



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

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ACCOUNTING AND FINANCIAL
MANAGEMENT DIVISION

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B-211087

RELEASED

MARCH 16, 1983

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



121147

Dear Mr. Chairman:

Subject: Status of the "Phase IV" Base Level Computer Replacement Program (GAO/AFMD-83-58)

We briefed your office on January 13, 1983, on the status and direction of the Air Force "Phase IV" base-level computer replacement program. At that time, the program was experiencing management and technical difficulties that could jeopardize its successful completion.

In your January 13, 1983, letter (encl. I) you asked us to review the Phase IV program to determine what corrective actions should be taken to remedy its serious deficiencies. That review is under way. We are providing this interim report to discuss the Defense Department and Air Force rationale for making a "production buy decision" on the Phase IV program--the decision to go ahead with vendor selection and contract award. This decision commits the Air Force to buy about 150 computers to replace existing Univac and Burroughs computer systems at air bases worldwide.

The program's objective is to provide (1) cost effective, responsive, and reliable computer support for a variety of base-level administrative and operating functions, (2) a safe transition of current applications software, and (3) responsive computer support, with flexibility to grow over the next 20 years. The 20-year life cycle of the Phase IV program is estimated to cost \$6.1 billion in fiscal 1982 dollars.

The Air Force made the production buy decision on January 27, 1983, subsequent to your letter. It selected Sperry Univac Corporation as the vendor after a 26-month test period during which Sperry Univac and Burroughs Corporations independently converted high-risk software to their proposed computer equipment.

SCOPE AND METHODOLOGY

We performed our review in accordance with generally accepted government audit standards. We interviewed officials of the Office

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of the Secretary of Defense and of the Air Force to determine their involvement in approving the implementation of the Phase IV program. We also interviewed personnel from the Air Force's automated systems project office and analyzed source selection documents to evaluate the extent of the Air Force's progress in completing the tests planned for the transition period. We did not validate the cost and other data provided by the Air Force and used in the source selection and production buy decision.

AIR FORCE ADOPTED COMPUTE-OFF
STRATEGY TO REDUCE RISKS AND COST

The Air Force adopted a "compute-off" acquisition strategy for this procurement to reduce overall program risks. Under this approach, two contractors were selected to convert key Air Force applications software and to demonstrate its performance on their proposed hardware and basic software. Program risks were identified by the Air Force in the areas of applications software transition and systems integration. The first carried particularly high risk because approximately 6 million lines of source code are currently operational on the base-level systems. About 1.6 million lines of code were to be converted by each contractor to reduce this risk. The remaining software was to be converted by the Air Force after the production buy decision.

Two fixed price contracts were awarded in December 1980 at a combined total cost of \$95 million. The two contractors chosen were Sperry Univac and Burroughs Corporation. The Air Force contended that risks would be reduced by maximizing price and technical competition between the two contractors until system performance and costs could be evaluated, and by thorough testing of the proposed system prior to making the production buy decision.

PRODUCTION BUY DECISION MADE
WITHOUT COMPLETING TEST

The Air Force made the production buy decision on Phase IV on January 27, 1983, awarding an 8-year contract to Sperry Univac for \$476.2 million. Although important software transition and testing efforts had not been completed, Air Force officials stated that

- sufficient testing results were available to allow an objective evaluation of the two contractors' proposals and their ability to perform the implementation phase of the program;
- continuing the competition beyond the scheduled target date of February 1, 1983, would not change the final decision; and
- extension of the competitive period (1) would not add significant benefits, (2) would definitely delay the equipment installation and secondary conversion scheduled to start in May 1983, and (3) could create other delays.

The Air Force officials said a delay in the schedule would be costly: about \$10 million for 1 month and about \$13 million for 3 months. Finally, they said that going ahead with the selection decision would help timely completion because the Air Force could concentrate its resources on working with a single contractor. Instead of the strict "arms length" relationship of a competitive procurement, the Air Force could join with the winning contractor in solving the problems and completing the remaining transition work.

The Air Force assured us that it intends to have the contractor fully complete all tests and correct all deficiencies before it accepts the systems and authorizes contract payments. Air Force officials decided to go ahead with the production buy decision since (1) both contractors, in their estimation, had demonstrated adequate technical capabilities to satisfactorily meet the program requirements, and (2) the final price proposals differed significantly. This position is supported by letters from both contractors urging that a decision be made by the end of January 1983. Both indicated that if they were awarded the production contract, they would complete the transition period requirements at no additional cost to the Government.

IMPLEMENTATION APPROVAL
WAS A MANAGEMENT DECISION

The members of the Major Automated Information Systems Review Council (MAISRC), the top Department of Defense information systems review authority, characterized their approval to proceed with the program as a management decision. They indicated they were willing to accept the resulting risks which, they were told by the Air Force, were manageable. In the members' judgment, no substantial benefit would be gained from extending the competition period; it would only delay the project and cost the losing contractor more money. They also noted that delay might propagate additional delays.

One member of MAISRC, however, was concerned about the incomplete nature of the transition period efforts and withheld his concurrence. This member told us that while he did not disagree with the Air Force's decision to go ahead, he was concerned that MAISRC's original direction was not being followed; namely, that at least one contractor must meet all transition contract requirements before the production buy decision.

The Assistant Secretary of the Air Force (Financial Management) said that the soundness of the Air Force's judgment will be proven when a fully operational standard base supply system is delivered on schedule. He said he has no contingency plans, nor will he entertain the possibility that this schedule cannot be met. He said the Air Force and the contractor are committed to having an operational Standard Base Supply System at Langley Air Force Base by August 1, 1983, and to disconnecting the existing Univac 1050 System at that time.

STATUS OF SOFTWARE TRANSITION
AND TESTING WHEN DECISION WAS MADE

The Air Force planned a comprehensive test program consisting of a functional demonstration of equipment features, validation of each converted software application system, and functional evaluation of each converted system by its primary user organization. In addition, the contractors were to update and complete validation tests for two of the largest software systems--the Accounting and Finance System and the Standard Base Supply System. A combined workload test was designed to ensure that the processing capability of the proposed systems could meet projected peak workload requirements. Further, an independent "Qualification, Operational Test, and Evaluation" (QOT&E) of the contractors' systems was to be conducted by the Air Force Test and Evaluation Center. These final two tests were designed to show how well the two competitors had integrated the hardware and software, that the proposed systems could meet the future workload, and that the converted systems operated properly.

In requesting approval to proceed with the implementation phase of the program, the Air Force reported the test status to the MAISRC as (1) Sperry Univac: "27 of the 30 test phases completed or ongoing" and (2) Burroughs: "28 of the 30 tests completed or ongoing." Our analysis of Air Force evaluation documents indicates the status of the tests as of January 21, 1983, was as follows:

<u>Test</u>	<u>Sperry Univac</u>			<u>Burroughs</u>		
	<u>Com- pleted</u>	<u>Started</u>	<u>Not Started</u>	<u>Com- pleted</u>	<u>Started</u>	<u>Not Started</u>
Functional Demo (1)	1			1		
Validation (13)	10	3		12	1	
Evaluation (12)	8	1	3	10	1	1
Validation of two software updates (2)		2		1		1
Workload test (1)		1			1	
QOT&E (1)	—	<u>1</u>	—	—	<u>1</u>	—
Total* (30)	<u>19</u>	<u>8</u>	<u>3</u>	<u>24</u>	<u>4</u>	<u>2</u>

*Number of major test phases included in the transition period compute-off activities. After August 1982, the Air Force disassociated QOT&E from the other 29 testing requirements.

RISK OF GOING FORWARD
WITH INCOMPLETE TESTS

Continuing the competition for this large contract through the satisfactory completion of all tests and transition requirements was a key element in the Air Force's strategy to reduce the risk of program failure or delay. The noncompletion of the workload test carries the risk that the proposed configurations used for cost evaluation may not meet Air Force operational requirements. Further, the Air Force decision has committed the Government to a very large hardware contract (about \$364 million for the lease, purchase, and maintenance of equipment, exclusive of other deliverables) without seeing the converted software actually work in an operational environment.

Workload testing was to be completed by September 1, 1982. However, the workload tests on the Univac system did not commence until January 10, 1983. As of January 21, 1983, 4 of the 24 required workload test problems had been run. Air Force testing of the Burroughs system began December 6, 1982, and 10 of 25 workload test problems had been completed as of January 21, 1983.

The Air Force concedes that the major risk associated with these workload tests is that proposed configurations may not satisfactorily fulfill the timing requirements. If any of the remaining configurations result in unsatisfactory timings which cannot be rectified through software modifications, additional hardware may be required. Since Sperry Univac's guaranteed firm fixed prices are on an item-by-item basis, rather than an overall system basis, the additional equipment could increase the cost to the Government. However, the Air Force intends to hold the contractor to the performance levels promised in its proposal.

The absence of a completed Qualification, Operational Test, and Evaluation precludes verification of the actual staffing required for the Sperry Univac configurations. The Air Force speculates that one additional skilled programmer may be needed at each data processing installation. If this is so, operating cost would increase substantially over the program life cycle. Another question for this test is how many operators are needed to properly run the equipment. If one additional operations person is needed, it would cost an estimated \$256 million for the multishift operation of 150 computers at 115 bases over a 12-year life cycle.

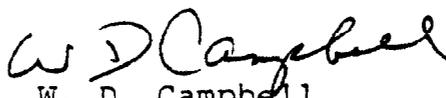
Finally, making the production buy decision before completing all tests also defers receipt of required contractor corrections to the key systems. In several instances, Sperry Univac successfully concluded validation testing for an application only to encounter an unexpectedly large number of errors during the evaluations performed by primary user organizations. According to the Air Force, this indicated that Sperry Univac may have focused its quality assurance efforts on passing the validation test at the expense of the application as a whole.

As noted above, the Air Force assured us it intends to have the contractor fully complete all tests and correct all deficiencies before it accepts the system and authorizes contract payments.

As you requested, we are continuing our review, focusing principally on the issues of (1) commitments made by the Air Force to reduce the costs and increase the effectiveness of this procurement and (2) actions needed to correct management and technical problems encountered by the Air Force in the transition period.

Unless you release its contents earlier, we plan no further distribution of this letter until 30 days from its date. At that time we will send copies to the Secretary of Defense and the Secretary of the Air Force, and will make copies available to other interested parties.

Sincerely yours,

A handwritten signature in cursive script, appearing to read "W. D. Campbell".

W. D. Campbell
Acting Director

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 2157 Rayburn House Office Building
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January 13, 1983

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The Honorable Charles A. Bowsher
 Comptroller General
 General Accounting Office
 441 G Street, N.W.
 Washington, D.C. 20548

Dear General:

The Committee on Government Operations recently received an excellent briefing by your staff on the Air Force's Base Level Automation Program (Phase IV). Apparently, the project is experiencing serious management and technical difficulties which may jeopardize the successful completion of this \$5 billion procurement. Specifically, as of December 1982, neither contractor had completed all validation tests which were scheduled for completion in early August and the performance by both contractors has been judged by the Air Force to be unsatisfactory. Further, the critical workload and operational testing have not been completed, even though the Air Force plans to award the contract in February.

Given the size and importance of this project, a follow-up review should be made by your office to determine what corrective actions must be taken to remedy these serious deficiencies. Your review should take into consideration the prior commitments made to this Committee by the Air Force to reduce the cost and increase the effectiveness of this procurement. Since the Air Force plans to award this contract in the near future, I request an interim report on this review within 60 days and a final report within six months.

With every good wish, I am

Sincerely,


 JACK BROOKS
 Chairman