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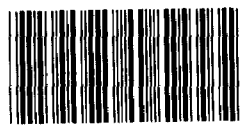
UNITED STATES GENERAL ACCOUNTING OFFICE
WASHINGTON, D.C. 20548

MARCH 13, 1984

NATIONAL SECURITY AND
INTERNATIONAL AFFAIRS DIVISION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B-206304

The Honorable Caspar W. Weinberger
The Secretary of Defense

Dear Mr. Secretary:

Subject: Army and Navy Watercraft Programs for Logistics-Over-the-Shore Operations Can Be Better Managed (GAO/NSIAD-84-31)

We reviewed the management of the Army and Navy watercraft programs as they relate to logistics-over-the-shore operations. Together the services have over $2 billion worth of watercraft and they plan to modernize these vessels and obtain additional ones at a cost of nearly $1.9 billion through fiscal year 1988.

We found that improvements can be made in coordinating the programs, determining the resources available to meet the logistics-over-the-shore requirements, and assessing the need for additional watercraft. We believe opportunities to improve operations, reduce costs, and conserve resources are being lost.

The need for coordinating the development of Army and Navy watercraft capabilities to conduct logistics-over-the-shore operations has been recognized since the early 1970s. Actions have been taken to improve coordination; however, additional efforts are still needed. The Army and Navy should jointly develop and field logistics-over-the-shore equipment and plan for mutual support as a means of reducing the total resources needed to satisfy their combined needs. Air-cushioned vessels, ship offloading equipment, and ship-to-shore lighterage are examples where additional efforts could produce benefits.

In addition to intensifying coordination efforts the Army and Navy should include additional watercraft, such as tugs and barges, when determining the resources available to meet logistics-over-the-shore requirements. The Navy should also include landing craft and air-cushioned vessels used in its assault mission. By including these additional watercraft in their available resources, the Army and Navy would better match all available resources with total requirements for logistics-over-the-shore operations. Determining if or how much of a

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shortage of capability exists without including all available resources could result in acquiring equipment that exceeds requirements.

The Army also plans to procure commercially available lighterage (watercraft used to move material from ships anchored off shore to the beach) to replace part of its watercraft fleet. The requirement for more lighterage is questionable because a modernization program will extend the life of the existing watercraft by 12 to 25 years, and some of the performance capabilities of the commercial lighterage will be less than the capabilities of the existing watercraft.

We recommend that you direct the Secretaries of the Army and Navy to

--combine development of future air-cushioned vessels and take advantage of existing capabilities and expertise,

--decide the extent that ship-to-shore lighterage should be standardized and gear the services' acquisition programs to this decision, and

--redetermine the resources available for logistics-over-the-shore operations and compare them to total needs before buying additional watercraft and equipment.

We also recommend that you direct the Secretary of the Army to reconsider the planned procurement of commercial replacement lighterage.

In providing official oral comments on a draft of our report, Department of Defense officials disagreed with most of our findings and recommendations. Our findings and their comments are discussed in more detail in the enclosure.

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As you know, 31 U.S.C. §720 requires the head of a federal agency to submit a written statement on actions taken on our recommendations to the House Committee on Government Operations and the Senate Committee on Governmental Affairs no 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 are sending copies of this report to the Director, Office of Management and Budget; the Chairmen, House Committee on Government Operations, Senate Committee on Governmental Affairs, and House and Senate Committees on Appropriations and on Armed Services; and the Secretaries of the Army and Navy.

Sincerely yours,

Frank C. Conahan
Director

Enclosure

ARMY AND NAVY WATERCRAFT PROGRAMS FOR LOGISTICS-OVER-THE-SHORE OPERATIONS CAN BE BETTER MANAGED

LOGISTICS-OVER-THE-SHORE OPERATIONS

During a contingency, combat troops will need to be resupplied with items such as ammunition, fuel, spare parts, and food to sustain their operations. In the initial phase of a confrontation, combat troops will be resupplied by air since it is the fastest means. Subsequently, most of the troops' material will be moved by cargo ships.

When the troops reach an area of operation, they will use fixed ports as much as possible to offload their cargo. If fixed ports do not exist or if they are destroyed, denied, or tactically desirable to bypass, cargo ships will have to be unloaded offshore and the material brought to shore by other means. This operation, commonly referred to as a logistics-over-the-shore operation, involves unloading cargo from ships at sea, transporting cargo from ship to shore, and moving cargo to a designated beach area to await further distribution.

The ability to conduct logistics-over-the-shore operations becomes increasingly important as the contingency scenario changes from developed areas, such as Europe, to less developed ones, such as Southwest Asia, where there are not nearly as many fixed ports. The Navy provides resupply support to Marine forces and the Army provides resupply support to Air Force and Army forces.

Both the Army and Navy have acquired watercraft to carry out these and certain other logistics operations. As of December 31, 1982, the Army had 590 watercraft valued at over $530 million and the Navy had 1,200 watercraft valued at about $1.5 billion. These watercraft include mechanized and utility landing craft, amphibious lighters, tugs, and barges.

Both services plan to upgrade their logistics-over-the-shore capabilities. The Navy plans to spend $794.7 million through fiscal year 1988 to upgrade its capabilities. Over the same period the Army expects to spend $128.3 million to modernize its existing watercraft and $966.4 million to acquire new watercraft.

OBJECTIVES, SCOPE, AND METHODOLOGY

Prior GAO reports have discussed various aspects of logistics-over-the-shore operations. We made the current review to evaluate the Department of Defense's (DOD's) progress

in improving these operations. We reviewed specific documents, studies, and records and interviewed DOD, Army, and Navy officials at the headquarters level and at selected field activities. The field activities included the Army Training and Doctrine Command, Army Troop Support and Aviation Materiel Readiness Command, Army Mobility Equipment Research and Development Command, Army Test and Evaluation Command, Army Transportation Center, Army Charleston Storage Activity, David Taylor Naval Ship Research and Development Center, and Little Creek Naval Amphibious Base. Our review was made in accordance with generally accepted government audit standards and was performed between April 1982 and August 1983.

COORDINATION OF ARMY AND NAVY PROGRAMS COULD BE IMPROVED

The Army and Navy have coordinated their efforts to develop watercraft capabilities to conduct resupply operations in areas where port capability is inadequate or unavailable. However, additional efforts should enhance operations and reduce development, procurement, and life-cycle support costs by developing more Army and Navy equipment which is compatible.

The goal of Army and Navy watercraft programs is to have logistics-over-the-shore capabilities for areas of the world where fixed ports are limited or nonexistent and to respond to commercial shipping trends toward containerization of cargo. In the past, we have commented that the services have not worked toward this goal in the most effective manner.

In our most recent report[1] we concluded that, although a requirement to develop a capability to offload sealift cargo over the shore was recognized as early as 1970, progress toward its development had been exceedingly slow and that greater coordination in planning and procurement was needed. We recommended that DOD enhance Army and Navy coordination by providing additional guidance for logistics-over-the-shore operations and that DOD

--review time-phased requirements for major scenarios to determine needs;

--prioritize requirements if overseas ports are denied and quantify those requirements; and

--use the above information to set specific goals for Army and Navy development efforts, including the desired degree of interoperability between their systems.

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[1] Slow Progress in Developing the Capability To Supply Troops Adequately if Fixed Ports Are Not Available for Modern Transport Ships and Tankers (LCD-81-15, Dec. 1, 1980).

DOD agreed with the need to quantify requirements, maintain close coordination between the services, and provide specific programming guidance to the services. Subsequently, DOD issued guidance which provided that--because of similarities between Army and Navy programs for logistics-over-the-shore operations--interservice cooperation, mutual support, and coordination were required for more effective operations and conservation of resources.

Also, in April 1981 DOD requested the Army to take the lead in (1) developing joint procedures for common use of service resources (personnel, lighterage, and equipment) to offset logistics-over-the-shore shortfalls and (2) changing joint service regulations to outline policy and procedures for sharing service resources. DOD also requested the Navy to take the lead in (1) determining the capabilities needed for moving material in a logistics-over-the-shore environment and (2) comparing these needs to current or projected procurement capabilities and identifying any shortfalls. Both services were requested to fund the shortfalls on a priority basis to provide early support of the Rapid Deployment Force requirements and to achieve a total logistics-over-the-shore capability by the mid-1980s.

The Army and Navy comments in response to the DOD requests were positive and supported increased coordination. In February 1982 an ad hoc joint service working group (Joint LOTS Working Group) was established to carry out the DOD-directed coordination objectives. Unfortunately, results of the group's efforts have been limited. The principal completed tasks have been the compilation of a listing of common equipment and issuance of an updated regulation on logistics-over-the-shore operations. DOD officials attributed the lack of progress to the individual interests of the services.

Coordination difficulties have resulted in the Army and Navy independently developing and fielding logistics-over-the-shore equipment. In some cases, the services determined requirements as though each had to accomplish its mission independently of the other. Specific examples of inadequate or untimely coordination are discussed in subsequent sections of this enclosure. They relate to air-cushioned vessels, ship offloading equipment, and ship-to-shore lighterage.

Because of the difficulties we observed in the lead service, decentralized approach to coordinating the development of logistics-over-the-shore equipment, we suggested in a draft of this report that responsibility for coordination be centralized within the Office of the Secretary of Defense. In providing official oral comments on our draft report, DOD officials disagreed with the proposal and stated that nothing is peculiar about watercraft that would warrant centralization of responsibilities or establishment of a management office within the

Office of the Secretary of Defense. After considering DOD's comments, we decided to withdraw the recommendation. However, we continue to believe that coordination needs to be improved within whatever organization structure DOD believes appropriate and several of our remaining recommendations address this issue.

DOD officials also stated that we overlooked most of the cooperative efforts between the Army and Navy and that efforts to coordinate mutual program actions have been intense over the past 18 months. In addition, they stated that Army and Navy programs do not differ because of inadequate coordination but rather reflect the specialized missions doctrinally assigned to each service.

We recognize that coordination has taken place, but as noted above, the results were limited:

--Although the Joint LOTS Working Group was established in February 1982 the only principal completed tasks have been the compilation of a listing of common equipment and issuance of an updated regulation.

--The services have not achieved design standardization for watercraft to meet their common needs.

As early as 1973, and more recently in 1978, the Army and Navy agreed that their watercraft programs needed to be coordinated to achieve design standardization. Notwithstanding this agreement, our 1980 report concluded that this objective was not being achieved and our recent work in 1983 reaffirmed this conclusion.

We have difficulty agreeing with the position that the services' programs differ because of the specialized missions doctrinally assigned to each service. Their logistics-over-the-shore mission is identical--to resupply combat troops with the material needed to sustain their operations. Before containerization both services planned to use identical mechanized and utility landing craft to accomplish their resupply missions. However, the services have taken divergent paths in developing equipment to handle containerized cargo. In our opinion, the development efforts should not differ since they still have like resupply missions.

AIR-CUSHIONED VESSELS ARE BEING DEVELOPED INDEPENDENTLY

The Army and Navy are proceeding independently with their plans to acquire air-cushioned vessels. The Army is acquiring a 30-ton cargo capacity vessel for logistics-over-the-shore operations. The Navy is acquiring a 60-ton cargo capacity vessel for assault operations that is also capable of logistics-over-the-shore operations.

The Army initially is purchasing 12 air-cushioned vessels but eventually plans to purchase a total of 24 vessels at a cost of $156 million. The Navy plans to acquire 90 air-cushioned vessels at a total cost of $3.2 billion. The services are purchasing both vessels from the same contractor.

The services also considered acquiring heavier lift air-cushioned vessels in the future. The Army considered a 70-ton capacity vessel and the Navy considered a 160-ton capacity vessel. Army and Navy officials told us that they discussed technical aspects of the vessels but did not plan to jointly develop them. A combined development program could save both time and money. For example, the Army's plans for a 70-ton capacity vessel might be satisfied by the Navy's 60-ton capacity vessel now being acquired.

DOD officials agreed with our proposal to combine development of future air-cushioned vessels and take advantage of existing capabilities and expertise. They stated that the Navy's 60-ton capacity vessel is a prime candidate for the Army's heavy lift vessel requirement and is being closely examined in this regard. They also stated that the Navy no longer is considering a 160-ton capacity vessel.

UNIFIED SHIP OFFLOADING EQUIPMENT DEVELOPMENT DELAYED BY FUNDING DISAGREEMENT

Disagreements over funding precluded timely development of a unified ship offloading system. In 1977 the Army and Navy jointly tested equipment for offloading containerships that did not have onboard cranes. The Army equipment consisted of a crane mounted on a barge and the Navy equipment consisted of a crane mounted on a ship. The test results favored the Navy equipment because the Army equipment was difficult to deploy and unable to operate in other than a calm sea.

According to DOD officials, the services decided to go with the Navy equipment and have the Navy develop and field its equipment for both services. This decision, however, was not implemented until 1983 because of a funding disagreement. The Army believed that the Navy should fund both services' equipment whereas the Navy believed that the Army should fund its own equipment. In the interim, while the matter was being resolved, the Army proceeded with the development of five units of the crane-on-barge system.

In this case, coordination occurred but disagreements over funding precluded timely development of a unified offloading system. In our draft report we suggested that the Secretary of Defense resolve the funding dispute. DOD officials advised us

that the dispute had been resolved. We have dropped the suggestion because the services have agreed that the Navy would fund both services' equipment.

DIVERGENT COURSES BEING TAKEN TO MODERNIZE SHIP-TO-SHORE LIGHTERAGE FLEET

The Army and Navy are taking divergent courses of action to modernize their lighterage fleets. Both services have inventories of World War II design equipment (lighterage) to move supplies from ships anchored offshore to the beach. These vessels have independent propulsion and navigation systems.

The Army plans to spend over $1 billion in the next 5 years to modernize its current fleet and buy replacement lighterage. The Navy also plans to spend almost $1 billion in the next 5 years to purchase a separate inventory of lighterage to conduct its resupply mission.

The difference between the lighterage is that the Army's will have independent propulsion and navigation systems whereas the Navy's will have nonpowered barges or causeway sections. The nonpowered barges can be linked together and pushed ashore by powered lighterage.

Therefore, the Army and Navy will have two different types of lighterage to conduct their logistics-over-the-shore resupply missions. Consequently, we believe interfacing or sharing equipment will be more difficult than if both services had similar equipment.

In our draft report we proposed that the Secretary of Defense decide whether the ship-to-shore lighterage should be powered or nonpowered and gear the services' acquisition programs to this decision. Because our concern is with the compatibility of the lighterage and not whether it is powered or nonpowered, per se, we have revised our proposal by recommending that the Secretary of Defense decide the extent that the lighterage should be standardized.

In commenting on our draft report, DOD officials stated that the services are procuring different types of lighterage because the service missions are not identical and where differences occur mission requirements dictate use of divergent equipment. They stated that, in addition to logistics-over-the-shore operations, Army lighterage must be able to conduct coastal, harbor, and inland waterway operations and intratheater open ocean transits.

As stated previously, the logistics-over-the-shore missions--to provide resupply support to combat troops--of the

Army and Navy are identical. Although the requirements document for the Army lighterage states that it will be used for both logistics-over-the-shore operations and coastal, harbor, and inland waterway operations, the document also states that the lighterage will replace two types of landing craft used primarily in the logistics-over-the-shore mission and not the other missions. The Army has traditionally used tugs and barges to accomplish its coastal, harbor, and inland waterway mission and not the type of lighterage being acquired for the logistics-over-the-shore mission.

DOD officials also stated that since March 1983 the Army has been actively pursuing acquisition of causeways and other lighterage identical to Navy systems. Army documents in the same timeframe give the opposite impression. They indicate that there is no requirement for the causeways in the Army logistics-over-the-shore mission.

ADDITIONAL WATERCRAFT SHOULD BE INCLUDED IN DETERMINING AVAILABLE RESOURCES

The Army and Navy have excluded certain watercraft, such as tugs and barges, when determining the resources available to meet logistics-over-the-shore requirements. The Navy also excluded landing craft and air-cushioned vessels used in its assault mission.

The Army has a fleet of 190 landing craft and 124 amphibians to support its logistics-over-the-shore operations. It also has 56 tugs and 138 barges that were excluded in determining resources available for resupply operations. The barges would be a valuable asset since they have a shallower draft than the landing craft and can carry more than twice as many containers. Similarly, the Navy has approximately 250 tugs and barges that it did not consider in determining resources available for resupply operations.

The Navy has a fleet of 299 landing craft to support first its assault mission and then its logistics-over-the-shore operations. The Navy plans to use the landing craft to haul breakbulk cargo but is acquiring floating causeway sections to move containerized cargo. Since the landing craft are fully capable of handling containers, the Navy is missing an opportunity to use existing resources in lieu of acquiring new equipment for its logistics-over-the-shore operations.

The Navy also is acquiring 90 air-cushioned vessels for its assault operations. These vessels have a 60-ton cargo capacity but have not been considered in determining resources available for logistics-over-the-shore operations. As in the case of the landing craft, use of the air-cushioned vessels for resupply

operations would directly affect the need to acquire floating causeway sections.

We believe the Army and Navy should include all watercraft when matching available resources with total requirements for logistics-over-the-shore operations. Determining if or how much a shortage of capability exists without including all available resources could result in acquiring equipment that exceeds requirements.

DOD officials did not agree with our proposal that the Army and Navy redetermine the resources available for logistics-over-the-shore operations and compare them to total needs before buying additional watercraft and equipment. They stated that no productive watercraft were excluded in determining resources available to meet logistics-over-the-shore requirements. They also stated that certain watercraft have other missions and, therefore, are not listed as logistics-over-the-shore resources.

We believe it is important to recognize that some watercraft can have both a logistics-over-the-shore mission and another mission. For example, tugs and barges can be used for harbor operations when fixed ports are available and for logistics-over-the-shore operations when fixed ports are not available. Since the Southwest Asia scenario anticipates only limited fixed port availability, it seems logical to assume that tugs and barges will be available for logistics-over-the-shore operations. DOD officials stated that assault craft were included in the Navy computations; however, in response to our request for supporting documents, they did not furnish any documentation to support this statement.

QUESTIONABLE NEED FOR MORE COMMERCIAL LIGHTERAGE

The Army should reconsider its plans to procure commercially available lighterage to replace part of its watercraft fleet. The requirement for more lighterage is questionable because a modernization program will extend the life of the existing watercraft by 12 to 25 years. In addition, some of the performance capabilities of the commercial lighterage will be less than the capabilities of the existing watercraft.

The Army plans to buy 50 commercial lighters at a cost of $232.4 million through fiscal year 1988. At the same time the Army has a modernization program underway that will extend the life of the watercraft being replaced. The total cost of the program is estimated to be $128.3 million through fiscal year 1988 and includes modernizing most of the 55 landing craft in classes 1466 and 1646. Modernization will include updating machinery, replacing obsolete marine electronic communication and navigation equipment, and installing oil and water separation systems.

Modernization is expected to extend the service life of class 1466 landing craft by 12 years and class 1646 landing craft by 25 years. The Army planned to start buying lighterage to replace these craft in fiscal year 1984. In view of the increase in service life expected from the modernization program, it would seem that replacement lighterage would not be needed for many years.

In addition, the replacement lighterage will have deployment limitations. The existing landing craft will be deployed from the United States to the target area on the decks of cargo ships. The replacement lighterage is intended to be self-deployed but there are questions about its deployability. The self-deployment range is 3,600 to 4,500 nautical miles or only one half the distance to Southwest Asia. Furthermore, the deployment speed is 9 to 12 knots or only one third to one half the speed of the cargo ships it will unload. Also, the replacement vessel will not be capable of deploying in adverse seas because of its flat bottom design.

The replacement lighterage also will have less landing capability for logistics-over-the-shore operations than the existing watercraft. Existing landing craft are able to traverse more of the world's beaches than the replacement lighterage. The class 1466 landing craft has a forward draft of 3 feet when loaded fully with 152 tons of cargo. The commercial lighterage will have a forward draft of 4 feet with a similar load. The difference in draft means that the replacement lighterage would go aground further from shore than the existing landing craft. Under conditions of shallow beach gradient, such as those found in Southwest Asia, this distance could be considerable.

The Army created a dichotomy by deciding to modernize the existing watercraft and then planning to replace them almost immediately with commercial lighterage. It appears the Army should have made a choice between modernization or replacement rather than deciding to do both. Because of the Army's modernization program and the replacement lighterage's performance limitations, we believe the Army should reconsider its plans to buy replacement lighterage.

DOD officials did not agree with our recommendation that the Army reconsider the planned procurement of commercial replacement lighterage. They stated that the programs to modernize existing landing craft do not make the procurement of new commercial lighterage questionable. According to the officials, modernization began in 1974 to provide a continuing capability until new watercraft were procured. Further, they stated that the commercial lighterage would replace the class 1466 landing craft but would not replace the class 1646 landing craft, which would be retained in inventory. The officials also stated that the requirement document for the commercial lighterage stipulates that