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NAVAL WAR COLLEGE
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Pied Piper: Navy's Transfer of Combat Logistics Force Fleet

by

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A paper submitted to the Faculty of the Naval War College in partial satisfaction of the requirements of the Department of Operations.

The contents of this paper reflect my own personal views and are not necessarily endorsed by the Naval War College or the Department of the Navy.

Signature: Paula A. Mausar

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Abstract of

PIED PIPER: NAVY'S TRANSFER OF COMBAT LOGISTIC FORCE FLEET

The transfer of Navy Combat Logistic Force ships to Military Sealift Command is viewed by many as a positive change. This paper surveys the reality of the projected cost savings and the availability of merchant mariners in sufficient numbers to meet the defense requirements in the year 2000. This paper discusses the qualitative factors such as, unit self-defense and survivability, civilians in the war zone, operational tempo and command and control. What emerges is that it is cost effective to replace military with civilian crews but the price paid will be in diminishing ship capabilities which will impact the commander's mission. Recommendations include delaying the further transfer of ships until the results of the AFS class can be reviewed, implement a merchant marine reserve and increasing the size of the military detachment on board MSC ships.

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PIED PIPER: NAVY'S TRANSFER OF COMBAT LOGISTIC FORCE FLEET

CHAPTER I

INTRODUCTION

May 4, 1992 was the 20th anniversary of the Military Sealift Command's Naval Fleet Auxiliary Force. The NFAF are Military Sealift Command ships crewed by civilian mariners operating in support of the Navy's combatant fleet.

The Navy faces the challenge of preserving its force structure and combatant manning levels at a time when defense budgets are decreasing and the military manpower pool is contracting. Civilian manning of combat logistic and auxiliary ships might help meet this challenge. Operating Combat Logistic Force (CLF) ships with civilian crews rather than military crews is generally thought to be cheaper and would free available military manpower for duty on combatant ships.

In this climate, the "politically correct" answer is to propose an initiative that offers cost savings without impacting the required level of defense capability. The case has been made that transferring of the Navy's CLF ships to MSC control is the perfect solution. The lower civilian manning levels translate into lower operating costs and the higher operational

tempo requires fewer ships to accomplish the same mission.

The decision to transfer the CLF ships is being made on quantifiable measures; lower billet costs and a lower number of active Navy ships. Factors being disregarded are those factors that can not be measured but which will have an impact to the operational commander.

The Problem

The objective of this study is to examine the impact of transferring the Navy Combat Logistic Force ships to Military Sealift Command control. This paper will examine the decision to transfer the CLF ships based on projected cost savings and manning availability balanced against the operational impact of unquantifiable factors.

Limitations

The transfer of CLF ships is ongoing at the time of the writing of this paper. Three of the AFS class ships are in the shipyard under conversion and the contracts for the other three are close to award. The decision has been made on the transfer of the AOE and AOR class ships but it is still early in the planning stages. Since data exists on the AFS class transfer, cost comparisons and examples will center around this ship class.

Background

What ships have a black, gray, blue and yellow striped stack and are found wherever U.S. Navy fleets operate? The MSC Naval Fleet Auxiliary Force (NFAF), often referred to as "black bottoms". The NFAF's mission of direct fleet support is one of

three MSC missions. The other two being strategic sealift and special mission.

Military Sealift Command was assigned as the single manager operating agency for ocean transportation in 1949 with a provision to serve as a operating force of the U.S. Navy. It was not until 1971 that this provision became a reality. During that year, the theory surfaced that with an all volunteer Navy and the high cost of training Naval personnel, it was imperative that Navy personnel be assigned to warships of the fleet whenever possible. If Navy civilian mariners could substitute for uniformed Navy sailors in fleet support ships, then money could be saved as well as better employment of Navy personnel.

To prove this theory, the Navy oiler USS Taluga was decommissioned and transferred to MSC. The USNS Taluga was crewed by 105 civilian mariners and augmented by a 16 member military department. USNS Taluga's record of accomplishments proved the theory to be viable. Vice Admiral James Holloway, USN, then Commander of the Seventh Fleet, proclaimed her operational tempo as "higher than most mobile logistic force ships".¹

In the 1980's, MSC purchased three combat stores ships from the British Royal Fleet Auxiliary. Later that decade, construction contracts were awarded for 18 fleet oilers (T-AO) and 18 ocean surveillance (T-AGOS) ships. Since the USNS Taluga, the NFAF has mushroomed to a fleet of 45 civilian crew ships and is still growing (Appendix I).

CHAPTER II

FISCAL REALITY OR FISCAL HOCUS FOCUS?

The Proposal

Several studies have been completed to determine the cost relationships of military versus civilian manning of CLF ships. The most recent Navy study found that it was cheaper or only slightly more expensive to maintain military manning.¹ A Military Sealift Command study found substantial cost savings with civilian manning.² These studies used different cost data and applied different cost concepts with built-in biases to shade the results.

A study completed by the Center for Naval Analysis appears to be the most accurate using comparative data bases for analysis.³ There are two qualifiers to this study. The study allows 15% of military manning costs for training and costs associated with hospitals, commissaries and special programs. Since these institutions are primarily fixed cost institutions, and built for a broader base of population, it is highly unlikely that the commissaries or hospitals would close based on the decommissioning of the CLF ships. While the study adds overtime costs for civilian manning, it ignores premium pay (25%) for weekend work. For simplicity, this paper will disregard the two above factors and accept the military and civilian

manning costs. The projected savings for the transfer of seven AFS ships is \$68.6 million per year (Appendix II).

Since the time of this report, civilian and military detachment levels have been refined for the AFS class ships and six vice seven ships will be transferred to MSC. The updated cost savings for transfer of six AFS ships is \$55.2 million per year (Appendix III).

Conversion Costs

Manning costs and conversion costs are funded by different appropriations. Because of this, studies on cost savings have disregarded the cost of converting the Navy ships to meet civilian manning standards. In order to determine the break even point of any transfer, this cost must be factored into the equation. The three factors of conversion are the cost of modifications, the cost of the ship being off-line for operational commitments and the life cycle expectancy of the vessel after conversion.

Modifications

There are two types of modifications being done on the AFS class ships. The *interim modification* will include habitability modifications to upgrade to higher civilian standards and automation of the engine room. The cost of this modification is \$11 million. The *full-up modification* includes upgrades to the habitability, automation of the engine room and upgrade of

the cargo elevators. The cost of this modification is \$44 million. Two ships will receive the interim modification, three will receive the full-up modification and one ship will receive the interim modification then later, the full-up modification. Conversion costs total \$209 million.

Off-Line Operations Costs

It is difficult to quantify the costs of a vessel out of the operational cycle during a conversion. The assumption is that another AFS would have to cover those commitments at the cost of operating a civilian manned AFS vessel (\$8.1 million per year). The interim modification will last five months. The full modification will last ten months. The total lost time for conversion of all six vessels will be 55 months at a cost of \$37.2 million.

Life Cycle Expectancy

Past studies assumed a life cycle expectancy of 10 years for each ship after conversion. In fact, three of the older AFS ships are expected to operate for five years and the other three will operate for ten years.⁴ Life cycle affects the total cost savings and the break even point of the conversions.

Conclusions

Published cost savings projected the transfer of six AFS ships will save a total of \$588 million for a ten year life cycle or \$9.8 million per ship per year. Appendix IV includes the cost considerations of increased manning levels, conversion costs and

off-line costs for shipyard conversion time. The total potential savings is \$167.6 million instead of \$588 million. For each ship per year, the savings would be \$2.9 million for the five year life ships and \$4.1 million for the ten year life ships instead of the projected \$9.8 million.

The break even point for the five year life ships is three years, five months (Appendix V); just one year, seven months short of its decommissioning date. The break even point for the ten year life ships is five years, five months (Appendix VI); just past the halfway point of the ships life.

The significance of this cost comparison is that decisions are being made to civilianize all the CLF ships based on projected billet cost savings instead of mission. It is easy to ignore the operational impact of civilian manned vessels if the expected cost savings for six ships is \$58-60 million per year. When conversion costs are added into the equation and the real cost savings are analyzed, it puts a different light on the decision to transfer control of the CLF ships.

CHAPTER III

TOO MANY CHIEFS, NOT ENOUGH INDIANS

Merchant Marine Availability, Year 2000

The size of the U.S. Flag fleet has been declining since the end of World War II with a corresponding decline in the pool of merchant mariners. The Commission on Merchant Marine and Defense estimates the number of merchant mariners to be 11,880 by the year 2000.¹

In the year 2000, 5,940 mariners will be required to man 217 commercial vessels, leaving a pool of 5,940 mariners. Of these 5,940 it is assumed that 90% would be available to go to sea or 5,346.²

Merchant Marine Requirements

In regards to defense requirements, merchant mariners are required for both Strategic Sealift (Ready Reserve Force, Reduced Operating Status ships) and direct fleet support (Naval Fleet Auxiliary Force). The number of merchant Mariners required for existing strategic sealift is:

<i>Ship Class</i>	<i>Total Crew</i>
RRF (97 ships)	3,063
ROS	
FAST SEALIFT	240
AVIATION SUPPORT SHIPS	58
HOSPITAL SHIPS	<u>102</u>
TOTAL	3,463

In addition, the National Defense Sealift Fund has been established to expand the sealift assets by construction of twenty roll on/roll off (RO/RO) vessels and procurement and conversion of 22 other sealift vessels.³ The expansion of the RRF would require the following number of mariners:

<i>Ship Class</i>	<i># Ships</i>	<i>Crew Size</i>	<i>Total Crew</i>
RO/RO	20	21	420
RRF other	22	21	<u>462</u>
Total			882

If all the Combat Logistic Force ships and auxiliaries are transferred to MSC as proposed by VADM M. Kalleres, COMSC,⁴ the additional number of mariners required would be:

<i>Ship Class</i>	<i>Crew Size</i>	<i># Ships</i>	<i>Total Crew</i>
AO	89	5	445
AE	123	7	861
AFS	135	7	945
AD/AR/AS	45	23	<u>1,035</u>
Total			3,286

Conclusion

In summary, the total pool of mariners required for existing RRF/ROS, expansion of RRF/ROS and transfer of Navy Combat Logistic Force ships would be 7,631 mariners:

<i>Existing RRF/ROS</i>	3,453
<i>Expansion RRF/ROS</i>	882
<i>CLF Transfer</i>	<u>3,286</u>
<i>Total Requirements</i>	7,631
<i>Mariner Pool, Year 2000</i>	5,346
<i>Total Requirements</i>	7,631
<i>Shortfall</i>	(2,285)

The shortfall of available mariners (2,285) does not address the requirements for replacements due to battle casualties or other peacetime considerations. The assumption made by several different contingents is that the Maritime Academies will continue to graduate mariners at the current pace and that with more sea going billets available, graduates will not be diverted to other maritime related jobs. Therefore, enough mariners will be available to meet the increased requirements. There is no evidence that this will adequately address the shortfall. Admiral Donovan, COMSC, recognized the problem of availability of merchant mariners. In discussing the Operation Desert Shield lessons learned, he noted, "the availability of enough mariners to crew the ships must be carefully examined, and consideration must therefore, be given to ways to increase the pool of trained crews."⁵

CHAPTER IV
OPERATIONAL CONCERNS

"Sustainability is the staying
power of a force"
ADM James Watkins, 1984

Operating in Harm's Way

At the beginning of World War II, merchant mariners suffered heavy casualties. Six months into the conflict, 350 ships with over 3,000 merchant seaman on board were lost.¹ There is no denying that thousands of mariners bravely gave their lives in service to their countries. What must not be forgotten, is that the 350 ships were sunk by German U-Boats while in a convoy carrying equipment and supplies. These ships were not in the business of steaming with the Battlegroup in the war zone, doing underway replenishment.

One of the basic principles of war is to identify and eliminate the logistics lines of communications. Destroying the enemy's ability to sustain the troops forces the enemy to alter his operational plans. This makes the CLF ships a primary target for attack.

In the peacetime Rules of Engagement (PROE), the commander is constantly reminded that regardless of the PROE, his responsibility is to unit self-defense. In the Conversion

process, all anti-air warfare systems are being removed from the ships. In case of the AFS class ships, the crew will be left with a dozen small arms (45 cal handguns, M-16 shotguns). In an era of the advanced warfare, the CLF ships will be less able to defend themselves than the crews against pirates of the 17th century.

The consideration for the operational commander is whether he or she will commit escort ships (FF, FFG) to steam alongside and protect the CLF ships while in the war zone. Another option during wartime, is to modify the CLF ships to carry the Vulcan Phalanx Close-In-Weapons system and deploy a military detachment to provide self-defense. Both of these options negate the gain made by using civilian mariners so that Navy personnel can be employed for war fighting commitments.

The Combat Information Center (CIC) capability would be reduced even though there is a Military Detachment on board. The military detachment is responsible for shipboard communications, helo operations support and Navy operations during underway replenishment. Due to reduced manning, the ability to perform combat operations is significantly reduced, limited to coordinating a join-up with a task group.

Fewer mariners and sailors, from 89-135 crew members, would be available to form fire fighting teams for damage control operations from battle damage. The conversion of the AFS class ships includes refurbishment of existing damage control lockers

but there are no upgrades or automation planned for these ships.

One of the lessons learned from Desert Storm was the superb performance of the damage control teams which was attributable to years of intensive training and experience. The USS Princeton was saved due to the efforts of the damage control teams. The operational commander must take into consideration, prior to risking a NFAF ship in the war zone, that the capability for the ship to save itself from a "hit" is significantly reduced because of the 1/3 manning level compared to Navy ships.

Civilians at War

If Operations Desert Shield and Desert Storm were a test then MSC's Naval Fleet Auxiliary Force passed with flying colors. USNS Henry J. Higgins set a record for the longest deployment among all of the U.S. Navy ships participating in Desert Shield/Desert Storm. She was deployed 278 days, conducted 379 replenishments at sea and delivered more than 67 million gallons of fuel.²

Merchant mariners who serve in the NFAF are Federal Civil Service employees who are required to swear the same oath as Naval officers to protect and defend the United States. Currently, the T-AGOS ships are the only NFAF ships that are operated by contract mariners, the rest are manned by civil service mariners. However, given the projected shortfall of mariners by the year 2000, MSC may face the possibility of contracting out more of its ships.

Should the commander be concerned about the reliability of civil service crews on ships that must be under the operational control of the military? Consider the statement made by Captain David Teel who commanded a sealift vessel during Desert Storm, "while seaman as a whole are pretty patriotic in a crisis, I suspect if shooting breaks out a certain percentage will take a hike".³ Captain Teel remembers most clearly a port call in Houston for the loadout of "Task Force Texas". While waiting for the ship to be loaded for its second trip to the Gulf, nearly half of Teel's crew decided to get off the ship, leaving him scrambling for crewmen.⁴

Reliance on patriotism to bind civilians to missions is risky business. As Bruce Carlton, director of MARAD's office of Labor and Training, explains "If a Navy Captain tells a crew that they're going to Saudi Arabia, they're going or they'll be put in jail. But these merchant mariners are not under any such orders. They've really knocked themselves out for Desert Shield, but you have to remember that for them, this is simply a job".⁵

Even the Department of the Navy recognizes the risk of civilian mariners not being willing to serve in war zones in the future. After Desert Storm, DON authorized retroactive bonus pay to Military Sealift Command mariners. The objective was "fairly compensating the civil service mariner for risking life

and limb in the war zone and encouraging them to do so again in any future conflicts".⁶

Operational Tempo

Underway replenishment is one of the most dangerous operations ships perform at sea. It is a very precise team effort requiring multilayered operational coordination to execute safely and efficiently. Maintaining 12 to 15 knots, the replenishment ship maneuvers alongside the receiving ship with a separation range from 80-200 feet. The transfer of fuel, cargo and people commences once the ships are synchronized in speed and position.

One of the biggest selling points for the transfer of CLF ships to MSC is the higher operational tempo when compared to Navy manned vessels (285 days versus average 198 days). One consideration needs to be crew endurance, both in wartime and during peacetime high-tempo task group operations. Recent conversations with operators of Desert Storm experience revealed that at times "crews worked around the clock for 4-5 days".⁷ The experience of Captain Teel is described as " the last three months have been an unending procession of loadouts, port calls and sea duty, punctuated by only a few precious hours or maybe a day of shore leave".⁸

NFAF ships can operate at a higher operational tempo (OPTEMPO) since the crews are not hampered by personnel tempo restrictions of military crews; restrictions on how long crews should be deployed away from families and training requirements in port. In fact, if the ships did not require maintenance, the NFAF ships could work 365 days by rotating crews. Reality is that crews are not being rotated regularly. Some Masters and officers are completing 3 years at sea because no reliefs are available.⁹

Operating at a high OPTEMPO for long periods of time, performing dangerous underway replenishment operations, is bound to have an effect on crew performance. In a conflict of longer duration than Desert Storm, the concerns would be the crew endurance, the effectiveness of the crew and the ability to sustain the level of operations.

The other factor of crew endurance is the labor intensive nature of tasks done by the crew prior to the underway replenishment and the level of manning on board the NFAF ships. Prior to a replenishment, Navy crews three times the size, are used to move and stage stores from below decks storerooms and reefers. The only shipboard cargo equipment modifications being done on the AFS class is to upgrade the cargo elevators and to place refrigerated vans topside. The stores, for the most part, will still have to be manipulated by hand. For example, in order

to do a "Carrier hit", requires the NFAF ship to stage the cargo 20 hours prior to the replenishment.¹⁰ The refrigerated vans are being placed topside to facilitate the staging of stores. If it requires 20 hours to stage for a aircraft carrier, how long does it take to stage and replenish the other ships steaming with the aircraft carrier? What happens to crew endurance when the crew of 135 are staging and replenishing for 2-3 days straight then returning to port for resupply?

Navy crews on AFS ships are three times the size in order to rapidly stage and replenish while allowing crew rotation for rest.

Command and Control

The operational chain of command differs for east coast and west coast MSC NFAF ships. On the west coast, the ship's captain (master) reports to the JTF commander or area commander, whoever is responsible for the operational area. On the east coast, the master reports to Commander, Military Sealift Commander, Atlantic (MSCLANT). MSCLANT then coordinates with the area operational commander. The military detachment on board is responsible to the master as a function of the master's command but also reports to Commander, Logistic Group (COMLOGGRP).

To have "unity of effort", it is imperative that the operational commander have operational control (OPCON) over all NFAF ships. As is currently being done on the west coast, the master should report to the task force or area commander.

MSCLANT and MSCPAC should provide administrative support. In the same vein, the military detachment should report directly to the master and receive only administrative support from COMLOGGRP Pacific and Atlantic.

CHAPTER V

CONCLUSIONS: PUTTING ALL THE EGGS IN ONE BASKET

The transfer of the Combat Logistic Force fleet would eliminate thousands of military billets in a period of downsizing. The transfer would also reduce the number of active Navy ships at a time when the pressure is to reduce to a level possibly as low as 150 ships. The potential cost savings while not as large as some contend (\$10 million per ship), are substantial (minimum \$2.1 million per ship).

The civilian operation of those ships would be cheaper, add to the downsizing of active forces and fleet ships. However, the Navy would be putting all the combat resupply assets in one basket. If the transfer proves not to work, it will be too late to reserve gears. The ships will suffer diminished capabilities and therefore, degrade the flexibility and options of the operational commander.

The value of the diminished capabilities is hard to quantify. Smaller civilian crews may not be able to sustain the high tempo underway replenishment operations of task groups that would be required in wartime or increased peacetime operations. A smaller crew and active fleet has a greater probability of

incurring more demands for service than it could simultaneously satisfy. Reduced Combat Information Center and damage control capabilities and lack of anti-air warfare systems hamper the units ability for self-defense and survivability.

It is doubtful that enough merchant mariners will be available to fill all defense and commercial requirements by the year 2000. Reliability of civilian crews in a high risk war zone is a matter of debate; professional civil service mariners claiming patriotism equal to their navy counterparts balanced against the fears of Naval officers and the testimony from Desert Storm.

Since the AFS class transfer is already underway, the navy should examine the impact of this transfer prior to committing the AOE and AOR class ships. Only actual operation and experience will reveal if the cost savings are realized and what the impact will be for the military commander.

Two options have surfaced to mitigate the impact of an all civilian crew. One is to establish a merchant marine reserve to complement the crew during times of war or conflict. The reserve could be staffed by experienced Naval officers who are the victims of downsizing cuts. Retraining would be minimal and it would build a pool of available merchant mariners.

The other option is to increase the size of the military detachments. Supplementing the civilian crews with military in

the areas of stores handling and ship operators would minimize the concern of crew endurance. The billet cost savings would be less but it is a good compromise between cost and mission.

A decision on the transfer of all CLF ships to MSC should consider not only potential cost savings, but also, the qualitative factors that will impact the operational commander. Before we answer the **PIED PIPER** call to the almighty dollar, we must put a higher price on mission accomplishment. Logistics already drives a substantial portion of the operational planning. Let us not further hamper the operational commander's ability to perform his mission.

APPENDIX I

NFAF VESSELS

FLEET OILERS

Marias (T-AO 57)*
Taluga (T-AO 62)*
Mispillion (T-AO 105)*
Navasota (T-AO 106)*
Passumpsic (T-AO 107)*
Pawcatuck (T-AO 108)*
Waccamaw (T-AO 109)*
Neosho (T-AO 143)
Mississinewa (T-AO 144)*
Hassayampa (T-AO 145)*
Kawishiwi (T-AO 146)
Truckee (T-AO 147)*
Ponchatoula (T-AO 187)
Henry J. Kaiser (T-AO 187)
Joshua Humphreys (T-AO 188)
John Lenthall (T-AO 189)
Andrew J. Higgins (T-AO 190)
Benjamin Isherwood (T-AO 191)**
Henry Eckford (T-AO 192)**
Walter S. Diehl (T-AO 193)
John Ericsson (T-AO 194)
Leroy Grumman (T-AO 195)
Kanawha (T-AO 196)
Pecos (T-AO 197)
Big Horn (T-AO 198)**
Tippecanoe (T-AO 199)**
Guadalupe (T-AO 200)**
Patuxent (T-AO 201)**
Yukon (T-AO 202)**
Laramie (T-AO 203)**
Rappahannock (T-AO 204)**

STORES SHIPS

Sirius (T-AFS 8)
Spica (T-AFS 9)
Saturn (T-AFS 10)

COMBAT STORES SHIPS

Rigel (T-AF 58)

FLEET AMMO

Kilauea (T-AE 26)

*Deactivated

**Under Construction

FBM RESUPPLY SHIPS

Norwalk (T-AK 279)*
Furman (T-AK 280)*
Victoria (T-AK 281)*
Marshfield (T-AK 282)
Vega (T-AK 286)

OCEAN SURVEILLANCE SHIPS

Stalwart (T-AGOS 1)
Contender (T-AGOS 2)
Vindicator (T-AGOS 3)
Triumph (T-AGOS 4)
Assurance (T-AGOS 5)
Persistent (T-AGOS 6)
Indomitable (T-AGOS 7)
Prevail (T-AGOS 8)
Assertive (T-AGOS 9)
Invincible (T-AGOS 10)
Audacious (T-AGOS 11)
Bold (T-AGOS 12)
Adventurous (T-AGOS 13)
Worthy (T-AGOS 14)
Titan (T-AGOS 15)
Capable (T-AGOS 16)
Tenacious (T-AGOS 17)
Relentless (T-AGOS 18)
Victorious (T-AGOS 19)
Able (T-AGOS 20)
Effective (T-AGOS 21)**
Loyal (T-AGOS 22)**
Impeccable (T-AGOS 23)**

FLEET TUGS

Atakapa (T-ATF 149)*
Mosepela (T-ATF 158)*
Powhatan (T-ATF 166)
Narragansett (T-ATF 167)
Catawba (T-ATF 168)
Navajo (T-ATF 169)
Mohawk (T-ATF 170)
Sioux (T-ATF 171)
Apache (T-ATF 172)

APPENDIX II

Cost Savings for AFS Class Transfer

NAVY BILLETS ELIMINATED

OFFICER	ENLISTED	SAVINGS (\$ Millions)
27	419	\$ 17.3

MILITARY SEALIFT COMMAND COST

CIVIL SERVICE BILLETS		MILITARY DETACH.		TOTAL COST
<u>NUMBER</u>	<u>COST</u>	<u>NUMBER</u>	<u>COST</u>	
135	\$5.3	49	\$2.2	\$ 7.5

TOTAL SAVINGS (BILLETS SAVED - MSC CREW COSTS)

BILLETS ELIMINATED	\$ 17.3
MSC BILLET COST	\$ 7.5
TOTAL SAVINGS (PER SHIP/YEAR)	\$ 9.8

** Data derived from "Civilian Manning of Combat Logistics Force Ships: The Potential for Cost Savings", Center for Naval Analysis, 1990.

APPENDIX III

UPDATED **
Cost Savings for AFS Class Transfer

NAVY BILLETS ELIMINATED

OFFICER	ENLISTED	SAVINGS (\$ Millions)
27	419	\$ 17.3

MILITARY SEALIFT COMMAND COST

CIVIL SERVICE BILLETS		MILITARY DETACH.		TOTAL COST
<u>NUMBER</u>	<u>COST</u>	<u>NUMBER</u>	<u>COST</u>	
143	\$5.6	55	\$2.5	\$ 8.1

TOTAL SAVINGS (BILLETS SAVED - MSC CREW COSTS)

BILLETS ELIMINATED	\$ 17.3
MSC BILLET COST	\$ 8.1
TOTAL SAVINGS (PER SHIP/YEAR)	\$ 9.2

** Data updated to reflect changes in Crew Size
*** Data derived from "Civilian Manning of Combat Logistics Force Ships: The Potential for Cost Savings" Center for Naval Analysis, 1990

APPENDIX IV

CONSTRUCTION COSTS
(\$ in millions)

FIVE YEAR LIFE EXPECTANCY

BILLET COST SAVINGS \$ 138
(5 yrs x \$9.2m x 3 vessels)

CONVERSION COSTS \$ 77
(2 vessels x \$11 m) + (1 vessel x \$55 m)

OFF-LINE OPERATIONS COSTS \$ 16.9
(2 vessels x (5 months x \$8.1m))
(1 vessel x (15 months x \$8.1m))

TOTAL COSTS \$ 93.9

POTENTIAL SAVINGS (3 vessels 5 years) \$ 44.1
or \$ 2.9 million per ship

TEN YEAR LIFE EXPECTANCY

BILLET COST SAVINGS \$ 276
(10 yrs X \$9.2m x 3 vessels)

CONVERSION COSTS \$ 132
(3 vessels x \$44m)

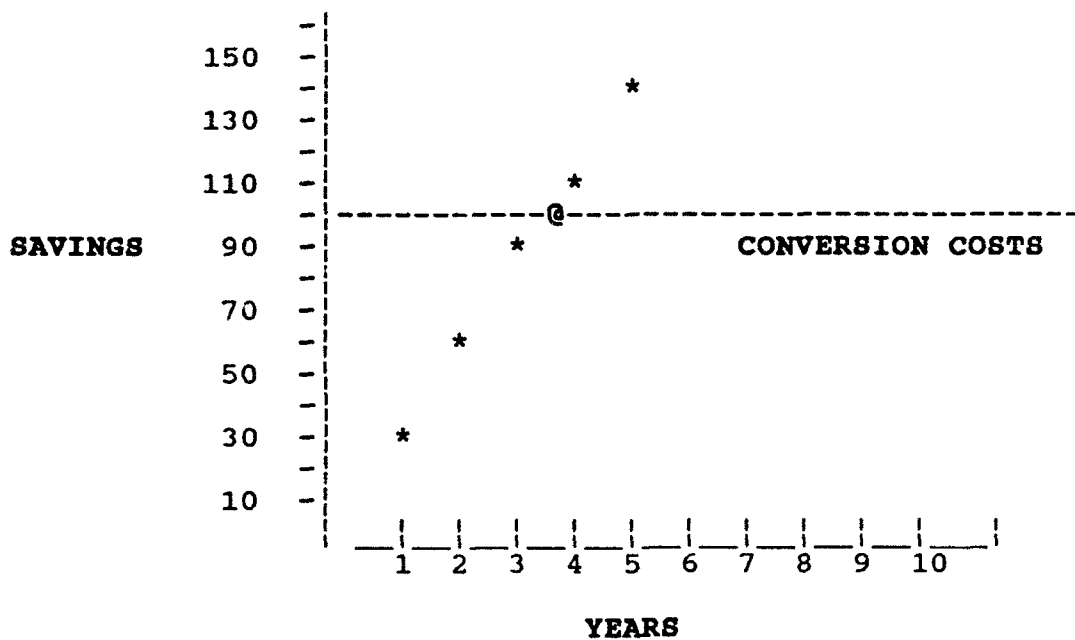
OFF-LINE OPERATIONS COSTS \$ 20.3
(3 vessels x (10 months x 8.1m))

TOTAL COSTS \$152.3

POTENTIAL SAVINGS (3 vessels 10 years) \$123.7
or \$ 4.1 million per ship

APPENDIX V

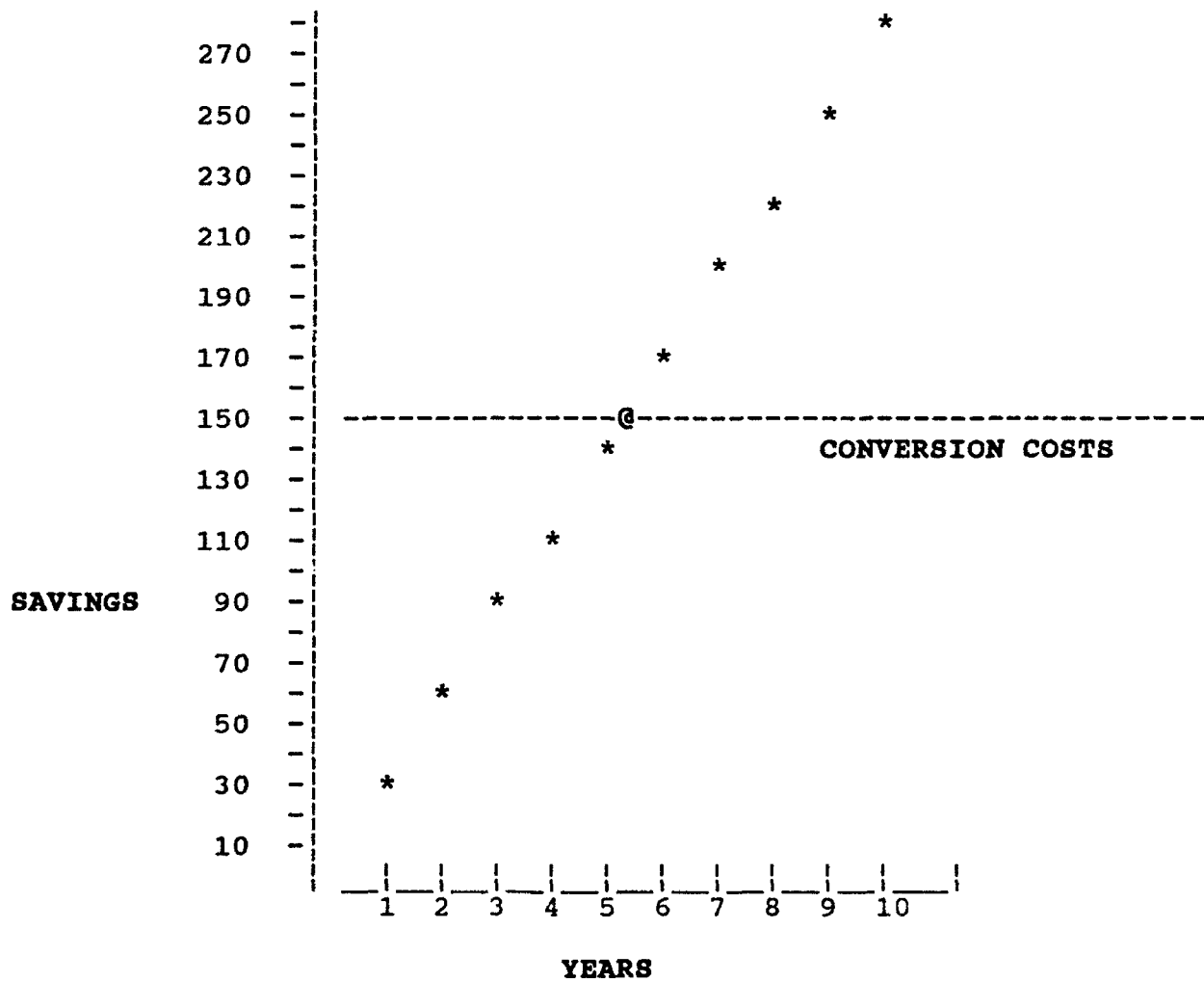
BREAK EVEN POINT FIVE YEAR LIFE CYCLE



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APPENDIX VI

BREAK EVEN POINT TEN YEAR LIFE CYCLE



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NOTES

Chapter I

1. Nancy Breen, "Bravo Zulu Naval Fleet Auxiliary Force", SEALIFT, May 1992, p. 4.

Chapter II

1. Deputy Assistant Chief of Naval Operations (Surface Warfare), Cost Savings of Civilianization of Combat Logistics Force Ships. (Washington: 1989) pp. 1-4.

2. Commander Military Sealift Command, Civilian Manning of Additional Fleet Support Ships. (Washington: 1988) pp. 2-5.

3. Center for Naval Analyses, Civilian Manning of Combat Logistics Force Ships: The Potential Cost Savings. (Alexandria, VA: 1990) pp. 1-23.

4. Telephone Conversation with Mr. A. Diaz, MSC Conrep, AFS Conversion program, San Diego CA, 31 January 1993.

Chapter III

1. Commission on Merchant Marine and Defense, Third Report: Findings and Conclusions. (Washington: 1988) p. 13.

2. Mark R. Lenci, "Manning Strategic Sealift in the Year 2000", Unpublished Research Paper, U.S. Naval War College, Newport, RI: 1991, pp. 10-11.

3. "Sealift Program Starts to Pick Up Speed", Marine Log, December 1992, pp. 34-40.

4. Letter from VADM M. Kalleres to RADM D. Morris, 28 October 1992.

5. Francis R. Donovan, "Surge and Sustainment", Sea Power, November 1990, p. 45.

Chapter IV

1. Robert A. Kilmarx, America's Maritime Legacy: A History of the U.S. Merchant Marine and Shipbuilding Industry Since Colonial Times. (Westview Press, 1979), p. 199.
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3. James Kitfield, "Civilian War", Government Executive, December 1990, p. 30.
4. Ibid., p. 26.
5. Ibid., p. 30.
6. U. S. Dept. of Defense, Conduct of the Persian Gulf Conflict, An Interim Report to Congress. (Washington: 1991), p. 9-2.
7. Telephone conversation with Mr. A. Diaz, MSC Conrep, AFS Conversion program, San Diego CA, 31 January 1993.
8. James Kitfield, "Civilian War", Government Executive, December 1990, p. 1.
9. Telephone conversation with Mr. A. Diaz, MSC Conrep, AFS Conversion program, San Diego CA, 31 January 1993.
10. Ibid.

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