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**SEALIFT IN CRISIS: STATE OF THE
READY RESERVE FORCE**

by

T. A. Flisk
LCDR, USN

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.

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Abstract of

SEALIFT IN CRISIS: THE STATE OF THE READY RESERVE FORCE

The Desert Shield/Desert Storm Operation illuminated significant problem areas with the U.S. Strategic Sealift program. These problems directly impacted the U.S. ability to deploy significant forces into a major regional conflict. I intend to review the role of the Ready Reserve Force(RRF) in this operation. I will highlight problems identified and what solutions are and should be implemented to correct the RRF shortcomings.

BACKGROUND

What is the Ready Reserve Force(RRF)?. The RRF is a specific component of the National Defense Reserve Fleet(NDRF). As of September, 1992 the total number of vessels in the NDRF numbered 302. Of that number 96 were assigned to the RRF.(see 1)

The NDRF and it's component RRF vessels are maintained under the Department of Transportation(DOT) through it's Maritime Administration(MARAD). The MARAD is responsible for the layup and maintenance of these vessels and in the event of an emergency, their outfitting and manning for activation. The RRF was created in 1976 via a Memorandum of Agreement(MOA) between the Department of Defense(DOD) and the MARAD. The purpose of the RRF component is provide rapid, surge related emergency sealift capacity within specific activation periods(5 day, 10 day and 20 day). The original number of vessels was 30. A DOD sealift study conducted in 1984, however called for a minimum of 100 dry cargo vessels. (see 2) Currently, the planned goal for the RRF is a total of 140 vessels. (see 3)(see table 1 for organization)

The process for activation is not complex. The MARAD will activate the number of vessels required per request of the Secretary of the Navy(SECNAV).(see 4) OP-42(MSC) will request through SECNAV the particular vessels required. If the Maritime Administrator concurs, he orders the particular vessels activated. The vessels while in layup are maintained by General Agents or Ship's Managers. These are civilians who have been contracted to activate, deactivate, outfit and man their particular vessels.

The MARAD regional offices will direct the Ship Managers to commence activation. This process includes:

- a) Light off and system tests
- b) POL onload
- c) voyage repairs
- d) Towing to industrial activity
- e) Outfitting
- f) Crewing of the vessels

This activation will be conducted in conjunction with a MARAD Surveyor. Both during the process and upon completion of the above the U.S. Coast Guard will provide final certification and waivers. The MARAD and the USCG have a Memorandum of Understanding(MOU) dated 1989 which outlines special inspection periodicities and other relaxations for RRF vessels.(see 5) MARAD also has a MOU with the American Board of Shipping(ABS) dated 1987 for expediting surveys of RRF vessels to ensure they are maintained within class.(see 6) The purpose of the above agreements are to allow RRF vessels some flexibility in operational testing and inspection criteria because of their extended inactive periods. MARAD must meet the requirements of both MOUs prior to the vessel sailing:

Once certified, the vessel is turned over to the Military Sealift Command(MSC) an element of the U.S. Transportation Command(USTRANSCOM). For deactivation, the vessels are returned to MARAD control and their Ship Managers for repairs and eventual layup.

PART I

DESERT SHIELD/STORM IDENTIFIED SEALIFT PROBLEMS WITH THE RRF

There have been several sealift and strategic mobility studies conducted. Notably, they have been; the 1984 DOD Sealift Study, the Revised Intertheater Mobility Study and the Commission on Merchant Marine and Defense Study. These studies all identified significant shortcomings in sealift capacity (U.S. flag carriers) which in given scenarios would drastically delay force arrival in theater. (see 7) The Desert Shield/Storm Operation illustrated these problems clearly, and provided validity to these studies by requiring force delivery into SouthWest Asia in piecemeal fashion.

The Desert Shield/Storm operation conducted essentially two separate phases for activation of RRF vessels. They were:

Phase 1. (surge support) August 1990. 44 vessels activated (including all 17 RO/ROs)

Phase 2. (follow on support) November 1990 through February 1991. 27 vessels activated.

(tables 2 through 5 breakdown vessel types, readiness levels as well as activation summaries). (see 8)

To summarize, only 12 of the 44 vessels of phase 1 met their activation periods and only 6 of the 27 ships of phase 2 met their activation criteria. In fact, a significant number in both phase were tardy in excess of 5 days. (see 8) The problems and delays in activation can be directly linked to one or more of the following six principal conditions:

1. RRF funding inadequacies.

2. Unrealistic DOD activation periods vs. material condition of the vessels.
3. RRF maintenance and management difficulties.
4. RRF manning(vessel crewing)
5. Inadequate logistical support for the RRF.
6. Inadequate Desert Shield/Storm force and logistical planning.

RRF Funding Inadequacies.

Money, or rather the lack there of, is pointed to as one of the primary causes for the inadequate response of the RRF. In FY 1990, MARAD requested 239 million dollars for RRF funding. They actually received 89 million dollars.(see 9) In 1985, ships in the RRF could be maintained for approximately 700,00 dollars per annum, with individual ship activations costing 1.6 million dollars per unit.(see 10) Table 6 lists RRF appropriated funding levels from 1986 through 1992. FY 91 levels reflect an increase in 20 million dollars for emergency supplemental funds for Desert Shield/Storm.(see 11)

I believe these funding constraints were key to the difficulties encountered in activating the vessels. The primary fiscal cause as reported by both MARAD and MSC was the FY 90 shortfall. This shortfall resulted in cancellation of the force wide test activation program.(see 12) The elimination of the testing coupled with average age of the RRF ships of over 25 years prevented Ship Managers and MARAD Surveyors from identifying material failures and conducting subsequent repairs prior to the emergency activations.

Unrealistic DOD Activation Periods vs Ship Material Condition.

As discussed under funding, the average age of the RRF vessels is in excess of 25 years. Obviously inherent with this age and the extensive layup periods were the Hull, Mechanical and Electrical(H,M&E) difficulties discovered during the activations which should have been anticipated.

The Navy determines the activation periods for the RRF vessels. As of FY 91, 69% of all RRF vessels were placed in a 5 day readiness category.(see 13) This has been primarily due to the Navy's policy of assigning all newly acquired vessels to the 5 day category.

Activation and delivery of vessels to a port of embarkation within 5 days is unrealistic considering the status of the RRF vessels(no systems up, no crew aboard), no matter what the material condition of the vessel was prior to layup. Experience has shown that U.S. Navy war ships, in overhaul(inactive status), with a crew familiar with the vessel onboard and within a capable industrial facility, require several days to conduct pre-startup maintenance, activate systems, isolate and repair failures as well as onload the vessel.

After the Shield/Storm activations, the Shipbuilder's Council of America(SCOA) reported that with the data available to them, that the average dry dock period for the RRF vessels was ten days(see 14). A significant portion of the delays were caused by the poor material condition of the main propulsion and auxiliary equipment.(see 15)

RRF Maintenance and Management difficulties.

An additional problem area involved some of the ship management and equipment layup procedures utilized on the RRF vessels. During the emergency activations many of the Ship Managers and MARAD Surveyors performed superbly in preparing their vessels, however, a few proved inadequate. Contracts proved to inadequately cover layup procedures nor were there means installed to aggressively inspect the layups. With technical contract specifications lacking, many systems were significantly degraded. Some of the major problems identified were:

- * clogged piping systems such as potable water, sanitation lubricating systems.
- * Freeze damage to piping systems and heat exchangers.
- * Boiler Waterside damage due to failed lay up systems
- * Inadequate material histories for specific equipment.

The above problems are only partially age related but are linked also to a lack of foresight and follow up inspection. (see 16)

During activation, it was noted that there was a lack of standardized procedures or checklist for activation to be utilized by the Ship manager or MARAD Surveyor. Although several did have locally prepared procedures and all had test cards, it was neither uniform or specific enough.

RRF Manning.

The RRF manning problem was two-fold:

- * lack of repair/shipyard personnel
- * lack of crew manpower

Upon towing to the designated industrial activation facility, it was found that there was an inadequate number of repair facilities and qualified repair personnel available. Most of the repair facilities are small and were quickly swamped with the rapid call up of vessels. Many of the overflow were directed to Philadelphia Naval Shipyard(PNSY) and the Mare Island Facility. As indicated earlier, many of the vessels were drydocked up to 10 days which created a snowball effect and delayed vessels waiting there turn in the dock. Critical job specialists experienced with these hulls were in short supply. Some examples were welders, fitters, and electricians. Because of the ever declining rate of ship repair contracts, yards have been closing and subsequently the individual trade unions have made substantial cuts in their apprenticeship programs. The manpower for outfitting these vessels rapidly is just not available in the short term.

RRF crew manning also proved to be an issue during activation. Declining numbers of merchant mariners as well as the skill levels required to operate the vessels has long been a concern of both MARAD and MSC. In October 1985, the Navy and MARAD sponsored a command post exercise called BREAKOUT 85. It demonstrated that with a 69 ship RRF(approximately 3000 mariners) that their was adequate manpower, however, it was noted that for expected FY 91 levels(approximately 5000 mariners) the manpower pool might prove inadequate. (see 17) The Shield/Storm operation did not activate to RRF in its' entirety nor require activation to happen immediately, however, there were sailing delays due to

lack of complete manning. As reported by MARAD, of particular difficulty was finding experienced senior engineers and radio officers.. DOT Secretary Skinner stated; "putting less than half of the emergency fleet in service has nearly exhausted the nations supply of merchant mariners".(see 18)

The task of manning the vessels is the responsibility of the contracted Ship Managers. Most, but not all the contractors have working agreements with the various mariner's unions. There is no contractual obligation for rosters by name for the crewing of specific vessels. MARAD and the contractor have to except the assurances of the union halls that they can fill the billets in the event of an activation. Additionally, there are no requirements except for USCG licensing for ship specific knowledge of the proposed crew members.

Without knowing who is to man the vessels, and relying on the union halls to provide the personnel coupled with a need to man the 5 day activation vessel enginerrooms within 48 to 72 hours is quite clearly a major obstacle for activation.

Inadequate Logistical Support for RRF Vessels.

One of the major obstacles to vessel activation proved to be the availability of repair parts. The lack of specific material history for the vessel's equipment and lack of repair part validation prevented timely repairs critical for sailing. (see 19). An additional problem occurred when attempts to obtain the repair parts were stymied by their lack of availability due to equipment obsolescence and unidentified suitable substitutions.

Inadequate Desert Shield/Storm force and logistic planning.

This issue in itself may have degraded the total U.S. Sealift capacity thereby reducing the effectiveness of the RRF surge and follow on performance.

The "push" philosophy inherent in the logistical effort seriously degraded lift capacity. An enormous amount of material was shipped that could not have been used in theater. The huge amount of ammunition shipped well exceeded the force requirements in theater.

Another aspect was in "cargo growth" or "residual equipment". This was unplanned weight and size increases which directly effected maximum lift capacities. This increased lift requirements in some units anywhere from 25 to 100% as identified on the units data base in the time phased force and deployment data (TPFDD). This is due to unit oversights in updating the data base as well as incomplete installation of the system force wide. (see 20)

Is the RRF the Answer?

The above six categories will require correction in order to make the RRF a viable strategic asset and to ensure it performs to the operational standards that is desired by the CINCs. Primarily due to the RRFs poor showing, there was a larger than anticipated reliance on foreign flag merchant vessels to lift U.S. forces to Southwest Asia (47 of 73 commercial vessels hired). (see 21)

Based on the results of the RRFs performances and the use of foreign flag hulls, several previous analysts have proposed, in general, one of two below listed arguments.

- 1.) The use of foreign flags indicate the declining state of the U.S. Merchant fleet and emphasis should be placed on subsidation of the U.S. Merchant Marine.
- 2.) There is no need for the RRF. For major contingencies we simply tear a page from the Shield/Storm playbook and immediately begin hiring foreign flag hulls.

I do not consider the above two options viable. Number 1 could prove extremely expensive and still not guarantee the surge lift required in an emergency. Option number 2 only considers contingencies that would have allied concurrence. Unilateral operations may be hazarded by uncooperative lift sources.

The most reliable source of lift should be the RRF. It may take some significant restructuring but it can be both viable and affordable. Let's see how.

PART II

FIXING THE PROBLEM

MSC, DOT and the MARAD were not unaware of the activation difficulties evidenced during the Desert Shield/Storm operation. In April 1991 a joint DOD/DOT working group, referred to as the Ready Reserve Force Working Group (RRFWG) was created by both the Deputy Assistant Secretary of Defense (Logistics) and the Deputy Secretary of Transportation to evaluate RRF readiness and propose recommendations to enhance RRF viability.

RRF Funding.

Although the RRFWG did not address the fiscal constraints as necessarily a separate issue, their specific recommendations identified higher costs involved in contracting and maintenance as well as emergency funding. (see 22) Some specifics include:

- * Increase of 7 million dollars in FY 93 for Ship Manager contract revisions. (in FY 92 8 Managers remained under contract) (see 23)
- * Revised procedures for maintenance and layup
 - 3.7 million for Reduced Operating Ships (ROS)
 - 2.8 million for 5 day vessels
 - 2.4 million for 10 and 20 day vessels
- * Accelerated repair parts and spare equipage programs with annual costs of 3 to 4 million dollars.
- * A proposed Civilian Merchant Marine Reserve program with an annual projected cost of 14.7 million dollars.

These proposals, which we will review separately are in themselves ambitious, however, the cost will be staggering in

comparison to previous fiscal years. The revised activation, maintenance and layup schedule alone will cost in excess of 270 million dollars annually (this is assuming a total of 96 vessels in the RRF remains a constant and that all 17 RO/ROs currently in the inventory, and only the RO/ROs, are placed in a ROS status.) This sum far exceeds the total RRF budget for FY 92 which was 225 million dollars.

With the Shield/Storm details still fresh in congressional minds this proposal may be viable but could become less popular in out years as the military continues downsizing and emphasis is placed on other programs. A more radical restructured for the RRF in the long run may be required.

DOD Activation Periods.

As discussed earlier, 65 of the 97 vessels in the RRF are designated as 5 day call up vessels. The RRFWG proposed the following activation modifications: (see 24)

- * Outport high priority vessels. That is place vessels at or near their port of embarkation. (currently 50 vessels are in outport status) (see 25)
- * Create a Reduced Operating Status (ROS) category of for the the highest priority vessels. These vessels are placed in 4 day activation schedules at their port of embarkation. They would be assigned a ROS crew and would not require an industrial facility for reactivation.
- * 5 day vessels would be outported near their port of embarkation both within reach or at their assigned

industrial facility for call up. They would maintain a skeleton crew for maintenance.

- * The Department of the Navy is to review their activation criteria in order to revise individual ship status.

These above proposals address the activation readiness issue succinctly, however, I do not believe it encompasses the probable budgetary constraints discussed earlier. A much greater restructuring vice a shuffling of the RRF could be the solution.

The surge call up during Shield/Storm was for 44 vessels. The primary purpose of the RRF vessels is to provide high priority sealift to meet contingencies whether they are minor or major regional conflicts. I recommend removing the 10 and 20 day categories in their entirety and reduce the number of RRF vessels to approximately 65 to 69. This would retain the ROS and 5 day categories as well as reduce the annual maintenance cost down to approximately 200 million dollars. We would still be retaining a large, tailored and highly responsive sealift capability. This will require much more detailed contingency and logistical planning but allow more concentration of fiscal assets per hull as well provide MARAD planners more flexibility in prioritization during more bleak fiscal years. As demonstrated in Shield/Storm a 65 vessel call up in conjunction with the Afloat Prepositioning Ships (APS) could meet the surge requirements of a major regional conflict.

RRF Management and Maintenance Procedures.

The RRFWG proposed an increase in funding to allow individual Ship's Mangers to contend with emergency activations. This includes: (see 26)

- * Waivers to deviate from standard contract procedures.
- * Higher standards of technical competency.
- * Increase emergency credit levels.
- * Uniform guidelines and procedures for vessel activation.
- * Initiate material condition records for all vessels.
- * Establish working priorities for Ship repair facilities.
- * Establish specific layup/maintenance/test requirements.

These proposals have been acted upon and are almost in 100% compliance. Currently the material histories and comprehensive activation checklists are still in process of finalization.

For 5 day vessels, the RRFWG proposed sea trials and dock trials in alternate years. The cost being 1.2 and 1.1 million dollars respectively. (see 27) I recommend modifying that proposal to delete docktrials and conduct annual sea trials. This would mean a small cost increase per 5 day vessel but the benefits of a full sea trial will in the long run outweigh the cost increase. The sea trial would permit meaningful data gathering in ship's system interdependency not normally observed during dock trials such as sustained full power demonstrations, distilling plant operations under full steam load and loaded steering gear testing.

The RRFWG also proposed standardized boiler layup procedures as well as utilizing freeze proof solutions in piping systems. (see 28) For boiler layups I would recommend hot air dry

layup vice a wet layup. This would be less expensive and would not require removal of hazardous material(HAZMAT) or as much time to transition to a steaming system. For piping systems, freeze proof solution would also require HAZMAT disposal and add on additional flushing criteria. Utilizing a positive pressure nitrogen layup might prove more useful. The inert gas is relatively inexpensive, would not require additional flushing criteria and allow maintenance personnel to, with a glance at a gage, determine if there is a system leak.

RRF Manning.

In order to alleviate the manning issue, the RRFWG proposed the following recommendations:(see 29)

- * Permit Ship Managers to obtain qualified labor from other than one source.
- * Establish a manning board to include union leadership, DOT, DOD and Ship Managers.
- * Formulate a Civilian Merchant Marine Reserve program.
- * Support legislation for mariner reemployment rights.

Of all areas required to be addressed, the manning issue is by far the most complex. The U.S. is faced with an ever shrinking pool of qualified mariners. In 1990, it numbered 25,000 and is anticipated to drop to 11,000 by the year 2000.(see 30)

It is my contention that the RRFWG proposals in this area are not far reaching enough. It proposes to allow Ship Managers to look for personnel through "other" sources, which translates into bypassing the governing unions. This may in reality, at the time of an emergency activation, create orchestrated work

stoppages, slow downs and strikes. The mariner unions have demonstrated in the past they will not tolerate infringement on their membership. I recommend that the unions should be required, by law if necessary, to submit a crew roster by name for each individual vessel. They should be required to update this list semiannually. if the unions should be unable to meet the requirement by either design or neglect, they should be informed at that time that services will be located through other sources and the Ship manager should be authorized to immediately begin filling the billets. This would negate many problems prior to vessel activation.

The RRFWG proposal concerning the establishment of a Civilian Merchant Marine Reserve program is not a new idea. To support this program, we could tap into an unused source. The Navy is in the process of deactivating numerous steam driven hulls which has created an overabundance of highly qualified boiler technicians and machinists. These personnel could easily transition to the proposed reserve program. Such a move would require DOT mandates for licensing equivalency testing through the USCG. Additional, a review of the USCG requirement for recent at sea experience would have to be looked into. Reserve personnel, whether Merchant or Navy may not meet this requirement due to lengthy inactive periods.

RRF Logistical Support.

The RRFWG addressed the logistical support issue within the RRF and proposed that the MARAD accelerate it's efforts to

implement a systematic program to increase repair part inventory and complete equipment validations. (see 31)

This recommendation is being met now by MARAD. I would only add the caveat that the above program would function much more efficiently with a smaller, less aged RRF. By setting a maximum age limit on vessels during the activation phase and steering more toward standardization of hull equipage, the system could become quite flexible and provide a significant depth in repair assets.

Operational Force Deployment and Logistical Planning.

This issue was not addressed by the RRFWG, but it clearly has the greatest impact on sealift capacity. As discussed earlier, logisticians were plagued with cargo growth problems which were enormous. It is not the purpose of this paper to review this problem in depth or propose detailed solutions, however, it is imperative that effective deployment planning and logistical support planning be as thorough as possible in order to effectively utilize our sealift assets. Force planning should be married directly to specific hulls with alternate hulls designated. The means to do this is available within the TPFDD data base which must become common for all users from the sealift side to the individual combat units.

PART III

SUMMARY

In summation I have proposed the following to increase RRF readiness:

1. Reduce the RRF to only ROS-4 and 5 day activation periods. Set a maximum number of RRF ships at 65 to 69 and retire all others.

2. Increase the specificity of the layup procedures with an eye toward reducing the time required to transition from cold iron to steaming condition.

3. Conduct annual sea trials for all vessels.

4. Augment a Civilian Merchant Marine Reserve with U.S. Navy personnel. Obtain licensing and experience waivers on a case by case basis.

5. Establish firm force package planning for various sized contingencies and marry directly to specific hulls.

An operationally viable RRF is the key to contingency operations. With this ready source of responsive sealift, U.S. forces can, in quantity, be projected globally.

RRF STRUCTURE TABLE OF ORGANIZATION

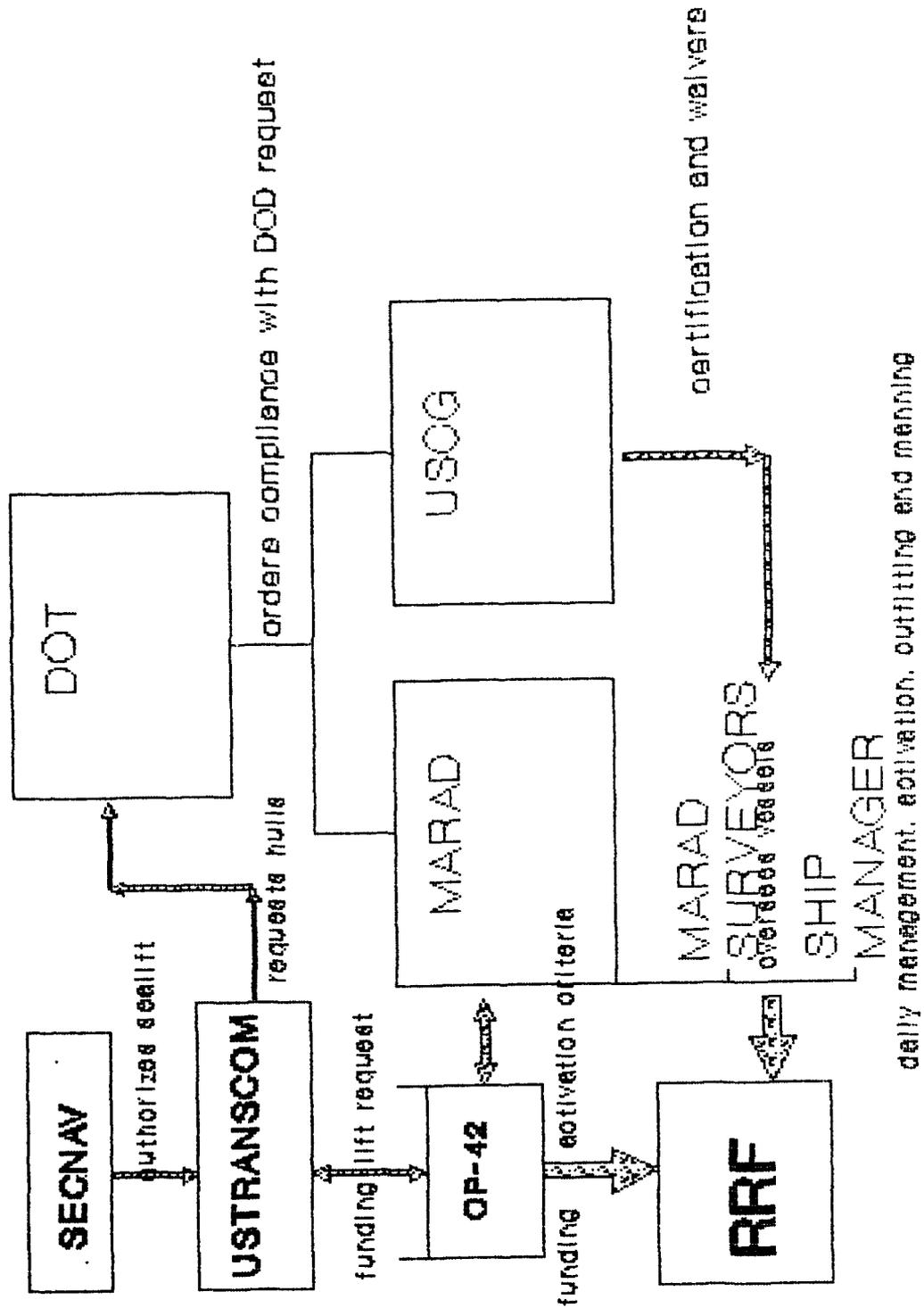


TABLE 1

TABLE 2
SURGE PHASE ACTIVATION

<u>VESSEL TYPE</u>	<u>NUMBER ACTIVATED</u>
BREAKBULK	17
CRANE	2
HEAVY LIFT	7
RO/RO	17
TANKER	1
TROOPSHIP	0
TOTAL	44

SEE 9 P 6-2

TABLE 3
FOLLOW ON ACTIVATION

<u>VESSEL TYPE</u>	<u>NUMBER ACTIVATED</u>
BREAKBULK	24
CRANE	1
HEAVYLIFT	0
RO/RO	0
TANKER	2
TROOPSHIP	0
TOTAL	27

SEE 9 P 6-2

TABLE 4 SURGE SUMMARY

ACTIVATION PERIOD	READINESS PERIOD			TOTAL
	6 DAY	10 DAY	20 DAY	
EARLY/ON TIME	8	3	1	12
<=5 DAYS LATE	10	2	0	12
6-20 DAYS LATE	15	1	0	16
>20 DAYS LATE	4	0	0	4
TOTAL	37	6	1	44

SEE 8 P 6-4

TABLE 5 FOLLOW ON SUPPORT

ACTIVATION PERIOD	READINESS PERIOD			TOTAL
	6 DAY	10 DAY	20 DAY	
EARLY/ON TIME	3	2	1	6
<5 DAYS LATE	6	1	0	7
6-20 DAYS LATE	4	1	0	5
>20 DAYS LATE	5	4	0	9
TOTAL	18	8	1	27

SEE 9 P6-5

TABLE 6
RRF FUNDING LEVELS

<u>FISCAL YEAR</u>	<u>TOTAL</u>
1986	335.6M
1987	207.3M
1988	129.8M
1989	110.7M
1990	89M
1991	245M
1992	225M(REQUESTED)

SEE 9 P3-13

FOOTNOTES

1. NR. 9 P. 52
2. NR. 8 P. 3-3
3. NR. 9 P. 53
4. NR. 6 P. 5
5. NR. 8 ANNEX H
6. NR. 8 ANNEX I
7. NR. 1 P. 9
8. NR. 1 P 13, NR 8 P. 6-1
9. NR. 1 P 13
10. NR. 6 P. 6
11. NR. 8 P. 3-13
12. NR. 8 P. 6-5
13. NR. 8 P. 6-7
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16. NR. 8 p. 6-15
17. NR. 7 P. 63-64
18. NR. 5 P. 5
19. NR. 8 P. 6-9
20. NR. 1 P. 16
21. NR. 1 P. 18
22. NR. 8 P. 1-1, 1-12
23. NR. 9 P. 57
24. NR. 8 P. 1-4
25. NR. 9 P.53
26. NR. 8 P. 1-2
27. NR. 8 APPENDIX A
28. NR. 8 P. 6-15
29. NR. 8 P. 1-8
30. NR. 8 P. 1-7
31. NR. 8 P 1-8

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