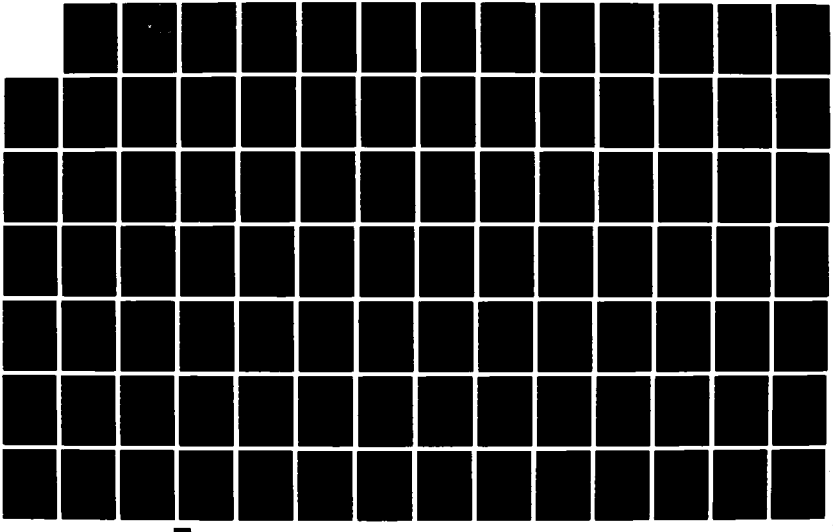
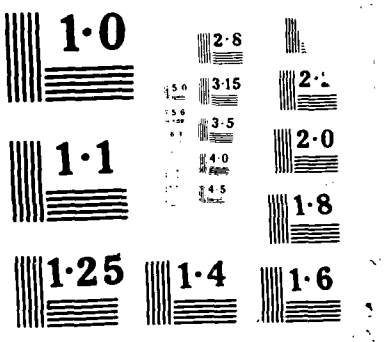
AD-A191 013 THE READY RESERVE FORCE: IS IT CAPABLE OF PERFORMING ITS MISSION?(U) NAVAL POSTGRADUATE SCHOOL MONTEREY CA M H ORBAN ET AL. DEC 87 1/1

UNCLASSIFIED F/G 15/1 NL




1·0
1·1
1·25
1·4
1·6
2·0
1·8

(2)

NAVAL POSTGRADUATE SCHOOL

Monterey, California

THESIS

THE READY RESERVE FORCE:
IS IT CAPABLE OF PERFORMING ITS MISSION?

by

Mary Margaret Orban
and
Everett John Parvin

December 1987

Thesis Advisor: Dan C. Boger

REPORT DOCUMENTATION PAGE

1a REPORT SECURITY CLASSIFICATION	1b RESTRICTIVE MARKINGS
2a SECURITY CLASSIFICATION AUTHORITY UNCLASSIFIED	3 DISTRIBUTION/AVAILABILITY OF REPORT Approved for public release; distribution is unlimited
2b DECLASSIFICATION/DOWNGRADING SCHEDULE	
4 PERFORMING ORGANIZATION REPORT NUMBER(S)	5 MONITORING ORGANIZATION REPORT NUMBER(S)
6a NAME OF PERFORMING ORGANIZATION Naval Postgraduate School 6b OFFICE SYMBOL (If applicable) Code 54	7a NAME OF MONITORING ORGANIZATION Naval Postgraduate School
6c ADDRESS (City, State, and ZIP Code) Monterey, California 93943 - 5000	7b ADDRESS (City, State, and ZIP Code) Monterey, California 93943 - 5000
8a NAME OF FUNDING/SPONSORING ORGANIZATION 8b OFFICE SYMBOL (If applicable)	9 PROCUREMENT INSTRUMENT IDENTIFICATION NUMBER
8c ADDRESS (City, State, and ZIP Code)	10 SOURCE OF FUNDING NUMBERS PROGRAM ELEMENT NO / PROJECT NO / TASK NO / WORK UNIT ACCESSION NO

11 TITLE (Include Security Classification)

THE READY RESERVE FORCE: IS IT CAPABLE OF PERFORMING ITS MISSION?

12 PERSONAL AUTHOR(S)
Orban, Mary M. and Parvin, Everett J.

13a TYPE OF REPORT	13b TIME COVERED	14 DATE OF REPORT (Year, Month, Day)	15 PAGE COUNT
Master's Thesis	FROM _____ TO _____	1987 December	95

16 SUPPLEMENTARY NOTATION

17 COSATI CODES			18 SUBJECT TERMS (Continue on reverse if necessary and identify by block number)
FIELD	GROUP	SUB-GROUP	Ready Reserve Force (RRF), Merchant Marine manning, Supply Support of RRF, Logistic Support of RRF

19 ABSTRACT (Continue on reverse if necessary and identify by block number)

This thesis examines the Ready Reserve Force (RRF) from a personnel manning and supply and logistics support perspective. The history of the RRF and a discussion of its current status are included. Specifically examined is the decline in the number of merchant mariners and in the number of available billets for the mariners. Three merchant marine manning studies are evaluated and five alternatives for guaranteeing manning are discussed. In the area of supply and logistic support, the onboard shore and ship spare part inventories are evaluated for fulfillment of RRF requirements. Recommendations concerning manning include taking measures to increase the size of the U.S. flag fleet, manning Naval Auxiliary ships with merchant mariners, and establishing a civilian Merchant Marine Reserve program. Recommendations concerning supply and logistic support are made to expedite the receipt of needed supplies and ways of cutting costs.

20 DISTRIBUTION/AVAILABILITY OF ABSTRACT	21 ABSTRACT SECURITY CLASSIFICATION
☒ UNCLASSIFIED/UNLIMITED ☐ SAME AS RPT ☐ DTIC USERS	UNCLASSIFIED
22a NAME OF RESPONSIBLE INDIVIDUAL Boger, Dan C.	22b TELEPHONE (Include Area Code) (408) 646-2607 22c OFFICE SYMBOL Code 54 Bo

DD FORM 1473, 84 MAR 83 APR edition may be used until exhausted
All other editions are obsolete

SECURITY CLASSIFICATION OF THIS PAGE

U.S. Government Printing Office 1986-606 243

Approved for public release; distribution is unlimited

The Ready Reserve Force: Is It Capable of Performing Its Mission?

by

Mary Margaret Orban
Lieutenant, United States Navy
B.S., Bowling Green State University, 1979

and

Everett John Parvin
Lieutenant, United States Navy
B.A., Chapman College, 1979

Submitted in partial fulfillment of the requirements for the degree of

MASTER OF SCIENCE IN MANAGEMENT

from the

NAVAL POSTGRADUATE SCHOOL
December 1987

Authors: Mary Margaret Orban
Mary Margaret Orban

Everett John Parvin
Everett John Parvin

Approved by: Dan C Boger
Dan C. Boger, Thesis Advisor

R. A. Weitzman
R. A. Weitzman, Second Reader

David R. Whipple, Chairman
Department of Administrative Sciences

James M. Fremgen
James M. Fremgen, Acting Dean of
Information and Policy Sciences

ABSTRACT

This thesis examines the Ready Reserve Force (RRF) from a personnel manning and supply and logistic support perspective. The history of the RRF and a discussion of its current status are included. Specifically examined is the decline in the number of merchant mariners and in the number of available billets for the mariners. Three merchant marine manning studies are evaluated and five alternatives for guaranteeing manning are discussed. In the area of supply and logistic support, the onboard shore and ship spare part inventories are evaluated for fulfillment of RRF requirements. Recommendations concerning manning include taking measures to increase the size of the U.S. flag fleet, manning Naval Auxiliary ships with merchant mariners, and establishing a civilian Merchant Marine Reserve program. Recommendations concerning supply and logistic support are made to expedite the receipt of needed supplies and ways of cutting costs.

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

I. INTRODUCTION

A. BACKGROUND

The Chief of Naval Operations (CNO) has defined strategic sealift as

> "the afloat prepositioning and ocean movement of materials, petroleum, oil and lubricants (POL), and personnel, in support of assigned logistic support missions of the U.S. Government, including the necessary handling systems and personnel to ensure delivery of cargo ashore." [Ref. 1:p. 1]

Strategic sealift support for a contingency is met through three types of shipping: prepositioned, surge, and resupply. Each type is discussed briefly below:

1. Prepositioned - Prepositioned shipping is the most responsive. Military equipment has been loaded aboard a ship and that ship has been prepositioned near a contingency area. In the event of a contingency, these ships are directed to a port to deliver their cargo to military forces which have been airlifted into the theater of operations. Examples of prepositioned shipping are the Maritime Prepositioned Squadrons and the Near-Term Prepositioned Forces.

2. Surge - Surge shipping begins immediately following the National Command Authorities decision to deploy forces. Surge shipping provides "the bulk of CONUS-based equipment and initial sustaining supplies" [Ref. 1:p. 4]. The assets which provide surge shipping lift are primarily government-controlled vessels and available commercial vessels. The ships of the Ready Reserve Force (RRF) have been designated for surge shipping.

3. Resupply - Resupply shipping immediately follows surge shipping and provides the majority of sustaining supplies to support the deployed forces. Resupply shipping will also support Navy Battle groups by replenishing station ships of the Mobile

> Logistics Support Force. Resupply shipping continues for the duration of the conflict. Assets used for resupply shipping include available commercial assets and the use of prepositioned and surge ships following their initial discharges. [Ref. 1:pp. 4, 5]

B. STATEMENT OF THE PROBLEM

The RRF is an offspring of the National Defense Reserve Fleet (NDRF). These ships are maintained in a 5-, 10-, or 20-day readiness status. In times of crises or mobilization, RRF ships will be utilized as both surge shipping and resupply shipping assets. From time to time, RRF ships are individually activated to test their abilities to perform an assigned mission or simply to test their seaworthiness within a specified time period. To date, an activation of the entire force (currently 86 ships) has not been tested.

If the entire fleet were activated, logistics problems of major dimensions could be expected. Manning for the ships would come primarily from the private sector. However, in recent years, there has been a steady decline in the number of billets for seafarers and, therefore, a fewer number of men and women entering the seafaring community. Another manning problem revolves around the age of the ships. Many of these ships are more than 20 years old and have steam-powered engines. Today's engineers are being trained in diesel engines. Many young deck hands have no experience in working the winches on self-

sustaining ships. This decline in numbers and the training of the seafarers could adversely affect the manning of the RRF ships.

Supply support for these ships could also become a major problem. The term "supply support" can be defined as the determination of requirements and the acquisition and distribution of all required material. A full inventory of required spares has never been completed for all RRF ships. Only the Military Sealift Command (MSC) retired ships have a Consolidated Shipboard Allowance (COSAL) onboard. The remaining ships, which have been purchased on the commercial market or have been upgraded from the NDRF, have to rely on past history or builders' specifications for onboard spares. Currently, available spares vary from ship to ship. There is no standard supply system for the RRF and no interface with the Navy's supply system.

C. LIMITATIONS

The status of the RRF changes on almost a daily basis with the addition and deletion of ships. Also the RRF program itself is in a period of change as certain responsibilities are changing hands among the Maritime Administration (MARAD), the Military Sealift Command (MSC), and the CNO's Strategic Sealift Division (OP-42). The information provided is current as of August 1987 unless otherwise indicated.

E. CONTENTS

This thesis shall examine specifically the ability of the RRF to perform its mission in view of the probable logistic problems of manning and supply support. Chapter II provides a history of the NDRF, the parent organization of the RRF, and the RRF. Chapter III describes the RRF program as it currently exists - manning agreements, supply support, activations, etc. Chapter IV examines the manning issues surround these ships. First, the decline in merchant mariner sailing positions is explained and the U.S. Coast Guard (USCG) minimum manning requirements are described. Next, three merchant marine manning studies are examined and their conclusions presented. Finally, five manning concepts are discussed as possible means of expanding the merchant marine labor force. Chapter V examines the supply and logistic support requirements of the RRF. The three elements of supply support are defined and the availability of each of these elements is discussed. Overseas logistic support is examined and the questions of who will support the RRF and where it will be supported are answered. The last issue presented is Sealift Enhancement Features (SEF). This portion describes what SEF are being added to RRF ships and at what cost. Chapter VI provides the conclusions and recommendations to the manning and supply support issues presented.

II. THE HISTORY OF THE READY RESERVE FORCE

A. CREATION OF THE NATIONAL DEFENSE RESERVE FLEET

Although the RRF was established only 11 years ago in 1976, the idea of a reserve fleet dates back to the end of World War II. At the end of the war, the U.S. government owned over 5,000 cargo ships. To reduce the size of this government-owned fleet, Congress passed the Merchant Ship Sales Act of 1946. This Act authorized the sale of these ships first to American buyers and then to foreign nationals. The trade-in of older vessels for credit towards the purchase of a newer war-built ship was also authorized.

After all buyers had made their purchases, a large number of ships still remained in the government's fleet; therefore, the Act was amended so that those ships which were not sold would enter a newly established National Defense Reserve Fleet (NDRF). The Act stated that the Maritime Commission was to "place in a national defense reserve such vessels owned by it as, after consultations with the Secretary of War and the Secretary of the Navy, it deems should be retained for national defense." [Ref. 2] However, the act which created the NDRF did not limit the use of these ships to defense purposes. Congress

appropriated funds to the U.S. Maritime Commission for the preservation and maintenance of these ships. When the commission was abolished in 1950, control of the NDRF was turned over to the newly established Maritime Administration (MARAD). Eight NDRF anchorage sites were established at Astoria, OR; Olympia, WA; Beaumont, TX, James River, VA; Suisun Bay, CA; Mobile, AL; Hudson River, NY; and Wilmington, NC.

The legislation authorizing the sale of the reserve ships to operators for commercial trade purposes expired on January 15, 1951. From that date on, the reserve ships could only be "sold for scrap or for non-transportation purposes or broken out only in time of a national emergency or when their use was demonstrably necessary to support U.S. national interests." [Ref. 3:p. 28]

B. SELECTED NDRF ACTIVATIONS

1. Korean War

The first activation of the NDRF ships began in 1950. The U.S. Merchant fleet provided the initial lift capacity to support the U.S. efforts in Korea. However, with the activation of the NDRF, U.S. liner firms were able to return to and continue providing service on their peacetime trade routes. A total of 778 NDRF ships were activated over an eighteen month period [Ref. 3:p. 29].

The ships were operated under General Agency Agreements (GAA). A private operator was responsible for

the crewing, overseeing of repairs, and provisioning of the ships under its contract. Because the ships were fairly new, the activation process was accomplished in as little as two days. Spare parts were generally available from the U.S. manufacturers of the equipment.

Manpower shortages was a critical problem during this period. In June 1950, there were 57,000 sea-going billets. One year later, there were 87,000 billets, a 53% increase. The plentiful, high-paying jobs ashore together with the uncertainty of future careers at sea resulted in a large number of trained seaman not responding to the call for mariners. The shortages were in licensed radio operators, engineers, and able-bodied seamen. The shortages delayed numerous sailings. [Ref. 4:p. 40]

2. Grain Storage

In early 1953, a shortage of storage space existed for suplus grain. On March 11, 1953, the Department of Agriculture requested permission to use 50 Liberty ships of the NDRF for surplus grain storage. By February 1954, MARAD turned over 317 ships in which 72 million bushels of grain were stored. The grain storage program lasted for 10 years. Throughout the program, ships were loaded, discharged, and then reloaded. At its peak in 1959, 400 NDRF ships were utilized to store 136 million bushels of grain. [Ref. 3:p. 29]

3. Suez Canal Crisis

When the Suez Canal was closed in 1956, the NDRF ships were activated once again. Ships, which normally navigated the canal, were required to go around the Cape of Good Hope. This resulted in the doubling or tripling of the nautical miles travelled by a vessel. Accordingly, shipping rates sky-rocketed. The NDRF ships were used to increase available tonnage and to drive down overall world freight rates. [Ref. 5:p. 20]

4. Vietnam War

In 1965, the shortage of commercial vessels to support U.S. efforts in Southeast Asia forced the Department of Defense (DoD) to request the activation of 14 NDRF ships. By the end of 1966, 161 NDRF ships were operating under General Agency Agreements. More than 30% of all cargo to Southeast Asia was moved in these ships. In 1970, the last of the activated ships were returned to the NDRF for further retention or future scrapping.

The age of the ships was beginning to show and impede their usage. The activation of the first 14 ships averaged 21 days each. These ships were worked on around the clock and shortcuts which were allowed by safety requirements were taken. Many of the activated ships suffered engineering casualties, most of which occurred within the first three months of operations [Ref. 5:p. 27].

As during the Korean conflict, manpower shortages adversely impacted sailing operations. Between 1965 and 1968, approximately 42% of the scheduled sailings were delayed due to personnel shortages. Reasons for the personnel shortages were attributed to

1. Lack of sufficient number of qualified crew.
2. Generous vacations requiring greater numbers of crews.
3. Reluctance to sail on older ships.
4. High attrition of licensed officers due to long periods at sea, high average ages and eligibility for retirement.
5. Inability of MARAD to have maritime personnel exempt from military service. [Ref. 5:p. 30]

C. ESTABLISHMENT OF THE RRF

By the mid-1970's, most of the ships in the NDRF were approximately 30 years old. These ships, however, were becoming more important for defense purposes. As the number of breakbulk ships in the U.S. merchant fleet was declining, the reliance on the NDRF ships as militarily-useful ships was increasing. At the same time, the quantity and quality of the ships in the NDRF were decreasing. Table 1 shows the decline from 1945-1976. Only three (Beaumont, TX, James River, VA, and Suisun Bay, CA) of the original eight ports still had ships. The value of a reserve fleet was not questioned. The past activations from the Korean to the Vietnam War had proven the usefulness of the reserve fleet concept.

TABLE 1

NATIONAL DEFENSE RESERVE FLEET

Fiscal Year	Total Ships in Fleet	Fiscal Year	Total Ships in Fleet
1945	5	1961	1,923
1946	1,421	1962	1,862
1947	1,204	1963	1,819
1948	1,675	1964	1,739
1949	1,934	1965	1,594
1950	2,277	1966	1,327
1951	1,767	1967	1,152
1952	1,853	1968	1,062
1953	1,932	1969	1,017
1954	2,067	1970	1,027
1955	2,068	1971	860
1956	2,061	1972	673
1957	1,889	1973	541
1958	2,074	1974	487
1959	2,060	1975	419
1960	2,000	1976	360

Source: Ref. 3:p. 28

MARAD and the Navy began to question the ability to activate these ships in a short period of time. In 1976, MARAD officials optimistically estimated a minimum of 22 days for activation of a Victory ship from the Beaumont, TX fleet; 20 days for a Victory ship from the James River, VA fleet; and 27 days for a Victory ship from Suisun Bay, CA [Ref. 5:pp. 7, 8, 10]. With activations ranging from a minimum of 20 days, these ships would not be able to support DoD shipping in the early stages of a contingency. The lengthy activation periods are a result of

1. Average age over 30 years
2. Ships in same condition as when laid up

3. Preservation and maintenance of NDRF ships does not include repairs, refitting, major overhauls, et cetera

4. Availability of ship repair and dry dock facilities [Ref. 6:p. 42]

To solve this problem, the Navy and the Department of Commerce (MARAD) signed a Memorandum of Understanding in November 1976 to provide for the upgrade of a portion of the NDRF. The upgraded ships would be called the Ready Reserve Force. Thirty Victory ships were chosen for the prog am. The upgrade was based on a Four Phased Plan:

Phase 1 - Preactivation - perform work so that actual activation may be accomplished in the five to ten day requirement.

Phase 2 - Deactivation - prepare the ship for return to RRF in a ready status.

Phase 3 - Active Retention in the Ready Reserve Status - work performed to maintain ships in the ready status.

Phase 4 - Activation for Service - final activation to make ships fully operational. [Ref. 4:p. 43]

The Navy transferred $5.2 million to MARAD to commence the upgrade program at the beginning of Fiscal Year 1977.

Before the 30 ships could be upgraded, MARAD had acquired newer, larger, and faster commercial ships. Five C-3 breakbulk ships, built in the early 1960's were traded into the NDRF in 1977. The following year, three Mariner class breakbulk vessels were added to the fleet. It was decided that these would be better ships to have in the RRF. In late 1978, the RRF consisted of the five C-3 class

breakbulk vessels, one intermodal ship, and one Victory ship. Additionally, plans called for upgrading eight Seatrain-type ships and 14 Mariner class ships through 1980. The total of RRF would then be 29 ships [Ref. 7:p. 4].

The RRF has grown considerably since 1980. As of July 1987, there were 85 ships in the RRF and an additional 21 ships were being processed for RRF status. Originally, the ships were located at the three NDRF locations: James River, Virginia; Beaumont, Texas; and Suisun Bay, California. Now, they are located at various ports throughout the Atlantic, Gulf, and Pacific coasts and even in Hawaii and Japan. An additional readiness status of 20 days has also been added for a small number of ships. Originally, only breakbulk ships were planned for the RRF. As new requirements have been uncovered, roll-on/roll-off ships, barge carriers, heavy lift crane ships, and tankers have been added to the fleet. Appendix A lists the ships currently in the RRF.

III. THE READY RESERVE FORCE TODAY

A. INTRODUCTION

With the exception of a tremendous increase in size, few changes have occurred in the RRF since its inception in 1977. The RRF continues to be a joint effort between the Navy and the Maritime Administration to provide cargo ships for use in a contingency within a 5, 10 and 20 day period. The Navy funds the entire RRF program and is responsible for ship acquistions and operations. MARAD is provided funds for ship maintenance and preservation and the establishment of General Agency Agreements.

This chapter will describe the RRF today: what ship types are in the RRF, how these ships are acquired, where the ships are located and what are their physical conditions, how they are activated, how parts support is provided, and how manning for these ships is achieved.

B. MISSION OF THE RRF SHIPS

The RRF is comprised of only those ships that provide the highest degree of military usefulness. In periods of mobilization, these ships provide support to deployed military forces. The RRF is activated and mobilized when the demand for sealift assets becomes greater than Military Sealift Command (MSC) capabilities. These ships supply

support capabilities to the deployed military forces through surge, resupply, and Mobile Logistics Support Force (MLSF) support.

Although the mission is the same for all ships of the RRF, fulfillment of the mission varies with the type of ship. The majority of ships in the RRF are dry cargo ships. The following are the types of RRF ships and a description of their assignments:

1. Roll-on/roll-off (RO/RO) - When used in conjunction with surge shipping, RO/RO ships are used for the initial movement of oversized combat equipment. They have the distinct advantage of fast turnaround as moving vehicles can be driven down their ramps. They normally require a developed port to discharge their cargo; however the Navy has developed a system for use in low seas that enables vehicles to be driven onto lighterage.

2. Lighter Aboard Ship (LASH) - LASH ships are used in sustaining military supplies or carrying unit equipment. They can carry lighterage on deck and up to 89 500-ton capacity barges which are hoisted aboard at the stern by a gantry crane.

3. SEABEE ships - These ships are also used in sustaining military supplies or carrying unit equipment. SEABEE ships carry 38 1,000-ton capacity barges which are loaded by a stern elevator.

4. Breakbulk - These ships are used for resupply operations. They are labor intensive and have long load and off-load times. The advantage of breakbulk ships is their self-sustainability, the ability to discharge cargo offshore by use of ships' booms and cranes. They are also capable of handling most military cargoes.

5. Auxiliary Crane Ship (TACS) - These ships give non-self-sustaining ships such as container ships the capability of off-loading in a forward area. They too may be used during surge shipping. The TACS are modified container ships outfitted with marine heavy-lift cranes. They are capable of off-loading wheeled

or tracked vehicles (including the M-1 tank) and lighters up to 110 tons [Ref. 1:p. 26]. When equipped with the Navy's Sealift Enhancement Features (SEF), consisting of sea sheds or flat racks, the TACS is able to carry a large amount of cargo.

6. Tankers - Their primary mission is to support the MLSF and their secondary mission is to support the forward deployed combattants [Ref. 1:p. 43]. Some tankers have been equipped with alongside refueling rigs.

7. Troop ship - There is only one troop ship and it will be used to deliver augmenting troops to the forward theater.

C. ACQUISITION OF SHIPS

The ships for the RRF are acquired from three sources: upgrading ships from the NDRF, ships retired from the Military Sealift Command (MSC), and direct procurement from commercial sources. Originally, the RRF was required to provide a 340,000 dead weight ton (DWT) capacity with 30 Victory ships. As more modern ships joined the NDRF, some of these ships were added to the RRF. Based on the current Five Year Defense Plan (FYDP), the size of the RRF should be 120 ships by 1992. The ultimate goal for the RRF is 136 ships, 100 of which are dry cargo ships and 36 of which are tankers. [Ref. 8]

The Chief of Naval Operations (CNO) issues a planning guidance on a yearly basis. This guidance dictates which ship types will take priority for addition to the RRF during that year.

Ships from the NDRF and the retired MSC fleet are selected for inclusion in the RRF based upon the same criteria. The ship type must be included as a priority from the CNO's planning guidance. A source selection committee examines the ship's characteristics (speed, draft, dead weight tonnage, etc.) to ensure eligibility into the RRF. Additionally, the ship should be in good physical condition. Upgrade costs along with available Operations and Maintenance (O&M) funds, also impact upon whether a ship will be upgraded to the RRF or remain in the NDRF.

Ships may be acquired from commercial sources by two different processes. First, a shipping company may turn over to MARAD a no longer commercially-viable, but militarily useful ship. As a payment, the company will then receive an equivalent tonnage of no longer useful NDRF ships for scrap purposes. [Ref. 8]

The second process is through contract purchases. The MSC contracting office will issue a Request for Proposal, indicating the types of ships desired according to the priority list. The source selection committee reviews the bids received and determines the ships' eligibility for RRF inclusion. Eligibility is based on the ship's characteristics and physical condition. The final selection is based on the priority list and the types of ships currently available in the market place. Funding for

the future purchase of commercial vessels for the RRF is contained in Table 2.

TABLE 2

FUNDING FOR RRF PURCHASES

Fiscal Year	Amount
1988	$43.4 million
1989	35.4 million
1990	62.8 million
1991	13.8 million
1992	36.9 million

Source: Ref. 8

D. LOCATION AND CONDITION OF SHIPS

Three regional locations are used for the RRF: the Eastern Region (James River) where 35 ships are assigned; the Gulf Region (Beaumont) where 29 ships are assigned; and the Western Region (Suisun Bay) where 31 ships are assigned. Although all ships are assigned to a region, they are not all physically present at that location. The majority of RRF ships in five day readiness status are located at outports. These ships are pierside in a stand-by status in different harbors throughout the country. Two ships are located in Japan, and one is located in Hawaii. A listing of ships by location and readiness status is in Appendix A. The purpose of outporting the majority of the RRF ships is to enhance and speed up the mobilization process. By dispersing these ships through the country in the time of activation, no shipyards are over-taxed in any

geographical area. Outporting also lessens the problem of manning these ships, as each outport location has a hiring hall from which crews may be drawn.

The age and condition of the ships in the RRF vary. The oldest ships were built in 1944, and the newest was built in 1979. The older ships, although physically in good condition, have antiquated equipment and systems design. An example of this is the electrical systems on the Victory and Seatrain ships. The shipboard electrical systems are direct current and require motor generator sets to provide alternating current to operate the newer electronic equipment. The newest ships, by far the most modern, are foreign-built and present a problem when manning is required due to their complex engineering design [Ref. 9:p. 2]. The median age of a RRF ship is about 23 years.

E. ACTIVATION HISTORY

From the origin of the RRF in 1977 through February 1987, 35 RRF ships have been activated. Of these 20 have been "no-notice", with the remaining 15 being "service" activations. A "no-notice" activation is initiated by a telephone call from the Navy to MARAD requesting the activation of a specific ship. These are test activations without any prior planning. A "service" activation is a planned activation where the ship is either needed for its

services or as part of a test or exercise. Two of the "service" activations, both involving Victory ships, were not initiated by the Navy. One ship was activated with a request from Congress; the other ship was activated for shipyard and general agent training [Ref. 10:p. 23].

In all but one case, the activations were completed within the expected timeframe. The one case was the result of a major boiler failure and the activation was stopped to allow for repairs. No other maintenance problems were encountered with the activations. The activations and mobilization of these ships lasted from one day to 179 continuous days, thus proving the reliability of these ships. [Ref. 10:p. 24]

In January of 1985, an activation and break-out of multiple ships from a single port was ordered. This was the first and only multiple ship break-out and it did not prove to be a total success. The three vessels activated were from the Suisun Bay Reserve Fleet outported in the port of San Francisco. It was one of these ships that developed the boiler problem during sea trials and required repairs [Ref. 10:p. 24]. Appendix B is a summary of all activations. Appendix C is the current activation plan.

F. PARTS SUPPORT

There are two types of spare parts inventories in support of the RRF vessels. The first is the on board

spare parts inventory with which the ship is equipped. These spares are normally purchased with the ship. This inventory should closely follow the Builder's Allowance List (BAL). The second is the shore-based spare parts inventory. As of January 1986, MARAD maintained a shore-based inventory for RRF use valued at over $8.9 million. This inventory is warehoused at the three reserve fleet locations and at various off-site locations. The purpose of maintaining these inventories is to support the activation of the ship and provide spare parts support for sustained operations up to 180 days [Ref. 11:p. 28].

As of June 1986, MARAD has spent over $1.3 million to conduct a physical inventory on forty RRF ships. The Office of Inspector General (OIG) completed an audit of MARAD's management and control of spare parts for the RRF on 14 April 1987. The results of this audit are as follows:

> MARAD needs to improve its management, control, and accountability of shore-based spare parts as well as those parts stored onboard RRF vessels. MARAD has accumulated over $8.9 million of shore-based spare parts without effectively managing or controlling their accountability, purchase, or use. Inventory records are incomplete and inaccurate, and spare parts are acquired without demonstrated need, inspection, or plan for their use. Although accumlated to support vessel activations and operations, no shore-based spare parts exist for almost one-half of RRF vessels, exist in excessive quantities, and may never be used. MARAD personnel also do not effectively control and account fo inventories of onboard spare parts. For the vessels we visited, significant variances existed between spare parts on hand and the inventory records, parts are not adequately labeled or identified, and security is insufficient to

preserve inventory integrity or safeguard against unauthorized use. On the average, 19 percent of the line items tested resulted in parts overages or shortages. We estimated that complete physical inventories on these vessels would identify lost accountability for parts totaling more than $660,000. Extrapolating these results to the entire fleet of 72 vessels indicates the potential for lost spare parts accountabilty amounting to $2.5 million. Also, MARAD has spent over $1.3 million to conduct and record physical inventories which are no longer valid and provide minimal benefits to parts accessibility and equipment repairs in time of need. [Ref. 11:p. 2]

In June 1987, a Joint Working Group was established between MSC and MARAD for the purpose of spare parts management of the RRF. In July 1987, a Plan of Action and Milestone (POA&M) was approved by both MSC and MARAD for completion of inventory and validation of shore and ship-board spare parts. A Ships' Allowance List (SAL) will be developed for all RRF ships. This will be a modified version of the Builder's Allowance List [Ref. 12: Attachment 3].

Spare parts are acquired by MARAD through cash purchases, procurements in conjuction with MSC vessel purchase, and transfers from MSC. MARAD has made 12 cash purchases for a total of $7.5 million, of which $4.2 million occurred during the period of June 1983 through October 1985. These parts were purchased without inspection or a demonstrated benefit of need [Ref. 11:p. 6]. MARAD's justification for these purchases is based on the age of the RRF ships and the diminishing commercial availabilty of these parts.

G. MANNING PROCEDURES

MARAD awards General Agency Agreements (GAA) for the operation and maintenance of RRF ships according to a competitive procurement process. Duties of the General Agent include the following:

1. Procure the ship's Master, subject to the National Shipping Authority's approval, as an agent and employee of the U.S. government.
2. Procure and make available to the Master, for engagement by him, the officers and crew required.
3. Equip, victual, supply, and repair the vessel.
4. Develop activation specifications in coordination with the MARAD Cognizant Regional Director (CRD) and Ship Operations Officer (SOO).
5. Hire tugboats and pilots and pay canal tolls.
6. Appoint part agents at all ports for husbanding the ship.
7. Relay voyage instructions directly to the Master, as may be required.
8. Assist, as required, in obtaining all appropriate and applicable certification and documentation for the ship, all necessary shipping documents, and all necessary port and harbor information. [Ref. 13:p. 10-1]

Upon notice of a requirement to activate a ship, MARAD notifies by telephone its regional and field offices, General Agents, seafaring unions headquarters, Reserve Fleet sites, and inspection entities. The regional offices coordinate actions with the General Agent. The specific unions for which the General Agent has manning agreements are also notified by MARAD--first by

telephone, then by telex. The telex to the union names the ship to be manned, the ship's location, the General Agent, and available information on the voyage. [Ref. 13:p. 12-1]

According to the GAA, General Agents are responsible for the crewing of the ships. The General Agents also telephone the unions with crewing requirements. The unions then contact individuals to fill the billets on each ship. Contact may be via telephone or through the use of call boards in hiring halls. The unions have agreed "to give priority to personnel with prior experience aboard the RRF ships (or ships of the same design), to the extent they can be identified and are available" [Ref. 13:p. 12-2]. To ensure a timely arrival, the unions will also assist the individual with travel arrangements, if necessary. If air travel priorities are required, MARAD will request authorization from the Federal Aviation Agency (FAA).

There is one exception to union manning of the RRF ships. The Military Sealift Command (MSC) may opt to man ex-USNS ships with civilian mariners [Ref. 13:p. 2-2]. If this happens, operational control for the vessel will be transferred to MSC. MSC will then be responsible for the ship as if it were the General Agent.

IV. MANNING THE READY RESERVE FORCE

A. INTRODUCTION

The men and women merchant mariners sailing on U.S. flag ships will be called upon to man the RRF ships upon their activations. The RRF ships are labor-intensive, with each ship averaging 40 seamen. Should the entire RRF of 136 ships be activated, approximately an additional 5,440 billets must be filled. Concurrently, U.S. flag ships will continue to operate, thereby competing for the actively sailing merchant mariners.

An important concept to understand with respect to the manning of billets is that of the seafarers per billet ratio. A seafarer does not sail on a ship for 365 days per year. The seafarer must be given time off for illness, vacations, personal business, etc. Therefore, each billet will require more than one seafarer to fill that position. An industry standard is to assume two seafarers per billet. However, during a contingency when manning levels and available billets increase, the ratio decreases. Any ratio lower than 1.5 seafarers per billet is considered to result in a shortage of manpower.

The ships in the RRF tend to be old, some dating back to the 1940's and 1950's. These ship have not been enhanced with the new technological advances and,

therefore, require more seafarers for manning purposes. Additionally, some of these ships will require extra manpower to perform their missions as Naval auxiliaries. Many of the mariners who will man the RRF ships may require special training. An example will be the seamen required to operate the ships' booms and winches--a job which is almost a lost art in the modern seafaring world. Another area of concern is a possible lack of steamship engineers as the current trend turns towards diesel motorships. Due to the decline in the number of merchant mariners and the special manning requirements for the RRF ships, recent studies indicate a shortage of mariners should the RRF be fully activated. This chapter shall examine the current status of the merchant marine, the decline in merchant mariners, the recent manpower studies, and possible solutions to the manpower shortage.

B. THE MERCHANT MARINE TODAY

During 1986, a total of 28,120 seamen shipped out on U.S. flag vessels of 1,000 gross tons and over and received a U.S. Coast Guard (USCG) discharge slip. Of these seamen, 3,708 were licensed officers filling the 3521 available billets (2.47 seafarers per billet) and 12,649 unlicensed personnel filling the 7180 available billets (1.76 seafarers per billet) [Ref. 14].

The merchant marine today is characterized by an older population. The Navy Merchant Marine Manpower study dated

July 1986 collected data on the age of the actively sailing mariners. A large percentage of mariners are over 50 years old with the exception of engineering officers. Table 3 describes the age status of mariners in 1984. It may be anticipated in the next decade that many of these mariners will retire and a large number of positions will be opening for new mariners and for those trained mariners who have been unable to find sea-going jobs. One problem which may result from the new mariners is the lack of experience, particularly in the operation of the RRF steam ships and self-sustaining ships.

TABLE 3

AGES OF MERCHANT MARINERS (as of 1984)

Skill Category	Median Age	Percentage of Workforce 59 years or older
Deck Officers	48.5	32.6%
Deck Unlicensed	55.6	36.7%
Engineering Officers	44.4	28.0%
Engineering Unlicensed	55.4	36.6%
Radio Officers	60.6	56.1%
Steward Department	57.1	42.1%

Source: Navy Merchant Marine Manpower Study, p. 8

The future for merchant mariners does not look bright. Year after year, the number of U.S. flag vessels is also decreasing along with the number of billets for seamen. Between June 30, 1966 and September 30, 1986, the U.S. Flag fleet declined 61 6%, from 1,019 ships to 391 ships

[Ref. 15:p. 98; Ref. 16:p. 9]. It is also harder for new entrants to find jobs in the industry. Only 25% of the 219 graduatess of the Merchant Marine Academy in June 1987 have received sailing positions [Ref. 17:p. 37].

C. THE DECLINE IN MERCHANT MARINERS

As shipboard operations have been enhanced by new technology and as the number of U.S. flag ships has decreased, the merchant mariner has been plagued by a substantial reduction in available sea-going billets. A desire to reduce operating costs has also negatively impacted the number of billets. Many mariners have taken jobs ashore, sometimes outside of the maritime industry.

A number of factors influence the number of actively sailing merchant mariners. First, the number of active merchant mariners is based on the number of active ships and billets in the U.S. flag fleet. Ship characteristics also affect the number of merchant mariners by increasing or decreasing the number of shipboard billets. Newer ships with high technology equipment will usually require fewer seamen than older ships. The type of service a ship performs also impacts the crew size. A self-sustaining ship, which can load and offload its own cargo, requires more personnel than a container ship which utilizes shore cranes for cargo handling.

Manning costs are a major operating expense for operators of U.S. flag ships. In an effort to be

competitive with other countries' flag fleets, operating costs must be reduced. Reductions in manning have been emphasized in recent years. This reduction is possible as technology changes, services onboard ships are reduced, and shoreside assistance increases.

Major technological changes have occurred in the engineering spaces. Of particular note are the innovations of remote control of main propulsion machinery from the bridge and an alarmed remote sensor to monitor engine operating conditions. This new technology has eliminated the requirement for a 24-hour watch. Only a minimum number of engineering personnel are required to operate such an engine room [Ref. 18:p. 31].

The advances in maintenance and repair have also resulted in a reduction in manning requirements. Epoxy paints and special coatings have reduced required deck maintenance work. Automatic monitoring devices detect malfunctions and advise which modular units need to be replaced. Potential problems can also be identified by condition monitoring systems, thus allowing repairs to be performed before the situation becomes critical [Ref. 18:p. 32].

The steward's department has also been the target for manning reductions. The traditional meal service by stewards is being replaced by a cafeteria-style mess on many ships. Personnel within the steward's department are

now performing additional functions. A cook may also be a baker. A utilityman may also work as an assistant cook.

An important function now being performed ashore is the formulation of cargo stowage plans with the use of computers. This relieves the burden which had previously belonged to the master and chief mate and thereby frees them to take care of other business. Having been relieved of these cargo responsibilities, the chief mate has replaced another deck officer standing deck watches on some ships.

These changes have reduced the number of billets available for merchant mariners. Using the traditional two seamen per billet ratio, each elimination of a billet takes away a job from two seamen. As smaller ships are being replaced by larger ships, many billets are disappearing. An example given by a MARAD employee illustrates this situation. Four older containerships with a combined crew of 160 workers could be replaced by a single containership with a crew of less than 25 people [Ref. 19:p. 6C]. Using the ratio, this would take jobs away from at least 270 seamen. Another example is the Japanese 'Pioneer Ship'. In the fall of 1987, the Japanese will begin an experiment with eleven man crews on ocean-going containerships, bulk carriers, and car carriers. The purpose of this experiment is to "study both the technical changes necessary for the small crews and the training required to fit crews for this

type of operation" [Ref. 20:p. 8]. In an effort to reduce crew size even more, the Swedish Shipowners Association has authorized a study to be performed to examine the feasibility of eight-man crews. Specifically, the study will examine "minimum manning requirements, technological necessities and the division of tasks between shore and sea staffs on three types of vessels: liners, tankers and dry cargo carriers" [Ref. 21:p. 74]. Upon completion of the written study in early 1988, sea trials will be conducted to test the study results.

D. MANNING REQUIREMENTS

Minimum manning requirements are contained in Title 46, Part 157 of the Code of Federal Regulations (CFR). Two sections are of importance in establishing manning policies. First, 46 CFR 157.20-5(a) established the division into a minimum of three watches for licensed officers, sailors, coal passers, firemen, oilers, and water tenders and 46 CFR 157.20-10 states that no licensed officer or seaman in the deck or engine department of a vessel shall be required to be on duty for more than eight hours in any one day except under extraordinary circumstances. 46 CFR 157 also requires the following minimum manning requirements:

1. One master for all oceangoing and coastwise vessels
2. Three mates for vessels over 1000 gross tons

3. One licensed chief engineer on every steam propelled vessel and seagoing mechanically propelled vessels of greater than 200 gross tons

4. At least 65% of the deck crew, exclusive of licensed officers, shall be rated as able seamen

The actual minimum manning requirements for each vessel are established by the U.S. Coast Guard's Officer-in-Charge, Marine Inspections at the time of the vessel's inspection. The guidelines of 46 CFR 157 must be adhered to by the inspector. The U.S. Coast Guard is responsible for enforcing U.S. manning requirements on U.S. flag ships.

E. MERCHANT MARINER MANPOWER STUDIES

Since 1984, three different studies have been conducted to assess the ability of the merchant marine to man reserve ships in a time of crisis/mobilization. Each study will be discussed in the following paragraphs.

1. Maritime Administration

In 1984, MARAD published a manning study entitled "Reserve Fleet Crewing Feasibility 1984-1995" [Ref. 22]. The study concentrated on the ratio of seamen ashore per sea-going billet, since it is these seamen who will man the reserve ships. At the time of the study, there were 2.5 active seamen per billet which implies that 1.5 seamen per billet are ashore at any given time.

The study projected the number of active ships and billets from 1984 through 1995. The number of seamen was

calculated for each year based on a seamen per billet ratio.

The study's conclusions were that "in terms of gross work force totals, the active peacetime seafaring work force will be adequate in mobilization to fully crew all RRF and Military Sealift Command (MSC) Reduced Operating Status (ROS) ships as well as the privately-owned fleet and the active civilian-manned government-owned fleet" [Ref. 22:p. 10]. Table 4 enumerates the study's results from a worst case analysis, assuming only two seamen per pre-mobilization billet. The numbers represent the predicted 1992 ratios of seamen ashore per billet during an RRF and ROS mobilization; therefore, any number greater than one implies no shortage.

TABLE 4

MARAD PROJECTED 1992 SEAMEN ASHORE/BILLET RATIOS

Crew Member	1992 Ratio
Deck Officers	1.48
Engineering Officers	1.44
Radio Officers	1.50
Deck Unlicensed	1.44
Engineering Unlicensed	1.35
Steward	1.43

A major drawback of this study is that only gross numbers are used. For example, engineering personnel have not been divided into experience groups such as steam engines and diesel engines; therefore, it is impossible to

determine if a shortage of steam qualified personnel may be experienced.

2. Transportation Institute

In October 1986, the Transportation Institute published a study entitled "America's Vanishing Merchant Mariners: Diagnosis, Prognosis and Prescriptions for a Strong Defense" [Ref. 23]. Although calculations were not provided, this study estimated the following personnel shortages for surge shipping operations for 1986 and 1992. The study assumed that, at any given time, only a percentage of the non-sailing mariners would be available.

1986: approximately 2,000 seamen based on 90% availability of mariners

approximately 6,000 seamen based on 75% availability of mariners

1992: between 9,000 and 10,000 seamen based on 95% availability of mariners

approximately 15,000 seamen based on 75% availability of mariners [Ref. 23:pp. 14, 15]

3. U.S. Navy

The Strategic Sealift Division of the Office of the Chief of Naval Operations (CNO) issued a study on Merchant Marine Manpower in July 1986 [Ref. 24]. This study is the most comprehensive of the three studies. Each category of crew is examined separately.

The study estimated the manpower available for 1992 using the seamen per billet ratio of 1986. Based on 100%

availability of mariners and peacetime billet requirements, separate ratios were calculated for deck officers, unlicensed deck hands, steam-experienced engineering officers, diesel-experienced engineering officers, unlicensed engineroom personnel with steam experience, unlicensed engineroom personnel with diesel experience, radio officers, and steward's department personnel. The ratios ranged from a high of 2.25 for diesel-experienced engineering officers to a low of 1.78 for the steward's department personnel.

The study assumed that, at any given time, only 90% of the merchant mariners would be available for service. The mobilization billet requirements for 1992 are based on 356 U.S. flag vessels, 20 percent of the remaining Effective U.S. Controlled ships' billets, 149 surge ships (137 RRF, 2 hospital ships, 2 aviation logistics support ships, 8 Fast Sealift Support ships), 29 prepositioned ships, and 50 common-user ships under charter to MSC.

The study assumed any seamen per billet ratio less than 1.5 would be unacceptable. "The 1.5 to 1.0 ration was considered to be only marginally adequate from a wartime planners viewpoint. ...'Ultimately, there is also a full mobilization point beyond which the work force cannot be expected to sustain operations effectively without some type of augmentation or relief.'" [Ref. 24:p. 4]

The study results indicated that shortfalls could be expected in every department with the exception of diesel-trained engineering officers. The largest shortages will occur among unlicensed deck hands and unlicensed engineering personnel trained for steam engines. Large shortages are also estimated for the steward's department. Table 5 summarizes the results of the study. The shortages were calculated as follows: first, multiply the manpower requirement by a 1.5 seamen per billet ratio, then subtract that number from the number of available mariners.

TABLE 5

MANPOWER AVAILABILITY vs. REQUIREMENTS

	1986			1992		
Skills	Availability (90%)	Req'mt	Shortfall	Availability (90%)	Req'mt	Shortfall
DECK OFFICERS	4,270	2,969	184	3,882	3,118	795
DECK UNLICENSED	8,171	6,393	1,418	7,387	7,372	3,671
ENG. OFF. (STM)	3,367	2,410	248	2,653	2,235	699
ENG. OFF. (DSL)	1,388	891	0	1,748	1,158	0
ENG. UNL. (STM)	3,535	2,995	957	2,869	2,890	1,466
ENG. UNL. (DSL)	1,199	771	0	1,428	1,008	84
RADIO OFFICERS	828	588	54	766	588	116
STEWARD DEPT.	4,821	3,611	595	4,359	3,769	1,295
TOTAL	27,579	20,628	3,456	25,092	22,138	8,126

Source: Navy Merchant Marine Manpower Study, p. iv

F. MANNING CONCEPTS

If the above shortfalls for 1992 have been accurately predicted, how can manning be provided for the ships?

There are four manning concepts currently under review by MARAD and the Navy. These are

1. Enhance the status quo
2. Expand the Merchant Marine Reserve
3. Utilize Naval Reserve units
4. Maintain a larger, active U.S. Flag Fleet [Ref. 24: p. iii]

The following paragraphs will describe and analyze each of these concepts. Additionally, the concept of manning Navy auxiliary ships with merchant mariners will be examined as a means of increasing the pool of mariners.

1. Enhance the Status Quo

This alternative places total responsibility on the General Agent and the unions to man the RRF ships upon request by MARAD. The current GAAs do not require contingency manning plans. This alternative would expand the General Agent's contractual obligation to 1) "include specific contingency manning plans in their proposals to operate surge shipping, and 2) maintain a list of additional civilian merchant mariners who could be called upon to man subsequent merchant requirements as they become operative" [Ref. 25:Encl. 1]. The operating contracts would state the size of the crews and any special qualifications and training requirements. This alternative would be available in non-mobilization as well as mobilization contingencies.

This alternative appears to be an easy, workable solution to the manning problem and its implementation could be immediate. A major advantage of this alternative is the ability to provide manning in both mobilization and non-mobilization contingencies. Costs associated with this alternative would be minimal. The costs would be included in the fixed price contract and paid by the Navy. The major disadvantage is that with the predicted shortfall, a time will come when the General Agent will be unable to provide the manning as required by the contract. What will happen under those circumstances if the government has not developed an additional source for manning? Another problem might be the ratings of available crew members. For example, a licensed engineer for diesel ships cannot be expected to fill a billet on a gas turbine or steam ship. This alternative is feasible only as a short-term solution.

2. Expand the Merchant Marine Reserve

Before discussing the expansion of the Merchant Marine Reserve program, it is important to understand the current program--how it is organized and what its mission is. The mission of the Merchant Marine Naval Reserve program is

> to establish and maintain in the U.S. Merchant Marine an organization of seagoing personnel trained in Naval organization, administration, and operational procedures to insure that effective interface and coordination are maintained with U.S. Naval forces in time of peace, national emergency, or war. [Ref. 26:p. 31]

The program consists of two elements: the Merchant Marine Individual Ready Reserve Group (MMIRRG) and the Merchant Marine Reserve Operational Command Headquarters (MMROCH) units.

Only licensed merchant marine officers, who are currently engaged in the maritime industry, are eligible for the MMIRRG. The primary source for these officers is graduates of the Merchant Marine Academy and the five state maritime academies. These graduates, under the Training and Service Agreement, are obligated to join the U.S. Merchant Marine Naval Reserve for six years and to perform one of the following: 1) sail on a U.S. flag vessel for four months every two years and perform two weeks active duty for training each year or 2) serve on active duty in the Navy or Coast Guard for three years [Ref. 27:p. 3]. MMIRRG officers serving on a U.S. flag vessel will not be mobilized unless there is an urgent requirement for their services. Those officers employed ashore may be mobilized on a case-by-case basis. Table 6 describes the composition of the MMIRRG program as of April 1987.

Eligibility for the MMROCH is extended to any Naval reservist with an 11XX designator and prior maritime related experience. These officers will mobilize to MARAD headquarters and regional offices to ensure effective liaison between the Navy and MARAD in the utilization of merchant shipping and civilian seagoing personnel.

TABLE 6

MERCHANT MARINE NAVAL RESERVE OFFICERS BY LICENSE AND AGE
(as of April 1987)

Age	Master	C/M	2/M	3/M	C/E	1/E	2/E	3/E	R
21-25	0	0	4	125	1	0	1	108	0
26-30	16	30	87	237	13	31	85	229	0
31-35	52	47	32	20	15	25	29	36	0
36-40	48	3	2	4	7	4	2	2	2
41-45	20	2	1	0	15	2	0	1	0
46-50	14	2	1	0	1	0	0	0	3
51-55	14	0	0	0	1	0	0	0	1
56-60	13	0	0	0	6	0	0	0	1
TOTALS	177	84	127	386	59	62	117	376	7

NOTE 1: Total number of reservists is 3,090. An additional 1,695 officers do not have license information on file.

NOTE 2: 2,618 officers are members of the Ready Reserve
472 officers are members of the Standby Reserve

Source: Chief of Naval Reserve, Code 3113

The alternative of expanding the Merchant Marine Reserve program will actually result in the creation of a new civilian Merchant Marine Reserve program. The Merchant Marine Act of 1936 authorizes the creation of such an organization by the Secretary of Transportation. Both licensed and unlicensed mariners will be allowed to join this program. Inactive mariners (those not sailing, but previously qualified) will also be eligible. The mission of this new reserve program would be to provide manning for shipping assets when General Agents are unable to provide manning through their normal procedures. Members of the civilian Merchant Marine Reserve program would provide

short-notice manning for ships. Each mariner would sign an agreement "to respond to calls for manning of merchant shipping in both mobilization and non-mobilization contingencies" [Ref. 25:Encl. 1]. Although there might be a slight time delay in manning the ships (the General Agents must first try to find personnel and then notify MARAD of their inability to provide a crew), this alternative would guarantee personnel to man the ships.

On the surface, this program appears feasible. There are many trained mariners who have been unable to find sea-going jobs and have since found shore-side employment. However, their skills can be questioned after not having sailed for a number of years. Can we entrust a ship to someone who has not sailed in 15-20 years or more? Will the Coast Guard provide waivers for officers to sail on expired licenses? How will the maritime industry view the concept? Will actively sailing mariners feel their jobs threatened by these reservists? Nonetheless, one advantage of the older mariners is their familiarity with the older breakbulk ships in the RRF. A newly graduated third assistant engineer may only have experience on diesel engines, while the older mariner is steamship-qualified. Another advantage is the ability to mobilize these reservists during non-mobilization situations.

The cost of establishing the new reserve program may be the biggest stumbling block. It is estimated that

start-up costs for the first year would be $190 million and $45.9 million for every year thereafter [Ref. 28].

3. Utilize Naval Reserve Units

This alternative would establish Naval Reserve units, whose mission would be to man the surge shipping ships. Reservists considered for these billets would come from the Selected Reserve (SELRES) and from the Individual Ready Reserve (IRR). Another source for manning would be retirees who are members of the Fleet Reserve. These individuals would be available during mobilization, but not necessarily during a non-mobilization situation.

To utilize the reservist in a non-mobilization situation would "require voluntary execution of special agreements beyond existing statutory Naval Reserve obligations" [Ref. 24:p. 26]. This is a major disadvantage. Another problem with this option is the limited size of the Naval Reserve program. To allow for personnel growth in the reserve program, Congressional approval is required. At a cost of $46 million per year paid by the Navy, approval is questionable if other less costly means are available [Ref. 24:p. 26]. If approval were not granted, the question must be asked if the Chief of Naval Reserves would be willing to transfer a number of his people to these units. These reservists must have sea-going skills. Therefore, the gain to the Merchant Marine units would be a loss to the Naval Surface units. How

would these reservists be trained? How would they be chosen for the program? Would the officers be required to have Coast Guard licenses? Or would that requirement be waived? Another problem is the status of the merchant ship. Once that ship is manned by military personnel, its status would change to that of a warship under international law. Although this would have little impact during mobilization, it is questionable if such a status would be beneficial during pre-mobilization and non-mobilization contingencies.

4. Maintain a Larger, Active U.S. Flag Fleet

This alternative looks at increasing the size of the U.S. flag fleet as a means of arresting the decline in the size of merchant marine labor force. If ships are not available, men and women will not enter the sea-going community. This alternative is dependent on the increase in the number of ships which will happen only as a result of an increase in cargo for carriage. According to R. W. Kesteloot, "cargo begets ships that beget seafarers" [Ref. 29:p. 3].

This alternative is preferred from the perspective of utilizing a pool of trained, actively sailing mariners to man the RRF ships. There would be little doubt as to the capabilities and qualifications of these individuals. The personnel build-up would be easily accomplished. There are currently many mariners who have found shoreside

employment because they were unable to get a sea-going billet. It may be assumed that a number of these mariners would accept a sea-going billet. Additionally, there is an annual influx of officers who are graduates from the maritime academies.

The major problem to be solved is how to get sufficient cargo to warrant an increase in shipping assets. How can the U.S. maritime industry become a viable competitor in the shipping business? Government support in the form of subsidies, the Operating Differential Subsidies (ODS) and the Construction Differential Subsidies (CDS), are almost non-existent today. No funds for CDS have been appropriated by the Congress since Fiscal Year 1981. Eighty-eight of the 372 ocean-going vessels in March 1987 were receiving ODS [Ref. 30]. In April 1987, maritime union leaders presented testimony before the President's Commission on the Merchant Marine and Defense. An overall concensus was that "cargo, specifically more cargo for U.S. flag vessels, is the key to rejuvenating this country's merchant marine" [Ref. 31]. Mr. Talmage Simpkins, executive director of the AFL-CIO Maritime Committee "urged adoption of a national cargo policy as the 'most effective and direct way of restoring an American-flag merchant marine'" [Ref. 31]. He also recommended the following:

1. Bilateral liner and bulk cargo pacts.

2. Trade agreements that reserve cargoes in the liner trades.

3. Stepped-up enforcement of cargo preference laws.

4. An end to foreign registration of U.S.-owned ships to avoid this country's taxes, labor laws and other requirements, and a halt to Defense Department reliance on such vessels.

5. An import tax on all bulk cargoes brought in by foreign-flag carriers.

6. Tougher enforcement of domestic trade restrictions especially as they affect foreign-flag cruise vessels [Ref. 31:p. ?].

Any of the first four recommendations would provide additional cargo for carriage.

An added benefit to the increase in the number of merchant mariners is the increase in available shipping assets to be used in a contingency. If more militarily-useful commercial ships are available, a fewer number of RRF ships will need to be activated and thus a smaller pool of merchant mariners will be required. If fewer RRF ships need to be maintained, the cost savings could be used to help offset the costs encountered with bilateral agreements and cargo preference laws.

5. **Manning Naval Auxiliary Ships with Merchant Mariners**

This alternative is examined as a means of expanding the pool of actively sailing merchant mariners. By manning Naval auxiliaries with merchant mariners, the number of actively sailing merchant mariners will increase due to the seafarers per seagoing billet ratio. During a

contingency, the ratio decreases. Those mariners not actively sailing on a Navy auxiliary or a commercial ship could be called upon to man the RRF ships.

This alternative will definitely create more jobs for merchant mariners. It will also enhance the abilities of the merchant mariners who will man the ships in the RRF which would be used as Naval auxiliaries. The concept of manning auxiliaries with civilians was first tested between February 7 and April 4, 1972. The SS Erna Elizabeth performed the mission of a fleet oiler by the underway refueling of some forty Navy ships. A second feasibility test was performed in December 1972. The SS Lash Italia delivered lighters to an on-station fleet stores ship of the Sixth Fleet. Both tests were considered successful by the Navy [Ref. 32:p. 42]. Currently, civilian mariners of the Military Sealift Command man approximately 30 Naval auxiliaries from fleet oilers to combat stores ships to ammunition ships to fleet tugs. These civilian mariner-manned ships have continuously performed well. Merchant mariner-manned auxiliaries could be expected to perform equally as well. The contract for the merchant manning of Navy auxiliaries would have to include certain elements to make this alternative feasible:

1. Unions would have to guarantee no strikes and provide flexibility in application of current work rules.

2. A dedicated and trained civilian manpower pool would have to be provided to ensure continuity and availability of skilled manpower.

3. Special security requirements and procedures need to be developed for civilian crews.

4. Augmented crews would be required to ensure crew endurance and survivability in high-tempo conditions [Ref. 33:p. I-4].

A military detachment such as those onboard the MSC civilian mariner-manned auxiliaries could perform those military-specific functions such as classified communications and command and control. However, is the Navy willing to turn over these ships to civilian control? Will the merchant mariners be able to perform well under wartime conditions?

In 1977-1978, Information Spectrum, Inc. studied the feasibility of civilian manning of Navy support ships at the request of the Systems Analysis Division (OP-96) of the Office of the Chief of Naval Operations. The study examined the differences among military manning, Navy civil service manning, and commercial contract manning of these ships. Figure 1 lists the advantages and disadvantages of each option. Although the Information Spectrum study did not make any recommendations, it specifically did not state that merchant mariner manning of these ships is not feasible.

PROS	CONS
Military Manning	
- Direct fleet chain of command. - Largest crew for damage control/ survivability/product delivery. - Direct line of military command. - Provides command and training billets. - Greater endurance during a war/contingency.	- Highest peacetime cost. - Lowest on-station productivity during peace time. - Peacetime OPTEMPO policies limit mission flexibility.
Naval Civil Service Manning	
- Lowest peacetime cost. - Releases military personnel to combat roles. - Peacetime ship utilization higher. - Compatible with peacetime mission of fleet.	- Reduced operational control. - No defense capability. - Lower survivability due to - fewer on-board personnel. - Loss of Navy command and training billets. - Potential endurance problems during a war/contingency. - Eventual loss of most Navy Military Manned fleet support skills.
Commercial Contract Manning	
- Cost lower than Navy Military manning. - Releases military personnel to combat roles. - Peacetime ship utilization higher. - Supports the private sector of the economy. - Potential political support from the private sector. - Compatible with peacetime mission of fleet.	- Cost higher than Navy Civil Service manning. - Least operational control. - No defense capability. - Lower survivability due to fewer on-board personnel. - Limited control over crew selection. - Loss of Navy command and training billets. - Minor contractual/legislative problems needs to be overcome. - Potential endurance problems during a war/contingency. - Eventual loss of most Navy Military Manned fleet support skills.

Source: Investigation of the Potential for Increased Use of Civilain Manning in Fleet Support Ships, Volume 1, p. 20.

Figure 1 - Pros and Cons of Manning Alternatives

G. CONCLUSION

The outlook for merchant mariners is bleak. Mariners have been plagued with ship and billet reductions since the end of World War II. Technological advances as well as a need to reduce operating costs has put the job of the merchant mariner in jeopardy. Although shortages will not occur in peacetime, it is highly questionable whether sufficient mariners will be available during a contingency or full mobilization.

The ability of the RRF to perform its mission is based on the availability of merchant mariners to man the ships. For without trained and experienced mariners, these ships are useless.

V. SUPPLY AND LOGISTICS SUPPORT

A. INTRODUCTION

This chapter will discuss the supply and logistic support required before, during, and after the activation of an RRF ship. An RRF ship requires support both onboard and ashore in order for it to perform its required tasks.

Supply support consists of three elements: spares, consumable and expendable stores, subsistence stores, and bunker. Spare parts are replacement parts kept for the purpose of repairing and maintaining the mechanical and electrical equipment onboard ship. There are two types of spare parts inventories maintained in support of the RRF, the onboard spares and the shore-based spares.

Consumables are those articles required in the operation of a ship in conjunction with the needs of its crew. Consumable items are those articles which are completely consumed after their initial use or are not fit for reissue once used. Examples of consumables are paint, grease, soap, paint brushes, mops and medicines. Expendables are those articles used in day-to-day maintenance and operation of the ship. Expendable items gradually deteriorate but require replacement due to high usage. Examples of expendables are hawsers, cables, hand tools, shackles, and binoculars.

Subsistence stores are the dry and frozen provisions that are needed for the welfare of the officers and crew while living onboard. Bunker is the fuel needed to operate the main propulsion plant of the ship. In some cases, bunker may also be additional fuel taken on-board to replenish other ships.

The term "logistics support" is used in this chapter to refer to the availability of the supplies and the means of acquiring them. This support will include what is available overseas and in the present supply system used by the RRF.

Sealift Enhancement Features (SEF) are also included in this chapter. Although the SEF program is not an integral part of supply or logistic support, it is directly related to both in the support of the RRF ships. Not all ships which enter the NDRF and RRF are militarily useful. The addition of sealift enhancement features changes the profile of the cargo the ships can carry and their ability to be replenished. The problems to be discussed are the availability of the SEF to the RRF and the costs involved.

B. PARTS AND MAINTENANCE AVAILABILITY

The inadequacies of the onboard and shore-based spare parts inventories maintained by MARAD was discussed in Chapter III. To rectify this situation, MARAD has installed a RRF-Management Information System (MIS) on

their mainframe computer. Once the validation of the inventory of repair parts is completed, this information can be placed into the system and accessed by all concerned [Ref. 34:p. 3].

The acquisition of spare parts, which have a demand requirement but no stock on hand, was evaluated by Stanley Associates in a study conducted for MARAD. The bottom line of their findings was, if the ship and its equipment are not part of the operating world environment, they are not generating a consumption demand. This means that the parts are not stocked in the commercial support sector. [Ref. 35:p. 3-9]

Spare parts for engineering are broken down into three categories. The first is the category of parts which generate a relatively high consumption demand such as bearings, seals, and governor parts. Spare parts in this category are usually stocked onhand and are readily available from the manufacturer. The second category is those parts which do not have a high enough demand or are too costly to maintain a manufacturer's inventory. The last category is those support parts which are manufactured by a different company than the supplier of the equipment they are used with. Parts which fall into categories two or three can expect lead times ranging from 17 to 36 weeks. [Ref. 35:p. 3-10]

A study of merchant ship spare parts provisioning was also conducted by Mystech Associates. The conclusion from their report is as follows:

> It has been confirmed that the principal owner procurement problem is the long lead time necessary for certain key items. This can be partially attributed to the small portion of total business provided to most manufacturers by the maritime industry as a whole. For this reason, manufacturers will not interrupt industrial or commercial production runs in order to produce a single unit for a vessel. [Ref. 36]

Maintenance or shipyard support is more important than supply support. The ships of the RRF have a very limited time period in which to be activated. Supply support for major equipment would be useless if the shipyards were not available to facilitate repairs. A standard practice is to outport RRF ships in close proximity to yards which are able to meet demand requirements in case of a general mobilization. The capabilities of 66 shipyards in a mass mobilization environment was evaluated by MARAD. It was concluded that a mobilization of 117 RRF vessels could be handled by the 66 yards by the late 1980's and the early 1990's [Ref. 37:p. 7]. Table 7 is the number of yards and in what regions they are located.

TABLE 7

SHIPYARD REGIONS AND NUMBERS SURVEYED

REGION	NUMBER
East Coast	30
Gulf Coast	9
West Coast	19
Great Lakes	4
Outside CONUS	4

Source: Ref. 37:p. 7

C. CONSUMABLE AND EXPENDABLE STORES

An integrated listing of consumables and expendables has been compiled by MARAD for most RRF ships. These listings show, by line items, the required inventories versus the onhand inventories. Each line item is keyed to support a different ship department. The listings support approximately 60% expendable items and 40% consumable items proportionately (Ref. 35:p. 3-13). Table 8 lists the total number of deficient line items for five sample ships from the Norfolk area. Tables 9, 10, and 11 depict line item requirements versus onhand inventories for these sample ships. To fully provision these ships to the required allowances would demand large replenishment orders by General Agents.

TABLE 8

LINE ITEM DEFICIENCIES FOR A SAMPLE OF FIVE SHIPS

Ship Name	Number of Line Items Deficient
Cape Alava (CA)	1,849
Austral Lighting (AL)	1,848
Catawba Victory (CV)	1,551
Chattahoochee (C)	1,841
Pioneer Contractor (PC)	1,867

Source: Stanley Associates, Technical Report 22-86, p. 3-8

TABLE 9

LINE ITEM (LI) REQUIREMENTS VERSUS ONHAND INVENTORIES

Requirement vs. Inventory Status	SHIP CA	AL	CV	C	PC
Total # of LI Listed:	2,211	2,343	1,990	2,644	3,081
# of LI with Finite Rqmt Stated/% of Total # of LI Listed	2,083 (94%)	2,334 (100%)	1,990 (100%)	2,010 (76%)	2,358 (77%)
# of LI with a Zero Rqmt Stated/% of Total # of LI Listed	128 (6%)	9 NIL	0 NIL	634 (24%)	723 (23%)

Source: Stanley Associates, Technical Report 22-86, p. 3-8

TABLE 10

LINE ITEMS (LI) WITH A FINITE STATED REQUIREMENT

Requirement vs. Inventory Status	SHIP CA	AL	CV	C	PC
# of LI with 100% or More Coverage of Stated Rqmt/% of LI with Stated Rqmt	234 (11%)	486 (21%)	439 (22%)	169 (8%)	491 (21%)
# of LI with Partial Coverage of Stated Rqmt/% of LI with Stated Rqmt:	100 (5%)	60 (2%)	25 (1%)	74 (4%)	170 (7%)
# of LI with Zero Stock Held Against Stated Rqmt/% of LI with Stated Rqmt:	1,749 (84%)	1,788 (77%)	1,526 (77%)	1,767 (88%)	1,697 (72%)

Source: Stanley Associates, Technical Report 22-86, p. 3-8

TABLE 11

LINE ITEMS (LI) WITH A ZERO STATED REQUIREMENT

Requirement vs. Inventory Status	SHIP CA	AL	CV	C	PC
# of LI with Zero Rqmt Stated and Zero Stock Aboard/ % of LI with Zero Stated Rqmt:	0 NIL	0 NIL	0 NIL	4 (4%)	0 NIL
# of LI with Zero Rqmt Stated but with Stock Aboard/% of LI with Zero Stated Rqmt:	128 (100%)	9 (100%)	0 (100%)	630 (99%)	723 (100%)

Source: Stanley Associates, Technical Report 22-86, p. 3-8

Consumable and expendable resources are purchased primarily from commercial supply sources. Due to the large demand base for these products, suppliers maintain stocks to meet the customer demand. This implies that there will be either no lead time or a very short lead time in acquiring these items.

Charts and navigational publications are considered to be expendable items. The timely availability of these might pose a serious problem in a large activation of the RRF. For a specific item, suppliers normally stock only one or two. The Defense Mapping Agency (DMA) would have to be contacted at the earliest opportunity to supplement what is available in the civilian market. [Ref. 35:p. 3-20]

D. SUBSISTENCE STORES AND BUNKER

With the exception of one ship in the RRF, no subsistence allowance lists exist. Subsistence requirements would vary from ship to ship as well as from Agent to Agent. General Agents were presented with questionnaires to determine the initial loadouts in days of supply ranges for RRF ships. Table 12 is the results of this survey.

TABLE 12

SUBSISTENCE SURVEY RESULTS

Item Category	Days of Supply
Dry Provisions	120-180
Frozen Provisions	120-180
Meat & Poultry	120-180
Fresh Produce	60
Dairy	60-90

Source: Stanley Associates, Technical Report 22-86, p. 3-22

The number of subsistence line items carried by a merchant ship is approximately 400-425 items. There is presently a large enough peacetime demand base to support the RRF in the event of activation. [Ref. 35:p. 3-22]

The two primary bunker fuels that will be required for the RRF are residual bunker and middle grade distillate bunker. The majority of the ships in the RRF are powered by steam and will require residual bunker fuel. The remainder of the ships are diesel-powered and require middle grade distillate fuel.

To establish if the bunker requirements would be met in a mass activation, the activation of 16 RRF ship in the Norfolk area was simulated. It was assumed that no bunker fuel was aboard these ships and a full bunker load would be required. The total requirements for these ships would be 285,540 barrels of residual fuel in the time frame of 20 days [Ref. 35:p. 3-22]. The primary bunker fuel suppliers in the Norfolk area have a combined storage capacity of 1,014,000 barrels of bunker grade fuels. As long as the resupply of bunker fuel is uninterrupted at the commercial fuel terminals, there will be enough bunker fuel available to support the RRF [Ref. 35:p. 3-23]. All ships of the RRF are located in areas which support large volumes of commercial shipping. It can be assumed by the Norfolk simulation that all of these areas will be able to support the RRF bunker requirements. There is an extra measure of bunker assurance if the DOD-owned prepositioned bunker stocks are taken into account.

E. OVERSEAS SUPPORT

Until recently strategic sealift has taken a backseat to strategic airlift when it came to securing Federally-funded programs. The U.S. Navy, realizing that the dwindling U.S. maritime posture would ultimately affect the nation's sealift capability, has committed itself to increasing the size of the RRF. An increase in government

owned ships is a step in the right direction, but it alone will not guarantee a sufficient sealift capability. These ships must be sustained overseas when mobilized in periods of crisis. This sustenance will have to include repairs, resupply, and bunkering.

In times of crisis, the Navy will deploy an afloat Intermediate Maintenance Activity (IMA) (tenders and repair ships) to the area of conflict. These IMA's will provide only limited support to the merchant ships of the RRF. The IMA's are not able to carry all the repair parts which are unique to each of the differently configured RRF ships. They are also constrained by the training their personnel have received in the repair of different merchant vessels. [Ref. 38:p. 3]

COMSCEUR has provided access to public and private ship repair facilities for the RRF throughout the European theater. These facilities, in accordance with numerous Master Ship Repair Agreements, are under contract to the Naval Regional Contracting Office, Naples, Italy. Merchant shipping under MSC operational control will be provided support in the way of ship maintenance, repair parts and repairs. In the Western Pacific, the RRF will be supported by U.S. facilities in Japan, Guam, and the Republic of the Philippines. There are also numerous foreign-owned ship repair facilities in Japan, Singapore, Taiwan, and Korea which could provide merchant ship support. [Ref. 38:p. 3]

The location of the theater of operation will have an effect on the availability of consumable, expendables, subsistence, and bunker. If the RRF ships travel the established trade routes, the availability of these commodities has been proven by peace time trade [Ref. 35: p. 4-4]. Various improvisations will be derived if the theater of operation is in an undeveloped area. The prepositioned ships of MSC could supply the bunker and subsistence to the RRF and the Navy supply and distribution system could fill the remaining void [Ref. 38:p. 3].

F. RRF SUPPLY SYSTEM

The responsibility for the operation and maintenance of the RRF ships goes to the General Agents. The General Agent, who wishes to obtain a spare part to effect a repair or purchase provisions, must submit a requisition directly to MARAD for approval. If the spare is not available in MARAD's inventory, the General Agent will locate an outside source of supply. Once the source and part are approved by MARAD, the General Agent will make the purchase and the funds expended will be reimbursed by MARAD. Almost all of the General Agents' costs will be reimbursable. Reimbursable supply-related costs include spare parts, equipment, subsistence stores, bunker, consumables, expendables, transportation, salary, and fringe benefits [Ref. 35:p. 2-14].

MARAD is not included in the Defense Priorities and Allocations System (DPAS); therefore, the ships of the RRF, while under MARAD's control, do not have a defense rating. This could present problems for the General Agents in the case of full scale activation when trying to secure supplies. A defense rating insures priority over the commercial customers who are not performing a defense mission.

MSC does have a defense rating for sealift. Purchase orders for spare parts initiated by MSC contractors will receive priority over the General Agents under contract to MARAD. Once a RRF ship is activated and is ready for loading, it is assigned to MSC. The ship is then assigned a Unit Identification Code (UIC) and entered into the Unit Status and Identity Report (UNITREP) system. This will ensure that the ship's mission readiness status is reported to the Joint Chiefs of Staff (JCS) and Fleet Commanders in Chief (FLTCINCs). MSC as a Navy type commander (TYCOM), Commander Military Sealift Command (COMSC) is responsible for the logistic support of all ships in his command. This includes the responsibility of spare parts and other support items when they are not otherwise available [Ref. 35:p. 2-4].

Although a RRF ship is tendered to MSC, its General Agents are still under contract with MARAD. The supply requisitioning policy of these ships will not change. The

difference is now that MSC will assist in providing logistic support to these ships if they are unable to perform their mission. The procedures for the transfer or sale of spare parts from a Navy ship to a ship controlled by MARAD or MSC is found in Afloat Supply Procedures, NAVSUP P-485 paragraph 5055 [Ref. 35:p. 5-24].

G. SEALIFT ENHANCEMENT FEATURES

The purpose of the Sealift Enhancement Features Program (SEF) is to modify merchant ships with structure and equipment changes to allow them to perform specific military missions. The Strategic Sealift Division states

> As now planned, the enhancements fall into three categories. The first is Productivity Enhancements which expand the capabilities of merchant ships to handle military cargo by providing increased flexibility for military support, i.e., SEA SHEDS, flatracks and alongside refueling systems. Secondly, Survivability Enhancements, which provide increased probability of survival in a hostile environment, include internal communications and damage control features. Thirdly, Operational Enhancements will improve coordinated operations with fleet combatants and support units. These include communication and lighting requirements for convoy operations. [Ref. 1:p. 37]

SEF are being installed on RRF ships over a period of several years. The SEF modifications will be required immediately upon mobilization. These features must be added prior to mobilization or during activation. The SEF presently being added to RRF ships include Communication SEF, alongside refueling rigs, underway replenishment (UNREP) consolidation rigs (breakbulk), UNREP delivery rigs (breakbulk, container), and general features. General

features consist of lighterage mooring bitts, cargo tie-downs, siderails for lighterage, and container hardpoints. The SEF for the RRF is being progressively funded by the Navy Strategic Sealift budget [Ref. 37:p. 8]. The July 31 1987 report on the status of RRF and TACS funds shows that for FY 1987, $6,822,000 was received for the purpose of Sealift Enhancement [Ref. 39:Enc. 2].

H. CONCLUSION

Once an RRF ship is placed in an operating environment, supply and logistic support will be obtained. It is the ships awaiting activation which encounter problems of parts support. Until MARAD produces an validated inventory of onhand spare parts, it is impossible to know to what depth these ships are supported. The civilian market is capable of handling the surge of activations. With the decline of merchant shipping in the U.S., suppliers of consumable, expendable, and subsistence stores have lost business. They would gladly meet the demands of RRF activations.

VI. CONCLUSIONS AND RECOMMENDATIONS

A. CONCLUSIONS

The RRF is a valuable asset, which provides fast, reliable support to deployed military forces. These ships will provide both surge and resupply shipping in the event of a contingency. As the size of the active U.S. flag fleet continues to decline, the military dependence on the RRF increases proportionately.

For the RRF to perform its assigned mission, supply and logistical support is required. Another area of importance is the manning of the ships. If either supply and logistical support or manning is lacking or insufficient, these ships cannot be expected to perform their mission.

1. Manning

Without trained merchant mariners, these ships cannot be sailed. However, the number of actively sailing merchant mariners is declining year after year. This situation is a result of technological advances, personnel cut-backs to reduce operational costs, and the decline in the U.S. flag fleet.

Another problem to be encountered in the manning of the ships is the skills required of the mariners. The ships of the RRF tend to be old and less technologically-advanced. Many are self-sustaining steamships. The seamen

of today are trained on technologically-advanced, non-self-sustaining diesel ships. Only the older mariners have the required expertise to operate the RRF ships and many of these mariners are near retirement.

Recent studies indicate that manpower shortages will occur if the entire RRF were to be activated. The most comprehensive study, the Navy Merchant Marine Manpower Study of July 1986, forecasted the decline in the U.S. flag fleet and in merchant mariners and concluded that, in 1992, shortages could be expected in every field with the exception of diesel engineers.

2. Supply and logistics support

The ships of the RRF are facing a crisis in supply support. Without each ship having a listing of required spares and other supply items necessary for sustained operations, it is impossible to determine if they are ready for mission requirements. This problem is compounded by the inaccuracies in the spare parts inventories that MARAD holds. If a ship in a 10 day readiness status requires a part that has a three week lead time, then the ship's readiness is really three weeks. This could easily be the case if a part listed on MARAD's present inventory is not there or not in satisfactory condition.

The integrated listings of consumables and expendables indicate deficiencies which exceed what should be expected of a ship in a 5 day readiness status. These

items are available on the commercial market; therefore, the General Agents have no excuse for such shortages.

Supply and logistic support is available both in CONUS and overseas in support of the RRF. They will be able to perform their assigned missions only if first, MARAD corrects the inventory problems they now face and second, if the General Agents assigned to the RRF ships are held accountable for the ships' readiness.

B. RECOMMENDATIONS

1. Manning

Chapter IV examined the decline in the merchant marine and discussed five methods of increasing the number of actively sailing merchant mariners. Figure 2 is a brief overview of each method. Based on the five methods, the following recommendations are offered:

a. First and foremost, measures must be taken to increase the size of the U.S. flag fleet. Subsidies and cargo preferences may be used to foster the growth. Only through a larger fleet can the number of merchant mariners increase naturally. These mariners are best qualified to man the RRF ships and are available during a mobilization as well as a non-mobilization. Another advantage to the increase in the number of ships is that a fewer number of RRF ships will be required; therefore, fewer merchant mariners will be required for manning the RRF ships.

b. Second, the Navy and the MSC should consider contracting out a portion of the auxiliary ships for merchant mariner manning. If that is unacceptable, then more Naval auxiliaries could be manned by the civilian mariners of the MSC. This approach would increase the number of merchant mariners and provide them with valuable training. These mariners are available during non-mobilization and mobilization situations.

	CREWS AVAILABLE MOBILIZATION AND NON-MOBILIZATION	PROVIDES CREW ON URGENT BASIS	INCREASES NUMBER OF U.S. MERCHANT MARINES	COST PER YEAR (FY-87$)
ENHANCE STATUS QUO	YES	YES (MODERATE CONFIDENCE)	NO	UNKNOWN
EXPAND MERCHANT MARINE RESERVE	YES	YES (HIGH CONFIDENCE)	NO	$46M
UTILIZE NAVAL RESERVE	NO	YES (MOBILIZATION ONLY)	NO	$46M
MAINTAIN LARGER U.S. FLAG FLEET	YES	YES (HIGH CONFIDENCE)	YES	UNKNOWN
MAN NAVAL AUXILIARIES WITH MERCHANT MARINERS	YES	YES (HIGH CONFIDENCE)	YES	UNKNOWN, ASSUME COST SAVINGS

Figure 2 - Overview of Manning Concepts

c. A Merchant Marine Civilian Reserve program should be established as a back-up source of manpower should the number of sailing mariners be insufficient to man the RRF ships. Both licensed and unlicensed and sailing as well as non-sailing mariners should be included in the program. The program should ensure the mariner's skills and licenses or certificates are kept current and specific training for manning the RRF ships be provided. These mariners would also be available in a non-mobilization as well as mobilization situations.

2. Supply and logistics support

a. The supply and inventory problems, which the RRF faces as described in the conclusions, is being rectified with a joint working group between MARAD and MSC. If the ships of the RRF are to be used for military purposes, a much closer relationship between MARAD and MSC is needed. The contractors that operate these ships should have an interface with the Navy Supply System and access to the government supply activities. This would not only cut down on the time to receive parts, but produce a large cost savings as well.

b. The RRF does not have a standardized supply system. Each agent determines his ship's needs and locates his own source of supplies. An accountable supply system, similar to the Navy's, needs to be developed and implemented for the RRF. MARAD should also have a defense rating. Inclusion of the RRF in the Defense Priorities and Allocation System would eliminate competition with government agencies of lower priorities.

c. In each region, there are numerous chandlers who supply consumables, expendables, and subsistence stores to merchant ships. Presently, the agents of RRF ships choose the chandler whom they feel will fill their needs and then submit a requisition. A coordinated effort should be made, using the lowest of three bids, to determine which chandlers will supply the RRF ships in each region. This will ensure that stores will be availavble and at specified contract costs.

d. General agents need to be held accountable for all items purchased with government money. High cost spares have been found ordered, never to be used or needed. High value expendable items such as

binoculars and navigation equipment are constantly being replaced due to pilferage. A security system needs to be implemented for the control of these items.

e. A final recommendation is that a ranking system be developed for critical equipment. Merchant ships, unlike military ships, normally do not have to be concerned about mission critical equipment. A priority ranking system of equipment will ensure spare parts support when these ships are entered into the UNITREP system.

APPENDIX A

SHIPS OF THE READY RESERVE FORCE (as of July 1987)

EASTERN REGION

5 DAY STATUS

Ship Name	Location
SS Agent	James River, VA
SS Cape Alava	James River, VA
SS Cape Alexander	Jacksonville, FL
SS Cape Ann	Quonset Point, RI
SS Cape Archway	Baltimore, MD
SS Cape Avinof	Quonset Point, RI
SS Cape Canaveral	Portland, ME
SS Cape Canso	Norfolk, VA
SS Cape Carthage	Melville, RI
SS Cape Catoche	Providence, RI
MV Cape Decision	Baltimore, MD
MV Cape Diamond	Brooklyn, NY
MV Cape Domingo	Brooklyn, NY
MV Cape Douglas	Jacksonville, FL
MV Cape Henry	James River, VA
MV Cape Hudson	James River, VA
SS Keystone State	Cheatham Annex, VA
SS Lake	Philadelphia, PA
SS Patriot State	Buzzards Bay
SS Pride	Philadelphia, PA
SS Scan	Philadephia, PA
Ex-USNS Southern Cross	Philadelphia, PA

10 DAY STATUS

SS Adventurer	James River, VA
SS Aide	Quonset Point, RI
SS Ambassador	Cheatham Annex, VA
SS American Victory	James River, VA
SS Banner	James River, VA
SS Courier	James River, VA

20 DAY STATUS

GTS Admiral W. Callaghan	James River, VA
SS Santa Barbara	James River, VA
SS Santa Clara	James River, VA
SS Santa Cruz	James River, VA
SS Santa Elena	James River, VA
SS Santa Isabel	James River, VA
SS Santa Lucia	James River, VA

GULF REGION

5 DAY STATUS

Cape Farewell	Mobile, AL
Cape Flattery	Mobile, AL
Cape Florida	Mobile, AL
SS Cape May	New Orleans, LA
Cape Mendocino	New Orleans, LA
Cape Mohican	New Orleans, LA
SS Del Monte	Beaumont, TX
SS Del Viento	Beaumont, TX
SS Gulf Shipper	Beaumont, TX
SS Gulf Trader	Beaumont, TX
Ex-USNS Potomac	Beaumont, TX

10 DAY STATUS

Ex-USNS American Explorer	Beaumont, TX
American Osprey	Beaumont, TX
Cape Beaumont, TX	
SS Cape Chalmers	Beaumont, TX
SS Cape Charles	Beaumont, TX
SS Cape Clear	Beaumont, TX
SS Cape Cod	Beaumont, TX
SS Del Valle	Beaumont, TX
SS Gulf Banker	Beaumont, TX
SS Gulf Farmer	Beaumont, TX
SS Gulf Merchant	Beaumont, TX
SS Hattiesburg Victory	Beaumont, TX
SS Maine	Beaumont, TX
SS Pioneer Commander	Beaumont, TX
SS Pioneer Contractor	Beaumont, TX
SS Pioneer Crusader	Beaumont, TX
SS Santa Ana	Beaumont, TX
SS Washington	Beaumont, TX

WESTERN REGION

5 DAY STATUS

SS Austral Lightning	San Francisco, CA
SS California	Alameda, CA
SS Cape Blanco	Tacoma, WA
SS Cape Bon	San Pedro, CA
SS Cape Borda	Richmond, CA
SS Cape Bover	Richmond, CA
SS Cape Breton	San Francisco, CA
MV Cape Ducato	San Pedro, CA
Cape Edmont	Portland, OR
MV Cape Horn	Suisun Bay, CA
SS Cape Isabel	Portland, OR
Ex-USNS Comet	Portland, OR
SS Gem State	Tacoma, WA
Grand Canyon State	Portland, OR
SS Jupiter	Tacoma, WA
Ex-USNS Meteor	Los Angeles, CA
Ex-USNS Northern Light	Portland, OR

10 DAY STATUS

Ex-USNS MS Alatna	Yokohama, Japan
Ex-USNS MS Chattahoochee	Yokohama, Japan
Ex-USNS MS Nodaway	Pearl Harbor, HI
Ex-USNS Shoshone	Suisun Bay, CA

SHIPS BEING PROCESSED FOR RRF STATUS

NAME	DATE	LOCATION	STATUS
Edward Rutledge	DTBD	Beaumont, TX	5
Benjamin Harrison	DTBD	Beaumont, TX	5
Gopher State	12/15/87	N/A	N/A
Flickertail State	1/15/88	N/A	N/A
Cornhusker State	3/16/88	N/A	N/A
Buyer	12/31/87	Mobile, AL	10
Mormacsea	1/15/88	James River, VA	10
Mormacsaga	1/15/88	James River, VA	10
President Truman	11/15/88	N/A	N/A
American Banker	2/15/89	N/A	N/A
American Altair	9/15/89	N/A	N/A
American Draco	11/15/89	N/A	N/A
Spirit of Liberty	11/15/87	Beaumont, TX	N/A
Falcon Lady	12/07/87	Beaumont, TX	N/A
Tyson Lakes	8/13/87	New Orleans, LA	N/A
Rapid	12/07/87	U.S. Gulf	N/A
Federal Lakes	N/A	N/A	N/A
Federal Seaway	N/A	N/A	N/A
President Adams	12/04/87	Suisun Bay, CA	N/A
President Taylor	12/07/87	Suisun Bay, CA	N/A
President Jackson	12/07/87	Suisun Bay, CA	N/A

SOURCE: MARAD Draft Message to Military Sealift Command on July 1, 1987.

RRF ACTIVATION HISTORY

02/03/87
Compiled by MAR 742

VESSEL	GENERAL AGENT	FLEET/ OUTPORT	TYPE OF ACTIVATION	ACTIVATION COMMENCED	ACTIVATION YARD	NO. OF DAYS TO ACTIVATE	ACT. COMP. OPERATIONS COMMENCED	NO. DAYS OPS USE	OPERATIONS USE	OPERATIONS COMPLETED	DE-ACT COMMENCED	DEACTIVATION YARD	DE-ACT DAYS	RETURN TO RRF
1 WASHINGTON	Hudson	[illegible]	Service	Sep 25, 77	N/A - Del. by MSC	N/A	Oct. 8, 77	55	REFORGER 77- Bremerhaven	Nov 10, 77	Nov 10, 77	Todd, NOLA	95	Feb 13, 78
2 [illegible]	Marmac	JRRF	No Notice	May 7, 78	NORSHIPCO	10	May 17, 78	1	Seatrial Only	May 17, 78	May 17, 78	NORSHIPCO	34	Jun 20, 78
3 MAINE	Cona Trans	RRF	Service	Nov 20, 78	Colonna's	28	Dec 18, 78	99	REFORGER 79- Bremerhaven	Mar 15, 78	Mar 26, 78	Coastal Marine	70	Jun 4, 78
4 WASHINGTON	Hudson	RRF	No Notice	Dec 5, 78	Coastal Marine	6	Dec 11, 78	1	Seatrial Only	Dec 12, 78	Jan 3, 79	Coastal Marine	44	Feb 16, 79
5 WASHINGTON	Hudson	RRF	Service	Jul 24, 80	Bender	26	Aug 19, 80	72	REFORGER 80/ TEAMWORK 80- Bremerhaven	Oct 30, 80	Oct 30, 80	Todd, NOLA	89	Jan 27, 81
6 [illegible]	APL	SRRF	No Notice	Aug 11, 80	Todd, Alameda	4	Aug 16, 80	158	PHIBLEX 81	Jan 10, 81	Jan 10, 81	Triple A, SFO	33	Feb 12, 81
7 CATAWBA VICTORY	Aubson	JRRF	No Notice	Jul 16, 81	NORSHIPCO	6	Jul 22, 81	1	Seatrial Only	Jul 23, 81	Jul 23, 81	NORSHIPCO	29	Aug 21, 81
8 WASHINGTON	Cona Trans	RRF	No Notice	Jul 16, 81	Coastal Marine	6	Jul 22, 81	1	Seatrial Only	Jul 22, 81	Jul 27, 81	Coastal Marine	120	Nov 24, 81
9 PRESIDENT	APL	SRRF	No Notice	Jul 16, 81	Triple A, SFO	8	Jul 24, 81	1	Seatrial Only	Jul 24, 81	Jul 24, 81	Triple A, SFO	32	Aug 25, 81
10 OHIO	Cona Trans	JRRF	No Notice	Feb 16, 82	Moon Engr., Norfolk	5	Feb 21, 82	76	GALLANT EAGLE 82- Long Beach, CA	May 6, 82	May 7, 82	NORSHIPCO	68	Jul 14, 82
11 LONE STAR MARINER	Farrell	JRRF	No Notice	Sep 2, 82	NORSHIPCO	10	Sep 12, 82	39	REFORGER 82- Bremerhaven	Oct 21, 82	Oct 22, 82	MD SHIP	61	Dec 22, 82
12 CAPE ALEXANDER	Amer For	JRRF	No Notice	Jul 14, 83	NORSHIPCO	10	Jul 24, 83	64	DOD Cargo Lift N. Europe/Honduras	Sep 26, 83	Sep 26, 83	NORSHIPCO	52	Nov 17, 83
13 CALIFORNIA	APL	SRRF	No Notice	Sep 7, 83	Serv Eng, SFO	5	Sep 12, 83	57	BOLD EAGLE 83- Pensacola	Nov 8, 83	Nov 8, 83	Triple A, SFO	30	Dec 8, 83
14 PIONEER CRUSADER	USL	RRF	No Notice	Feb 8, 84	Coastal Marine	7	Feb 15, 84	49	DOD Cargo Lift N. Europe/Honduras	Apr 3, 84	Apr 3, 84	Alabama Dry Dock/ Coastal Marine	169	Sep 19, 84
15 KEYSTONE STATE	IOM	JRRF	Service	Apr 25, 84	N/A - Del. after conversion at Bay S/B	N/A	Apr 25, 84	170	JLOTS II- Cape Henry	Oct 12, 84	Oct 15, 84	Cheatham Annex	1	Oct 16, 84
16 WASHINGTON	Cona Trans	RRF	No Notice	May 29, 84	Coastal Marine	10	Jun 8, 84	17	AHAUS TARA- Honduras	Jun 25, 84	Jun 27, 84	Alabama Dry Dock/ Coastal Marine	211	Jan 24, 85
17 CAPE ANN	Amer For	JRRF	Service	Aug 22, 84	NORSHIPCO	19	Sep 10, 84	36	JLOTS II- Cape Henry	Oct 16, 84	Oct 16, 84	NORSHIPCO	35	Nov 20, 84

RRF ACTIVATION HISTORY

/2
02/03/87
Compiled by MAR 742

VESSEL	GENERAL AGENT	FLEET/ SUPPORT	TYPE OF ACTIVATION	ACTIVATION COMMENCED	ACTIVATION YARD	NO. OF DAYS TO ACTIVATE	ACT. COMP. OPERATIONS COMMENCED	NO. DAYS OPS USE	OPERATIONS USE	OPERATIONS COMPLETED	DE-ACT COMMENCED	DEACTIVATION YARD	DE-ACT DAYS	RETURN TO RRF
[illegible]	[illegible]	RRF	No Notice	Jan 2, 85	Coastal Marine	9	Jan 11, 85	55	Honduras	Mar 5, 85	Mar 5, 85	Coastal Marine	63	May 9, 85
[illegible]	APL	SBRF	No Notice	Jan 29, 85	Serv Eng, SFO	4	Feb 2, 85	80	TEAM SPIRIT 85- Korea & Japan	Apr 21, 85	Apr 23, 85	Triple A, SFO	53	Jun 11, 85
[illegible]	APL	SBRF	No Notice	Jan 29, 85	Todd, SFO	5	Feb 3, 85	74	TEAM SPIRIT 85- Korea & Japan	Apr 16, 85	Apr 16, 85	Triple A, SFO	23	May 9, 85
[illegible]	APL	SBRF	No Notice	Jan 29, 85	Triple A, SFO	71	Apr 10, 85	1	Seatrial Only	Apr 16, 85	Apr 16, 85	Triple A, SFO	21	May 2, 85
[illegible]	[illegible]	NDRF	ITest - by Request of Congress]	Feb 22, 85	Todd, Gal. - D/D Houston S.R. - T/S	102*	Jun 5, 85	42	CABANAS 85- Honduras	Jul 15, 85	Jul 22, 85	Beaumont R. F.	N/A	Jul 22, 85
[illegible]	Amer Pres	NDRF	[illegible]	Mar 14, 85	NORSHIPCO	57*	May 10, 85	1	Seatrial Only	May 10, 85	May 20, 85	Eastern Technical	35	Jun 24, 85
[illegible]	TOM	JRRF	Service	Mar 1, 85	N/A - Del by MSC after overhaul @ Penn Ship	N/A	Mar 1, 85	109	MEDLOGEX 85- Mediterrian	Jun 17, 85	Jun 17, 85	Moon Engr., Norfolk	34	Jul 21, 85
[illegible]	TOM	JRRF	Service	Aug 8, 85	Ship's Crew	5	Aug 14, 85	10	RISKY BEACH- US Gulf	Aug 24, 85	Aug 24, 85	Ship's Crew	14	Sep 6, 85
[illegible]	TOM	JRRF	Service	Sep 16, 85	Ship's Crew	5	Sep 21, 85	65	BOLD EAGLE 85- Pensacola	Nov 25, 85	Nov 25, 85	Ship's Crew	1	Nov 25, 85
[illegible]	MTL	JRRF	Training	Jan 7, 86	NORSHIPCO	10*	Jan 20, 86	N/A	Dock Trial Only	Jan 20, 86	Jan 21, 86	NORSHIPCO	1	Jan 21, 86
[illegible]	BARRIER	BALT	Service	Jan 24, 86	Beth Steel, S.P.	5	Jan 29, 86	84	TEAM SPIRIT 86- Korea	Apr 22, 86	Apr 23, 86	Todd, San Pedro	45	Jun 6, 86
[illegible]	APL	SBRF	No Notice	Feb 18, 86	Westwinds, SFO	5	Feb 23, 86	55	TEAM SPIRIT 86- Korea	Apr 18, 86	Apr 29, 86	Cont'l Maritime, SFO	23	May 23, 86
[illegible]	BARRIER	BALT	No Notice	Feb 25, 86	Beth Steel, S.P.	5	Mar 2, 86	179	AHAUS TARA 86- Honduras/ OCEAN VENTURE - Puerto Rico/ BLAZING TRAILS - Honduras/ GALLANT EAGLE - US East-West Coast/	Aug 22, 86	Aug 22, 86	Hoboken Shipyards	81	Nov 17, 86
[illegible] PATRIOT STATE	TOM	M M A	Service	Sep 8, 86	@ Berth Mass. Maritime Academy	5	Sep 13, 86	9	Special Ops	Sep 21, 86	Sep 21, 86	Mass. Maritime	2	Sep 23, 86
[illegible] DOUGLAS	BARRIER	JAX	Service	Dec 1, 86	North Florida S*	4	Dec 9, 86		BLAZING TRAILS (NORTH)-87 - - -Ongoing					
[illegible]	[illegible]	RRF	No Notice	Jan 14, 87	Coastal Marine, TX 10		Jan 24, 87		TEAM SPIRIT 87 - - - Ongoing Korea					
[illegible]	BARRIER	NFK	Service	Jan 14, 87	Moon Engr., VA	9*	Jan 23, 87		TEAM SPIRIT 87 - - - Ongoing Korea					
[illegible]	[illegible]	Richmd	No Notice	Jan 26, 87	Service Engr., CA	5	Jan 31, 87		TEAM SPIRIT 87 - - - Ongoing Korea					

* [illegible] Time

RRF ACTIVATION PLAN

AUGUST 6, 1987

VESSEL/LOCATION	RRF STATUS	GENERAL AGENT	CONTRACTOR/LOCATION	READY PORT	DAY DEP LAYUP SITE	REMARKS
ACTIVATED/OPERATING						
CAPE HENRY		BARBER (T)				OP THRU 9/87
CAPE HUDSON		BARBER (T)				OP THRU 9/87
CAPE DOUGLAS		BARBER (T)				OP THRU 8/87
EAST COAST						
OUTPORTED						
CAPE ALEXANDER (JAX.)	5	AM FOREIGN	N.FLA SYD /	JACKSONVILLE, FL	NA	A
AMBASSADOR (CHEAT.AN)	10	MTL	METRO /CHEAT.AN	NORFOLK, VA	NA	A
KEYSTONE STATE(CHEAT.AN)	5	IOM	LYON /CHEAT.AN	NORFOLK, VA	NA	A
CAPE CANSO (NORFOLK)	5	IOM (T)	MOON /	NORFOLK, VA	NA	A
CAPE ARCHWAY(BALTIMORE)	5	AM FOREIGN	MOON /	NORFOLK, VA	NA	AD ETC 8/15/87
CAPE DECISION(BALTIMORE)	5	BARBER (T)	BETH SP PT /	BALTIMORE, MD	NA	A
SOUTHERN CROSS(PHILA NSY)	5	IOM	PHILLY SHIP/	PHILADELPHIA, PA	1	
PRIDE (PHILA NSY)	5	IOM (T)	N.Y. SHIP /BKLYN	NEW YORK, NY	NA	AD REQ D/D & TOPSIDE
LAKE (PHILA NSY)	5	IOM (T)	N.Y. SHIP /BKLYN	NEW YORK, NY	NA	AD D/D & TOPSIDE
SCAN (PHILA NSY)	5	IOM (T)	N.Y. SHIP /BKLYN	NEW YORK, NY	NA	AD REQ D/D & TOPSIDE
CAPE DIAMOND (BROOKLYN)	5	BARBER (T)	N. HOBOKEN /BAYONNE	NEW YORK, NY	1	D REQ D-RINGS
CAPE DOMINGO(BROOKLYN)	5	BARBER (T)	N. HOBOKEN /BAYONNE	NEW YORK, NY	1	D REQ D-RINGS
CAPE AVINOF (QUONSET PT)	5	AM FOREIGN	DEREKTOR /	NEWPORT, RI	1	D SEF ETC 12/30/87
CAPE ANN (QUONSET PT)	5	AM FOREIGN	DEREKTOR /	NEWPORT, RI	1	D SEF ETC 12/30/87
AIDE (QUONSET PT)	10	MTL	NEWPORT /	NEWPORT, RI	1	
CAPE CARTHAGE (MELVILLE)	5	IOM (T)	BATH IW /	PORTLAND, ME	1	D REP AT BERTH
CAPE CATOCHE(PROVIDENCE)	5	IOM (T)	GENERAL /	BOSTON, MA	1	D REP AT BERTH
PATRIOT STATE (BUZZ BAY)	5	(TBN)	NORSHIPCO /	NORFOLK, VA	NA	AD ETC 8/31/87
CAPE CANAVERAL(PORTLAND)	5	MTL (T)	BATH IW /	PORTLAND, ME	NA	A

A:SHIP IS AT ACTIVATION CONTRACTOR SITE OR ACTIVATED AT LAYBERTH
B:SHIP STILL TO BE MOVED TO OUTPORT
C:ACTIVATION WORK COMMENCES AT LAYUP SITE
D:READINESS DATE CONTIGENT ON COMPLETION OF CURRENT REPAIRS

RRF ACTIVATION PLAN

AUGUST 6, 1987

VESSEL/LOCATION	RRF STATUS	GENERAL AGENT	CONTRACTOR/LOCATION	READY PORT	DAY DEP LAYUP SITE	REMARKS
JAMES RIVER						
CAPE ALAVA	5	AM FOREIGN	NORSHIPCO /	NORFOLK, VA	1	
AGENT	5	MTL	COLONNA,S /	NORFOLK, VA	1	
ADVENTURER	10	MTL	JONATHAN /	NORFOLK, VA	1	C
BANNER	10	FARRELL	MOON /	NORFOLK, VA	NA	AD ETC 8/ 7/87
COURIER	10	FARRELL	NORSHIPCO /PORTS	NORFOLK, VA	2	C
AMERICAN VICTORY	10	AM FOREIGN	COLONNA'S /	NORFOLK, VA	2	C
SANTA LUCIA	20	(TBN)	NORSHIPCO /	NORFOLK, VA	3	CD TO NDRF FY87
SANTA CRUZ	20	(TBN)	NNEWS /NNEWS	NORFOLK, VA	3	CD TO NDRF FY87
SANTA ELENA	20	(TBN)	METRO /	NORFOLK, VA	3	CD TO NDRF FY87
SANTA BARBARA	20	(TBN)	NNEWS /NNEWS	NORFOLK, VA	4	CD TO NDRF FY87
SANTA CLARA	20	(TBN)	NNEWS /NNEWS	NORFOLK, VA	4	CD TO NDRF FY87
SANTA ISABEL	20	(TBN)	NNEWS /NNEWS	NORFOLK, VA	4	CD TO NDRF FY87
ADM W.CALLAHAN	20	MARINE CAR	JONATHAN /	NORFOLK, VA	2	C
GULF COAST						
OUTPORTED						
CAPE FLATTERY (MOBILE)	5	OMI (T)	ADDSCO /	MOBILE, AL	NA	A
CAPE FAREWELL (MOBILE)	5	OMI (T)	ADDSCO /	MOBILE, AL	NA	A
CAPE FLORIDA (MOBILE)	5	OMI (T)	ADDSCO /	MOBILE, AL	NA	A
CAPE MAY (VIOLET, LA)	5	LYKES (T)	AVONDALE /	NEW ORLEANS, LA	1	
CAPE MENDOCINO(VIOLET,LA)	5	LYKES (T)	DIXIE MACH./	NEW ORLEANS, LA	1	
CAPE MOHICAN(VIOLET, LA)	5	LYKES (T)	BOLAND /	NEW ORLEANS, LA	1	

A:SHIP IS AT ACTIVATION CONTRACTOR SITE OR ACTIVATED AT LAYBERTH
B:SHIP STILL TO BE MOVED TO OUTPORT
C:ACTIVATION WORK COMMENCES AT LAYUP SITE
D:READINESS DATE CONTIGENT ON COMPLETION OF CURRENT REPAIRS

RRF ACTIVATION PLAN — AUGUST 6, 1987

VESSEL/LOCATION	RRF STATUS	GENERAL AGENT	CONTRACTOR/LOCATION	READY PORT	DAY DEP LAYUP SITE	REMARKS
BEAUMONT						
DEL VIENTO	10	OMI (T)	BETH STEEL /	BEAUMONT, TX	2	
GULF SHIPPER	5	LYKES (T)	COASTAL MAR/PT ARTHUR	BEAUMONT, TX	1	
GULF TRADER	5	LYKES (T)	STEVENS TCH/ORANGE	BEAUMONT, TX	NA	AD ETC 8/10/87
DEL MONTE	10	OMI (T)	BETH STEEL /	BEAUMONT, TX	2	
POTOMAC	5	WATTERS	BETH STEEL /	BEAUMONT, TX	1	CD PT/PT TKR ONLY
DEL VALLE	10	OMI (T)	HOUSTON RP /	HOUSTON, TX	1	
PIONEER CRUSADER	10	IOM (T)	TODD SHIPYD/	GALVESTON, TX	4	C
SANTA ANA	10	LYKES	HOUSTON RP /	HOUSTON, TX	2	CD REPAIRS AT FLEET
MAINE	10	OMI	BENDER /	MOBILE, AL	4	CD REPAIRS AT FLEET
AMERICAN EXPLORER	10	AM FOREIGN	AVONDALE /	NEW ORLEANS, LA	2	C
PIONEER COMMANDER	10	IOM (T)	TODD SHIPYD/	GALVESTON, TX	4	C
CAPE CHALMERS	10	LYKES (T)	MASON /ORANGE	BEAUMONT, TX	3	CD REQ SUPERHEATER Rep
PIONEER CONTRACTOR	10	IOM (T)	HOUSTON RP /ORANGE	BEAUMONT, TX	NA	AD ETC 8/12/87
CAPE CHARLES	10	LYKES (T)	MASON /ORANGE	BEAUMONT, TX	NA	AD ETC 8/15/87
GULF FARMER	10	LYKES (T)	INGALLS /PASCA., MS	MOBILE, AL	3	C
CAPE CLEAR	10	LYKES (T)	DIXIE MACH /	NEW ORLEANS, LA	4	CD REQ SUPERHEATER Rep
CAPE COD	10	LYKES (T)	BUCK KRIENS/	NEW ORLEANS, LA	5	CD REQ SUPERHEATER Rep
GULF BANKER	10	LYKES (T)	INGALLS /PASCA., MS	MOBILE, AL	5	C
GULF MERCHANT	10	LYKES (T)	INGALLS /PASCA., MS	MOBILE, AL	5	C
HATTIESBURG VICTORY	10	AM FOREIGN	GULF COPPER/	BEAUMONT, TX	6	CD REQ REP
CAPE CATAWBA	10	(TBN)	AVONDALE /	NEW ORLEANS, LA	3	C
WASHINGTON	10	OMI	BENDER /	MOBILE, AL	5	C
AMERICAN OSPREY	10	(TBN)	COASTAL MAR/PT ARTHUR	BEAUMONT, TX	NA	C

A:SHIP IS AT ACTIVATION CONTRACTOR SITE OR ACTIVATED AT LAYBERTH
B:SHIP STILL TO BE MOVED TO OUTPORT
C:ACTIVATION WORK COMMENCES AT LAYUP SITE
D:READINESS DATE CONTIGENT ON COMPLETION OF CURRENT REPAIRS

RRF ACTIVATION PLAN

AUGUST 6, 1987

VESSEL/LOCATION	RRF STATUS	GENERAL AGENT	CONTRACTOR/LOCATION	READY PORT	DAY DEP LAYUP SITE	REMARKS
WEST COAST						
OUTPORTED						
CAPE DUCATO (SAN PEDRO)	5	BARBER (T)	TODD /SAN PEDRO	LOS ANGELES, CA	NA	A
CAPE BON (SAN PEDRO)	5	A.P.L. (T)	TODD /SAN PEDRO	LOS ANGELES, CA	NA	A
METEOR (SAN PEDRO)	5	A.P.L. (T)	TODDSAN PED/O	LOS ANGELES, CA	NA	AD REQ SHAFT/GEARS
AUSTRAL LIGHTNING (S.F.)	5	A.P.L. (T)	TODD /	SAN FRANCISCO, CA	1	A
CAPE BRETON(SAN FRAN)	5	A.P.L. (T)	GENERAL ENG/HUNTERS PT	SAN FRANCISCO, CA	NA	A
CALIFORNIA (ALAMEDA)	5	A.P.L.	SERVICE ENG/	SAN FRANCISCO, CA	1	D REQ MATCH COVER
CAPE BORDA (RICHMOND)	5	A.P.L. (T)	CONTINENTAL/	SAN FRANCISCO, CA	1	C REQ LAY UP
CAPE BOVER (RICHMOND)	5	A.P.L. (T)	S.W. MARINE/	SAN FRANCISCO, CA	1	
CAPE BLANCO (TACOMA)	5	A.P.L. (T)	TACOMA BOAT/	SEATTLE, WA	1	
GEM STATE (TACOMA)	5	*IOM (T)*	TACOMA BOAT/	TACOMA, WA	NA	A
JUPITER (TACOMA)	5	LYKES (T)	TODD PACIF /	SEATTLE, WA	1	
NORTHERN LIGHT(PORTLAND)	5	A.P.L.	N.W. MARINE/	PORTLAND, OR	1	
GRAND CANYON ST(PORTLAND)	5	IOM (T)	DILLINGHAM /	PORTLAND, OR	1	
CAPE EDMONT (PORTLAND)	5	(TBN)	DILLINGHAM /	PORTLAND, OR	1	D VARIOUS 835
COMET (PORTLAND)	5	A.P.L. (T)	WEST STATE /	PORTLAND, OR	1	
CAPE ISABEL (PORTLAND)	5	LYKES (T)	N.W. MARINE/	PORTLAND, OR	1	
NODAWAY(PEARL HARBOR)	10	CROWLEY	MARISCO /	HONOLULU, HI	NA	AD LIFEBOAT REP/DD
ALATNA (YOKOHAMA)	10	CROWLEY	ISHKAWAJIMA/ KAGO	YOKOHAMA, JAPAN	1	
CHATTAHOOCHEE (YOKOHAMA)	10	CROWLEY	ISHKAWAJIMA/ KAGO	YOKOHAMA, JAPAN	1	

A:SHIP IS AT ACTIVATION CONTRACTOR SITE OR ACTIVATED AT LAYBERTH
B:SHIP STILL TO BE MOVED TO OUTPORT
C:ACTIVATION WORK COMMENCES AT LAYUP SITE
D:READINESS DATE CONTIGENT ON COMPLETION OF CURRENT REPAIRS

RRF ACTIVATION PLAN

AUGUST 6, 1987

VESSEL/LOCATION	RRF STATUS	GENERAL AGENT	CONTRACTOR/LOCATION	READY PORT	DAY DEP LAYUP SITE	REMARKS
SUISUN BAY						
CAPE HORN(HUNTERS PT-TEMP	5	BARBER (T)	SERVICE ENG/	SAN FRANCISCO, CA	1	D REQ VOY REP/LAY UP
SHOSHONE	10	WATTERS(T)	TODD /	SAN FRANCISCO, CA	1	

A:SHIP IS AT ACTIVATION CONTRACTOR SITE OR ACTIVATED AT LAYBERTH
B:SHIP STILL TO BE MOVED TO OUTPORT
C:ACTIVATION WORK COMMENCES AT LAYUP SITE
D:READINESS DATE CONTIGENT ON COMPLETION OF CURRENT REPAIRS

GENERAL AGENT LEGEND

AM FOREIGN	-	AMERICAN FOREIGN SHIPPING CO., INC.
A.P.L.	-	AMERICAN PRESIDENT LINES, LTD.
BARBER	-	BARBER SHIP MANAGEMENT INC.
CROWLEY	-	CROWLEY MARITIME CORPORATION
FARRELL	-	FARRELL LINES, INC.
IOM	-	INTEROCEAN MANAGEMENT CORPORATION
LYKES	-	LYKES BROTHERS SS., CO.
MARINE CAR	-	MARINE CARRIERS
MTL	-	MARINE TRANSPORT LINES, INC.
OMI	-	OMI CORPORATION
(TBN)	-	(TO BE NAMED)
WATTERS	-	WATTERS MARINE, INC.
(T)	-	TEMPORARY GENERAL AGENT

NOTE: UNDERLINED DATA INDICATES CHANGES FROM PRECEDING REPORT

LIST OF REFERENCES

1. U.S. Department of the Navy. Strategic Sealift Program Information. Chief of Naval Operations, Strategic Sealift Division, 16 April 1985.

2. U.S. Code Title 50, Section 1744.

3. Whitehurst, C.H., Jr. "The National Defense Reserve Fleet: Past, Present and Future." United States Naval Institute Proceedings, February 1977.

4. Bryan, Robert A. and Sparks, Charles J. "The National Defense Reserve Fleet--An Essential Element of National Defense." Naval Engineers Journal, April 1977.

5. Harlow, Louis Francis. An Analysis of the National Defense Reserve Fleet, the Ready Reserve Force Component and their Capability to Meet National Emergency. Masters Thesis, Naval Postgraduate School, Monterey, California, September 1979.

6. U.S. General Accounting Office. Report to the Congress by the Comptroller General of the United States. The National Defense Reserve Fleet - Can It Respond to Future Contingencies?, Oct. 6, 1976.

7. U.S. General Accounting Office. A Time to Consider Alternative Sources of Quick-Response Sealift Capability, February 7, 1979.

8. Telephone Interview between LT Orban and LCDR Dave Nava, Strategic Sealift Division (OP-42) on 19 August 1987.

9. Discussion Paper, from R. H. Pouch, President Barber Ship Management Inc. Subj: Commercial Charter Concept to Mr. Robert Bryan, Chief, Reserve Fleet Division, Maritime Administration, December 5, 1986.

10. Briefing and selected questions concerning the NDRF and the RRF program. Prepared by L.D. Santman, acting Director, Office of Ship Operations, Maritime Administration. Forwarded to CAPT Harry Hansen, Director Strategic Sealift Division, OP-42, February 17, 1987.

11. U.S. Department of Transportation. Office of Inspector General. Report on the Management and Control of Vessel Spare Parts Maritime Administration. Report No. R3-MA-7-080, April 14, 1987.

12. U.S. Department of the Navy. Report on MSC/MARAD Joint Working Group for Spare Parts Management Meeting. Commander Military Sealift Command, July 22, 1987.

13. U.S. Department of Transportation. Director's Manual for Activation of the Ready Reserve Force. Maritime Administration, 1986.

14. Telephone Interview between LT Orban and Mr. Les Barthelow, Maritime Administration on October 15, 1987

15. U.S. Department of Transportation. 1966 Annual Report of MARAD. Maritime Administration, 1966.

16 U.S. Department of Transportation. MARAD '86. Maritime Administration, 1986.

17. Matthews, William. "Kings Point Grads Find Few Sea Jobs." Navy Times, July 6, 1987.

18. National Research Council. Effective Manning of the U.S. Merchant Fleet. Washington D.C.: National Academy Press, 1984.

19. Dupin, Chris. "These Graduates Sail in Various Directions." Journal of Commerce, 18 May 1987.

20. "Plans finalised for Japan's eleven-man 'Pioneer Ship'." Fairplay 30 April 1987, p. 8.

21. Canna, Elizabeth. "Sweden to Test 8-Man Crew." American Shipper, August 1987.

22. U.S. Department of Transportation. Reserve Fleet Crewing Feasibility 1984-1995. Maritime Administration, 1984.

23. America's Vanishing Merchant Mariners: Diagnosis, Prognosis and Prescriptions for a Strond National Defense. Transportation Institute, October 1986.

24. U.S. Department of the Navy. Navy Merchant Marine Manpower Study. Chief of Naval Operations, Strategic Sealift Division, 2 July 1986.

25. Memorandum for the Vice Chief of Naval of Naval Operations. Serial 01R/6U379161, Subject: Manpower Requirements for Mobilization, 15 Aug 1986.

26. COMNAVSURFRESFOR STS1543-1A, Information Booklet for Naval Reserve Officers in the U.S. Naval Reserve Merchant Marine Officer Program, March 1986.

27. OPNAV Instruction 1534.1, Subj: Merchant Marine Reserve, United States Naval Reserve Program, 11 July 1983.

28. Telephone Interview between LT Orban and CAPT Frank Johnston, Chief of Naval Operations, Strategic Sealift Division on 27 May 1987.

29. Kesteloot, R.W. "The Case for Maritime Subsidies." Journal of Commerce, September 22, 1987.

30. U.S. Department of Transportation. U.S. Merchant Data Sheet - Status as of March 1, 1987. Maritime Administration, June 18, 1987.

31. Morison, Robert F. "Labor Says More Cargo Vital to Fleet's Survival." Journal of Commerce, April 29, 1987.

32. Whitehurst, Clinton H. Jr. The Defense Transportation System: Competitor or Complement to the Private Sector? Amercian Enterprise Institute for Public Policy Research, Washington, D.C., 1976.

33. Civilian Contract Operations of Government Ships, Summary Report. Booz, Allen, & Hamilton Inc. for Joint Maritime Congress, December 1981.

34. Department of the Navy. Report on MSC/MARAD Joint Working Group for Spare Parts Management Meeting. Commander, Military Sealift Command, September 30, 1987.

35. Supply Support for Reserve Ships Technical Report 22-86. Stanley Associates for the Maritime Administration, March 1986.

36. Spare Parts Provisioning for Merchant Ships, Volume II. Mystech Associates for the Maritime Administration, September 1979.

37. U.S. Department of Transportation. Shipbuilding and Repair. Maritime Administration, February 13-14, 1985.

38. U.S. Department of the Navy. Sixth Joint NSIA-NDTA Conference on National Strategic Mobility. Chief of Naval Operations, Strategic Sealift Division, 4 June 1987.

39. U.S. Department of the Navy. RRF Program Review Minutes. Commander, Military Sealift Command, 28 September 1987.

INITIAL DISTRIBUTION LIST

		NO. OF COPIES
1.	Defense Technical Information Center Cameron Station Alexandria, VA 22304-6145	2
2.	Defense Logistics Studies Information Exchange U.S. Army Logistics Management Center Fort Lee, VA 23801	1
3.	Library, Code 0142 Naval Postgraduate School Monterey, CA 93943-5002	2
4.	Department Chairman, Code 54 Department of Administrative Sciences Naval Postgraduate School Monterey, CA 93943	1
5.	Professor Dan C. Boger, Code 54Bo Department of Administrative Sciences Naval Postgraduate School Monterey, CA 93943	1
6.	Professor R. A. Weitzman, Code 54Wz Department of Administrative Sciences Naval Postgraduate School Monterey, CA 93943	1
7.	Mr. Jon Kaskin Office of the Chief of Naval Operations Strategic Sealift Division (OP-42) Washington, D.C. 20350	1
8.	Mr. Robert Bryan Maritime Administration Division of Reserve Fleet 400 Seventh Street, S.W. Washington, D.C. 20590	1
9.	Ms. Michelle Lewis Military Sealift Command (M-2) Washington, D.C. 20390	1

10. Military Sealift Command (M-3R) 1
Readiness and Program Introduction
Washington, D.C. 20390

11. LT Mary M. Orban 1
MSCO Korea
APO San Francisco, CA 96259-0264

12. LT Everett J. Parvin 1
1230 Spruance Rd.
Monterey, CA 93940

END

DATE

FILMED

5-88

DTIC