(2)

NAVAL POSTGRADUATE SCHOOL
Monterey, California

THESIS

OCEAN VENTURE '92: AN ASSESSMENT OF A MARITIME PREPOSITIONING FORCE/JOINT LOGISTICS OVER THE SHORE INSTREAM OFFLOAD EXERCISE

by

Sharon Barrett

and

Janet Wiley

June 1993

Co-Advisor: Dan C. Boger
Co-Advisor: David G. Brown

Approved for public release; distribution is unlimited.

REPORT DOCUMENTATION PAGE

Form Approved
OMB No 0704-0188

1. AGENCY USE ONLY (Leave blank)	2. REPORT DATE	3. REPORT TYPE AND DATES COVERED
	June 1993	Master's Thesis

4. TITLE AND SUBTITLE
OCEAN VENTURE '92: AN ASSESSMENT OF A MARITIME PREPOSITIONING FORCE/JOINT LOGISTICS OVER THE SHORE INSTREAM OFFLOAD EXERCISE

5. FUNDING NUMBERS

6. AUTHOR(S)
Barrett, Sharon and Wiley, Janet

7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES)
Naval Postgraduate School
Monterey, CA 93943-5000

8. PERFORMING ORGANIZATION REPORT NUMBER

9. SPONSORING/MONITORING AGENCY NAME(S) AND ADDRESS(ES)

10. SPONSORING/MONITORING AGENCY REPORT NUMBER

11. SUPPLEMENTARY NOTES
The views expressed in this thesis are those of the author and do not reflect the official policy or position of the Department of Defense or the U.S. Government.

12a. DISTRIBUTION/AVAILABILITY STATEMENT
Approved for public release, distribution is unlimited.

12b. DISTRIBUTION CODE

13. ABSTRACT *(Maximum 200 words)*

The movement of supplies from ship to shore to support military forces in or near combat areas has historically been difficult and time consuming. The Marine Corps and the Army have developed their own systems for satisfying their logistical needs. The Marine Corps has embraced the prepositioning concept, while the Army has relied on moving forces and utilizing logistics over the shore capabilities.

Regardless of the offload method used, the efficient delivery of containerized cargo and equipment is critical to the establishment of forces ashore. During May 1992, a Maritime Prepositioning Force (MPF) and Joint Logistics Over the Shore (JLOTS) exercise was conducted at Onslow Beach, North Carolina, to test these delivery systems. Ocean Venture '92 provided a low- to mid-intensity platform for examining MPF and JLOTS capabilities.

This thesis presents the organizations and equipment requirements for MPF and JLOTS operations and assesses the effectiveness of Ocean Venture '92 with respect to accomplishing key objectives, problem identification, lessons learned and recommendations for improving future MPF and JLOTS operations.

14. SUBJECT TERMS	15. NUMBER OF PAGES
Maritime Prepositioning Force, Joint Logistics Over the Shore, Logistics, JLOTS	125
	16. PRICE CODE

17. SECURITY CLASSIFICATION OF REPORT	18. SECURITY CLASSIFICATION OF THIS PAGE	19. SECURITY CLASSIFICATION OF ABSTRACT	20. LIMITATION OF ABSTRACT
Unclassified	Unclassified	Unclassified	UL

Approved for public release; distribution is unlimited.

OCEAN VENTURE '92: AN ASSESSMENT OF A MARITIME PREPOSITIONING FORCE/JOINT LOGISTICS OVER THE SHORE INSTREAM OFFLOAD EXERCISE

by

Sharon Barrett
Lieutenant, United States Navy
B.F.A., University of Cincinnati, 1982

and

Janet Wiley
Lieutenant, United States Navy
B.S., Winona State University, 1930

Submitted in partial fulfillment
of the requirements for the degree of

MASTER OF SCIENCE IN MANAGEMENT

from the

NAVAL POSTGRADUATE SCHOOL
June 1993

Author: Sharon Barrett
Sharon Barrett

Janet Wiley
Janet Wiley

Approved by: Dan C. Boger
Dan C. Boger, Co-Advisor

David G. Brown
David G. Brown, Co-Advisor

David R. Whipple, Chairman
Department of Administrative Sciences

ABSTRACT

The movement of supplies from ship to shore to support military forces in or near combat areas has historically been difficult and time consuming. The Marine Corps and the Army have developed their own systems for satisfying their logistical needs. The Marine Corps has embraced the prepositioning concept, while the Army has relied on moving forces and utilizing logistics over the shore capabilities.

Regardless of the offload method used, the efficient delivery of containerized cargo and equipment is critical to the establishment of forces ashore. During May 1992, a Maritime Prepositioning Force (MPF) and Joint Logistics Over the Shore (JLOTS) exercise was conducted at Onslow Beach, North Carolina, to test these delivery systems. Ocean Venture '92 provided a low- to mid-intensity platform for examining MPF and JLOTS capabilities.

This thesis presents the organizations and equipment requirements for MPF and JLOTS operations and assesses the effectiveness of Ocean Venture '92 with respect to accomplishing key objectives, problem identification, lessons learned and recommendations for improving future MPF and JLOTS operations.

TABLE OF CONTENTS

I. INTRODUCTION

A. BACKGROUND

Sealift has been, and continues to be, the primary means of transportation to support deployment of U.S. forces overseas. In peacetime, these supplies are distributed through host-nation port facilities. However, during times of conflict or humanitarian need where port facilities access is denied or unavailable, cargo must be moved from ships anchored offshore to inland distribution points. This type of operation is known as Logistics over the shore (LOTS).

LOTS operations are conducted over unimproved shorelines, through fixed ports partially destroyed by combat action, through shallow draft ports not accessible to deep draft vessels, and through fixed ports that are inadequate without utilizing supplemental LOTS capabilities.

A typical LOTS operation may include loading and unloading of breakbulk materials, roll-on/roll-off vehicles, containers, and bulk fuel and water from ships in the theater of operations. Also included are shoreside operations, stevedoring, water and fuel hoseline operations, and the operation of ships, watercraft, and lighterage in the loading and unloading area. (Somers, 1984)

The two primary missions for LOTS equipment are assault and logistics. During an amphibious assault, the U.S. Navy

coordinates supply requirements. After the initial assault phase, each service is responsible for establishing its own logistics system. The environment for an assault is tactical and hostile, compared to logistics operations which take place in a benign environment. Cargo for an assault landing force provides minimum essential equipment. However, logistics resupply or buildup of forces consists of large volumes of equipment which require a heavy lifting capability. (Vargo, 1977)

The movement of supplies from ship to shore to support military forces has historically been difficult and time consuming. The arrival of the container ship in the 1950's brought speed, efficiency, and fundamental changes to the U.S. merchant marine fleet. This new capability also brought significant problems for military logisticians who were tasked with finding ways to discharge cargo from those ships if seaports were damaged or unavailable. The movement by the maritime industry towards containerization resulted in a smaller number of ports and ships available, and less flexibility for the military, thus making the job of ship to shore movement more important, but also more difficult.

LOTS operations were utilized during World War II, Korea and Vietnam. Although critical during these conflicts, emphasis on the NATO scenario left the LOTS equipment and force structure needed in other contingencies low in funding priority. However, during the later years of the Carter

administration, events in Iran and Afghanistan led to the formation of the Rapid Deployment Force with potential missions in the Persian Gulf. Under the Reagan administration, the goals of protecting U.S. national interests continued to shift from a singular emphasis on NATO to a global viewpoint. (Beakey, 1982)

The world situation has rapidly changed in the past several years. The need for LOTS capabilities, and therefore increased funding and higher prioritization, has never been greater. As delineated in the Navy and Marine Corps White Paper, From the Sea, dated September 1992, the National Security Strategy has shifted from a focus on a global threat to a focus on regional challenges. Naval forces will shift from a "cold war, open ocean, blue water naval strategy to a regional, littoral, and expeditionary force." Warfighting will shift from on the sea to joint operations conducted from the sea.

Naval Forces will now be "operating forward from the sea," which means operating in the littoral or near land areas of the world. This includes the seaward area from the open ocean to the shore. Force sustainment will also require forward logistics, prepositioning, and strategic sealift. Having a LOTS capability will be imperative in meeting regional missions.

The Marine Corps and the Army have developed their own systems for satisfying their individual logistics needs. The

Marine Corps has embraced the prepositioning concept, while the Army has relied on moving forces and utilizing JLOTS capability after a conflict has begun.

Joint Logistics Over The Shore (JLOTS) operations are LOTS operations conducted jointly by two or more service component forces of a unified command (i.e., the Navy and Army). The scope of a JLOTS operation will depend on geographical, tactical, and time considerations.

E. OCEAN VENTURE '92 SCENARIO

From 11 May 1992 through 18 May 1992, as part of Ocean Venture '92 (OV 92), a Maritime Prepositioning Force (MPF) and Joint Logistics Over the Shore (JLOTS) offload exercise was conducted off the coast of North Carolina. The MPF offload was conducted by Commander, Amphibious Group Two, designated "Commander, Maritime Prepositioning Force," and the following subordinate commands: Maritime Prepositioning Ship Squadron One (MPSRON ONE), Naval Beach Group Two (NBG-2), and the 2nd Marine Expeditionary Force (II MEF).

The JLOTS offload was conducted by the Commander, 7th Transportation Group (Terminal), U.S. Army, who was designated as the JLOTS commander. The 11th Transportation Battalion (Terminal) served as the Task Force Commander. Naval Beach Group Two and MPS assets were under operational control of the JLOTS commander during the JLOTS offload.

Ocean Venture '92 was a Joint Chiefs of Staff (JCS)-directed, United States Commander in Chief, Atlantic

(USCINCLANT)-sponsored, Commander, Joint Task Force (CJTF) 140-executed joint exercise designed to accomplish the following:

1. To train United States Atlantic Command (USLANTCOM) headquarters and forces in the planning and conduct of joint combat operations.
2. To exercise joint relationships and improve joint operating procedures.

Ocean Venture '92 provided a low- to mid-intensity platform for USCINCLANT and components to train personnel for a wide variety of supporting and enabling tasks to established standards using a realistic contingency operation scenario. The exercise was designed to achieve these goals by maximizing realism in exercise play for participating commands within the constraints imposed by limited exercise maneuver area, airspace, funds, available forces, safety and time.

The following names were used during OCEAN VENTURE '92 to simulate the small island nations of the scenario:

Exercise Name	**Actual Location**
Viarta Island	Southern coastal North Carolina
Pinto Island	None -- constructive island SE of North Carolina
Colon Island	Vicinity of Mackall Army Air Field, NC
Jaguar Island	Southern coastal North Carolina and coastal South Carolina
Lejeune	Built-up area of Marine Corps Base Camp Lejeune, NC
Cherry Point	Marine Corps Air Station Cherry Point and Havelock, NC

The Caribbean island nations of Jaguar and Viarta are close neighbors, yet far apart in terms of their history, culture, standards of living, and p tical styles. Viarta is a former British colony which has e oyed a stable democratic government on the British model and a stable economy based on tourism and banking. Viarta has no history of conflict since the Napoleonic Wars, with the exception of Allied basing activities during WWII.

Jaguar is a former Spanish colony with a pattern of dictatorial government alternating with democratic experiments. A Socialist government followed a long period of authoritarian rule in 1967. Disastrous Marxist economic experiments and the fall of world sugar prices led to the fall of the Socialists in 1978, but the failure of the Christian Democratic Party to restore property rights resulted in the overthrow of the government by a right-wing military junta in 1980. Within 3-4 years, the junta was dealing with the Columbian Mendoza drug cartel, allowing the cartel to use Jaguar as a production and transhipment point in return for infusions of much-needed currency. Relations between Jaguar and the U.S. are strained.

Jaguar is much larger than Viarta in both population and land mass, but has relatively fewer resources. Its economy is not as diversified or vigorous as Viarta's yet it must support a substantial military organizatio e government is not diplomatically respected and is facing increasing

opposition. In response, it has tightened its links with the drug cartel and turned outward for a solution to its difficulties.

Since the mid-1980's, the Jaguarian government and the Mendoza Drug cartel have infiltrated the fabric of Viartan politics, business, and society, using the power of wealth, a carefully crafted appeal to idealism, and increasingly effective manipulation of public opinion and political institutions. The cartel has taken the lead in this, with the Jaguarian government remaining in the background.

The cartel has used its power to gain influence in Viartan affairs. The cartel has successfully corrupted the Viartan Prime Minister and his clique to force support of friendlier relations with Jaguar and less friendly relations with the U.S. By massive financing of opposition parties, the cartel has reduced support of the majority Conservative Party from a historical level of 80% to 56% in the most recent (1990) elections.

The Prime Minister, in an effort to reassert the Conservative Party's dominance, has signed a number of mutual support agreements with Jaguar since 1990. These included a Peaceful Co-existence Agreement, an Economic Development Agreement, and a Mutual Aid Agreement, culminating in a Military Support Agreement signed in January 1992. This stipulates that Jaguar is to provide forces for training and Foreign International Defense in Viarta. One element of the

agreement calls for a Jaguarian military exercise in Viarta in May of 1992. The agreements were never ratified and therefore considered invalid by the Viartan government.

Jaguarian military units commenced preparations for the exercise, and the first troops arrived in Viarta on 20 March. Turmoil between the top posts in the government resulted in an attempt by the foreign minister to seize power in a legal coup attempt before parliament. The attempt barely failed, with the foreign minister receiving 45% of the vote. As a result of the continued Jaguarian build-up in Viarta and reports of increased drug cartel influence, the prime minister sought help from the United Nations Security Council (UNSC) and the Organization of American States (OAS) to persuade the Jaguarian military to withdraw. The UNSC met 15 April 1992 to discuss his request, but took no action before recessing for the Easter holiday.

By 24 April 1992, approximately 2,500 Jaguarian troops were on the ground in Viarta, and the island of Pinto was completely under Jaguarian control. On the 27th, the prime minister delivered a letter to the President requesting military assistance and intervention by U S. forces. USCINCLANT assessed the primary tasks before it as:

1. Prevention of further introduction of Jaguarian troops, equipment, and contraband into Viarta; and
2. Ejection of the Jaguarian forces already in Viarta.

The options selected to accomplish these tasks were:

1. Maritime interdiction
2. Combined airborne/amphibious assault
3. Introduction of follow-on forces via MPF and JLOTS

A complete list of the forces who participated in Ocean Venture is provided in Appendix B. A copy of the beach layout is illustrated in Appendix C.

C. THESIS OBJECTIVE

Regardless of the offload method utilized, the efficient delivery of containerized cargo and equipment is critical to the establishment of forces ashore. Ocean Venture '92 presented the opportunity to assess MPF and JLOTS capability. This thesis will assess the effectiveness of Ocean Venture '92 with respect to key objectives that were to be accomplished, problem identification, lessons learned and recommendations for future exercises.

Chapter II will highlight the background of MPF/JLOTS operations. The Crisis Force Module Concept will be discussed in Chapter III. Equipment and organizations used in MPF and JLOTS offloads is delineated in Chapters IV and V respectively. Chapter VI will examine lessons learned while Chapter VII provides the thesis summary.

II. BACKGROUND

A. MARITIME PREPOSITIONING FORCE BACKGROUND

1. MPF Development

The need for maritime prepositioning was identified in the Carter Doctrine, a policy declaring critical United States interests in geographically remote regions of the world where there was no need for permanent U.S. military presence.

Secretary of Defense Harold Brown announced the Maritime Prepositioning Force (MPF) program in his report to Congress on January 29, 1980:

> ...a force of Maritime Prepositioning Ships...will carry in dehumidified storage the heavy equipment and supplies for three Marine Brigades. During peacetime, these ships will be stationed in waters near areas where U.S. forces might be needed...not designated for amphibious assault landings against enemy opposition...they will be able to debark their equipment over the beach if no port is available. Marine Corps personnel (and equipment not well suited to storage) will, as necessary, be airlifted to the vicinity of the ships, where they will marry up with their gear and be ready for combat on short notice...

In response to Presidential direction, a Near-Term Prepositioning Force (NTPF) was deployed to the Indian Ocean, and the first units of the dedicated MPF were included in the FY 1981 shipbuilding budget. Seven ships were adapted for the Navy's NTPF role. These included three roll on/roll off ships, two breakbulk ships, and two tankers. The NTPF carried supplies and equipment to support the 7th Marine Expeditionary

Brigade (MEB). These ships would be replaced in 1985 with an MPF squadron of self-sustaining ships.

Over the next several years, funds were budgeted for building and converting 13 merchant ships in order to form the three Maritime Prepositioning Force squadrons (MPSRON). Between 1984 and 1986, the MPF ships were loaded and deployed. (Sumner, 1991)

2. Mission Capabilities

Maritime prepositioning provides the fleet commander with deployment flexibility and increases U.S. ability to respond rapidly to crises with a credible force. The essential contribution of MPF operations stems from its ability to concentrate forces quickly in an objective area. The threat imposed by the presence of this power projection capability provides a deterrent to potential adversaries. MPF operations:

1. Offer an alternative to other forms of power projection when an early decision, a secure situation, and deployment capabilities permit.

2. Serve as an economy of force measure in a secure environment to preclude the requirement for forcible entry by a larger force at a later time.

3. Provide a means whereby a MEB can be deployed with minimal impact on other deployed forces given an early decision and a secure airfield and beach port.

4. Provide the capability to rapidly reinforce a forward-deployed Marine Air-Ground Task Force (MAGTF), using the speed afforded by airlift while capitalizing on the lift capacity and rapid response of prepositioned sealift. (MPF Ops, 1990)

The Projected Operational Environment (POE) for each Maritime Prepositioning Ship Squadron is defined as:

1. At sea in wartime.

2. Capable of getting underway on 24 hours notice after normal protracted periods on station at anchor or alongside a pier.

3. Off-load all cargo over a pier within three days, and in the stream within five days, in conditions up to and including sea state three. (Commanding Officer, MPS Squadron ONE).

The three MPF squadrons are strategically positioned around the world to ensure a rapid and sustainable military response to short-warning global contingencies. The MPF consists of three ship classes: the Waterman, Amsea, and Maersk, which were converted or built specifically to meet MPS requiremerts and are described later. The Atlantic Squadron, known as Maritime Prepositioning Squadron One (MPSRON ONE), is made up of three Waterman ships and one Amsea ship. MPSRON TWO in the Indian Ocean contains five Maersk ships. MPSRON THREE in the western Pacific utilizes four Amsea ships. Figure 1 shows the operating area of each MPSRON.

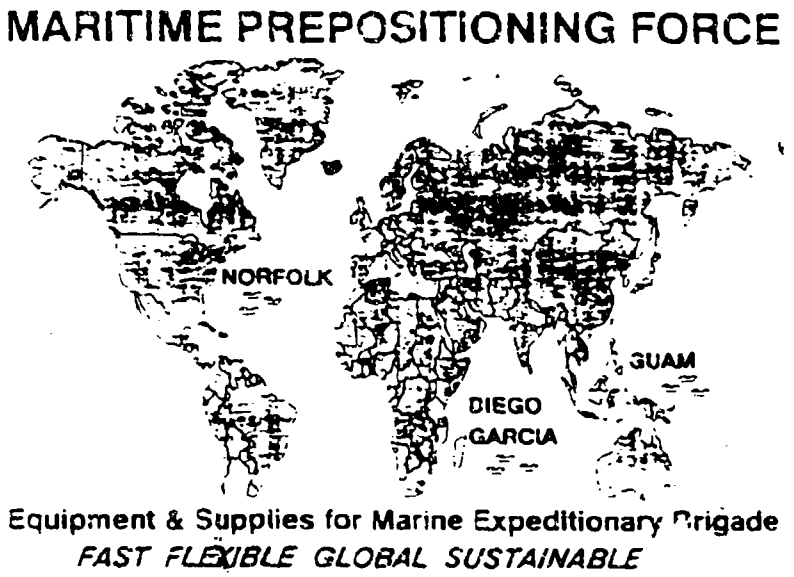


Figure 1: MPF Global Picture

Appendix D is an operations summary of each MPSRON.

Today, each squadron is capable of carrying supplies and equipment to sustain a Marine Expeditionary Brigade (MEB) of approximately 16,000 Marines ashore for 30 days of sustained combat. These huge ships are equipped to offload pierside, or up to several miles offshore; this latter procedure is known as "instream offloading."

The pierside offload is preferred due to its speed and safety. Rolling stock is either lifted off via crane or driven off. Containerized cargo is lifted directly to the pier. Many ports have equipment and facilities which can be utilized to rapidly offload the ships' cargo.

The instream offloading capability provides flexibility in offload locations when a fixed port is infeasible or

undesirable. With the ship at anchor, all rolling stock and containers must be offloaded to floating lighterage which then shuttles the materials to the shore. This operation is inherently slower, more dangerous and susceptible to more environmental factors then a pierside download. Once ashore, the material is moved to a location where it is prepared for issue to its accountable unit. The goal of the entire evolution is to have Marines and their equipment in place and operating within ten days after arrival in the operating area.

Operation Desert Shield validated the MPF concept when the Indian Ocean-based MPSRON TWO arrived at the port of Al Jubail just eight days after being tasked by President Bush. Offload of three MPF ships simultaneously was accomplished in just 36 hours with the exceptional host nation support provided by Saudi Arabia.

The Marine Corps has shifted its focus toward mid- and low-intensity conflict, and sought increased MPF flexibility to respond to various contingencies, including everything from combat situations to disaster relief. Most recently, the MPF ships provided support to thousands of starving Somalis. This fleet has provided a truly unique, global response capability since 1986.

3. Concept of Operations and Responsibilities

MPF provides a strategic option to deploy men, supplies, and equipment of a MAGTF. The MAGTF supplies and equipment are prepositioned aboard forward deployed MPF ships,

and the personnel are airlifted by the Air Mobility Command directly into the area of operations. There, the personnel join their equipment and prepare for subsequent operations ashore as shown in Figure 2.

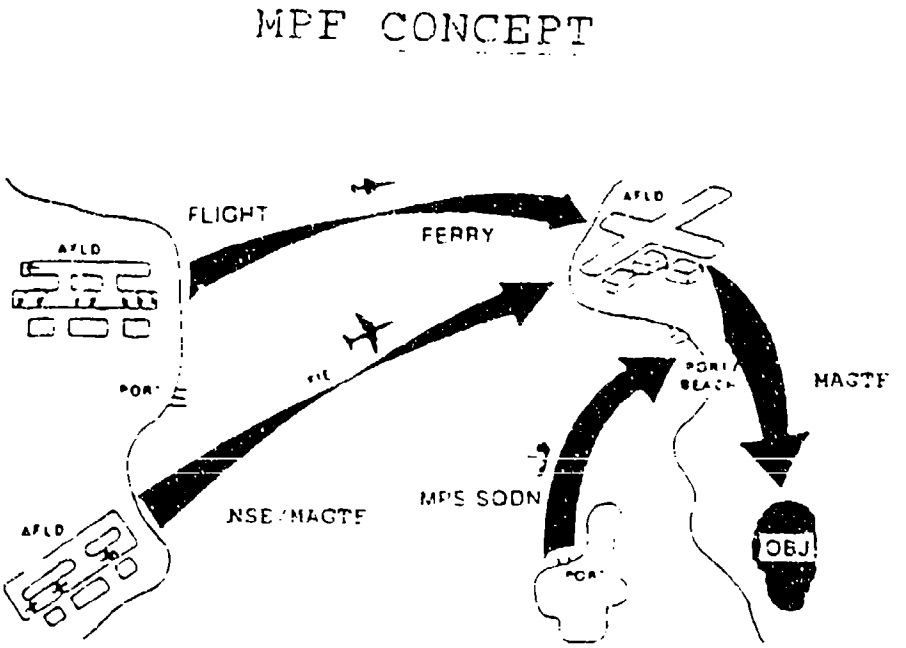


Figure 2: MPF Concept
Source: Naval Beach Group TWO

An MPF operation is accomplished in four phases: planning, marshalling, movement, and arrival and assembly.

1. **Planning.** MPF operations are characterized by both contingency and execution planning. The planning phase begins upon receipt of the warning order from JCS and is continuous throughout the operation.

2. **Marshalling.** During the marshalling phase, units complete final preparations for movement to aerial ports of embarkation and loading aboard aircraft.

3. **Movement.** The movement phase consists of the movement of the forces by air and sea to the Arrival and Assembly Area (AAA). The movement phase begins upon lift-off of the first aircraft from the departure airfield or when the MPSRON begins transit to the AAA.

4. **Arrival and Assembly.** Arrival and assembly is the crucial phase of an MPF operation. It begins upon arrival of the first MPSRON ship or first aircraft of the main body at the designated Arrival and Assembly Area. This phase ends when all adequate supplies and equipment have been off-loaded and issued to awaiting units; command and control communications have been established ashore; and the MPF MEB commander reports all essential elements of the MEB have attained combat readiness.

When an MPF operation is executed, the MPF itself is comprised of a Command Element, or Commander, Maritime Prepositioning Force (CMPF), a Marine-Air-Ground Task Force (MAGTF), a Naval Support Element (NSE), a Maritime Prepositioning Squadron, and other supporting forces as necessary to provide security.

CMPF is designated in the Initiating Directive. He is responsible for coordinating the time-phased arrival of MPF elements in the designated arrival and assembly area. Additionally, he provides for security of the MPF and supporting forces in the AAA.

The MAGTF Commander, responsible for Marine Forces, plans the airlift of the forces to the AAA and coordinates arrival and assembly operations in the AAA.

The third component in the MPF organization is the Commander of the MPS Squadron who ensures the MPSRON's

readiness to conduct offload operations. He exercises tactical control of the MPSRON including movement to the AAA.

The Naval Support Element for a full MEB offload consists of nearly 800 personnel from the Naval Beach Group and Naval Cargo Handling and Port Group (NAVCHAPGRU), and is the link between the MAGTF equipments and supplies aboard the MPSRON ships and the MAGTF personnel flown into the area by Air Mobility Command. The NSE operates the ships' cranes and all lighterage, conducts the ship to shore movement, performs beachmaster functions, and provides limited camp support and perimeter defense.

The NSE is task organized with a Beach Group staff element and tailored detachments of Beachmaster Unit, Assault Craft and Amphibious Construction Battalion personnel. The NAVCHAPGRU provides approximately 150 personnel for a four ship offload. The call up of reserve forces is critical to manning the NSE because reservists comprise nearly 75% of these units. In a crisis action situation, the NSE could support up to a two ship offload without reserve call-ups, but such action would severely drain the units of both sea and shore personnel, effectively shutting down many home port operations.

The MPF ability offers operational commanders great flexibility in responding to various scenarios. MPF, however, is not without its limitations. With no forced entry capability, it requires a secure area for operations. Airlift

availability is a major concern, particularly during large scale contingencies when demands on the Air Mobility Command reach saturation. Command relationships are complex, and the entire operation is time sensitive as all individual elements must link up.

B. JOINT LOGISTICS OVER THE SHORE

1. Background

Logistics Over the Shore (LOTS) is the loading and unloading of ships without the benefit of fixed port facilities. Both the Army and the Navy may conduct LOTS operations. In an amphibious operation the Navy may conduct LOTS operations in conjunction with the Marine Corps as a naval operation. During an amphibious operation, the Navy is responsible for the discharge of cargo and its movement to the highwater mark, where the landing force assumes responsibility for transfer and transportation to inland assembly points.

An Army LOTS operation may be conducted as part of the base, garrison, or theater establishment which immediately follows an amphibious operation, or as a separate evolution with no amphibious operation. During Army LOTS operations, cargo is moved ashore and transferred to a transportation agency for onward movement.

Prior to 1970, the Army's capability to unload deepwater ships was built around the Terminal Service Companies. These companies, sometimes referred to as stevedore units, were large organizations equipped and trained

to perform discharge operations in either a fixed port with deepwater piers, or in a LOTS operation. When required to discharge cargo in a LOTS mission, Army boat and amphibian units were assigned to move cargo from ship to shore.

Joint Logistics Over The Shore (JLOTS) operations are LOTS operations conducted jointly by two or more service component forces of a unified command. The scope of a JLOTS operation will depend on geographical, tactical, and time considerations.

2. Concept of Operations

In operations or exercises involving more than one service, the Joint Force Commander relies on the host nation to provide ports and transportation services to support theater requirements. However, there will be situations in which the ports are destroyed, substandard or inaccessible. The Commander may then direct JLOTS operations.

The JLOTS operation which begins after an amphibious assault requires a smooth transition phase. During the transition from an amphibious assault to a JLOTS operation, Naval and Army Commanders arrange for transfer of command responsibility to the JLOTS Commander. The Commander's major tasks are to establish security, and to facilitate the cargo discharge through a tactical operations center and lighterage control center. Maintaining an effective command, control and communications structure is essential to a steady JLOTS operation. The JLOTS Commander also has at his disposal an

engineer port construction company to assist in beach preparation, and in the installation of cargo discharge platforms.

The JLOTS Commander must synchronize all efforts to maintain continuity of operations. Proper integration of a myriad of Army, Navy and Marine units adds depth to the JLOTS support structure and ensures a throughput capacity that supports the Joint Force Commander's priorities. The goal of every JLOTS operation is to safely and efficiently discharge cargo to the correct unit(s) ashore. Cargo is categorized as: containers, breakbulk, unit equipment, liquids (water or fuel), and retrograde.

In a JLOTS scenario, whether the JLOTS Commander is from the Army or Navy component, Naval offload personnel and equipment are under operational control of the JLOTS Commander and assimilated into appropriate task organizations. Administrative control remains with the Naval Component Commander. In a pierside operation, command and control of Army and Naval units falls under the command of their respective service.

The following characteristics or criteria are used to evaluate the effectiveness of a reliable JLOTS operation:

1. JLOTS operations are characterized by sustained, high-tonnage movements from ship to shore. Each link in the system must be able to maintain the flow of cargo to support the personnel ashore.

2. Sustainability and reliability are more important than a surge capability.

3. JLOTS operations are conducted in austere environments. Frequently, limited shore facilities are available to maintain watercraft and related equipment.

4. All JLOTS equipment must be capable of operating in moderately rough seas (up to sea state 3). Subsystems that operate only in calm seas and ideal weather limit the entire evolution to that of the lowest common denominator.

5. Rapid deployability of equipment required to run a JLOTS operation is critical. (JCS Pub 4-03)

The ability to conduct effective joint operations such as JLOTS has never been more important. As stated in From The Sea, "the battlefield of the future will demand that everyone on the field be teammates. Such teamwork enables joint combat operations."

III. CRISIS FORCE MODULE CONCEPT TESTING

A. BACKGROUND OF MPF LOAD CONFIGURATION

Operation Desert Shield was the first event in which the Maritime Prepositioning Force (MPF) concept was utilized on a large scale. Until then, only relatively small exercises had been conducted. In that operation MPF ships equipped and sustained a Marine force of over 30,000. Desert Shield provided a unique opportunity to evaluate every aspect of the MPF concept, from the initial decision to use MPF capability through the restocking of used equipment and supplies afterwards. The three MPF squadrons were successfully offloaded, allowing the Navy and Marine Corps to gather extensive data and personnel expertise which will erhance the MPF's proficiency through the 1990's. (Geis, Hill, Ivancovich, 1992)

Each of the MPF ships utilized during Desert Storm had similar load configurations of equipment and supplies. The supplies were spread uniformly, or "spreadloaded," among all ships in a squadron; each ship carried almost identical equipment and supplies. For a full four or five ship offload, this spreadloading was very effective. However, when the emphasis changed to regional conflicts, and the role of the MPF ships shifted to serving more specific needs, the

rationale for how each ship's load was configured also changed.

As a result of recommendations in the FMF Force Module Enhancement Study (CNA, 1991) and the lessons learned from Desert Shield and Desert Storm, the MPF load structure was reconfigured to support different force modules. Force modules are task forces of different sizes and missions designed by the Fleet Marine Force to enhance Marine Air-Ground Task Force (MAGTF) sustainment and promote MPF employment and deployment flexibility. The modules applicable to MPF operations range in size from a Marine Expeditionary Unit (MEU) of about 2,700 Marines to a MEB-sized force of 15,000 Marines. Under the Crisis Force Module concept, missions will range from humanitarian assistance to all levels of conflict.

The four typical force modules an MPF will support are:

1. A Marine Expeditionary Unit (MEU) employed with one MPS ship and a Fly-in-Echelon (FIE) via strategic airlift.
2. A Low Intensity Conflict (LIC) capable MAGTF employed with two MPS ships, a Marine Amphibious Ready Group and a FIE.
3. A LIC capable MAGTF employed with three MPS ships and a FIE.
4. An MPF MEB employed with a full MPSRON and a FIE.

As illustrated in Figure 3, the following equipment and containers will be offloaded to sustain the personnel listed with each force module scenario.

MPF MODULE LOADOUTS			
	Personnel	Equipment	Containers
MEU	2722	258	153
LIC MEB I	12649	1320	1140
LIC MEB II	12649	1970	1710
MEB	16500	2640	2280

Figure 3: MPF Module Loadouts
Source: Naval Beach Group Two OPLAN 201

Figure 4 illustrates the number of MPF ships, amphibious ships, and aircraft sorties required for the new module configuration.

PRIORITY FORCE MODULES			
	MPF ships	Amphibs	Sorties*
MEU	1	0	22
LIC MEB I	2	4 OR 5	91
LIC MEB II	3	0	113
MEB	4	0	249

*C-141 Equivalents

Figure 4: Priority Force Modules
Source: Naval Beach Group Two OPLAN 201

Each MPF squadron has been reconfigured such that each ship in the squadron is assigned a primary force module functional assignment and a secondary assignment. Figure 5 outlines the priority force module assignments for the three MPS squadrons.

MPF FORCE MODULE LOADS

MODULE MPSRON:	MEU	LIC MEB I	LIC MEB II	MEB
MPS-1	OBREGON	BOBO	KOCAK	PLESS
MPS-2	HAUGE	FISHER	BAUGH	BONNEY'N
MPS-3	LUMMUS	BUTTON	LOPEZ	WILLIAMS

Figure 5: MPF Force Module Loads
Source: Naval Beach Group Two OPLAN 201

The reconfiguration of the MPF loads was designed to enhance MPF operations by reducing the ready-to-operate time. This is the time required to conduct an MPF operation and stand up the Marines on the beach, ready to carry out their operational commitments. Initial reductions in time come from pre-planning the loads. Thus, when a force module is

required, ships will have been identified to meet the missions which have the best mix of equipment onboard. Additionally, the modules allow for smaller fly-in-echelons which are tailored to assemble with appropriate equipment and supplies. Airlift requirements for the fly-in-echelons are reduced, thus reducing the ready-to-operate time.

Prior container placement planning for mission essential systems onboard the ships has significant impact on offload and set up times. Force module equipment identified in advance can be labeled and placed close to ramps and offloading lanes that will be used during pierside or instream offloads. Priority load plans in support of the force module concept also reduce offload times. The result is a flexible MPF program which allows commanders the opportunity to task-organize to meet specific missions.

B. OCEAN VENTURE '92

Physical tailoring of each squadron occurred prior to the retrograde movement of MPF equipment from South West Asia. All equipment and supplies were reorganized in accordance with force module constraints before being backloaded on the ships. Consequently, Ocean Venture '92 was the first test and evaluation of an MPS squadron load reconfigured to support the Fleet Marine Force priority force modules.

Fleet Marine Force, Atlantic (FMFLANT) and MPSRON-ONE participated in the exercise. The force module to be tested was the Marine Expeditionary Unit slice (MEU s ice) concept.

The MEU slice consists of the equipment and supplies onboard an MPF slip designated to support a MEU. The squadron ship with primary responsibility for the MEU slice offload was the SS Obregon. The actual load of the SS Obregon was designed to support a MEU-sized MAGTF with a minimal amount of airlift. The equipment aboard the ship was loaded so that the MEU slice could be offloaded selectively without the movement of non-MEU slice equipment. The SS Obregon was to be offloaded instream using the shipboard Lift on/Lift off (LO/LO) system. In order to test the MEU slice concept, only the lighterage and material handling equipment onboard the SS Obregon was available for usage. The quicker Roll on/Roll off (RO/RO) operation utilizing a ramp system was not exercised due to the limited pieces of lighterage available to support this scenario.

As currently configured, the SS Obregon holds approximately 490 containers on the weatherdeck, and an additional 385 containers below deck. The ship also holds about 725 Principal End Items (PEI) such as vehicles. The MEU slice GV '92 offload consisted of 257 PEI's and 103 containers. These represented what would normally be offloaded in a real situation, with the exception of approximately 47 ammunition containers stored below the weatherdecks. The decision to not offload ammunition containers is viewed as an exercise artificiality, and data collected throughout the exercise was adjusted accordingly for this decision.

Previous exercises have concentrated on the time it took to lift the cargo from the ship onto lighterage to move it to the beach. OV '92 provided the opportunity to also look at throughput operations. Throughput includes the time it takes equipment and containers to transit from the ship, offload at the beach, and move to the Marine Arrival and Assembly Operations Element and Container Operations Terminal (AAOE/COT).

One factor which can constrain the MEU slice throughput operation concerns the time required for each barge to load at the ship, transit to the beach, offload at the beach, and transit back to the ship. This is referred to as the offload cycle time. A short transit time from the ship to the beach could potentially cause delays due to the previously mentioned shortage of material handling equipment. OV '92 did not experience queuing backlogs on the beach because the ship was anchored four miles offshore. The offload cycle time proved sufficiently long to prevent throughput delays at th beach.

C. EXECUTION

The offload began on the morning of 12 May and was completed on the morning of 14 May. The PEI and container offload required 53 hours, or 2.2 days. Assuming an offload rate of 2.2 containers per hour, the potential offload of the additional ammunition containers required to complete a full MEU slice offload would have added 24 hours to the exercise. (CNA, 1992) This implies the offload would still have been

completed within the Marine Corps standard of three days for a MEU slice operation.

Therefore, the force module concept for a MEU Slice module was validated during the OV '92 exercise. Equipment associated with the MEU slice was easily accessible, and minimal movement of non-MEU slice equipment was required.

D. LESSONS LEARNED

The most important area of concern demonstrated during OV '92, was the loadout of the MEU MPF ship. Loadout refers to the placement of PEIs and containers onboard the ship. Ship loadout is extremely important during LO/LO operations which are slower and more dangerous than pierside or RO/RO operations. Thus, the ship should be loaded to accommodate a LO/LO operation. A more efficient loadout will translate to a more efficient throughput operation.

After optimizing the loadout for LO/LO operations, the offload of the MEU ship should support the most likely mission of the force. Equipment needed for combat or security missions varies widely from the equipment needed during a humanitarian or civil affairs offload. The accessibility for offload of the required equipment severely impacts when the Marine operation may begin. A pierside offload allows for all rolling stock to be available in a relatively short amount of time. An instream offload requires priority staging due to the requirement that certain PEI's must be available early in the offload. (Newton, 1993)

This problem was evidenced during OV '92. The SS Obregon was not loaded to support any particular mission. Thus the arrival of combat essential PEI's and containers was delayed by the late offload of specialized PEI's. The late offload of the containers potentially could have kept Marines from initiating action until the entire offload was nearly complete. (CNA, 1992) Non-combatant missions would also have been delayed because required equipment for these operations was not offloaded until the last day. Again, the Marines would have had to wait on the beach almost three days before initiating their mission.

The MEU slice force module has some limitations associated with throughput operations. The most important is the availability of Rough Terrain Container Handlers (RTCHs) for handling container throughput. The MEU slice ship carries only three RTCHs. Consequently, the shore organization for this force module must be structured around this constraint. Ideally, two RTCHs should be on the beach at all times. One would be utilized to offload incoming barges and the other would load containers onto the Marine Logistics Vehicle System (LVSs) for movement to the AAOE. This system does lead to the possibility of overworking the one RTCH stationed at the AAOE.

A second alternative would be to position one RTCH at the beach and two RTCHs at the AAOE. Again, the problem would be overworking the one RTCH, this time located at the beach. The first option was deployed during OV '92. Personnel from

the Center for Naval Analysis observed that having a single RTCH at the AAOE did not adversely affect the operation. The relatively small number of pieces offloaded during the MEU Slice, compared to the other force modules, offset positioning only one RTCH at the AAOE.

The MEU slice concept presents a unique problem for offload logistics planning. Previous offload plans have focused on the quickest means of getting equipment from ship to shore. The MEU slice adds the challenge of selectivity to offload operations; priorities must be planned and adhered to. Changes can adversely impact throughput operations. With limited material handling equipment, lighterage, and offloading only selected pieces of equipment, planning and communication are the cornerstones of success for the MEU slice force module.

IV. MPF OFFLOAD

A. GENERAL ORGANIZATION AND CONCEPT OF OPERATIONS

When a Maritime Prepositioning Force operation is executed, the MPF itself is comprised of a command element, the Commander, Maritime Prepositioning Force (CMPF), a Marine Amphibious Air Ground Task Force (MAGTF), a Maritime Prepositioning Ship Squadron (COMPSRON), a Naval Support Element (NSE) and other supporting forces as necessary to provide security. CMPF, designated in the Initiating Directive, is comparable to the Commander, Amphibious Task Force in amphibious operations. The MAGTF, NSE, and MPSRON are under operational control of the designated CMPF. The command structure for a generic MPF operation is presented in Figure 6.

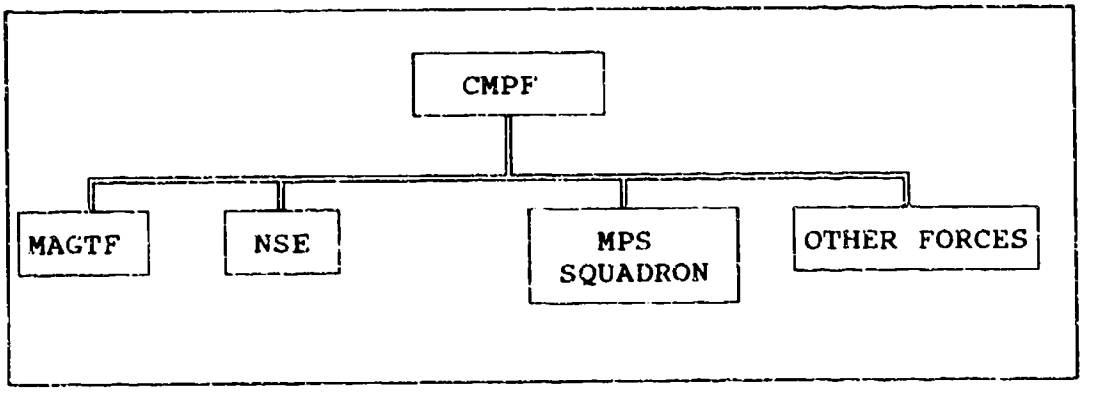


Figure 6: Generic MPF Command Structure
Source: Naval Beach Group TWO OPLAN 201

The specific command structure for Ocean Venture '92 is delineated in Figure 7. Commander, Amphibious Squadron TWO (COMPHIBRON TWO) was designated to act as the CMPF. The MAGTF established an MPF Offload Control Group (MOCG) to execute the offload. The MPS Squadron used was COMPSRON ONE homeported in Norfolk, VA. Mobile Inshore Undersea Warfare Unit 210 (MIUWU) was assigned to provide seaward surveillance.

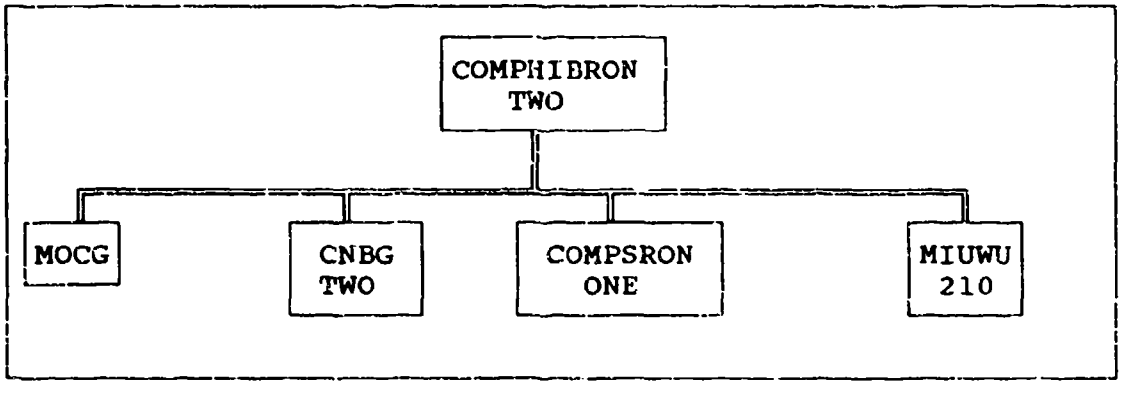


Figure 7: MPF Command Structure for Ocean Venture '92
Source: Naval Beach Group TWO OPLAN 201

Each element of the MPF has specific responsibilities. These include:

CMPF:	Coordination of the time-phased arrival of MPF elements Offload of MPF equipment and supplies Security of MPF and supporting forces Recommendation for termination of MPF operation to higher authority
MAGTF:	Airlift of all Marine forces Arrival and assembly operations Recommendation for termination of MPF operations to CMPF
NSE:	Participate in offload planning with the MAGTF and COMPSRON Establish reserve augmentation requirement

Conduct offload, operate ships cranes, man/ operate all lighterage, control the beach

MPS SQUADRON: Readiness for conduct of offload operations
Tactical control of the MPSRON
Movement of the MPSRON to AAA
Messing/billeting for embarked personnel
Coordination of port servi :es and anchorages

(OH 1-5,1990)

Upon receipt of the Joint Chief of Staff's warning order, the movement phase, followed by the arrival and assembly phase, of the MPF operation begins. During the movement phase, the MPF is divided into two movement groups: those that arrive by air and those that deploy by sea. The forces which arrive by air, also called the Fly-in-Echelon (FIE), include the Survey, Liaison, Reconnaissance Party (SLRP), Off-load Preparation Party (OPP), the Advance Party, and the Main Body. Those that deploy by sea normally include the COMPSRON and associated escorts. These forces comprise the elements responsible for effecting ship discharge, movement of cargo to the beach, and throughput operations to the AAOE.

Arrival and Assembly operations begin upon the arrival of the first MPSRON ship or first aircraft of the FIE to the Arrival and Assembly Area (AAA). Arrival and assembly is the final and most crucial phase of an MPF operation. Timelines were established by the II MEF as delineated in the Arrival and Assembly Plan for Ocean Venture '92. Ocean Venture '92 arrival and assembly operations were conducted over ten days during the period O-7 to O+2 days (see Table 2).

TABLE 2

ARRIVAL AND ASSEMBLY PLAN
(CNA, 1992)

DATE	ACTION
0 minus 7 (0-7)	OPP embarks MPSRON-ONE
0 minus 3 (0-3)	SLRP deploys
0 minus 2 (0-2)	MPSRON on station Advance party arrives
0 DAY	Offload begins
0 plus 2 (0+2)	Offload complete

The Offload Preparation Party (OPP) is a temporary NSE/MEB detachment responsible for preparing the lighterage, hose reels, rolling stock, and cranes for discharge. The OPP must be thoroughly familiar with the configuration of the ship and the ship's load plan. Upon activation, the OPP is either transported to the ships prior to deployment, during transit, or when it arrives in the AAA. Ideally, the OPP shall be deployed at least 96 hours in advance of arrival in the AAA. The Officer in Charge of the OPP will be a Naval Officer designated by Commander, Naval Support Element (CNSE) (OH 1-5). The OPP for a four ship offload is composed of approximately 300 MEB and 100 NSE personnel. For a MEU slice offload, the OPP is reduced to approximately 100 personnel. When the ship arrives at the discharge site, the OPP, SLRP, Advance Party, and the Main Body of the offload team join to form the NSE.

The OPP deployed by surface means during Ocean Venture '92 on 0-7 days and embarked aboard the MPSRON-ONE ship SS Obregon in the vicinity of Morehead City, North Carolina. The Commander of the Naval Support Element (CNSE) was assigned operational control of the OPP. Once embarked, the Navy members of the OPP prepared the ship's cranes and lighterage to support the offload. Members of the Marine portion of the OPP prepared the equipment and supplies to be offloaded. Preparation included pre-operation vehicle maintenance, and identifying and marking principal end items and containers for distribution.

In most cases, the Survey, Liaison, Reconnaissance Party (SLRP) is flown to the designated offload site several days in advance of the Main Body to survey the site and conduct liaison with the host nation. The results of the survey are then sent to the MEB and NSE Commanders prior to the departure of the Main Body. This allows changes to offload planning, personnel and equipment requirements to occur prior to departing CONUS. The SLRP for a full four ship offload consists of 90 MEB and seven NSE personnel. For a MEU slice offload, the number is reduced to approximately 30. The Navy team reports to the MEB Commander until the NSE Commander arrives on station.

For Ocean Venture '92, the SLRP deployed as directed by the Commander, Maritime Prepositioning Force (CMPF) at 0-3 days to Camp Lejeune, North Carolina for movement to the

exercise site, Onslow Beach. Once established, the SLRP confirmed essential information for the execution of arrival and assembly operations, finalized support requirements provided by outside agencies, and formed the nucleus of the arrival organizations. The SLRP is dissolved upon the arrival of the first element of the Advance Party.

An Advance Party is formed from the deployment support elements of the Main Body which are not in the SLRP. The primary task of the Advance Party is to arrange for the reception of the Main Body of the FIE. The Advance Party for Ocean Venture '92 deployed on O-2 days to prepare for the offload, reception, and throughput of equipment and supplies. The party established appropriate arrival and assembly organizations, command and communications systems, and then tested these systems. In addition, roads and staging areas on the beach were marked for control and reception of equipment and supplies.

The Main Body of the FIE is the balance of forces remaining to be moved after the OPP, SLRP, and Advance Party have deployed. The flow of the Main Body must be carefully monitored so that their arrival does not overwhelm available logistical support. Main Body forces for Ocean Venture '92 began arriving on O-day and continued arriving until O+2 day.

B. OFFLOAD OPERATIONS

The Navy Support Element (NSE) in its role as a component of the MPF, conducts the offload of MPSRON ships. The NSE is

the link between the Marine equipment and supplies aboard the squadron ships and the Marine personnel flown into the AAA. Naval Beach Group units report to the Commander, Naval Support Element (CNSE). As reflected in Figure 8, the Naval Beach Group exercises operational control over its own units and coordinates with the Naval Special Warfare Group and Naval Cargo Handling and Port Group during the planning phase.

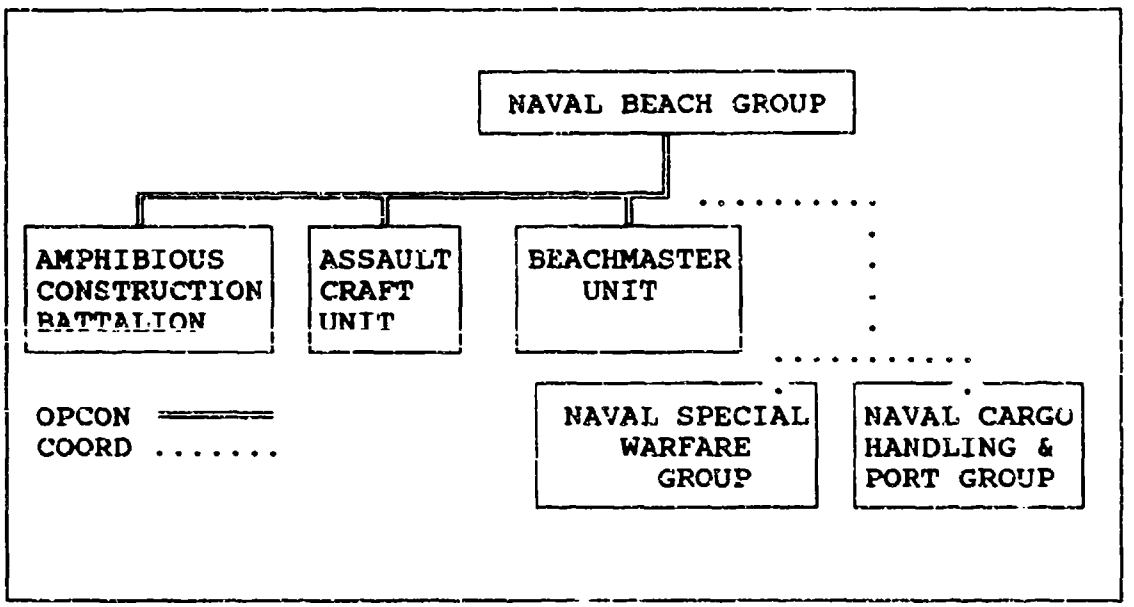


Figure 8: Naval Beach Group Operational Organization
Source: (OH 1-5)

Once the Arrival and Assembly phase begins, the NSE is broken down into the following task organization shown in Figure 9.

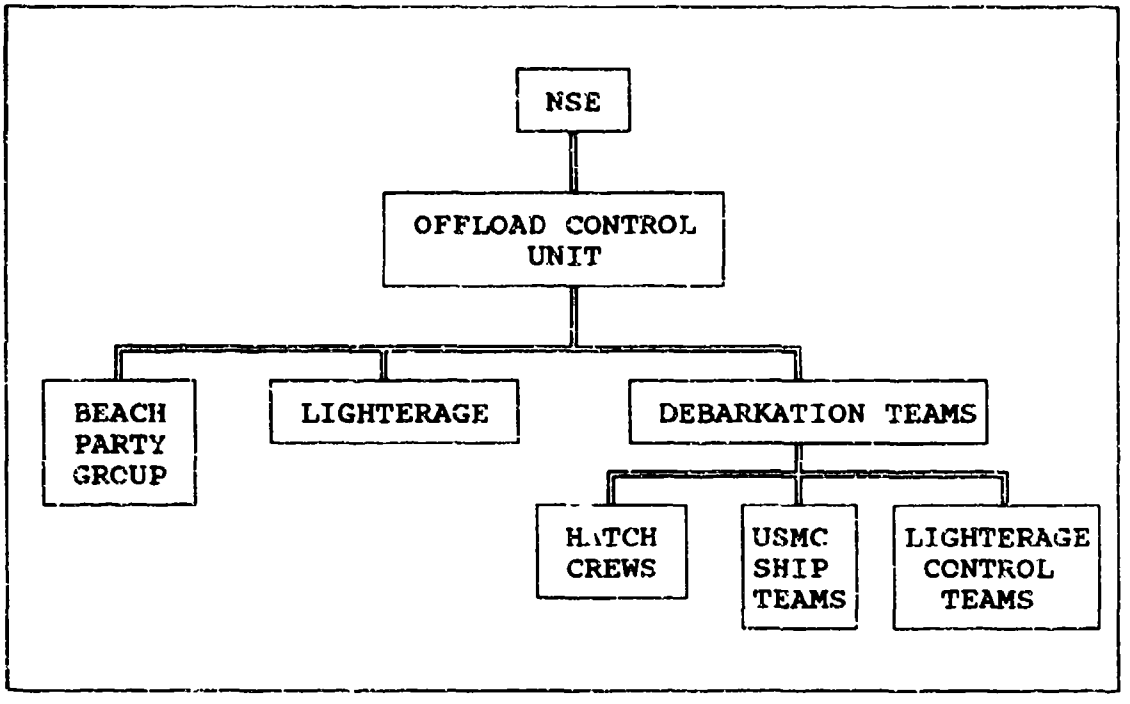


Figure 9: Navy Support Element Organization
Source: (OH 1-5)

The commander of the NSE and his Offload Control Officer (OCO) control all NSE operations from the MPSRON flagship. The OCO has full responsibility for controlling the debark officers, ship to shore movement and the beach party ashore. Special teams and personnel are assigned as follows (OH 1-5):

Debark Teams: A debark officer on each ship coordinates the cargo handling detachment and Marine debark team, the civilian ship's crew as assigned, and lighterage assigned to the ship to conduct the offload.

Lighterage Control Officer (LCO): An LCC is assigned to each ship and is responsible for directing lighterage to the appropriate position for loading. Upon completion of loading, he dispatches the lighterage to the OCO for movement to the shore.

Cargo Handling Detachments: NSE personnel are assigned to each ship during the offload. The detachment consists of cargo handling forces from the OPP, augmented by additional

personnel as required. The detachment provides supervisory and technical personnel to offload the cargo from the deck or hatch onto the lighterage alongside the ship. Duties may include unlashing weather deck cargo and operation of the ship's equipment necessary for the offload.

Marine Corps Debark Teams: USMC personnel assigned consist of maintenance and equipment operators from the OPP. They assist in unlashing vehicles and equipment below deck, complete vehicle activation, stage material in hatch squares, provide vehicle operators, and assist the cargo handling detachment.

Beach Party Group: The ship-to-shore movement is not complete until the equipment has been transported to the high water mark on the beach. As directed by the OCO, the group assists in beach and anchorage reconnaissance, lifeguard, and swimmer security support.

Figure 10: Beach Party Group Directing LCM-8
Source: LT Barrett

The individual pieces of lighterage operate as directed by the OCO. The following NSE lighterage is prepositioned in each MPS squadron:

1. **Causeway Section, Powered (CSP)**

Powered by two 360 degree rotatable water jets, these causeway sections provide the mobile power for the causeway ferries. Figure 11 illustrates a powered causeway section.

Capacity	70 TONS
Length	90 FEET
Beam	21 FEET
RANGE	70 NM
Draft, loaded	4 FEET
MAX Speed, light	7 KNOTS

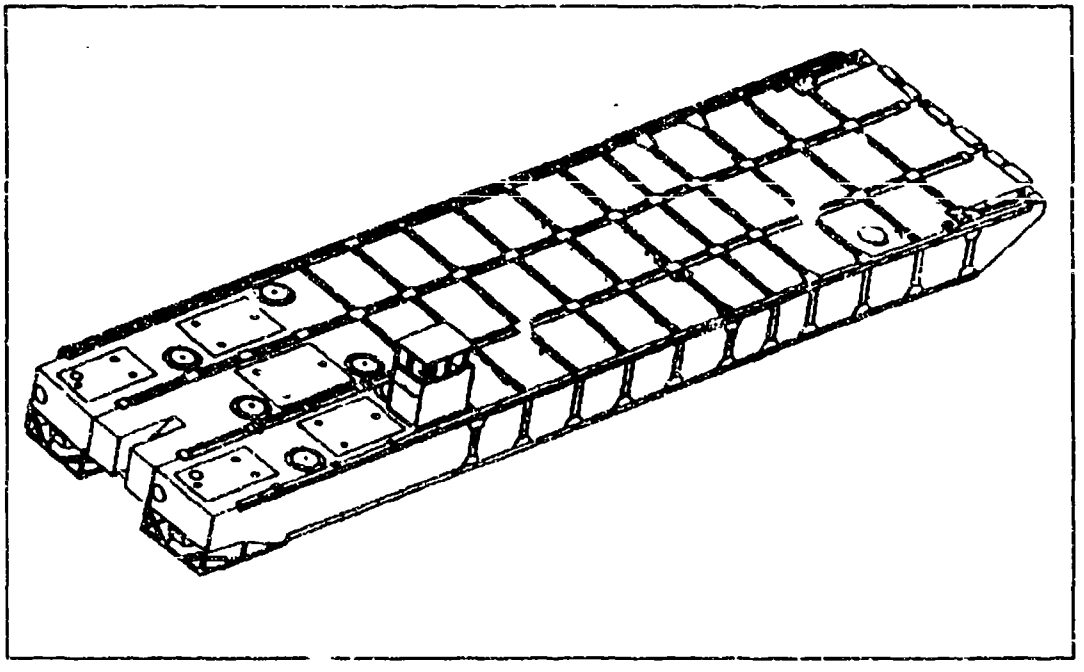


Figure 11: Causeway Section, Powered
Source: JCS Pub 4-03

2 Causeway Section, Non-powered (CSNP)

These sections come in two types; beach ends and intermediate ends. Beach ends allow vehicles and container handlers to drive on and off when the section is at the beach for offload. Figure 12 illustrates a beach end causeway section, non-powered.

Capacity	100 TONS
Length	92 FEET
Beam	22 FEET
Draft, loaded	4 FEET

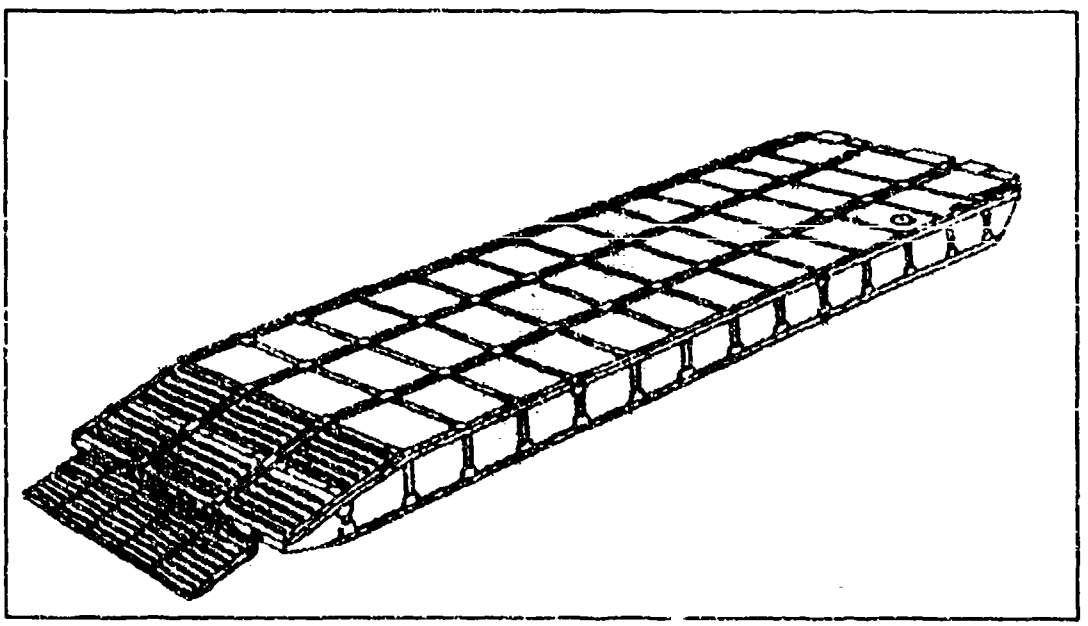


Figure 12: Causeway Section, Non-powered, Beach End
Source: JCS Pub 4-03

3. Causeway Ferry

The primary method of transporting containers/vehicles ashore is by the use of causeway ferries. Ferries will be

constructed in a ratio of powered/non-powered sections, as determined by the CNSE, based on weather conditions and load requirements. The minimum size ferry is one powered section with one beach end (CSP+1). The largest practical size is one powered section, two intermediate sections, and one beach end (CSP+3).

Cargo Capacity	100	TONS per non-powered section
	44	TONS for a CSP section
Containers	7	
Max Effective Surf	6	FEET
Max Speed	4	KNOTS

4. Side Loadable Warping Tug (SLWT)

The SLWT shown in Figure 13 is a CSP to which an A-frame and a winch has been added. SLWTs assist craft for causeway ferries and are not available to move cargo because of their added equipment.

Length	90	FEET
Beam	21	FEET
Range	70	NM
Draft	2.8	FEET AFT
Max Speed	7	KNOTS

Figure 13: SLWT's underway during OV '92
Source: LT Barrett

5. Landing Craft, mechanized (LCM-8)

Shown in Figure 14, two LCM-8's are provided on each ship for the discharge of vehicles, placement of fender systems alongside the MPS ships, and the transfer of personnel.

Capacity	65	TONS
Length	74	FEET
Beam	21	FEET
Range	190	NM
Draft, loaded	3.8	FEET FWD
	5.2	FEET AFT
Max Speed, light	11	KNOTS
Max Effective surf	8	FEET
Troops	150	
Containers	1	(offloaded by crane only)

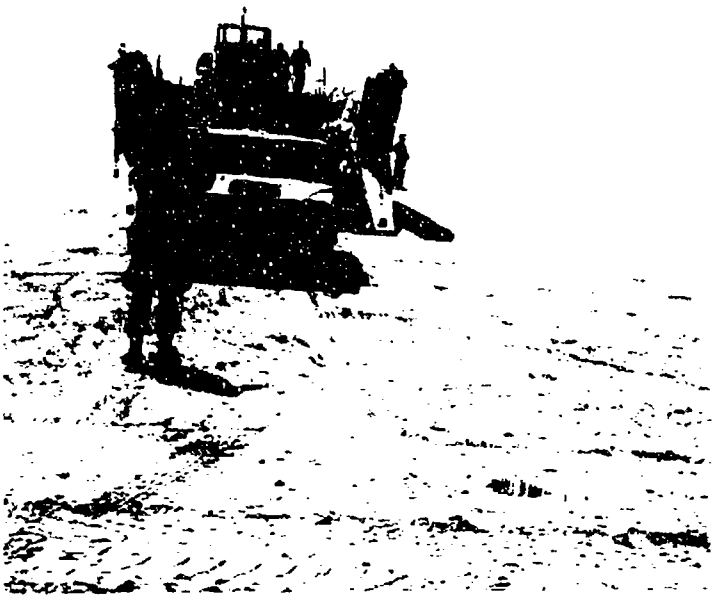


Figure 14: LCM-8 unloading a truck on the beach
Source: LT Barrett

Both LCM-8s and Causeway Ferries have navigational lights and can operate under conditions of reduced visibility (OH 1-5/Naval Beach Group TWO OPLAN 201).

C. OCEAN VENTURE '92 MARITIME PREPOSITIONING FORCE OFFLOAD

Arrival and Assembly operations were to begin for Ocean Venture '92 on the order of the CMPF. COMPSRON ONE ships SS Obregon, SS Kocak and SS Pless arrived in the exercise area as scheduled on 11 May 1992. Equipment and supplies were to be offloaded from the SS Obregon on O-day, 12 May. The operation was conducted in and around Onslow Beach at Camp Lejeune, North Carolina. The SS Obregon was anchored approximately

four miles offshore. In order to test the MEU slice concept, only the lighterage from the SS Obregon was used for the offload. The final decision to stop Lift on/Lift off (LO/LO) operations due to weather conditions rested with the CMPF after consulting with the CNSE, the COMPSRON, and Marines.

As recommended by the Center for Naval Analyses report on MPF Exercise Ahus Tara, 1990, lighterage onboard the Obregon was offloaded on O-1 day, or 11 May, prior to beginning the official offload. This change enabled the Marines to begin cargo offload on schedule on O-day to determine the exact amount of time for the actual cargo offload. During Exercise Ahus Tara '90, the day for lighterage offload was included in the offload timelines, thus making the offload data inconsistent with other exercise timelines. (CNA Ahus Tara, 1990)

Prior to O-day, lighterage for Ocean Venture '92 was assembled and selected pieces of Material Handling Equipment (MHE) were offloaded. The II MEF Arrival and Assembly plan originally called for lighterage to be constructed of two CSP+1s, and two CSP+3s. Instead, four CSP+2s were assembled. This decision was based on past research which indicated that barge queuing is minimized in ship-to-shore operations by using barges that are uniform in capacity (CNA Exercise Summary, 1991). Lighterage assembly began at 0445 on 11 May and was completed at 2230 11 May.

Two barge sorties were utilized to deliver three Rough Terrain Container Handlers (RTCH), one front end loader, and

two Lighter, Amphibious Resupply Cargo (LARCs) to the beach. The operation began on 11 May and took six hours to complete. Table 3 presents a timeline of significant events for OV '92 (CNA Report, MPF Ocean Venture '92).

TABLE 3

TIMELINE OF SIGNIFICANT EVENTS FOR OV-92 MPF OPERATION
Source: Naval Beach Group TWO OPLAN 201

DATE/EVENT	TIME
10 May 92	
Ships arrive in area	1200
11 May 92	
Lighter offload begins	0445
First CSP+2 formed	1415
Second CSP+2 formed	1500
Offload of MHE begins	1500
Third CSP+2 formed	1930
Offload of MHE ends	2015
Fourth CSP+2 formed, Lighter assembly complete	2230
12 May 92	
Offload operation begins	0600
AAV offload begin	0600
AAV offload complete	0630
PEI LO/LO begins	0730
Throughput operation begins	0800
Container LO/LO begins	0830
13 May 92	
Container LO/LO complete	1945
14 May 92	
Container throughput complete	0500
PEI LO/LO complete	1015
Offload operations complete	1115
Throughput operations complete	1400

The SS Obregon (shown in Figure 15) deployed her stern ramp in the amphibious position two hours prior to morning twilight on O-day. At first safe light, 13 Amphibious Assault Vehicles (AAV) were launched via the stern ramp. Each AAV contained three crewmen from the Marine Second Division. LCM-8's were utilized as safety boats. AAV operations continued for 35 minutes without incident. Following the splash of the AAV's, NSE bulldozers were LO/LO'd from the main deck to the lighterage and transported ashore.

Figure 15: SS Obregon stern ramp
Source: LT Barrett

Principal End Items (PEI) and container offloads were accomplished simultaneously during OV '92. The forward 50-ton cranes were twinned up to offload PEI's in conjunction with the aft pedestal 35-ton crane. Up to two barges were capable of being loaded with PEI's at the same time. The container offload was accomplished by lifting all of the containers over the starboard side using the Morgan Gantry Crane. Figure 16 shows containers being unloaded over the side of the SS Obregon.

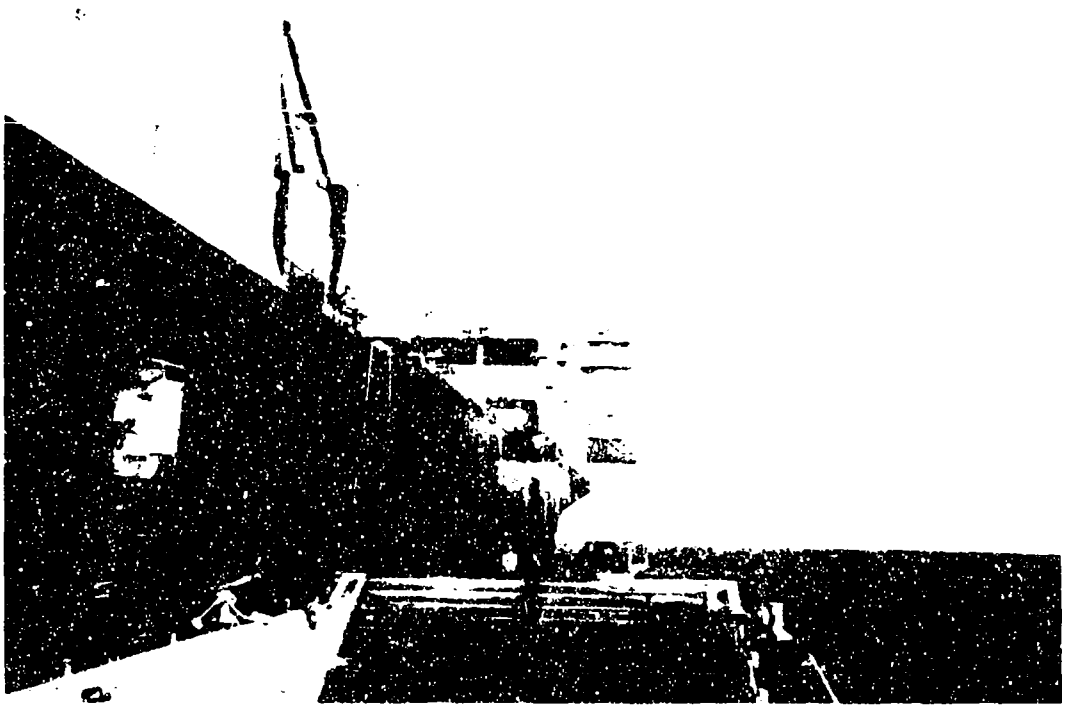


Figure 16: Morgan Gantry Crane offloading containers during OV '92
Source: LT Barrett

In accordance with the Arrival and Assembly Plan for OV '92, the following PEIs were to be offloaded:

Second Deck --	Drive selected vehicles from Holds 7, 6, 5, 4, 4A, and 3A via 2nd deck ramp to main deck for LO/LO.
59 FT FLAT --	LO/LO PEIs in Holds 4, 4A, 5, and 6 via Hatch cover #6. Remove Hatch cover #7 to 2nd deck.
Third Deck --	Make selected heavy lifts from 2nd deck via Hatch #7. Remainder of Holds 4, 4A, and 5 will drive to main deck for LO/LO.
16 FT 10 M Flat --	Drive vehicles in this location to main deck. Make selected heavy lifts (LO/LO) from 2nd deck via Hatch #7.
TANK TOP --	Drive three light units to main deck for LO/LO.

CONTAINERS: Selected containers were offloaded in the following sequence (Arrival and Assembly Plan for OV '92 Marines):

Hatch 5	Bay 2	Tier 2
Hatch 5	Bay 1	Tier 2
Hatch 4	Bay 2	Tier 2
Hatch 4	Bay 1	Tier 2
Hatch 2	Bay 1	Tier 2/1
Hatch 5	Bay 1	Tier 1
Hatch 4	Bay 1	Tier 1
Hatch 4	Bay 1	Tier 1
Hatch 3	Bay 2	Tier 2/1
Hatch 3	Bay 1	Tier 2/1
Hatch 2	Bay 2	Tier 2
Hatch 1	Bay 2	Tier 1
Hatch 1	Bay 1	Tier 1

In total, 271 PEIs were offloaded during the exercise, of which 254 were on the designated MEU slice offload plan. The other 17 not on the offload list were mistakenly offloaded. PEI offload ended at 1015, 14 May. Of 103 planned containers,

91 were offloaded. There were 11 containers on the MEU slice offload list that were not offloaded. Two containers were mistakenly removed which were not on the list. Container offload was completed at 1945 on 13 May. A total of 23 barge sorties were required to offload the MEU slice. Two occurred prior to O-day to deliver the MHE to the beach. Of the remaining 21 sorties, 13 carried PEI's, seven carried containers, and one carried a mixed load. Only two LCM sorties were conducted (CNA MPF OV '92).

Overall, offload operations were accomplished in accordance with stated objectives. Based on exercise results, the instream offload of the equipment and supplies in support of a MEU slice can be completed within three days from commencement of the offload.

V. JLOTS OFFLOAD

A. GENERAL ORGANIZATION AND CONCEPT OF OPERATIONS

1. Command and Control

Prior to beginning a JLOTS operation, any ongoing amphibious operation or MPF operation must be formally terminated. To terminate an MPF operation: Marine Corps command and control must be established ashore; adequate equipment and supplies must have been offloaded and issued; and the MAGTF Commander must state that he is combat ready. Upon mutual agreement between the Navy Officer in Tactical Control and the designated JLOTS Commander, or when directed by the Joint Task Force Commander, the JLOTS Commander assumes responsibility for JLOTS through the organization depicted in Figure 17.

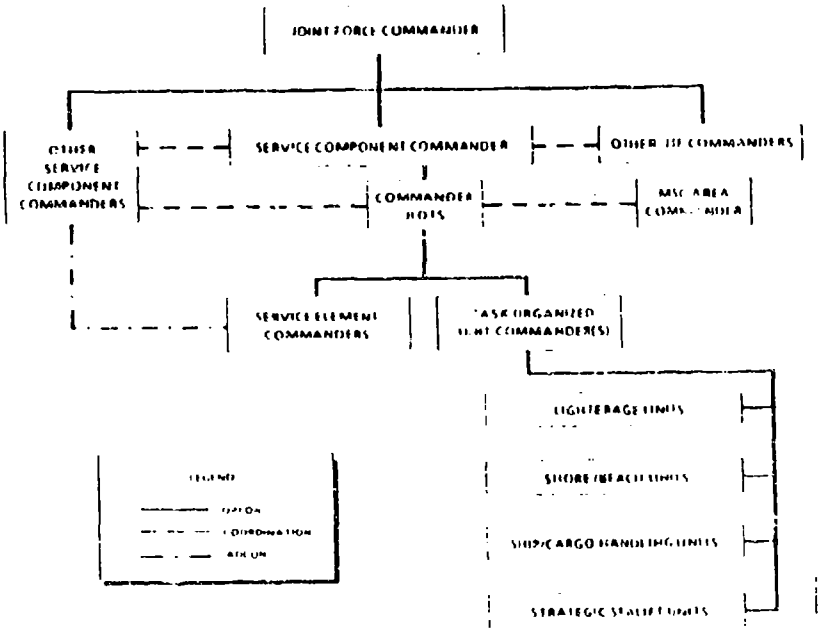


Figure 17: JLOTS Organization
Source: JCS Pub 4-03

If the JLOTS operation commences under Navy component control, the JLOTS ship-to-shore responsibility includes operations as far as the beach high water mark. The cargo is then turned over to forces ashore. Army offload elements are integrated into the organization and are under operational control of the Naval JLOTS Commander. If the JLOTS commences under Army component control, JLOTS responsibilities extend to delivering cargo to the receiving authority inland. As such, the Army JLOTS Commander has responsibility for throughput operations ashore.

The JLOTS Commander must ensure that offload systems and embarked vehicles designated for discharge are prepared prior to the start of discharge operations. An offload preparation element will be designated to accomplish the following:

1. Prepare lighterage, rolling stock, and cranes for discharge.
2. Activate all ship to shore movement control systems.
3. Review offload plans with ships' and support forces representatives.
4. Recommend lighterage assignments.

Once preparations for discharge have been accomplished, the JLOTS Commander will designate the control of all lighterage to be used during the offload based on either Navy methods or Army methods.

Because of Service doctrine and administrative differences, the responsibilities of the JLOTS Commander under

Army or Navy control vary widely. Consequently, transitioning from Naval component control to Army component control requires extensive planning and coordination. Functions occurring during this transition are shown in Table 4. The control organization shifts from the Offload Control Officer (OCO) onboard the MPF ship to the Joint Lighterage Control Center (JLCC) located on the beach. Lighterage control aboard ship shifts from the Lighterage Control Officer (LCO) to a Ship Lighterage Control Point (SLCP). The Navy Beach Party Team (BPT) becomes the Beach Lighterage Control Point (BLCP). Transition operations may be affected by such factors as weather and sea state.

TABLE 4

TRANSITION FUNCTIONS FOR LOTS/JLOTS

FUNCTION	NAVY LOTS	JLOTS-NAVAL CONTROL	JLOTS-ARMY CONTROL
COMMANDER	OIC-TACTICAL CONTROL	OIC-TACTICAL CONTROL	AS ASSIGNED
CONTROL ORGANIZATION	OCO	OCO	JLCC
SHIP	DEBARK OFFICER	DEBARK OFFICER	SHIP'S PLATOON LEADER
LIGHTERAGE CONTROL (SHIP)	LCO	LCO	SLCP
BEACH	BPT	BPT	BLCP

Source: JCS PUB 4-03

Under Navy component control, an Offload Control Officer will assign lighterage to each ship. Onboard each ship, a Lighterage Control Officer (LCO) reports to the ship's debarkation officer. The LCO directs the lighterage to the appropriate positions alongside the ship for offload. Once the lighterage is loaded, the LCO will inform the OCO who will dispatch and control the lighterage during its movement to shore.

Under Army component control, the harbormaster assigned to a terminal battalion is responsible for providing lighterage control. A Joint Lighterage Control Center (JLCC) is established ashore in a location which provides the best visibility of lighterage operations on the beach. The JLCC ensures safe lighterage operations, resolves disputes, manages available craft, and controls lighterage entry and exit from the operational area.

Lighterage Control Points (LCP) are set up on each ship and on the beach. They are manned by Army watercraft company personnel. The Ship Lighterage Control Point (SLCP) directs lighterage from the queuing circle to the correct location alongside the vessel. Once the lighterage is loaded, it is sent to another queuing circle to contact the Beach Lighterage Control Point (BLCP). The BLCP will direct the lighterage from the queuing circle to the correct lane for discharge on the beach. Once discharged, the craft contacts the SLCP for further instructions. An Army LCM 8 loaded with

rolling stock is shown in Figure 18 leaving the queuing circle for discharge on the beach.

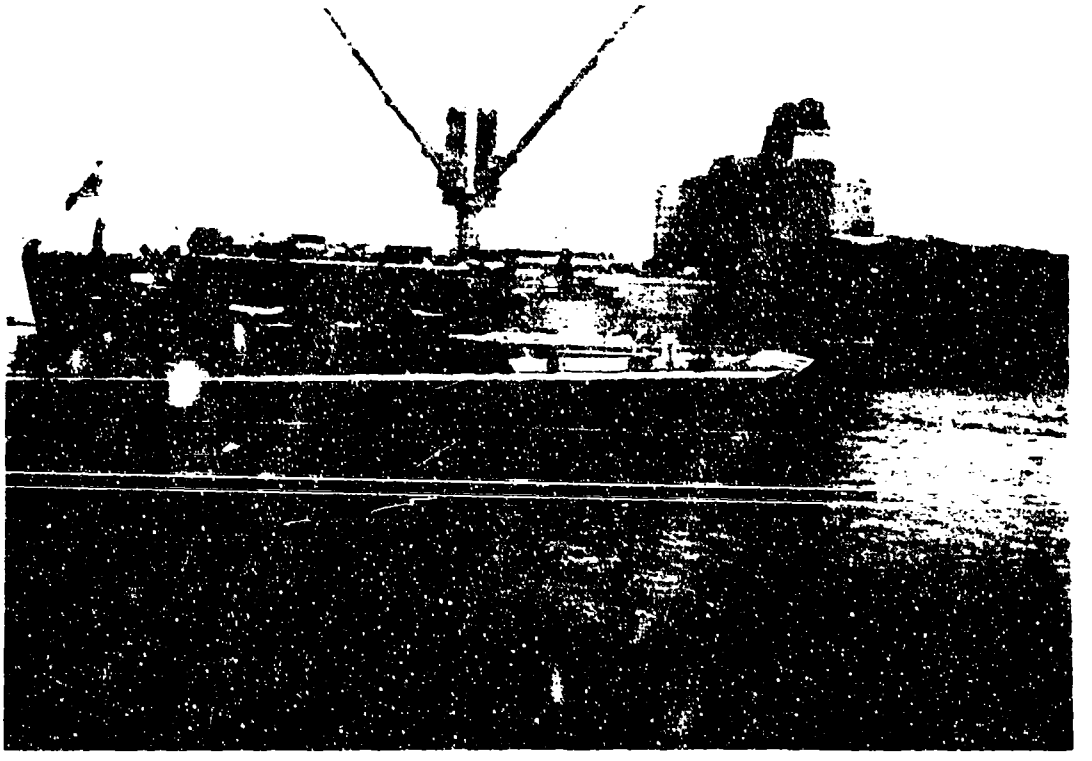


Figure 18: Army LCM 8 leaving the FSS for discharge on beach
Source: LT Barrett

Ocean Venture '92 was the first test of the transition of operational component control from the Navy to the Army. Upon termination of MPF operations, the Naval component

commander, CNSE, assumed responsibilities as the JLOTS Commander. The JLOTS offload began at this point. During this period, the Army Task Force was under operational control of the Navy JLOTS Commander. At 2000 hours, 15 May, the Navy JLOTS Commander passed command to Commander, Seventh Transportation Group who became the JLOTS Commander for the duration of the operation. The Commander of Naval Support Element and his subordinate commands then fell under the operational control of the Army JLOTS Commander. Figure 19 depicts the organization during Naval component control and Figure 20 depicts the structure under Army component control.

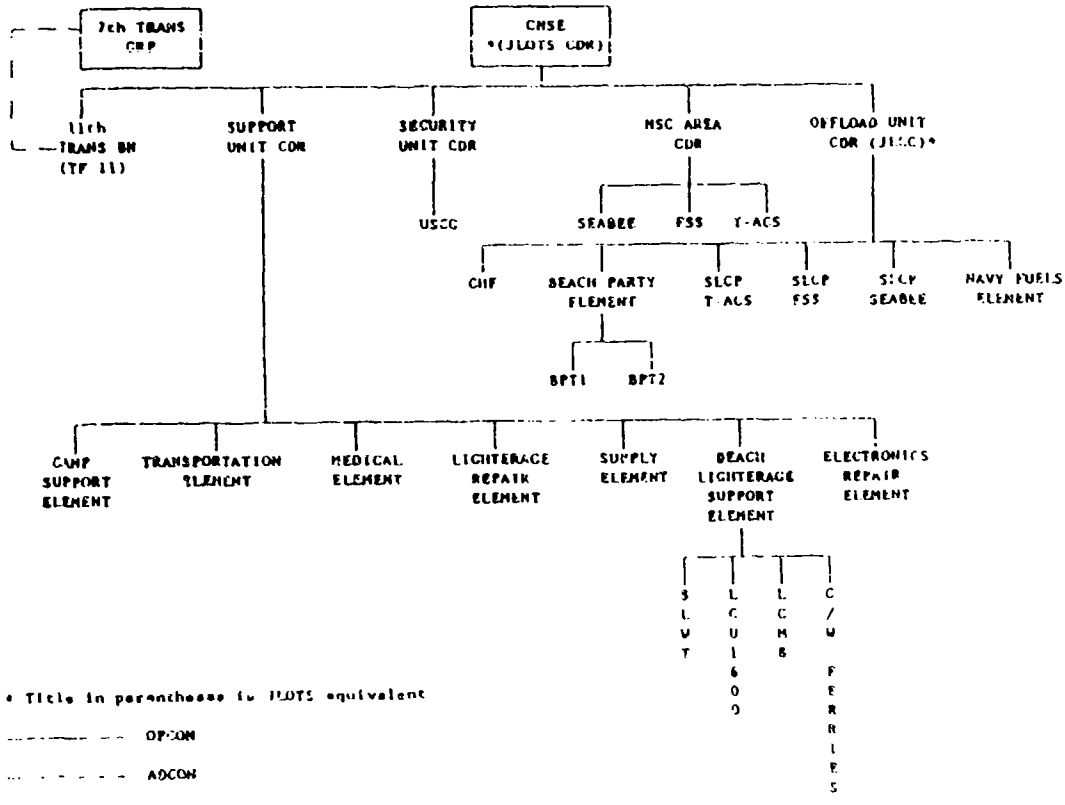


Figure 19: JLOTS under Navy component control
Source: Task Force 11 OV '92 OPORD 7-92

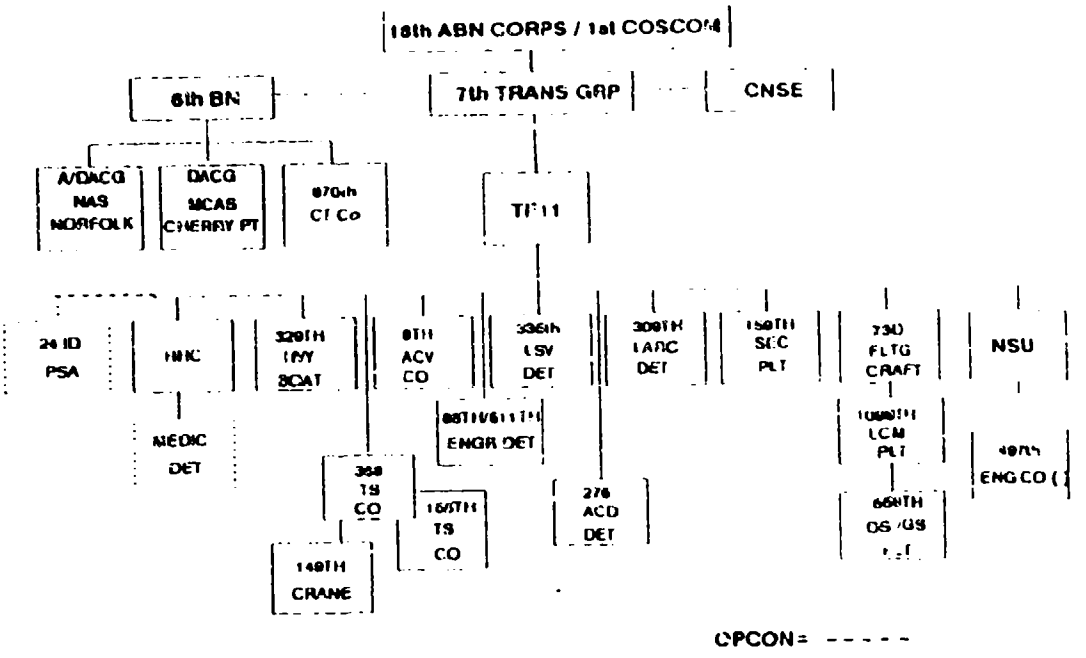


Figure 20: JLOTS under Army component control
Source: Task Force 11 OV '92 OPORD 7-92

All of the Navy units listed independently in Figure 19 are consolidated into the box labeled Naval Support Unit (NSU) on Figure 20. The Army units which comprise the 7th Transportation Group box and the 11th Transportation Battalion in Figure 19, are listed independently in Figure 20.

The Navy units which assist in a JLOTS exercise are usually already in the exercise area supporting MPF or amphibious operations prior to the start of the JLOTS portion of the operation. The Army, however, must transit to the exercise area before beginning operations. The Army performs its JLOTS mission utilizing four phases:

PREDEPLOYMENT - (Phase 1) The major components of the predeployment phase are planning, training, rehearsal, and inspection.

DEPLOYMENT - (Phase 2) Deployment activities begin upon receipt of the Emergency Deployment Readiness order and conclude on a predetermined date upon arrival of the last air passenger into the area.

EMPLOYMENT - (PHASE 3) Employment encompasses the set up for, and actual discharge, of all required cargo.

REDEPLOYMENT - (PHASE 4) Redeployment operations may include site breakdown on the beach and ashore camp areas, equipment upload on vessels as determined by exercise or operation planners, air transport of personnel, and closeout of the training area.

2. JLOTS Ship Characteristics

Strategic sealift is the principal means of delivery for equipment and supplies to support land and air forces. Sealift employed during JLOTS operations includes Military Sealift Command common user ships and prepositioning ships. Ocean Venture '92 utilized three self-sustaining common user ships capable of discharging cargo directly to lighterage for transfer ashore. These ships included a sea barge or SEABEE ship, a Roll on/Roll off (RO/RO) ship, and an Auxiliary Crane Ship (T-ACS).

The SEABEE ship has three decks on which cargo barges or container flats are stowed. Barges are brought to each deck by a stern elevator and are moved internally by a barge transporter. Two barges can be loaded or unloaded in a cycle of about 40 minutes. SEABEE barge ships carry up to 38 barges with an elevator capacity of 2,000 long tons. The SEABEE ship is the preferred ship to transport Landing Craft Utility

(LCUs) and lighter amphibious resupply cargo vehicles. In addition, the SEABEE ship may carry tugs, stacked causeway sections, air cushioned vehicles, and other watercraft and heavy lift equipment to support a JLOTS operation. (JCS PUB 4)

Figure 21 displays the stow plan for the lighterage to be transported aboard the SEABEE ship, discharged, and used during Ocean Venture '92.

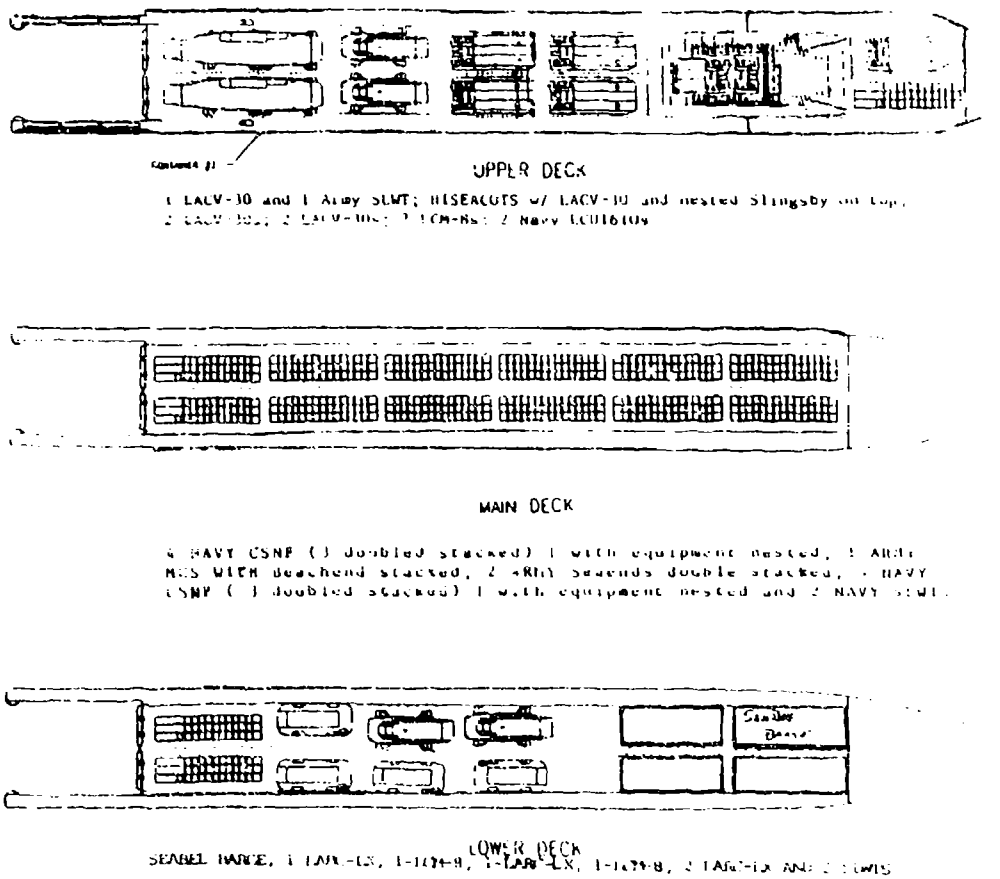


Figure 21: Lighterage stow plan for SEABEE ship OV '92
Source: Task Force 11 OV '92 CPOIM 7-92

RO/RO ships are the preferred mode of transporting tracked or wheeled combat equipment to an operation area. A RO/RO Discharge Facility (RRDF) provides the means of debarking vehicles from the RO/RO ship. The RRDF consists of six CSNP intermediate sections joined together to form a modular platform. Vehicles are driven from the ship to the platform and then onto lighterage for transit ashore. The RRDF requires the services of one SLWT and one CSP for assembly, operation, and maintenance. Assembly time is approximately 6 to 8 hours and requires a crew of 19 to assemble, as well as a crew of 12 to operate and maintain.

A Military Sealift Command Fast Sealift Ship (FSS) was used as the RO/RO vessel for Ocean Venture '92. In addition to utilizing its RO/RO capabilities, the ship also used its cranes for LO/LO discharge and functioned as the test platform for the new Army High Sea State Container Transfer System (HISEACOTS) offload facility. Figure 22 displays an LCU at the LO/LO discharge point, a Lighter Air Cushioned Vehicle (LACV 30) at the HISEACOTS discharge point, an LCU at the RRDF platform and the lighterage queuing circles for the FSS download.

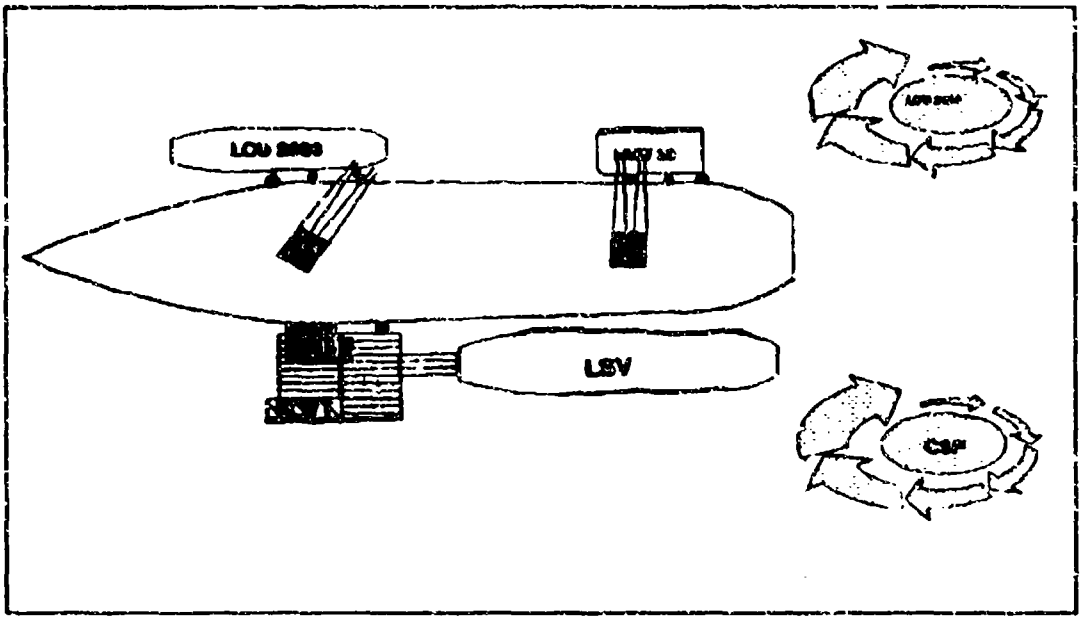


Figure 22: FSS Download OV '92
Source: Task Force 11 OV '92 OPORD 7-92

Figure 23 shows the FSS download in progress during OV '92. The LSV is loading on the starboard side of the FSS and the HISEACOMS system is discharging containers on the port side.

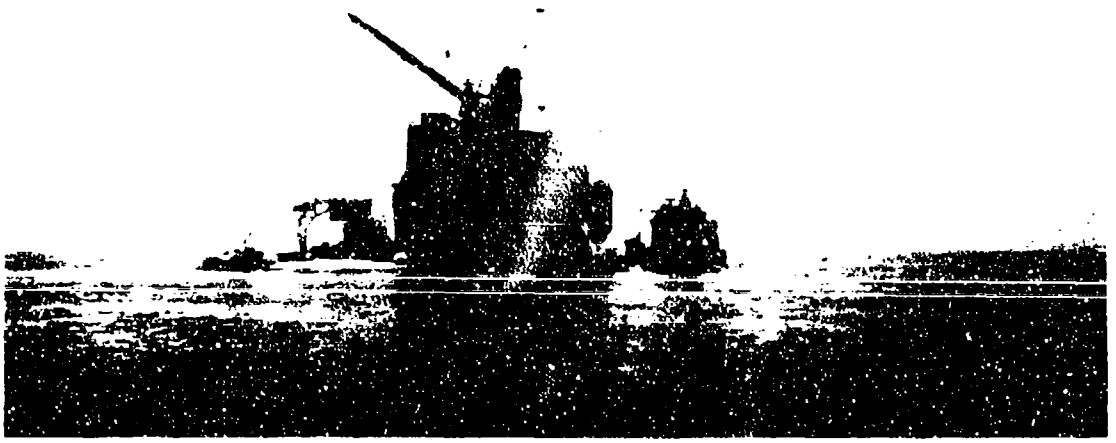


Figure 23: F88 operations OV '92
Source: LT Barrett

Auxiliary Crane Ships (T-ACS) serve two purposes in support of JLOTS operations. First, they function as crane ships with the ability to offload other non-self sustaining containerships. Secondly, they have the capability of carrying 20 and 40 foot cargo containers as well as outsized

cargo and vehicles. Containers may be offloaded by the T-ACS cranes using the 20 or 40 foot spreader bars. Outside support is not required except for the Navy Cargo Handling Force, lighterage crews, and Army terminal service company personnel. Offload operations will be directed by the JLOTS Commander. After container offload, the ship will be prepared to offload other container ships as required.

Figures 24 and 25 depict the container and lighterage T-ACS stowplans for OV '92.

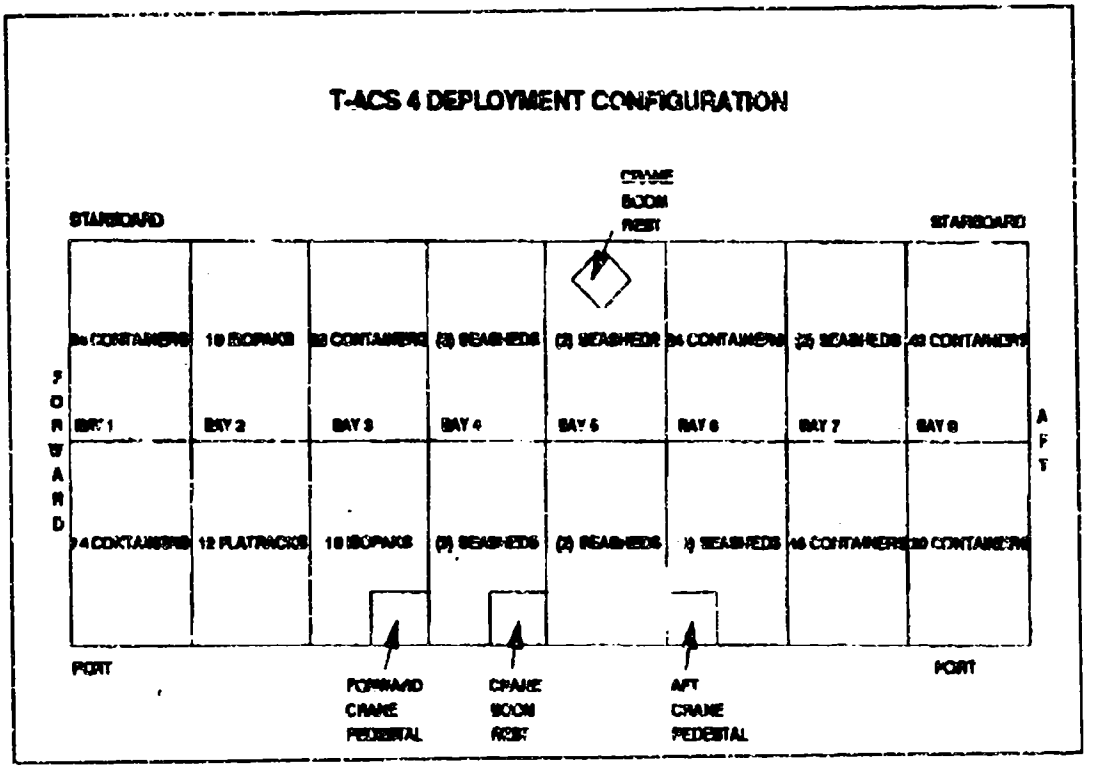


Figure 24: T-ACS Container Stowplan OV '92
Source: Task Force 11 OV '92 OPORD 7-92

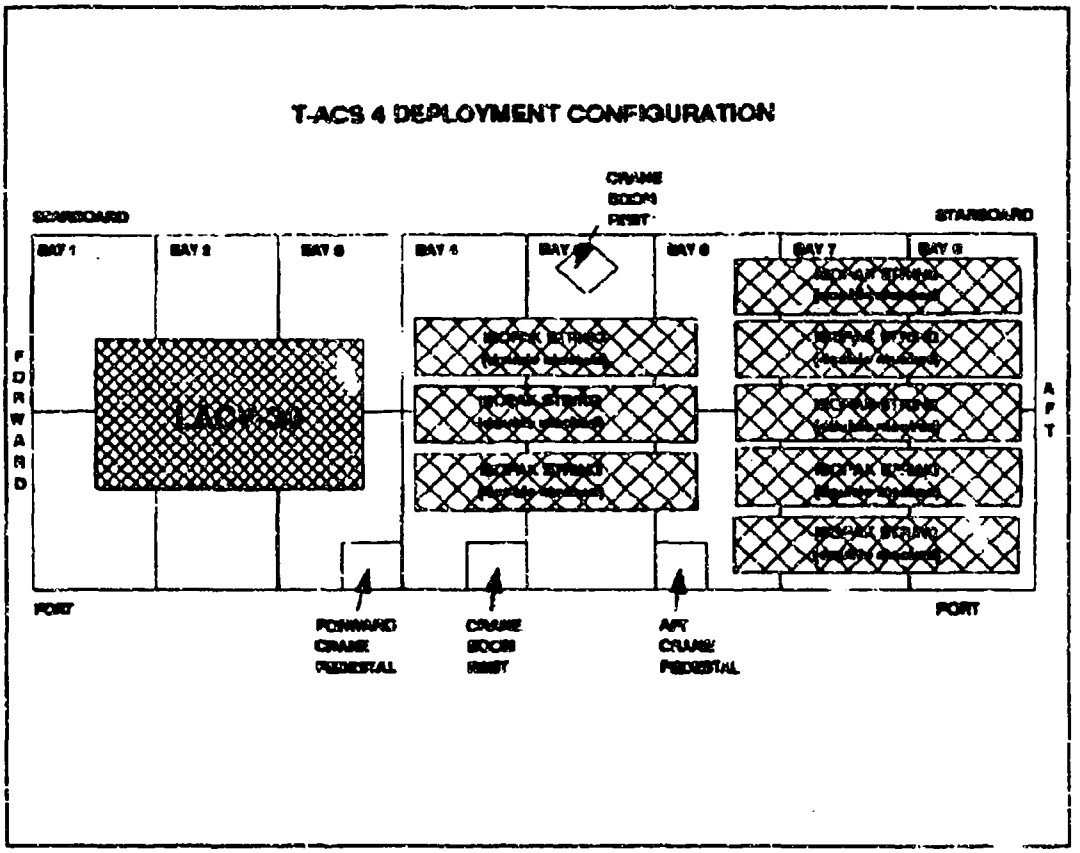


Figure 25: T-ACS Lighterage Stowplan OV '92
Source: Task Force 11 OV '92 OPORD 7-92

3. Lighterage Assets

Lighterage assets organic to naval LOTS include the landing craft and causeway sections discussed in Chapter IV. Additional types of lighterage are available for JLOTS offload operations. The selection of lighterage type is dependent upon weather, sea state, beach gradient, and characteristics of the onload and discharge sites. The following additional types of lighterage were utilized during OV '92:

a. Landing Craft, Utility (LCU 1600 Class) Navy LCUs are attached to Assault Craft Units, and Army LCUs are assigned to transportation heavy boat companies. LCUs can transport containers, breakbulk cargo, RO/RO cargo, outsized cargo, and personnel. They are capable of beaching and retracting under their own power. The 1600 class is a twin screw vessel powered by two diesel engines. The pilot house and crew quarters are located on the starboard side which allows vehicles full drive through from the stern to the bow ramps. (JCS PUB 4-03) Figure 26 is a side view of a 1600 class LCU.

Capacity	360 TONS
Crew	12
Length	135 FEET
Beam	29 FEET
Draft (full load)	3'2" FWD
	6'5" AFT
Max Speed (light)	12 KNOTS

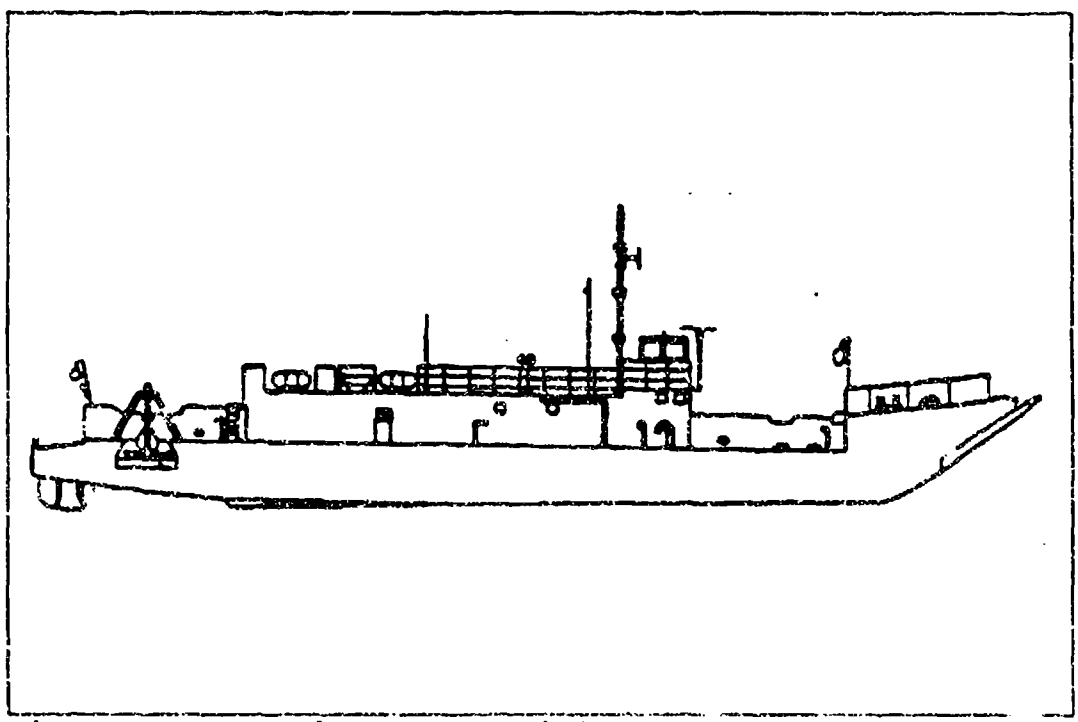


Figure 26: Landing Craft Utility (1600)
Source: JCS Pub 4-03

b. Landing Craft, Utility (LCU 2000 Class) LCU 2000 class LCUs are organic to the Army and are attached to transportation heavy boat companies. They are the largest and newest class LCU and are capable of transporting personnel, containers, and other cargo. The 2000 class is also a twin screw vessel powered by two diesel engines. The engine room and crew quarters are located aft; therefore cargo must be loaded and discharged via the bow ramp or by crane. Figure 27 is a side view of an LCU 2000.

Capacity	350 TONS
Crew	12
Length	175 FEET
Beam	42 FEET
Draft (full load)	4' FWD
	9' AFT
Max Speed, light	12 KNOTS

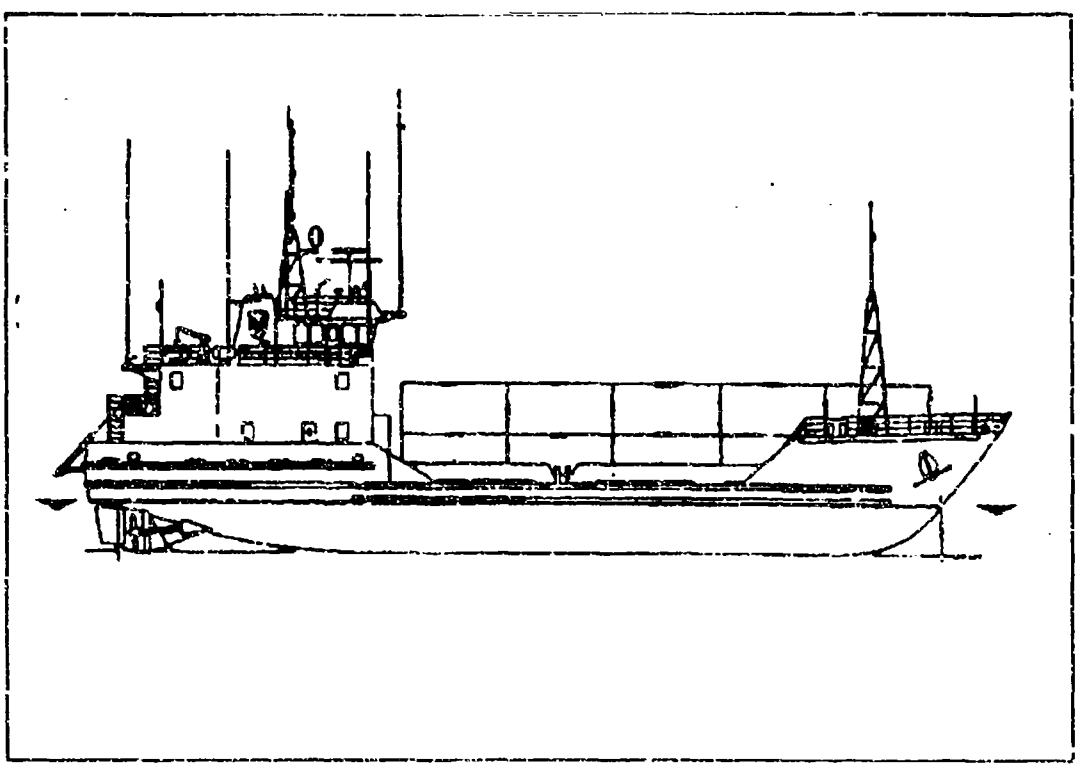


Figure 27: Landing Craft Utility (2000)
Source: JCS Pub 4-03

c. Lighter Air Cushion Vehicle, 30 TON (LACV-30)

The Army LACV-30 is a fully amphibious high speed craft which uses aircraft turbine engines to provide lift and forward thrust for its hollow aluminum hull. It is very maintenance and fuel intensive but it has the advantage of being able to cross 70% of the worlds beaches. Separate water entry and exit points should be established on the beach for the LACV to protect other equipment from the sand and air blown up by the air cushion. Figure 28 depicts a LACV 30.

Capacity	23 TONS
Crew	6
Length	79'5"
Beam	36'11"
Draft (full load)	0
Max Speed, light	50 KNOTS

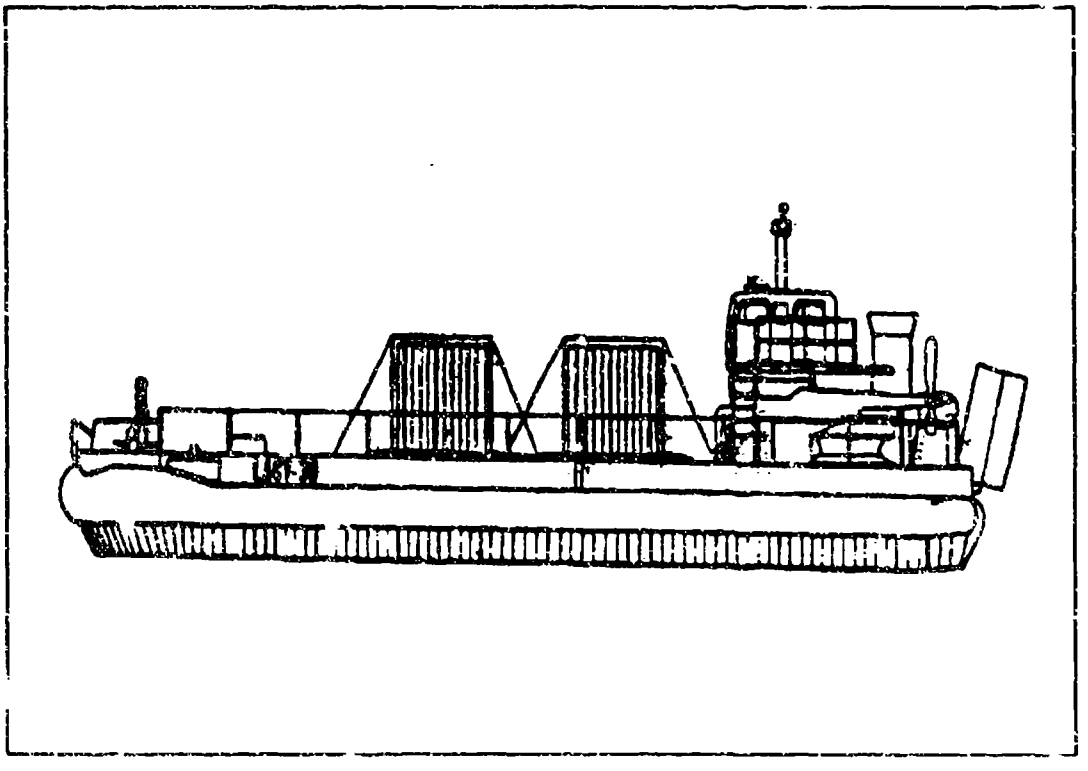


Figure 28: Army LACV 30
Source: JCS Pub 4-03

d. Logistics Support Vessel (LSV) The LSV transports approximately 2000 ST of dry cargo in coastal, harbor, and inland waterways. It also possesses a beaching capability permitting its use in JLOTS operations. The roll on/roll off design permits rapid discharge of mobile unit equipment.

B. OCEAN VENTURE '92 JLOTS OFFLOAD

1. Mission

The primary mission of the Exercise Ocean Venture '92 JLOTS portion was to conduct a rapid, efficient, and effective instream discharge of 746 pieces of a 24th Infantry Division Mechanized Brigade off the Fast Sealift Ship USNS Pollux within 72 hours. The ancillary mission was to discharge and recycle onboard 200 containers from the Auxiliary Crane Ship USNS Flickertail State within 96 hours.

Unlike the Navy, the Army timeline in this particular scenario was delineated using the acronym "C day" vice the Navy "O day" which was discussed in Chapter IV. The Army selected 30 April 1992 as C-day indicating the start of deployment activities. This is significantly different from the interpretation of O-day by the Navy. The Navy utilizes the term O-day to begin counting the days of actual offload time.

Army exercise execution and preparation was conducted during the following four phases:

a. Predeployment Phase

Predeployment activities began 18 November 1991 with the issuance of a verbal warning order from the Commander of the Army Seventh Transportation Group and continued through 30 April 1992. The major components of this phase included planning, training, rehearsal, and inspection. The planning process occurred between 18 November 1991 and 6 April 1992. USCINCLANT planning conferences were held as well as 7th Transportation Group conferences.

Training requirements were identified in January 1992 with the development of task lists by individual units of training to be accomplished prior to the start of the exercise. Critical tasks identified in the task lists were rehearsed prior to deployment by practicing stowage of watercraft aboard the Seabee ship SS Cape Mohican. Inspections of equipment, lighterage, and personnel were conducted from 27 April 1992 until 1 May 1992 (C-3 to C+1).

b. Deployment Phase

Deployment activities commenced 30 April 1992 (C day) with the initiation of the 7th Transportation Group OV '92 Emergency Deployment Readiness Alert and continued until the arrival of the last air passenger at Marine Corps Air Station Cherry Point, North Carolina, on 13 May 1992. Deployment/upload operations included the following:

1. Seabee/SS Cape Mohican:
   29 April-4 May 1992 at Hampton Roads, Virginia.
   21 watercraft and 19 causeway sections were loaded.

2. T-ACS/USNS Flickertail State:
   Arrived Hampton Roads, Virginia for upload 6 May 1992.
   On 7 and 8 May 1992, 16 double stacked causeway strings were loaded.

3. FSS/USNS Pollux:
   10-11 May 1992.
   746 pieces of 24th Infantry Division equipment Savannah, Georgia were loaded.

4. In addition, on 7 May 1992 at Hampton Roads, Virginia, other Army unit equipment was nested onboard six LCU-2000's and the LSV-1 for transport to the exercise area.

On 10 May 1992, the Seabee ship, the T-ACS, and the LCU-2000s departed Hampton Roads and transited to Onslow Beach, North Carolina. The Army Task Force Advance Party departed by convoy to the exercise area. On 11 May, the remaining self-deploying watercraft left Virginia for Onslow Beach and arrived 12 May 1992. Equipment and personnel deploying by air from Naval Air Station, Norfolk to Marine Corps Air Station, Cherry Point, North Carolina commenced 11 May 1992 and was completed on 13 May 1992.

c. Employment Phase

Phase III employment encompassed the set up for and actual discharge of the 24th Infantry unit equipment from the FSS ship USNS Pollux and the download/upload of containers from the T-ACS SS Flickertail State. Discharge operations included:

1.	Seabee:	11-13 May	21 watercraft/19 causeway sections
2.	T-ACS:	11-12 May	16 causeway strings
		16-18 May	46 containers/11 discharged ashore
3.	FSS:	15-16 May	561 pieces (Onslow Beach)
		17-18 May	185 pieces (Morehead City,NC)

A more detailed timeline and discussion of offload operations can be found in Section 2 of this chapter.

d. Redeployment Phase

Redeployment activities began upon the conclusion of the FSS discharge on 17 May and the termination of container recycling 18 May onboard the T-ACS. The FSS departed Morehead City at high tide on 18 May. Seabee redeployment efforts commenced 14 May but were halted for 48 hours due to high sea states. The vessel was then relocated for upload to the sheltered waters of Beaufort Inlet/Cape Lookout. The T-ACS was also relocated to Cape Lookout after completing one day of upload operations. Passenger and ground evacuation of unit equipment commenced 19 May and concluded 23 May 1992. Redeployment and upload operations are summarized below:

1.	Seabee:	18-19 May	2 LACV 30s (Onslow Beach)
		20-23 May	16 craft/19 causeways (Cape Lookout)
2.	T-ACS:	19 May	46 containers
		20-22 May	42 vehicles/unit material handling equipment (Cape Lookout)

2. Offload Operations

Set up and site preparation for the JLOTS offload began 10 May 1992 (C+10) upon the arrival of the Task Force advance party. Advance party personnel initiated logistical support operations, opening of contracts, and established initial TM and multichannel communications.

The SEABEE ship, SS Cape Mohican, arrived 11 May 1992 and was met by Task Force stevedores and lighterage crews and commenced discharge. Download priority was SLWTs, causeway sections, LCMs, LCUs, and LACV 30s. T-ACS ship, Flickertail State, arrived 11 May 1992 and discharged her causeway sections. The causeway sections were completely assembled by 12 May 1992 to form the RRDF platform. The RRDF platform was emplaced on the FSS upon her arrival 14 May 1992. The RRDF platform can be seen in Figure 29 emplaced on the starboard side of the FSS with rolling stock awaiting pick up by lighterage.

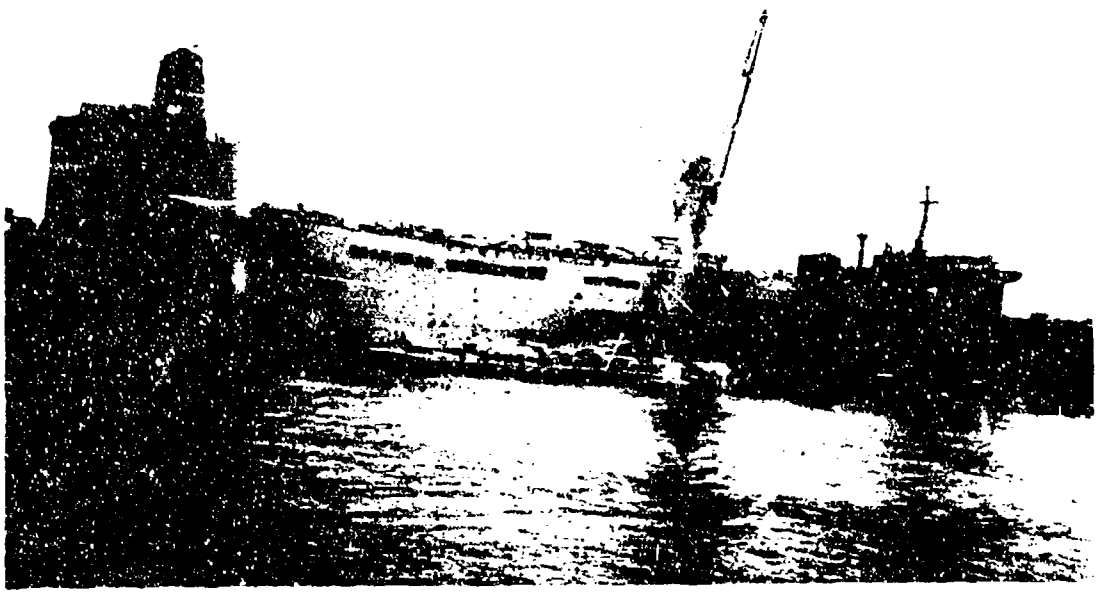


Figure 29: FSS RRDF OV '92
Source LT Barrett

Table 5 is the timeline of significant events for the JLOTS offload portion of OV '92.

TABLE 5

TIMELINE OF SIGNIFICANT EVENTS JLOTS OFFLOAD OV '92

DATE/EVENT	TIME
12 MAY 92	
Seabee Ship arrives/anchors	0400
T-ACS arrives/anchors	0930
T-ACS download complete	2100
13 MAY 92	
Seabee Ship discharge complete	0400
FSS arrives/anchors	1810
RRDF emplaced on FSS	2000
FSS LO/LO begins	2315
15 MAY 92	
FSS lowers ramp to RRDF	0344
FSS RO/RO discharge begins	0420
HISEACOTS moved from FSS to T-ACS	1816
JLOTS control passed to Army	2000
T-ACS ops halted due to sea state	2312
16 MAY 92	
T-ACS ops restarted	0600
FSS RO/RO ops completed	0945
RRDF moved away from FSS	2200
17 MAY 92	
FSS LO/LO ops terminated	0214
11 LCUs and LSV underway for Morehead City	0230
FSS underway for Morehead City	0540
T-ACS container ops stopped	0845
First tank off FSS, Morehead City	1150
All lighterage enroute to Onslow Beach with M1A1s/M88s	1721
All tanks discharged from lighterage	2354
18 MAY 92	
FSS equipment LO/LO completed	0400
FSS offload complete	0717

The 24th Infantry division deployed a total of 746 cargo pieces: 420 wheeled vehicles, 310 tracked vehicles, 5 aircraft, and 11 pieces of general cargo on the FSS. 561 pieces or seventy-five percent of the FSS vessel load was discharged in the first thirty hours of operation. An LCU 2000 can be seen in Figure 30 loading at the aft end of the RRDF platform on the FSS while an LCM 8 is loaded at the forward end of the RRDF during OV '92.

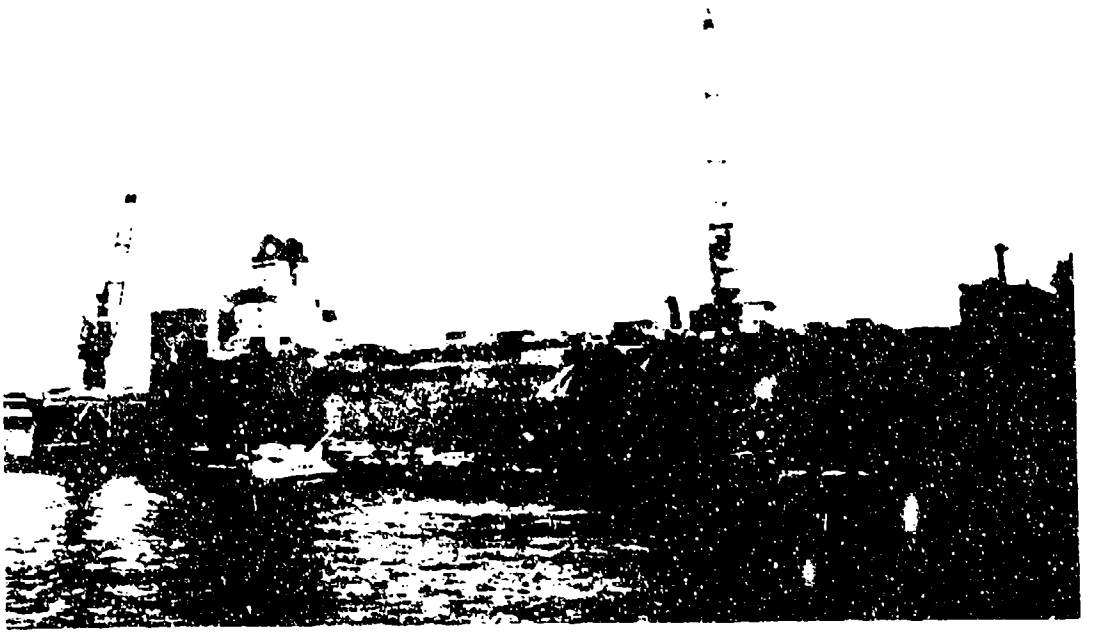


Figure 30: LCU 2000 and LCM 8 loading at the FSS OV '92
Source: LT Barrett

An equipment malfunction of the forward Haag[illegible]und crane or the FSS resulted in a delay in LO/LO operat[illegible]ons at the 30 hour point. Additionally, it was determined that the FSS ramp could not offload the M1A1 tanks offshore due to ramp certification load limits. The M1A1 tanks were 6.25 short tons over ramp capacity. Consequently, the FSS was [illegible]ced to move to fixed port facilities. The remaining 56 tracks and 130 wheels/trailers in the aft cells were downloaded at the Morehead City state-owned pier and transported via LCU and convoy to Onslow Beach within 66 hours of the start of the exercise.

Two hundred empty containers were loaded aboard the T-ACS in Gulfport, Mississippi. At the exercise area, 46 of the 200 containers, or 23 percent, were discharged from the T-ACS between 16 and 18 May 1992. Container operations onboard the T-ACS suffered for two reasons. Heavy pendulation caused by the rolling of the T-ACS which was induced by the sea state and exacerbated by the empty ship bunkers caused the container load to be stopped for long periods of time. In addition, the T-ACS offload was the lowest priority during the exercise. Thus the larger, heavier lighterage able to maneuver in heavy seas were assigned to the FSS offload. The smaller LCM-8s available to the T-ACS were unable to handle the weather and the amount of containers to be offloaded. Eventually, the Master of the T-ACS refused to allow anything smaller then the LCU 2000 alongside to receive containers. (11th TBL After Action Report, 1992)

The execution of the Ocean Venture '92 JLOTS phase was deemed a success. The primary mission, to discharge the FSS within 72 hours (15-18 May), was accomplished despite aggravating conditions caused by equipment malfunctions and rolling seas. Container operations may have achieved equal success if the T-ACS had relocated to sheltered waters.

VI. LESSONS LEARNED

Although Ocean Venture '92 was considered a successful joint operation overall, there are areas which require further examination. This chapter will identify and discuss these areas of concern and present recommendations for improvement. The issue identification and discussion material used in this chapter is a consolidation of information received from the After Action Reports, references 7, 9, 12, 13; interviews, references 17-25; and the author's personal observations during the exercise.

A. ISSUE 1: TRAINING DEFICIENCIES NEGATIVELY IMPACTED OFFLOAD OPERATIONS

DISCUSSION: The inexperience of the lighterage crews, crane operators and offload control personnel was a primary factor constraining MPF offload operations. Most of the personnel were reservists who had received very little practical training in the year prior to the exercise. Due to Desert Storm, training exercises for 1991 were canceled. Reserve personnel also did not have access to Morgan gantry cranes for practice prior to the exercise. The initial lack of experience resulted in delays in assembling barges and loading of lighterage. Conflicts arose when lighterage crews and stevedores disagreed on craft weight limitations and placement of equipment on the lighterage. The lack of

experience was reflected in the low rate of barge utilization due to inefficient barge loading.

In addition, many of the boat and Causeway Section, Powered (CSP) crews had problems maneuvering their craft and avoiding engine and mechanical difficulties. Valuable offload time was wasted waiting for craft to come alongside the ship. Failed attempts resulted in damage to the MPF ships as the boats collided with the ships' hulls. Over 50% of the lighterage units used in OV '92 had to be offloaded upon exercise completion to repair the damage they sustained. Several times, ships' crews refused to allow craft alongside until they had practiced elsewhere first. The craft would practice on their own without supervision or training, then return to the ship to try again.

Officers and NCOs participating in both MPF and JLOTS portions lacked knowledge of basic skills in seamanship and terminal service operations. During JLOTS, officers with no knowledge or background in watercraft operations were assigned to command units with ocean-going vessels. Officers assigned as MPF Lighterage Offload Control Officers responsible for directing the offload were not properly trained prior to the exercise. In one case, an offload officer was briefed regarding his duties while awaiting transportation to the offload site.

LESSONS LEARNED: Major MPF exercises should be the culmination of a year long training program. These

opportunities should focus on demonstrating instead of developing proficiency. Experienced active duty people should be available to provide supervision and additional training as needed to craft and crane operators experiencing difficulty. Officers in command of watercraft units and offload control personnel are vital to the success of the mission and require extensive training.

RECOMMENDATIONS: Some training improvements for OV '93 have been initiated. COMPSRON ONE ships were brought to Norfolk, Virginia, during the summer of 1992 to provide training opportunities to reservists. Reservists spent weekend drills and active duty for training periods operating the ship's cranes and practicing maneuvering the lighterage.

Continued funding of reserve training needs to be a priority in order to maintain skills and readiness.

During the exercise, experienced craftmasters should also be assigned to each shift to rotate among the craft, observe boathandling skills, and provide in-depth on-the-spot training.

B. ISSUE 2: ARMY/NAVY INTEROPERABILITY

DISCUSSION: Signalling procedures for guiding vessels to the discharge pier or the beach are significantly different in each service. The Army watercraft appeared to interpret the beachmasters' hand signals as literal engine/rudder orders. The Navy uses the signals only as broad guidelines to assist the craftmaster as needed.

The Navy prefers to use the same fuel for its watercraft as is available on the MPS ships. The Army, however, prefers to use a different fuel which they can get only via a tank located on shore. Shore refueling is a hazardous operation, especially in high seas.

Crew shift hours are different. The Army allows its individual units to determine when crew shifts will occur. The Navy does all crew shifts at one time for its units. Problems surfaced because of limited craft available to do crew changes.

The Army does not have a Beachmaster unit to control beach offload, thus they must rely on the Navy Beachmaster Team. The Navy Beachmaster Team controls all lighterage as it comes to the beach without any input from the Navy component control organization. However, under Army component control, the JLCC directs that all craft report to them as well as the Beachmasters. Therefore, as the craft approaches the beach, the craftmaster is receiving direction from both organizations and trying to respond to both organizations. This caused confusion, delays, and hard feelings from some of the craftmasters.

LESSONS LEARNED: Interservice interoperability is the key to a successful joint offload operation. Training together and prior planning can alleviate frustrating problems. Services must identify procedures that best facilitate the

joint mission and adopt them as the way of doing business for all services.

RECOMMENDATIONS: There is no substitute for pre-operation training with exercise participants. Terminology and doctrine differences should be identified and resolved prior to the operation. The Army and Navy watercraft units should take advantage of their close proximity to each other in the Virginia Beach area and practice beaching operations and lighterage control.

C. ISSUE 3: JLOTS COMMUNICATION SYSTEMS WERE INADEQUATE

DISCUSSION: Communication equipment and number of frequencies were insufficient to support the JLOTS mission. The 7th Transportation Group planned and published a Signal Operating Instruction (SOI) prior to the exercise. For simplicity, the 7th Transportation Group decided to keep the same call signs and frequencies throughout Ocean Venture '92, operating in non-secure mode only. One primary frequency was provided for each unit.

Army doctrine dictates the use of an approved Signal Operating Instruction (SOI). This SOI controls daily changing of frequencies, call signs, codes, and net authentications. The Navy does not follow the same doctrine, thus it was unable to effectively use the Army SOI.

Net discipline was lacking. Transmissions were too long and critical information was sent in the clear. This included commanders' names, unit locations, and movements.

The task force and harbormaster frequencies were heavily used. Most watercraft were overusing channel 74 on the marine band radio. Craft did not switch from this frequency to speak to the JLCC as the SOI instructed. Exercise participants did not understand the command and control structure and thus were unable to use the communication plan appropriately.

LESSONS LEARNED: Insufficient equipment, overcrowding of frequencies, poor radio procedures, and poor understanding of command and control caused significant communication problems.

RECOMMENDATIONS: Comprehensive communication training must be provided to all participants on net discipline, utilizing an SOI, and security discipline. A joint letter of instruction should be promulgated addressing and resolving these issues.

D. ISSUE 4: MPF OFFLOAD COMMUNICATION EQUIPMENT WAS INADEQUATE

DISCUSSION: Communication equipment available to the units offloading the MPF ship was incompatible. Radio crystals inside the Cargo Handling Battalion radios, lighterage radios, Marine offload team radios, and the Lighterage Control Officer's radios did not match. Therefore, these organizations, which control the offload, were unable to communicate with each other. This caused significant delays bringing craft alongside and coordinating cargo discharge. It also presented a potentially dangerous situation because

Marines in the lower holds could not notify ship personnel in the event of a m dical emergency.

LESSONS LEARNED: Coordination must occur prior to an exercise between offload units to determine interoperability of communication equipment. Delays and potentially dangerous situations can result from the lack of compatible equipment.

RECOMMENDATIONS: Each of the radios in question have vacant ports available internally to place additional radio crystals. The operation plan delineating exercise communication frequencies should identify matching radio crystals and frequencies. The units must purchase and install the crystals prior to the exercise.

E. ISSUE 5: OFFLOAD CHAIN OF COMMAND AND LIGHTERAGE CONTROL NEEDS REEVALUATING

DISCUSSION: The chain of command during the MPF offload was too long to efficiently accomplish the offload. For example, it took almost four minutes to relay a message from the Chief Mate of the vessel, standing on the main deck, to the Lighterage Control Officer, on the bridge wing, to stop the approach of an incoming craft.

Other problems ensued when the Lighterage Control Officer informed the craft alongside awaiting cargo to prepare for the wrong cargo. The cargo was actually being offloaded to a craft on the other side. Such communication delays could result in injuries or equipment damage.

JLOTS lighterage control was ineffective due to conflicting tasks being issued from the various lighterage control elements. This included the ship control personnel giving instructions different from the Joint Lighterage Control Center and outside entities, such as VIPs appropriating craft for their own use. In addition, there was inefficient use of the lighterage as evidenced by long queue waits in the lighterage queuing circles and congested waters around the piers and beach.

LESSONS LEARNED: An efficient and clear chain of command is vital to a successful offload. It is imperative that personnel on the main deck have direct communications with the craftmasters.

RECOMMENDATIONS: The Lighterage Control Officer should bring the craft alongside the ship. Once alongside, the cargo handlers and craftmasters should speak directly to each other to facilitate the offload. The Army should review its lighterage control procedures and streamline them into a system similar to the Navy's. This would simplify their communication plan and lessen confusion between Navy and Army units operating together.

F. ISSUE 6: JOINT LIGHTERAGE CONTROL CENTER WAS UNDERMANNED AND UNDEREQUIPPED

DISCUSSION: The Joint Lighterage Control Center (JLCC) was manned and equipped with "excess" assets from the 11th Transportation Battalion. Thus, each 12 hour shift was manned

only by two personnel (one officer and one E-7). As discussed in Chapter V, the JLCC is the hub for the JLOTS offload. Maintaining the status of all vessels and keeping track of all radio frequencies was an enormous task. The shifts lasted from 12 to 18 hours to ensure a smooth transition and to accomplish the mission. Although undermanned, the JLCC accomplished the mission due to the high quality of personnel assigned who were able to overcome the shortfalls.

The JLCC possessed only two radios to monitor all traffic. The radios and mounts are not part of the Table of Organization and Equipment, and were therefore borrowed from other units. Due to the long lead time of the exercise this was possible, but in a crisis situation radios could be difficult or impossible to acquire.

The JLCC facility was adequate for a small exercise, but not for a "real" mission. Larger scale operations would require more personnel than the work space could physically accommodate. The JLCC was located too far away from other organizations and did not have access to a vehicle. This prohibited staff members from attending all of the operations meetings and keeping abreast of changes. Also, the JLCC was dependent on others for resupply (such as fuel for the generators) due to lack of a vehicle.

LESSONS LEARNED: The workload for a JLOTS offload justifies that more personnel and equipment be assigned to the JLCC. The JLCC is the focal point of any such exercise, and

it must be given the opportunity to operate at maximum efficiency.

RECOMMENDATIONS: The JLCC needs a minimum of two more personnel, preferably trained radio operators. A reevaluation of the communication equipment Table of Organization and Equipment should be conducted to request funds for the purchase of radios specifically for the JLCC. In addition, the JLCC could be placed in a shop trailer with more space for radios as well as a weather facsimile machine. The JLCC also needs to be assigned a dedicated vehicle. For future JLOTS operations, the personnel should continue to be the best and most knowledgeable professionals, preferably with previous JLOTS experience.

G. ISSUE 7: COMMUNICATION PLAN NOT DISSEMINATED PROPERLY

DISCUSSION: Lack of knowledge of the communication plan was observed in both the MPF and JLOTS portions of the exercise. For the first 16 hours of the MPF exercise, the lighterage control communications plan was unknown to most participants. The plan had been verbally briefed to some watercraft operators several days prior to the offload, but upon exercise execution the watercraft did not have a hard copy communications plan onboard their vessels. This resulted in confusion at all levels and, ultimately, in the delay of lighterage moving to the shore.

The same problem occurred at the start of the JLOTS portion. Craft coming alongside the ships did not know the

correct frequencies to accomplish the mission. Consequently, delays were encountered in moving offload crews to the ship, moving fenders into position, and moving from the queuing circles into offload positions.

LESSONS LEARNED: All exercise participants must be aware of the communications plan prior to the start of the exercise. The plan should be thoroughly discussed and rehearsed to develop proficiency. This would enable the initial offload to begin more smoothly while lessening participant frustration.

RECOMMENDATIONS: The communication plan must be distributed prior to the exercise. Department heads and Company Commanders should check their craft to ensure communication plans are onboard. A Communications Officer should be appointed and be a visible figure, available to resolve any issue as soon as it develops.

H. ISSUE 8: INABILITY TO CONDUCT SHIFT CHANGES HAMPERED THE OFFLOAD AND IMPACTED MORALE

DISCUSSION: During the MPF portion of the exercise, the boat crews were scheduled to work 12 hour shifts. Initial crew changes were accomplished by sending one LCM-8 with the relief crews around to each craft for turnover. This process took several hours to complete, which meant the crews were spending up to 18 hours on the water vice 12. No one in the Offload Control Center had planned ahead for crew changes, so the lighterage were randomly transiting to the beach or loading alongside the ship. Consequently, the LCM 8 trying to

accomplish crew turnover was chasing the lighterage as the lighterage was in transit. If the lighterage was loading at the ship either the offload had to stop until turnover was accomplished or the LCM 8 had to wait until the craft was loaded before crew changes occurred. In either case, delays and hard feelings resulted. No one was coordinating personnel to ensure enough crew members arrived for each new shift. On several occasions personnel worked double shifts because they had no relief.

In the JLOTS portion, the same issue again occurred. Aggravating the problem was the VIPs commandeering of the LCM-8s assigned for crew shifts for their personal transportation. Shifts stretched from 12 to 20 hours. Morale plummeted and fatigue set in. In addition, the boat crew shift times were different from the shift times for personnel onboard the vessels. This added to the confusion because no one knew who was leaving and when. Eventually, the problem was alleviated somewhat by bringing all of the craft to the beach for shift change. The disadvantage of this method was the inability to offload cargo when all of the boats were on the beach for crew change.

LESSONS LEARNED: Forethought and planning are necessary for smooth turnover periods. Mission accomplishment deteriorates when personnel become fatigued, frustrated, and miss meals. Operations Officers must be aware at all times where the craft are, and make decisions prior to the 12 hour

mark on how best to accomplish the turnover. Crew turnover periods can only be staggered with prior planning and if all exercise personnel understand the program.

RECOMMENDATIONS: Assign a junior officer to be on the beach during crew changes. This officer will muster the boat crews on the beach, ensuring enough reliefs have arrived prior to the 12 hour mark. The officer can also check that all crew members have the required personnel safety gear. VIP transportation should be scheduled not to conflict with crew changes. Timely crew changes are imperative to the overall success of the mission. Operations officers must become proactive in this area instead of reactive.

I. ISSUE 9: MPF SHIPS ARE VULNERABLE TO SMALL BOAT TERRORIST THREAT

DISCUSSION: Although MPF operations are doctrinally operating in a benign environment, they are still vulnerable to small boat terrorist threats. The size of an MPF ship makes it impossible for the offload personnel to see divers or small boats alongside the ship's hull. Only one LCU was used for seaward security during the OV '92 operation. "Enemy" forces were able to penetrate this security and plant an explosive device on the hull of the MPF ship. The explosive was "detonated" before being discovered and the ship was "lost". Halfway through the exercise, the Naval Support Element (NSE) was allowed to borrow the Rigid Hull Inflatable Boat (RHIB) from the MPF operating company. MPF NSE crews

were then able to locate and remove three exercise explosive devices from the hull of one of the MPF ships. The boat was used for the remainder of the exercise to make periodic hull checks.

LESSONS LEARNED: All personnel require a greater awareness of potential terrorist threats. Other LCUs in the area could have been used for security. The RHIB boat was effectively used to make security checks.

RECOMMENDATIONS: All personnel should receive a security briefing prior to arriving in the exercise area. Greater use needs to be made of all available assets in the area. In addition, a contractual agreement should be made with the ship's operating company for the NSE to use the RHIB boat until Navy RHIBs can be added to the MPF inventory.

J. ISSUE 10: EXCESS PERSONNEL ON SHIPS CAUSED COAST GUARD VIOLATIONS AND BERTHING PROBLEMS

DISCUSSION: Every merchant vessel carries a Coast Guard certification which denotes the maximum number of people authorized onboard the vessel at any one time. The SS Obregon certification allows 180 people to be onboard. During an MPF operation, the number of personnel onboard expands to include the NSE staff, offload crews, vehicle drivers, and stevedores. Ships are certified to hold only the minimum number of personnel required to complete the offload.

The MPF ships have a reputation for great food, hot showers, and comfortable staterooms. Thus, during OV '92, the

CMPF staff requested berthing onboard rather than berthing on one of the amphibious ships in the area. VIPs watching the exercise also requested last minute berthing space. Extra reserve officers on the exercise for training requested berthing. In addition, all units sent extra personnel to the ship to observe and take advantage of the hands-on training opportunity the exercise provided.

As a result, the number of personnel rose to approximately 220 while the COMSPRON ONE staff attempted to make hourly head counts to keep track of personnel. The Offload Control Officer and staff responsible for the ship's offload was relocated to another MPF ship in the area. If this had been a true MEU slice operation, no other MPF ship would have been available to provide berthing. Several NSE officers slept on the weather decks of the SS Obregon.

The ship's Master requested that extra personnel depart the ship and live on the beach. He also requested a temporary waiver from the Coast Guard to increase the certification numbers. The waiver was granted when he demonstrated the ship carried enough life rafts and safety equipment.

LESSONS LEARNED: While it is important that as many people receive training as possible, personnel numbers should be established based on the type of offload being conducted. For a MEU slice operation, a full ship offload team is not required. Berthing assignments should be based solely on task assigned.

RECOMMENDATIONS: Communication between all units working onboard the ship and those desiring berthing during the exercise must occur prior to the exercise. Limits on the number of personnel authorized onboard should also be identified in advance. The NSE Commander should have the authority to enforce the limits. In addition, the ship should request a permanent increase in the Coast Guard certification to the number of personnel required for a standard offload. Visitors and observers should be shuttled to the ship to watch without adversely impacting operations, then berth elsewhere at night.

K. ISSUE 11: IMPACT OF LOCAL ENVIRONMENT ON OPERATIONS

DISCUSSION: Onslow Beach is not well suited for the offload of commercial vessels instream due to the shallow gradient. The MPS ship anchored approximately four miles off the beach in order to achieve sufficient water depth for a safe anchorage. The JLOTS shipping was anchored approximately one mile further out. Night operations were also difficult, since there was a relatively low percentage of illumination from the moon.

LOTS operations are inherently weather dependent. Sea state played a major role in the operation as sea state three was reached on several occasions.

During the JLOTS portion of the exercise, the Army used its risk management program effectively to determine the impact of the environment on the operation. Risk management

provided guidelines to exercise personnel responsible for safely conducting the exercise. Appendix E contains the risk assessment forms for OV '92.

LESSONS LEARNED: Ship to shore movement is an inherently risky evolution. The impact of the environment, especially the effects of wind and sea on lighters, is well documented and must be included in the planning process.

RECOMMENDATIONS: The Navy and Marine Corps should adopt a risk management system similar to the Army's. Environmental concerns should be reassessed continuously during the exercise to allow for a safe operation.

L. ISSUE 12: SAFETY

DISCUSSION: When adequate supervision was on station, safety regulations were followed. There were some instances where under-supervised troops ignored regulations concerning the wearing of personal protective equipment such as hard hats and work vests.

Safety Observers were frequently pulled from their assignments to temporarily fill other billets, then returned to their posts. Consequently, they suffered from sleep deprivation and were not sufficiently alert to safety violations.

Army watercraft personnel wear deck shoes vice steel-toed shoes. Navy personnel all wear steel-toed shoes. An injury that occurred to a sailor would have been permanently

disabling had he not had on steel-toed shoes. Army and Navy personnel were performing the same tasks.

Personnel transfers from the small boats to the merchant ships were not conducted safely. In one instance, an LCU crew was holding the bottom of the ladder while a sailor went up to the ship. The LCU drifted from the side of the ship and the LCU crew was forced to release the ladder. This caused the sailor to impact the side of the ship and sustain minor injuries. Sea state also aggravated the difficulty of personnel transfers as increasing swells caused further ladder difficulties.

During the JLOTs portion, Army personnel stood under equipment as it was lowered over the side. If the equipment had dropped, personnel would have been crushed.

The Navy conducted daily safety stand downs to inspect lines and patch holes in craft. The Army did not allow stand down time to perform safety checks. Army craft were allowed to operate even when taking on water through small holes.

LESSONS LEARNED: Safety must be the number one priority at all times. Safety Officers and Observers must be not be pulled to do other jobs; they must be assigned and available to enforce regulations. Each service has certain tasks and procedures that it performs more safely than the others.

RECOMMENDATIONS: The use of a pilot's ladder is not always the safest method of transfer from the watercraft used in a JLOTS environment. Improvements in this area have

already been enacted. During OV '93, a causeway section (modular type) will be moored alongside each merchant ship to allow safer transfer of personnel.

Consistent application of regulations across service lines should be a priority. Army personnel need safety shoes and should perform daily craft safety inspections. All personnel need safety reminder briefings throughout an exercise especially in the area of offload procedures. Each service can learn things from the other.

M. ISSUE 13: NAVY AND ARMY UNITS HAVE REDUNDANT CAPABILITIES

DISCUSSION: Navy and Army offload units have similar capabilities. Instead of fighting each other over turf and procedures, it would make economical sense to combine the service offload units into a permanent joint team or have one service designated to conduct the operation.

LESSONS LEARNED: The requirement for both the Army and the Navy to offload vessels instream should be reevaluated.

RECOMMENDATIONS: Review offload requirements and determine the best service or combinations of services to conduct offload operations to alleviate redundant capabilities.

VII. SUMMARY, CONCLUSIONS, & RECOMMENDATIONS

A. SUMMARY

Sealift has been, and continues to be, the primary means of providing U.S. forces overseas with the requisite supplies and equipment to sustain operations. Efficient Maritime Prepositioning Force (MPF) and Logistics Over the Shore (LOTS) exercises are crucial to the success of American involvement during real crisis situations.

LOTS refers to the loading and unloading of ships without benefit of fixed port facilities. These operations are generally conducted in areas where there are unimproved shorelines, ports partially destroyed by combat action, shallow draft ports not accessible to deep draft vessels, or other inadequate ports where supplemental LOTS capability is necessary to bring supplies ashore. The operations may be conducted from a few hundred yards to several miles offshore. When the operation involves more than one service component, i.e., the Navy (and/or Marines) and the Army, it is referred to as Joint Logistics Over the Shore (JLOTS).

In an effective JLOTS operation the JLOTS Commander synchronizes all efforts to maintain continuity in the flow of operations. The goal is to safely and efficiently discharge cargo to the correct unit(s) ashore. This requires tremendous

coordination of effort, concise communication, and dedicated teamwork.

Operation Desert Shield was the first time the MPF concept was utilized on a large scale; the ships equipped and sustained a Marine force of over 30,000. This also provided an opportunity to evaluate the entire MPF evolution from the initial decision to use the capability to restocking the used equipment and supplies afterwards.

One of the lessons learned from Operation Desert Shield/Desert Storm was that these huge ships could be configured in a variety of ways depending on the anticipated need. One alternative is to "spreadload," which means disbursing the supplies evenly so that all of the ships in each squadron have approximately the same load. This is most effective in a large scale operation where the intent is to offload most or all of the equipment.

Another alternative is to configure the ships based on the Marine force module concept. This allows more flexibility for the Marine Air-Ground Task Force (MAGTF) by positioning equipment into sections of the ships in order to offload a specific required portion. Selection of a ship to support a Marine operation is based on which ship has the desired configuration to support the mission. Effective logistics planning results in an efficient offload of equipment and subsequent minimum delay on the beach for Marines or other personnel.

Ocean Venture '92 was a JLOTS operation conducted from 11 May to 18 May 1992 off the coast of North Carolina. It was the first MPF exercise to test and evaluate the reconfiguration of an MPS squadron load to support the Fleet Marine Force (FMF) priority force module concept. Fleet Marine Force, Atlantic (FMFLANT) and Maritime Prepositioning Ship Squadron ONE (COMPSRON ONE) participated in the exercise. The exercise specifically tested the Marine Expeditionary Unit slice (MEU slice) concept. The MEU slice consists of the equipment and supplies onboard an MPF ship designated to support a MEU. The squadron ship with primary responsibility for the MEU slice offload was the SS Obregon. The SS Obregon was chosen to be offloaded instream (about four miles offshore) using the Lift on/Lift off (LO/LO) method to unload the designated supplies and equipment involved in the exercise.

The MEU slice concept presents a unique problem for offload logistics planning. Priorities and specific load configuration must be strictly adhered to. Because limited material handling equipment and lighterage are available on each ship, planning and constant communication between offload teams and lighterage crews is critical to the successful MEU slice operation.

Arrival and Assembly operations for Ocean Venture '92 began on the order of Commander, Maritime Prepositioning Force (CMPF). Lighterage was assembled and selected pieces of Material Handling Equipment were offloaded on 11 May so that

the exercise could begin as scheduled the following morning. Offload of equipment and supplies from the SS Obregon began on O-day, 12 May 1992, in the vicinity of Onslow Beach at Camp Lejeune, North Carolina. The offload was completed in 56 hours, which met the Marine requirement of completion in less than three days.

Ocean Venture '92 was also the first test of the transition of operational component control from the Navy to the Army. Responsibilities and operational control vary depending on whether the JLOTS Commander is an Army or Navy Officer. If the JLOTS operation is under Navy component control, the responsibility includes operations as high as the beach high water mark. When the operation is under Army component control, the responsibility extends to delivering cargo to the receiving authority inland. Regulations to be followed for operation of lighterage are predetermined by the JLOTS Commander to be either by Army or Navy methods.

Upon termination of the MPF operations on 15 May 1992, the Naval component commander assumed responsibilities as the JLOTS Commander to start the operation. At 2000 on 15 May 1992, command passed to the Commander of the Army Seventh Transportation Group, who became the JLOTS Commander for the duration of the operation. Once again, communication and teamwork were key to a successful transition.

The Army portion of the Ocean Venture '92 JLOTS operation included an instream offload of 746 pieces of infantry

equipment from the Fast Sealift Ship USNS Pollux within 72 hours and the discharge of 46 of 200 scheduled containers from the Auxiliary Crane Ship USNS Flickertail State within 96 hours. The operation, completed on 18 May, was deemed a success despite some equipment problems and rough seas which limited the offload of all of the containers.

B. CONCLUSIONS AND RECOMMENDATIONS

1. Conclusions

The following conclusions resulted from the evaluation of MPF and JLOTS operations:

- The Force Module Concept for a MEU Module was validated during the operation. Equipment associated with the MEU slice was easily accessible for offload.
- The exercise demonstrated that a MEU slice instream offload can be completed within three days.
- The MEU slice concept adds challenges of selectivity to offload operations. With limited material handling equipment and lighterage, planning and communication are the cornerstones of success for a MEU offload.
- The 7th Transportation Group accomplished their assignment by offloading the 24th Infantry Division equipment within the 72-hour timeline.
- Offload operations were hampered by poor lighterage control and an ill-defined chain of command. Communication systems and equipment were inadequate to meet the intense communication needs of an instream offload.
- Environmental, safety, and security concerns need to be constantly reassessed throughout an exercise to ensure a safe outcome.

2. Recommendations

The following recommendations are presented for consideration:

- An intense, coordinated training program aimed at developing Officer and NCO proficiency prior to the exercise should be developed. It is critical that training dollars for MPF and JLOTS operations become a priority.

- A review of unit Tables of Organization and Equipment should be accomplished to ensure appropriate equipment and personnel are earmarked for Logistics Over the Shore operations.

- The Joint Letter of Instruction detailing communications during JLOTS operations, which is slowly evolving, needs to move quickly to the field so that it may be incorporated into future exercises and operations.

- A Joint Task Force should meet and review service procedures to resolve interoperability issues. The review should also examine ways to reduce redundant capabilities and increase efficiency in LOTS operations.

APPENDIX A

LIST OF ACRONYMS

AAA	Arrival and Assembly Area
AAOE	Arrival and Assembly Operations Element
AAV	Amphibious Assault Vehicles
BLCP	Beach Lighterage Control Point
BPT	Beach Party Team
CJTF	Commander, Joint Task Force
CMPF	Commander, Maritime Prepositioning Force
CNA	Center for Naval Analysis
CNSE	Commander, Naval Support Element
COMPSRON	Maritime Prepositioning Ship Squadron
COT	Container Operations Terminal
CSNP	Causeway Section, Non-Powered
CSP	Causeway Section, Powered
CSSA	Combat Service Support Area
FIE	Fly-in-Echelon
FMF	Fleet Marine Force
FMFLANT	Fleet Marine Force, Atlantic
FSS	Fast Sealift Ship
ISO	International Standards Organization
ISOPACK	Refers to configuration of causeway sections aboard a T-ACS
HISEACOTS	High Sea State Container Transfer System

JCS	Joint Chiefs of Staff
JLCC	Joint Lighterage Control Center
JLOTS	Joint Logistics Over the Shore
LACV	Lighter Air Cushion Vehicle
LARC	Lighter, Amphibious Resupply Cargo
LCM-8	Landing Craft, Mechanized
LCO	Lighterage Control Officer
LCP	Lighterage Control Point
LCU	Landing Craft, Utility
LIC	Low Intensity Conflict
LO/LO	Lift on/Lift off
LOTS	Logistics Over the Shore
LSV	Logistics Support Vessel
LVS	Logistics Vehicle System
MAGTF	Marine Air-Ground Task Force
MEB	Marine Expeditionary Brigade
MEF	Ma ine Expeditionary Force
MEU	Marine Expeditionary unit
MHE	Material Handling Equipment
MPF	Maritime Prepositioning Force
MPS	Maritime Prepositioning Ship
NATO	North Atlantic Treaty Organization
NAVCHAPGRU	Naval Cargo Handling and Port Group
NBG	Naval Beach Group
NSF	Naval Support Element
NSU	Naval Support Unit

NTPF	Near-Term Prepositioning Force
OAS	Organization of American States
OCO	Offload Control Officer
OPP	Offload Preparation Party
OV '92	Ocean Venture 1992
PEI	Principle End Items
POE	Planned Operational Environment
RHIB	Rigid Hull Inflatable Boat
RO/RO	Roll on/Roll off
RRDF	RO/RO Discharge Facility
RTCH	Rough Terrain Container Handlers
SLRP	Survey, Liaison, Reconnaissance Party
SLWT	Side Loadable Warping Tug
SOI	Signal Operating Instruction
T-ACS	Auxiliary Crane Ships
UNSC	United Nations Security Council
USCINCLANT	United States Commander In Chief, Atlantic
USLANTCOM	United States Atlantic Command

APPENDIX B

OCEAN VENTURE TASK FORCE LIST

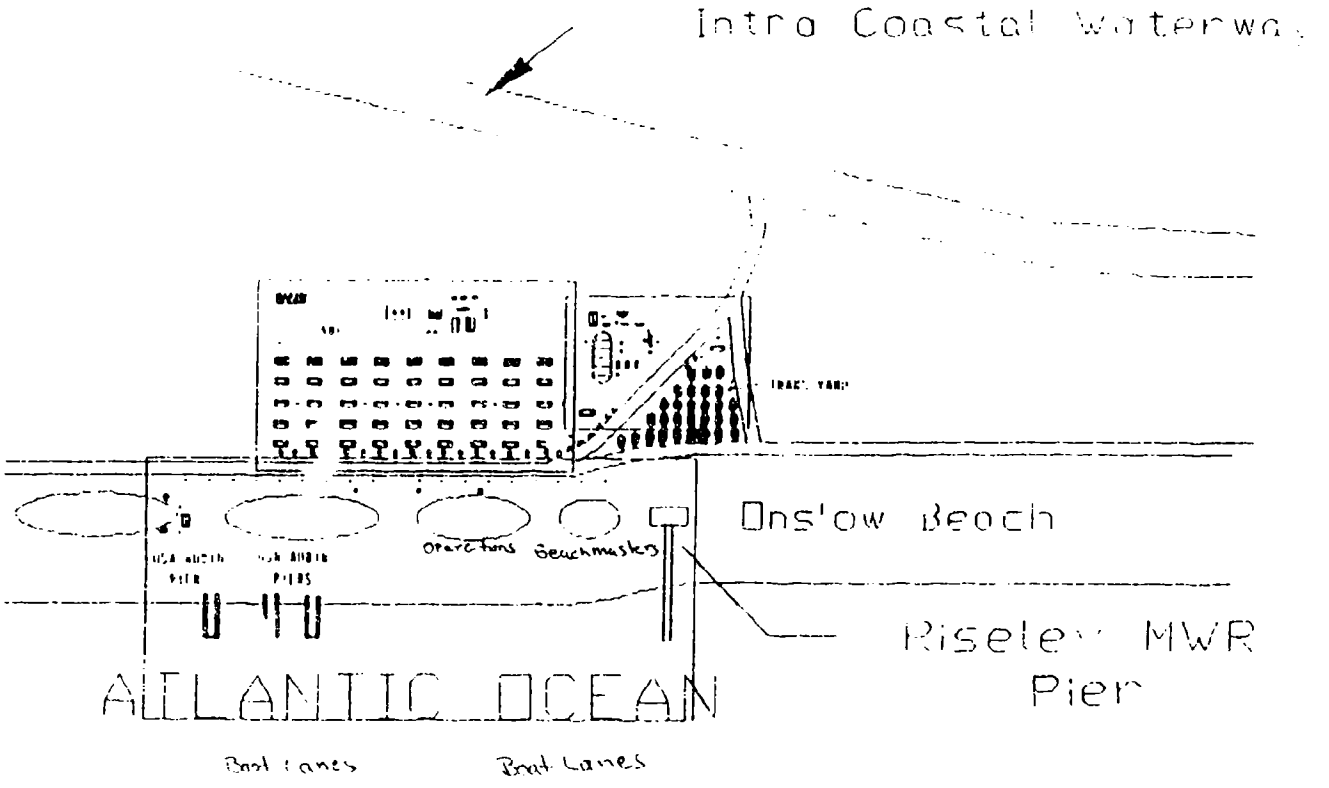
FORCES

Task Force 145	---	Naval Component
CTF 145	---	COMCARGRU EIGHT
Task Group 145.1	---	CVBG
CTG 145.1	---	COMCARGRU TWO
TG 145.1	---	USS OCEANA (constructive CV) CVW-3
Task Group 145.2	---	ATF
CTG 145.2	---	COMPHIBRON 14 (CO PHIBSCOL)
TG 145.2	---	USS BOULDER (LST 1190)
		CNBG-2 DET A
		COMTACRON 21
Task Group 145.3	---	MPF
CTG 145.3	---	COMPHIBRON TWO (EMB OBREGON)
TG 145.3	---	MPSRON-1 (less BOBO)
		CNBG-2 DET A
		II MEF Offload Control Group
		MIUWU 210 (Area Security/surveillance)
Task Group 145.4	---	Landing Force
CTG 145.4	---	28 MEU
Task Group 145.5	---	SAG/Deception Group
CTG 145.5	---	COMDESRON 36
TG 145.5	---	USS SAN JACINTO
		USS KAUFFMAN
		USS OBANNON
		USS MOOSBRUGGER
		USCGC DALLAS
		USCGC CONFIDENCE
		USCGC DRUMMOND
		USCGC METOMPKIN
		USCGC STATEN ISLAND
		VP-8
		SEAL TEAM 4
		SBU-24

Task Group 145.6	---	MCM Group
CTG 145.6	---	COMCMGRU TWO
TG 145.6	---	USS OBANNON
		USS MOOSEBRUGGER
		HM-14 DET
		EODMU TWO DET
		USS AFFRAY
		LCU 1641
		SEAL TEAM 8
Task Group 145.7	---	Submarine Operations Group
CTG 145.7	---	COMCARGRU EIGHT
TG 145.7	---	USS JAMES K. POLK
		USS SILVERSIDES
		USS KITTIWAKE
Task Group 145.8	---	Navy LOTS/JLOTS
CTG 145.8	---	CNBG-2 DET A
TG 145.8	---	Offload Unit
		Support Unit
		MSC Units:
		SS CAPE MOHICAN
		SS FLICKERTAIL STATE
		USNS POLLUX
Task Group 145.9	---	Rescue Coordination Center
CTG 145.9	---	COMCARGRU EIGHT
TG 145.9	---	HCS-4

APPENDIX C

BEACH LAYOUT



APPENDIX D

OPERATIONAL SUMMARY OF THE MEB AND MPSRONS

(a) OPERATIONS SUMMARY OF THE MEB

PERSONNEL PER EACH OF THE 3 MARITIME PREPOSITIONING FORCES	USMC	USN	TOTAL
HQMEB	746	24	770
Ground Combat Element	5,303	776	6,079
Combat Service Support Element	2,668	419	3,087
Navy Support Element	0	379	379
	14,980	1,575	16,655

(b) OPERATIONS SUMMARY OF THE MPSRONS

SHIPS	WATERMAN Class	MAERSK Class	AMSEA Class
Number	3	5	5
Length	821 ft	755 ft	671 ft
Beam	106 ft	90 ft	105 ft
Depth	68 ft	70 ft	82 ft
Draft	32 ft	33 ft	29 ft
Displacement	49,754 LT	46,552 LT	40,946 LT
Speed	20 knots	17.5 knots	18 knots
Endurance	13,000 NM	10,300 NM	12,340 NM
Vehicle Roll on/Roll off Area	152,524 sq ft	120,080 sq ft	162,500 sq ft
Containers	540	332	493
Bulk Fuel	1,544,000 gal	1,293,000 gal	1,604,915 gal
Potable Water	84,780 gal	65,000 gal	91,771 gal
Capitalized Cost per Ship*	$159.1 mil	$184.75 mil	$174.37 mil

*Total Current Cost to Government per Ship Day for 13 leased ships: $830,700

(a) MPS SQUADRONS

CAPACITIES

MPS-1	3 MAYAGUEZ Class and 1 AMSEA Class Ships	
Square		620,072 sq ft
Cube		2,488,640 cu ft
Bulk Fuel		6,236,915 gal
Potable Water		366,111 gal
MPS-2	5 MAERSK Class Ships	
Square		600,000 sq ft
Cube		2,124,300 cu ft
Bulk Fuel		6,415,000 gal
Potable Water		325,000 gal
MPS-3	4 AMSEA Class Ships	
Square		650,000 sq ft
Cube		2,524,000 cu ft
Bulk Fuel		6,419,660 gal
Potable Water		327,084 gal

CARGO PER MPSRON

Ground Combat Equipment:

53	Tanks
109	Armored Assault Vehicles
24	155 mm Howitzers (Towed)
6	155 mm Howitzers (Self Propelled)
6	8-in Howitzers (Self Propelled)
96	TOW Missiles
96	Dragon Missiles
190	50 cal Machine Guns
118	MK-19, 40 mm Grenade Launchers
194	7.62 mm Machine Guns

Combat Support Equipment (Major Items):

Motor Transport

75	Tractors, 5-Ton
15	40-Ton Low Bed Trailers
73	Semi-Trailers
284	5-Ton Cargo Trucks
46	5-Ton Dump Trucks
19	1200-Gal Fuel Trucks
26	5000-Gal Fuel Trailers
14	1000-Gal Water Trucks
116	400-Gal Water Trailers
27	5-Ton Wreckers
625	Light Truck 1 1/4 Ton or Less

CARGO PER MPSRON (Continued)

Engineer and Material Handling:

3	60-Ton Bridges
10	Rough Terrain Container Handlers
12	30-Ton Cranes
12	7 1/2-Ton Cranes
10	Road Graders
7	Road Scrapers (16 cuyd)
29	Bulldozers
107	Rough Terrain Forklifts
438	Electrical Generators
41	Water Purification Units
1	800,000-Gal Water Distribution System
51	Floodlight Sets

POL Storage and Distribution:

10	Tactical Airfield Fuel Dispensing System
8	Amphibious Assault Fuel Dispensing Systems
8	Helicopter Exp Refueling Systems

Medical:

1	260 Bed Medical Facility

Other Container Loads and Bulk Fuel: *

Class I	Rations
Class II	Clothing, Individual Equipment, Administrative Supplies
Class III	Bulk Fuel - JP-5, MOGAS, plus Packaged POL
Class IV	Construction Material for Fortification and Barrier
Class V	Ammo (W) 126 Different types (3,500 Tons)
	A) 73 Different types (3,000 Tons)
Class VII	Medical Supplies
Class IX	Repair Parts for all Embarked Equipment

* 30 day supply of each.

APPENDIX E

OCEAN VENTURE/JLOTS RISK ASSESSMENT

TASK	DAY OPS	NIGHT OPS	SEA STATE 1	SEA STATE 2	SEA STATE 3	RAIN DAY/NIGHT	THUNDERSTORM
CONDUCT LO/LO OPS AT DISCHARGE SITE	L	M	M	H	H	M/H	E
CONDUCT LO/RO OPS AT BEACH SITE	L	L	L	M	H	L/M	E
CONDUCT LO/LO OPS UTILIZING HSEACOTS	L	M	M	H	H	M/H	E
CLIMBING UP/DOWN JACOBS LADDER ON TACS/FSS	L	H	M	H	H	M/H	E
CLIMBING UP/DOWN ON GANGWAY OF SEABEE	L	L	L	M/H	H	M/H	E
HANDLING TAGLINES OF 20FT CONTAINER W/LIGHTING	L	L	L	M	H	M/H	E
GROUND GUIDING VEHICLES/MHE	L	M	M	M/H	H	M/H	E
CONDUCT LO/LO OPS WITHOUT HSEACOTS	L	M	M	H	H	M/H	E
REFUELLING LIGHTERAGE	L	M	L	L	L	L/M	E

LEGEND: L LOW RISK, M MEDIUM RISK, H HIGH RISK, E EXTREMELY HIGH RISK
ASSUMPTIONS: UNITS MODERATELY TRAINED, SAFETY GEAR WORN, UNITS ARE TRAINED ON BATTLE DRILLS

TASK	DAY OPS	NIGHT OPS	SEA STATE 1	SEA STATE 2	SEA STATE 3	RAIN DAY/NIGHT	THUNDERSTORM
UPLOAD/DOWN LOAD LACV 30 ON SEABEE	L	M	L	L	H	M/H	E
UPLOAD/DOWN LOAD LARC-60 ON SEABEE	L	M	L	L	M	M/H	E
UPOAD/DOWN LOAD LCU-1600 ON SEABEE	L	M	L	M	H	M/H	E
UPLOAD/DOWN LOAD LCM-8 ON SEABEE	L	M	L	M	H	M/H	E
UPLOAD/DOWN LOAD SLWT ON SEABEE	L	M	L	M	H	M/H	E
UPLOAD/DOWN LOAD CAUSEWAY SECTIONS ON SEABEE	L	M	L	L	M	M/H	E
UPLOAD/DOWNLOAD LACV 30 ON SEABEE	L	M	L	L	M	M/E	E
UPLOAD/DOWNLOAD RISEACOTS ON TACS	L	M	L	L	M	H/H	E
ASSY/DISASSEMBLE ADMIN PIER	L	M	L	L	M	M/H	E

LEGEND L LOW RISK, M MEDIUM RISK, H HIGH RISK, E EXTREMELY HIGH RISK
ASSUMTIONS UNITS ARE MODERATELY TRAINED, SAFETY GEAR IS WORK, UNITS ARE TRAINED ON BATTLE DRILLS

TASK	DAY OPS	NIGHT OPS	SEA STATE 1	SEA STATE 2	SEA STATE 3	RAIN DAY/NIGHT	THUNDERSTORM
OPERATE LACV-30 W/ CARGO	L	M/H	L	L	H	M/H	E
OPERATE LCM-8 W/ CARGO	L	M	L	L	H	M/H	E
OPERATE SLWT/CAUSE-WAY FERRY W/ CARGO	L	M	L	M	H/H	M/H	E
OPERATE LARC-60 W/ CARGO	L	M	L	L	M	M/H	E
OPERATE LCU-1600 W/ CARGO	L	M	L	H	H	M/H	E
OPERATE SLINGSBY	L	M	L	H	H	M/H	E
ASSY/DISASSEMBLE RRDF	L	M/H	M	H	H	H/H	E
CONDUCT RO/RO OPS ON RRDF	L	M/H	L/M	H	H	H/H	E
CONDUCT RO/RO OPS ON BEACH	L	L/M	L	L	L	L/M	E

LEGEND L LOW RISK, M-MEDIUM RISK, H HIGH RISK, E EXTREMELY HIGH RISK
ASSUMPTIONS UNITS ARE MODERATELY TRAINED, SAFETY GEAR IS WORN, UNITS ARE TRAINED ON BATTLE DRILLS

TASK	DAY OPS	NIGHT OPS	SEA STATE 1	SEA STATE 2	SEA STATE 3	RAIN DAY/NIGHT	THUNDERSTORM
PERSONNEL WALKING DOWN FSS VEHICLE RAMP	L	M/H	L	H	H	L/M	E
SECURING/UNSECURING VEHICLES ON FSS	L	H	L	M	H	M/H	E
TRAFFIC FLOW OFF FSS	L	M/H	L	M	H	M/H	E
MORE THAN ONE VEHICLE ON FSS VEHICLE RAMP AT A TIME	M	H	L	M	H	M/H	E
WEATHER DECK OPS ON FACS/CONTAINER SHIP	L	M	L	H	H	M/H	E
POSITIONING SPREADER BARS ON CONTAINER		M/H	L	H	H	M/H	E
SECURING CONTAINER ON LIGHTERAGE	L	M	L	H	H	M/M	E
OPENING/CLOSING HATCHES ON FSS/CONTAINER SHIP	L	M/H	L/M	H	H	M/H	E
POSITIONING TOPHANDLER ON CONTAINER	L	L/M	L	M/H	M/H	M/H	E

LEGEND: L-LOW RISK, M-MEDIUM RISK, H-HIGH RISK, E-EXTREMELY HIGH RISK
ASSUMPTIONS: UNITS ARE MODERATELY TRAINED, SAFETY GEAR IS WORN, UNITS ARE TRAINED ON BATTLE DRILLS

LIST OF REFERENCES

1. Keys, Wm. M., LtGen., USMC, "Arrival and Assembly Plan for Exercise Ocean Venture '92."

2. National Security Affairs Monograph Series 82-6, "Logistics Over the Shore: Do we Need it?" by D. J. Beakey, Col., USA, 24 February, 1983.

3. Somers, John D., "LOTS Interface Systems Analysis," The BDM Corporation, 1 October 1984.

4. Vargo, John J., LtCol., USMC and Goehner, Richard H.,"Ports Unlimited: The Reality of Logistics Over the Shore," Naval Institute Proceedings, December 1977.

5. Marine Corps Combat Development Command, "Maritime Prepositioning Force (MPF) Operations (OH 1-5)," Quantico, VA, August, 1990.

6. Joint Chiefs of Staff, "JCS Test Pub 4-03; Joint Logistics Over the Shore," Washington, D.C., 23 March 1989.

7. Geis, Mark; Hill, Jim and Ivancovich, John, "An Analysis of MPF Operations in Ocean Venture 92," 12 June 1992.

8. Commander, Naval Beach Group TWO, "OPLAN 201," Norfolk, VA, 12 August 1991.

9. Commander, Naval Beach Group TWO, "Ocean Venture 92 After Action Report," Norfolk, VA, 5 June 1992.

10. Center for Naval Analyses, "MPF Operations in Exercise Ahus Tara 90," Alexandria, VA, August 1990.

11. Task Force 11, "Operations Order 7-92 (Ocean Venture)," Fort Story, VA, 6 April 1992.

12. Eleventh Trans BN., "Ocean Venture 92 After Action Report," Fort Eustis, VA, 26 June 1992.

13. DOD Joint Test Directorate, "Joint Logistics Over the Shore III; Ocean Venture '92 Test and Evaluation Report," Fort Story, VA, 22 February 1993.

14. Center for Naval Analyses Research Memorandum, "Logisticians Guide to MPF; MPF Exercise Summary," Norfolk, VA, 1 April 1990.

15. U.S. Marine Corps Tac Alert, "Navy and Marine Corps White Paper," Washington, D.C., January-March 1992.

16. Sumner, J.D., "An Analysis of the Maritime Prepositioning Ship Instream Offload: A Decision Framework For the Marine Corps Commander," Master's Thesis, Naval Postgraduate School, Monterey, CA, December, 1991.

17. Interview between Dr. John Ivoncovich, Second Expeditionary Force, Camp Lejeune, NC, and the first author, 3 March 1993 and 12 April 1993.

18. Interview between E. Parker, CPT, USA, 11th Transportation Battalion, Fort Eustis, VA, and the first author, 12 April 1993.

19. Interview between T. Wertenberger, LCDR, USN, Amphibious Construction Battalion TWO, Little Creek, VA, and the first author, 13 April 1993.

20. Interview between K. Adams, LT, USN, Naval Beach Group TWO, Little Creek, VA, and the first author, 3 March, 6 and 20 April, and 18 May 1993.

21. Interview between M. Newton, MAJ, USMC (Ret.), Jacksonville, NC, and the first author, 6 May 1993.

22. Interview between D. Tucker, CAPT, Ships Master, Norfolk, VA, and the first author, 16 July 1992.

23. Interview between R. Kenney, LtCol, USA, 11th Transportation Battalion, Fort Eustis, VA, and the first author, 14 May 1992.

24. Interview between K. Smith, BMC, USN, Amphibious Construction Battalion TWO, Onslow Beach, NC, and the first author, 14 May 1992.

25. Interview between S. Christy, CPT (P), USA, Department of Defense Joint Test Directorate, Fort Story, VA, and the first author, 25 March, 14 April 1993.

INITIAL DISTRIBUTION LIST

1.	Defense Technical Information Center Cameron Station Alexandria, VA 22304-6145	2
2.	Library, Code 52 Naval Postgraduate School Monterey, CA 93943-5002	2
3.	Defense Logistics Information Exchange U.S. Army Logistics Management College Ft. Lee, VA 23801-6043	1
4.	Prof. Dan C. Boger, (Code AS/Bo) Naval Postgraduate School Monterey, CA 93943-5000	1
5.	Prof. David G. Brown, (Code AS/Bz) Naval Postgraduate School Monterey, CA 93943-5000	1
6.	Military Sealift Command (Code N14) Washington, D.C. 20398-5100	1
7.	CPT(P) Steve Christy DOD Joint Test Directorate JLCTS III Fort Story, VA 23459	1
8.	Mr. and Mrs. William Koch 3789 Peachtree Way Niceville, Florida	1
9.	LT Janet L. Wiley 8465 Colfax CT. Jacksonville, FL 32244	1
10.	LT Sharon L. Barrett COMSCEUR PSC 821 BOX 3 FPO AE 09421-2000	1