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**Report to the Secretary of Health and
Human Services**



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Information Management and
Technology Division

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March 16, 1989

The Honorable Louis W. Sullivan, M.D.
The Secretary of Health
and Human Services

Dear Mr. Secretary:

We have completed our review of the Health Care Financing Administration's (HCFA) software redesign contract. This contract is an important portion of HCFA's Project to Redesign Information Systems Management (PRISM), which is planned to modernize the agency's computer hardware and software at a cost of about \$55 million for fiscal years 1986 through 1990. We initiated this review to evaluate the effectiveness with which the agency is managing the 3-year, \$7.95 million software redesign contract that is the cornerstone of PRISM. The contract involves identifying system requirements and preparing system designs that will be the basis for developing software under a planned follow-on contract. We are sending you this report because the success of HCFA's next contract, and the overall PRISM effort, will depend on the outcome of the agency's current contract.

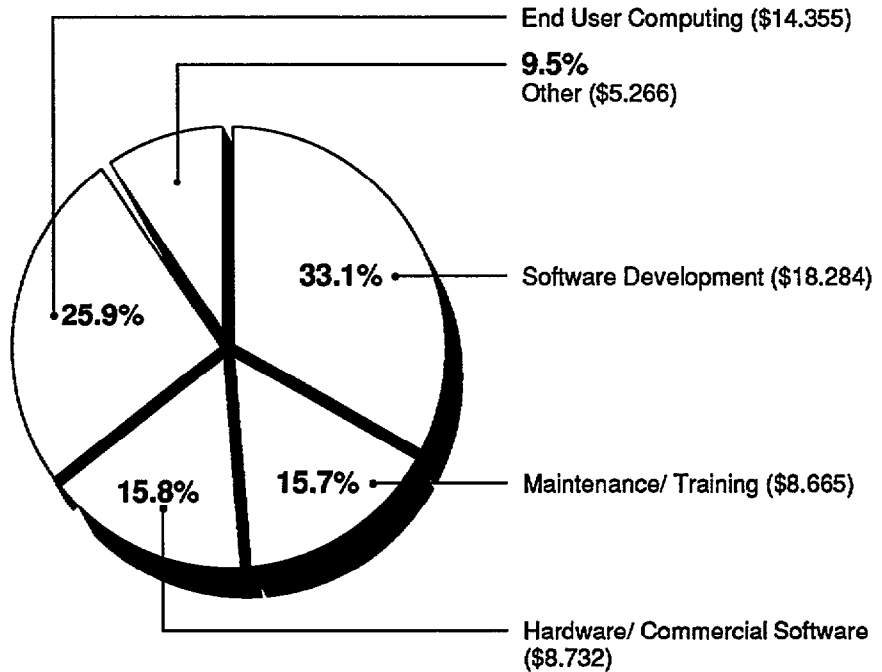
Our review indicated that HCFA's actions in managing its software redesign contract were generally effective. The agency took action to improve contractor performance when its contractor did not provide required key personnel and submitted unacceptable products. Even though HCFA took action to correct unacceptable contractor performance, the agency experienced cost growth and schedule slippage in the contract. For example, in November 1988, 14 months after the contract began, the contractor estimated that the entire contract would take 9 months longer to complete and cost \$4.7 million more than the previous estimate of \$7.95 million. Since HCFA's plans for PRISM include additional contracts, we believe the agency's experience with its current contractor highlights the importance of continuing strong contract management in the future.

Background

Within the Department of Health and Human Services, HCFA administers the nation's Medicare and Medicaid programs. Medicare provides health insurance to most Americans age 65 and over and some disabled people under 65, while Medicaid provides assistance to low-income people. These programs disburse over \$100 billion annually. HCFA relies extensively on computers for information to administer the two programs.

Initiated in 1981, PRISM includes projects to design, develop, and implement new systems for HCFA's use in administering Medicare and Medicaid. The first 4 years of the effort consisted primarily of initial contractor and agency studies and planning activities. The estimated cost of PRISM, from fiscal years 1986 through 1990, is about \$55 million. The agency plans to spend \$18.3 million for new software representing, as indicated in figure 1, the largest PRISM expense.

Figure 1: HCFA's \$55.302 Million PRISM Budget by Major Activity (Fiscal Years 1986-1990)



(Dollars in millions)

"End User Computing" is synonymous with office automation.

"Other" includes unallocated funds, systems integration, and data administration activities.

Source: GAO analysis of HCFA's August 22, 1988, PRISM Business Plan.

The agency has structured its software approach primarily around two separate contracts. The first (and current) contract, with an estimated

cost of \$7.95 million,¹ is for identifying system requirements and designing systems. This contract, awarded in September 1987, is with Advanced Technology Incorporated² (hereafter referred to as Advanced Technology). The second contract, with an estimated cost of \$7.1 million, will be for developing software based on the first contractor's design. HCFA plans to award the second contract in late fiscal year 1989. Since the second contract will develop software based on the systems designed by Advanced Technology, timely and successful completion of the Advanced Technology contract is necessary for the other PRISM activities to be successful. Other miscellaneous software-related activities account for the remaining \$3.2 million of the planned software costs from fiscal years 1986 through 1990.

The Advanced Technology contract began in September 1987 and was originally scheduled to last 3 years. The contract is a cost-plus-fixed-fee type whereby HCFA reimburses Advanced Technology for all allowable costs the company incurs in performing the work. In addition to cost reimbursement, Advanced Technology receives a fixed fee that represents its profit. Also, the contract allows for withholding of payments if the contractor does not perform required work or services of acceptable quality in a timely manner. The contract includes the following five tasks:

Task 1—prepare detailed systems requirements analysis and develop conceptual system designs;

Task 2—formulate a general system design;

Task 3—perform detailed data analysis and data base design;

Task 4—develop a detailed system design; and,

Task 5—conduct on-going support.

¹At the time of contract award, HCFA's contract was estimated to cost about \$7 million. Subsequent HCFA-requested modifications raised the estimated cost to \$7.95 million, and the contractor now estimates that an additional \$4.7 million will be required to complete the contract.

²Advanced Technology Incorporated was purchased by Emhart Corporation in January 1988.

HCFA Acted to Improve Contractor Performance

The Advanced Technology contract named specific individuals who were essential to the effort and specified requirements for product quality. When these key personnel did not work on the project as required, HCFA took action by writing to the contractor. Also, when the agency identified unacceptable products in February 1988 and again in May 1988, it partially withheld payment for April 1988, to encourage acceptable performance by Advanced Technology. The agency withheld payment again for July, August, and September 1988 after contractor performance problems persisted.

HCFA's Contract Specifies Personnel and Quality Requirements

HCFA's contract with Advanced Technology identified 11 individuals as essential to performance. The key personnel positions included the project director, design integration manager, quality assurance director, and data administrator, along with 5 team leaders and 2 data base administrators. The contract calls for full-time involvement from the day of contract award by 8 of the key personnel, and stipulates that none of the key personnel can be removed by the contractor without HCFA's written consent.

Advanced Technology and HCFA recognized the importance of high quality to this contract. To ensure that its products would be of high quality, Advanced Technology planned to establish formal and informal quality assurance processes including formal quality reviews of major products prior to submission to HCFA. The contract also specified that quality assurance would be the responsibility of two key personnel, the program manager and the quality assurance director. Also, HCFA established an extensive process to review and evaluate Advanced Technology's products. This process involved reviewing and evaluating interim, draft, and then final versions of products required by the contract. HCFA's quality assurance manager told us that these multiple iterations of products were an important part of the quality assurance process.

While the Advanced Technology contract specifies quality expectations and responsibilities, the Federal Acquisition Regulation (FAR) and Department of Health and Human Services regulations prescribe actions HCFA should take to ensure contract quality requirements are met. Specifically, FAR Part 46.407(e) says contracting officers "shall discourage the repeated tender of nonconforming supplies or services, including those with only minor nonconformances, by appropriate action, such as rejection. . . ." Part 342.7002(d) of the Department of Health and Human Services Acquisition Regulation prescribes immediate action by the contracting officer to protect the government's rights under the contract if

contractor performance is not satisfactory. Also, Part 342.7003-1(c) prohibits contractor payments when contract requirements are not met.

HCFA Withheld Payments When Advanced Technology's Performance Was Unacceptable

Our comparison of Advanced Technology's estimated monthly key personnel hours with actual hours during the first 10 months of the contract showed less involvement than required by the contract. For example, one key position, quality assurance director, was vacant from the beginning of the contract in September 1987 until April 1988. Also, the data administrator position was vacant from December 1987 to April 1988. As previously mentioned, Health and Human Services' acquisition regulation, Part 342.7002(d) states that if contractor performance is not satisfactory or if problems are anticipated, it is essential that the contracting officer take immediate action. Accordingly, HCFA wrote to Advanced Technology about the absence of the quality assurance director and the data administrator in April 1988.

HCFA's project officer for the Advanced Technology contract explained that although the agency was aware, almost immediately after contract initiation, that the contractor was not fully satisfying the key personnel contract requirements, it believed the contractor was making efforts to either supply the individuals required or to provide acceptable replacements. For example, Advanced Technology proposed replacement of the required quality assurance director in the early stages of the contract. HCFA discussed this matter with the contractor but was not satisfied with the individuals suggested as the replacement. The Advanced Technology project director said, with regard to the quality assurance director, that the contractor was not able to release the originally required individual from another project. Contractor officials said one of their staff members acted as quality assurance director and data administrator on a part-time basis while those positions were unfilled by the required individuals.

HCFA also identified situations in which Advanced Technology products did not meet contract quality requirements. HCFA's project officer wrote that the interim version of a Task 1 product, which was delivered in December 1987, was unacceptable and specifically stated: "With virtually no exceptions, the documentation . . . was incorrect, incomplete and inconsistent." The agency notified Advanced Technology in February 1988, that the product was unacceptable and needed substantial additional work for the next version of that product to be acceptable. In May 1988, after reviewing the draft version of the same product, HCFA determined that the new product was also unacceptable. In June 1988, the

agency decided to penalize Advanced Technology by withholding a portion, about \$44,000, of the contractor's total bill of \$338,412 for April 1988. Later, in September 1988, when the contractor did not meet the delivery date for the final version of the same product and missed delivery dates for other products, the agency withheld all of Advanced Technology's \$299,730 payment for July 1988. HCFA continued withholding payments from the contractor for August (\$357,773) and September 1988 (\$359,097). The agency resumed payments to Advanced Technology for October 1988 (\$369,058) and provided the previously withheld payments because the contractor corrected the products that were previously unacceptable and delivered an acceptable plan for completing the contract.

HCFA's PRISM project officer told us that the agency did not withhold payment, after determining the interim product was unacceptable, because the agency believed Advanced Technology was working toward improving the draft version of the product. He also said that HCFA required interim products to provide an extra opportunity to review Advanced Technology's work. When we discussed this situation with Advanced Technology's project director, he explained that miscommunication and misunderstanding about the scope and complexity of the contract contributed to the unacceptable products. However, HCFA's project officer said the contractor's failure to provide the required quality assurance director adversely affected the quality of products from the contract's beginning. Also, minutes documenting a meeting between HCFA and Advanced Technology managers identified the slow beginning of quality assurance activities and lack of a proper personnel mixture as contributing to the unacceptable products. HCFA's determination that these products were unacceptable seems consistent with FAR requirements to reject work that does not comply with the contract. Additionally, withholding payment from Advanced Technology, after rejecting the draft product, was consistent with Department of Health and Human Services regulations.

HCFA Anticipates Additional Action

In addition to HCFA's actions of rejecting products and withholding payments to improve contractor performance, the agency's PRISM project director told us, in October 1988, that he was considering alternative ways of increasing the agency's oversight of Advanced Technology to better ensure contract compliance. The project director said he was considering requesting an audit of Advanced Technology by the Department of Health and Human Services' Office of Inspector General on the basis of the contractor's unacceptable performance and management of

the contract. The project director also indicated that HCFA might consider placing an agency staff member at Advanced Technology's work site.

HCFA's Contract Shows Higher Costs and Schedule Delays

In December 1988, Advanced Technology had nearly finished contract Task 1, about 7 months behind schedule. Part of this schedule slippage resulted from the extra time needed by Advanced Technology to correct the unacceptable products discussed above. Also, in November 1988, the contractor estimated the overall schedule for completing the contract to be 9 months longer than originally estimated. In addition to schedule problems, the reported contract costs have been higher than estimated. Our comparison of Advanced Technology's costs, as reported on its invoices, with budgeted costs for Task 1, shows the reported costs of about \$2.31 million surpassed the planned costs of \$1.59 million, a reported overrun of approximately \$720,000. Also, in December 1988, HCFA accepted Advanced Technology's revised work plan for completing the contract. At the time we finalized our report, HCFA and Advanced Technology were negotiating the contractor's \$4.7 million proposal for implementing this revised work plan.

Conclusion

We believe HCFA's experience with its Advanced Technology contract demonstrates the importance of active contract management. Even though the agency has taken effective steps to improve the performance of its contractor, a cost overrun and schedule delay still resulted, in part because Advanced Technology did not initially perform as required. We believe the successful completion of the overall PRISM effort depends on HCFA's active management of its current and future contracts, to minimize any further schedule delays and cost overruns.

We conducted our review of HCFA's PRISM activities from January 1988 until December 1988 and specifically focused on HCFA's contract with Advanced Technology from July 1988 through November 1988. The contents of this report were discussed with responsible agency and contractor staff. Their comments are incorporated where appropriate. We also examined HCFA's Advanced Technology contract, related documents, and PRISM planning reports. Our review was conducted in accordance with generally accepted government auditing standards. Appendix I contains a detailed description of the objectives, scope, and methodology of our review.

We are sending copies of this report to the House and Senate Appropriations Committees; the Senate Governmental Affairs Committee; the House Government Operations Committee; the Administrator, General Services Administration; the Director, Office of Management and Budget; and to other interested parties upon request.

This report was prepared under the direction of Melroy D. Quasney, Associate Director. Other major contributors to this report are listed in appendix II.

Sincerely,

Daniel C. White

for Ralph V. Carlone
Assistant Comptroller General

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Figure 1: HCFA's \$55.302 Million PRISM Budget by Major Activity (Fiscal Years 1986-1990)

Abbreviations

FAR	Federal Acquisition Regulation
GAO	General Accounting Office
HCFA	Health Care Financing Administration
IMTEC	Information Management and Technology Division
PRISM	Project to Redesign Information Systems Management

Objectives, Scope, and Methodology

We focused our review on the first of two software contracts in HCFA's PRISM effort because software redesign is a major part of PRISM and could affect the project's success. Our specific objective was to evaluate HCFA's management of its current contract with Advanced Technology, which involves identifying system requirements and designing systems. To assess HCFA's management of the Advanced Technology contract we

- identified applicable provisions of the Federal Acquisition Regulation and the Department of Health and Human Services Acquisition Regulation;
- compared HCFA's actions in managing the contract with these regulations and policies; and,
- reviewed Advanced Technology's contract proposal, final contract, planning documents, and correspondence to evaluate contractor performance.

To determine Advanced Technology's performance in providing key personnel, we compared the hours estimated in the company's Project Work Plan with the reported hours. We used the invoices Advanced Technology submitted to HCFA to obtain reported figures representing hours worked and costs incurred from September 1987 through October 1988. We also compared the contract costs reported on the invoices with Advanced Technology's estimated costs from their Best and Final Offer to determine contract cost performance. We did not test or verify Advanced Technology's invoices for accuracy but we confirmed with HCFA that these invoices were the basis for the agency's payments to the contractor. To evaluate the contractor's schedule performance, we compared the original and modified contract schedule with Advanced Technology's product delivery dates.

To understand HCFA's actions in managing the contract, we interviewed procurement and program personnel at HCFA headquarters in Woodlawn, Maryland. We also interviewed Advanced Technology managers at their office in Woodlawn, Maryland. During the course of our review we discussed contract issues with officials from the Defense Contract Audit Agency and the General Services Administration.

Our audit was conducted in accordance with generally accepted government auditing standards from January 1988 through December 1988.

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