement.

We surveyed most of the major equipment and software vendors before the proposal due date, in order to determine how many vendors were seriously pursuing the procurement. We also inquired as to whether there were any problems with the procurement as stated in the request for proposals. In addition, we analyzed the vendor and other expert comments on the draft request for proposals and Air Force communications with the vendors.

In coming to our conclusions, we gave more weight to the

comments made in writing to the Air Force on the draft request for proposals, circulated in the Summer of 1978, than the weight given to oral comments in our survey. We have also reviewed the Air Force's evaluation and responses to the comments on the draft request for proposals and the reasons stated in writing to Air Force by vendors who stated they were withdrawing from the competition.

Some of the problems cited by a majority of the vendors who received the request for proposals are:

- the requirement for a long-term fixed price contract;
- the requirement for software conversion to be managed or accomplished by the hardware vendor;
- the short period provided for proposal preparation;
- the use of very detailed specifications for hardware and software rather than more functionally-oriented requirements;
- unclear and inadequate or insufficient data in the request for proposals; and
- a belief that incumbent vendors had a significant, and probably unfair, advantage.

Some of these comments are perhaps "sour grapes" or common gripes concerning many Government competitive procurements. However, the lack of Air Force responsiveness to serious criticisms, made in writing before the release of the request for proposals, by two or more of the largest computer manufacturers, causes us to believe that the competition obtained will be far less than could be obtained.

## Unsolicited Proposal

Computer support is needed until Phase IV implementation is completed. The Burroughs computer systems are mostly leased, while the Univac computer systems are owned. The Burroughs contract will expire in June 1982 and the Univac contract for maintenance will expire in January 1984. The Air Force believes that negotiating to change the existing Burroughs contract is more practical than writing a new contract, since the three years until their planned replacement is relatively short. Burroughs Corporation has made two unsolicited offers for the lease of substitute equipment with increased capabilities. The Air Force has evaluated this equipment and found it to be a technically viable substitute and its lease would be more economical than continuing to lease the existing equipment.

However, the Air Force has not firmly defined any near term need for increased computer system capability. Further, it has not fully costed out and evaluated the two alternatives -- to substitute this new equipment or to continue leasing the present systems -- and has not evaluated other available alternatives, such as purchasing the existing equipment or acquiring other potential substitute equipment. Therefore, to assure that the Government's best interests are served, we believe a more complete evaluation and negotiation of all practical alternatives, including the potential purchase of existing equipment where it is adequate, should be undertaken before selecting an interim support approach. We think the selection should be governed by

economic and Government-wide policy considerations and not dominated by the prospect of increased computer capabilities at the same or lower lease costs.

### Conclusion

We believe the Air Force Phase IV program does not meet the goals of an economical and effective acquisition of computer systems. It also would most likely commit the Air Force to a more expensive solution than necessary to fully satisfy its base-level needs. We think the primary problems are caused by:

- (1) Early agreement and commitment of top management to a two system approach without prior definition and validation of requirements.
- (2) Acceptance of a \$4 billion program plan on minimal estimated savings over a long period.
- (3) Lack of a detailed study and analysis of base-level operations and alternative ways of providing effective computer support for these operations in the future. The Air Force did not choose to use the methods of OMB Circular A-109 to develop mission needs and to explore alternative solutions developed by private industry.
- (4) Not following established regulations and procedures in developing the specifications for qualities and the quantity of computer equipment and software.

(5) Requirements and specifications contained in the request for proposals were not "functional" or "performance" in nature. In several key instances they were restrictive to competition. The use of various managers and specialists from the major commands, the design center, and the computer acquisition center in an advisory role in an extensive series of reviews failed to offset the lack of proper needs determination and a bias in the development of the specifications toward incumbent and outdated technology. The lack of a sound survey of the market to establish the availability of equipment compounded this problem.

#### Recommended Course of Action

Because of the much higher cost of the two-computer system minimum requirement, as well as the restrictive effect on competition of this and other terms, conditions and specifications of the request for proposals and the lack of convincing evidence supplied ~~to us~~ by the Air Force supporting a need for two computer systems at most bases, ~~we believe~~ it would be in the best interests of both the Government and the Air Force to cancel the current request for proposals for replacement computer systems. We believe that a simpler, more flexible request for proposals should be developed around a more functional and performance-oriented set of requirements.

We think a modest study of the actual base operations and a new procurement action can be completed in about two to three years, if prompt action is taken.

We recognize that several questions remain unsolved as to interim period computer support, and the negative effect this cancellation will have on the morale of many fine professionals who have worked on this program. Nevertheless, we believe it is the only course of action that would prove to be a viable solution to the defects of the planning and management of the program and the current request for proposals.

I thank you, Mr. Chairman, for the opportunity to testify on this matter, and will be glad to answer any questions you or the other members of the Subcommittee may have.