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Report to the Chairman, Subcommittee on Readiness, Committee on Armed Services, House of Representatives

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DESERT SHIELD/ STORM

U.S. Transportation Command's Support of Operation

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National Security and
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The Honorable Earl Hutto
Chairman, Subcommittee on Readiness
Committee on Armed Services
House of Representatives

Dear Mr. Chairman:

As a result of discussions with your staff in October 1990, we reviewed the U.S. Transportation Command's effectiveness in moving personnel, equipment, and supplies in support of Operation Desert Shield. Desert Shield presented the first major test of the Command's ability to plan and execute air, land, and sea movements in support of the force requirements and priorities set by a theater commander.

Our specific objectives were to determine if the Command (1) had adequate transportation plans and preparations for a Desert Shield-type contingency and (2) effectively managed transportation of the needed troops and equipment to the Persian Gulf area. The Department of Defense (DOD) did not provide us with some deployment data and command tasking that it considered operationally sensitive. However, we were able to perform our review from available data and relied extensively upon DOD officials' assessments of the Transportation Command's performance.

Background

The Transportation Command was established in October 1987 to provide global air, land, and sea transportation to meet national security objectives. Its responsibilities include preparing transportation plans, developing a transportation management information network, and acting as the wartime traffic manager. The service transportation agencies—the Air Force's Military Airlift Command, the Army's Military Traffic Management Command, and the Navy's Military Sealift Command—are assigned as component commands. During wartime, Command headquarters staff plan, provide oversight, and monitor the deployment of troops, while the component commanders provide the aircraft, ships, and land transportation required.

Iraq's invasion of Kuwait on August 2, 1990, triggered what DOD calls the largest rapid deployment of U.S. forces and supplies in history. The Transportation Command supported the Central Command, which is responsible for the Southwest Asian theater, in planning and moving

troops, equipment, and supplies required by Operation Desert Shield/Storm.

Results in Brief

During Desert Shield deployment, actual deliveries of troops and supplies lagged behind Central Command requirements, but the Transportation Command was able to substantially meet requirements before armed conflict with Iraq began. Due to the absence of hostilities during deployment, the Transportation Command had more than 5 months to overcome initial problems and deliver the needed supplies and forces before offensive operations began. The Transportation Command's support of the deployment needs of the Central Command was not accomplished, however, as rapidly, efficiently, and effectively as intended.

The Transportation Command's management of wartime theater transportation was hampered by the lack of (1) an operational plan for a Desert Shield-type contingency; (2) agreed-upon operating procedures and lines of responsibility for a wartime situation among the Command, its components, and the services; and (3) a fully implemented central deployment data base with accurate and complete transportation information.

Despite these problems, the airlift and sealift moved thousands of personnel and millions of tons of cargo. Overall, the component units of the Transportation Command performed responsively, at a high operating tempo, and with an overall high utilization and reliability of aircraft and ships. DOD has prepared, from lessons learned analyses, several proposals to address the problems it encountered during the deployment.

Assessment of Transportation Management

Deployment began on August 7 and by February 1, 1991, less than 6 months into deployment, the Transportation Command had moved about 440,000 passengers, 3 million tons of unit equipment and supplies, and 4.2 million tons of fuel supplies to Southwest Asia in preparation for offensive action against Iraq. Almost all of the troops moved by airlift, while the vast majority of the cargo required sealift. Table 1 summarizes the volume of troops and cargo transported.

Table 1: Desert Shield/Storm Strategic Lift Summary

	Airlift			Sealift			
	Missions	Cargo	Troops	Voyages	Cargo	Fuel	Troops
1990							
August	1,668	46,946	67,263	21	253,293	333,640	315
September	1,873	68,880	60,476	37	252,013	508,534	681
October	1,421	54,295	51,154	71	433,708	517,038	436
November	1,502	43,926	20,553	36	264,489	1,011,243	186
December	2,737	90,587	105,413	70	447,517	894,061	465
1991							
January	3,272	118,144	132,095	149	910,379	1,088,825	516
February	3,052	95,509	45,562	68	527,322	1,336,807	147
March	2,531	40,013	10,983	14	301,426	412,855	30
Total	**18,056**	**558,300**	**493,499**	**466**	**3,390,147**	**6,103,003**	**2,776**

Notes: Cargo and fuel amounts are expressed in short tons.

A voyage is defined as a complete transit from on-load point to off-load in the Persian Gulf and return.

Operation Desert Shield was an extremely demanding deployment. It was large and complex and very intensive in terms of the percentage of available strategic lift used for a sustained period of time. The Transportation Command received little warning time to prepare for and plan the deployment.

Overall, the Transportation Command components performed responsively and at a high operating tempo. DOD noted the following examples of the measures used to accomplish this deployment:

- Airlift began immediately upon the order to deploy and deliver elements of two fighter squadrons and a brigade of airborne troops by August 8. During the most intensive period of airlift operations, the Military Airlift Command used about 90 percent of its C-5 and C-141 aircraft. Officials reported flying aircraft at three times their peacetime rates. Commercial aircraft were activated to augment military aircraft and were used to transport the majority of deployed personnel.
- The Military Sealift Command activated cargo ships and began chartering commercial vessels in the first days of deployment. Prepositioned ships set sail immediately and delivered needed equipment and supplies to the theater within 1 week. During the deployment, the Command managed a diverse fleet of over 200 Navy, Ready Reserve, U.S. commercial, and foreign-flagged vessels to move the unit equipment and most of the supplies needed by the troops.

- The Military Traffic Management Command coordinated the movement of troops, equipment, and material to loading ports on thousands of railcars and trucks and directed loading operations at 28 seaports. The first cargo was loaded at a seaport on August 10, and additional ports were opened to military operations over the next several weeks. Officials cited the excellent teamwork among the transportation community: government, industry, and labor.
- Volunteers from the Reserves and National Guard assisted the components from the beginning. Reservists called up under an August 22, 1991, presidential order later augmented the volunteers. The Transportation Command is heavily dependent upon the Reserves for augmenting active duty forces and for performing such critical tasks as flying aircraft, activating ships, operating ports, and handling cargo. For example, the Air Force Reserve and Air National Guard units comprise one-half of the Military Airlift Command's total airlift capability.

Some aspects of Desert Shield were conducive to a successful deployment. In particular, the absence of hostile Iraqi action during deployment allowed for more than 5 months to resolve lift problems, mitigate lift shortfalls, and deploy the required forces needed for Desert Storm. Operations were neither disrupted by nor were lift assets lost to enemy actions. The modern and capable air and seaports in the region, excellent host nation support, and worldwide political and economic assistance from allies were cited as additional factors aiding the deployment effort. The Transportation Command Commander said that the scenario would have been much different, and the challenge much greater, if the above factors had not been in our favor.

Officials said, however, that overall lift operations lagged up to 3 weeks behind the Central Command's requirements during much of the deployment. Deployment constraints that Transportation Command officials cited include the poor condition of ships held in reserve and a shortage of the right kinds of ships. For example, 30 percent of ships requested from the Ready Reserve Fleet (former commercial ships maintained in a reduced readiness status) set sail 10 or more days late. Some ships also experienced mechanical problems. One of eight fast sealift ships (former commercial container ships capable of high speed) broke down and required a major overhaul. Officials also said that some ships were not well suited for transporting equipment, and they needed additional ships designed for transporting tanks and other vehicles. Officials said they were able to readjust arrival dates and substantially fulfilled the Central Command's requirements before commencing Operation Desert Storm.

Factors Affecting Transportation Management

Although the Transportation Command's management of the shipment of personnel and equipment was able to substantially meet requirements before armed conflict with Iraq began, several factors hampered its effort. Incomplete plans, undefined organizational relationships, and automated data processing equipment problems and limitations had to be overcome.

Transportation Command Hampered by Lack of Plans

During peacetime, the Transportation Command assists theater commanders in developing operational plans, including the preparation of transportation support plans. DOD guidance states that prior planning can enable a faster and more effective response during a crisis by using or modifying an existing plan to fit the specific contingency. A critical element in developing an operational plan is the time-phased force and deployment data. This is a computer-supported data base containing information on deploying forces, movement characteristics and requirements, and prioritized times for arrival in theater. In planning a deployment, the Command coordinates force priorities and closure dates (the times required for units to arrive in the theater) with the theater commander and ensures that adequate lift is available. To do this, the Command and its components assign ports of embarkation, identify modes of transportation, develop feasible transportation schedules for deploying forces, and attempt to optimize the use of available transportation capability.

The Central Command's draft operation plan for a contingency similar to Desert Shield had not yet reached the stage where the Transportation Command would have prepared the detailed transportation plan. The deployment data had not been refined; did not identify all the forces, support, and sustainment required; and, according to officials, exceeded available transportation assets. Specific plans for the force requirements, support needs, and movement priorities had to be developed and modified as the operation progressed. Throughout most of the deployment, Transportation Command officials could only focus on the immediate, near-term movement requirements. For example, they published transportation schedules concurrent with—or slightly ahead of—their actual movement.

Transportation Command officials said the frequent changes and additions to deployment requirements and priorities made by Central Command officials as they developed and modified their plan of operations made it difficult to determine the type and amount of air and sealift needed and to develop efficient transportation schedules. In addition,

Transportation Command officials said they were often not informed of changes until they were expected to execute them. The Command did not therefore have good visibility of long-term and total requirements, which they said is needed to effectively plan the use of lift and resolve lift capability shortfalls and scheduling conflicts in a timely manner.

Prior planning efforts, training exercises, and peacetime operating procedures also tended to be directed more towards a European deployment than for a Desert Shield-type contingency. European plans assumed elements not present for Desert Shield: (1) sufficient time to prepare for deployment, (2) large numbers of forward-deployed troops and prepositioned material, and (3) a well-developed logistical and distribution capability. In addition, officials never anticipated moving major European forces to the Persian Gulf. Officials said that transportation training exercises have generally been limited in scope and planned well in advance, which serves to maximize the use of lift and minimize the impact of changes and unknown factors that occur during a crisis.

Without a specific transportation plan and with uncertain force requirements, officials said that airlift and sealift were initially "thrown at requirements" without firmly establishing the priorities for the type and amount of lift needed. A Transportation Command official characterized the initial period of Desert Shield deployment as "chaotic and undisciplined." For example:

- The Military Airlift Command reported incidents of aircraft unnecessarily sitting idle because bases could not handle the scheduled flow. Once the system was sufficiently backlogged, according to one official, the air flow was disrupted and had to slow. For example, Langley Air Force Base could not accommodate the original loading schedule and became backlogged until aircraft flow was reduced. Aircraft had to be diverted to other bases and make unplanned stops when plans and priorities changed.
- Military Traffic Management Command and Military Sealift Command reports identified several instances where the types of ships sent to seaports were not well matched or able to transport the waiting cargo. This necessitated calling in equipment and supplies out of priority order to load these ships and scheduling additional ships for the original cargo. In another instance, the number of ships sent to a seaport was not sufficient to load an Army division's cargo because requirement data was inaccurate and the division had more equipment and supplies than authorized.

- At both airports and seaports, troops and cargo were often loaded on a first-in, first-out basis, regardless of their relative priorities for arriving in the theater. In addition, it was difficult to establish priorities because some cargo was mislabeled and much of the cargo was coded as top priority. Dover Air Force Base officials reported that such items as rations, publications, and sundries were handled the same as critical items such as Army aviation spare parts.

Transportation Command officials are currently evaluating lessons learned from Desert Shield to improve their peacetime operations and better prepare for future crises. The Military Traffic Management Command, for example, conducted a port analysis study that questioned the need to operate from so many seaports and recommended changing planning efforts and ocean port operations to better support regional crises. During Desert Shield, officials needed to activate only 6 of 18 reserve units to operate the ocean ports. Transportation Command officials are also emphasizing the importance of operating the same in peacetime as in wartime and on conducting realistic training exercises. They said that future training exercises should be conducted with little or no time to prepare.

Organizational Problems

As the central transportation manager during wartime, the Transportation Command is expected to coordinate transportation needs of the services and report to the Chairman, Joint Chiefs of Staff, and unified commanders. In wartime, the Transportation Command assumes operational command over the components and their transportation forces. In peacetime, the components operate autonomously from Transportation Command headquarters.

Because Desert Shield was initially considered a "crisis" and not a wartime situation and the Command's operational role changes from peacetime to wartime, the services either did not know or understand the Command's role and continued to act independently. Peacetime lines of authority remained operative, and the services and component commands tended to work together as in peacetime. Headquarters officials said they were sometimes not informed about the use and availability of lift and how operational problems and lift shortfalls were being resolved. According to a Command official, "The Command is operating in the blind as it has little visibility over force movement." Transportation Command officials stated that their overall effectiveness was hindered because their components and the services did not always keep them well-informed and the Command's transportation information was

limited. Conversely, component command officials felt that headquarters became too involved in operational matters and that the component commands should resolve operational problems at the lowest level whenever possible.

Officials had not (1) developed specific procedures to smoothly convert Transportation Command headquarters and components from the peacetime to the wartime role or (2) clearly identified crisis operating procedures and lines of responsibility. The Command's authority and degree of command and control of resources is ambiguous during a crisis. Also, because it is a relatively new command, with a limited peacetime role, it had no bank of experience from which to draw guidance for this crisis. Component command officials told us that relationships were still being worked out with headquarters in January 1991.

The Command's organization and functions are being evaluated and its peacetime role expanded. In November 1990, the Joint Chiefs of Staff approved proceeding with a reorganization plan to include assigning all component forces to the Transportation Command in peace and war, giving the Command a greater peacetime mission, and consolidating traffic management under the Command. A draft DOD directive dated March 1991 designated the Command as the single manager for common-use air, land, and sea transportation; however, as of August 1991, the directive had not been approved or implemented.

Transportation Information Limited

The Command also operates and maintains transportation information systems, integrating them with service automated data processing systems. This is necessary to provide timely flow of information and ensure that the services' data bases containing information on the size, composition, and status of military forces are accurate and up-to-date. The most significant of these is the Joint Operation Planning and Execution System (JOPES), an automated data processing system that has been evolving for several years and is designed to replace current deployment systems. JOPES is designed to provide information needed by the unified command structure in conducting joint planning and operations. JOPES is to maintain a central deployment data base showing what units are moving when and where and to communicate the status to senior-level decisionmakers.

Joint Staff and Command headquarters officials said JOPES was absolutely needed for effectively managing such a large and complex deployment and performed reasonably well considering the state of

development. Officials acknowledged, however, several deficiencies and systemic problems that limited its effective use and often required skirting the system to accomplish their tasks. They cited specific problems with JOPES.

- JOPES is an immature system being implemented incrementally through 1997. Its current software had difficulty accommodating the rapid changes in force requirements and priorities experienced during Desert Shield.
- JOPES is also not well integrated with the services' systems and data bases used to determine unit movement requirements, schedule lift, prepare manifests of passengers and cargo loads, and maintain in-transit visibility. The lack of interfaces and the different coding used to identify cargo did not permit the systems to exchange information and update records in a timely fashion.
- Because JOPES had not been widely or extensively used during peacetime, the services had a lack of trained and proficient operators and users during the deployment. This problem contributed to errors and delays in entering data and in developing the force deployment lists.
- The services' deployment data bases contained inaccurate and incomplete information, which resulted in erroneous lift requirements, inefficient use of lift, and forced revisions to movement routing and scheduling. The actual number of passengers, tonnages, and types of equipment requiring lift were often very different from and usually greater than the amounts shown in the services' data bases.

As a result of its problems and limitations, many officials did not use JOPES extensively, particularly during the first deployment phase. Component command officials did not believe JOPES data to be accurate or timely and instead called individual units and service headquarters to determine which units were ready to move and the kind and amount of lift required. The system would not reflect these revised plans and the actual movements until it was updated. Officials relied extensively on informal, personal communication, and manual methods to develop schedules and prepare manifest lists of the items being transported.

The Command plans to proceed with JOPES development and implementation. In addition, the Joint Chiefs of Staff directed more extensive peacetime use and training on JOPES.

Agency Comments

DOD concurred with the findings in this report. Its comments are included as appendix I.

Scope and Methodology

We interviewed officials at Command headquarters, its component commands, the Office of the Joint Chiefs of Staff, and the U.S. Central Command. We also reviewed pertinent regulations and guidance, deployment data, and documents from each of the services describing the lessons learned from the operation. We conducted our review from November 1990 to July 1991 in accordance with generally accepted government auditing standards.

As arranged with your office, unless you publicly announce its contents earlier, we plan no further distribution of this report until 30 days from its issue date. At that time, we will send copies to the Chairmen, Subcommittees on Defense, Senate and House Committees on Appropriations, and Senate and House Committees on Armed Services; the Secretary of Defense; and other interested parties. We will make copies available to others upon request.

This report was prepared under the direction of Donna M. Heivilin, Director, Logistics Issues, who can be reached on (202) 275-8412 if you or your staff have any questions. Other major contributors are listed in appendix II.

Sincerely yours,

Frank C. Conahan

Frank C. Conahan
Assistant Comptroller General

Comments From the Department of Defense

ASSISTANT SECRETARY OF DEFENSE
WASHINGTON, D.C. 20301-8000

PRODUCTION AND LOGISTICS

OCT 24 1991

Mr. Frank C. Conahan
Assistant Comptroller General
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Washington, D.C. 20548

Dear Mr. Conahan:

This is the Department of Defense (DoD) response to the General Accounting Office (GAO) draft report, "DESERT SHIELD/STORM: U.S. Transportation Command's Support of Operation Desert Shield," dated August 28, 1991 (GAO Code 398060/OSD Case 8818).

The DoD has reviewed the report and concurs without further comment. Suggested technical changes have been provided separately. The Department appreciates the opportunity to review the report in draft form.

Sincerely,

David J. Berteau

DAVID J BERTEAU
PRINCIPAL DEPUTY ASD(P&L)

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