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

INFORMATION MANAGEMENT
& TECHNOLOGY DIVISION

SEPTEMBER 28, 1984

B-216005

The Honorable Caspar W. Weinberger
The Secretary of Defense

Dear Mr. Secretary:

Subject: Army Has the Opportunity To Recompete DAS3 Purchases and Improve Automated Battlefield Support (GAO/IMTEC-84-20)

This is our report on the Army's acquisition of the Decentralized Automated Service Support System (DAS3), which provides automation to combat service support functions on the battlefield. We conducted our review because the Congress has considerable interest in the acquisition and management of automatic data processing (ADP) equipment that affects the military's readiness.

The Army required that support system acquisitions meet mission requirements while ensuring competition, standardization, and application of the latest technology. However, except for standardization, the Army's acquisition strategy for the DAS3 did not comprehensively address these requirements. As a result, the Army has found it difficult to meet mission requirements and has incurred additional costs for hardware upgrading. We believe the Army should now take immediate action to develop and implement a more effective strategy for future acquisitions.

ARMY'S COMBAT SERVICE SUPPORT CONCEPT, PLAN, AND RELATED ACQUISITIONS

In December 1978, the Army began developing a plan to replace its nonstandard, old, unreliable, and difficult-to-maintain combat service support computers. A transition concept to move from the old technology to new, standardized hardware and software was approved in March 1980 by the Assistant Secretary of the Army (Installations, Logistics, and Financial Management). On the basis of this concept, the Army Automation and Communications Steering Committee approved a Combat Service Support Automation/ Communications Transition Plan. The plan, published in September 1981, addressed requirements through fiscal year 1987. It called for standard hardware to (1) maximize benefits in integrated logistics support, training, and personnel and (2) provide continuity of operations to compensate for computer losses during combat. It required that this be achieved through competition, be responsive to the Army's needs, and take advantage of changing technology. The plan was updated in 1982 and 1983.

Acquisition of DAS3-A systems

As early as April 1979, before the transition concept was approved, the Army took its first steps toward implementing the concept objectives. On the basis of an "urgent need" justification, the Army decided that 125 DAS3 systems would be required to (1) replace obsolete unreliable, and costly-to-maintain computers for combat service support functions in nondivisional field units and (2) equip high priority Army Reserve and National Guard units. The combat service support functions include logistics, personnel, medical, transportation, and munitions.

The Army awarded a competitive, multiyear contract to acquire 324 DAS3 (Honeywell Level 6 Model 47) systems at a cost estimated to be about $125 million to Management and Technical Services Company (MATSCO). The contract included provision of the 125 urgently needed systems during 1979 to 1981, and acquisition of additional nondivisional (A model) and division/corps (B model) systems.

In June 1980, before the DAS3-A was fully tested to determine whether it could meet mission requirements, an Army review board recommended the DAS3 hardware be designated as standard configuration for combat service support. It also recommended, however, that the first-year production order be limited to 71 systems because the equipment was experiencing operational problems.

In May 1981, shortly after delivery of the first-year production systems began, the Army acknowledged that the DAS3-A had to be upgraded because it did not have the capacity to meet mission requirements.

Acquisition of DAS3-B systems

To quickly replace the computers urgently needed to support combat service support functions in its division, corps, separate brigade, and theater echelons and to maintain its transition plan standardization concept, the Army awarded a sole-source contract to MATSCO in February 1983 for 260 DAS3-B systems at an estimated cost of $208 million. However, only five of the DAS3-B systems were documented as urgent. The DAS3-B model is an upgraded version of the A model with additional peripheral storage and communications capability.

Command, Control, and Communications Corporation submitted a bid protest to the Comptroller General contesting the sole-source award. On October 12, 1983, a Comptroller General Decision (B-210100) recommended that the Army consider preparing a competitive procurement of the remaining DAS3-B systems beyond the minimum quantity needed to satisfy its immediate urgent needs. In response to this recommendation, the Army said it is proceeding with a competitive DAS3-B system procurement and expects production deliveries to the field by February 1987. In the interim, because of the critical need for DAS3-B system support in the

field, the Army will continue to acquire DAS3-B systems under the existing contract until production deliveries are started under a new contract.

OBJECTIVES, SCOPE, AND METHODOLOGY

Our objectives were to determine (1) whether the Army's acquisition strategy for the DAS3 computers met mission needs cost effectively and competitively and (2) whether the declared urgency justified the sole-source acquisition of the DAS3-B.

We conducted our study at the Department of the Army, Washington, D.C.; U.S. Army Computer Systems Command, Tactical Management Information Systems, Fort Belvoir, Virginia; U.S. Army Computer Systems Command Support Group Lee, Fort Lee, Virginia; U.S. Army Computer Systems Selection and Acquisition Agency, Alexandria, Virginia; and Management and Technical Services Company, Philadelphia.

At each location we interviewed senior Army officials and representatives from the computer industry. We also reviewed Department of Defense and Army policies and regulations, technical documents, contracts, official correspondence, and internal audit reports. We researched federal laws and regulations governing ADP equipment acquisitions and computer industry trade journals. We performed our review in accordance with generally accepted government auditing standards.

We requested, but did not receive, written comments on this report from the Department of Defense. We did, however, receive official oral comments on the draft of this report from senior level officials designated to speak for the Department of Defense.

DAS3-A ACQUISITION WAS NOT WELL SUITED TO SUPPORT MISSION NEEDS

In 1979, the Army determined that its combat service support computers in nondivisional units urgently needed to be replaced. Although its overall acquisition strategy had not been finalized, the Army contracted for more computers than it urgently needed, did not conduct adequate performance tests on those delivered, and decided too quickly that the delivered models would be the new standard. As a result, the computers required a costly upgrade to support mission requirements and, more important, the Army lost an opportunity to acquire computers more suitable to its future needs.

The competitive contract awarded to MATSCO included 193 DAS3-A systems over three production years, an option to acquire an additional 73 DAS3-A systems, and an option to acquire 58 DAS3-B systems. However, the Army documented only 125 of the DAS3-A systems as being urgently needed to replace the unreliable computers and equip crucial Army Reserve and National Guard units.

Operational test requirement waived

Shortly after the contract was awarded, the DAS3-A prototype systems were delivered for testing and acceptance. Army Regulation 70-1, February 1, 1977, states that production systems cannot be acquired until all operational tests and independent evaluations have been completed. But Army top managers waived the operational test requirement. They stated that the urgent need to replace the aging computers outweighed any risks encountered from incomplete testing. During our review, however, we found that operational testing of the DAS3-A was waived because the software application the system was intended to support (Direct Support Unit Standard Supply System, DS4) was experiencing development problems. The system hardware was also experiencing problems; for example, maintenance reports indicated low reliability.

DAS3 prematurely declared standard

Although the capability of the DAS3-A to support mission requirements was already being questioned, top management declared the DAS3 hardware as standard for combat service support. Nevertheless, it limited its first-year production order to 71 of the 125 urgently needed systems because of the apparent hardware problems. Later, however, top management increased its total production order for DAS3-A systems from 193 to 204 by exercising its contract option to acquire additional DAS3-A systems.

Waiver of operational testing and standardization caused costly upgrades and lost opportunities

The decision to waive the operational test requirement caused unnecessary expenditures. In May 1981, 4 months after delivery of the first production system, Army officials acknowledged that the DAS3-A was inadequate for its intended mission and therefore needed upgrading. The planned upgrade included memory expansion, additional disk storage, and communications interface devices at a total cost estimated to be more than $11 million. Because funds were not available, the Army limited the scope of the upgrade to DAS3-A memory expansion. Thus, the 71 first-year production systems were upgraded by Army personnel and the 133 DAS3-A systems to be delivered in subsequent production years were upgraded on the production line by MATSCO at a total cost estimated to be over $929,000.

We believe the management decision to upgrade all of the ordered DAS3-A systems was not in the Army's best interest. As an alternative, the Army could have terminated the DAS3-A contract order after the first-year production systems were delivered. According to Army officials, termination could have resulted in a maximum penalty of $900,000. Fewer systems, however, would have had to be upgraded. More important, the Army could have redefined and revalidated its combat service support requirements and considered acquiring newer hardware that would better meet both its

current and future needs. Since 1979, when the DAS3 contract was awarded, ADP hardware has improved in capability and reliability.

For similar reasons, the management decision to standardize the DAS3 hardware was premature. Standardization of support hardware to enhance readiness and maximize benefits in integrated logistic support, training, and personnel is good policy. However, this policy should not be pursued to the detriment of (1) mission performance, (2) competition, and (3) technological currentness. Before the Army designated the DAS3 as the standard configuration for combat service support, it should have resolved known critical issues relating to performance. In addition, it should have made sure the DAS3-A had enough processing capacity for all phases of the applications it was designed to support. Instead, by standardizing the hardware, the Army lost an opportunity to acquire computers more suitable to its future needs.

DAS3-B ACQUISITION CAUSED PROBLEMS TO CONTINUE

In 1982 the Army stated that combat service support computers--at this time in division, corps, or equivalent units--urgently needed quick replacement. But only five computers were identified as being in the urgent category. This urgent requirement could have been satisfied under the original DAS3 contract because it included an option for 58 division/corps systems. The Army, however, did not exercise this option. Instead, it chose to award a sole-source contract for 260 DAS3-B systems--far more than the number documented as urgently needed. According to the Army, a competitive procurement would have caused an unacceptable 3-year delay. We found, however, that the Army experienced delays in spite of its sole-source acquisition strategy. We also found that the urgently needed systems lacked the capacity to support their intended mission and required upgrading.

One alternative: The Army could have competed the DAS3-B acquisition

The Army's divisions and separate brigades were being supported with aging and unreliable IBM 360 and UNIVAC 1005 computers. In addition, the Army's Worldwide Standard Port System[1] was being supported with five old and unreliable UNIVAC-Spectra 70, 1960-vintage computers. The contract to provide maintenance for the Spectra 70 computers was awarded in 1977 and due to expire in September 1982. Army officials were concerned that the Spectra 70 contract might not be extended. The Army was also having maintenance problems with the Spectra 70 equipment. The Army, therefore, declared an urgent need to replace the five Spectra 70 computers with DAS3-B systems by the second quarter of fiscal year 1983. This date was later revised to October 1983 because of fiscal problems.

[1]This system supports the movement of cargo through overseas ocean terminals.

The Army believed the only possible way to meet the October 1983 target was to acquire the DAS3-B system through a sole-source procurement. In its sole-source justification, the Army stated that the complete set of drawings required for a competitive procurement--to maintain standard system configuration of the DAS3--did not exist. It said preparation of such drawings would delay the procurement date by at least 3 years. The Army also indicated that the sole-source acquisition of DAS3-B systems would ensure conformance with the Army's standardization policy, as previously discussed.

We believe the Army could have maintained the standard system configuration of the DAS3 by competitively awarding the DAS3-B systems contract and specifying Honeywell Model 47 hardware. The time delay could have been minimal because drawing specifications had been provided by MATSCO. The DAS3-A contract required that a complete set of drawings be delivered 12 months after the first production system was accepted. These drawings were submitted to the Army by MATSCO within the contract requirements. The contract also required new and updated drawings for any modification or configuration changes to be submitted concurrent with the contractor release date of the changes. Since the DAS3-B is a modified version of the DAS3-A, the government should have had a complete, updated set of drawings defining the current standard configuration available for use in a DAS3-B competitive acquisition.

A better alternative: The Army could have exercised its option for urgency under the DAS3-A contract

We believe a better alternative to the sole-source procurement would have been to satisfy the urgent DAS3-B requirement by exercising the option under the original DAS3 contract. The Army then could have satisfied its remaining requirements by acquiring the latest technology through competition. Instead, the Army awarded a sole-source contract to MATSCO in February 1983 for a total of 260 DAS3-B systems. The Army said this procurement would not only satisfy its port system requirements but also support all division and corps requirements, at an estimated cost of $208 million.

As stated earlier, the sole-source procurement was justified on the basis of an urgent requirement, but with only five port system computers identified as needing urgent replacement. The expiring maintenance contract for the existing Spectra 70 computers--a primary reason for the urgency--was later extended well beyond its initial expiration date to September 1984. The target date for the enhanced standard port system to become operational with DAS3-B hardware was then expected to be July 1984. But in July 1984, the Army experienced additional problems with the software; it now is not expected to be ready for operation until November 1984. Thus, a delay that the Army emphatically stated would be unacceptable is now being accommodated. The Army has indicated that the Spectra 70 maintenance contract must once again

be extended--to at least November 1984. The Army's actions, plus the fact that urgency was documented for only five computers, lead us to believe that standardization of the DAS3 hardware, rather than urgency, was to be the driving force for the sole-source acquisition of the DAS3-B.

DAS3-B systems needed upgrading

We also found that before the first of the five urgently needed DAS3-B systems were delivered, they needed upgrading. While the port system software was being developed, the Army realized that the DAS3-B would require more capacity to support the port system than was available in the Honeywell Model 47 central processing unit. In July 1981, a requirements study had recommended that the Model 47 be replaced with the Honeywell DPS6, Model 76 central processing unit because it had greater capacity. Since this recommendation had not been implemented, the total cost of the upgrade to satisfy port system requirements was about $170,000. At the time of our review, the limited capacity was causing problems for a DAS3-B installation as it attempted to process its logistics and personnel functions. The Army said it has solved the problem at this installation through software optimization rather than hardware upgrade. However, this solution may not solve future capacity problems that arise with other applications to be supported by the DAS3-B.

PLANS TO RECOMPETE DAS3-B FOR COMBAT SERVICE SUPPORT ARE INADEQUATE

In response to the Comptroller General's decision we discussed on page 2, the Army said it would conduct a competitive procurement based on DAS3-B specifications and would expect production deliveries to the field by February 1987. However, the Army did not indicate (1) the minimum number of DAS3-B systems needed to satisfy its immediate needs or (2) the balance of DAS3-B systems to be competitively acquired. Under the terms of the current contract, all but 52 of the 260 DAS3-B production systems are scheduled to be delivered by February 1987. In addition, the Army did not address its planned combat service support hardware requirements for 1987 and beyond. Such an acquisition strategy may deter competition or waste an opportunity to take advantage of newer technology.

With only 52 systems remaining under the proposed recompetition, we believe few vendors will be interested. The significant cost involved in preparing a bid for contract award and the small number of systems to be acquired would appear to be a deterrent to competition.

Since the initial DAS3 acquisition in April 1979, the computer industry has made many technological advances. The Army now has an opportunity to take advantage of these. For example, the advances in circuitry miniaturization have decreased both acquisition and

operation cost and increased equipment reliability and performance.

We believe the intent of recompetition for nonurgent requirements, as suggested by the Comptroller General, would be better served if the Army initiated and conducted a comprehensive, competitive procurement that is open to solutions other than those offered by the DAS3-B systems. Such an approach would also be consistent with Department of Defense and Army policy by permitting the Army to take advantage of newer and more cost-effective computer technology. It also would reduce integrated logistic support cost and improve mission support.

CONCLUSIONS

The Army's acquisition strategy was a reaction to a declared state of urgency. The urgency was documented for only a small portion of all of the computers acquired. Nevertheless, the Army used this urgency to justify some hasty decisions which, in our opinion, were counterproductive and did not result in the most efficient and effective solutions. One such decision was to waive the operational testing of the DAS3-A before making sure it could provide all required support, then designating it as standard equipment for combat service support functions.

A more broadly based acquisition strategy would have ensured selection of a standard configuration that was better suited to the Army's intended mission. Moreover, at several points, the Army could have taken advantage of the latest technological advances through a competitive acquisition of the combat support system requirements rather than continuing to acquire computers that did not have the capacity to support those requirements.

In light of the Comptroller General's recommendations, the Army now has an opportunity to develop and implement a strategy that better suits its automation needs. We believe that rather than just recompeting the remaining production of current DAS3-B system technology, the Army should define and compete all of its combat service support requirements to achieve the most cost-effective results. ADP hardware has improved in capability and reliability since the DAS3 system was initially acquired. A new competitive procurement that takes advantage of these improvements should result in reduced life-cycle costs and improved mission support.

RECOMMENDATIONS

To ensure that the Army achieves established combat service support goals cost effectively and complies with current hardware standardization policy, we recommend that the Secretary of Defense direct the Secretary of the Army to reassess the Army's current contracts and proposed acquisition strategy by:

--Identifying units in urgent need of DAS3-B systems, providing these systems under the existing contract, but ordering no more new units under that contract.

--Developing and implementing a competitive acquisition strategy for combat administration support systems that (1) considers a full range of technological alternatives and (2) comprehensively addresses combat service support and other related mission requirements through 1987 and beyond.

AGENCY COMMENTS AND OUR EVALUATION

We met with Defense officials on July 11, 1984, to obtain their official oral comments on the draft of this report. The Army later gave us additional facts, which were incorporated into the body of the report where appropriate.

Defense officials agreed with our recommendations and indicated that the Army is currently implementing them. They said the Army is reviewing its overall combat service support automation and expects to finish in September 1984. At that time the Army will refine its procurement requirements. The Army provided no details, however, on any planned revisions to its current contracts or on its acquisition strategy for future effective mission support.

Defense officials also said the Army had reassessed its top management capability and established the Office of the Assistant Chief of Staff for Information Management. This organization will oversee information management functions in the Army including prescribing policy and handling consolidated procurements of materiel and services in the information mission area.

Defense officials did not fully concur with our findings. In their view, both the DAS3-A and the DAS3-B acquisitions were based on good management decisions. They believe that terminating the DAS3-A contract after the first production year delivery would not have (1) been a cost-effective solution, (2) fulfilled existing urgent requirements, or (3) been consistent with the DAS3 program objective to standardize combat service support automation systems. They said a reprocurement would have required an unacceptable lead-time and would not have permitted the Army to capitalize on its sizeable investment in DAS3 integrated logistics support.

Comments on DAS3-A procurement and our evaluation

Defense officials said the DAS3-A performance had been suitably validated by the time it was declared the standard configuration for combat service support. They said the Honeywell ADP equipment was already in wide use in industry and had successfully undergone extensive technical testing. This satisfactory record was a factor in the decision to waive operational testing,

as was the urgency of the need. On the required system upgrade, Defense officials stated that the $11-million upgrade originally planned for the DAS3-A was not implemented because it was deemed unnecessary; therefore, the Army upgraded the memory only, at a cost of $929,157. The officials said that, with this modest upgrade, the DAS3-A equipment is performing its intended mission and demonstrating that the Army's acquisition strategy was effective.

In regard to Defense's comment in support of the decision to designate the DAS3-A as standard, we do not believe that use of equipment by industry, or technical testing of the equipment by the Army and the contractor, can be substituted for operational performance testing of hardware and software components. Use or testing in industry facilities cannot reliably predict similar performance on the battlefield. Moreover, valid testing requires use of the software the system was designed to support and, as we reported on page 4, the DS4 software was not yet available.

If a valid operational test had been performed, we believe the Army would have realized sooner that the DAS3-A did not meet its operational requirements. In our opinion, timely evidence of this inadequacy would have precluded the Army from determining that the potential benefits of standardization, including its existing investment in integrated logistics support, justified continued acquisition of DAS3 systems. In addition, the expected benefits from integrated logistics support could be offset or never realized. We found indications that subcontractor parts and maintenance for DAS3 hardware may cease to be available years before the system's intended life cycle ends. For example, one subcontractor may stop producing parts for the DAS3 in December 1985.

On the issue of the required upgrade, we disagree with Defense's implication that a limited upgrade was best suited to the Army's needs. The Army had originally planned an upgrade of the DAS3-A that included memory expansion, additional disk storage, and a communications interface device. The estimated cost of this upgrade would have been more than $11 million. Although Defense has stated that the Army later decided such a major upgrade was unnecessary, the underlying reason was that funding was unavailable. Therefore, the relatively modest cost of the upgrade does not negate the fact that the Army's acquisition strategy resulted in a system that was not optimally suited to the requirements established at the time the contract was awarded.

Furthermore, we question Defense's assertion that the upgraded system is a success and justifies the Army's acquisition strategy. An Army post-fielding review of the DAS3, dated March 1983, indicated that additional disk storage would be required to maintain equipment redundancy--for backup capability--when the DS4 software was fielded. Because this part of the upgrade was not performed, we believe the lack of redundancy could adversely affect the performance of the system when the DS4 is implemented.

Comments on DAS3-B procurement and our evaluation

Regarding the Army's strategy for acquiring DAS3-B systems, the officials said that more than five DAS3-B systems were urgently required. In the facts provided by the Army after our July 11, 1984, meeting, the Army said the operational deficiency described in the September 30, 1982, required operational capability statement for the DAS3-B implied an urgency for the additional 255 systems. Defense also stated that standardization was not the primary consideration for the sole-source acquisition. According to Defense, survivability on the battlefield--which is significantly enhanced by standardization--was a consideration, as was cost effectiveness.

Finally, Defense partially disagreed with our finding that competition to secure the latest technology would have been a better solution for its DAS3-B requirements. Defense believes the cost savings the Army realized in integrated logistics support and other hidden costs of ownership not addressed by our report outweighed any advantage that could have been realized by acquiring the latest technology.

Regarding the implied urgency of requirements for more than the five DAS3-B systems, we believe the command/management judgment as to whether an operational deficiency requires urgent action or not should be explicit--not merely implied.

The Army's comment that competition for the remaining DAS3-B procurement would not have been cost beneficial does not negate the Army's need to comprehensively analyze and address a wide range of requirements. To enhance the potential for long-term success, consideration of options must include the benefits of competition and state-of-the-art technology.

Furthermore, the Army needs to ensure that selected solutions can perform effectively. Defense and Army policy underscores the importance of such an acquisition approach. In the DAS3 acquisition, however, the Army assigned short-range considerations a higher priority than other important factors and procedures. Consequently, it encountered additional costs and operational problems. If the Army adopts our recommendations, its strategy for future acquisitions of combat service support should better support its requirements over the system life cycle.

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As you know, 31 U.S.C. 720 requires the head of a federal agency to submit a written statement of actions taken on our recommendations to the House Committee on Government Operations and the Senate Committee on Governmental Affairs not later than 60 days after the date of the report, and to the House and Senate Committees on Appropriations with the agency's first request for

appropriations made more than 60 days after the date of the report. We would appreciate being informed of the actions you plan to take in response to our recommendations.

We are sending copies of this report to the Director, Office of Management and Budget; the Chairman, House Committee on Armed Services; the Secretary of the Army; and the Administrator of General Services.

Sincerely yours,

Warren G. Reed
Director