

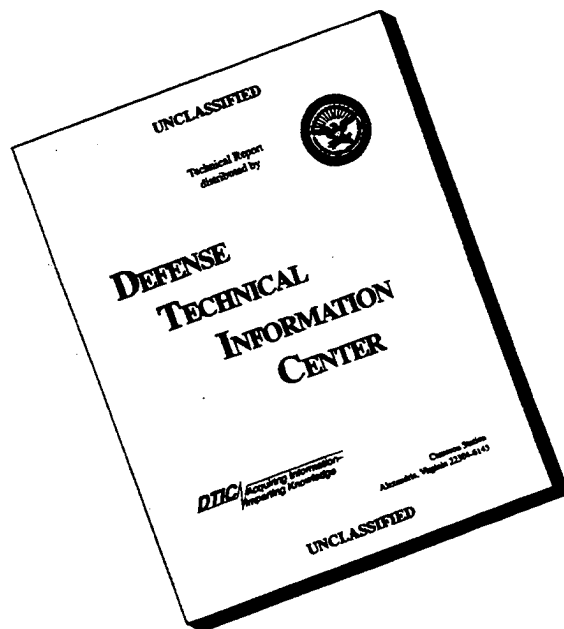
REPORT DOCUMENTATION PAGE			Form Approved OMB No. 0704-0188	
Public reporting burden for this collection of information is estimated to average 1 hour per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to Washington Headquarters Services, Directorate for Information Operations and Reports, 1215 Jefferson Davis Highway, Suite 1204, Arlington, VA 22202-4302, and to the Office of Management and Budget, Paperwork Reduction Project (0704-0188), Washington, DC 20503.				
1. AGENCY USE ONLY (Leave blank)		2. REPORT DATE		3. REPORT TYPE AND DATES COVERED MONOGRAPH
4. TITLE AND SUBTITLE <i>The Army Global Prepositioning Strategy: A Critical Review</i>			5. FUNDING NUMBERS	
6. AUTHOR(S) <i>MAJ James Pasquarello</i>				
7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES) School of Advanced Military Studies Command and General Staff College Fort Leavenworth, Kansas 66027			8. PERFORMING ORGANIZATION REPORT NUMBER	
9. SPONSORING/MONITORING AGENCY NAME(S) AND ADDRESS(ES) Command and General Staff College Fort Leavenworth, Kansas 66027			10. SPONSORING/MONITORING AGENCY REPORT NUMBER	
11. SUPPLEMENTARY NOTES				
12a. DISTRIBUTION/AVAILABILITY STATEMENT APPROVED FOR PUBLIC RELEASE: DISTRIBUTION UNLIMITED			12b. DISTRIBUTION CODE	
13. ABSTRACT (Maximum 200 words) SEE ATTACHED				

19961002 055

DMIC QUALITY INSPECTED 3

14. SUBJECT TERMS <i>Prepositioning, Strategic Mobility</i>			15. NUMBER OF PAGES <i>54</i>	
			16. PRICE CODE	
17. SECURITY CLASSIFICATION OF REPORT UNCLASSIFIED	18. SECURITY CLASSIFICATION OF THIS PAGE UNCLASSIFIED	19. SECURITY CLASSIFICATION OF ABSTRACT UNCLASSIFIED	20. LIMITATION OF ABSTRACT UNLIMITED	

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THE ARMY GLOBAL PREPOSITIONING STRATEGY: A CRITICAL REVIEW

A Monograph
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Second Term AY 95-96

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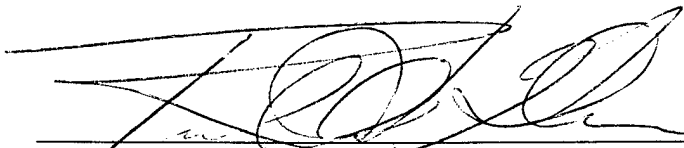
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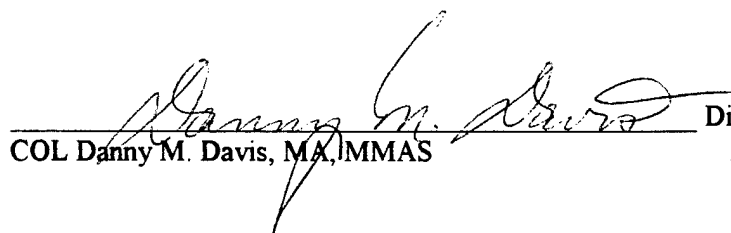
Title of Monograph: The Army Global Prepositioning Strategy: A Critical Review

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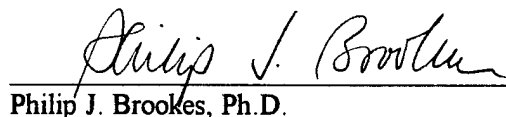
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Accepted this 30th day of April 1995

ABSTRACT

THE ARMY GLOBAL PREPOSITIONING STRATEGY: A CRITICAL REVIEW by Major James F. Pasquarette, USA, 54 pages.

The army Global Prepositioning Strategy (GPS) officially became a Department of Defense endorsed program in 1993 as a means to rapidly project heavy army forces to critical regions around the world. The program calls for prepositioning heavy army combat equipment at various locations to show U.S. commitment and to reduce deployment timelines given the outbreak of a crisis. At first glance the strategy appears to be a well-conceived DoD power projection initiative. However, the program currently suffers from an incongruity between the strategic intent and operational and tactical capabilities. This monograph will examine the GPS to in an effort to determine its strengths, weaknesses, and to recommend modifications to address the shortcomings.

The GPS review will examine five areas: the National Military Strategy relationship to prepositioning initiatives over time; the present GPS organization; a review of recent operational deployments involving employment of prepositioned equipment; issues affecting the efficacy of the GPS; and the anticipated nature of future warfare and its impact on the GPS. An analysis, conclusions and recommended GPS modifications will follow this initial examination.

The Global Prepositioning Strategy is an integral part of the nation's national military strategy for the twenty-first century. However, potential problems exist in executing this strategy. An introspective, critical analysis of the program is a prudent course of action.

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Introduction

"No amount of political change will alter the geographic fact that we are separated from many of our most important allies and interests by thousands of miles of water...An new emphasis on flexibility and versatility must be our guide."¹

President Bush, Aspen Colorado, 2 August 1990.

History rarely offers a single instant in time as evidence of a major shift in international relations. Rather, historians align such changes with spans of time measured in years. If pressed to pinpoint a single day that marked the end of the Cold War, many select 9 November 1989: the day the Berlin Wall came down. A less recognized but perhaps more significant date may be 2 August 1990. President George Bush's benchmark speech to the Aspen Institute on that day laid the foundation for the redefinition of U.S. national security policy: a President of the United States publicly recognized for the first time in forty years the need to revamp national security policy to address the emergence of a congenial Soviet Union. In short, "containment" - the strategy conceived by George Kennan and adopted by President Truman - was passé. As President Bush addressed the crowd in Aspen, Saddam Hussein's forces were overwhelming then-obscure Kuwait in a modern-day blitzkrieg. The subsequent U.S. participation in Operations Desert Shield/Storm served as a model upon which the Joint Staff based a new national military strategy. While many associate the end of the Cold War with the collapse of the Berlin Wall, the above-mentioned simultaneous events that occurred almost nine months later may be closer to the mark.

The Cold War "victory" forced the United States to conduct a broad, introspective analysis of its military requirements. This analysis rendered critical decisions that fundamentally altered U.S. military strategy. Certain decisions were relatively simple; for example, most agreed the military structure must be substantially smaller. The more dynamic issues centered on enhancing the capability of a smaller force. Several "critical force enhancement" programs came to the fore.

The Department of Defense believed investments in these programs would empower a smaller force to defend U.S. national interests abroad. One such program was strategic mobility.

Strategic mobility was an under-resourced, dilapidated program during the forty years of containment strategy. Congress and the military rationalized the acceptance of risk in this program based on two Cold War realities. First, the threat of nuclear war was considerable. Strategic deterrence requirements received a tremendous amount of funding at the expense of other programs deemed less critical to the survival of the nation. Second, the Cold War military strategy relied heavily on robust forward-stationed forces at communism's periphery (Germany and Korea). These served as a conventional deterrent and obviated the need for rapid deployability from the Continental United States (CONUS).

The Chairman of the Joint Chiefs of Staff published a new national military strategy in January 1992. A single sentence in the introduction of this document summarized the dilemma for the U.S. military in the new security environment: "It is certain that US military forces will be called upon again, but predicting the time, place, and circumstances will be difficult..."² The inherent uncertainty the future held and fiscal realities led the U.S. to consolidate military forces in CONUS. Strategic mobility became one of the subsequent critical force enhancements that lent credibility to a CONUS-based force.

Sealift, airlift and prepositioning constitute the strategic mobility triad. Those with a cursory knowledge of strategic mobility are most familiar with the first two legs. The Department of Defense is spending billions of dollars on both strategic sealift (medium-speed roll-on, roll-off vessels) and strategic airlift (the C-17). Less publicized, but equally critical, is prepositioning. Though the U.S. military prepositioned equipment during the Cold War, the program has only recently gained prominence as a means of protecting vital interests.

Each military service has its own prepositioning program aimed at reducing deployment time. The army's version, named the Global Prepositioning Strategy (GPS), stores equipment and supplies in vital regions of the world. The army can project force upon eruption of a crisis by flying soldiers into a theater to link-up with equipment and supplies already on the ground. The program has garnered kudos for its strategic value after recent employments Southwest Asia since its post-Cold War inception.

The GPS at first glance appears to be a cogent strategy designed with the present national military strategy in mind. In reality, it came into existence as a conglomerate of Cold War strategies and more recent initiatives in various theaters. The availability of equipment due to the drawdown of forces and the parochial fight for roles and missions among services during the military's restructuring led the army to advocate the GPS to the Office of the Secretary of Defense (OSD) and the Joint Chiefs of Staff (JCS) in its present form. The army has actually done scant analysis on the feasibility and adequacy of the GPS.

Is the GPS program correctly structured for the twenty-first century? This monograph will attempt to answer this question. To reach a conclusion, the research and analysis must address several subordinate questions. First, are the sets of equipment deployable to other theaters? The army has advertised the ability to relocate equipment prepositioned in a given theater to support a contingency in a separate theater. Is this operationally and politically viable? Second, has the army appropriately positioned the sets of equipment? The presence of U.S. equipment storage sites in regions near potential U.S. adversaries seems to make strategic sense, but what is the strategic value of the equipment in Europe? Would prepositioning sets of equipment in other strategic locations, such as closer to the Suez and Panama Canals, enhance army's strategic agility? Additionally, how employable is the set of equipment prepositioned afloat given the availability and

quality of usable ports around the world? Finally, has the army structured the sets of equipment properly by size and equipment type to meet the perceived challenges of the twenty-first century?

The army's Global Prepositioning Strategy is a complex system. A critical analysis of this system requires a historical review of both the evolution of current military strategy and operational employments of GPS, an understanding of the current GPS organization, and the future applicability of the GPS. Hence, this monograph will take the following form to answer the primary research question: First, a review of the National Military Strategy - both Cold War and present day - will explain the sudden emergence of prepositioning. Inclusive in this section will be the historical background on components of the program. Second, a detailed examination of the present GPS organization will provide an understanding of current and future capabilities. Next, an analysis of the three operational employments of prepositioned assets since the end of the Cold War will reveal both strengths and weaknesses of the program. Specifically, this section will review USMC and army prepositioned afloat employment in Operation Desert Shield, army prepositioned afloat employment in Operation Restore Hope (Somalia), and army prepositioned afloat and ashore employment in Operation Vigilant Warrior (Kuwait). Fourth, a review of several pending issues will provide an insight on the intricacies of the program. Finally, a look at the nature of future warfare (through TRADOC PAM 525-5, Force XXI Operations and other sources) will assist in assessing the applicability of the GPS in the next century.

The Global Prepositioning Strategy is an integral part of the nation's military strategy for the next century. It has gained acclaim in the recent past as a means to reduce both closure time into theater and force structure requirements. However, the army must conduct an introspective analysis of the program if the GPS is to realize its full potential. A global program with clear regional perspectives has obvious potential benefits and pitfalls. This monograph will attempt to highlight pitfalls and make appropriate recommendations to overcome them.

The National Military Strategy and the GPS

"I agree with General Schwartzkopf that for the next several years the threat of the Soviet Union moving into the Middle East or the Persian Gulf region to seize oil fields is of such low likelihood that it should not be the focus of our military planning. I also believe that it makes no sense to imagine that the fundamental Islamic regime in Teheran would ask the United States to intervene with tens of thousands of troops or that the American people would support our doing so...As a result, I agree that our strategy for southwest Asia should now be focused on scenarios requiring fewer forces and materiel than that particular scenario."³

Senator Sam Nunn, 29 March 1990.

Strategic planning requires a certain amount of clairvoyance. Senator Nunn was not the only individual with a vested interest in U.S. national security that did not foresee the impending turbulence in the Persian Gulf. Prepositioning of equipment and supplies has been a part of U.S. strategy for thirty-five years. However, the primary objective of prepositioning for the first thirty years was to counter Soviet expansion. Since 1990, the objective of prepositioning has expanded in an effort to offset the inherent unpredictability of the post-Cold War security environment. A review of military strategies from both eras provides a valuable insight on the emergence of today's GPS as an integral part of U.S. national security.

The United States, a nation adverse to a large standing army, felt obligated to support one after the end of the Korean War. The intentions of the Soviet Union were clear by this time: the U.S.S.R., forged in the midst of one world war and pillaged in a second, was intent on strengthening its own security by expanding its ideological power base around the world. The U.S. counter to such a strategy became known as "containment."

U.S. military strategy in the 1950s was heavily reliant on technology as a cost effective means to check Soviet expansion. The Eisenhower administration adopted a national military strategy tied almost exclusively to nuclear weapons. Conventional forces deteriorated as funding for

nuclear programs received top priority. Obvious flaws in such a strategy were clearly apparent by the end of the decade. The stark nuclear advantage the U.S. enjoyed over the Soviet Union since World War II had disappeared. Additionally, a nuclear response to Soviet actions at the lower end of the spectrum of conflict was simply not practical. The U.S. needed a means to "respond in kind" to Soviet initiatives.⁴

U.S. military strategy became more well-rounded over the next thirty years. While strategic deterrence remained a pillar of the strategy, conventional forces enjoyed more attention from strategic planners. President Kennedy's Flexible Response strategy initiated a renewed emphasis on conventional capability.⁵ The Vietnam War accelerated the process. Yet Vietnam remained a sideshow from a strategic context. The focal point remained along the ideological fault line in Central Europe.

NATO extracted a huge conventional commitment from the United States for the defense of Europe from Warsaw Pact forces: ten army divisions within ten days of notification.⁶ The army resorted to forward stationing a multiple-corps force in West Germany to meet this commitment. This was sound strategy for two reasons. First, the threat was unambiguous. The Warsaw Pact menacingly postured hundreds of thousands of soldiers along the eastern side of the Iron Curtain. Second, the United States faced an age-old logistical reality: moving heavy forces across an ocean was a slow, cumbersome process. The Department of Defense exacerbated the problem by tolerating a World War II vintage strategic mobility capability. Thus, a forward stationing strategy seemed the only plausible solution to the ten division commitment.

In summary, the U.S. military strategy during the Cold War combined a strong strategic deterrent capability with forward stationed forces in vital areas of the world. Two specific prepositioning programs complemented this strategy: POMCUS (Prepositioned Material Configured to Unit Sets) in Europe and afloat prepositioning programs in support of southwest

Asia (SWA) contingencies. While each program came into existence for different reasons, the intent of both was to decrease deployment time of U.S. heavy forces into theater in the face of Soviet sponsored aggression.

The 1961 Berlin Crisis uncovered difficulties the United States would encounter in a future war with the Soviet Union.⁷ Airlift and sealift capabilities simply could not support deployment requirements to Europe from the United States. The commander of U.S. forces in Europe proposed prepositioning equipment for U.S. based forces to employ should war with the Warsaw Pact appear imminent.⁸ The original concept, labeled the 2-Plus-10 program, prepositioned combat equipment for the 2nd Armored Division and 4th Infantry Division plus ten support elements of a combat support group.⁹ In the fall of 1963, the army conducted Operation Big Lift to validate the prepositioning concept.¹⁰ The 2nd Armored Division and associated support elements deployed by air from CONUS, drew prepositioned equipment located in France and West Germany, and participated in a field exercise. Several lessons learned from this exercise shaped future prepositioning procedures. First, equipment had to be maintained at a high readiness rate. Excessive time devoted to repairing equipment after drawing it from the prepositioned site undermined the concept. Second, prepositioned equipment had to be common with that utilized within the theater. This eliminated unique support requirements within theater for the deploying unit. Finally, the deploying unit required assistance from theater support units during its equipment draw at the expense of other theater-based units. Warning time thus became a critical concern regarding the employment of prepositioned equipment. In short, U.S. Army Europe (USAREUR) could not support units drawing equipment while fighting Warsaw Pact forces to the east.¹¹

Based in part on the relative success of Operation Big Lift, President Johnson ordered USAREUR to downsize from ten division to four in 1964.¹² The army concurrently created

Combat Equipment Group Europe (CEGE) to establish and maintain six division sets of equipment. Several incidents colluded to impede implementation of this 1960s POMCUS program. France withdrew from the NATO military organization. The U.S. experienced economic woes due to gold flow problems. Additionally, the Vietnam War drained equipment and supplies needed to fill-out POMCUS stocks.¹³ The 1967 Tripartite Agreement between the United States, Great Britain and West Germany addressed these problems. This cost-cutting agreement permitted the United States to preposition equipment in order to withdraw a division-equivalent force plus support units from Europe. Additionally, the U.S. agreed to conduct annual POMCUS readiness exercises entitled Return of Forces to Germany (REFORGER).¹⁴

The POMCUS program continued to grow toward the original goal of six division sets in the 1970s. The Carter administration signed the Long Term Defense Plan with other NATO countries in 1978.¹⁵ This agreement compelled the U.S. to upgrade the quality and quantity of POMCUS stocks. By 1981, there were four division sets plus a support set of equipment in West Germany and the BENELUX.¹⁶ Congress approved two additional division sets of equipment in 1983. However, the legislation stipulated that the army could not outfit POMCUS stocks at the expense of Reserve Component equipment authorization.¹⁷ This requirement effectively throttled the army's ability to establish the final two division sets of equipment before the end of the Cold War. Though ten divisions in ten days may have never been an attainable goal, the evolution of the POMCUS program up to 1990 provided a credible conventional deterrent against Warsaw Pact forces.

A second program complementary to the Cold War military strategy was afloat prepositioning in support of the Persian Gulf region. Three events in Southwest Asia in the late 1970s - the Soviet invasion of Afghanistan, the Shah of Iran's expulsion, and Islamic radicals' seizure of the

U.S. embassy in Teheran - transformed this region of the world into a U.S. vital interest.¹⁸

President Carter's 23 January 1980 State of the Union address clearly delineated the U.S. position:

"Let our position be absolutely clear: An attempt by any outside force to gain control of the Persian Gulf region will be regarded as an assault on the vital interests of the United States of America, and such an assault will be repelled by any means necessary including military force."¹⁹

The president authorized the creation of the Rapid Deployment Joint Task Force (RDJTF) based on this shift in policy.²⁰ However, it was immediately evident that a policy-capability mismatch existed in the area of force projection and sustainment. The Carter administration's FY 1981 budget submission included six programs to address this mismatch. One of these programs was afloat prepositioning.²¹

Why afloat prepositioning instead of a program similar to the NATO-proven POMCUS? RDJTF planners attempted to institute a program along the lines of POMCUS. However, nations in the region either denied prepositioning of ground combat equipment to RDJTF for political / cultural reasons or put forward unrealistic demands.²² This compelled RDJTF planners to consider alternative means for the rapid projection of heavy forces into the region.

The answer was a program tested by the U.S. Army twenty years earlier: prepositioning afloat. In the mid-1960s, the army loaded a brigade set of equipment aboard logistics ships and subsequently stationed the vessels in the Pacific Ocean.²³ The employment concept called for soldiers to fly to a crisis-area port to link up with equipment aboard the ships. The army and navy validated the concept during Operation Quick Release in Okinawa in 1964.²⁴ However, funding for expansion of the program fell victim to the escalation of the Vietnam War. Later, the army offloaded the equipment in Vietnam and the program ceased to exist.²⁵

The perceived crisis in capability in the Persian Gulf led the U.S. Navy to conduct a feasibility study on afloat prepositioning in the early 1980s.²⁶ This study resulted in draft designs for logistics ships that would store equipment in support of a contingency requiring heavy forces.

Congressional concerns over U.S. power projection capability and the lack of progress in acquiring basing rights in the Persian Gulf region resulted in the funding of the Maritime Prepositioning Force (MPF) and the Afloat Prepositioning Force (APF).²⁷

MPF is a joint U.S. Navy-Marine Corps program that became fully operational in 1987 and remains in existence today.²⁸ Though conceived to support contingencies in the Persian Gulf, it expanded to acquire a global focus. The program presently consists of thirteen ships organized into three squadrons. Each squadrons carries equipment and supplies in support of a 16,500 man Marine Expeditionary Brigade (MEB). The USMC has specified habitual relationships between the three squadrons and tactical units. The squadrons are prepositioned at Diego Garcia (Indian Ocean), Guam (Pacific Ocean) and in the Mediterranean Sea.²⁹ It is important to highlight that these squadrons do not have an amphibious capability. Rather, their employment requires a secure port/beachhead for an administrative offload.

The APF program remained focused on Persian Gulf contingencies during the Cold War. It consisted of twelve logistics ships loaded with army, navy and air force stocks. Four ships supported army requirements. Three held various classes of supply - to include a vast amount of ammunition. The fourth ship carried port operations equipment (tug boats, floating cranes, and other related items) required to open and operate a sea port of debarkation (SPOD). Navy and air force vessels carried primarily ammunition and fuel. The equipment and supplies on these vessels were not configured for a specific tactical unit. Rather, the stocks were meant for general use.³⁰

In summary, the Cold War strategy to contain communism relied on a balance between nuclear deterrence and conventional capability. Conventional capability, in turn, related directly to forward stationed forces in areas of expected conflict with Soviet sponsored forces. Prepositioning programs were a relatively small part of the Cold War strategy. They were a means to cut costs and meet treaty requirements in Europe and provide a credible military capability for SWA.

The end of the Cold War compelled the United States to overhaul its national military strategy. General Powell, the Chairman of the Joint Chiefs of Staff during this volatile time, personally commissioned the strategy review. The end result was a vision of required military capability and an implementation plan consummated in the January 1992 National Military Strategy of the United States.³¹

Several factors considerably influenced the shaping of the new national military strategy. First, the lessons of Vietnam and Beirut were clearly evident. The concept of "overwhelming decisive force" became the U.S. modus operandi. Once a political decision has been made to commit force, commanders in the field had to be given the forces required to attain the political objectives. Second, Operations Just Cause and Desert Shield/Storm became the standard. Quick, decisive victory with minimal casualties became the expected outcome of future U.S. military operations. A final, most important, influence was the lack of a clearly defined threat. The United States no longer had the luxury of forward stationing forces along known fault lines of potential conflict. Flexibility became a critical characteristic and prepositioning a means to attain it.

The strategy called for several changes in U.S. military structure to posture for response to an unknown threat. First, the services repositioned forces from overseas to CONUS. A smaller percentage of the total force remained stationed overseas in a forward presence role. The presence of U.S. forces continued to signify areas of U.S. vital interests. However, they would be unable to conduct sustained combat operations without rapid reinforcement from CONUS. Consequently, strategic mobility became a high priority program in the Department of Defense. A strategy predicated on positioning a majority of force in one location poised for employment against an unknown foe was incoherent without a robust strategic mobility capability.

Congress, cognizant of the inadequacy of the current strategic mobility capability, mandated the conduct of the Mobility Requirements Study (MRS) in 1991. The Joint Staff delivered the

completed study to Congress in January 1992.³² It contained several strategic mobility acquisition recommendations. Additionally, it recommended the establishment of a brigade set of army equipment prepositioned afloat. OSD and JCS (collaborators on the study) identified a requirement for an army heavy force early in a contingency that could operate inland in a complementary fashion with other early arriving forces. Placing equipment afloat provided the flexibility to project the capability in multiple directions.³³ The army fully embraced the recommendations to the chagrin of USMC planners who thought afloat prepositioning of combat equipment was their rightful domain.³⁴

The Mobility Requirement Study was a credible effort to revamp U.S. strategic mobility capability. Remarkably, the study did not consider land prepositioning during requirement derivation.³⁵ OSD and Congress viewed land prepositioning outside of Europe as a waste of assets during the Cold War. However, the regional CINCs sought to augment their depleted forces in theater through prepositioning programs. In EUCOM's area of responsibility (AOR), four brigade sets of equipment remained to rapidly reinforce V Corps. Additionally, a brigade set of equipment remained stationed in Italy for contingencies in the Mediterranean littoral. In CENTCOM's AOR, Kuwait agreed to store a brigade set of equipment in the aftermath of Operation Desert Storm; negotiations are currently underway to preposition a second brigade set of equipment plus a division headquarters set of equipment in the theater.³⁶ In PACOM's AOR, Korea agreed to support a brigade set of equipment as U.S. forces in theater returned to CONUS.³⁷ Recent operational employment of prepositioned assets lent credibility to the program in the eyes of both OSD and Congress. MPF, APF and land prepositioning employment during Operations Desert Shield and Vigilant Warrior validated the strategic concept and resulted in funding of the program.

In summary, the new national military strategy elevated the relative importance of prepositioning. It was a cost effective and operationally practical means to enhance U.S. military

flexibility. Prepositioning, a leg of the strategic mobility triad, has figured prominently in recent editions of both national security and national military strategies.³⁸ Is this recent focus on prepositioning simply an astute match of requirements and capabilities or a rash decision during strategically turbulent times? A more detailed review of the program as it exists today begins to shed light on the answer to this question.

The Global Prepositioning Strategy: 1996

“...we must have forces that can deploy quickly and supplement U.S. forward based and forward deployed forces...”³⁹

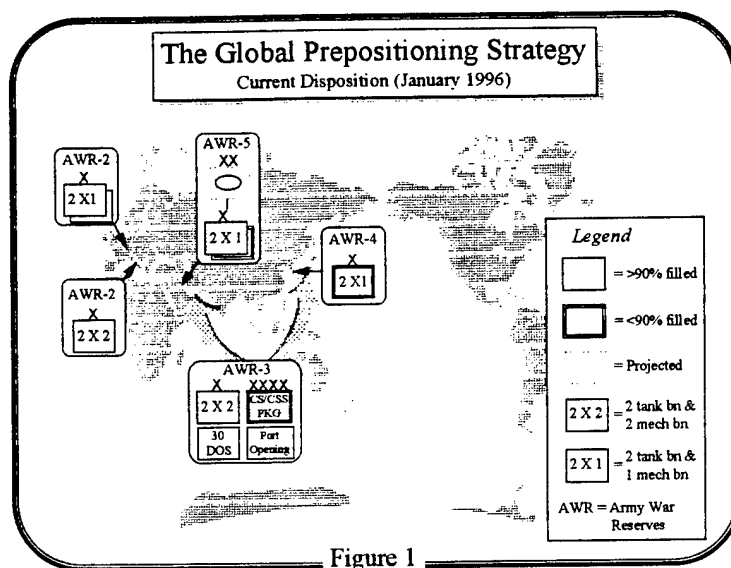
A National Security Strategy of Engagement and Enlargement, Feb '95

Operation Desert Shield / Desert Storm confirmed the legitimacy of the prepositioning concept. It seemed a perfect means to attain the desired strategic end: global flexibility. The program became a darling of OSD during the Bottom Up Review. It promised to fill a void in power projection capability early in a crisis. The U.S. military possessed the ability to project air force fighter wings, navy CVBGs, USMC MEBs and army light forces within the first two weeks of a crisis. JCS wargames revealed a similar requirement for complementary heavy army forces early in a crisis.⁴⁰ This rapid power projection capability enabled regional CINCs to protect critical objectives from advancing aggressors. The net result was less overall force required to fight and win major regional contingencies (MRC). The Bottom Up Review modified force requirements from the Base Force figures to reflect this analysis.⁴¹ Secretary Aspin's initiative reaped dividends by saving money through reduced force structure while maintaining a two-MRC capability. The GPS was an instrumental in justifying the reductions.

The current Global Prepositioning Program is not the product of comprehensive strategic planning. It is a conglomeration of several regional strategies meshed together by the army. Most of the equipment sets came into being not in support of a global strategy but in response to changes in regional security. The army promoted the program as having a global focus during the Bottom

Up Review.⁴² Army strategists and logisticians touted the deployability of sets in one location to support operations in a separate theater.

The Army War Reserves (AWR) program oversees the prepositioned sets of equipment that constitute the GPS. In turn, the Army Materiel Command has management responsibility for the Army War Reserve program. Equipment prepositioning is but one leg of the AWR program. Sustainment and operational projects also fall under AWR. There are five Army War Reserves delineated by geographic location. AWR-1 encompasses all equipment and supplies located in CONUS. AWR-2 supports Europe. AWR-3 is the afloat prepositioned assets. AWR-4 and 5 support Korea and SWA, respectively. A review of GPS disposition by AWR will outline the current program.⁴³ (See Figure 1 below for location of equipment sets in support of the GPS.)



AWR-2: Europe

The GPS calls for three prepositioned sets of equipment in Europe. Two brigade sets of equipment remain prepositioned in Germany as the last vestiges of the Cold War NATO program. Each set consists of two tank battalions and one mechanized infantry battalion along with its doctrinally associated support units. These two sets of equipment facilitate the rapid round-out of

the two forward presence divisions in U.S. Army Europe. The equipment sets are presently ready for employment. Funding for these sets of equipment comes from both NATO and U.S. sources.⁴⁴

The third brigade set of equipment in AWR-2 is prepositioned in Livorno, Italy. General Saint (Commander in Chief, U.S. Army Europe) founded this set of equipment during the Operation Desert Storm redeployment. The redeployment plan called for reestablishing POMCUS stocks in Central Europe from whence the equipment came. General Saint believed hostilities in SWA would resume and decided that placing some of the equipment earmarked for POMCUS closer to SWA was prudent.⁴⁵ This set of equipment today will support a balanced brigade: two tank battalions and two mechanized infantry battalions. Additionally, the army has advertised this set as a rapid reaction capability in response to crisis in the Mediterranean littorals. Plans call for Mediterranean ferries to congregate at Livorno to deploy the U.S. equipment in time of crisis.

AWR-3: Afloat

The army afloat prepositioned program falls under AWR-3. This particular program has grown dramatically since its successful employment in Operation Desert Shield. AWR-3 is presently in an interim state. There are fourteen vessels loaded with army equipment and supplies berthed at Diego Garcia in the Indian Ocean and off the coast of Singapore. There will eventually be sixteen vessels supporting AWR-3 by 2000.⁴⁶ This program provides the army with the flexibility it desires, but at a price. The army will spend over \$1 billion in the next six years on this program. The endstate capability of AWR-3 is as follows:

A balanced heavy brigade (two tank battalions, two mechanized infantry battalions) set of equipment with doctrinally associated support units. This capability exists today.

Theater opening sustainment package. This includes CS/CSS unit sets of equipment for early deploying logistics units required to open an immature theater. Only 20% of the endstate capability exists today.

Thirty days of sustainment. This includes all classes of supply less bulk POL. The objective is to preposition afloat all supply requirements prior to C+38 based on a generic deployment scenario and an assumption that the SLOC will be open at C+39. This capability exists today.

Port opening unit equipment set. This includes the various cranes, watercraft and logistics-over-the-shore equipment required to operate a port. About 75% of the endstate capability exists today.⁴⁷

AWR-4: Korea

The GPS calls for one heavy brigade set of equipment (two tank battalions and one mechanized infantry battalion with doctrinally associated support units) in AWR-4. This set of equipment will be in place at Taegu, Korea by the end of the decade. The strategic rationale behind this set of equipment emerged from a senate report in the late 1980s sponsored by Senators Nunn and Warner on East Asian security. The report recommended a three-phase plan for the reduction of U.S. forces in the region contingent upon an amenable security environment. Phase I reduced support forces in Korea and Japan, but left combat forces in theater untouched. Phase II reduced combat forces in theater - to include one brigade in the army's 2nd Infantry Division. Phase III completed the withdrawal of forces from theater, leaving the security of the Peninsula to the South Koreans.⁴⁸

The Department of Defense completed Nunn-Warner Phase I in the early 1990s. Phase II reductions were halted in 1994 in reaction to bellicose North Korean initiatives, but not before the army had reduced the 2nd Infantry Division to two brigades.⁴⁹ The commander of U.S. forces in Korea requested the army preposition a brigade set of equipment in theater for the rapid round-out of the division. OSD and the army approved the request in 1993 contingent upon host nation support for facilities, operations and maintenance of the equipment. A burden-sharing agreement has since followed and the army subsequently integrated the set of equipment into the GPS.⁵⁰

AWR-5: SWA

Arab concerns with the presence of U.S. combat equipment in their countries dissipated after Operation Desert Storm. Kuwait readily embraced U.S. prepositioning initiatives in their country immediately after the war. Saudi Arabia continued to deny prepositioning access for army equipment, but other countries on the peninsula agreed to support U.S. interests for a price. AWR-5 will eventually consist of a division (-) set of equipment on the Arabian peninsula. This will include two heavy brigade sets of equipment with related doctrinal support equipment plus selected division level unit sets of equipment. One brigade set of equipment (two tank battalions, one mechanized infantry battalion with doctrinally associated support units) is presently prepositioned in Kuwait. Negotiations are underway with various countries for the prepositioning of the second brigade and division equipment. Additionally, OSD and the army are presently reviewing the possibility of prepositioning either a third brigade ashore in SWA or a second brigade afloat. AWR-5 will be fully operational by the end of the decade.⁵¹

In summary, the seven brigade sets of equipment that comprise the GPS are products of regional strategies. The army fashioned a global spin to the strategy that perhaps implies a greater capability than exists. Three sets are closely linked to Operation Desert Storm. Is the U.S. skewing its strategy toward the last war? Two of the other sets are the remnants of the Cold War POMCUS program. Do these sets serve a purpose beyond a show of support to NATO? The afloat set enhances flexibility, but questions abound on the employability of this set. The set of equipment in Korea seems to make strategic sense, but how deployable is this set outside the Korean peninsula as it sits in Taegu? These are valid questions worthy of investigation. A review of recent operational employments of prepositioned assets reveals both the strengths and weaknesses of the present strategy.

Recent GPS Employments

"When you look at the deployments last time and...the deployments this time, you will see the wisdom of prepositioning equipment..."⁵²

GEN John M. Shalikashvili, CJCS after Vigilant Warrior

There have been three major deployments in the last five years that involved employment of prepositioned sets of equipment: Operation Desert Shield (SWA, August 1990), Operation Restore Hope (Somalia, December 1992), and Operation Vigilant Warrior (SWA, October 1995). An analysis of these three deployments provides insights on the strengths and weaknesses of the GPS.

Operation Desert Shield

President Bush ordered the deployment of U.S. forces to Saudi Arabia on 6 August 1990. CENTCOM issued their deployment order implementing OPLAN 1002-90 the next day.⁵³ There had been consideration given to deploying the USMC Maritime Prepositioned Squadron at Diego Garcia to the Persian Gulf on 2 August. However, the NCA deferred this decision until they decided to deploy air, naval and ground forces to the region.

The United States Marine Corps immediately activated two of the three Maritime Prepositioned Squadrons. Three of the five vessels of MPSRON-2 (Maritime Prepositioned Squadron 2) sailed within hours of receipt of orders on 8 August 1990. The ships arrived at Jubyl, Saudi Arabia seven days later and began unloading equipment and supplies. Military Sealift Command diverted another of the MPS-2 ships in transit to the United States for cyclic maintenance to Saudi Arabia. It arrived at port on 24 August 1990. The fifth MPS-2 ship, undergoing cyclic maintenance in the United States, eventually arrived Al Jubyl on 5 September 1990. Three of the four vessels in MPS-3 sailed on 8 August 1990 from Guam. They arrived at Al Jubyl on 25 August 1990. The fourth ship, participating in Operation Freedom Banner in Washington State, arrived in Saudi Arabia four days after the other three.⁵⁴

Seventh Marine Expeditionary Brigade (MEB) aligned with MPS-2 equipment while 1st MEB aligned with MPS-3. Seventh MEB began offloading combat equipment and supplies on 16 August - the same day the first fast sealift ship departed Savannah, Georgia with equipment of the 24th Mechanized Division.⁵⁵ The offload of both MEBs, complete by 7 September 1990, provided enough equipment and supplies in Saudi Arabia to support 33,000 marines for 30 days. MPS-1 deployed from the North Carolina coast to Al Jubyl in November 1990 as a part of the offensive-capability package.⁵⁶

Nine APS ships also sailed on 8 August 1990 and arrived at Saudi Arabia on 17 August 1990. Four of these ships carried army supplies and equipment. The other five ships carried air force ammunition and bulk POL. Three of the army ships carried a variety of sustainment while the fourth ship carried port operations equipment. (See Appendix A). These proved indispensable in the first critical days of Operation Desert Shield. They permitted the army to apportion critical airlift assets to support deployment of forces vice sustainment during the first few weeks. This resulted in the rapid establishment of a deterrent force in Saudi Arabia.⁵⁷

The army employed the supply vessels as floating warehouses for security and storage-availability reasons.⁵⁸ Soldiers found the 32 days of supply aboard these ships in generally usable condition. 7th Transportation Group utilized the equipment aboard the fourth ship to expeditiously open and operate the port at Ad Damman.⁵⁹

The army also turned to POMCUS stocks from Europe to support Operation Desert Shield. The fact that NATO countries supported the UN resolutions against Iraq mitigated the political consequences of moving POMCUS stocks out of theater. The first POMCUS support for ODS was ten laundry trailers shipped on 18 August. POMCUS support requisitions remained minimal until the October 1990 decision to modernize deployed units. The army shipped over 2000 mechanized pieces of equipment to Saudi Arabia from Europe after this decision.⁶⁰ (See

Appendix B)

In summary, the prepositioning programs both afloat (MPS/APS) and ashore (POMCUS) were exceptionally successful during Operation Desert Shield. Two factors contributed to this success. First, Iraq allowed the U.S. to deploy in a benign environment - a prerequisite for employment of prepositioned equipment. Second, Saudi Arabia possessed some of the most modern and capable airfields and ports in the world.⁶¹ Operations in Somalia two years later displayed the criticality of this latter factor.

Operation Restore Hope

President Bush ordered U.S. forces to Somalia in December 1992 to provide a safe environment for food distribution. The three supply ships that supported Operation Desert Shield had been restocked and repositioned at Diego Garcia. Two of these ships sailed on 10 December 1992 and arrived at Mogadishu four days later. The port operations equipment ship was undergoing reorganization at Hythe, England. It hastily reloaded, sailed for Mogadishu on 12 December, and arrived on 31 December.⁶²

Mogadishu's port facilities were far less accommodating than those in Saudi Arabia. The port's depth was well above the 40 foot draft requirement for the supply ships. Even if the ships had been able to enter the port, the pier and crane facilities would have only accommodated one vessel at a time. Rough seas precluded the ships from conducting an off-shore discharge of cargo. The JTF J4 decided to move the vessels south to attempt offload at Kismayo, Somalia and Mombasa, Kenya. Kismayo proved as inadequate as Mogadishu. Kenyan authorities allowed the offload of port operations equipment at Mombasa. This equipment eventually arrived at Mogadishu on 9 January 1993. However, Kenyan authorities prohibited the supply ships from entering the port since each had 19,000 tons of ammunition aboard.⁶³

The two supply ships returned to Diego Garcia without offloading any equipment or supplies. This failure had several repercussions. First, the army had hoped to offload a combat support hospital to provide medical support for early arriving forces. It took ten C-5, one C-141 and one KC-10 sorties to deploy similar equipment from Fort Campbell, Kentucky.⁶⁴ Second, the army had to dedicate additional aircraft for other sustainment items early in the deployment. This retarded the buildup of force in theater. Third, the port was not operational for several weeks due to the delay in offloading the port operations equipment at Mombasa.

The prepositioning program suffered a black eye during Operation Restore Hope. The humanitarian nature of the operation served to lessen the impact of the failure. However, the army drew several valuable lessons from this experience. First, the supply ships' draft were simply too deep. Few ports in the world could accommodate them. The army eventually lightened the load to lessen the draft. Second, intelligence on contingency seaports is vital. Department of the Army, Office of the Deputy Chief of Staff for Logistics (DCSLOG) initiated a study to update port data around the world. Third, logistics-over-the-shore (LOTS) may be the rule rather than the exception. The army reinvigorated the LOTS program to upgrade its capability.⁶⁵ Finally, command and control responsibilities for prepositioned afloat assets were confusing. U.S. Transportation Command (USTRANSCOM) overhauled the process to clearly delineate responsibilities regarding movement and offload decisions.

Operation Vigilant Warrior

Operations Desert Shield and Restore Hope occurred prior to establishment of the Global Prepositioning Strategy. These two operations demonstrated both the strengths and weaknesses of prepositioning. The army formally adopted the GPS in 1993. Subsequently, the army established heavy brigade sets of equipment ashore in Kuwait and afloat at Diego Garcia. Operation Vigilant

Warrior was the first opportunity to test these sets of equipment as part of the newly established GPS.

U.S. intelligence sources uncovered an Iraqi buildup of forces north of Kuwait in the first week of October 1994. The 24th Mechanized Division received a warning order directing preparation for movement to SWA on 8 October. The order to move followed on 9 October. First Brigade flew to Kuwait to employ the set of equipment prepositioned there. Third Brigade flew to the Saudi Arabian port of Ad Dammam to employ the set of equipment prepositioned afloat.⁶⁶

First Brigade soldiers began arriving in Kuwait on 10 October to draw equipment at Camp Doha. This equipment had been cyclically employed since 1991 through a series of training exercises called Intrinsic Action. The recurring nature of this exercise served to streamline the process and minimize confusion. First Brigade closed into TAA Liberty on 17 October ready for combat - just eight days after alert notification.⁶⁷

The employment of the brigade set of equipment afloat was an enormous success from a strategic standpoint. Third Brigade began deploying by air from Georgia on 15 October. Task Force 2-69 Armor drew equipment from the ships, roadmarched to Kuwait, and was ready for combat on 29 October. The subsequent withdrawal north by Iraqi troops curtailed additional deployment by 3rd Brigade.⁶⁸ The U.S. had successfully demonstrated its ability to project heavy force through prepositioning programs to protect its vital interests.

Though Vigilant Warrior was an unmitigated strategic success, there were countless problems at the tactical level. This was not unexpected. The afloat set of equipment had only been on station at Diego Garcia for three months. The army had not had the chance to employ it in a training environment. Cumbersome accountability procedures, inaccurate load plans, unclear offload and assembly procedures, lack of repair parts, poor Class V stowage, and countless other problems plagued 3rd Brigade as it drew the equipment. The Department of the Army tasked the

24th Infantry Division to reorganize and reload the afloat set of equipment to facilitate future employments.⁶⁹

In summary, Operation Vigilant Warrior was a great strategic success. Two heavy brigades deployed from CONUS by air to SWA and were combat ready in less than three weeks. Saddam Hussein quickly drew his forces away from the Kuwait border upon this rapid display of U.S. resolve. The operation left much to be desired from a tactical and operational perspective. Could the brigades have been commanded and controlled? Could they have been sustained? How well could these brigades have been integrated into a coherent defense with early arriving forces from other services? A review of several GPS issues addresses some of these concerns in addition to shedding additional light on the feasibility of the program in the next century.

GPS Considerations

“Given that AR3 is our army’s concept for rapid heavy force deployment worldwide, each potential theater should include AR3 use in its training plans.”⁷⁰

AAR Comments by Commander, 13th COSCOM after Vigilant Warrior

Several considerations affect the organization and operational suitability of the Global Prepositioning Strategy: force modernization, linking units to equipment sets, funding, and training. A tension exists between the strategic and tactical viewpoints on some of these considerations. Strategic decisions have been made with little regard for the tactical implications. This may never be a problem as long as GPS deployments continue to deter potential aggressors. However, should an aggressor attack a force employing GPS equipment before adequate contingency forces arrive from CONUS, the tactical oversights could quickly become serious problems.

Force Modernization

Force modernization decisions are driven by money. The army would prefer to outfit the entire force with the same equipment. The continual fall in defense dollars since the late 1980s compelled the army to make difficult force modernization decisions that will have multidimensional implications. There will be two armies ten years from now given the current fiscal trend. One will field superlative equipment while the other will field less sophisticated but more affordable versions. Senior decisionmakers have decided the dividing line between these two armies is the contingency force.

The fielding plan for the M1A2 tank illustrates the problem. The M1A2's capability in comparison to the M1A1 has not been fully determined to date. However, it is safe to assume that the advanced fire control and revolutionary information technology in the M1A2 will result in a consequential leap in capability over its predecessor. The present acquisition plan for the M1A2 calls for outfitting the two heavy contingency force divisions, the 3rd ACR and the 2nd Infantry Division. The remaining heavy units in the army will remain outfitted with M1A1 tanks for the foreseeable future.⁷¹

The GPS sets of equipment have been incorporated into the Department of the Army Master Priority List (DAMPL) for equipment resourcing. The DAMPL delineates the order that units will receive new equipment based on a variety of factors. In short, units that have a higher chance of going to war are higher on the DAMPL. The afloat set of equipment is very high on the DAMPL while the sets of equipment in Europe are relatively low. Thus, the afloat set will receive M1A2 tanks along with other modern equipment. Most of the other sets will receive equipment currently in the army's inventory.

While this seems like a prudent decision at the strategic level, there are definite tactical drawbacks. The field artillery mismatch during Operation Vigilant Warrior is an representative

example. The 24th Mechanized Division possesses the most advanced field artillery piece in the army inventory: the Paladin. The doctrine for employment of the Paladin and the standard M109 is vastly different. The 24th Mechanized Division field artillery soldiers left their Paladins behind and drew standard M109s in SWA for Operation Vigilant Warrior.⁷² The potential problems with this mismatch of equipment are obvious. The problem will increase over time as the gulf between contingency forces and follow-on forces widens with the fielding of advanced equipment.

Linking Units to Equipment Sets

Strategic decisionmakers decided not to create habitual relationships between sets of equipment and units for several reasons. First, the strategic environment was too nebulous to allocate specific units for specific sets of equipment. Rather, strategic planners built flexibility into some of the sets of equipment that allow various units to employ it. The afloat set of equipment can support any of the three heavy brigade-size units in the army: the two tank battalion, one mech battalion brigade; the one tank battalion, two mech battalion brigade; or the armored cavalry regiment.⁷³ Second, the establishment of a contingency force primed to deploy immediately to any theater meant that units were no longer regionally focused. Linking units with sets of equipment was a Cold War / POMCUS way of doing business. Third, strategic planners were cognizant of the separation between contingency forces and follow-on forces. Most recommendations from the field for linking units to prepositioned sets of equipment sought to assign contingency forces the mission. Doing so would widen the perceived gap in relevancy between contingency and follow-on forces. In short, aligning contingency force units with GPS sets of equipment would call into question the need for follow-on forces as a part of the active component. The army assigned GPS responsibility to the Army Materiel Command based on the reasons outlined above.

Funding

A critical difference between prepositioning equipment ashore and afloat is funding. Host nation burden-sharing agreements help fund the sets of equipment prepositioned ashore. For instance, Kuwait pays for the storage, maintenance and training costs associated with the set of equipment at Camp Doha. There are similar agreements associated with the equipment sets in Europe and Korea.

The army alone is responsible for funding the set of equipment prepositioned afloat. The program cost is over \$1.5 billion between 1997-2001. The bulk of this requirement covers operations and maintenance costs for the ships. A single ship costs the army over \$35,000 a day.⁷⁴

The funding issue will play a role in the future of the GPS. Additional sets of equipment prepositioned afloat may provide the army the desired flexibility, but the cost of this option may be prohibitive.

Training

Training opportunities on the various sets of equipment ranges from regularly scheduled to non-existent. Units continue to periodically train on the set in Kuwait through Intrinsic Action exercises. The curtailment of REFORGER in the late 1980s halted the annual exercise of POMCUS equipment. The delicate political situation in Korea may preclude training on the set of equipment on that peninsula after it is in place. There are discussions on integrating the afloat set into joint training exercises. However, the prohibitive cost of employing this equipment has blunted progress in this arena. Additionally, there is an extensive recovery time required after employment of the afloat set of equipment. Once employed in training, it is temporarily unavailable for its true purpose - quick reaction to unforeseen crises.

Operation Vigilant Warrior pointed out the costs of not routinely exercising units on prepositioned sets of equipment. The experience and lessons learned gained from these deployments are intangibly beneficial. The army has recently expanded the evaluated portion of National Training Center rotations to include deployment, equipment draw and onward movement.⁷⁵ This prudent decision recognizes the importance and likelihood of such tasks as the Global Prepositioning Strategy becomes a more integral part of the army in the future.

These four considerations - force modernization, linking units to equipment sets, funding, and training - will shape the GPS as the next century approaches. How well the strategy will address the needs of the future depend upon anticipated nature of future warfare.

GPS and the Nature of Future Warfare

“We are in the midst of a dramatic change in the relationship between technology and the nature of warfare. Nobody fully understands that relationship...Strategists must think about it, however, and try to uncover its inchoate ramifications if they are to design an effective military doctrine and appropriate military capabilities for the coming decades.”⁷⁶

LTG(R) William E. Odom in America's Military Revolution.

What will be the nature of future warfare that the CONUS-based, rapidly deployable army will face? The U.S. Army and academic scholars have struggled to answer this question. The root cause of future war remains in dispute among the various experts. However, there is general agreement on the nature of future warfare. Weapons technology will enhance range, accuracy and lethality of myriad systems - making the future battlefield an incredibly dangerous place. Additionally, informational technology will enhance the application of these highly lethal weapon systems. While the United States may lead the way in fielding such systems, the proliferation of weapons and technology will likely “level the playing field.”

The U.S. Army has articulated its vision of future warfare in TRADOC Pamphlet 525-5: Force XXI Operations. This publication “describes the conceptual foundations for War and

Operations Other Than War in the early decades of the twenty-first century.”⁷⁷ It outlines the dominant aspects of the future conventional battlefield as:

- ♦ battle command: command remains a combination of art and science. However, informational technology will serve to further disperse the battlefield. New leadership and command approaches by commanders will be necessary. First-line leaders will face unprecedented demands on their decisionmaking abilities.
- ♦ extended battle space: the depth, breadth and height of the battlefield will continue to grow.
- ♦ spectrum supremacy: informational technologies will ensure future operations will unfold before a global audience.
- ♦ rules of war: warfare is becoming less civilized. Actions once regarded as criminal are now deemed acceptable if performed by a nation.⁷⁸

TRADOC Pamphlet 525-5 also discusses future threats. Though the U.S. military may deter most adversaries from open aggression, war with regional powers possessing armor-mech based armies remains a possibility. However, low-intensity conflict or Operations Other Than War (OOTW) will be the most likely conflicts involving U.S. forces.⁷⁹

Finally, and most significantly, TRADOC Pamphlet 525-5 provides the army with guidance on force design to meet the challenges of the twenty-first century:

“our Army must design organizations and develop capabilities that will allow it to be rapidly tailorable, rapidly expandable, strategically deployable, and effectively employable as part of a joint and multinational team to achieve decisive results in future War and OOTW in all operational environments.”⁸⁰

The army is not alone in its efforts to understand the future. Civilian scholars are equally interested in the nature of future warfare. Retired army general William E. Odom published America's Military Revolution in 1993. Odom summarized his understanding of the future strategic environment and recommended U.S. military force structure modifications to meet these challenges in a chapter on the nature of future warfare. He outlined six implications for U.S. military doctrine in response to expected changes in the future: Third World countries would have

the means to acquire modern military arsenals; *credible* U.S. military force would continue to deter most Third World countries; insurgencies and internal wars would become more attractive as a means to avoid direct collision with U.S. forces; strategic lift and logistics would become the fundamental element of modern military power; the traditional role of nuclear weapons would undergo a transformation; and new technologies would have an incomprehensible potential for military application.⁸¹

Bevin Alexander, an American historian, published The Future of Warfare in 1995. He believed the United States will maintain its technological edge well into the next century. However, he admonished the military to avoid complacency. Operation Desert Storm was an aberration. Potential foes "took notes" and would not make the same mistakes as Saddam Hussein. Additionally, there are low-tech counter-measures to every high-tech system. Finally, Alexander insinuated that operationally flexible air assault divisions should replace cumbersome armored divisions due primarily to the waning utility of the tank.⁸²

There are several implications for the Global Prepositioning Strategy given the projected nature of future warfare. First, credible conventional deterrence will remain a key means of protecting U.S. interests. The world will continue to respect the U.S. military as long as it remains a credible instrument of power. Prepositioned assets will continue to lend credibility to U.S. commitments around the world. Second, the current preference for prepositioning of heavy force equipment may be inappropriate in the future. Heavy army forces may continue to have a role, but their relevance over time will diminish. Several factors will collude to reduce the viability of heavy army forces in the future: proliferation of technologies that can identify and defeat armored formations; a U.S. movement toward application of asymmetrical capabilities to defeat mechanized forces; and the likelihood that potential foes will avoid direct conflict with the United States by resorting to insurgencies to attain their political goals. Third, prepositioning programs will remain

a hedge against uncertainty. All agree on one point: the future is uncertain. Programs that enhance strategic flexibility will be vital to U.S. security.

Analysis

"The credibility of our conventional deterrence hangs on our ability to deploy and sustain our forces worldwide."⁸³

General Bernard Rogers, CSA, 1978.

General Rogers made this comment at the height of the Cold War. It applies even more so today and in the future. The Global Prepositioning Strategy appears to address several U.S. security concerns for the twenty-first century: flexibility to respond to unforeseen crises; commitment to vital interests; and the rapid projection of force from the continental United States. The analysis of the GPS will concentrate on several areas to determine its feasibility: equipment location; unit/equipment relationship; equipment type; and employability / deployability. The analysis will concentrate on both current and anticipated future conditions where applicable.

Equipment Location

The current strategy calls for seven sets of equipment at various locations around the world. Potential crises and vital interests in Northeast Asia and Southwest Asia seem to justify the strategic locations of the AWR-4 and AWR-5 sets of equipment. The AWR-3 set of equipment afloat addresses the requirement for strategic flexibility in an uncertain world. The validity of the AWR-2 sets of equipment (Europe) is questionable. The two AWR-2 sets of equipment in Germany look to be a sound means to round out the two divisions in V Corps. However, there is little threat of rapid, unforeseen crisis in this region. Strategic deployment of brigades from CONUS may be a better option. Second, there is little strategic value in the third set of equipment in AWR-2. The equipment set in Italy was established immediately after Operation Desert Storm in anticipation of a possible return to SWA by U.S. Army Europe. The subsequent establishment of AWR-5 in SWA alleviates the need for such a capability.

The location of equipment sets in the future is dependent upon many variables. However, an analysis based on plausible conjecture is still possible. The AWR-5 sets of equipment in SWA will continue to hold strategic value as long as the region is of vital interest to the United States. The increasing importance of East Asia to the United States validates the need for a presence in this region in the future. If and when the U.S. draws down the 2nd Infantry Division in Korea, prepositioned equipment on the peninsula may be warranted dependent upon the relationship with North Korea. If the two Koreas are eventually united, the U.S. may still desire to preposition equipment somewhere in the region based on a subsequent strategic evaluation. The afloat set will continue to make strategic sense in the future. U.S. presence in Europe will continue to decline. The U.S. will be able to respond to contingencies in Europe with CONUS-based equipment once the additional fast sealift is part of the inventory. This will eliminate the need for prepositioned equipment sets in Europe in the future.

Unit Relationship with Equipment

There is presently no habitual relationship between sets of equipment and tactical units. The army rationale for this decision is related to the inherent unpredictability of today's security environment. Flexibility is critical. Aligning particular units to specific prepositioned equipment sets limits flexibility - especially in the context of a two-MRC strategy. Thus, the army has assigned GPS responsibility to Army Materiel Command so that contingency forces can remain focused on several contingency areas. Yet there are several positive aspects to establishing habitual relationships between units and prepositioned equipment sets: unit familiarity with the equipment set; a sense of ownership between unit and equipment set; and modification of the equipment set to reflect the unit's force modernization level.

The arguments for and against establishing habitual relationships are persuasive. The army must consider innovative solutions to address this important issue. Proposed solutions appear in the recommendations section of this monograph.

Equipment Type

This is a two-pronged issue. The first issue pertains to the specific type of equipment prepositioned at the various locations. The seven sets of equipment are heavy: M1A1 tanks, infantry fighting vehicles, self-propelled howitzers and other equipment associated with heavy army units. There is solid rationale behind this decision in today's strategic environment. First, these pieces of equipment are the most difficult to transport due to their size and weight. Prepositioning heavy equipment alleviates some of the stress on today's overburdened strategic mobility assets. Second, heavy forces continue to have utility today as a conventional deterrent - especially in SWA and Korea.

The utility of heavy force in the future will wane. The United States will look to asymmetrical means to fight future wars. The army will place more emphasis on long range sensors and shooters. Additionally, the means to quickly project heavy forces from CONUS will increase over time as the navy acquires new fast sealift ships. Prepositioning programs must reflect this shift over time as the army's equipment and doctrine evolves.

The second issue pertains to force modernization. The equipment presently prepositioned around the world is relatively compatible with equipment fielded across the army. The fielding of advanced systems in the contingency force and certain prepositioned sets high in the DAMPL will create a schism in the army. Non-contingency force units will be unable to employ prepositioned sets of modern equipment without a significant amount of training. The same training problem will exist for contingency forces and older versions of prepositioned equipment. This fact lends further credence to the call for innovative thought on this issue.

Employability / Deployability

Employability pertains to the ability of the army to rapidly utilize the set of equipment in its present location. The employability of the various GPS sets of equipment ranges from excellent to poor. The AWR-5 set in Kuwait is by far the most employable. The 24th Mechanized Division employed the set in under ten days during Operation Vigilant Warrior. The employability of this set should remain high as long as Kuwait and the U.S. continue to co-sponsor Intrinsic Action exercises. The eventual employability of additional equipment in SWA will depend upon its location. The farther equipment is prepositioned from the Iraq / Saudi Arabian / Kuwait border, the less employable it will be. The employability of the set of equipment afloat is dependent upon the port facilities. The set is very employable in SWA given the retention of Al Jubyl and Ad Damman. However, the average port complex is substandard in comparison with these ports. The employability of the future set of equipment in Korea will be average. The brigade will face a significant operational deployment from storage facilities to the likely area of combat. Taegu is over two hundred kilometers south of Seoul. The employability of the AWR-2 equipment in Europe is average to poor. The curtailment of REFORGER has reduced the employability of the sets in Germany from excellent to average. The fact that the set in Livorno, Italy has never been exercised renders its employability poor.

Deployability pertains to the ability of the army to move the equipment from the its present position to a different theater. The afloat set is obviously the most deployable from one theater to another. The sets in Italy and SWA are between good and average. The current NATO agreement to deploy the equipment at Livorno on Mediterranean ferries makes its deployability good. Port conditions in SWA enhance deployability. However, the fact that the U.S. must surge fast sealift 8000 miles from CONUS to move it degrades the overall deployability assessment to average. The deployability of the sets in Germany and Korea are poor for two reasons: their distance from

CONUS-based fast sealift and their distant location from port facilities. A recapitulation of the employability / deployability of the GPS equipment sets is in Appendix C.

Conclusions and Recommendations

"The Army has already changed from a Cold War Army to a Power Projection Army. We must continue to change and grow into the future."⁸⁴

CSA's Force XXI guidance.

The global prepositioning strategy is a step in the right direction. It provides the army with the strategic agility necessary in a time of uncertainty. However, the program's strategic design has operational and tactical flaws. The army should consider the following recommendations to improve the effectiveness of the program.

- Eliminate AWR-2 equipment sets. The army should eliminate the set of equipment in Italy today. The rationale upon which USAREUR established that set of equipment has been undercut by the prepositioning of equipment sets in SWA. There may be an argument for retaining the set while the army conducts operations in Bosnia. However, a requirement for additional U.S. heavy force to support the Implementation Force (IFOR) operations could come directly from Germany now that the theater in Bosnia is mature.

There is little strategic rationale for the two remaining sets in Germany. They are the last vestiges of the POMCUS program. The likelihood of a crisis that requires the *rapid* round-out of the USAREUR divisions is virtually nil. Future USAREUR operations will most likely resemble the current Bosnia mission where the U.S. had months to prepare for a pending deployment. Such scenarios will allow the U.S. to meet force requirements by projecting units from CONUS.

- Review AWR-4 equipment set location. The immense distance from the United States, the status of the region regarding U.S. vital interests, and the continued existence of North Korea validate the strategic requirement for prepositioned equipment on the Korean peninsula. However, the army should review location of the set of equipment. Employment of the set from

Taegu would be difficult under crisis conditions. Southbound civilian traffic and possible execution of obstacles in and around Seoul could severely inhibit movement northward. The army should negotiate with Korean officials to place the set of equipment closer to the capital city as long as North Korea remains a threat. After the North Korean problem dissipates, the army should conduct a strategic analysis of the region to determine the best location for prepositioned equipment. A location that facilitates rapid projection to several potential crisis areas would be ideal. Possibilities, given the strategic assessment at the time, are Thailand or a location near the Strait of Malacca. This would enable the U.S. to maintain a ground force presence in the region while forces are withdrawn from Korea in concert with Nunn-Warner Phase III. Reberthing several Ready Reserve Force roll-on, roll-off vessels from CONUS to the selected location would enable the army to rapidly move the set to a crisis area.

- Expand AWR-5 vice AWR-3. OSD and the Department of the Army are presently studying the viability of either a creating second brigade set of equipment afloat or a third brigade set of equipment in SWA as a means to rapidly project a heavy division into this region. The army should adopt the latter for several reasons. First, prepositioning equipment afloat is extremely costly. Prepositioning equipment ashore in SWA could contain burdensharing agreements to minimize costs. Second, few ports can accommodate the number of ships that would carry two heavy brigades and their associated support equipment. Finally, it is much easier to train with and maintain equipment placed ashore. Intrinsic Action could eventually become a division level exercise if the army prepositioned all three brigades ashore in SWA.

There are three additional considerations on this issue. First, the security of the prepositioned sets of equipment is a concern. Should Iraq strategically surprise the United States in another attack on Kuwait, the set of equipment there would surely be lost. Forewarning of impending attack - as pointed out in Operation Big Lift thirty years ago - becomes critical. Also, there is little

unity between Arab nations in the region. Qatar and Saudi Arabia have had several border clashes over the last few years. The security of equipment prepositioned in Qatar (an option under serious consideration) to protect Saudi Arabia must also be of concern. Second, planners must remain cognizant of the tenuous political situation in SWA. The memory of Operation Desert Storm will continue to fade. Long-term agreements on prepositioning rights may be rescinded on short-notice based on cultural, religious, political or other reasons. Finally, the army must work closely with the navy on future ship design and logistics-over-the-shore technologies. The employability of AWR-3 could increase dramatically with relatively moderate investments in these two areas. Given the region's tenuous political situation mentioned above, afloat prepositioning may be the only long term alternative in the future.

- Consider alternative prepositioning locations. The army should investigate the strategic implications of prepositioning equipment at other than the current GPS locations. Prepositioning equipment near critical choke points offers the kind of strategic flexibility the U.S. is seeking to attain. Examples are near the Suez and Panama canals. Politics and diplomacy will dictate the feasibility of this idea. Strategic sealift assets berthed near these sites would have to accompany the prepositioned equipment. Simply placing equipment ashore near critical nodes is not a prudent strategy without allocating the means to move it quickly in response to a crisis.

Another option worthy of investigation is storing equipment at sea ports of embarkation in CONUS. There are ample storage facilities near the CONUS strategic seaports. Placing equipment at Houston-Beaumont, Texas, Wilmington, North Carolina, and Bayonne, New Jersey would substantially reduce "fort-to-port" deployment time.

- Consider Two Solutions to the Unit-Equipment Set Relationship Issue. There are two potential solutions on the habitual relationship issue between units and prepositioned equipment sets. The first solution is standardization. Though perhaps idealistic in nature, standardization

would provide tangible benefits that would obviate the need for habitual relationships. Under a GPS standardization policy, every prepositioned equipment set would be exactly the same - to include specific equipment type and modernization level. Additionally, National Training Center equipment set would mirror the GPS sets. The benefits of such a policy are consequential. First, NTC rotations could double as GPS training events. Equipment identified for deployment to NTC would similarly accompany units for employment of a GPS equipment set. Second, standardization would alleviate force modernization problems. Mismatches would still exist between deploying units and prepositioned equipment sets. However, a standardization policy would permit units to incorporate required training into long-range plans. Finally, a standardization policy maintains flexibility. There is no need for habitual relationships. Every heavy unit in the army should be trained and ready to fall in on any GPS equipment set.

Standardization may be the long term solution to this issue. A more practical policy in the near term would be a modified habitual relationship between units and prepositioned equipment sets. Rather than establish a one-to-one habitual relationship, each prepositioned equipment set would have two heavy units aligned with it: one contingency force unit and one follow-on force unit. There are several benefits to such an arrangement. First, flexibility is maintained. If contingency forces deploy to a first MRC, follow-on forces would theoretically be available to employ GPS equipment sets in support of the second MRC. Second, the arrangement ameliorates the equipment modernization issue. Units would either have compatible equipment with their GPS set or know whether a "train-up" or "train-down" was required to employ their prepositioned set of equipment. Again, units could then incorporate training requirements into long range plans. Dual-alignment is a unique arrangement, but perhaps a reality for a ten division army faced with a two MRC strategy.

There are several innovative ideas for consideration concerning the “train-up” and “train-down” requirement present in both solutions. First, training could be done at branch school sites on equipment mismatches. These schools possess the cadre, equipment and training facilities to “train-up” or “train-down” units as required. Second, key personnel augmentation or substitution is a possible solution. Key personnel required to operate and maintain a particular piece of equipment would be aligned with sets of GPS equipment. These personnel could come from either branch schools or from other tactical units. Upon alert of a unit to employ a GPS set of equipment, these personnel would deploy as a part of the unit.

Either of the two solutions addresses the acute problem facing the GPS program today. Units throughout the army would become intimately familiar with the prepositioned equipment they would be called upon to employ. The present non-alignment policy with non-standard sets of equipment will continue to experience problems at the tactical level.

- Conduct periodic training exercises. Intrinsic Action should serve as a model for the entire GPS. Units must periodically train on the various sets of equipment for several reasons: standardization of deployment procedures; demonstration of capability within a region; and maintenance validation of stored equipment. Modification of the National Training Center evaluation to include equipment draw and onward movement is a step in the right direction. The army must place a special training emphasis on employing the set of equipment prepositioned afloat in a region that does not have suitable port facilities. Logistics-over-the-shore operations should become the norm rather than the exception. The U.S. must work closely with allies that gain security through the GPS to garner funding in support of these exercises.

- Review type of equipment prepositioned. The present GPS prepositions primarily heavy combat unit sets of equipment. The utility of such a force in the future is questionable. Future army organizations will look drastically different than today’s Cold War variety. The army will

continue to emphasize long-range precision munitions as the means to conduct land warfare. Units will become smaller and more lethal. Additionally, the likelihood of operations other than war will continue to be much higher than full-scale combat. The GPS must remain closely integrated with future army force structure decisions. In addition, the army should consider prepositioning combat support (CS) and combat service support (CSS) unit sets of equipment required to support operations along the entire continuum. Engineer battalions, medical hospitals, maintenance and supply units will have greater utility in the future as the tank and its complementary components fade into oblivion.

Figure 2 below depicts a recommended Global Prepositioning Strategy for the twenty-first century based on the above recommendations

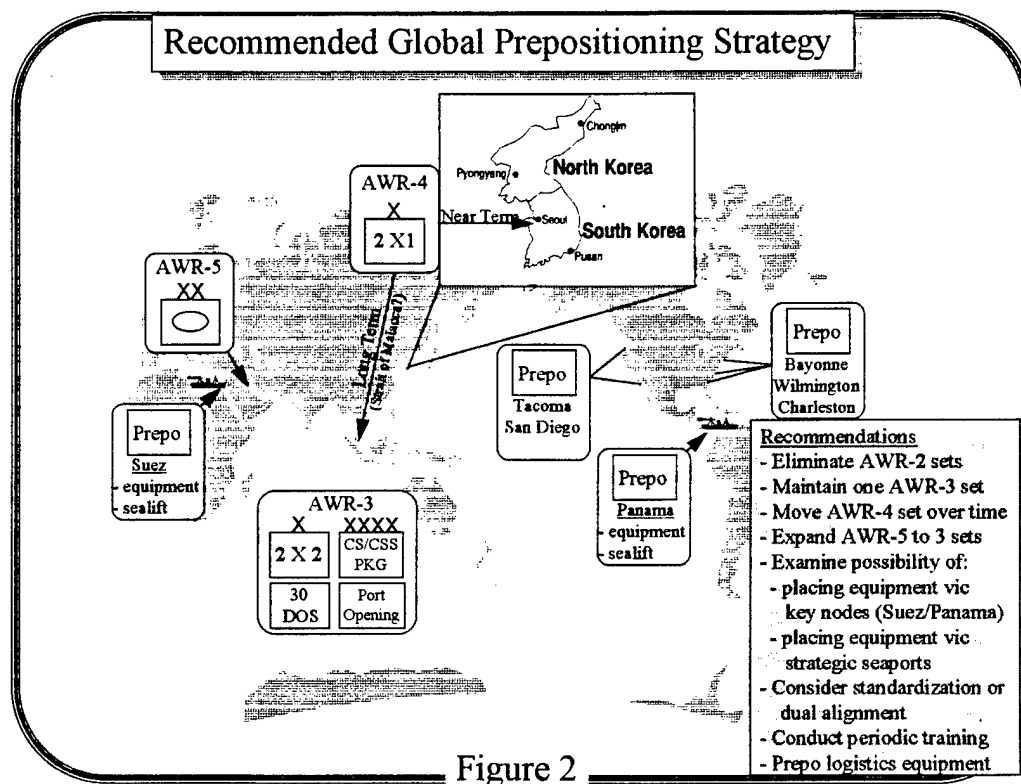


Figure 2

Summary

"...there is nothing more difficult to take in hand, more perilous to conduct, or more uncertain in its success, that to take the lead in the introduction of a new order of things."⁸⁵

Machiavelli.

The army's Global Prepositioning Strategy is a complementary component of today's power projection strategy. There is every indication that the GPS will remain a vital means of protecting U.S. interests around the world as the military continues to reshape for the twenty-first century. The army must conduct an introspective analysis of this program to identify strengths and weaknesses. This is no mean task - especially in the afterglow of recent successful employments. Machiavelli's warning on impediments to change are certainly applicable in this instance; there is a natural tendency to maintain the status quo from a position of strength. The time is at hand to "initiate a new order of things" while the mere presence of U.S. force deters aggression.

Appendix A

APS Equipment for ODS

Cargo Aboard Three Supply Ships

Class I: 110,000 Cases / MREs
Class II: 5,000 Remains Pouches
Class III: 70,768 Cases assorted
 Pkged Products
Class IV: 2000 Rolls / Concertina
 1000 Rolls / Barbed Wire
 500 Short Pickets
 500 Long Pickets
Class V: 60,000 Stons ammo
 of various types
Class VIII: 1 Medical Resupply Kit
Water: Reverse Osmosis Water
 Purification Unit (ROWPU)

Port Operations Equipment Aboard Prepo Ship

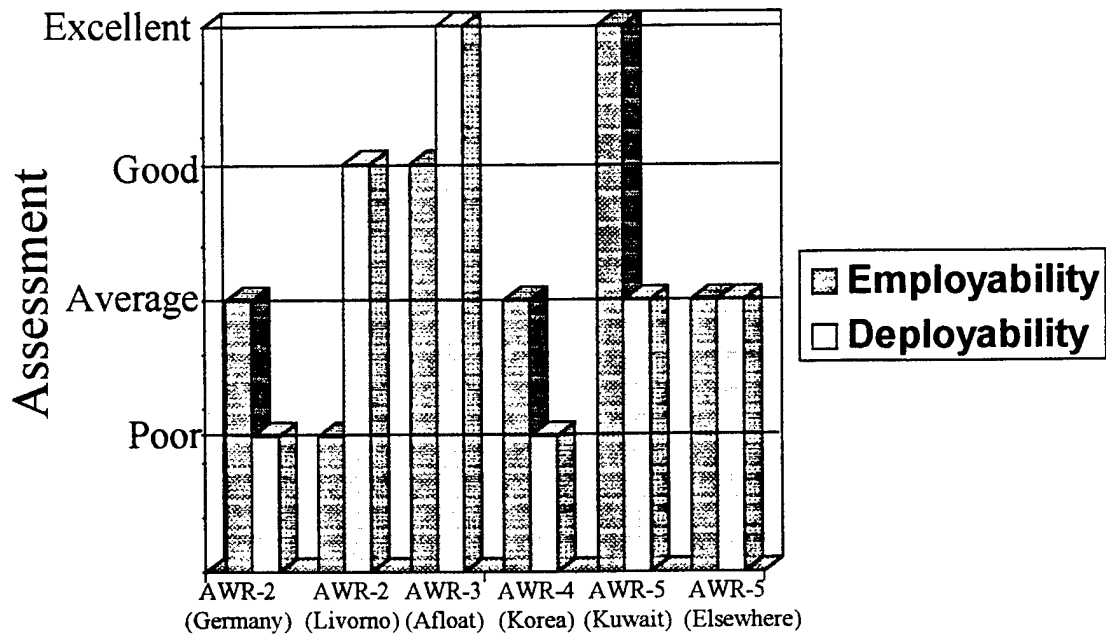
4 - Tug Boats
 2 - Floating Cranes
 4 - Landing Craft, Utility
 10 - Landing Craft, Mechanized
 8 - 50K Rough Terrain Container
 Handlers
 5 - 6K Rough Terrain Forklifts
 13 - Cargo Hatch Kits
 110 - Watercraft / MHE Repair
 Parts Containers

<p style="text-align: center;"><u>Appendix B</u></p> <p style="text-align: center;">POMCUS Support for ODS</p>
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<u>Item</u>	<u>Issued From POMCUS</u>
M1A1 Tank.....	865
M3A2 CFV.....	116
M2A2 BFV.....	1073
Tactical Wheeled Vehicles...	467
Trailers.....	233
Floodlight Sets.....	454
Telephone Sets.....	100
Radios.....	6769
GEMMS.....	2
DEPMEDS.....	13
Forklifts.....	57
M109 Howitzers.....	108

Appendix C

Employability / Deployability Assessment



Equipment Set

Endnotes

- ¹ Excerpts from President Bush's speech to the Aspen Institute, Aspen, Colorado, 2 August 1990.
- ² National Military Strategy of the United States, (Washington, DC: The Joint Staff, January 1992), 4.
- ³ Nunn, Senator Sam, Nunn 1990: A New Military Strategy, (Washington, DC: Center for Strategic and International Studies, 1990), 35.
- ⁴ A.J. Bacevich, The Pentomic Era, (Washington, DC: National Defense University Press, 1986), 11-12, 16, 19-20, and Robert A. Doughty, MAJ, USA, The Evolution of U.S. Army Tactical Doctrine, 1946-1976, (Fort Leavenworth, Kansas: Combat Studies Institute, Paper No. 1, August 1979), 19.
- ⁵ Peter Maslowski and Allan R. Millet, For the Common Defense, (New York: The Free Press, 1984), 530-531.
- ⁶ David W. Christie, LCDR, USN, "Prepositioning to Support US Army Contingency Operations," (Fort Leavenworth, Kansas: U.S. Army Command and General Staff College, 1992), 13.
- ⁷ Richard J. Barnaby, LTC, USA, "Mobilization Studies Report, Prepositioning of Materiel Configured to Unit Sets: Measurements of Readiness, (Washington, DC: National Defense University, 1985), 1-2.
- ⁸ Carl E. Franklin, COL, USAF, "The Efficacy of Prepositioning," (Washington, DC: National Defense University, March 1985), 12.
- ⁹ Christie, 11.
- ¹⁰ Carl F. Blozan and Ralph A. Hafner, Study of the Prepositioning Concept: Operation Big Lift Final Report, (McLean, Virginia: Research Analysis Corporation, November 1965), 1.
- ¹¹ *Ibid*, 3-4.
- ¹² Christie, 13.
- ¹³ *Ibid*, 16.
- ¹⁴ Gary M. Gentry, MAJ, USA, "Planning Considerations for the Use of Prepositioning of Material Configured to Unit Sets," (Fort Leavenworth, Kansas: U.S. Army Command and Staff College, 1992), 63.
- ¹⁵ Lawrence J. Korb, "Innovations to Support Our NATO Commitment," National Defense '82, (November 1982), 3.
- ¹⁶ Christie, 17-18.
- ¹⁷ Korb, 5.

- ¹⁸ Christie, 22.
- ¹⁹ Robert J. Kleimon, LTC, USA, "Army Afloat Prepositioning: Will It Work?" (Carlisle Barracks, Pennsylvania: U.S. Army War College, 31 March 1989), 1-2.
- ²⁰ Ibid, 4.
- ²¹ Ibid.
- ²² Franklin, 14.
- ²³ Christie, 26.
- ²⁴ Ibid.
- ²⁵ Ibid, 27.
- ²⁶ Ibid, 28.
- ²⁷ Albert A. Washington, LTC, USMC, "U.S. Army and Marine Corps Maritime Prepositioning: The Right Course for the 21st Century?" (Washington, DC: The Industrial College of the Armed Forces, National Defense University, Fort McNair, 1994), 6.
- ²⁸ Ibid, 6-7.
- ²⁹ Carl T. Bright, LCDR, USN and Sharon R. Hale, LCDR, USN, "Strategic Sealift for Desert Shield: Not a Blueprint for the Future." (Newport, Rhode Island: Naval War College, 21 June 1991), 4-5.
- ³⁰ Kleimon, 11.
- ³¹ Lorna S. Jaffe, The Development of the Base Force, 1989-1992. (Washington, DC: Joint History Office, July 1993), 1.
- ³² Peter Craig Laches, "An Analysis of the Mobility Requirements Study and the Future of Strategic Sealift." (Monterey, California: Naval Postgraduate School, March 1993), 20.
- ³³ Jack Redifer Brown, MAJ, USA, "The Army...From the Sea: The Army Initiative to Enhance Operational Agility." (Newport, Rhode Island: Naval War College, 17 June 1994), 15.
- ³⁴ Ibid, 2.
- ³⁵ William J. Perry, SecDef, Annual Report to the President and Congress. (Washington, DC: U.S. Government Printing Office, February 1995), 218. The initial Mobility Requirements Study considered only airlift, sealift and CONUS infrastructure requirements. The subsequent MRS Bottom-Up Review Update incorporated prepositioning initiatives into the requirements.
- ³⁶ Ibid, 224.
- ³⁷ Ibid.
- ³⁸ A National Security Strategy of Engagement and Enlargement, (Washington, DC: The White House, February 1995), 9 and National Military Strategy of the United States of American, (Washington,

DC: The Joint Staff. 1995). 18. There is little or no mention of prepositioning programs in the NSS / NMS documents of the early 1990s.

³⁹ A National Security Strategy of Engagement and Enlargement. The White House, February 1995, 9.

⁴⁰ DA ODCSOPS, War Plans Division Brief, "Global Prepositioning Strategy: Strategic Flexibility for a Power Projection Army." Slide 11. This heavy force requirement was the source of tension between the army and marine corps. USMC planners contended their service could meet the requirement with additional tanks and artillery prepositioned aboard their already existing MPS ships. Army planners promoted the fact that their service was the only one capable of operating far inland. The army argument carried the day.

⁴¹ Perry, Annual Report, 218.

⁴² Author's note. Author worked in War Plans Division on Army Staff during the conduct of the Bottom-Up Review. During the information gathering stages of the BUR, it became evident early on that the ability to get force into a theater early would have a significant impact on eventual force structure decisions. The services saw this as a "zero-sum game." If one service could not quickly get into the fight, another service was ready to take their place. It was in this environment that the army began to promote the GPS as a means to rapidly project force into the two critical regions J-8 was analyzing: SWA and Korea.

⁴³ C410, Operational and Strategic Logistics Advance Book, (Fort Leavenworth, Kansas: U.S. Army Command and General Staff College, October 1994), 70.

⁴⁴ DA ODCSOPS, War Plans Division Brief, "Global Prepositioning Strategy: Strategic Flexibility for a Power Projection Army." Slide 5.

⁴⁵ Interview with MAJ St John, staff officer, War Reserves Division, DA ODCSLOG, 12 January 1996.

⁴⁶ War Plans Division Brief, slide 7.

⁴⁷ COL William G. Foster and CPT James F. Pasquarette, "An Army Heavy Brigade Goes Afloat," Proceedings, (May 1994), 90-91.

⁴⁸ U.S. Congress, Senate Committee on Armed Services, Hearing on The President's Report on the U.S. Military Presence in East Asia, (Washington, DC: U.S. Government Printing Office, 19 April 1990), 8-9.

⁴⁹ U.S. Congress, House Committee on Armed Services, Defense Policy Panel, Testimony from CINC U.S. Forces, Korea, (Washington, DC: U.S. Government Printing Office, 2 April 1992), 244.

⁵⁰ MAJ St John interview.

⁵¹ Perry, Annual Report, 224. Open sources report that the second brigade and division level equipment may be prepositioned in Qatar.

⁵² Dennis Steele, "Iraq: Another Line in the Sand," Army (November 1994), 19.

⁵³ Conduct of the Persian Gulf War, Department of Defense, (Washington, DC: U.S. Government Printing Office, April 1992), 35.

- ⁵⁴ Christie, 34-37.
- ⁵⁵ Bright, 9.
- ⁵⁶ Christie, 36-37.
- ⁵⁷ David Kassing, Getting U.S. Military Power to the Desert: An Annotated Briefing. (Santa Monica, California: RAND, 1992), 27-28.
- ⁵⁸ Conduct of the Persian Gulf War, 403.
- ⁵⁹ Kassing, 27 and Conduct of the Persian Gulf War, 396.
- ⁶⁰ Report: Logistics: Operation Desert Storm Sustainment. Gulf War Collection, Group Scales Papers, 81.
- ⁶¹ Conduct of the Persian Gulf War, 381.
- ⁶² David Kassing, Transporting the Army for Operation Restore Hope. (Santa Monica, California: RAND, 1994), 32.
- ⁶³ Operation Restore Hope After Action Overview. (Fort Leavenworth, Kansas: Center for Army Lessons Learned, 1994), 118.
- ⁶⁴ Ibid, 119.
- ⁶⁵ Author's note. Logistics Management Institute, Bethesda, MD, was commissioned by the army to track progress in addressing the problems encountered during Operation Restore Hope. Strategic Mobility Division and War Reserves Division from ODCSLOG and War Plans Division from ODCSOPS worked together on this action in 1992-1994.
- ⁶⁶ Operation Vigilant Warrior After Action Report. (Fort Stewart, Georgia: 24th Infantry (Mechanized) Division, 19 January 1995), Enclosure 1: Chronology of events.
- ⁶⁷ Ibid.
- ⁶⁸ Donna Miles, "One Army, Two Fronts," Soldier, (December 1994), 4-5.
- ⁶⁹ "AWR-3 Vigilant Warrior," (3rd BCT, 24th ID(M) brief for the Honorable Togo D. West, Jr., Secretary of the Army, 23 November 94,) slide 19.
- ⁷⁰ 13th COSCOM After Action Review on Operation Vigilant Warrior, 15 November 1994, Enclosure 1.
- ⁷¹ M1A2 Fielding Plan, DA ODCSOPS, Combat Arms Division, 1995.
- ⁷² The 24th ID(M) was one of the first units in the army to receive the Paladin. The fielding plan calls for AWR-3 to eventually receive the Paladin later this decade. This incident highlights the potential problems units employing prepositioned sets will encounter due to equipment mismatches.
- ⁷³ Foster and Pasquarette, 90-91.

⁷⁴ Interview with Bernice Billingsly, DA DCSLOG, Strategic Mobility Division, 5 January 1996. Periodic vehicle maintenance is also inclusive in the cost over the POM years.

⁷⁵ Interview with LTC Demayo, DA ODCSOPS, War Plans Division, 9 January 1996.

⁷⁶ William E. Odom, America's Military Revolution, (Washington, DC: The American University Press, 1993), 47.

⁷⁷ TRADOC Pamphlet 525-5: Force XXI Operations (Fort Monroe, Virginia, 1 August 1994), i.

⁷⁸ Ibid., 2-8 - 2-10.

⁷⁹ Ibid., 2-10.

⁸⁰ Ibid., 3-1.

⁸¹ Odom, 63-65.

⁸² Bevin Alexander, The Future of Warfare, (New York: W.W. Norton & Company, 1995), 217-220.

⁸³ Association of the United States Army, Strategic Mobility, Can We Get There From Here-In Time?, (Arlington: Institute of Land Warfare, 1984), 3.

⁸⁴ Force XXI...America's Army of the 21st Century, (Fort Monroe, VA: Louisiana Maneuvers Task Force, 15 January 1995), 31.

⁸⁵ Niccolo Machiavelli, The Prince (London: J.M. Dent and Sons LTD, 1958), 49-50.

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