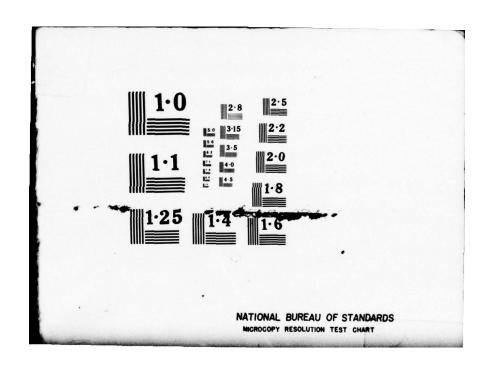
OFFICE OF THE CHIEF OF NAVAL OPERATIONS WASHINGTON D C AN ANALYSIS OF NAVY LOGISTIC PLANNING FACTORS.(U) MAR 78 P A FRIES, B A GRUBER, J LEMMO F/G 15/5 AD-A055 752 NL UNCLASSIFIED 1 OF 2 055752 題





CS

50

1

30

50

DEPARTMENT OF THE NAVY OFFICE OF THE CHIEF OF NAVAL OPERATIONS WASHINGTON, D.C. 20350

Ser OP-96/590279

05 .IUN 1978

From: Chief of Naval Operations

To: Distribution List

Subj: Final Report of Phase I of "An Analysis of Navy

Logistic Planning Factors" Study; promulgation of

Encl: (1) Subject Report

The study, "An Analysis of Navy Logistic Planning Factors", was undertaken to develop a rationale and methodology for updating or validating Navy logistic planning factors used in the Joint Operation Planning System (JOPS). The study is being conducted in two phases, as follows:

Phase I; for items used in peacetime, development of rationale and methodology for constructing logistic planning factors are based on peacetime issue data, and adjusted by combat intensity factors such as wartime vs. peacetime flying hours and steaming hours. For non-peacetime items (basically nonnuclear ordnance), the logistic planning factors will be derived from the Non-nuclear Ordnance Requirements (NNOR) system. (Nuclear ordnance is not included in this study.)

b. Phase II; acquisition of an automated data base; testing of the methods developed in Phase I; and production of prototype wartime planning factors.

The study has acquired a data base of 1 year's issue data (October 1974 to September 1975) for use in Phase II of the study. Analysis of the data and calculation of prototype factors are scheduled for completion by 30 September 1978.

3. Enclosure (1), describing the Phase I effort, now completed, is forwarded.

This document has been are INS GOCUMENT NOS DOON GENTON Distribution List: distribution is unlimited. See Page 2

N. SMALL Discor

Navy Program Planning

78 06 19 118

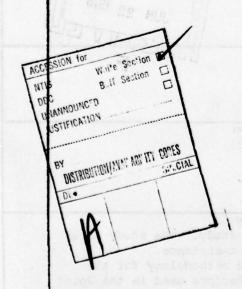
SECURITY CLASSIFICATION OF THIS PAGE (When Date Entered) READ INSTRUCTIONS BEFORE COMPLETING FORM REPORT DOCUMENTATION PAGE 2. GOVT ACCESSION NO. 3. RECIPIENT'S CATALOG NUMBER 1. REPORT NUMBER S. TYPE OF REPORT & PERIOD COVERED TITLE (and Subtitle) An Analysis of Navy Logistic Interim Planning Factors 4. PERFORMING ORG. REPORT NUMBER CONTRACT OR GRANT NUMBER(+) AUTHOR(+) Final rept. P.A. Fries, Jr. N00014-76-C-1130 B.A. /Gruber J. Lemmo, K. Talbott PERFORMING ORGANIZATION NAME AND ADDRESS Chief of Naval Operations (OP-401G) Washington, D.C. 11. CONTROLLING OFFICE NAME AND ADDRESS 12. REPORT DATE Deputy Chief of Naval Operations 15 Mar 78 (Logistics) OP-04, Washington, D.C. 110 14. MONITORING AGENCY NAME & ADDRESS(II different from Controlling Office) IS. SECURITY CLASS. (of this Chief of Naval Operations, Unclassified Systems Analysis Division, (OP-96) 154. DECLASSIFICATION/DOWNGRADING Washington, D.C. 16. DISTRIBUTION STATEMENT (of this Report) Approved for public release; distribution unlimited 17. DISTRIBUTION STATEMENT (of the shetrest entered in Block 20, if different from Rep 18. SUPPLEMENTARY NOTES 19. KEY WORDS (Continue on reverse side if necessary and identify by black number) 20. ABSTRACT (Continue on reverse side if necessary and identify by block number) This report describes Phase I of a two phase study. The study is an in-house effort by Navy personnel with contractor assistance. > Phase I of the study develops a rationale and methodology for the creation or validation of Navy Logistic Planning Factors used in the Joint Operation Planning System. > Phase II will acquire a data base and test the proposed methodology by producing prototype logistic planning factors. The Navy desires that Service planning be compatible with Joint Planning to the extent feasible. For this reason, the Navy resupply logistic

DD 1 JAN 73 1473

EDITION OF 1 NOV 68 IS OSSOLETE S/N 0102-LF-014-6601 264850 Pay

planning factor data published in Table 1.5 of <u>Logistics Reference Data</u>, <u>NAVMAT P-4000-2</u> were selected as prototypes for use in the Joint Operation Planning System and in the Logistics Annex of the Joint Strategic Capabilities Plan.

For peacetime based consumption of Navy materiel, methodology recommended in this report consists of a computerized analysis of Navy issue data collected from all sources (GSA, DLA, Services) in the period 1 October 1974 to 30 September 1975. This data will be processed at the Navy Regional Data Automation Center, Washington, D.C. Peacetime consumption will then be adjusted to wartime rates by applying combat intensity factors and theater environment factors. The methodology for conventional ammunition, not normally consumed in peacetime, will be covered in the Phase II report.





AN ANALYSIS OF NAVY LOGISTIC PLANNING FACTORS PHASE 1

78 06 19 118

OFFICE OF THE
CHIEF OF NAVAL OPERATIONS

AN ANALYSIS OF NAVY
LOGISTIC PLANNING FACTORS
PHASE I REPORT
15 March 1978

TABLE OF CONTENTS

| | | PAGE |
|----------|---|--------------|
| | | AGE |
| TABLE | E OF CONTENTS | i |
| LIST | OF TABLES AND FIGURES | ii |
| EXEC | UTIVE SUMMARY | iii |
| I | INTRODUCTION | 1-1 |
| | | 1-1 |
| | - HONGO H | I-3 I-4 |
| II. | DISCUSSION | 11-1 |
| | | II-1 II-4 |
| III. | FINDINGS | 11-1 |
| IV. | RECOMMENDATIONS | [V-1 |
| APPEN | NDICES | |
| A. B. | Study Plan | A-1 B-1 |
| c. | Brief Discussion of Joint Operational Planning System | 2-1 |
| D. | Summary of Phase I by JOPS Class |)-1 |
| E. F. | Relevant Resupply LPF Literature Summary | |
| G. | Summary of Interviews | 2-1 |
| н. | DODMDS Data Base | |
| ī. | JCS Publication 6 Vol. II Part 5 Chapter 1 I | 1-1 |
| J. | | J-1 |
| K. | Bibliography | K-1 |
| L. | Membership of the Study Group | L-1 |

LIST OF TABLES

| | | | | | | | PAGE |
|-------|-------|---|-----|---|----|------|-------|
| Table | 11-1 | Fleet Logistics Planners' Force List | 21 | ٠ | A. | - 30 | 11-4 |
| Table | 11-2 | Conceptual Aggregation Problem . | | | | | 11-7 |
| Table | 11-3 | FSC Analysis | | | • | • | 11-10 |
| Table | II-4 | General LPF Computation | 100 | • | | | 11-14 |
| Table | | Navy Cognizance Symbol to JOPS Classification | | | | | G-2 |
| | | | | | | | |
| | | | | | | | |
| | | LIST OF FIGURES | | | | | |
| | | | | | | | |
| Figur | e C-1 | JOPS Information Flow | | | | | C-3 |

EXECUTIVE SUMMARY

An Analysis of Navy Logistics Planning Factors Study

This report describes Phase I of a two phase study, "An Analysis of Navy Logistic Planning Factors". The study is an in-house effort by Navy personnel with contractor assistance, authorized by OP-04 study directive Ser 401/219311 of 7 April 1977. Membership of the study group is listed in Appendix L to the report.

Phase I of the study is intended to develop a rationale and methodology for the creation or validation of Navy Logistic Planning Factors (LPF) used in the Joint Operation Planning System (JOPS). Phase II will acquire a data base and test the proposed rationale and methodology by producing prototype LPFs. LPFs are used primarily by staffs of Unified Commands and Service Components (Fleet, Air Force, Army and Marine Corps Commands) to compute manpower billets and replacements, material support requirements; facilities and transportation requirements to support and move the combat forces designated in joint operation plans.

Joint Chiefs of Staff memorandum SM-774-76 of 16
September 1976 (Attachment 1 to Appendix C) requires that
the Services provide certified logistic planning factors for
use in joint operation planning. The Navy desires that
internal Navy logistic planning be compatible with joint
planning to the extent feasible. For this reason, the Navy

resupply LPF data published in Table 1.5 of <u>Logistics Ref</u>-<u>erence Data</u>, <u>NAVMAT P-4000-2</u> were selected as prototypes for use in JOPS and in the Logistic Annex (Annex B) of the Joint Strategic Capabilities Plan (JSCP).

For peacetime based Navy materiel the LPF developmental methodology recommended in this Phase I Report consists of a computerized analysis of Navy issue data collected from all sources, in the period 1 October 1974 to 30 September 1975. A key element of the methodology is the conversion of issue data from Federal Supply Class (FSC) in which the data is collected and managed, to DOD Supply Class, by which operation and logistic support planning is accomplished. This data, consisting largely of seventy reels of tape, provided by the Department of Defense Materiel Distribution Study, will be processed at the Navy Regional Data Automation Center (NARDAC), Washington, D.C. Other data will be provided directly from Navy sources. The peacetime data will then be adjusted to wartime rates, where necessary, by applying wartime vs peacetime operating tempos (e.g., wartime vs peacetime flying hours), also called combat intensity factors (CIF), and theater environment factors. A methodology for materiel not normally consumed in peacetime (e.g., conventional ammunition) will be covered in the Phase II report.

Phase I of the study was completed 30 November 1977.

Phase II is scheduled to be completed 30 September 1978.

AN ANALYSIS OF

NAVY LOGISTIC PLANNING FACTORS

PHASE I

I. INTRODUCTION

A. Purpose

- All Navy logistics planning systems are based on planning factors of one sort or another depending on the requirement for and level of the planning. Logistic Planning Factors (LPF) are developed and utilized to simplify the logistics planners' overall task and to reduce the time required to produce necessary plans. Simply defined, LPFs are actual or estimated relationships that may be used to predict a need in the future for some form of logistics action. Such a relationship might involve time, weight, volume, or other measurement units which are used in planning supply, resupply, and transportation. A resupply LPF is a measure of materiel consumption required to sustain a deployed unit. An example of such a resupply planning factor would be an expression of food consumption for a cruiser expressed in pounds of provisions per day per man. LPFs are essential to the success of the Navy's operation plans (OPLAN) in that they are required to:
 - a. Fulfill the Navy's responsibilities in the Joint Operations Planning System (JOPS) (see Appendix C)
 - Support the Joint Strategic Capabilities Plan

- 2. Currently, the resupply LPFs utilized by Navy planners are contained within Table 1.5 of Logistics Reference Data, NAVMAT P4000-2. This table contains data that has not been reviewed in depth for several years and has not been adapted to fulfill the requirements of the CINC planner for input into the JOPS. Consequently the usefulness of these planning factors in their current form is limited and their validity in doubt.
- 3. As set forth in SM-774-76 (Attachment 1 to Appendix C), the Navy is responsible for "developing, defining, and validating the logistic planning factors which they require to be used for joint operations planning."
- 4. The Navy Inspector General Report of the 17
 September 1976 Command Inspection of CINCPACFLT Headquarters recommended that a review of JOPS oriented resupply planning factors be undertaken to ensure that valid non-unit related movement requirements are being generated in support of CINCPACFLT OPLANS. Generation of such movement requirements is directly dependent on the validity of the LPFs used by the planners.
- 5. The Deputy Chief of Naval Operations (Logistics) issued a study directive on 7 April 1977, (Appendix A) to initiate an analysis of Navy LPFs to be conducted as a CNO

^{1/} Navy Inspector General Report, Command Inspection of CINCPACFLT Headquarters, Subject: "Credibility of OPLAN Resupply Planning", 414-76 (Confidential), 7-17 September 1976

in-house study with contractor technical support. The objective of the study is to: "Identify and record existing rationale and methodology and, as appropriate, develop new rationale and methodologies by which logistics plans, requirements, and budgets using these factors will be more credible and supportable to higher authority." This report is the result of the initial phase of this study. It identifies and proposes a methodology, whereby resupply LPFs may be established and promulgated for use by the CINC logistics planners as basic inputs for OPLANS in the JOPS process.

B. Method of Analysis

In order to conduct the study, the Study Group performed the following:

- <u>Literature Search</u> A search of literature and authoritative references was conducted concerning the JOPS, current planning factors, and developmental methodology.
- Interviews Discussions were held with cognizant personnel at Navy, Army, Air Force and Joint Agencies to research the development and use of planning factors.
- Investigation and Data Gathering An analysis was performed of systems utilizing LPFs to determine their use in operational and mobilization planning. Data and documentation, as available, were collected and catalogued for future application.

- Modeling Modeling techniques were developed for computing and validating JOPS oriented resupply LPFs.
- <u>Testing</u> In Phase II of this study, various simulation and testing techniques will be applied to verify the proposed methodology prior to its being promulgated for use by the Navy.

C. Exclusions

Nuclear weapons and propulsion related planning factors are excluded from the scope of this study.

II. DISCUSSION

A. General

1. As required by the Study Directive, the Study Group reviewed Navy LPFs with emphasis on those factors required for valid inputs to the Planning Factors File of the JOPS Movement Requirements Generator (MRG) (see Appendix C) and for inclusion in the Logistic Annex of the FY 78 JSCP.

Literature review and interviews by the Study Group indicated that the Navy uses LPFs in the following processes:

- a. <u>Joint Operation Planning System (JOPS)</u>. The JOPS is a standard, DOD-wide automated system for the development, coordination, dissemination, review, and approval of OPLANS. (See Appendix C). LPFs are required as inputs to this system to arrive at a final evaluation of OPLAN transportation requirements and feasibility.
- b. Joint Strategic Capabilities Plan (JSCP).

 Annex B (Logistics) of the JSCP requires Service input of planning factors consistent with those required for input to JOPS to ensure standardized application by all commands and to facilitate annual Service review and update. Valid LPFs are required to provide credibility to the annual movement analysis required by JSCP.
- c. <u>Joint Strategic Objectives Plan (JSOP)</u>. The JSOP develops strategy, force planning guidance, and force requirements in consideration of threat, national

objectives, and policy. LPFs are used to develop the logistics requirements for support of the strategy.

- d. <u>War Reserve Materiel Stock (WRMS)</u>. In the event of hostilities, the WRMS is intended to ensure that combat forces have adequate supplies on hand to carry them until resupply.
- 2. Generally the factors being emphasized in this study are the resupply factors for JOPS and JSCP. These resupply LPFs are published in Table 1.5 of Logistics Reference Data, NAVMAT P4000-2. Although background information in this publication indicates that Table 1.5 was based on consumption data developed from operating forces during different degrees of intensity in the Southeast Asia combat environment, the Study Group found that details relating to the specific methodologies used to collect and report data and to develop and/or review the resupply planning factors were not available. Therefore, the credibility of the current planning factors and the reliability of the methods used in their development could not be validated. Thus, by consensus of the Study Group and as recommended to and approved by the Chairman of the Advisory Committee, it was decided that further research on reconstruction of the rationale and methodology used in the development of the existing resupply planning factors would not be fruitful. The remaining effort during Phase I concentrated on developing JOPS related planning factor

tables for all resupply LPFs with the exception of Ammunition (Class V), and the development of a new methodology. A JOPS related methodology for Ammunition (Class V) will be based upon expected wartime consumption as developed by the Non-Nuclear Ordnance Requirements process.

- 3. Discussions with key personnel (summarized in Appendix F) and an analysis of the systems that use the resupply LPFs clearly identified that: (1) the CINC logistics planner is the principal user of the resupply LPFs to develop and test the feasibility of OPLANS; (2) resupply LPFs must be in JOPS format; e.g., pounds/man/day or gallons/unit/day by JOPS class/subclass of supply by Unit Type Code (UTC).
- 4. At the time of the interview, neither the Army nor the Air Force had a methodology for developing LPFs which would be of use to the Navy. The Army has provided data for use by the Study Group in comparing the results of their NSN to JOPS supply class and subclass classification process with that process proposed herein.
- 5. For the CINC logistic planner, the JOPS planning cycle begins with the receipt of a force list from which the planner develops the sustaining resupply movement requirements for the forces that are called for in the OPLAN. This force list specifies required units (ships, aircraft squadrons, mobile units, and Advanced Base Functional Components (ABFC)) which are time

phased and identified by destination in the objective theater. These units are expressed in terms of UTCs which are notional planning units. Then, using LPFs the MRG module of the JOPS develops resupply movement requirements by JOPS class/subclass of supply (see Appendix C). Table II-1 provides a conceptual illustration of the Fleet Logistic Planners force list.

Table II-1

FLEET LOGISTIC PLANNER'S FORCE LIST

| -leb to A | | PLANNER'S | FORCE LIST | ina ah ah g an |
|---|-----------------------|---|--|---------------------------|
| says a court year | SHIPS | | | E. yd yebydim |
| | CLASS | UNIT TYPE | TIME PHASED | DESTINATIONS |
| THE OUT TOUGH | CV CG FFG DD | CARRIER CRUISER ESCORT DESTROYER | io to amij s | |
| edfil pring | • AIRCRAFT | | | Ate Posee |
| Septroso se | TYPE F-14 P-3 | | UNIT TYPE FIGHTER SQUADRON PATROL SQUADRON | y av ed bloom |
| TASK: | ADVANCE | BASE FUNC | TIONAL COMPONENT | |
| DEVELOP RESUPPLY MOVEMENT REQUIREMENTS BY USE OF LPFS IN JOPS RELATED STRUCTURE | • MOB | ILE UNITS | | |

B. Identification of a Methodology

1. <u>General</u>. The foundation of valid planning factors is good usage data. Therefore, the Study Group undertook to first define a methodology of collection and

analysis of historical supply consumption by individual unit as identified by Unit Identification Code (UIC) which could be aggregated into JOPS class/subclass of supply.

Similarly, personnel data for each UIC was identified as the second basic element of factor calculation.

2. Consumption Classification (less Ammunition, Class V). Although Fleet logistics planners must develop the Planning Factors file (PFF) of the JOPS MRG with inputs in pounds/man/day, gallons/man/day, pounds/ unit/day or gallons/unit/day identified to the JOPS planning class/subclass of supply, it became readily apparent that no usage data collection system within the Navy identified consumption for most items in this structure. The exceptions to this situation are Subsistence (Class I) and Personal Demand Items (Class VI) which are tracked by the Navy Supply Systems Command (NAVSUP) and Bulk POL (Class III) which is tracked by NARDAC. With the above exceptions the Navy inventory is managed and reported by National Stock Number (NSN) in combination with a technical Cognizance Symbol. The NSN is formed by combining the four digit Federal Supply Class (FSC), a relatively homogeneous area of commodities in respect to their physical or performance characteristics, with the nine digit National Item Identification Number (NIIN). This union forms the

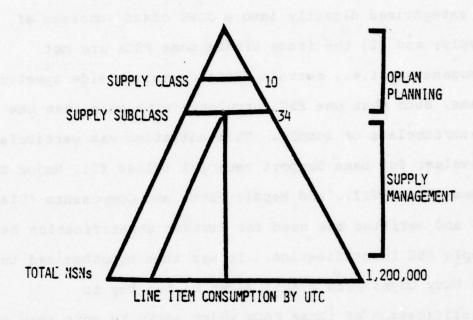
thirteen digit NSN. In the Navy each NSN is prefixed by the two digit Cognizance Symbol, which identifies technical and financial management responsibility within the Navy.

Therefore, in order to compute resupply LPFs for other than Subsistence (Class I), Bulk POL (Class III), Ammunition (Class V), and Personal Demand Items (Class VI), a method had to be established which would both classify Navy NSNs into JOPS class/subclasses of supply and also identify NSN consumption to a UTC by class of supply by time period.

Conceptually, the aggregation problem is illustrated in Table II-2.

To develop a successful solution to this aggregation problem, the Study Group undertook a search for elements of commonality within the Navy supply management system that might relate a given NSN to a JOPS planning class. Since a manual identification to JOPS subclass of each of the 1,200,000 Navy interest NSN items, similar to the process apparently performed by the Army, would require significant resources and time, a methodology reliant on modern computerized resources was sought. Analysis of the structure of the FSC, the first four digits of the NSN, indicated that all material is assigned to one of seventy-seven groups which are further subdivided into 605 classes. Each class covers a relatively homogeneous area of commodities which are classified with respect to: either (1) physical or performance characterisitics; or (2) the items included

Table II-2
CONCEPTUAL AGGREGATION PROBLEM



NOTE: The base of the triangle represents line item consumption, by UTC, of the total number of NSNs of Navy interest, approximately 1,200,000 items.

The inner triangle symbolizes the "roll up" of line items by UTC to one of the thirty-four JOPS subclasses of supply

therein are such as are usually requisitioned or issued together; or (3) the items constitute a related grouping for supply management purposes.

Based on this analysis a two dimensional matrix was formed that classified FSCs into JOPS class/subclass of supply. The classification procedure was based on the relationship of items defined as being within an FSC correlated with the definitions given for each of the JOPS

class/subclasses of supply. Analysis of this matrix resulted in the following conclusions: (1) many FSCs can be categorized directly into a JOPS class/subclass of supply; and (2) the items within some FSCs are not homogeneous; i.e., certain FSCs contain a wide spectrum of items, such that one FSC correlates with more than one JOPS class/subclass of supply. This situation was particularly prevalent for Base Support Materiel (Class II), Major End Items (Class VII), and Repair Parts and Components (Class IX) and werified the need for further stratification beyond simple FSC identification. It was then hypothesized that the Navy Cognizance Symbol might be the key to classification of those FSCs which apply to more than one JOPS class/subclass of supply.

In order to test this hypothesis, the Study Group analyzed FSCs which appeared to be problems. An example is FSC 5820, Radio and Television Communications Equipment, except airborne. With the aid of a printout provided by the Navy Ships Parts Control Center (SPCC), a breakdown of all the Cognizance Symbols contained in FSC 5820 was obtained along with the number of items managed within each Cognizance Symbol.

Within FSC 5820 there are thirteen distinct Cognizance Symbols and 6658 NSN items managed by SPCC. Based on this information categorization of FSC 5820 directly into one class/subclass of supply is not feasible primarily because

major end items, JOPS Class VII, and repair parts and components, JOPS Class IX, are combined together within the same FSC.

Next a review of the eighty-nine Navy Cognizance Symbols was conducted by the Study Group to determine to what extent, if any, Cognizance Symbols could be used to categorize NSNs directly to JOPS class/subclass of supply. The results of this review, summarized in a matrix chart in Appendix G, indicate all but fifteen Cognizance Symbols can be identified directly to JOPS class/subclass of supply. This finding was generally corroborated by the Logistics Reference Data, NAVMAT P4000-2 as reported in Appendix E. Further, analysis of these fifteen Cognizance Symbols indicated that if they were to be used in combination with the FSC, JOPS classification apparently could be made. method of identification of NSNs to a JOPS class/subclass includes two cases. Case one is a direct correlation from NSN to the JOPS class/subclass using the Navy Cognizance Symbol for those sixty-two Cognizance Symbols which appear to relate directly. Case two, for the NSNs in the fifteen Cognizance Symbols which apparently do not directly relate to JOPS class/subclass, requires the additional step of sorting by FSC to identify the JOPS class/subclass. An example of this classification is presented in Table II-3.

3. Consumption Data Bases. Having developed the aggregation methodology, a search was conducted and

Table II-3

FSC ANALYSIS

| FSC 5820 | COG | NO. OF #ITEMS | JOPS SUBCLASS |
|--|-----|---------------|------------------|
| SHIPBOARD REPAIR PARTS | 1H | 3464 | IXG |
| MAJOR SHIPBOARD ELEC. EQUIP. | 2F | 52 | VIIG |
| SHIPBOARD ELEC. REPAIR PARTS AND COMPONENTS | 2Н | 85 | IXG |
| MAJOR SHIPBOARD MECH. EQUIP. | 2S | 4 | VIIG |
| SURF MISSILE REPAIR PARTS | 20 | 16 | IXL |
| SHORE (GROUND) ELEC. EQUIP. | 22 | 707 | VIIG |
| AIR ORDNANCE & ELEC. EQUIP. & ORDNANCE REPAIR PARTS | 4A | 113 | IXA |
| ELEC. PARTS & COMPONENTS | 4G | 2091 | IXG |
| ELEC. PARTS & COMPONENTS | 4N | 110 | IXG |
| FSM PARTS & COMPONENTS | 6A | 3 | IXM |
| AIR MISSILE REPAIR PARTS | 6E | 7 | IXL |
| GP ELEC. TEST EQUIPMENT | 6G | 3 | IIB |
| FBM PARTS & COMPONENTS | 6Н | 3 | IXG |
| TOTAL | 13 | 6658 | 6 |

Cognizance Sympols which apparently do not directly relate

appropriate data bases were identified which contain consumption data comprehensive enough to assure the computation of valid consumption rates. These data bases are as follows:

- a. <u>Subsistence</u>. The Navy Food Service Systems Office (NFSSO), Washington, D.C., maintains current and comprehensive data incorporating consumption since 1968 by UIC. This data will be utilized to compute the Subsistence (Class I) LPFs.
- b. <u>Bulk POL</u>. NARDAC maintains bulk POL consumption data by UIC which will be utilized to compute Bulk POL (Class III) LPFs.
- c. <u>Personal Demand Items</u>. The Navy Resale
 System Office (NRSO), Brooklyn, New York maintains data on
 consumption of Personal Demand Items (Class VI) which will
 be utilized to compute LPFs.
- d. Medical Materiel. The Naval Medical Material Support Command (NAVMEDMATSUPPCOM), Philadelphia, Pennsylvania maintains current and comprehensive data on consumption of medical materiel. This data can be related to UTC and will be utilized to compute medical materiel (Class VIII) LPFs.
- e. Other Items less Ammunition (Class V).

 Although the data base maintained by the Navy Inventory

 Control Points (ICPs) under the Uniform Inventory Control

 Point Program (UICP) includes equipment related consumption
 through the Weapons System File and personnel oriented

consumption through the Master Data File, consumption of Defense Logistics Agency (DLA) managed items is not included. Additionally, the cost of collecting and processing this partial information would have been significant. Therefore the data base developed, collected, and maintained by the Department of Defense Materiel Distribution Study Group (DODMDS) was reviewed to determine its applicability to the requirements of LPF calculation. Analyses and discussions held with DODMDS representatives identified a file that appears to satisfy the requirements. This file, Mini Ship I, forms the basis for the DODMDS NSN aggregation. The specific data elements in this file and general DODMDS data base information are presented in Appendix H. While the objectives of the DODMDS and Navy LPF studies are not parallel, the original source data, as reflected in Mini Ship I, reflects wholesale-level issue transactions for a twelve month period by FSC/NIIN identified to UIC. The data also reflects item catalog data such as dimensions, weight, and cube which are required. However, this data base does not include the Navy Cognizance Symbol required by the aggregation methodology. ADP tapes which list Cogniance Symbol by NSN were determined to be available within

^{1/} This file was selected by the Navy Logistics Planning Factors Advisory Committee as the preferred source from which to construct a data base. Whether the twelve month period represents a complete requisitioning picture or is comprehensive cannot be determined at this time. To assure currency of the LPFs in the future an updating procedure will have to be developed to maintain data base currency.

the Navy and easily compiled with the DODMDS data for aggregation. Since the DODMDS data base includes the necessary catalog data, it will be used where appropriate to provide both consumption and commodity characteristics data to develop LPFs for those JOPS class/subclasses of supply requiring resupply planning factors. (See Appendix D)

- 4. <u>Personnel Data</u>. Personnel data contained in the Type Unit Data File maintained at NARDAC will be used for LPF calculations.
- 5. Computational Method. The computational method for the development of resupply LPFs for all JOPS classes of supply except Ammunition (Class V) logically follows from the aggregation methodology stated above; i.e., the resupply LPF, in its numerical form, is presented by JOPS class/subclass of supply by UTC. Mathematically, the general computational methodology for determination of pounds/man/day is reflected in Table II-4.

Application of a Combat Intensity Factor (CIF) assumes that peacetime consumption data will be derived from the data base. CIFs have been developed by the Navy and approved by OSD for the Navy's secondary item requirements and budget development. These factors are based on the ratio between combat steaming days and peacetime steaming days for ships and on the ratio between peacetime flying hours and combat flying hours for aircraft model/configurations. Analysis and development of CIFs will

Table II-4

GENERAL LPF COMPUTATION

(1)
$$C_{W_{NSN}} = (C_p \times CIF \times W)$$

(2)
$$C_{W_{UTC}} = \sum_{i=1}^{n} C_{W_{NSN}}$$
 (By Subclass of Supply)

(3) LPF =
$$\frac{C_{\text{WUTC (By Subclass of Supply)}}}{360 \text{ (Mp)}}$$

where:

Cp = Peacetime consumption for one year in units of issue of each NSN for all UICs notionalized to UTC

CIF = Combat Intensity Factor

n = All NSN items identified to a subclass of supply

W = Weight of the NSN unit of issue

Mp = Number of personnel assigned to the UTC

 $C_{W_{NSN}}$ = Weight of the NSN unit consumed in wartime

CWUTC = Weight of the NSN units consumed by UTC/subclass

LPF = Logistics Planning Factor

be accomplished in Phase II as necessary.

6. Ammunition. Peacetime consumption data are not used or applicable to ammunition requirements.

Ammunition requirements are based upon DOD budget and procurement guidance, and technical ordnance engineering requirements. The NNOR process estimates ammunition combat

develop a methodology for adapting the NNOR process to the JOPS. The methodology for determining the Class V LPFs will be developed in Phase II of this study.

7. Non-Military Materiel. OPLANS do not require Navy resupply of materiel to support such non-military programs as agricultural and economic development (Class X).

III. FINDINGS

Based on the analysis conducted during Phase I of the study of Navy LPFs, the Study Group has found that:

- JOPS is a JCS sponsored system, and it is incumbent upon the Navy to be responsive to it and develop procedures to meet its requirements as well as to fulfill the Navy's own resupply and transportation needs.
- Authoritative Navy LPFs must be available and maintained.
- The Fleet CINCs require valid resupply LPFs for developing the Planning Factors File of the JOPS MRG. CINCs currently use Table 1.5 of <u>Logistics Reference Data</u>, <u>NAVMAT</u> P4000-2 as the major data source.
- There is insufficient detail in the narrative describing the resupply LPFs contained in Table 1.5 of Logistics Reference Data, NAVMAT P4000-2 to permit reconstruction or validation of the LPFs.
- NAVMEDMATSUPPCOM, NRSO, and NFSSO do calculate and maintain valid planning factors for Medical Materiel (Class VIII), Personal Demand Items (Class VI), and Subsistence (Class I).
- At the time of the interviews neither the Army nor the USAF had developed a methodology which could be adaptable to Navy use.
- Since requirements are not based on peacetime
 demand, a separate methodology will be required to interface

ammunition requirements, as determined in the Non-Nuclear Ordnance Requirements (NNOR) process, with the JOPS.

- Materiel to support non-military programs (Class X)
 is not pertinent to this study.
- The pertinent table within <u>Logistics Reference Data</u>,

 <u>NAVMAT P4000-2</u>, to which the new methodology will apply, is

 Table 1.5, Consumption Data for Supply Categories of

 Materiel.
- Table 1.5 of Logistics Reference Data, NAVMAT

 P4000-2 and the resupply LPFs therein need to be revised and reformatted for JOPS MRG input according to the requirements of Fleet logistics planners.
- JOPS requires the reporting of resupply consumption on the basis of pounds/man/day, gallons/man/day, pounds/unit/day, or gallons/unit/day.
- The methodology as developed by the Study Group appears to provide a viable method to classify Navy interest items into JOPS class/subclass of supply used in OPLAN analyses.
- CIFs and theater adjustment multipliers (LANT, PAC,
 etc.) need to be considered further.

IV. RECOMMENDATIONS

The Study Group recommends that:

- The NFSSO data base be used to compute Subsistence
 (Class I) consumption factors. (Continuing action).
- The NARDAC POL data base be used to compute Bulk POL (Class III) consumption factors. (Continuing Group Action).
- The NRSO data be used to compute consumption factors for Personal Demand Items (Class VI). (Continuing action).
- The NAVMEDMATSUPPCOM data base be used to compute consumption factors for medical material (Class VIII).
 (Continuing Action).
- The DODMDS data base, as identified herein, be used to compute Navy consumption factors for Base Support Materiel (Class II), Packaged Petroleum Products (Class III), Construction Materiel (Class IV), Major End Items (Class VII), and Repair Parts and Components (Class IX). (Study Group Action).
- Methodology be developed which will interface Ammunition (Class V) requirements, as determined in the NNOR process, with JOPS. (Study Group Action).
- Materiel to support non-military programs (Class X)
 not be addressed in this study.
- Rules and procedures be developed and documented that provide for the maintenance of the resupply LPFs.
 (Study Group Action).

- Analysis and development, as necessary, of CIFs is required. (Study Group Action).
- An appropriate format be developed to disseminate new official Navy LPFs. (Study Group Action).

APPENDIX A STUDY DIRECTIVE



DEPARTMENT OF THE NAVY OFFICE OF THE CHIEF OF NAVAL OPERATIONS WASHINGTON. D.C. 20350

Ser 401/219311

(J-6 7 1977

From: Chief of Naval Operations

To: Distribution List

Subj: Study Directive for an Analysis of Navy Logistic Planning Factors

Ref: (a) Joint Operation Planning System (JOPS), Vols I and III

(b) Navy Inspector General Report of Inspection of CINCPACFLT 7-17 Sep 1976, Recommendation 414/76

Encl: (1) Guidance for CNO Studies and Analyses

(2) Manning Requirements for the Analysis of Navy Logistic Planning Factors

- 1. Title. Analysis of Navy Logistic Planning Factors
- 2. Type. CNO in-house study with contractor support.
- 3. <u>Background</u>. This study is being conducted at the request of the Deputy Chief of Naval Operations for Logistics under the CNO Study Program. Logistic planning factors are essential tools to the Navy's operation planning and logistic support (resupply) functions. Logistic planning factors are necessary for:
 - o Fulfilling the Navy's logistic planning responsi bilities under the Joint Operation Planning System (JOPS). The JOPS is a major planning system established by the JCS and is a standard application program of the World Wide Military Command and Control System (WWMCCS). Reference (a) describes the system.
 - o Supporting the Joint Strategic Capabilities Plan (JSCP).
 - o Determining War Reserve Material Requirements (WRMR).
 - Supporting the personnel replacement, material resupply, and industrial mobilization base required for OPLANS.



Ser 401/

Subj: Study Directive for an Analysis of Navy Logistic Planning Factors

- a. Logistic Planning Factors are used by Fleet CINCs, OPNAV, NAVMAT and the Systems Commands in logistics support planning and industrial mobilization planning. Existing logistic planning factor tables have not been reviewed in depth for several years. They have, therefore, lost their credibility. As a result, budget requests for WRMR have been reduced or rejected. Reference (b) recommends corrective action to improve credibility of OPLANS and related WRMR. This will be addressed during this study.
- b. The rationale and methodology used in the original development of many of the logistic planning factors were never recorded, date back to the early period of the Vietnam war or earlier, and have not been validated for several years. New weapons systems, changing modes of transportation, and the increasingly tight controls over military spending and control of same, need to be fully taken into consideration in the rationale used in validating or developing logistic planning factors.
- 4. Objective. The study will identify and record existing rationale and methodology, and as appropriate, develop new rationale and methodologies by which logistic planning factors are structured, so that logistic plans, requirements and budgets using these factors will be more credible and supportable to higher authority. The results of this study will be incorporated into the Logistic Annex of the Joint Strategic Capabilities Plan (JSCP); the Logistics Factors File (LFF) of the Joint Operation Planning System (JOPS); and the Navy publication NAVMAT P-4000-2, Navy Logistics Reference Data.

5. Specific Guidance

- a. The study should conduct a critical examination of all Navy logistic planning factors. Validity, credibility, and supporting rationale and methodology are the prime considerations in this examination. Emphasis should be placed on those factors required for the Logistic Factors File (LFF) of the Movement Requirements Generator Sub-System of the JOPS. This is needed so that the Joint Chiefs of Staff (JCS) will have validated logistic planning factors for inclusion in the Logistic Annex of the FY 1978 JSCP.
- b. The study should include a detailed look at the existing rationale and methodology behind each planning factor,

Subj: Study Directive for an Analysis of Navy Logistic Planning Factors

if any, and make a determination as to its reliability and applicability to present day needs. The other services should be visited to determine if their rationale and methodology would apply to Navy use. The study will develop new or revised rationale and methodologies in order to provide validated planning factors in the future.

- c. Each system (manual or automated) which makes use of logistic planning factors should be identified and its involvement, scope, theater of operations, validity, overlap with other systems, and its operational condition should be defined. The usefulness of each system should be determined and recommendations prepared for future changes and/or development necessary to provide a total, responsive system to support the Navy's requirements.
- d. The study should ensure that the preparation, use, and reporting of logistic planning factors by field activities have been thoroughly investigated and responsible Command personnel interviewed. This should supply the necessary information for validating existing logistic planning factors including changes and deletions and making recommendations for the development of new planning factors.

6. Coordination and Review.

- a. The Study Sponsor is OP-04.
- b. The CNO Project Officer is Mr. B. Gruber, OP-401G, 695-5109.
- c. An Advisory Committee, chaired by the Deputy Chief of Naval Operations (Logistics) OP-04, is established.

 Members will include representatives of OP-01, OP-06, OP-90, OP-96, and Chief of Naval Material. The Commandant, Marine Corps, is invited to participate. Other OPNAV Deputy Chiefs, the Chief of Naval Personnel, Chief, Bureau of Medicine and Surgery, Commander Naval Sea Systems Command, Commander, Naval Supply Systems Command, Commander, Naval Air Systems Command, and Commander, Naval Electronics Systems Command will be requested to designate representatives to attend Advisory Committee meetings upon invitation of the Chairman, or the Chief of Naval Material as appropriate. It is requested that each organization represented on the Advisory Committee designate a point of contact to the Project Officer within

Ser 401/

Subj: Study Directive for an Analysis of Navy Logistic Planning Factors

ten days from the date of this directive, and the Chief of Naval Material will designate points of contact from the Systems Commands. The President, CNA, is invited to attend Advisory Committee meetings.

- d. A study group consisting of members of appropriate OPNAV, NAVMAT, Marine Corps, and BUMED Staffs chaired by the Project Officer, will participate in the conduct of this study on a part-time basis. Study Group membership is designated in enclosure (2).
- e. The Director, Systems Analysis Division (OP-96), shall conduct a technical review to monitor progress and ensure quality of the study. During the course of the study, this effort shall include review of working papers and reports for validity and completeness and an independent technical evaluation of the final report. (See guidance contained in enclosure (1).) Results of the review shall be promulgated to the Advisory Committee and the CNO Project Officer by OP-96.
- f. LCDR John Sewell, SC, USN, is designated OP-96 Study Monitor.

7. Reporting.

- a. The study plan is to be submitted to the Advisory Committee within four weeks of the date of this directive.
- b. The Project Officer will submit progress reports to OP-966 in accordance with current directives.
- c. Meetings of the Advisory Committee shall be called by the Chairman at appropriate times to review and evaluate study progress and trends. The committee shall meet at least once each quarter.
- d. Working papers will be submitted to the Advisory Committee as they become available. A draft of the final report is to be submitted by 31 August 1977.

Distribution: (see page 5)

JOHN D. CHASE

Daputy Chief of Haval Operations (Logistics)

Acting

Ser 401/

Subj: Study Directive for an Analysis of Navy Logistic Planning Factors

Distribution:

OP-01

OP-04

OP-06

OP-90

OP-96

CNA

CMC

CHNAVMAT

Copy to: CINCLANTFLT

CINCPACELT

CINCUSNAVEUR

COMNAVAIRSYSCOM

COMNAVELEXSYSCOM

COMNAVFACENGCOM

COMNAVSEASYSCOM

COMNAVSUPSYSCOM

COMSC

BUMED

CHNAVPERS

OP-05

OP-942

OP-964

OP-966

GUIDANCE FOR CNO STUDIES AND ANALYSES

- 1. The assumptions which are of great importance to the outcome of the analysis shall be clearly stated in the introduction to the report. Also, at the beginning of each chapter, annex, or appendix, the complete set of assumptions which are applicable shall be listed. The analysis shall determine the effects of alternative assumptions when these are critical to the study results.
- 2. The analysis shall identify the key parameters (weapons systems effectiveness values, costing techniques) which greatly affect the study results. Best estimates shall be used for the values of these parameters; in addition, greater and lesser values spanning the range of reasonable values for each parameter shall be used to determine the sensitivity of the study results to changes in these key parameters.
- 3. A clear and concise description of each model or simulation shall be included in an appendix to the report unless such description is available in an already published document and is referenced in the report. This description shall explain in qualitative terms (including a logic diagram) the general methodology which provides the basis for the model. Detailed design specifications for each model, or reference to a permanent OPNAV file in which these design specifications are held, shall be included in the permanent files of this study.

ENCL (1) TO CNO SER 401/219311 of 7 Apr 1977

MANNING REQUIREMENTS FOR THE ANALYSIS OF NAVY LOGISTIC PLANNING FACTORS PROGRAM STUDY

1. General

- Personnel assigned to the Study Group should have general or specific responsibilities for Navy logisitc planning factors, and should also be cognizant of the methodology for determination and rationale of planning factor requirements. Each representative will be responsible for keeping his parent command informed of the progress of the study and making the view of his parent command known to the study Project Officer.
- It is appreciated that personnel having the above qualifications will be involved in other aspects of the overall logistics/supply system. The level of effort required of Study Group members will therefore be limited to parttime participation, probably not exceeding 15% of their time (with the exception of the NARDAC representative, who will probably be required about 25% of the study time).

2. Composition

| Organization | Rank | Specialty |
|---|---------------------------|--|
| OP-01 | LCDR/CDR Civ. Equiv. | Manpower/Personnel Analyst |
| OP-04 (OP-40) | GS-14 | CNO Project Officer |
| OP-04 (OP-41) | LCDR/CDR Civ. Equiv. | Logistics Analyst/ Mobilization Planner |
| OP-06 (OP 605) | LCDR/CDR Civ. Equiv. | Analyst |
| CMC | MAJOR/CAPT Civ. Equiv. | Analyst |
| Navy Regional Data Automation Center, Washington (NARDAC) | LCDR/CDR Civ. Equiv. | ADP Systems Analyst |
| OP-96 (OP-964) | LCDR/CDR Civ. Equiv. | Study Monitor |
| NAVMAT 04 | LCDR/CDR Civ. Equiv. | Logistics Analyst |

| NAVAIR | LCDR/CDR Civ. Equiv. | Logistics | Planners |
|---------|-------------------------|-----------|----------|
| NAVELEX | LCDR/CDR Civ. Equiv. | Logistics | Planners |
| NAVFAC | LCDR/CDR Civ. Equiv. | Logistics | Planners |
| NAVSEA | LCDR/CDR Civ. Equiv. | Logistics | Planners |
| NAVSUP | LCDR/CDR Civ. Equiv. | Logistics | Planners |
| BUMED | LCDR/CDR Civ. Equiv. | Logistics | Planners |

3. Reporting. All personnel shall report by telephone to the $\overline{\text{CNO Project Officer (695-5109)}}$ not later than ten days from the date of this directive.

Note: Subsequent to the initial meeting of the Study Group, minor adjustments may be made to incur an optimum balance of personnel assigned.

Enclosure (2)

APPENDIX B

STUDY PLAN

Study Plan for an Analysis of Navy Logistic Planning Factors

Ref: (a) Study Directive, Ser 401/219311, dated 7 April 1977

1. Tasks

- a. <u>Task l</u>. Identify and review automated and manual systems currently used in developing, reporting, and utilizing Navy logistic planning factors.
- (1) <u>Subtask 1-1</u>. Conduct a search to ascertain those automated and manual systems currently used in developing, reporting, and utilizing Navy logistic planning factors.
- (2) Subtask 1-2. Interview key personnel involved in subtask 1-1 to determine the suitability of current Navy logistic planning factors in providing data required for operational planning.
- b. Task 2. Identify, acquire, and categorize data concerning existing Navy logistic planning factors.
- (1) Subtask 2-1. Identify and acquire those Navy logistic planning factors utilized in the Planning Factors File (PFF) of the Joint Operating Planning System (JOPS III) Movement Requirements Generator (MRG).
- (2) Subtask 2-2. Compare those Navy logistic planning factors identified in subtask 2-1 with those utilized in industrial mobilization planning and in the War Reserve Material Requirements (WRMR).
- (3) Subtask 2-3. Catalog Navy logistic planning factors according to use and applicability.
- c. Task 3. Review and analyze each Navy logistic planning factor category for supporting rationale, developmental methodology, validity, and credibility.
- (1) Subtask 3-1. Interview key logistic personnel to determine rationale and development methodology used to compile the existing Navy logistic planning factors.
- (2) Subtask 3-2. Interview key planning personnel to determine the validity and credibility of the existing Navy logistic planning factors.
- (3) Subtask 3-3. Identify those Navy logistic planning factors requiring redefinition or revision, and those logistic areas in which no planning factors are available.

- (4) Subtask 3-4. Prepare a working paper consolidating findings of these tasks.
- d. Task 4. Prepare a draft final report incorporating the findings of the three tasks and recommending future courses of action. Included in the report shall be the following:
- (1) The rationale and methodology used in developing existing Navy logistic planning factors, the validity and credibility of that rationale and methodology, and recommendations for changes and justification thereof.
- (2) The usefulness, completeness, and status of existing automated and manned systems for developing, reporting, and using Navy logistic planning factors, and recommendations for design, development, and implementation of a new system, if required, to fully support Navy logistic planning requirements for JOPS III, industrial mobilization, and the WRMR, and to respond to variations in planning scenarios based on the DPPG and JSCP.
- (3) The Navy logistic planning factors that are valid and applicable as they now exist, those that need elimination or revision, and additional factors that need to be developed.
- (4) Recommendations as to the level of detail to which Navy logistic planning should be addressed with respect to various objectives, i.e., gross level by supply class for transportation planning versus detailed level by stock number for the WRMR. Included shall be recommendations for the development of new computational methodologies for these situations.
- (5) The adequacy of NAVMAT P4000-2, and recommendations for changes/additions/deletions to improve its usefulness.

This draft report will be placed in final form after comments from all involved parties have been reviewed and incorporated into the report. Subsequently, presentation material, as requried, shall be prepared for breifing of concerned Navy personnel.

2. Scope and Depth. The study will encompass a survey of current systems utilizing Navy logistic planning factors, a detailed inspection of the rationale and methodology used in developing the existing factors, and a determination of their validity and applicability to present and future needs. Based on the findings of the study, recommendations will be drafted indicating those factors which are valid and

applicable for current and future planning, those which should be eliminated or revised, and the requirements for development of additional factors.

3. Manpower Allocation. Tasks 1 through 4 will require the services of the project officer and contractor support. The projected level of contractor support is approximately 15 manmonths of effort extending over a period of 10 months.

Study Group members, being experts in their respective areas, will be called upon to provide inputs to the study within their areas of expertise relative to the planning factors and the method of computation.

The CNO Project Officer will provide initial points of contact for contractor information. The Advisory Committee will review the working paper and reports and will review and evaluate study progress and findings.

- 4. Funding Allocation. Information Spectrum, Inc. will support this study under ONR Contract Number N00014-76-C-1130 as expanded tasks to that contract. Approximate funding is \$56,931.00 for accomplishment of tasks 1 through 4 by Information Spectrum, Inc. and \$3,069.00 to be retained for travel of Navy Personnel. Included in the \$56,931.00 is \$5,533.00 for travel of contractor personnel to Norfolk, VA., Honolulu, Hawaii, Stuttgart, Germany, London, UK., Fort Lee, VA., and Wright-Patterson AFB, Ohio.
- 5. Other Resources. Travel will be required to Norfolk, London, Honolulu, and Stuttgart to interview CINC personnel regarding the rationale and methodology used in developing their factors, their validity and their utilization for planning. Army personnel at Fort Lee and USAF personnel at Wright-Patterson AFB will be interviewed to ascertain the rationale and methodology used in developing their factors, and possible interface with the Navy.

Task Schedule.

| a. | Contractor on board: | 2 | Mar | 1977 |
|----|--------------------------------|----|-----|------|
| b. | Study Directive Signed: | 7 | Apr | 1977 |
| c. | Study Plan approval: | 22 | Apr | 1977 |
| | Task 1: | 15 | Jul | 1977 |
| e. | Task 2: | | | 1977 |
| f. | Task 3: | | | 1977 |
| g. | Draft final report: | 31 | Aug | 1977 |
| | Complete final report: | | | 1977 |
| i. | Prepare presentation material: | 30 | Dec | 1977 |

- 7. Specific Guidance. The primary purpose of the study is to determine whether existing Navy logistic planning factors are sufficiently valid and credible for inclusion in the Logistic Annex of the FY'78 Joint Strategic Capabilities Plan (JSCP). To ensure the validity and credibility of these factors, the study shall:
- a. Conduct a critical examination of all logistic planning factors. Validity, credibility, and supporting rationale and methodology shall be the prime considerations in the examination. Emphasis shall be placed on those factors contained in the Planning Factors File (PFF) of the Joint Operations Planning System (JOPS III) Movement Requirements Generator (MRG).
- b. Include a scrutiny of the rationale and development methodology for these factors, and determination shall be made as to their reliability and applicability to present and future needs. A recommendation for the development of new or revised rationale and methodology procedures which will ensure the provision of validated factors in the future shall be made.
- c. Identify each automated and manual system using Navy logistic planning factors and define its involvement, scope, operational area, validity, overlap with other systems, and operational condition. The usefulness of each system shall be determined and recommendations made for changes or development necessary to provide a total, responsive system to support Navy's future requirements.
- d. Ensure that all field activities providing or using Navy logistic planning factors are thoroughly investigated and key personnel interviewed to ensure adequate data for validating or revising existing factors and for basing recommendations for the development of new factors.
- e. Due to recent DOD changes in logistic guidance, consideration should be given to the level of planning necessary for JOPS relative to industrial mobilization and the WRMR, and whether the level of detail required for supply and procurement is compatible with these plans.
- 8. Methodology. The analytical methods to be used in this study include document search, interviews, matrix tabulations, model reviews, categorizing, and reporting.
- 9. Effectiveness Criteria. Not applicable.

10. Reports.

- a. Progress reports shall be submitted to OP-964 in accordance with OPNAVINST 5000.30.
- b. Working paper shall be submitted upon completion of Task 3.
- c. Draft final report shall be submitted for review and comment.
- d. Final report shall be submitted, after the draft has been reviewed and commented upon, incorporating the approved comments.
- e. Presentation material for use in briefing Navy personnel shall be prepared and submitted upon call.
- 11. Coordination. The study group shall coordinate with the CNO Project Officer, the Advisory Committee, OP-96 Study Monitor, and other individuals/agencies as appropriate.

APPENDIX C

Brief Discussion of Joint Operation

Planning System (JOPS)

APPENDIX C

Brief Discussion of Joint Operation Planning System (JOPS)

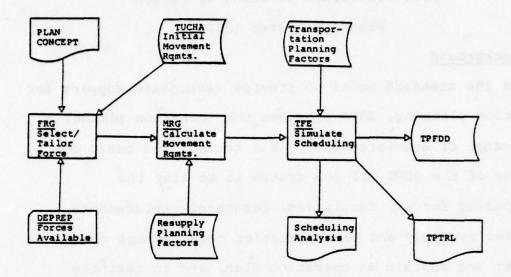
A. Background

As the standard model to provide responsive support for operation planning, JOPS provides the operation planner a wide range of automated analytical tools. The basic objective of the JOPS III ADP system is to list the time-phased forces, facilities, personnel replacements, material resupply and transportation requirements needed to support and sustain an operation plan, and to test the feasibility of operation plans with regard to strategic transportation.

In January 1972, the acquisition of new Worldwide
Military Command and Control System (WWMCCS) hardware was
approved requiring JOPS program development to conform to
WWMCCS hardware and software standards. The JOPS III
software is a hierarchial structure with the basic system
component being the routine/subroutine. Groups of
routines/subroutines form programs which, when logically
grouped by function, constitute a module. The diagram on
the following page illustrates this information flow.
The JOPS III ADP Support System is divided into:

- a. Software, containing application programs:
- System Monitor (SM) ADP software supervisor of the JOPS III application programs. Its primary purpose is

to provide the "user/machine interface" between the planner and the application software.



Legend

DEPREP - Deployment Reporting System FRG - Force Requirements Generator MRG - Movement Requirements Generator

TFE - Transportation Feasibility Estimator

TPFDD - Time Phased Force Deployment Data
TPTRL - Time Phased Transportation Requirements List

TUCHA - Type Unit Characteristics

FIGURE C-1 JOPS INFORMATION FLOW

- Force Requirements Generator (FRG) provides the military planner the capability to automatically generate and individually tailor Time-Phased Force and Initial Materiel Deployment Data (TPFDD) to support joint operation plans. The FRG is unit oriented.
- Movement Requirements Generator (MRG) provides
 the capability to automatically generate both unit and
 non-unit related cargo and personnel requirements based
 upon the forces to be supported and the duration of the
 planned operation by using resupply oriented Logistic Planning Factors (LPF).

- Transportation Feasibility Estimator (TFE) during the plans development, provides automated assistance
 to the planner in evaluating the gross feasibility of an

 OPLAN in terms of strategic movement. The strategic movement includes forces (units) and their accompanying cargo as
 well as the resupply cargo required to sustain those forces
 for the duration of the contingency. Operation of the TFE
 is dependent upon transportation oriented LPFs.
- TPFDD/Interface (T/I) performs the primary function of reformatting and summarizing data in the Deployment Data file, as reported through the DEPREP system, to create the TPFDD file for processing by the FRG, MRG, and the TFE programs. This program provides also the capability to sort the TPFDD file, compute and analyze facility workloads, and compute and analyze the strategic lift required, both air and sea, to move a force from port-of-embarkation (POE) to port of debarkation (POD).
 - b. File Maintenance Programs
 - c. Data Base Files

B. Movement Requirements Generator (MRG)

Resupply LPFs form an important basis as input to the MRG as a part of the Planning Factor File (PFF). The MRG is used to generate the time-phased non-unit related personnel and material requirements for an OPLAN.

These movement requirements specify the number of replacement personnel and amount of materiel (deploying equipment, resupply cargo, supply build-up in country, and retrograde) necessary to support the OPLAN within its stated operation time frame. These MRG-generated movement requirements in conjunction with the FRG-generated force requirements comprise the total movement requirements of an OPLAN.

The MRG application program updates the TPFDD file with ports of support and geolocation country codes for each force requirement by extracting this information from the Logistics Data (LOGDA) file. This updated TPFDD file contains the total movement requirements for an OPLAN. The TPFDD file is then passed on to the TFE application program for the transportation simulation of all movement requirements in the OPLAN.

The MRG is composed of six functional modules, as follows:

- Module M10 Create/Update Planning Factors
- Module M15 MRG File Paging
- Module M20 Generate Movement Requirements
- Module M30 Aggregate non-unit related cargo requirements
- Module M60 PFF Initialization/Master file generation
- Module M70 LOGDA File Maintenance

The above modules which are of main concern to the study are the M10, M20, and M60 since each works with planning factor input. A brief description of the composition of each follows:

- Module M10 This module provides the planner with the capability to construct the PFF which is needed to generate non-unit related movement requirements. The PFF is plan dependent in that the planning parameters are structured generally according to the scenario of the OPLAN and how the movement requirements are to be generated. It is in the PFF that the planner states the MRG problem. Planner inputs which are applied to the PFF include the following:
 - a. OPLAN duration from D-day (360-day maximum)
- b. Increments, or frequency of movements, for resupply, supply build-up, and personnel replacement, in terms of days per increment specified for up to four time-periods spread over the duration of the OPLAN.
- c. Time periods during which a percentage of non-POL resupply will move by air specified by Service and resupply category for up to twenty-four periods.
- d. Percentage adjustment of U.S. personnel attrition factors to compensate for differing attrition rates in off-shore countries.*

^{*}Off-shore: In theater, but not in objective area country.

- e. U.S. personnel attrition factors specified by Service.
- f. Percentage distribution of resupply and supply build-up movement requirements among up to three POEs specified by Service and resupply category.
- g. Supply build-up policy in terms of start day, duration of build-up period, and target level (days of supply) specified by Service and resupply category.
- h. Retrograde cargo requirements and intra-country cargo requirements, expressed as a percentage of resupply cargo throughout specified by Service and objective area country POD.
- i. Resupply LPFs for up to thirty-four classes/subclasses of supply* specified by Service for four U.S. Services and up to three Free World Military Assistance Forces (FWMAF) Services. (For nonbulk POL commodities, the LPFs are expressed in pounds/man/day. For bulk POL commodities, the LPFs are expressed in gallons/man/day.)
- j. Criteria for aggregating classes/subclasses of supply and their resupply LPFs, into fourteen or fewer resupply categories specified in terms of the desired resupply categories and their constituent classes/subclasses of supply.

^{*}JCS Publication Number 6 identifies cargo into 10 classes of supply, sub-divided into 34 subclasses of supply. The definitions are included in Appendix I of this report.

- k. Percentage adjustments for application to the resupply LPFs to compensate for different theater (Service) consumption specified by Service and class/subclass of supply. (Combat Intensity Factor).
- Percentage adjustment for application to the resupply LPFs to compensate for consumption rate differences between the off-shore countries and objective area countries.
- m. Objective area country and off-shore country resupply start days relative to the beginning of the OPLAN (D+0) specified by country for in-place personnel and by Service and country for deploying forces.
- n. Numbers of off-shore U.S. personnel specified by Service and country.
- o. Definitions of standard airports and seaports within Continental United States (CONUS) and off-shore countries specified by country.
- p. Average travel time, in days, from intermediate locations to objective area country Port-of-Support specified by objective area country.
- q. Average travel time, in days, from objective area country ports-of-support to destination specified by country and type of port-of-support (i.e., airport, general seaport, ammo seaport, and POL seaport).
- r. Objective area country(s) PWRMS cutoff days specified by Service, country, and resupply category.

- s. Numbers of FWMAF personnel to be resupplied in the objective area country(s) specified by geographic location code and FWMAF Service.
- t. Short Ton to Measurement Ton (ST-to-MT) conversion multipliers specified by Service and class/ subclass of supply.
- Module M20 This module generates the non-unit related cargo and passenger movement requirements and adds them to the TPFDD file. A consistency check program ensures that a consistent set of planning factors exist in the PFF. This module generates an updated TPFDD and aggregates the contents. The functions performed are as follows:
- a. Aggregate the qualifying entries in the TPFDD file.
- b. For each TPFDD File record (or set of aggregated records produced as a result of the action described in paragraph a, above):
- (1) Modify each of the class/subclass of supply LPFs using appropriate adjustments.
- (2) Aggregate the class/subclass of supply LPFs into fourteen or fewer resupply category consumption factors. Compute the unit-oriented daily consumption rate for each resupply category.
- (3) Compute a resupply start day for each resupply category using the following parameters from the PFF:

- (a) A deploying unit's POD-to-destination travel time.
- (b) Resupply start days which are specified by Service or country (objective area and off-shore) for in-place units.
- (c) Resupply start days which are specified by Service and country (objective area and off-shore) or POD-latest available date (LAD) for deploying units.
- (4) Compute the number of days of accompanying supply required using the following parameters from the PFF:
- (a) PWRMS cut-off days specified by objective area country, Service, and resupply category.
 - (b) Deploying units POD-LAD.
- (5) Generate a Temporary Working Data File

 (TWDF) with consumption factors and resupply start days for input to the Resupply/Replacement and Build-up Requirements Programs.
- (6) Generate the TPFDD Summary Input Print File.

 This file will be the input to the Generate TPFDD Summary

 Input Report Program.
- Module M60 The primary function is to establish a
 PFF prior to the initial execution of MRG for an OPLAN. For example, a force list is developed using the FRG. But, before this force list can be processed by the MRG, a PFF

must be established within the system. M60 allows the planner to establish the initial PFF. This PFF may then be updated and used in the generation of movement requirements in the MRG. The initial PFF may be established in either (1) blank PFF (one without data) and then update the file with planning parameters using module M10, or (2) recall a specific PFF from a saved tape for a particular OPLAN and/or scenario and then update the file using Module M10.

The PFF accepts materiel consumption rate data in pounds/man/day, gallons/man/day, pounds/unit/day, or gallons/unit/day only, identified to the thirty-four subclasses of supply. Annex B of the JSCP is formatted in this manner also. Identification of this consumption to a force list expressed in Unit Type Code* (UTC) per unit of time is necessary.

C. Transportation Feasibility Estimator (TFE)

Logistic transportation planning factors form an important basis as input to the TFE which is the next step in the planning cycle. The TFE is a simulation of the transportation aspect of the strategic movement problem. This simulation is accomplished by utilizing the movement requirements previously developed by the MRG to determine if the transportation network is adequate for the job. It involves the selection of seaports, airfields, ships, aircraft, and landing craft, and, the use of these assets in

^{*}UTC is a notional grouping of homogeneous units.

simulating the movement of personnel, equipment, and materiel in given scenarios. This capability of selection and simulation is provided by the TFE modules described herein. The planning process is highly interactive and normally requires multiple iterations for every plan. The overall flow with respect to the TFE was also depicted on page C-3. In examining the TFE modules it should be understood that while the CINCs' logistic plans divisions are the primary user organizations, they are working from a force list generated by the operations planners. While these modules are for the purpose of logistic feasibility analysis, such analysis cannot be done in isolation.

The TFE modules fall into three basic categories: input preparation, simulation, and output preparation. The modules that are planning factor dependent are in the input category:

a. Input preparation consists of first taking the MRG updated TPFDD file and selecting the data actually needed for simulation such as force identification, tonnages, passengers, origins, required delivery dates. Having done this, it is then necessary to determine what ports, air and sea, are involved and to retrieve the characteristics of those ports. In conjunction with this, the distances between the ports based on such things as canal openings and over-flight rights must be calculated by the planner. The

last step in the input phase is to allow the user to select the ships and aircraft that are to be utilized in the simulations. Two major points should be emphasized. First, the air and sea simulations are two completely seperate activities. Secondly, while the use of static files/tables is stressed, the user has considerable flexibility in modifying any data he chooses. The static files contain the transportation planning factors. The three major files of Navy interest are:

- Channel Distance File the distance between ports.
 (Site unique)
- Port Characteristics file port throughput constraints.
- Standard Ship/Aircraft Characteristics File ship
 speed and cargo carrying capabilities.
- b. The next major phase is simulation. This is the heart of the TFE and utilizes the input data previously prepared. The models attempt, based on programmed user rules, to simulate the selecting and loading of vehicles at the ports of embarkation, assembly of convoys if desired, transiting to and unloading at the ports of debarkation as well as providing an analysis of scheduled closures vs. the planners required closures.
- c. The last phase of TFE is output preparation. The primary goal is to present the data developed in the structured formats required and to permit reduction of

potentially voluminous reports to more manageable size. The hard copy Time Phased Transportation Requirements List (TPTRL), the primary statement of transportation data, including supporting reports, is generated from all the data developed and simulations as depicted on page C-3 of this Appendix.

Commandes in Calet. Pag sig Commandes in Chief, up headiness Command



THE JOINT CHIEFS OF STAFF WASHINGTON, D.C. 20301

SM-774-76 16 September 1976

MEMORANDUM FOR:

Chief of Staff, US Army Chief of Naval Operations Chief of Staff, US Air Force Commandant of the Marine Corps Commander in Chief, Aerospace Defense Command Commander in Chief, Atlantic US Commander in Chief, Europe Commander in Chief, Pacific

Commander in Chief, US Readiness Command Commander in Chief, US Southern Command Commander in Chief, Strategic Air Command Director, Defense Communications Agency Director, Defense Intelligence Agency

Director, Defense Supply Agency

Director, Joint Staff

Subject: Added Terms of Reference for a Logistic Factors File To Be Used by the Joint Operation Planning System Movement Requirements Generator

- 1. Reference SM-451-75, 11 August 1975, "Expansion of the Terms of Reference for the Joint Operation Planning System Interim Software."
- 2. In approving the reference, the Joint Chiefs of Staff directed the development of a logistic planning factors file, in coordination with the Services and CINCPAC. The added terms of reference for a Logistic Factors File to be used by the Joint Operation Planning System Movement Requirements Generator are contained in the Appendix.
- 3. The Director, Joint Staff, in coordination with the Services, will develop, implement, and distribute the Logistic Factors File in Annex B to JSCP FY 78.

For the Joint Chiefs of Staff:

P. M. HARTINGTON Captain, USN

Secretary

C-15

Joint Staff action assigned Attachment (1) to Appendix C to J-4 per DJS

| APPENDIX | <u>T</u> |
|--|----------|
| ADDED TERMS OF REFERENCE FOR A LOGISTIC FACTORS FILE TO BE USED BY THE JOINT OPERATION PLANNING SYSTEM MOVEMENT REQUIREMENTS GENERATOR | 2 23 |
| 1. Requirement. The Joint Operation Planning System (JOPS) | 4 |
| Movement Requirements Generator (MRG) requires the input of Service | 5 |
| resupply and personnel replacement planning factors in order to | 6 |
| determine total non-unit-related personnel and materiel requirements | 7 |
| to sustain forces for the duration of an OPLAN. The logistic | 8 |
| planning factors utilized have a significant impact on OPLAN feasi- | 9 |
| bility since they are a major determinant of wartime personnel | 10 |
| replacements, resupply material requirements, and/or lift require- | 11 |
| ments to support a joint operation. It is essential, serefore, | 12 |
| that current Service-approved logistic factors be utilized by joint | 13 |
| operation planners and that these factors be maintained in an | 14 |
| approved OPLAN guidance document which is subject to annual Service | 15 |
| review and approval. | 16 |
| 2. Objectives | 17 |
| a. Service-approved logistic factors for joint operation planning | 18 |
| will be specified in Annex B to JSCP in order to insure their | 19 |
| standardized application by all commands and to facilitate | 20 |
| annual Service review and update. | 21 |
| b. Services will submit logistic factors and planning points of | 22 |
| origin data for material and personnel replacements for inclusion | 23 |
| in Annex B to JSCP in accordance with the formats contained in | 24 |
| the Annexes hereto. Formats will be adapted by each Service | 25 |
| to satisfy its Service-unique logistic requirements. Such | 26 |
| adaptations will be designed to conform with the input parameters | 27 |
| of the JOPS III movement requirements generator where feasible. | 28 |
| Adjustments to refine or improve the formats further may be | 29 |
| staffed during the annual Annex B to JSCP review cycle. | 30 |
| c. The manually formatted logistic factors in Annex 3 to JSCP | 31 |
| provide the vehicle for insuring that joint operation planners | 32 |

| use current logistic factors which have kept pace with Service | 1 |
|---|----|
| requirements for increased readiness and deployability and new | 2 |
| materiel and weapon acquisitions. | 3 |
| d. The Services will provide their initial logistic factor input | 4 |
| for the annual update cycle of Annex B to JSCP FY 78 to begin in | 5 |
| December 1976. | 6 |
| d. Service component planners will review and adjust the Service- | 7 |
| approved resupply factors, as necessary, to meet plan-unique | 8 |
| requirements. | 9 |
| f. An automated Logistic Factors File (LFF) for JOPS will be | 10 |
| developed in the future based on the LFF data contained in | 11 |
| Annex B to JSCP. | 12 |
| Responsibilities | 13 |
| a. The Director for Logistics, OJCS, is responsible for: | 14 |
| (1) Coordinating the Service input of logistic factors to | 15 |
| be included in Annex B to JSCP. | 16 |
| (2) Monitoring use of the Annex B to JSCP logistic factors | 17 |
| during the joint operation planning and review process. | 18 |
| (3) Development of a JOPS automated capability to calculate | 19 |
| resupply/replacement for OPLANs based upon the LFF. | 20 |
| b. The Services are responsible for: | 21 |
| (1) Developing, defining, and validating the logistic plan- | 22 |
| ning factors which they require to be used for joint operation | 23 |
| planning. | 24 |
| (2) Providing the logistic factors defined in Annexes B, | 25 |
| C, and D hereto to the Director for Logistics, OJCS, for | 26 |
| inclusion in Annex B to JSCP. | 27 |

| ANNEX A | <u>1</u> |
|--|----------|
| SUPPLY SUBCLASSES TO BE USED IN A LOGISTIC FACTORS FILE IN ANNEX B, JSCP | 2 3 |
| lA - Rations, Air (inflight) | 4 |
| 1C - Rations, Combat | 5 |
| lR - Refrigerated subsistence | <u>6</u> |
| 1S - Nonrefrigerated subsistence (less combat rations) | 2 |
| 2B - Ground support materiel | 8 |
| 2E - General supplies | 9 |
| 2F - Clothing and textiles | 10 |
| 2M - Weapons | 11 |
| 2T - Industrial Supplies | 12 |
| 3A - POL, Air | 13 |
| 3W - POL, Ground (surface) | 14 |
| 4 - Construction material | 15 |
| 5A - Ammunition, Air | 16 |
| 5W - Ammunition, Ground | 17 |
| 6 - Personal Demand Items | 18 |
| 7A - Major End Items, Air | 19 |
| 7B - Major End Items, Ground support materiel | 20 |
| 7D - Major End Items, Administrative vehicles | 21 |
| 7G - Major End Items, Electronics | 22 |
| 7K - Major End Items, Tactical vehicles | 23 |
| 7L - Major End Items, Missiles | 24 |
| 7M - Major End Items, Weapons | 25 |
| 7N = Major End Items, Special weapons | 26 |
| 8 - Medical materiel | 27 |
| 9A - Repair Parts, Air | 28 |
| 9B - Repair Parts, Ground support materiel | 29 |
| 9D - Repair Parts, Administrative vehicles | 30 |
| 9G - Repair Parts, Electronics | 31 |

| 9 K | - | Repair P | arts, | Tactical Vehicles | 1 |
|------------|---|----------|-------|----------------------------|---|
| 9L | - | Repair P | arts, | Missiles | 2 |
| 9M | - | Repair P | arts, | Weapons | 3 |
| 9N | - | Repair P | arts, | Special Weapons | 4 |
| 9 T | - | Repair P | arts, | Industrial Supplies | 5 |
| 10 | - | Materiel | to su | pport nonmilitary programs | 6 |

ANNEX B

1/ LOGISTIC FACTORS

(BASIS: PERSONNEL STRENGTH IN THEATER OF OPERATIONS FOR 1 DAY)

CATEGORY

PERSONNEL REPLACEMENTS 2/

PARAMETERS 3/

Consumption by Supply Subclass 4/

COMBAT INTENSITIES 5/

THEATER ADJUSTMENT MULTIPLIERS
EUR ME PAC ARCTIC

ST TO MT MULTIPLIERS

1

14

10

18

28

2E

2F

2M

3A 4/

2.L

3W 4/

Pootnotes contained at end of Annex B.

LOGISTIC FACTORS (CONT'D)

ST TO MT MULTIPLIERS

| TENTE TENE | ARCTIC |
|-----------------------------|-----------|
| AD THE MENT WHIT TIED IF DE | WE PAC |
| THEATED | EUR |
| SOUTH THE NATION | 1 2 3 4 5 |
| | |

CATEGORY

Consumption by Supply Subclass

70 16

M

N

9A 4/

Footnotes contained at end of Annex B.

LOGISTIC FACTORS (CONT'D)

| | ST TO MT MULTIPLIERS |
|---|--|
| | THEATER ADJUSTMENT MULTIPLIERS EUR ME PAC ARCTIC |
| - | COMBAT INTENSITIES |
| | CATEGORY |

Consumption by Supply Subclass

| 4 | 4 |
|----|----|
| 96 | 9K |

76

7 W6

4 4 N6

Responsible Service.

Replacements per-man-per-day.

Each Service may provide factors for a maximum of five Service-unique personnel replacement parameters. Each Service may provide factors for a maximum of five Service determination in pounds-per-man-per-day. Supply classes to be reported will be based on Service should be reported on the basis based on Service determination. however, these classes may be reported in this format on a "per man" basis based on Service determination. Classes 3A and 3W will be reported in gallons-per-man-per-day if this format is used. Each Service may provide factors for a maximum of five intensities of combat or for a single average intensity of combat for its forces. Services will provide definitions for intensity of combat for their forces in appropriate Service terminology as footnotes; i.e., perhaps the terms of "steaming" days or 121211

"sortie" days, etc. 15

ANNEX C

1/ LOGISTIC FACTORS

TYPE OF UNIT (UTC) IN THEATER OF OPERATIONS FOR 1 DAY) (BASIS: ST TO MT MULTIPLIERS COMBAT INTENSITIES 3/ THEATER ADJUSTMENT MULTIPLIERS
1 2 3 4 5 EUR ME PAC ARCTIC SUPPLY UNIT TYPE (UTC) 2/

3A 4/

3W 4/

24 5/

NS.

78 5/

78

70

16

7K

N M

9A 5/

Footnotes contained at end of Annex C.

LOGISTIC FACTORS

(BASIS: TYPE OF UNIT (UTC) IN THEATER OF OPENATIONS FOR 1 DAY)

| THEATER ADJUSTMENT MULTIPLIERS EUR ME PAC ARCTIC | | | | | |
|---|----|----|----|----|----|
| ARCTIC | | | | | |
| JUSTMENT MI | | | | | |
| THEATER AD | | | | | |
| COMBAT INTENSITIES | | | | | |
| SUBCLASS | 96 | 9K | 76 | М6 | N6 |
| UNIT TYPE (UTC) | | | | | |

Factors to be provided for company/battery, ship, squadron, or higher echelon level UTCs as listed in JCS Pub 6, Vol II, Part 6, Ch 3. Responsible Service והוה

Each Service may provide factors for a maximum of five intensities of combat or for a single average intensity of combat for its forces. Services will provide definitions for intensity of combat for their forces in appropriate Service terminology as footnotes; i.e., perhaps in terms of "steaming" days or "sortie" days, etc.

Provide factors for each air and surface bulk fuel types indicated in parenthesis; i.e., 3A(JP4), 3A(JP5), 3A(AVG) — all types MOGAS, 3W(MOG) — all types MOGAS, 3W(DF) — all diesel fuel except marine diesel fuel, 3W(MOG) — and an anine (ships), 3W(NSF) — Navy special fuel oil. POL consumption factors are to be expressed in gallons—per-UTC-per-day for repair parts and major items. 3/

4

2

PT.

ANNEX D

1/ PLANNING POINTS OF ORIGIN

POINT OF ORIGIN

GEOLOCATION CODE

PERCENTAGE FROM ORIGIN 2/

Supply Subclass 3/

PERSONNEL REPLACEMENTS

CATEGORY

1

IR

10

15

34

Footnotes contained at end of Annex D.

PLANNING POINTS OF ORIGIN (CONT'D)

POINT OF ORIGIN

PERCENTAGE FROM ORIGIN

GEOLOCATION CODE

Supply Subclass

CATEGORY

8

M N

PLANNING POINTS OF ORIGIN (CONT'D)

POINT OF ORIGIN

GEOLOCATION CODE

PERCENTAGE FROM ORIGIN

1.6

Supply Subclass

CATEGORY

10

Service input will 1/ Responsible Service.
2/ Percentages from origins for each supply subclass must total 100 percent 1/3/ Supply subclasses to be reported will be based on Service determination. be based on coordination with the Defense Supply Agency where applicable. $\begin{array}{c} \text{APPENDIX D} \\ \\ \text{Summary of Phase I By JOPS Class} \end{array}$

APPENDIX D

Summary of Phase I Findings and Recommendations By JOPS Class

A. Class I - Subsistence (Food)

- Consumption of Class I items is personnel oriented.
- The source of data for Class I consumption is the Navy Food Service Systems Office (NFSSO), Washington, D.C.
- The data span the time period from 1968 to the present.
- NFSSO has developed planning factors and validated them in Fy 1976.
- The Study Group has reviewed the NFSSO data and has concluded that subsistence planning factors are valid and will require minimal manipulation by NFSSO to orient them for JOPS usage.
- The LPFs developed for Class I will represent wartime consumption.

B. Class II - Base Support Materiel

- Consumption of Class II items is equipment related with the exception of Subclasses IIE and IIF which contain administrative and housekeeping supplies, clothing, and textiles.
- Consumption and physical characteristics data will come from the Navy ICP transaction history data contained in the DODMDS data base.

- Resupply LPFs for Class II items are required, and the aggregation method discussed in this report with the DODMDS data base will be used to develop these factors.
- Combat intensity factors will be applied to Class II for consumption.

C. Class III - Petroleum

- Consumption of Class III is dictated primarily by scenario and operation tempo.
- The data base for bulk petroleum WRMR is maintained by OP-413 at NARDAC, Washington, D.C. and is updated on a monthly basis.
- Bulk POL LPFs are required and will be developed by OP-413 with the data base.
- Packaged petroleum consumption and physical characteristics data will come from the Navy ICP transaction history data contained in the DODMDS data base.
- Resupply LPFs for packaged petroleum are required,
 and the aggregation method in this report with the DODMDS
 data base will be used to develop these factors.
- The subclasses of supply for POL are to be expanded to include JP-5 and AVGAS for air and Diesel Marine
 Fuel, MOGAS, and Navy Special Fuel Oil for ground use.
- The LPFs developed for Class III (Bulk POL) will represent wartime consumption.

D. Class IV - Construction Materiel

- Class IV resupply planning factors are scenario oriented.
- Consumption and physical characteristics data will come from Navy ICP transaction history data contained in the DODMDS data base.
- LPFs for Class IV are required, and the aggregation method discussed in this report with the DODMDS data base will be used to develop these factors.
- Combat intensity factors will be applied to Class IV consumption.

E. Class V - Ammunition

- Class V consumption is scenario oriented.
- Potential consumption data is developed in the NNOR process by OP-411.
- The ammunition requirement is updated annually for the POM, by scenario.
- LPFs for Class V are required and will be developed from the NNOR process.
- The LPFs developed for Class V will represent wartime consumption.

F. Class VI - Persoral Demand Items (Non-Military Sale Items)

- Class VI planning factors are personnel oriented.
- The source and location of Class VI consumption data
 is the Navy Resale System Office (NRSO), Brooklyn, New York.

 The LPFs developed for Class VI will represent wartime consumption.

G. Class VII - Major End Items

- Class VII is comprised of major pieces of equipment, such as aircraft, major electronic systems, ground vehicles, associated propellers, shafts, and aircraft engines, etc.

 Class VII items should be for Navy purposes, equated with principal items as defined in Navy Policy and Standards for Supply Management, NAVSO P-1500. These items are generally subject to two types of usage: (1) normal attrition and (2) combat attrition, including battle damage.
- Usage and physical characteristics data for Class VII
 items will be derived from the Navy inventory manager
 transaction history data contained in the DODMDS data base.
 This data will be reviewed for accuracy by the cognizant
 command and, if approved, will be converted to LPFs using
 the aggregation method and combat intensity factors.
- Most Navy Systems Commands (SYSCOMS), as inventory managers for Class VII, feel that replacement of many Class VII items will not occur during contingencies by shipment of replacements to theater, and so LPFs should not include transportation requirements for these items. If SYSCOMS find that for this or other reasons the data derived from the DODMDS files is inaccurate, commands will develop valid LPFs for Class VII items under their cognizance.

H. Class VIII - Medical Materiel

- Consumption of Class VIII materiel is personnel oriented.
- The source and location of Class VIII consumption data is the Naval Medical Material Support Command, (NAVMEDMATSUPPCOM), Philadelphia, Pennsylvania.
- The LPFs developed for Class VIII will represent wartime consumption.

I. Class IX - Repair Parts and Components

- Consumption of Class IX materiel is equipment or weapon system oriented.
- Consumption and physical characteristics data will come from the Navy ICP transaction history data contained in the DODMDS data base.
- LPFs for Class IX are required, and the aggregation method discussed in this report with the DODMDS data base will be used to develop these factors.
- Combat intensity factors will be applied to Class IX consumption.

J. Class X - Materiel to Support Non-Military Programs

- Class X is comprised primarily of materiel used to support the economic development of foreign countries.
- Class X resupply is not pertinent to the objectives of this study.

APPENDIX E

Relevant Resupply LPF Literature Search

APPENDIX E

Relevant Resupply LPF Literature Summary

- 1. Logistics Reference Data, NAVMAT P-4000-2 (formerly NWIP 11-21).
 - Published 30 September 1973
 - The Navy logistics information reference
- Incorporates tables displaying logistics information
 and data (see Attachment 1 to this Appendix)
- For all users of logistics information including CINC
 Logistics Planners
- Table 1.5, Consumption Data for Supply Categories of Material (Ten Classes)
 - Not updated
- Pounds/man/day factor for "ashore", "afloat", and "worldwide" by DOD class and subclass by Navy Cognizance Symbol
- Developed using NAVSUP Publication 295 for consumption data and NAVPERS 15658 and other NAVPERS documents for personnel data
- Where direct relationship from Navy Cognizance

 Symbol to DOD subclass not established, a "most appropriate"

 class chosen
- Does not identify a factor for bulk POL (Class III) and Ammunition (Class V) (Refers to NNOR and other tables)
- Other tables may be useful logistics reference data
 but not related to JOPS LPFs

 All tables are listed in Attachment 1 to this Appendix.

2. OPNAVNOTE C8000 21 Septemer 1976, Non-Nuclear Ordnance Requirements (U), POM 78 Update (NNOR)

- Provides ammunition consumption plans based on scenario
 - Updated annually.

CONTRACTOR NO.

3. Naval Warfare Information Publication (NWIP) 11-21

- Developed in early 1950's by the Logistics Research
 Project of George Washington University under contract to
 the Office of Naval Research
 - Working papers and methodology still available
- Data accumulated on an individual ship or squadron
 basis from World War II consumption data
- Planning Factor tables for "activities" (POL, ammunition, general stores, and spare parts) provided factors by ship class or aircraft type
- Incorporated the premise that resupply commodities are equipment, personnel, or scenario oriented
- Assumed a "Standard Condition" roughly analogous to a current OPLAN
- Expressed requirements as BBL/Day, Man/Day, MT/Day,
 or Drum/Day
 - Incorporated a Theater Commander judgement factor
- Provided computation method for expressing resupply

ATTACHMENT ONE TO APPENDIX E

P4000-2 TABLES

TABLE

- 1.1 Navy and Marine Corps Monthly Combat Expenditures in Southeast Asia, Mar 69 through Mar 70 (Article 112)
- 1.2 Ammunition (Measurement Tons) for SEA Moved across Piers at Bangor, Concord, Earle, and Sunny Point Between January 1968 and December 1971 (Article 113)
- 1.3 Fuel Consumption (Gallons per Hour) (Article 121)
- 1.3a Fuel Consumption (Gallons per Hour) for Steamships burning ND (Article 121)
- 1.4 Aircraft Fuel Consumption (Article 122)
- 1.5 Consumption Data for Supply Categories of Material (10 Classes) (Article 131)
- 1.6 Monthly Resupply Requirements for Repair Parts and Consumable Stores by ship Type (Article 132)
- 1.8 Planning Factors for Mail Resupply (Article 135)
- 2.1 Characteristics of Specific Ammunition Items (Article 210)
- 2.2 Destroyer Tender Ammunition Allowances (Section 210)
- 2.3 Representative Surface Ship Ammunition Allowances (Section 210)
- 2.4 Representative Allowances for Submarines and Submarine Tenders (Section 210)
- 2.5 AE/AOE Fleet Issue Ammunition Load List Allowance (Section 210)
- 2.6 Characteristics of Specific Classes of AE/AOE Loads by Weight and Cube (Section 210)

- 2.7 CVA Stowage Capacity (Long Tons) for Aviation Ammunition (Section 210)
- 2.8 Loading Guide for CVAs for Selected Aviation Ammunition (Section 210)
- 2.9 Loading Guide for CVSs for Selected Aviation Ammunition (Section 210)
- 2.10 Fuel Capabilities of Ships (Barrels) (Section 220)
- 2.11 Aviation Fuel Capacities of Carriers (Section 220)
- 2.12 AO Standard Load (In Barrels) (Section 230)
- 2.13 TAO Standard Load (Section 230)
- 2.14 Stores Supply Levels (Section 240)
- 2.15 Characteristics of an AF and an AFS Fleet Load (Subsistence) (Article 241)
- 2.16 Characteristics of the "B" Ration (1,000 Men per Day
 for 30 Days) (Article 241)
- 3.1 Typical Replenishment at Sea Vulnerability Calculation (Alongside AF) (Section 300)
- 3.2 Transfer-at-Sea Rates (Short Tons or Barrels per Hour) (Section 310)
- 4.1 Standard Aircraft Squadron/Aircraft Assignments (Section 420)
- 4.2 Standard Aircraft Squadron/Aircraft Assignment (Not Assigned as Squadrons to CVAs or CVSs) (Section 420)
- 4.3 Deck Spotting Factors--A-7 Equivalent (Section 420)
- 4.4 Marine Corps Authorized Allowances for Headquarters Units and Shore Establishments (Section 420)
- 4.5 Section "B" Initial Outfitting List Numbers for U.S. Navy Aircraft (Section 430)
- 4.6 Shipping Charateristics of Section "A" Standard Aeronautical and Navy Stock Account Material List (Section 440)
- 4.7 Shipping Characteristics of Section "B" Aircraft Allowance Lists (Section 440)

- 4.8 Shipping Characteristics of Section "R" (Aeronautical Electronic Material) Initial Outfitting Lists (Section 440)
- 4.9 Shipping Characteristics of Section "N" Material Initial Outfitting Lists (Section 440)
- 4.10 Shipping Characteristics of Section "X" Material Initial Outfitting Lists (Section 440)
- 4.11 Shipping Characteristics of Aircraft Engines (Section 450)
- 4.12 Weight (S/T) and Cube (M/T) of Aircraft Deployed to CVA/CVS (Section 460)
- 4.13 Weight (S/T) and Cube (M/T) of Aircraft Squadrons Deployed to Shore Operating Bases (Section 460)
- 5.1 Representative Ship and Afloat Staff Allowance and Complements (Section 500)
- 5.2 Personnel Requirements for Carrier Air Wings (Section 500)
- 5.3 Tables of Organization for Marine Corps Aviation Units (Revised) (Section 500)
- 5.4 Transients, Patients, and Prisoners (T.P.&P.) (Article 501)
- 5.5 Passenger Air Transport Planning Factors (Article 502)
- 5.6 Passenger Sealift Planning Factors (Article 502)
- 5.7 Tables of Organization for Marine Corps Ground Units (Article 505)
- 6.1 Estimated Repair Requirements in Mandays per Ship Month, Sixth Fleet (FY 1967) (Section 610)
- 6.2 Distribution of Forward Area Repair Support, Sixth Fleet (FY 1967) (Section 610)
- 6.3 Estimated Repair Requirements in Mandays per Ship Month, Sixth Fleet (FY 1968) (Section 610)
- 6.4 Distribution of Forward Area Repair Support, Sixth Fleet (FY 1968) (Section 610)
- 6.5 Estimated Repair Requirements in Mandays per Ship Month, Sixth Fleet (FY 1969) (Section 610)

- 6.6 Estimated Repair Requirements in Mandays per Ship Month, Seventh Fleet (FY 1967) (Section 610)
- 6.7 Distribution of Forward Area Repair Support, Seventh Fleet (FY 1967) (Section 610)
- 6.8 Estimated Repair Requirements in Mandays per Ship Month, Seventh Fleet (FY 1968) (Section 610)
- 6.9 Distribution of Forward Area Repair Support, Seventh Fleet (FY 1968) (Section 610)
- 6.10 Estimated Repair Requirements in Mandays per Ship Month, Seventh Fleet (FY 1969) (Section 610)
- 6.11 Distribution of Forward Area Repair Support, Seventh Fleet (FY 1969) (Section 610)
- 6.12 Ship Repair and Overhaul by All Naval Shipyards (FY 1969) (Section 610)
- 6.13 Estimated Repair Capabilities of Tenders and Repair Ships (Section 610)
- 6.14 Status, Location, and Capabilities of Navy Active and Reserve Floating Dry Docks (Section 610)
- 6.15 Location and Capability of Floating Dry Docks on Loan or Lease (Section 610)
- 6.16 Floating Dry Dock Planning Factors and Service Craft Allowance (Section 610)
- 6.17 Electric Power Capabilities of Tenders and Repair Ships (Section 610)
- 6.18 Electric Power Requirements for Naval Ship Types and Classes While Being Tended Alongside Tenders and Repair Ships (Section 610)
- 6.19 Portable Water Capabilities of Tenders and Repair Ships (Section 610)
- 6.20 Portable Water Requirements for Ships (Section 610)
- 6.21 Steam Requirements of Ships Alongside and Export Capabilities of Tenders and Repair Ships (Section 610)
- 7.1 Advanced Base Functional Component Description and Data (Section 710)

- 7.2 Minimum Requirements for Advanced Base Airfield Surfacing Materials (Average Conditions) (Article 725)
- 7.3 General Characteristics of a Minimum SATS Installation for Jet Aircraft Using Assisted Takeoffs and Arrested Landings (Article 726)
- 7.4 Characteristics of Portable Airfield Surfacing (Article 726)
- 7.5 Some Average Factors for Converting Net Storage Space Required to Gross Space Required for Storage Operation; (Article 728)
- 7.6 Percentage of Supplies Requiring Covered Storage (Article 728)
- 7.7 Construction Time Requirements for Selected Projects (Article 751)
- 8.1 MSC Transportation Capacities (Article 821)
- 8.2 Major U.S. Flag and U.S. Controlled Commercial Passenger Ships (Article 821)
- 8.3 Average Characteristics -- U.S. Merchant Marine Cargo Ships (Article 822)
- 8.4 Maritime Administration Merchant Ship Classification Coding (Article 822)
- 8.5 Characteristics of MSC and Privately Owned U.S. Flag Tankers (Article 823)
- 8.6 Significant Dimensions and Capacities of C4 (Article 825)
- 8.7 Significant Dimensions and Capacities of C3 (Article 825)
- 8.8 Significant Dimensions and Capacities of C2 (Article 825)
- 8.9 Significant Dimensions and Capacities of VC2 (VICTORY)
 (Article 825)
- 8.10 Aircraft Carrier Cargo Capabilities for Assembled Aircraft (Article 826)
- 8.11 Hatch, Boom, and Winch Data, U.S. Merchant Marine Cargo Ships (Article 827)

- 8.12 Characteristics of Notional Ships (Article 828)
- 8.13 Cargo Density Conversion Table in Long Tons (Articles 829 and 830)
- 8.14 Cargo Density Conversion Table in Short Tons (Article 830)
- 8.15 M/T and S/T Conversion Factors by Supply Class (Article 830)
- 8.16 Density Conversion Factors for Supply Categories of Material (Ten Classes) (Article 830)
- 8.17 M/T and S/T Conversion Factors for Certain Cargoes to Vietnam (Article 830)
- 8.18 Liquid Conversion Factors Used in Shiploading (60 F) (Article 831)
- 8.19 Maximum Permissible Deck Loads in Pounds per Square Foot (Article 834)
- 8.20 Peacetime (Optimum) Capacity in Measurement Tons (M/T) of Cargo (Article 835 and 836)
- 8.21 Worldwide Turn-around Cycles from U.S. Ports (New York and San Francisco) for Notional Ships (No ASW) (Article 839)
- 8.22 Time Required for Steaming Various Distances at Speeds Ranging from 8 to 20 knots (Article 840)
- 8.23 Uniform Material Movement and Issue Priority System (UMMIPS) (Article 841, 842, 843)
- 8.24 Vietnam Port Handling Planning Factors (S/T per Day) (1966) (Article 845, 846, 847)
- 8.25 Aircraft Characteristics (Article 856)
- 8.26 Aircraft Operational Limitations (Article 857, 858)
- 8.27 Normal Gross Takeoff Payload at Nautical Mile Ranges (Article 859)
- 8.28 Worldwide Logistical Aerial Ports (Article 860)
- 8.29 General Characteristics of Helicopters (Article 861)
- 8.30 Maximum Payload Capability of Helicopters at Sea Level and STD Temperature (59 F) (Article 861)

- 8.31 Maximum Payload Capability of Helicopters at 50 Nautical Mile Radius (Article 861)
- 8.32 Short-term Movement Capability for Pavement or Surface Types (Section 870)
- 8.33 Short-term Movement Capability for Highway Types (Section 870)
- 8.34 Maximum Number of Days of Short-term Movements by Pavement or Surface Types (Section 870)
- 8.35 Truck Capabilities -- Maximum (Article 871)
- 8.36 Characteristics of Rolling Stock (Article 872, 873)
- 8.37 Routes Covered by MSC Container Agreements (Article 888)
- 9.1 Landing Craft Characteristics (Section 910)
- 9.2 River Assualt Craft Characteristics (Section 910, 920, 930)
- 9.3 Characteristics of Pontoon Barges (Article 941, 942)
- 9.4 Cargo and Troop Capacity of Selected Amphibious Ships and Craft (Section 950)
- 9.5 Specialized Mobile Units Tactical Support Units (Amphibious) (Pacific) (Section 960)
- 9.6 Specialized Mobile Units Tactical Support Units (Amphibious) (Atlantic) (Section 960)
- 9.7 Specialized Mobile Units Tactical Support Units (Mine Warfare Forces) (Section 960)
- 9.8 Specialized Mobile Units Ordnance Support Units (EOD) (Section 960)
- 9.9 Specialized Mobile Units Ordnance Support Units (Miscellaneous) (Section 960)
 - Articles 1021, 1031, 1032, 1033, 1035
- 10.2 Wounded in Action Admission Rate for Specific Operations (Admissions per 1,000 Strength per Day) (Article 1041, 1042, 1043, 1044)

- 10.3 U.S. Naval Hospital Ship Capacities (Article 1045)
- 10.4 Army World War II and Korean War Experience (Article 1046)
- 10.5 Navy/Marine Corps Vietnam Experience (Article 1046)
- 10.6 Casualty Carrying Capacity of Aircraft (Article 1047)
- 10.7 Evacuation Capacities of Fleet Amphibious Ships (Article 1047)
- 10.8 Evacuation Capacities of MSC Troop-carrying Ships (Article 1047)
- 11.1 Days of Supply Pacific Theater (Section 1100)
- 11.2 Days of Supply Pacific Theater (Section 1100)
- 11.3 Days of Supply Polar Regions (Section 1100)
- 11.4 Conversion Factors by Class of Supply (Articles 1101 and 1102)
- 11.5 Characteristics of Standard Army Rations (Section 1100)
- 11.6 Water Requirements (Section 1100)
- 11.7 Consumption Data for Supply Categories of Material (10 Classes) for Army (Article 1103)

APPENDIX F
Summary of Interviews

APPENDIX F

Summary of Interviews

- A. Navy CINC Logistics Planners CINCLANTFLT, CINCPACFLT, and CINCUSNAVEUR Representatives
- a. CINC Logistic Planners are the users of resupply Logistics Planning Factors (LPF) on the CINC staffs.
- b. Resupply LPFs are required to satisfy the CINC JOPS planning requirements.
- c. Table 1.5 of <u>Logistics Reference Data</u>, <u>NAVMAT</u>

 P4000-2 is used as the source of resupply LPFs and is the only source available.
- d. Resupply LPFs would be more responsive to CINC requirements if they were adapted to JOPS input requirements.
- B. Navy Logistics Planning Factor Sponsors Naval Supply
 Systems Command Headquarters (NAVSUP), Naval Facilities
 Engineering Command Headquarters (NAVFAC), Naval Sea Systems
 Command Headquarters (NAVSEA), Naval Air Systems Command
 Headquarters (NAVAIR), Naval Electronics Systems Command
 Headquarters (NAVELEX), Bureau of Medicine and Surgery
 (BUMED), Military Sealift Command (MSC), and Office of the
 Chief of Naval Operations, Ordnance and Energy Management
 Branches
- a. Sponsors are responsible for the development and maintenance of LPFs.

- b. Documentation of rationale and methodology of current LPFs is limited to that described in <u>Logistics</u>

 Reference Data, NAVMAT P4000-2. The descriptive data contained in this publication was insufficient to permit reconstruction of resupply factors.
- c. Individuals who participated in the development of Table 1.5 of Logistics Reference Data, NAVMAT P4000-2 are no longer available.
- d. Sponsors will provide support in the development of new resupply LPFs.
- e. Primary effort should be addressed to resupply LPFs in Table 1.5 of Logistics Reference Data, NAVMAT P4000-2 and in defining a methodology to compute and maintain such factors.
- f. MSC validates the rationale and methodology used for the development of the transportation planning factors on a continuing basis.

C. Other Services

Interviews with other Services to determine their methodology to develop resupply LPFs:

- 1. Army Development and Readiness Command (DARCOM)
 and Planning Factors Management Office, Training and
 Doctrine Command (PFMO):
- a. PFMO and DARCOM are the two agencies involved with developing and coordinating Army LPFs.
- b. Army items are classified into the ten major DOD supply classes and seventy-seven subclasses.

- c. The methodology used in aggregation to seventy-seven subclasses was essentially a manual identification of each line item which took five years to complete.
- d. Responsibility for computing LPFs for use in the Army is centralized at the PFMO.
- e. Because rationale and supporting methodology is not identifiable, current Army LPF credibility is questioned, and PFMO is in the process of identifying a validation method.
 - 2. Air Force Air Force Logistics Command
 - a. Planning factors are currently under review.
- b. Air Force information and procedures are under review and would not be useful to the Navy.
- D. Navy Food Services Systems Office, Washington, D.C. (NFSSO)
- a. NFSSO has Navy Subsistence (Class I) consumption data by FSC and ship type by weight and cube.
- b. NFSSO has planning factors which reflect surface unit and submarine usage.
- c. Since NFSSO finds there is little variance in subsistence consumption, planning factors are representative and require minimal updating.
- d. Planning factors for Subsistence (Class I) were validated in FY 1976 and factors for submarines are being revised.

APPENDIX G

CLASSIFICATION MATRIX

OFFICE OF THE CHIEF OF NAVAL OPERATIONS WASHINGTON D C AN ANALYSIS OF NAVY LOGISTIC PLANNING FACTORS.(U) MAR 78 P A FRIES, B A GRUBER, J LEMMO F/G 15/5 AD-A055 752 NL UNCLASSIFIED 2 OF 2 ADA 055752 END DATE FILMED 8 -78 END 8 -78 DDC

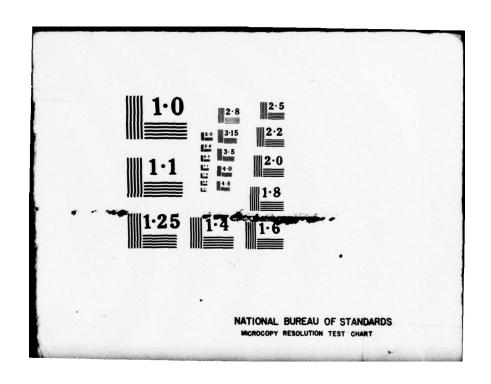


Table G-1
Navy Cognizance Symbol to JOPS Classification

| lH x lI IIE IQ VI lR IXA | 2B x 2C x 2E VA 2F VIIG 2H x 2J VIIM 2M VIIB 20 IIB 2P D 2R x 2S x 2T VW 2U IXL 2V IIB 2W IIB 2W IIB 2X D 2Z VIIG | 4A IXA 4E VA 4G IXG 4H IXK 4J IIB 4M IIB 4N X 40 IXB 4P D 4R IXB 4T VW 4U IXM 4V IXA 4X D 4Z IXA | 5L IXG 5M IXG 5N IXG 5P D 5R IXT | 6A D 6E X 6G IIB 6H D 6M IIB 60 IIB 6P D 6R VIIB 6T VW 6U X 6V IXA 6X D | 8A d 8E VA 8H IXG 8M IIB 8N VIIB 8P D 8R X 8S VW 8T VW 8U VA 8X D | 9A IXK 9C x 9D IIF 9E IIE 9F IXA 9G x 9H IXM 9I IXA 9L VIII 9M X 9N IXG 90 X 9Q IIE 9S IXL 9V IXA 9W IXA 9W IXA 9X X 9Y IXG 9Z IXT | OI IIE OK IIE OP IIE OX X |
|-----------------------------------|---|--|--|---|---|--|------------------------------------|
|-----------------------------------|---|--|--|---|---|--|------------------------------------|

| D = Delete (FBM/Nuclear) | Appear to fall directly | |
|--------------------------|-------------------------|----|
| | into DOD subclass | 62 |
| x = DOD Subclass Depends | DOD Subclass Appears to | |
| on FSC | Depend on FSC | 15 |
| | Deleted (FBM) | 12 |
| | TOTAL | 89 |

Matrix examination indicates that of the eighty-nine COG symbols sixty-two can be identified directly to a single JOPS class/subclass of supply, fifteen can be categorized to JOPS class/subclass of supply depending upon the particular FSC, and twelve can be deleted because they deal with nuclear weapons and FBM materiel.

APPENDIX H
DODMDS Data Base

APPENDIX H

DODMDS Data Base

The purpose of the DODMDS study is to analyze the Department of Defense material distribution system and optimize the number of supply depots. The DODMDS data base is composed of several different types of data files, both in terms of the extent of data processing required to produce them and in information content referring to such data as catalog data, requisition data, or requisition data with appended catalog data. Extent of data processing refers to the number of steps of extracting, sorting, merging, and aggregating required to produce a particular file from raw source files.

There are five main types of data files which comprise the DODMDS data base and each file type is characterized by organizational identity, record format, record sequence, and informational content or functional use. Each type of file is described below:

- The first main files are the source files, which contain the data files requested by and sent to the DODMDS Study Group by the various field activities of DOD services/agencies including Navy ICPs.
- The second main files are the extract files created from selected data elements of the source files. The order of records is not changed during this process and the resultant files remain grouped by original service/agency.

The extracted data elements contain the same characters as were in the source file. The first-pass extract file is created without any consideration of the meaning or validity of the characters comprising each data element. Subsequent processing steps validate the content of each of the data fields, fill voids according to specified rules, or reject the invalid records to special exception files for separate analyses.

- The third main files are the intermediate files consisting of a depot shipments file, a catalog file, a transportation file, and a contract file. The contents of these files are roughly analogous to the source files, are primarily of interest to DODMDS, and indicate how the preparation of the data base was organized into discrete, verifiable tasks.
- The fourth files are the master transaction files and the master reference files. The DODMDS data preparation effort culminates with the creation of these files including:

DODMDS Master Transaction Files

- Depot shipments master file (wholesale)
- Depot procurement receipts (D4) master file (wholesale)
- Depot non-procurement receipts (D6) master file (wholesale)
- 4. Direct delivery shipments (B2) master file (wholesale)
- 5. Depot detail shipments issues master file
- 6. Depot retail procurement receipts master file
- 7. Depot retail non-procurement receipts master file

DODMDS Master Reference Files

- 1. Catalog master file
- 2. Customer master file
- DCASR (vendor/contractor) master file
- 4. DLSC Freight data master file
- 5. NSN/DODMDS Product group cross-reference file
- 6. Retail, asset (location/status) master file
- 7. Wholesale, asset (location/status) master file
- The fifth file within the DODMDS data includes the special analyses files which were created to perform tasks specifically related to DODMDS purposes.
- The DODMDS "Mini Ship I" file forms the basis for the DODMDS NSN aggregation. Attachment 1 presents the specific data elements of this file.
- The time period covered by the DODMDS data base is twelve months (1 October 1974 through 30 September 1975).

Attachment 1

DODMDS Data Elements (Mini Ship I)*

- 1. NSN (FSC/NIIN)
- 2. Document Number
- 3. DODAAC (Ship to "UIC")
- 4. Priority Designator
- 5. Requisition Receipt Date (ICP)
- 6. Shipping Depot
- 7. Quantity Shipped
- 8. Date Available for Shipment
- 9. Date Shipped
- 10. Mode
- 11. Type of Action Code
- 12. MRO Generation Date
- 13. Price
- 14. Source of Supply
- 15. Security Code
- 16. Repairability
- 17. Management Control
- 18. TL Class
- 19. LTL Class
- 20. CL Class
- 21. Water Commodity Code
- 22. Type Cargo Code
- 23. Unit Pack Length
- 24. Unit Pack Width

- 25. Unit Pack Depth
- 26. Unit Weight
- 27. Unit Cube
- 28. Customer Number
- 29. ZIP
- 30. Service Code
- 31. ICP Code
- 32. Product Number
- 33. Catalog Data Flag
- * Created from Wholesale Shipment file. Forms basis of NSN roll-up. Also used for Retail Shipments.

APPENDIX I

JCS Publication 6 Vol. II Part 5 Chapt I

TABLE 23

SUPPLY CLASS-SUBCLASS CODES

Supply Class (G cc 47)

1 - Subsistence (Food)

2 - Clothing individual equipment tentage, organizational tool sets and tool kits, hand tools and administrative and housekeeping supplies and equipment.

- 3 POL: Petroleum, fuels, lubricants, hydraulic and insulating oils, preservatives, liquid and compressed gases, bulk chemical products, coolants, deicing and antifreeze compounds--plus components and additives of such products, including coal.
- 4 Construction: Construction materials including installed equipment and all fortification/ barrier materials.

Subclass (G cc 48)

- A Air (inflight rations)
- R Refrigerated subsistence
- S Non-refrigerated subsistence (less combat rations)
- C Combat rations (includes gratuitous health and welfare items)
- B Ground support material (includes power generators and construction, barrier, bridging, fire-fighting, petroleum, and mapping equipment)
- E General supplies
- F Clothing and textiles
- M Weapons
- T Industrial supplies (e.g., bearings, block and tackle, cable, chain, wire rope, screws, bolts, studs, steel rods, plates, and bars)
- A Air
- W Ground (surface)

None

TABLE 23

SUPPLY CLASS-SUBCLASS CODES

Supply Class (G cc 47)

- 5 Ammunition: Ammunition of all types (including chemical, biological, radiological, and special weapons), bombs, explosives, mines, fuzes, detonators, pyrotechnics, missiles, rockets, propellants, and other associated items.
- 6 Personal Demand Items (Nonmilitary Sale Items)
- 7 Major End Items: A final combination of end products ready for its intended use; e.g., launchers, tanks, mobile machine shops, and vehicles

- 8 Medical material, including medical peculiar repair parts
- 9 Repair Parts (Less Medical Peculiar Repair Parts): All repair parts and components, including kits, assemblies, and subassemblies (repairable and nonrepairable) required for maintenance support for all equipment.

Subclass (G cc 48)

- A Air
- W Ground

None

- A Air
- B Ground support material (includes power generators and construction, barrier, bridging, fire-fighting, petroleum, an mapping equipment)
 - D Administrative vehicles (commercial vehicles used in administrative motr pools)
 - G Electronics
 - K Tactical vehicles
 - L Missiles
 - M Weapons
 - N Special weapons

None

- A Air
- B Ground support material (includes power generators and construction, barrier, bridging, fire-fighting, petroleum, and mapping equipment)

SUPPLY CLASS-SUBCLASS CODES

Supply Class (G cc 47)

9 - (continued)

Subclass (G cc 48)

- D Administrative vehicles (commercial vehicles used in administrative motor pools)
- G Electronics
- K Tactical vehicles
- L Missiles
- M Weapons
- N Special Weapons
- T Industrial supplies (e.g., bearings, block and tackle, cable, chain, wire, rope, screws, bolts, studs, steel rods, plates, and bars)

0 (10) - Material to support
Non-military programs;
e.g., agricultural and
economic development not
included in classes 1
through 9.

None

APPENDIX J Glossary

APPENDIX J

Glossary

| ABFC | Advanced | Base | Functional | Component |
|------|----------|------|------------|-----------|
|------|----------|------|------------|-----------|

ADP Automatic Data Processing

AFLC Air Force Logistics Command

AVGAS Aviation Gasoline

BUMED Bureau of Medicine and Surgery (Navy)

CARESS Enhanced Contingency Ammunition

Requirements and Supportability System

CIF Combat Intensity Factor

CINC Commander-in-Chief

CINCLANT Commander-in-Chief Atlantic

CINCLANTFLT Commander-in-Chief Atlantic Fleet

CINCPAC Commander-in-Chief Pacific

CINCPACFLT Commander-in-Chief Pacific Fleet

CINCUSNAVEUR Commander-in-Chief U.S. Naval Forces

Europe

CNO Chief of Naval Operations

CONUS Continental United States

DARCOM Development and Readiness Command (Army)

DEPREP Deployment Reporting System, Joint Opera-

tion Planning System

DLA Defense Logistics Agency

DODMDS Department of Defense Materiel Distribu-

tion Study

FRG Force Requirements Generator of the Joint

Operation Planning System

FSC Federal Supply Class

FWMAF Free World Military Assistance Forces

GSA General Services Administration

ICP Inventory Control Point

JOPS Joint Operation Planning System

JSCP Joint Strategic Capabilities Plan

JSOP Joint Strategic Objectives Plan

LAD Latest Available Date

LOGDA Logistics Data

LPF Logistic Planning Factor

LT Long ton

MOGAS Motor Gasoline

MRG Movement Requirements Generator of the

Joint Operation Planning System

MSC Military Sealift Command

MT Measurement ton

NARDAC Navy Regional Data Automation Center,

Washington, D.C.

NAVAIR Naval Air Systems Command

NAVELEX Naval Electronics Systems Command

NAVFAC Naval Facilities Engineering Command

NAVMAT Naval Material Command

NAVMEDMATSUPPCOM Naval Medical Material Support Command

NAVSEA Naval Sea Systems Command

NAVSUP Naval Supply Systems Command

NFSSO Navy Food Service Systems Office

NIIN National Item Identification Number

NNOR Non-Nuclear Ordnance Requirements (Navy)

NRSO Navy Resale Systems Office, Brooklyn, NY

NSN National Stock Number

NWIP Naval Warfare Information Publication

OJCS Organization of the Joint Chiefs of Staff

OPLAN Operation Plan

PFF Planning Factors File used in the Joint

Operation Planning System

PFMO Army Planning Factors Management Office,

Training and Doctrine Command

POD Port of Debarkation

POE Port of Embarkation

POL Petroleum

POM Program Objectives Memorandum

PWRMS Prepositioned War Reserve Materiel Stock

SM System Monitor of the Joint Operation

Planning System

SPCC Ships Parts Control Center,

Mechanicsburg, Pennsylvania

ST Short ton

TFE Transportation Feasibility Estimator of

the Joint Operation Planning System

TPFDD Time Phased Force Deployment Data

TPTRL Time phased Transportation Requirements

List

UIC Unit Identification Code

UICP Uniform Inventory Control Program

USAF U.S. Air Force

UTC Unit Type Code

WRMR

War Reserve Materiel Requirements

WRMS

War Reserve Materiel Stock

WWMCCS

Worldwide Military Command and Control

System

APPENDIX K
Bibliography

APPENDIX K

Bibliography

Armed Forces Staff College, JOPS Users' Conference, Norfolk, Virginia, 27-30 June 1977.

Briefing of RADM John Chase, Chariman, Advisory Committee, 21 June 1977.

Chief of Naval Material Letter, Subject: Logisics Reference Data, NAVMAT P4000-2, serial 0431E, NAB, 11 May 1976.

Defense Supply Agency, Federal Supply Classification, Cataloging Handbook, Part I, Groups and Classes, January 1977.

Eccles, Henry E., Logistics in the National Defense, The Stackpole Company, Harrisburg, PA, 1959.

Goldstein, Alan J., "Logistics Planning Factors, Their Uses and Misuses," Air Force Institute of Technology.

Joint Chiefs of Staff, "Publication 6, Vol. II, Chapter I, Part 5."

Joint Chiefs of Staff, <u>Joint Operations Planning System</u> (JOPS), Vols. I and II.

Logistic Reference Data, NAVMAT P4000-2, 30 September 1973 (Confidential).

Memorandum for the Record of AFLC discussions.

Memorandum for the Record of BUMED discussions, 22 June 1977.

Memorandum for the Record of CINCUSNAVEUR discussions, 27 June 1977.

Memorandum for the Record of DARCOM discussions, 23 June 1977.

Memorandum for the Record of DODMDS discussions, 7 September 1977.

Memorandum for the Record of MSC discussions, 22 June 1977.

Memorandum for the Record of NFSSO discussions, 18 August 1977.

Memorandum for the Record of Navy Petroleum Office discussions, 15 September 1977.

Memorandum for the Record of CNM Stratification meeting on secondary item procedures, 27 July 1977.

Memorandum for the Record of OPNAV-411 discussions, 23 June 1977.

NAVCOSSACT, Enhanced Contingency Ammunition Requirements and Supportability System, 53E233, UM-01, February 1977.

Navy Inspector General Report, Command Inspection of CINCPACFLT Headquarters, Subject: "Credibility of OPLAN Resupply Planning", 414-76 (Confidential), 7-17 September 1976

NAVSUP, Supply Management Program Standard Data Element Dictionary, Publication 508, 4 January 1974.

Report of Study Group Meeting, 8 July 1977.

Trip Report, CINCLANTFLT, 19 August 1977.

Trip Report, CINCPACFLT, 20 May 1977 (Confidential).

Trip Report, USA Planning Factor Management Office, TRADOC, 9 June 1977.

U.S. Army, Classes of Supply, Army Field Manual, FM 38-24, March 1976.

U.S. Navy, Non-Nuclear Ordnance Requirements, OPNAVNOTE C8000, 21 September 1976, 4 VOLs. (Confidential).

APPENDIX L
Membership of the Study Group

MEMBERSHIP OF THE STUDY GROUP

| Mr. B. A. Gruber, (OP-401G) Study Project Officer | 695-5109 |
|---|-------------|
| LCDR J. B. Sewell, (OP-964C2) Study Monitor | 697-5807 |
| CDR J. G. Jefferson, OP-605E3 | 695-2928 |
| CDR W. P. Sutherland, OP-405Cl | 697-9413 |
| Mr. L. F. Gray, OP-41C | 695-6125 |
| LCDR D. G. Lubash, OP-101D | 694-1438 |
| CAPT R. A. Packard (USMC), LPP-2 HQMC | 695-0202 |
| Mr. R. Hallmark, NAVMAT-043 | 692-7924 |
| Mr. S. Borris, NAVSEA-0042 | 692-3726 |
| Mr. M. Costello, NAVSEA-09B3 | 692-0532 |
| Mr. L. H. Denburg, NAVAIR-401 | 692-2881 |
| Mr. E. Panigot, MAVAIR-4121B1 | 692-0028 |
| Mr. R. Giarratana, NAVELEX-5042 | 692-8972 |
| Mr. W. T. Henry, NAVFAC-0621B | 325-9110 |
| Mr. G. Lancaster, NAVSUP-0421 | 695-5728 |
| Mr. L. Morgan, NARDAC | 433-3929 |
| Mr. B. Besore, NARDAC | 433-3929 |
| Mr. E. Van Leuven, NAVMEDMATSUPPCOM | AV-443-8775 |
| Mr. C. Williams, COMSC M-61B | 282-2897 |