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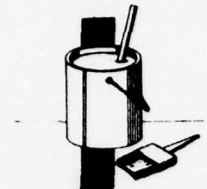
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D- STUDY TEAM COMPOSITION



MATERIEL SUPPORT TO CIVIL ENGINEER OPERATIONS

VOLUME I

ANALYSIS

DEFENSE SUPPLY AGENCY

DEFENSE LOGISTICS
ANALYSIS OFFICE

SEPTEMBER 1976

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ALEXANDRIA, VIRGINIA 22314

IN REPLY
REFER TO

FOREWORD

In a memorandum dated 28 March 1975 to the Assistant Secretaries (Installations and Logistics) of the Military Departments, the Director, Defense Supply Agency, and the Director, Joint Staff, Joint Chiefs of Staff, the Acting Assistant Secretary of Defense (Installations and Logistics) expressed concern at the proliferation of systems for providing supply support to the Civil Engineering function within the Department of Defense. In this same memorandum the Acting Assistant Secretary of Defense (Installations and Logistics) asked that the Defense Logistics Analysis Office (then the Defense Supply Agency Analysis Division) undertake a study of the techniques by which supply support is being provided to the Civil Engineering function. The following study objectives were established:

a. Identify and describe how materiel support is currently being provided to the Civil Engineering function within the Department of Defense; and,

b. Evaluate the desirability of using a Contractor Operated Civil Engineer Supply Store (a COCESS) to provide either local purchase or centrally procured and managed items, or both, to the Civil Engineer.

This Report contains the results of analyses performed with information obtained from briefings received from the Headquarters of the Military Services, on-site research at a representative range of Department of Defense activities in CONUS and overseas, and data submitted by the Military Services. Findings, conclusions, and recommendations based on these analyses are included in this Report.

This Report is presented in two Volumes:

Volume I contains the findings, conclusions, and recommendations of the Study. The recommendations and a summary of the findings and conclusions are contained in Chapter VI of Volume I, and this chapter serves as an "Executive Brief" to the contents of this Report.

AMERICAN REVOLUTION BICENTENNIAL 1776-1976

Volume II is divided in two Parts. Part A contains detailed descriptions of the Military Service organizations and systems for providing materiel support to the Civil Engineering function, as observed during the field research phase of this Study. Part B contains summaries and presentations of the statistical data on supply support for the Civil Engineer which were submitted by the Military Services.

Eugene B. Sterling

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Major General, USAF
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CHAPTER I

INTRODUCTION

A. BACKGROUND

At the present time, there is a wide range of systems for providing materiel support to the civil engineering function within the Department of Defense (DoD). At some installations, this support is provided through the normal central installation supply and procurement organizations, relying on a mix of centrally-managed and locally procured items. At other installations, this support is provided through an organization which is dedicated exclusively to the materiel support of the civil engineering function, relying heavily on locally purchased materiel. At still other installations, this support is obtained from the local purchase market through a contractor-operated facility -- called a Contractor Operated Civil Engineer Supply Store (COCESS). Combinations of these systems are also used, in varying degrees, at a number of installations.

Current DoD policy permits the use of each of these different support systems, except that limitations have been placed on the expansion of the use of the COCESS concept to support the civil engineering function. The Air Force has been the only user of this support technique (just as they have been the primary user of contractor-operated facilities for the support of motor vehicle maintenance), and has been pressing for permission to expand the application of this support method to a wider range of bases.

The Office of the Assistant Secretary of Defense (Installations and Logistics) (OASD(I&L)) has become concerned about this proliferation of approaches for the support of commercially available materiel. Accordingly, the Acting ASD(I&L), in a memorandum dated 28 March 1975 (see Appendix A), requested the Director of the Defense Supply Agency (DSA) to have the Defense Logistics Analysis Office (then the DSA Analysis Division) undertake a study of the arrangements for the materiel support of the civil engineering function worldwide.

B. STUDY OBJECTIVES

As initially conceived, the most significant objective of this study was to determine the conditions under which materiel support to the civil engineer function should be from centrally managed supply sources, from installation local purchase programs, from contractor-operated facilities, or from a combination of these.

However, discussion further definitized the area of interest of the Office of the Assistant Secretary of Defense (I&L), and the following study objectives were established:

a. Determine and describe how materiel support for civil engineer operations is currently being provided to all elements of the DoD, worldwide.

b. If an item of supply has been identified for local purchase by DoD activities, determine the appropriateness of individual DoD installations obtaining these items from a COCESS--that is, determine the appropriateness of COCESS as a procurement technique for the acquisition of local purchase items.

c. If an item of supply has been identified for central management and procurement by a DoD Inventory Control Point (ICP), determine the appropriateness of authorizing individual DoD installations to obtain these items from a COCESS--that is, determine the advisability of authorizing an item of supply to be obtained from a DoD ICP by some installations and from a COCESS by other installations, at the option of the requiring installation.

C. STUDY SCOPE

The Study extends to all categories of materiel used by the civil engineering function, regardless of source and regardless of whether or not assigned a National Stock Number (NSN), and to all organizational arrangements for providing materiel support to DoD civil engineering operations in both the Continental United States (CONUS) and overseas. However, on occasion the review and analysis involved a function (e.g., procurement) in which the organizations, policies, techniques, and practices for supporting civil engineer materiel requirements also apply to other materiel support programs. On these occasions, the scope of the function caused the scope of the Study to be broadened.

Vehicle maintenance is organizationally part of the civil engineering function within the Navy, where the operation and maintenance of installation motor vehicle fleets is assigned to the Public Works Officer. However, the intent was to limit this study to a review of the supply support of the real property maintenance function. Accordingly, vehicle maintenance, even when organizationally part of a civil engineering operation, was excluded from this study; thus, discussions of the supply of vehicles used by the civil engineering function, and of the repair parts used by these vehicles, have not been included in this Study. Similarly in accordance with the intent of this Study, supply support of fuels has been excluded.

D. STUDY TEAM COMPOSITION

The Study Team consisted of three full-time logistics analysts from the Defense Logistics Analysis Office.

In addition, one full-time augmentee each was provided by the Army, Navy, and Air Force. As Military Service requirements arose and their specific responsibilities with the Study decreased, the Navy and Army augmentees returned to their Services; the Air Force augmentee remained with the Study Team throughout the life of the study.

E. STUDY APPROACH

The basic approach of the Study Team was to determine how the Military Services were currently providing materiel support to their civil engineering activities when materiel was obtained from central management at DoD inventory control points, from local purchase, and from contractor operated facilities.

To accomplish this, the Study Team proceeded as follows:

a. Briefings were obtained from the four Military Services and from the Defense Supply Agency on how supply support was being provided to the civil engineering function; the Military Service briefings also included information on how Service activities were organized to provide this supply support.

b. A preliminary round of field research, to provide the basis for developing a field research outline and a statistical data requirement (discussed in paragraph c, below) was made to one installation each of the Army, Navy, and Air Force in the Washington, D.C., area. Subsequently, in-depth field research was accomplished at representative activities of all Military Services, in CONUS and overseas. A range of different types of activities was selected for this field research, to provide a breadth of knowledge for the Study Team:

(1) Army, CONUS: Visits were made to activities at which the facilities engineer materiel support function was part of the facilities engineer organization (installations in the Forces Command (FORSCOM) and Training and Doctrine Command (TRADOC)) and to one at which the facilities engineer relies on the normal installation activities for his materiel support (an installation in the Army Materiel Development and Readiness Command - DARCOM).

(2) Navy, CONUS: Visits were made to a Public Works Center and to a Public Works Department.

(3) Air Force, CONUS: Visits were made to two activities obtaining different levels of support from COCESS, to an activity which was not supported by a COCESS, and to the activity supported by GOCESS.

(4) Marine Corps, CONUS: A visit was made to a representative installation identified by the Marine Corps.

(5) Europe: Pairs of Army and Air Force installations were selected which were relatively near to each other but located in three different areas in Germany; these were selected to provide examples of both large and small installations, and of installations located near metropolitan areas and those located in isolated areas.

(6) Pacific: Two geographical areas were selected which contained relatively large concentrations of DoD personnel, had installations of at least two Military Services in each area, and between the two areas contained installations of all four Military Services; visits were made to all installations in each of these two areas.

A list of the specific activities visited is contained in Appendix B.

c. A requirement for statistical data was identified and this requirement was distributed to the Military Services. The following types of data were requested:

(1) Summary statistics, for each of the Military Services, on their expenditures for, and inventory of, materiel to support the civil engineering function.

(2) Data, from Air Force activities only, on current and past contracts for Contractor Operated Civil Engineer Supply Stores (COCESS).

(3) Summary data, from three Air Force activities which had long established Local Purchase-only COCESS operations, pertaining to expenditures, inventory, and operating costs for the support of the civil engineering function, as well as pricing information to allow a comparison of COCESS vs. ICP materiel costs.

(4) Individual transaction data from 30 Military Service installations on receipts of materiel to support the civil engineering function, including price and responsiveness data.

(5) Summary and individual line item data from five Air Force installations on local purchase actions to support the civil engineering function, including pricing information to allow a comparison of COCESS vs. "normal" local purchase materiel costs.

A detailed description of this statistical data requirement, including identification of the data submitting activities, is contained in Volume II of this Report.

d. Manual and mechanized analyses were identified for the statistical data submission, and these analyses were accomplished after the data was edited and purified. These analyses are also contained in Volume II of this Report.

The findings of field research, as confirmed and quantified by the Military Service data submissions, led to the development of the conclusions and recommendations contained in this Report.

F. DEFINITIONS

Discussions among the members of the Study Team (including the augmentees from the Military Services), the initial Service briefings, and field research established that the Services sometimes used different terms to express the same thought or describe the same operation. In addition, there was the general problem of terms and language to cover concepts which were peculiar to only one Military Service. To insure common understanding, the Study Team has developed the definitions shown below. These definitions were developed for the purpose of this Study and its final Report only, and are not presented as recommendations for standard DoD definitions.

Civil Engineer/Facilities Engineer. The terms "civil engineer(-ing)" and "facilities engineer(-ing)," and their respective abbreviations "CE" and "FE," are used interchangeably throughout this Report. No significance should be attached to the use of one term or the other in any specific context in this Report.

Civil Engineer Work. Work accomplished by the Civil Engineer is categorized as follows:

a. Emergency Work - Work that requires immediate attention to correct a condition that could prove detrimental to the installation mission or cause a hazard to health and safety, or to protect property and equipment. Usually emergency work is minor in nature not requiring more than 16 man-hours, costing not more than $200 and involving not more than 2 work centers (trade shops).

b. Standing Operations - Work that is repetitive, routine, or cyclic in nature. Man-hour requirements are relatively constant and materiel requirements may or may not be estimated. Work includes operation of utility plants and systems, providing fire prevention and protection, performing snow removal, grass cutting, trash collection, and other work that can be considered a service.

c. Minor Maintenance and Repair - Nonemergency work that is not of the standing operations category. Minor work may or may not require individual administration, detailed estimating and scheduling. Special task forces or preventative maintenance teams, using work collection or consolidation techniques, are frequently assigned to perform this category of work. Minor maintenance and repair work is usually limited to that which can be accomplished within 16 man-hours and at a cost of $200 or less.

d. Specific Jobs - Maintenance, repair, and minor construction work which must be carefully planned, estimated, and scheduled. Administration of specific jobs is carried out as specified by publications of the respective DoD Components.

Contractor Operated Civil Engineer Supply Store. The concept of providing materiel support to the civil engineering function through an on-base facility operated by a contractor, with the inventory in that facility owned by the contractor until it is actually drawn for use by civil engineer personnel. This concept has taken shape in three different configurations within the Air Force and the scope and coverage of each of these COCESS variations are as follows:

a. Full COCESS. Contractor Operated Civil Engineer Supply Stores that have DoD authority to provide:

(1) General Services Administration (GSA) stores items in assigned classes with a unit price of $50 or less.

(2) GSA nonstores items when the item purchase value (extended line item value) is $100 or less.

(3) DSA centrally-managed items with a unit price of $50 or less, whether stocked (Supply Status Code 1 or Acquisition Advice Code D) or nonstocked (Supply Status Code 3 or Acquisition Advice Code J).

(4) Items listed in national supply catalogs as "stocked for overseas only" (local purchase in CONUS) (Supply Status Code 7 or Acquisition Advice Code K).

(5) Items listed in national supply catalogs with a local purchase source of supply (Supply Status Code 2 or Acquisition Advice Code L).

(6) Items not listed in national supply catalogs.

b. Partial COCESS. Contractor Operated Civil Engineer Supply Stores that have DoD authority to provide all items authorized under a Full COCESS except DSA centrally managed, stocked items (Supply Status Code 1 or Acquisition Advice Code D).

c. Local Purchase COCESS. Contractor Operated Civil Engineer Supply Stores that have DoD authority to provide:

(1) Items listed in national supply catalogs with a local purchase source of supply (Supply Status Code 2 or Acquisition Advice Code L, and Supply Status Code 7 or Acquisition Advice Code K).

(2) Items not listed in national supply catalogs.

d. Emergency Requirements. The COCESS is also authorized to provide materiel which is otherwise excluded when the materiel is needed to meet an emergency requirement and the authorized source (GSA or DSA) cannot provide satisfactory supply response.

Government Operated Civil Engineer Supply Store (GOCESS). A concept under which the Government owns and operates a supply store dedicated to support of CE operations. The Air Force has only one GOCESS, a service test at Offutt Air Force Base. Under GOCESS, procurement personnel are located within the Civil Engineer complex to make supply purchases under Blanket Purchase Agreements with local vendors to support Civil Engineer requirements. Purchases are made to replenish bench stock and to satisfy nonrecurring requirements of work orders and job orders. The GOCESS is authorized to obtain the same item range as a Full COCESS.

Central Procurement (CP). Used in this Study to identify those items which are normally obtained by submitting requisitions to an Inventory Control Point, including GSA activities for stores items. Items are identified as CP whether the ICP is a Military Service activity or a Defense Supply Center, and whether or not the item is actually stocked by the ICP.

Local Purchase (LP). Also Local Procurement. Used in this Study to identify those items which are normally obtained through purchase action by purchasing/contracting organizations other than those of ICPs. LP items can be bought by a procurement organization anywhere in the world; the word "local" in the name identifies the activity making the purchase rather than the geographical location in which the vendor is located. LP items can be assigned a National Stock Number and identified for local purchase in Management Data Lists, or they can be items which are not assigned an NSN and are authorized for local purchase by virtue of the fact that they do not appear in Management Data Lists as required to be obtained from some other source.

Bench Stock/Shop Stock/Pre-Expended Bins. High usage, low cost items which have been prepositioned in the FE work area in anticipation of future requirements. These items are paid for by O&M funds at the time they are placed in this status; this payment is charged to a general account, since the work for which the items will be used is not known. In some cases, cost accounting action (as opposed to stock fund to user fund buy-sell action) is taken to reflect the cost of these items in the cost of the jobs for which they are used. Conceptually, all three terms mean the same, although specific details (e.g., criteria, authorized level, or replenishment technique) vary among the Services.

Central Installation Supply (CIS). The central facility on a Military Service installation which serves as the basic source of supply for the activities assigned, or attached, to the installation. This is a general term which encompasses such activities as the Directorate for Industrial Operations on an Army post, the Supply Department on a Navy base, the Base Supply Office on an Air Force base, and the Base Material Battalion on a Marine Corps base.

Central Installation Procurement (CIP). The central facility on a Military Service installation which provides the purchasing and contracting capability for the acquisition of the materiel and services which the installation is authorized to procure for itself. The CIP may be located in an independent organization (as is generally the case, for example, at Air Force bases), or it may be part of another organization (as, for example, is the case at many Naval installations, where it is part of the Supply Department).

G. MATERIEL SUPPORT TO CIVIL ENGINEERING OPERATIONS

1. Nature of the Civil Engineering Workload

This study is concerned with materiel support to the civil engineering function as it is accomplished at fixed DoD installations, worldwide. Unlike combat and combat-related functions, which have differing requirements due to the differing combat missions of the Military Services, the civil engineering support of fixed DoD installations is the same in all Military Services in terms of the kinds of work performed and the operating environment in which it is accomplished.

Subject to variations at individual installations due to local requirements, the civil engineering mission in all Services consists of:

(1) Maintenance and repair of fixed facilities, such as buildings, roads, and grounds;

(2) Operation of utility systems, such as water supply, electrical, and heating systems;

(3) Providing services such as trash collection, and insect control; and,

(4) Minor construction.

Subject to some differences in definition, and more detailed subcategories in some Services, the workload of the Civil Engineer in the DoD consists of emergency work, standing operations (or repetitive) work, minor maintenance and repair, and specific jobs; each of these types of work is defined in paragraph F. above.

To the extent available, data was collected during field research showing the nature of the civil engineering workload and the allocation of resources (crafts shop man-hours) among the various types of work performed. Table I-1 shows this allocation of resources, grouped in terms of the four broad categories of effort outlined above, for a number of the activities visited during field research. Examination of the data in Table I-1 shows that each of the three largest Military Services allocates about the same portion of its total civil engineering effort toward the accomplishment of specific jobs-- somewhere between 40% and 50% of the total effort in each of these Services is devoted to this type of work.

Table I-1

CIVIL ENGINEER WORKLOAD AT ACTIVITIES VISITED
(By Type of Work)

	Emergency		Standing Opns		Minor		Specific Jobs		Total
	M/H	%	M/H	%	M/H	%	M/H	%	M/H
Army	1/ 127,160	17.6%	246,448	34.1%	-	-	349,011	48.3%	722,619
Navy 2/	20,479	3.7	149,028	26.7	151,916	27.2%	236,829	42.4	558,252
Air Force	57,857	4.0	287,164	19.9	391,352	27.0	710,946	49.1	1,447,319
Marine Corps	3/ 429,800	28.7	-	-	-	-	1,069,733	71.3	1,499,533
Total	635,296	15.0%	682,640	16.1%	543,268	12.9%	2,366,519	56.0%	4,227,723

Source: Field Research

1/ Including Emergency and Minor Work.
2/ PWC Guam data only.
3/ Includes Emergency, Standing Operations, and Minor Work.

2. Distribution of Civil Engineering Workload

The civil engineering workload within the DoD is fairly evenly distributed among the three large Military Services. Table I-2 shows Fiscal Year 1975 expenditures by Service for materiel to support the civil engineering function. As examination of that table shows, the Air Force made the largest expenditures of any Military Service, accounting for almost 40% of the total amount spent; Army and Navy expenditures accounted for almost 30% of the expenditures each.

Another reflection of relative workload is inventory investment, although it is recognized that that measure is affected by differences among the Services in stock level policies. Table I-3 shows the inventory investment of the four Military Services as of 30 June 1975. As was the case with expenditures, the data indicates that the Air Force is the most active Military Service in the civil engineering area, with the three largest Services fairly closely grouped in terms of their inventory investment.

Table I-2

FY 1975 EXPENDITURES -
MATERIEL SUPPORT TO CIVIL ENGINEERING OPERATIONS

Service	Amount ($000)	%
Army	$103,425.3	30.3%
Navy	94,800.0	27.8
Air Force	133,811.2	39.2
Marine Corps	9,294.9	2.7
Total	$341,331.4	100.0%

Source: Data Call

Table I-3

INVENTORY OF CE MATERIEL

Service	Amount ($000)	%
Army	$35,541.0	35.7%
Navy	26,800.0	26.9
Air Force	35,872.9	36.0
Marine Corps	1,341.1	1.4
Total	$99,555.0	100.0%

Source: Data Call

3. Organization for Materiel Support to the Civil Engineer

Organizational arrangements for the materiel support of the civil engineering function vary widely across the DoD and, in fact, even within some of the Military Services.

At one extreme of this range, the civil engineer relies on the normal central installation supply and procurement organizations to furnish his materiel support. At the other end of this spectrum, the civil engineer is provided with supply and procurement capabilities which are part of his organization, and which are dedicated solely to the support of the civil engineering function. There are other organizational arrangements for the materiel support of the civil engineer which fall between these two extremes.

These organizational arrangements cannot be identified on a Military Service basis, since several Services operate across this organizational spectrum. Both the Army and Navy have arrangements for the support of the civil engineer which spanned this organizational range. Army DARCOM installations rely on the central installation materiel support organizations, the Directorates of Supply and Services; FORSCOM and TRADOC installations obtain their support from supply organizations which were part of the FE structure, but procurement support is obtained from personnel assigned to the central installation procurement office but physically located within the FE. Public Works Centers within the Navy contain their own supply and procurement capabilities; on the other hand, Public Works Departments rely on their installation's Supply Department for their materiel support. Within the Air Force, the Civil Engineer relies only on the central installation organizations for his materiel support except for those items which were obtained from a contractor operated facility (COCESS) or from a GOCESS. The Marine Corps Civil Engineer relies only on his central installation organizations for materiel support.

4. Materiel Used by the Civil Engineer

Materiel supporting the civil engineer function ranges from that which is common around the work--such as cement and nails--to that which is common only in a local region--such as locally peculiar electrical components.

Because of local geographical requirements, building codes, and construction practices, materiel required by DoD civil engineers is similar to that which is used, and supported, by the local community.

This relationship exists even in overseas areas, where many DoD facilities were originally constructed by local contractors for the support of the nation's own armed forces or, where new construction is required, by agreement with the nation involved, it must be accomplished by local national contractors using local national materials, supplies, and equipment. Thus, the DoD Civil Engineer and the local population frequently generate the same kind of materiel requirements, and the DoD CE can generally be supported by the same local outlets, vendors, and contractors. Bulk materials, such as sand, gravel, concrete, and asphalt, are almost always obtained from within the local trade area. Civil engineer support materiel is among the most commercial of commercially available items, and is probably the most commonly available through the commercial distribution system of any type of materiel.

Local support to the Civil Engineer becomes particularly critical in overseas areas for certain types of items, where international compatability does not exist. The Army Facilities Engineer in Europe developed a list of items with an annual demand in excess of $500 which were routinely bought overseas. This list contained over 1,400 line items, spread across 27 Federal Supply Groups (FSG). A summary of that listing, showing the number of items and the estimated annual procurement value in each FSG is shown in Table I-4. Examination of that table shows that the locally peculiar requirements were concentrated in three commodity areas: plumbing, piping, and valves; hardware; and, electrical and lighting. These three commodity areas accounted for 87% of the items and 88% of the procurement value of the materiel which was routinely procured overseas.

5. Materiel Sources

Materiel support for civil engineering operations is obtained from DoD inventory control points, through local purchase, from the General Services Administration, and through contractor operated facilities (COCESS).

The Military Services were requested to provide data on the amount of materiel obtained from each different source during Fiscal Year 1975. Such data was available from the Army and Marine Corps; the Navy was unable to provide any detail on the source of their civil engineer materiel, and the Air Force was unable to identify the specific source of that materiel which was obtained from sources other than COCESS. The available Army and Marine Corps data is shown in Table I-5. Examination of the data in this table shows that local purchase was the largest single source of the materiel used by the civil engineer--LP accounted for almost exactly two-thirds of the Army expenditures and almost that same percentage of the Marine Corps expenditures.

Table I-4

FE MATERIEL - PROCURED IN EUROPE

FSG	Title	Items		Estimated Annual Procurement Value	
		Number	%	Amount ($000)	%
34	Metalworking Machinery	4	0.3%	$10.1	0.2%
40	Rope, Cable, Chain, & Fittings	1	0.1	2.6	0.1
41	Refrigeration, Air Conditioning, & Air Conditioning Equipment	2	0.1	13.4	0.3
42	Fire Fighting, Rescue, & Safety Equipmt	5	0.3	13.4	0.3
43	Pumps and Compressors	1	0.1	.6	*
45	Plumbing, Heating, & Sanitation Equipmt	268	18.7	1,028.3	20.5
47	Pipe, Tubing, Hose, & Fittings	147	10.3	301.8	6.0
48	Valves	91	6.4	191.5	3.8
51	Hand Tools	15	1.0	33.4	0.7
52	Measuring Tools	1	0.1	2.4	*
53	Hardware and Abrasives	263	18.4	865.9	17.3
54	Prefabricated Structures & Scaffolding	1	0.1	.6	*
55	Lumber, Millwork, Plywood, & Veneer	5	0.3	16.8	0.3
56	Construction & Building Materials	21	1.5	66.1	1.3
59	Electrical & Electronic Equipment Components	271	18.9	1,287.5	25.7
61	Electric Wire, & Power & Distribution Equipment	61	4.3	131.5	2.6
62	Lighting Fixtures & Lamps	144	10.1	606.7	12.1
63	Alarm & Signal Systems	6	0.4	9.1	0.2
66	Instruments & Laboratory Equipment	12	0.8	16.5	0.3
67	Photographic Equipment	3	0.2	7.8	0.2
68	Chemicals & Chemical Products	14	1.0	70.6	1.4
71	Furniture	6	0.4	23.2	0.5
72	Household & Commercial Furnishings & Appliances	26	1.8	132.8	2.6
78	Recreational & Athletic Equipment	2	0.1	15.0	0.3
80	Brushes, Paints, Sealers, & Adhesives	11	0.8	22.8	0.5
83	Textiles, Leather, Furs, Apparel, & Shoe Findings, Tents & Flags	2	0.1	3.4	0.1
99	Miscellaneous	48	3.4	141.9	2.8
	Total	1,431	100.0%	$5,015.6	100.0%

Source: Field Research

NOTE: Totals do not add due to rounding.
* Less than 0.05%

Table I-5

ARMY AND MARINE CORPS EXPENDITURES,
BY SOURCE OF SUPPLY - FY 1975

Source	Army		Marine Corps	
	Amount ($000)	%	Amount ($000)	%
Inventory Control Points	$20,652.0	20.0%	$1,789.6	19.2%
Local Purchase	68,743.5	66.5	5,779.4	62.2
GSA	13,666.5	13.2	386.4	4.2
(FSS)	(4,534.7)	(4.4)	(97.8)	(1.1)
(Stores Depot)	(9,131.7)	(8.8)	(288.6)	(3.1)
COCESS	363.4 1/	0.3	-	-
Other	-	-	1,339.5	14.4
Total	$103,425.3	100.0%	$9,294.9	100.0%

Source: Data Call

NOTE: Totals do not always add due to rounding.

1/ Expenditures by Fort Polk as part of a test of the COCESS concept.

This emphasis on local purchase as the source of civil engineer materiel was confirmed by the receipt data submitted by the Services in response to the Study data call. Analysis of this data, displayed in Table I-6, also shows local purchase as the predominant source of civil engineer materiel--this data shows that half of the receipts over this 60-day period were from "conventional" local purchase sources, with another 14% received from COCESS sources, another form of local purchase. If Air Force receipts are excluded (because of the questionable categorization of the COCESS receipts in the context of this discussion) local purchase becomes the source for over 70% of the dollar value of the receipts, as shown in Table I-7.

The receipt data furnished by the Military Services was categorized in terms of the dollar value of the transactions, and the relationship of numbers of transactions to total dollar value of those transactions within selected dollar value ranges is shown in Table I-8. Not surprisingly, as the dollar value of the range goes up, the number of transactions decreases but the total value of the transactions increases. For example, while 52% of the transactions were for $10 or less, these accounted for only 2% of the total dollar value of all transactions; on the other hand, while only one-tenth of 1% of the transactions were for $5,000 or more, these accounted for over 20% of the total value of all transactions.

Table I-6

RECEIPTS AT SELECTED BASES - BY SOURCE OF SUPPLY

Source of Supply	Army		Navy		Air Force		Marine Corps		Total	
	Amount ($000)	%	Amount ($000)	%	Amount ($000)	%	Amount ($000)	%	Amount ($000)	%
Inventory Control Points	$283.0	11.6%	$89.5	12.8%	$1,420.5	25.3%	$160.4	21.2%	$1,953.4	20.5%
Local Purchase	1,667.8	68.1	557.2	80.0	1,987.5	35.5	569.9	75.1	4,782.4	50.3
GSA	406.1	16.6	19.0	2.7	675.1	12.0	28.1	3.7	1,128.4	11.9
(FSS)	(42.6)	(1.7)	-	-	(72.4)	(1.3)	-	-	(115.0)	(1.2)
(Stores Depots)	(363.6)	(14.9)	(19.0)	(2.7)	(602.7)	(10.7)	(28.1)	(3.7)	(1,013.4)	(10.7)
COCESS	-	-	-	-	1,374.3	24.5	-	-	1,374.3	14.4
Other	91.8	3.7	31.3	4.5	150.6	2.7	-	-	273.6	2.9
Total	$2,448.8	100.0%	$696.9	100.0%	$5,608.1	100.0%	$758.5	100.0%	$9,512.1	100.0%

Source: Data Call

NOTE: Totals may not add due to rounding.

Table I-7

RECEIPTS BY SOURCE OF SUPPLY
EXCLUDING AIR FORCE
($000)

Source of Supply	Army	Navy	Marine Corps	Total Amount	Total %
Inventory Control Points	$283.0	$89.5	$160.4	$532.9	13.6%
Local Purchase	1,667.8	557.2	569.9	2,794.9	71.6
GSA	406.1	19.0	28.1	453.2	11.6
Other	91.8	31.3	-	123.1	3.2
Total	$2,448.7	$697.0	$758.4	$3,904.1	100.0%

Source: Data Call

Table I-8

DISTRIBUTION OF TRANSACTIONS
BY DOLLAR VALUE RANGES

Transaction Size Range	Transactions Number	Transactions %	Value Amount ($000)	Value %
Up to $10	61,865	52.2%	$214.7	2.3%
$10 - $25	21,185	17.9	346.2	3.6
$25 - $50	12,818	10.8	459.4	4.8
$50 - $100	9,395	7.9	664.3	7.0
$100 - $500	10,187	8.6	2,150.9	22.6
$500 - $2,500	2,549	2.2	2,633.5	27.6
$2,500 - $5,000	305	0.3	1,068.7	11.2
$5,000 - $10,000	114	0.1	773.6	8.1
Over $10,000	59	*	1,214.7	12.8
Total	118,477	100.0%	$9,525.9	100.0%

Source: Data Call

* Less than 0.05%

NOTE: Totals do not always add due to rounding.

The average value of a transaction for CE materiel differed significantly between the Military Services, and this data is shown in Table I-9. These averages ranged from a high of $142 per transaction for the Navy to a low of $50 per transaction for the Marine Corps. Overall, the average value of a CE receipt was a surprisingly high $80.40.

As could be anticipated, the bulk of the receipts from inventory control points were from DSA ICPs. Table I-10 shows, for each Military Service, the value of the materiel received from each Defense Supply Center (DSC) and the amount received from all other DoD ICPs. Examination of this data shows that, overall, the Defense Supply Centers accounted for three-quarters of the total receipts from ICPs. However, this did vary significantly among the Services--in the Army and Marine Corps, DSA materiel accounted for well over 90% of the receipts from ICPs, while the DSCs accounted for only 70% of the Air Force receipts from inventory control points.

The receipt data not only identified the actual source from which materiel was received, but also the source from which the materiel was authorized to be obtained. An analysis of the extent to which materiel was obtained from other than the authorized source is shown in Table I-11. Examination of this data shows that, generally, materiel was obtained from its authorized source; overall, only 5% of the materiel was obtained from other than the authorized source, and no authorized source differed significantly from this amount of deviation.

Table I-9

AVERAGE TRANSACTION VALUE -
BY MILITARY SERVICE

Service	Transactions		
	Total Value ($000)	Number	Average Value
Army	$2,462.6	23,248	$105.93
Navy	696.9	4,910	141.94
Air Force	5,608.0	75,237	74.54
Marine Corps	758.5	15,082	50.29
DoD Total	$9,525.9	118,477	$80.40

Source: Data Call

Table I-10

RECEIPTS FROM ICPs
($000)

	Army		Navy		Air Force		Marine Corps		Total	
	Amount	%	Amount	%	Amount	%	Amount	%	Amount	%
DCSC	$169.7	60.0	$19.3	21.5%	$415.2	29.2%	$60.6	37.8%	$664.8	34.0%
DESC	4.2	1.5	1.8	2.0	40.4	2.8	9.5	5.9	56.0	2.9
DGSC	49.4	17.4	19.5	21.8	372.8	26.3	32.3	20.2	474.0	24.3
DISC	38.0	13.4	27.8	31.0	153.6	10.8	49.2	30.7	268.6	13.7
Other	21.7	7.7	21.2	23.7	438.4	30.9	8.7	5.4	490.1	25.1
Total	$283.0	100.0%	$89.5	100.0%	$1,420.5	100.0%	$160.4	100.0%	1,953.5	100.0%

Source: Data Call

NOTE: Totals may not add due to rounding.

Table I-11

RECEIPTS FROM OTHER THAN AUTHORIZED SOURCE
($000)

Authorized Source	Total Amount of this Materiel Received	Amount Received From Authorized Source	Received from Other than Authorized Source	
			Amount	%
COCESS	$1,321.1	$1,321.1	0	0
Local Purchase	5,052.3	4,704.8	$347.4	6.9%
DCSC	609.5	578.7	30.9	5.1
DESC	51.2	49.9	1.3	2.6
DGSC	448.2	421.3	26.9	6.0
DISC	272.2	257.1	15.1	5.5
Other ICPs	464.7	454.5	10.2	2.2
GSA	1,097.1	1,015.3	81.8	7.5
(FSS)	(131.9)	(113.7)	(18.2)	(13.8)
(Stores Depots)	(965.1)	(901.6)	(63.6)	(6.6)
Total	$9,316.3	$8,802.6	$513.7	5.5%

Source: Data Call

NOTE: Totals may not add due to rounding.

6. Item Identification

As could be expected when there is relatively limited reliance on the central supply system, there is also relatively limited reliance on the use of National Stock Numbers to identify items.

The 60 days of receipt data submitted by selected Military Service activities were analyzed in terms of the type of item identifying number used: National Stock Number, Manufacturers' Reference Number (MRN, the manufacturers' code and part number), or some other form of identification number (although only NSNs and MRNs would be meaningful for item identification purposes outside the submitting activity).

This analysis, by Military Service, is shown in Table I-12. Examination of this data shows that, overall, just over half of the transactions were identified by NSN and over a third were not identified by any meaningful number. However, these relationships differed

significantly between the Military Services. About two-thirds of the Air Force and Marine Corps transactions were submitted in terms of an NSN, while only somewhat over one-third of the Navy and less than one-fourth of the Army transactions were submitted with that form of identification. Army receipts were apparently largely for items for which meaningful item identifying numbers were not available, since three-fourths of the Army data submission was in terms of neither an NSN nor an MRN.

The Manufacturers' Reference Numbers which identified over 10,500 receipt transactions were screened against the Defense Logistics Services Center (DLSC) catalog files. This screening identified National Stock Numbers for 393 (just under 4%) of these transactions.

Similarly, 8,000 transactions with a meaningful item identifying number (an NSN or MRN) which showed an Authorized Source of Supply other than an inventory control point were screened against DLSC records to determine if an ICP had actually been established as the authorized source for the items. A total of over 1,750 records were identified by this screening as having been submitted with the wrong authorized source; two-thirds of these were items identified as authorized for local purchase when they were actually required to be requisitioned from an ICP.

Table I-12

NUMBER OF RECEIPTS, BY TYPE ITEM IDENTIFYING NUMBER

Service	National Stock Number		Manufacturers' Reference No.		Other		Total Number
	Number	%	Number	%	Number	%	
Army	5,358	23.0%	569	2.5%	17,321	74.5%	23,248
Navy	1,905	38.8	909	18.5	2,096	42.7	4,910
Air Force	46,539	61.9	9,048	12.0	19,650	26.1	75,237
Marine Corps	10,211	67.7	0	0	4,871	32.3	15,082
Total	64,013	54.0%	10,526	8.9%	43,938	37.1%	118,477

Source: Data Call

7. COCESS

a. DoD Policy - History and Evolution

The success of the Contractor Operated Parts Stores (COPARS) in providing commercial vehicle support to the Air Force and Marine Corps led to the development of the same type of support for real property maintenance facilities. This support was first authorized in a memorandum from the Deputy Assistant Secretary of Defense (Installations and Housing), dated 23 November 1973. This memorandum authorized the use of "the COPARS concept" to support real property maintenance and repair supplies meeting the following criteria:

(1) GSA stores items with a unit price of $50 or less;

(2) GSA nonstores items with a unit price of $100 or less;

(3) DSA centrally managed items with a unit price of $50 or less (this was later amended to limit this to nonstocked items only); and,

(4) Other centrally managed items, when normal supply channels cannot meet the required delivery date of an urgent or emergency requirement.

The Air Force subsequently implemented this support in the form of Contractor Operated Civil Engineer Supply Stores (COCESS) within the Strategic Air Command (SAC). The COCESS was established to stock Civil Engineer items in the same manner as the COPARS stocks commercial vehicle items.

As a result of the comments received on the "Report on Contractor Operated Parts Stores (COPARS)-- December 1971," the ASD(I&L) cancelled the previous COPARS and COCESS stockage criteria and specified new stockage criteria in a 25 July 1972 memorandum. The new criteria provided that centrally managed, procured, and stocked items would be obtained from the central DoD distribution systems, and that only items designated for local purchase and items not assigned a Federal Stock Number (now National Stock Number) were authorized to be obtained through COPARS/COCESS. Bases with a COPARS or COCESS contract were to alter the contract to meet the new stockage criteria when the contract came up for renewal, but by not later than 1 July 1973, and COPARS/COCESS arrangements could be extended, or new

arrangements made, only after an individual cost effectiveness analysis. The Air Force was authorized to continue existing COCESS contracts until 30 June 1973, but the dollar criteria for DSA/GSA items were reduced by 50%. (The criteria in the 25 July 1972 memorandum were clarified in a 22 September 1972 memorandum from the ASD (I&L) to permit COPARS/COCESS to provide: in CONUS, items authorized for central procurement to support overseas activities only; DSA/GSA items with an extended line item value of $10 or less; and, items whose urgent or emergency requirement could not be met by the central supply system.)

When it became apparent that planning and implementation of a standard policy for COPARS/COCESS contracts could not be completed by 1 July 1973, the Acting Assistant Secretary of Defense (I&L), on 14 November 1972, issued revised rules governing these contracts until 31 December 1973: existing COPARS and COCESS arrangements may be continued, but may not expand the current item range upon renewal; and no new COPARS or COCESS arrangements may be established, although additional sites may be added to an existing contract when an area supply support concept exists. The constraints of this memorandum were extended successively to 30 June 1974, 30 June 1975, and 30 September 1976 in order to complete the review of a forthcoming DoD Instruction titled "Centralized and Decentralized Management of Materiel."

A visit in October 1974 by OASD(I&L) and Air Force personnel to two Air Force bases, one with and one without a COCESS, concluded that support received at the COCESS base was better and more economical. As a result the following COCESS policy was issued:

(1) The Air Force was authorized to extend the COCESS concept to the two remaining SAC bases either by using new contracts for LP items only or by including these bases on existing contracts which have DSA/GSA waiver authority.

(2) The Air Force was authorized to establish new contracts for LP items only at bases where it could be proven to be more economical. The memorandum stated that the DSA/GSA waiver criteria were under study and new COCESS contracts (except for the SAC bases) were not to contain the waiver criteria until this study was completed.

b. Current COCESS Status in the Air Force

As of the end of Fiscal Year 1975, the Air Force had 27 bases at which a COCESS was in operation. Of these, 11 were SAC bases with a Full COCESS, 13 were SAC bases with a Partial COCESS, and the remaining three (from the Systems, Training, and Logistics

Commands) had LP-only COCESS arrangements. As a result of the late-1974 change in COCESS policy, two additional SAC bases established Full COCESS operations and 16 additional Air Force bases established LP-only COCESS operations during Fiscal Year 1976.

Under a Full COCESS arrangement, the contractor is authorized to provide:

(a) GSA stores items with a unit price of $50 or less;

(b) GSA nonstores items with an extended line item value of $100 or less;

(c) DSA centrally managed items, whether stocked or nonstocked, with a unit price of $50 or less;

(d) Items identified in DoD supply catalogs as stocked for overseas only--i.e., items which are authorized for local purchase in CONUS;

(e) Items identified in DoD supply catalogs with a local purchase source of supply; and,

(f) Items not listed in DoD supply catalogs--these are items which are automatically authorized for local purchase.

Under a Partial COCESS arrangement, the contractor is authorized to provide all of the above type items except DSA centrally managed, stocked items. An LP-only COCESS is authorized to provide only those items which are authorized to be obtained by local purchase by the requiring activity. The COCESS is also authorized to provide materiel which is otherwise excluded when the materiel is needed to meet an emergency requirement and the authorized source (GSA or DSA) cannot provide satisfactory supply response.

In addition to the COCESS installations identified above, Offutt Air Force Base was supporting its civil engineering function with a Government Operated Civil Engineer Supply Store (GOCESS). Under this concept, Base Civil Engineering and Base procurement personnel operate a supply store which is authorized to obtain through local purchase the same range of materiel authorized to be provided by a Full COCESS. Blanket Purchase Agreements (BPAs) are used extensively.

Table I-13 shows expenditures made through the COCESS or GOCESS and through other sources for support of the civil engineering function at those Air Force bases at which a COCESS/GOCESS was established. There appears to be no difference between Full and Partial

COCESS authorizations in the portion of total support received from the COCESS--in both cases, about two-thirds of the total expenditures were made through the COCESS; however, when COCESS coverage was limited to LP items only, the amount expended through the COCESS dropped to about half of the total expenditures. Of most significance is the fact that the GOCESS operation at Offutt Air Force Base, authorized the same item coverage as a Full COCESS, was utilized as the source of supply to a significantly greater extent than were the commercial COCESS arrangements.

To place this COCESS data in perspective, Air Force expenditures during Fiscal Year 1975 for the support of the Civil Engineering effort totaled $133.8 million. Thus, expenditures through COCESS for the support of civil engineering operations during Fiscal Year 1975 represented 14.3% of the total civil engineering expenditures for that year.

c. Service Test in the Army--Fort Polk

In response to a request from the Deputy Assistant Secretary of the Army (Installations and Housing), OASD(I&L) on 9 February 1973 approved a test of an Army COFESS (for "Facilities Engineer" in lieu of "Civil Engineer") collocated with an existing Air Force COCESS. Barksdale Air Force Base and Fort Polk, Louisiana, were selected for the test. The test period was originally scheduled to be 1 July 1974 through 30 June 1975, but was later extended to 30 September 1975 due to delays in preparing cost estimates for contract renewal by Barksdale Air Force Base.

Table I-13

FISCAL YEAR 1975 EXPENDITURES-
COCESS/GOCESS ACTIVITIES

	COCESS/GOCESS		Other	
	Amount ($000)	%	Amount ($000)	Total
Full COCESS	$7,554.6	64.5%	$4,159.1	$11,713.7
Partial COCESS	8,673.8	65.3	4,599.4	13,273.2
LP-only COCESS	1,765.1	48.2	1,896.5	3,661.7
GOCESS	1,199.2	85.4	205.6	1,404.8
Total	$19,192.7	63.9%	$10,860.7	$30,053.4

Source: Data Call

NOTE: Totals do not always add due to rounding.

As a result of an information paper dated 18 April 1975, a memorandum was sent to the Office of the Chief of Engineers to the Office of the Assistant Secretary of the Army (I&L) recommending that the test be terminated at Fort Polk at the conclusion of the contract, for the following reasons:

(a) Based on a sample of 36 items, the item cost from the COFESS was approximately 27% higher than from the GSA or other LP sources.

(b) COFESS stocks showed an outage level of 21% as compared to a 6% outage level TRADOC-wide. This outage level results in an estimated 125 shop hours lost monthly.

(c) Costs of operating the in-house supply system were approximately 33% less than the operating costs under the COFESS.

This paper also stated that the COCESS was probably advantageous from the Air Force viewpoint, even though it was more costly, because the Air Force Civil Engineer cannot directly purchase through LP those items not readily available through the supply system as can the Army Facilities Engineer. The paper concluded that the COFESS was in fact disadvantageous to the Army Facilities Engineed.

This memorandum and information paper resulted in a Joint Army-Air Force review of the COFESS contract during May 1975. The Air Force report of this review dated 29 May 1975 stated:

(a) The Fort Polk COFESS contract was not being properly administered by Army procurement personnel and the Fort Polk Materiel Requirements List (MRL) had not been revised since the initiation of the contract on 1 July 1974.

(b) The item cost comparisons were invalid due to use of invalid item comparisons.

(c) Part of the increased cost was due to the Army FE accepting a higher quality item than was really needed or requested.

This review led the Office of the Chief of Engineers to request an additional cost comparison from Fort Polk using a random sample of items. Barksdale Air Force Base also did a cost comparison using a random sample of items from its MRL. The results of these cost comparisons, in addition to other pertinent information, were reflected in a Decision Memorandum dated 5 August 1975 to the Director of Facilities Engineering. The memorandum stated that both cost comparisons showed the COFESS item costs to be greater than the LP item

costs and therefore recommended that the contract be terminated, and this action was later taken. However, in a memorandum on this subject dated 23 September 1975, the Army Director of Facilities Engineering stated that the unsuccessful test results could have been due to the site location and that an alternate test would be made in early Calendar Year 1976.

Due to the results obtained from the COFESS test at Fort Polk, the Army has terminated all actions pertaining to the development of a new COFESS test. As of June 1976, the Army has taken the position that it will not plan another COFESS test unless specifically directed to do so by OASD(I&L).

8. CE Support on Guam

The Navy is the Executive Agent for the Marianas Islands, which includes the island of Guam. As such, the Navy was directed by the Deputy Assistant Secretary of Defense (Installations and Housing) to study the possibility of consolidating the real property maintenance functions on the island of Guam.

In response to this, the Navy and Air Force on Guam established a joint study group to review the subject of supply support to the two civil engineering operations on that island--the Public Works Center (PWC) supporting Navy activities, and the Base Civil Engineer (BCE) supporting Andersen Air Force Base. Among other aspects, this study group considered the feasibility and desirability of establishing a COCESS for the support of all civil engineering operations on Guam.

The study recommended against the establishment of a COCESS on Guam, for the following reasons:

(1) The PWC is receiving a high level of support for standard stock materiel through Naval supply sources.

(2) The PWC is able to fill 85% of its nonstandard (i.e., non-NSN) requirements from local (Guam) sources.

(3) Long leadtime problems exist for only 7% of the PWC total requisitions.

(4) Establishment of a COCESS would impact the local economy because PWC now procures $800,000 in materials from local sources through Blanket Purchase Agreements. Under COCESS the bulk of the requirements would be obtained from a single contractor who would, presumably, have a CONUS central stockage point.

(5) Estimates of COCESS costs compared to current costs indicates that COCESS would be more expensive without a corresponding increase in supply support.

The study considered two alternatives to the establishment of a COCESS. Alternative I included:

(1) Improve support by stocking a more extensive range of backup stock.

(2) Increase the use of BPAs.

(3) Increase BPA call authority from $250 to $500 or even $1,000.

(4) Improve Naval Supply Depot and Andersen Air Force Base purchase office administrative leadtimes.

(5) Improve CONUS purchase response by establishing special project codes for civil engineering support, comparable to Project 723 at NSC Oakland and Project JZO at Defense Construction Supply Center, which are now used for automotive parts.

Alternative II included:

(1) Implement common supply for civil engineer materiel support.

(2) Combine the purchase organizations supporting the civil engineers.

The study recommended the immediate implementation of Alternative I. At the same time, it identified Alternative II as providing the best long-term results and recommended that this be given serious consideration for possible future implementation. The study also recommended that a COCESS be established on Guam if supply support has not shown an improvement within six months after the adoption of Alternative I.

Air Force headquarters concurred with Alternative I of the study, but specifically nonconcurred with Alternative II. In forwarding the Guam study to OASD(I&L), the Navy covering correspondence states that the report "has determined that establishment of a COCESS on Guam would not serve the interest of the Navy. The Air Force position (is) consistent with that of Navy ..."

The Deputy Assistant Secretary of Defense (Installations and Housing), in a memorandum dated 20 May 1976, stated that "The recommandations included within the study and forwarding letter of 10 December 1975 from Commander Naval Forces Marianas Islands are concurred with for implementation." The 10 December 1975 memorandum recommended that a COCESS not be established on Guam; stated that action was being taken, in accordance with the recommendations in the study, to improve PWC supply support; and, established the intention to undertake a review, with Andersen Air Force Base, "to determine functions and resources which would be affected before the Navy would assume Common Supply responsibilities for civil engineering supply support." The OASD(I&L) memorandum also stated that "Eventual implementation of a common supply system for civil engineering stock numbered items and a procurement source for nonstock numbered items will provide improvements in ... availability ..."

H. REPORT ORGANIZATION

This volume is organized as follows:

Chapter II describes the organization and systems used by the Military Services to provide supply support to the Civil Engineering function.

Chapter III provides an analysis of the application of the COCESS technique to the acquisition of local purchase and centrally managed and procured materiel.

Chapter IV describes the systems used by the Military Services to collect materiel to support Specific Jobs, and to schedule those jobs, and discusses the implications of these systems insofar as inventory investment is concerned.

Chapter V discusses the requirements for, and potential of, interservice consolidation of the procurement of civil engineering materiel.

Finally, Chapter VI contains a summary of the Study findings and presents Study recommendations on providing supply support to civil engineering operations.

Volume II of this Report is organized into two sections:

Section A contains detailed descriptions of the Military Service organizations and systems for providing supply support to their Civil Engineers, as observed during the course of field research.

Section B contains summaries and presentations of the statistical data submitted by the Military Services. In addition, appendices to Section B describe in detail the data call for this Study.

Each volume of this Report can be used independently. Since Volume II is of more limited interest than Volume I, it has been published in a limited quantity and will be provided only upon request.

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CHAPTER II

ACQUISITION OF CIVIL ENGINEER MATERIEL

A. INTRODUCTION

Materiel support to the Civil Engineer (CE) function across the Department of Defense (DoD) is currently being obtained in three basic ways:

a. By requisition from an Inventory Control Point (ICP), generally a Defense Supply Center;

b. By local purchase; and,

c. Through a Contractor Operated Civil Engineer Supply Store (COCESS). This last technique is a relatively new method--although it is similar in concept to the Contractor Operated Parts Stores (COPARS) for motor vehicle parts, which has been in existence for some time.

This Chapter describes the current methods used by the Military Services to obtain materiel for the support of their Civil Engineering operations; it also identifies and describes the management systems that are directly associated with providing materiel support to the CE.

B. ARMY CE MATERIEL SUPPORT SYSTEM

1. Introduction

The Army Chief of Engineers formulates the basic supply system policies, objectives, standards, and technical guidance which govern the worldwide support for Real Property Maintenance Activities (RPMA) at the installation level.

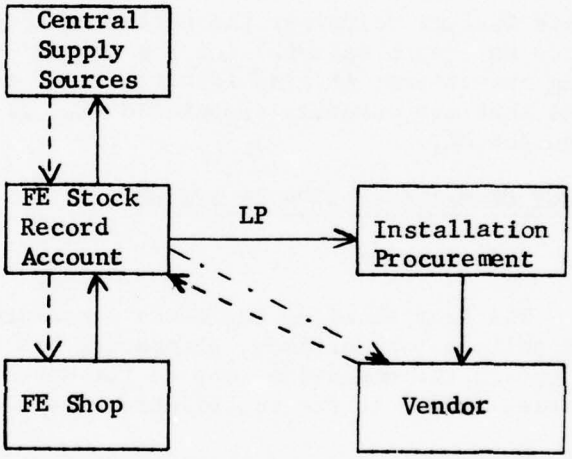
Army regulations authorize the Facilities Engineer to establish a separate supply account for his support. When established, this account operates a separate self-service store decicated to supporting the Facilities Engineering (FE) function. Where a separate FE supply account is not established (and this is the case within the Materiel Development and Readiness Command -- DARCOM), the Facilities Engineer relies on the normal central installation supply and procurement activities for his support.

2. FE Dedicated Supply Systems

a. Organization. While both the Continental United States (CONUS) and overseas areas are authorized under the same regulations to establish dedicated supply systems, there are several differences in operational concept between CONUS/Pacific and those in Europe.

(1) CONUS and Pacific. These are manual FE supply support activities, under the operational control of the local installation FE. Each FE Stock Record Account (SRA) is authorized to requisition supplies directly from the General Services Administration (GSA) Stores, Defense Supply Agency (DSA), and GSA Federal Supply Schedules, or to request local purchase action for direct shipment to the installation Facilities Engineer supply account. Figure II-1 shows the document and materiel flows in this system. Figure II-2 shows a typical organizational structure for CONUS/Pacific FE supply activities.

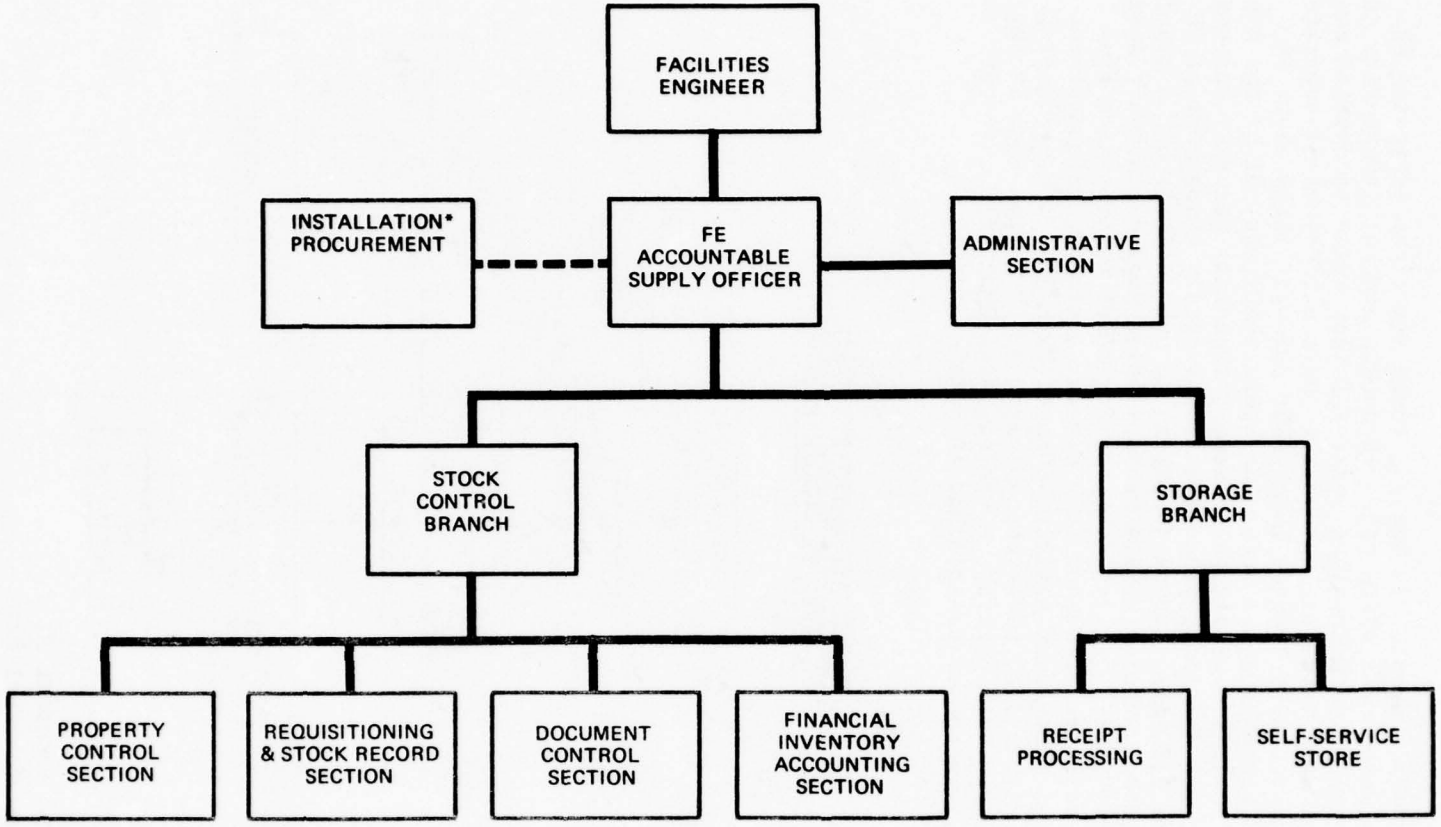
DOCUMENT AND MATERIEL FLOWS
ARMY FE SUPPLY



——→ Document Flow
- - - - → Materiel Flow
-·-·-·-→ Alternate document flow for orders and calls.

Figure II-1

FE DEDICATED SUPPLY
TYPICAL ORGANIZATION
(CONUS/PACIFIC)



*On Okinawa, USAGO FE is supported by USAF Procurement

Figure II-2

(2) Europe. In Europe, there are eight dedicated FE supply main warehouses which store FE backup stocks; inventories at these warehouses are maintained under a dollar value accounting concept. These main warehouse accounts support a total of 31 separate subwarehouse accounts located throughout Europe. These eight FE supply main warehouses are under the operational control of the Area Facilities Engineer activities; however, technical guidance and supervision over requisitions, procurement, and supply management of FE supplies for U.S. Army Europe (USAREUR) is provided through a separate channel by Headquarters, U.S. Army Facilities Engineer Support Activity, Europe (USAFESAE). Requisitions for CONUS materiel are from the SRAs; these are forwarded to a central activity, United States Army Materiel Management Activity Europe (USAMMAE), for processing to CONUS. Figure II-3 shows the document and materiel flow in this system. Figure II-4 portrays a typical organizational structure for the FE supply accounts established in Europe.

DOCUMENT AND MATERIEL FLOWS
U.S. ARMY FE EUROPE SUPPLY

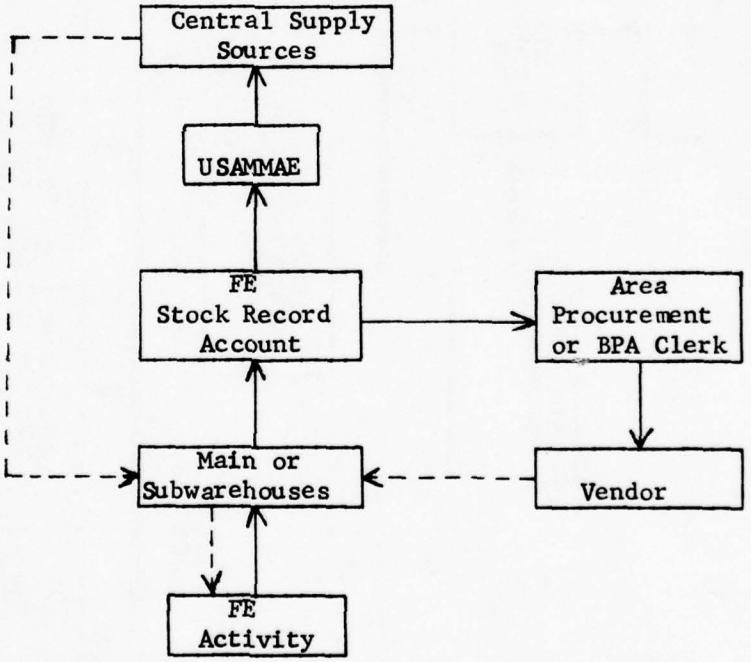


Figure II-3

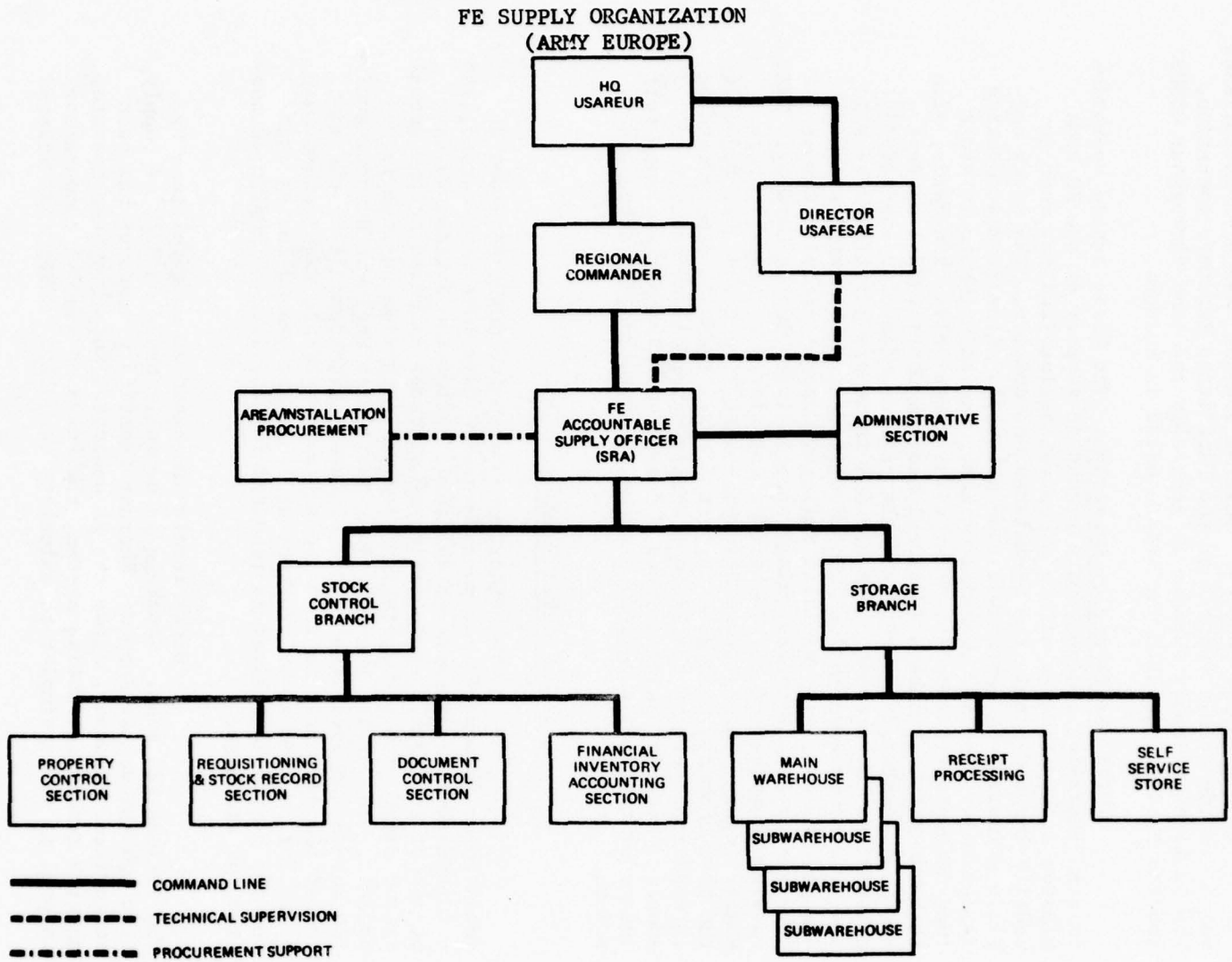

FE SUPPLY ORGANIZATION
(ARMY EUROPE)
HQ USAREUR
DIRECTOR USAFESAE
REGIONAL COMMANDER
AREA/INSTALLATION PROCUREMENT
FE ACCOUNTABLE SUPPLY OFFICER (SRA)
ADMINISTRATIVE SECTION
STOCK CONTROL BRANCH
STORAGE BRANCH
PROPERTY CONTROL SECTION
REQUISITIONING & STOCK RECORD SECTION
DOCUMENT CONTROL SECTION
FINANCIAL INVENTORY ACCOUNTING SECTION
MAIN WAREHOUSE
RECEIPT PROCESSING
SELF SERVICE STORE
SUBWAREHOUSE
SUBWAREHOUSE
SUBWAREHOUSE
COMMAND LINE
TECHNICAL SUPERVISION
PROCUREMENT SUPPORT

Figure II-4

b. FE Supply Sources. Several sources have been established which provide supply support to the Facilities Engineer operation. The pattern of supply support is generally the same throughout CONUS and the Pacific; certain variations exist in Europe.

(1) Self-Service Operation. The basic supply operation is a self-service concept, with stocks in support of the FE RPMA mission stored/stocked within a central outlet facility that is usually located within the FE maintenance complex. The stock consists primarily of expendable type materiel. Line item accounting is not maintained for materiel on hand, and adjustments to stock fund accounts are made in dollar value terms only. Bin cards, with item identifying numbers (National Stock Numbers (NSNs) or Part Numbers) annotated thereon, are the primary means for identifying materiel in the account. DSA and GSA items are identified by NSN and brief item description. To facilitate item identification in Europe, the U.S. Army Facility Engineer Support Activity Europe developed a Real Property Maintenance Activity Supply Catalog. This catalog, composed of an "Identification List," a "Federal Stock Number Index," and a "Cross Reference List," contains over 8,000 of the most commonly used RPMA support items. The RPMA supply catalog is used routinely by the FE to identify materiel and sources of supply. Materiel requisitioned through the FE supply accounts fall into four types of supplies: stocked, nonstocked, standby, and seasonal items.

(a) Stocked Items

To authorize an item for CONUS FE stock at least three demands in the most recent 90 days must be recorded, and a foreseeable requirement established. After the initial 90-day period of stockage, recomputation of stockage is based on the actual demand made, with recomputation required each time an item is reordered. In Europe, the U.S. Army Facilities Engineer Support Activity Europe has established that at least three demands in the most recent 180 days must be recorded and a foreseeable requirement must exist for an item to be stocked; at least one demand during each 180-day period thereafter is required for the item to remain authorized for stockage.

Stock levels are based on usage history by the various FE shops. Stockage is normally based on days of supply, although the use of Economic Reorder Quantity procedures has been authorized. However, since the FE dedicated supply system operates under a manual accounting system, the "days of supply" computation is used as it is simpler to calculate manually. CONUS and overseas

SRAs are authorized a stockage objective, calculated as follows: 15-day safety level; 60-day operating level; and actual Order and Ship Time (OST) computed as an average of the last 60-day period.

Until adequate experience data are developed for newly stocked items, the following OSTs for Europe are used to calculate the Requisitioning Objective and Reorder Points:

- CONUS Materiel - 150 days
- USAMMAE Materiel - 75 days
- Locally Procured Materiel:
  - -- Not on BPAs - 90 days
  - -- On BPAs - 30 days

(b) Nonstocked Items (Fringe Items). Nonstocked items are those items required for special requirements of a non-recurring nature (Bills of Material (BOMs), Emergency Work Orders, and Special Projects). Usually, customer Operations and Maintenance (O&M) funds are cited when materiel is either requisitioned or procured. As materiel is received it is forwarded directly to the requesting activity or to a central materiel holding area where it is stored until a work release date from the FE scheduling activity is received.

(c) Standby (Insurance) Items. These items are required to be on hand, in minimum quantities, for immediate issue to protect the health and welfare of personnel and to safeguard Government property in any emergency. Items are replaced on a one-for-one basis when issued.

(d) Seasonal Supplies. These items are required in greater quantities at certain times of the year. Regular stock replenishment fluctuates greatly so that standard leveling practices for these items are not applied.

(2) Subwarehouse Stocks

In addition to the levels authorized for the main warehouse accounts in Europe, additional stocks are authorized for retention in subwarehouse outlets based on demand by FE maintenance personnel. Stockage and retention criteria are the same as for the main warehouse accounts.

Subwarehouse stocks are maintained as separate stock from the main warehouse accounts. As subwarehouse stocks reach their Reorder Points, they request stock replenishment from the main warehouse. Consequently, the Requisitioning Objective (RO) of the main warehouse also includes the demand experience of the assigned subwarehouses. The Stockage Objective of the subwarehouses is calculated as follows: 15-day safety level; 30-day operating level; and actual OST using the average of last two shipments required for delivery (date ordered to date received).

(3) Shop Stock. Shop stocks are authorized for retention where the shop or preventive maintenance work effort requires small quantities of numerous expendable items at frequent intervals. A 15-day level of shop stock is authorized as determined by the shop foreman and approved by the FE Director. Shop stocks are replenished weekly with replenishment cost distributed percentage-wise to the work performed during the period of issue. There are a total of 427 shop stock locations in USAREUR, carrying a gross total of over 65,000 line items.

(4) Supplies for Preventive Maintenance (PM) Trucks. Items for PM trucks are expendable supplies for routine preventive maintenance requirements. PM truck stocks are limited to a 15-day stock level. Items are duplicative to those carried in the shop stock inventory, but carried as a separate inventory from the regular shop stock. These stocks are carried aboard mobile vans/trucks whose primary purpose is to provide PM service to outlying facilities. PM truck supplies are replenished from shop stock by the maintenance repairman, when the stocks carried aboard the truck becomes low. No documentation is required to draw the items from shop stock; however, the shop foreman verifies that items are required prior to replenishment. Shop stock is then replenished to maintain shop requirements. The three major support areas in Europe are supported by 250 maintenance trucks containing a gross total of almost 50,000 line items.

(5) Support for Individual Job Orders (IJOs). IJOs are submitted by customers for repairs or new work to be done by in-house personnel. IJOs are above the scope of scheduled work and are not considered repetitious requirements. IJOs usually required a Bill of Materials. The customer submits DA Form 2701 (Job Order Request - Facilities Engineering) describing the work to be accomplished. Requests are separated according to priority; estimators review the work to be done, determine materials that will be required, and prepare sketches as necessary. Materials required are then ordered and are accumulated in a holding area; when all materials have been received, IJOs are scheduled for accomplishment. IJOs for which all materials are not available are usually not scheduled for work.

(6) Support for Standing Operations Orders (SOOs). Standing Operations Orders represent periodic maintenance that is usually predictable in advance. Materiel required to support this workload is estimated by the shop foreman and ordered as a specific quantity. The materiel is issued to the shop as soon as it is available and is held by the shop for accomplishment of a specific work requirement, e.g., periodic maintenance of the water and sewage system, or the heating plants. Materiel to support the SOOs may be treated as an additive requirement each time it is identified, or it may be added to the demand base for the computation of the stockage objective.

(7) Self Help Stores. A fifteen day level of expendable self help type items which can be used by occupants to repair their government quarters, or officer/enlisted billets. Items consist of such things as stove/range burner reflectors (aluminum), trays, fluorescent light bulbs or regular units, cabinet and dresser drawer knobs/handles, small amounts of paint to touch up areas, fuses, and outdoor protective light covers.

(8) Residual Materiel. The residual holding area contains materiel left over from completed or cancelled work orders. Items are of a wide variety and the possibility exists that some can be utilized on future jobs. Items are held for a period of time, and are turned in to supply or declared excess if no foreseeable requirement is evident.

3. Nondedicated FE Support Systems (DARCOM)

a. Organization. On DARCOM installations, the Depot Property Division (DPD) of the Directorate of Supply is responsible for the installation supply operations, and the FE relies on this organization for his materiel support. Figure II-5 shows the document and materiel flows in this system. Figure II-6 identifies the individual branches responsible for installation supply support provided by the Depot Property Division. The Self Service Branch, Installation Materiel Management Branch, and the Document Processing Branch are the primary offices which support and process FE requirements.

b. FE Supply Sources

(1) Self Service Supply Center (SSSC). Most FE stocks managed at DARCOM installations are centrally positioned in retail outlets under the control of the Depot Property Division. The retail outlet is known as the Self Service Supply Center and is the primary means of supply support to the Facilities Engineer. Types of items available through the SSSC are stocked, nonstocked (fringe), standby, and seasonal materiel.

DOCUMENT AND MATERIEL FLOWS
DARCOM FE SUPPLY

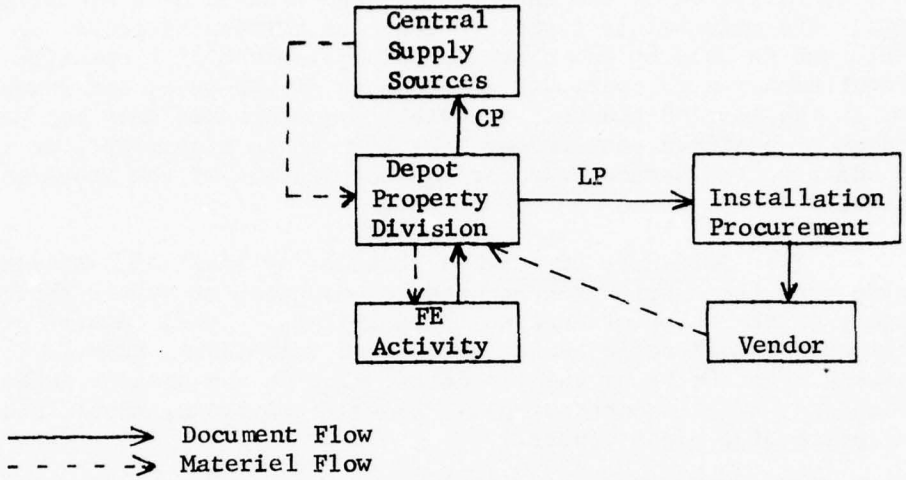


Figure II-5

TYPICAL SUPPLY ORGANIZATION -
DARCOM INSTALLATIONS

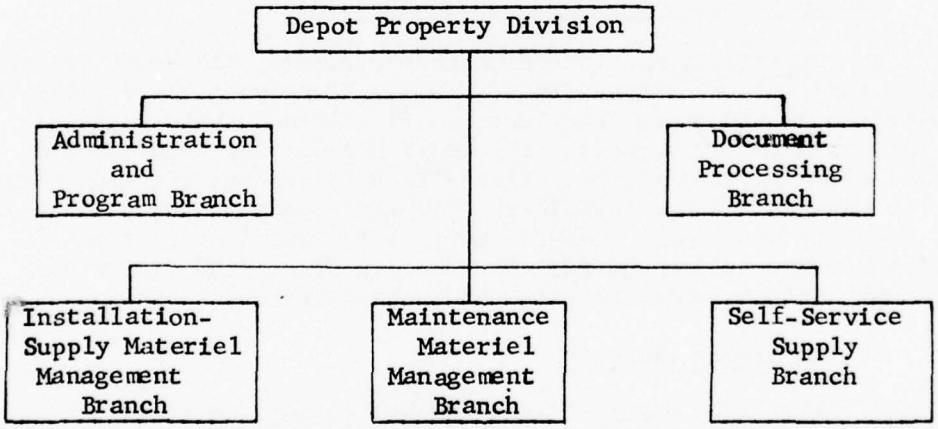


Figure II-6

(a) Stocked Items. The SSSC stocks low dollar value items which are repetitively used by supported activities. Items stocked include office supplies, housekeeping supplies, common hardware, repair and utilities self-help items. Initial stockage is determined by customer request - which includes items recommended for stockage by the FE. Stockage levels are computed based on a 30-day operating level, actual average OST, plus a fifteen day safety level.

(b) Nonstocked Items. The Facilities Engineer Work Coordinator submits a supply request for nonstocked items to the DPD. The DPD system places a requisition through the Military Standard Requisitioning and Issue Procedures (MILSTRIP) for centrally managed and procured materiel (ICP/GSA), or to the installation procurement office for the purchase of LP items. Regardless of the source of materiel, all requests for FE materiel are processed to the DPD for action. No stock levels are maintained for fringe items; however, if consumption or FE demand warrants stockage, the computer will automatically determine the stockage objective for SSSC stockage.

(c) Standby (Insurance) Items. These items are required to be on hand, in minimum quantities, for immediate use to protect the health and welfare of personnel and to safeguard Government property in any emergency. Consumption does not warrant that a demand level be established. Items are replaced on a one-for-one basis when issued.

(d) Seasonal Supplies. These items are required in greater quantities at certain times of the year. Regular stock replenishment fluctuates greatly so that standard leveling practices for those items is not recommended.

(2) Shop Stock. This consists of a fifteen day stock level of expendable type supplies required for routine maintenance operations. Items are either obtained from the installation self service store or requisitioned through the DPD if not stocked by the Self Service Supply Center. Shop stocks are considered as FE owned materiel and are prepositioned in the various shops for internal use by shop maintenance personnel. Shop stock consists of consumable items such as wire, tubing, nails, plumbing supplies, sandpaper, welding rod and common hardware used by repairmen.

(3) Support for Individual Job Orders. IJOs involve maintenance, repair and minor construction of facilities, and are classified as either minor or major jobs based on man-hour requirements. IJOs usually result in materiel requirements lists (BOMs)

which are requisitioned through appropriate supply channels. As materiel is received it is issued to the FE and placed in a designated holding area pending scheduling and accomplishment of work by the mechanic or tradesman.

(4) Support for Standing Operations Orders. This involves maintenance requirements accomplished on a scheduled (e.g., annual or seasonal) basis. Materiel requirements are usually requisitioned and stored in the various shops in advance of scheduled requirements. Stocks are FE owned materiel and are used when work is performed.

(5) Residual Materiel. These items are excess materiel left over from completed or cancelled work orders. Materiel is held by the FE and is a supply source from previously issued materiel. Quantities are usually small or low dollar value and do not warrant turn-in to disposal until it is determined that no future requirement will exist. Items are then turned into disposal as scrap or to the DPD for reporting to the appropriate ICP source for disposition.

4. Supply Replenishment

a. ICP Sources. CONUS/PACOM FE and DARCOM supply activities submit their requisitions for CP materiel direct to the wholesale supply sources (DSA/GSA) for processing. Europe FE supply activities forward their requisitions for CP items to USAMMAE for retransmission to CONUS wholesale supply sources.

b. Procurement Techniques. Several techniques are used by the supply activities to request local purchase materiel for FE requirements. Although the processing of local purchase requests through the FE/DARCOM supply system to the authorized procurement office may differ somewhat, the dollar limitations and requirement for purchase are governed by the Armed Services Procurement Regulation (ASPR) and Army regulations, and are standard for all procuring activities throughout the Army (minor differences apply in overseas areas). The techniques used in effecting local purchase are as follows:

(1) Imprest Funds. These are cash purchases from local vendor outlets. No quotes or bids are required. Generally, these buys are limited to $150 per purchase, but they may be up to $300 for emergencies.

(2) Blanket Purchase Agreement (BPA). These are agreements negotiated by the purchasing office, generally with local vendors, to supply designated FE materiel upon call. Dollar limitations are placed on BPA clerks when ordering materiel. Orders under $500 require only a determination of price reasonableness. Orders over $500 generally require a query to two or more sources.

(3) Purchase Orders/Delivery Orders. Purchase orders (DD Forms 1155) are used to obtain materiel where formal documentation is desired for specific purchases, up to a maximum of $10,000. Competition is solicited for most items; however, where indefinite delivery/quantity type contracts (such as GSA Schedules and Buy United States Here (BUSH) arrangements) have already been established, delivery orders using DD Forms 1155 may be placed with these vendors without further solicitation.

(4) Formal Contracts. Formal contracts are required for purchases over $10,000.

c. Statistics. For Fiscal Year 1975, Army activities obtained FE support as follows:

Source	Amount ($000)	Percent
ICPs	$20,652.0	20.0%
Local Purchase	68,743.5	66.5
BPA	(26,419.1)	(25.6)
Other	(42,324.4)	(40.9)
GSA	13,666.5	13.2
COFESS	363.4	0.3
Total	$103,425.4	100.0%

5. Supply Accounting. Neither the dedicated FE supply operations nor the DARCOM Self Service Supply Centers maintains line item accounting for FE RPMA materiel. Both supply systems operate dollar value accounting systems, with all adjustments made to FE supply inventories in dollar terms only, based on the value of receipts and customer issues/sales as they occur. Resupply of FE stock is accomplished by a periodic visual inventory or manual count of stock remaining on the shelf.

6. Supply Issues. FE supply support is provided under a self-service concept at the installations at which the FE provides his own support as well as those installations at which the FE relies

on the Central Installation Supply for his support. (In the former case, the stocks will be located within the FE maintenance complex, while in the latter case they are located at a central installation Self Service Supply Store which is available to all organizations.) In either case, layout of stocks is such that substitution of items can be visually determined if the principal item(s) are not available. As materiel is received from various supply sources, it is identified and stocked by bin/location number and made available for issue. When materiel is released, shop personnel sign an issue document which indicates the dollar amount charged and serves as a receipt for the items. A copy of the issue document is forwarded to the Installation Finance and Accounting Office for processing so that appropriate billing of O&M funds can be accomplished to reimburse the responsible stock fund account.

7. Funding

a. In CONUS, items held in stock by the FE and DARCOM supply accounts are in the Army stock fund. The inventory is capitalized into the stock fund account with reimbursement made from the applicable appropriation(s) (consumer funds) based on dollar amounts of issues (sales) to maintain a revolving account. Items are not expended to customers until formal issue requests are received and items are issued. Customer O&M funds are then recycled at major Army command level, with the command stock fund reallocating additional stock funds to the supply activities as necessary based on a quarterly rebudgeting cycle.

b. In Europe, FE supply accounts are financed by O&M funds. Upon the sale of supplies, customer O&M funds are recycled through the appropriate SRA O&M finance and accounting system to USAMMAE to replenish the USAREUR stock fund account used for the purchase of ICP materiel from CONUS. Quarterly, USAREUR O&M funds are reallocated to the FE stock record account based on past issues and predicted FE supply requirements.

8. Excess Processing

a. Disposal Items. Whenever an FE item has not been demanded within 90 days and a review with anticipated customers indicates that it is no longer required, the item will be deleted from the stockage list and declared excess. Items are offered to other SRAs before reporting to ICPs as excess or taking disposal action. If not further requirement exists, items are then reported by the FE supply activity (in Europe, USAMMAE) to the responsible ICP for disposition instructions prior to processing for disposal action.

b. Retention of Long Supply Stocks. For low cost, slow moving expendable items, the FE supply activity is authorized to retain long supply stocks equal to the authorized requisitioning quantity plus an additional 3 years expected usage. In considering this stockage, the supply activity considers: storage capability; level of funding provided for storage, repackaging, care, and preservation; and shelf life and deterioration.

C. NAVY CE MATERIEL SUPPORT SYSTEM

1. Introduction. The Naval Facilities Engineering Command (NAVFAC) provides Civil Engineering support to the operating forces of the Navy, the Marine Corps, and other components of the Navy Department through three general organizational concepts: Public Works Centers (PWCs), Public Works Lead Activities (PWLAs), and Public Works Departments (PWDs). The Public Works Centers provide the full range of Public Works functions for several customers; eight are under the command of NAVFAC (the PWCs at San Francisco, Pensacola, Great Lakes, San Diego, Pearl Harbor, Guam, Yokosuka, and Subic Bay), and one is under the Navy's Atlantic Fleet (PWC Norfolk), but by formal agreement NAVFAC provides full Public Works management. PWLAs are departments within an activity designated to provide a partial or full spectrum of public works support to two or more activities, where it has been determined that it is not feasible to establish a Public Works Center. Public Works Departments provide public works support only to the activity at which they are located. There are over 50 Public Works Lead Activities and over 100 Public Works Departments in the Navy. Regardless of command assignment, NAVFAC provides the Civil Engineering technical support and guidance to the PWCs, PWLAs, and PWDs.

2. PWC Supply System

a. Organization. The organization which provides materiel support to the PWC is the Material Department. This Department is a dedicated supply organization responsible for requisitioning, receiving, storing, issuing, and insuring the availability of supplies and equipment only for the PWC. The organization of the Material Department to accomplish this responsibility is portrayed in Figure II-7.

b. Shop Stores. Inventories maintained on the PWC supply records are distributed to and stocked by the various shop stores which support the PWC mission. Shop stores are centrally located in the maintenance area for easy access by the crafts shops. To

PWC SUPPLY SUPPORT ORGANIZATION
(Typical)

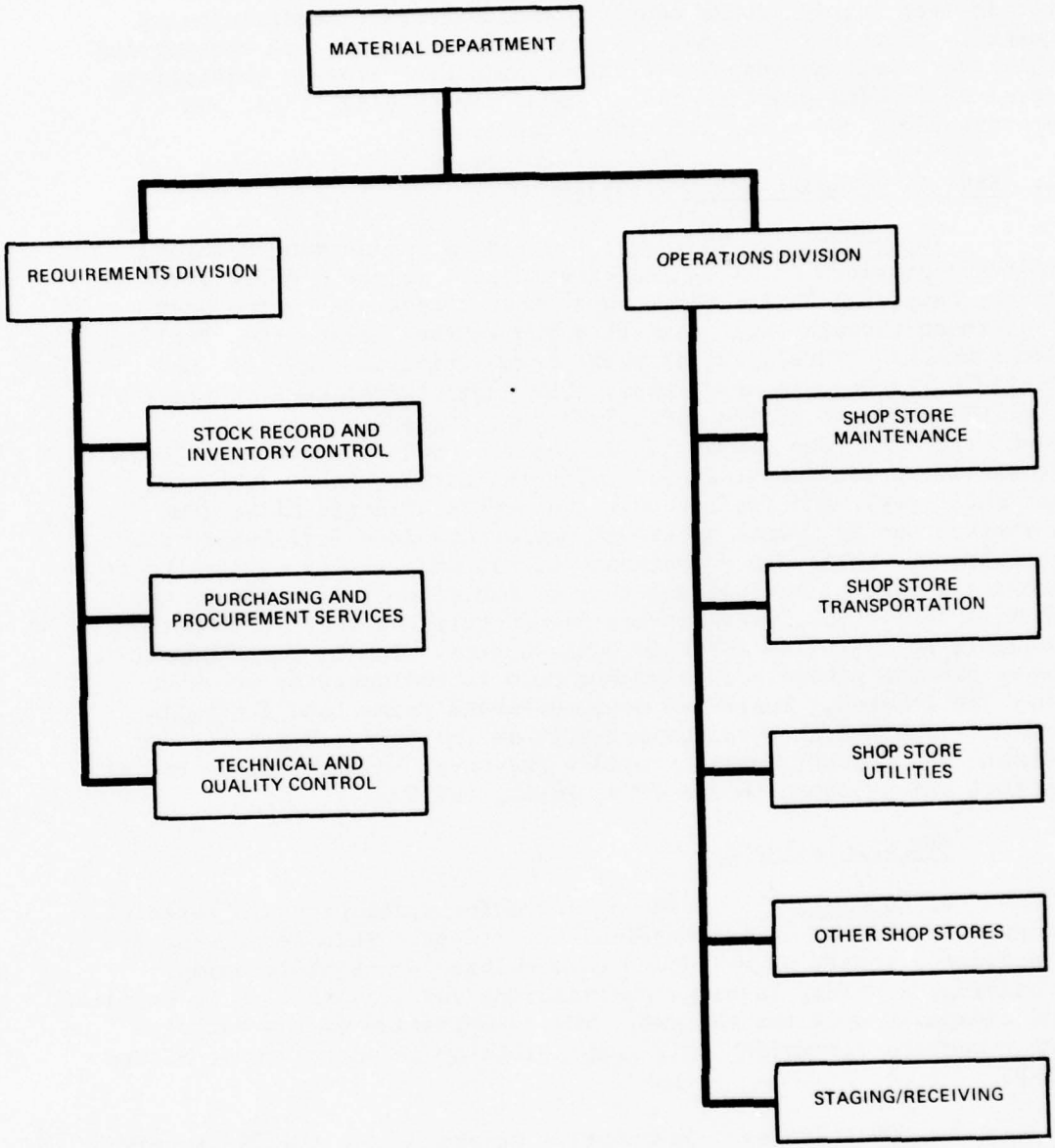


Figure II-7

maintain an effective inventory of stock to meet customer requirements, it is NAVFAC policy that shop store inventories should be turned over at least four times per year. Shop stores contain facilities maintenance and minor construction materials, and repair parts for installed property (e.g., air conditioning parts, fans). Materiel requisitioned through the shop store accounts fall into three types of supplies: stocked (standard and nonstandard), not carried, and insurance items.

(1) Stocked Items

There is no rule on the number of demands or a unit price limitation which automatically results in stockage, although four demands within a six-month period would cause an item to be reviewed for stockage. The basic rule is that items will be stocked in shop stores if a demand can be anticipated, but stockage can also be requested by the heads of the Maintenance, Utilities, or Maintenance Control Departments. The PWC computer will automatically identify items which have received four demands within a six-month period for a manual review. Such items would not be stocked if, for example, they are substitute items, or they are readily available through local purchase procedures. The approval of the pertinent shop is obtained before stocking any repair parts which are identified for stockage through the computer program. Supported activities, as well as supporting PWC departments (Maintenance or Utilities) are authorized to identify critical equipments, facilities, and parts (e.g., power, ADP air conditioning, water supply). Based on this identification, supporting repair parts and assemblies may be stocked in shop stores. Tools are not included in shop stores.

Stock levels are automatically recomputed every 30 days by the computer for each line item stocked. The stock level is based on weighted demand experience that consists of 75% of the past 3 months usage, plus 25% of the average quarters usage based upon the past 12 months history. At an overseas PWC, levels (expressed in days) for shop store items varied with the leadtime of the items as follows:

Type Item	Average Leadtime	Safety Level	Operating Level	Rqn Obj
Short Leadtime (LT)	20	15	30	65
Regular LT-Standard Items	75	15	45	135
Regular LT-Nonstandard Items	120	15	90	225
Long Leadtime	180	15	90	285
Extra Long Leadtime	240	15	90	345

Replenishment requisitions are automatically generated by the computer for stocked items, and result in requests for standard (National Stock Numbered) or nonstandard (nonstock numbered) items. Standard item requisitions result in MILSTRIP requisitions directed to the supporting Naval Supply Center (NSC) or Naval Supply Depot (NSD). Nonstandard item requests are processed the same as those with stock numbers except that requisitions are directed to the supporting purchase division for procurement decision(s). If standard items are not in stock or not carried and an immediate requirement exists (required within 30 days to meet a scheduled job date), the PWC may procure standard items through local purchase procedures within their purchase/ordering authority. If this cannot be done, a mechanized requisition is submitted to the appropriate NSC or NSD.

(2) Not-Carried Items. These items are not stocked in PWC supply accounts. Not-carried items are those items required for special requirements of a nonrecurring nature (Direct Materiel Inventories (DMIs), Emergency Work Orders, Special Projects, etc.). As materiel is received it is forwarded directly to the requesting activity or to a central materiel holding area where it is stored until a work release date from the CE scheduling activity is received. While stored by PWC, not-carried items are carried as Navy Industrial Fund assets until issued to the customer for scheduled work.

(3) Insurance Items. These are slow moving items for which consumption or usage cannot justify a regular stock level. Items are required to meet emergency service or to continue the operation of essential equipment. Stockage is limited to a replacement quantity which can be obtained within a reasonable time period. CONUS PWC stocks of insurance items are not to exceed 10% of the inventory; overseas PWCs are limited to not more than 20% of their inventory. Replacements are reordered on a "one-for-one" basis; that is, when one is issued to a customer a replacement is ordered immediately for stock regardless of stock position. The shop foreman and the PWC supply officer approve the retention level of insurance items.

c. Pre-expended Bins. These consist of low cost pre-expended consumable items which are consumed during the repair and maintenance process. Examples of items carried in the pre-expended bins are common bolts, nuts, washers, nails, plumbing gaskets, sheet materiel, and packing. Items are of high usage and are usually stocked in the immediate area of the workman where he can help himself. No documentation of controls are established for this self service concept. Items of $5 or less per unit are authorized for stockage, which is limited

to a 30-day supply. Items of a highly pilferable nature are not stocked in the pre-expended bins. The range of items carried in the store is originally established by agreement between the shop supervisor and the shop store personnel, with stock level changes made according to usage experience. Bins are regularly inspected and replenished by shop store personnel to insure that stock is available and that bin stocks are not mixed. The reorder point is usually a matter of shop supervisor judgment.

d. Direct Materiel Inventory (DMI). For approved customer job orders, routine materiel requirements are submitted by the Maintenance Control Department (MCD) by forwarding a Materiel Requirement and Issue Document to the appropriate maintenance shop store. As a general practice, MCD attempts to schedule most PWC jobs for completion within a 4½-month time period, depending on the size of the job. As materiel for the job order is received from shop stores or off base sources, it is assembled into the designated shop store staging area where it is held as DMI. When materiel is assembled and the job is scheduled for action, all materiel collected to support the job order is released to the PWC maintenance shop.

e. Residual Materiel. Residual items are excess materiel left over from previous DMI projects. Items not returned to supply are stored in shop areas and attrited on subsequent jobs.

3. PWD Supply System

a. Organization. At activities providing their own CE support, the PWD does the planning, estimating, and inspection for electrical, mechanical, or structural defects and requirements and prepares plans to maintain or repair by either contract or in-house personnel. Materiel support is provided to the PWD by the Supply Department, which is responsible for the total materiel operation at the activity. Supply Department responsibilities include procurement, receipt, control, storage, and issue of materiel to support the activity, and the stocking and operation of all shop stores. The organization of the Supply Department at the Norfolk Naval Shipyard, showing its relationship to the Public Works Department and other elements of the activity, is shown in Figure II-8. This structure is representative of Supply Department organizations. Other Supply Departments do not differ from this organizational structure in any respects which are significant to this Study.

b. Shop Stores. Shop stores are issuing organizations established to furnish materiel for manufacturing, alteration, repair, and maintenance. They are usually located in or near the principal production shop that they serve, and are responsible for maintaining the

SUPPLY DEPARTMENT ORGANIZATION

(Norfolk Naval Shipyard)

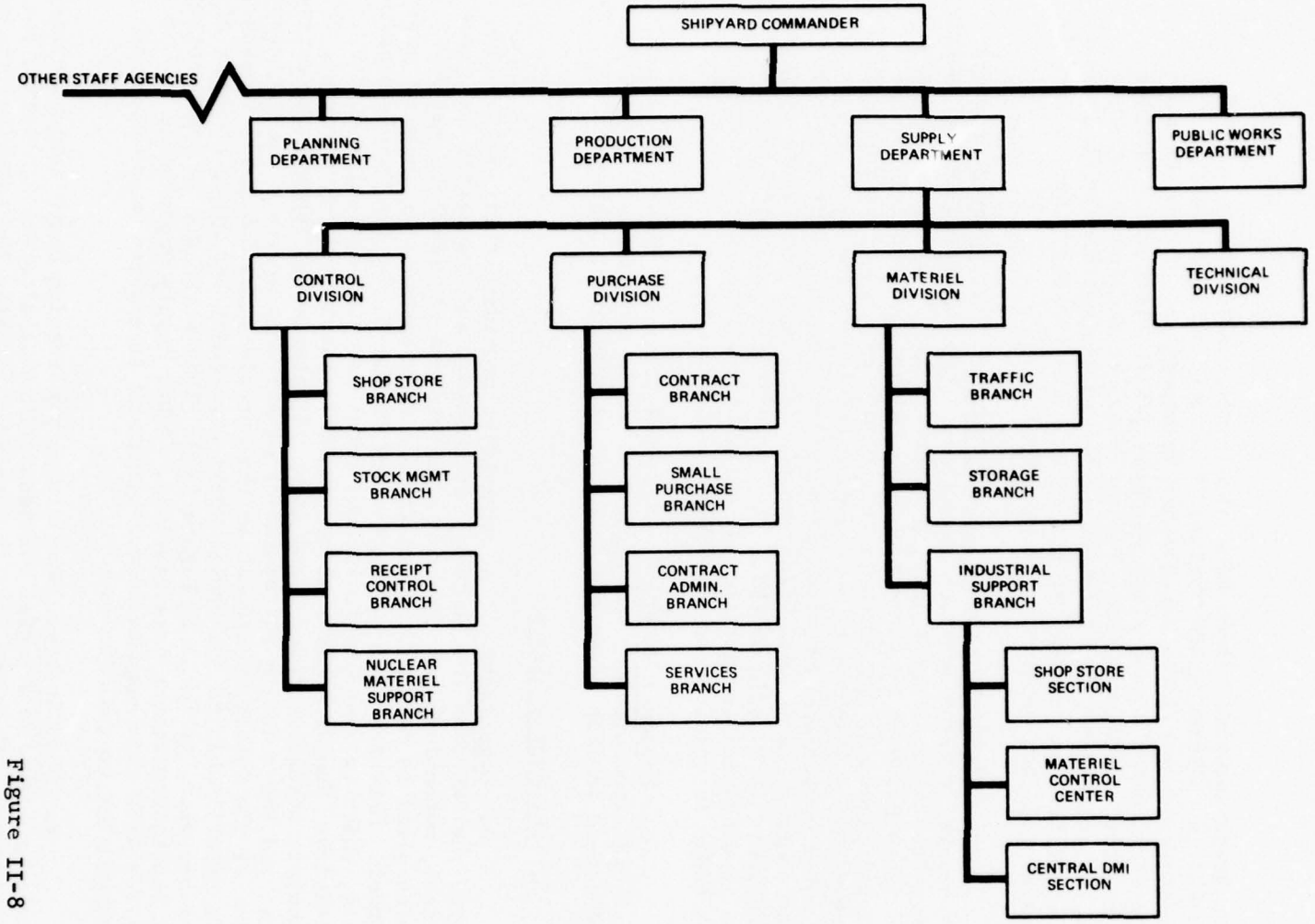


Figure II-8

type and quantity of materiel required by their "customers." All inventories maintained on Supply Department records are distributed to, and stocked by, the various shop stores which support the activity. Materiel requisitioned through the shop store accounts fall into three types of supplies: stocked (standard and nonstandard), not carried, and insurance items.

(1) Stocked Items

Specific stock turnover rates have not been established. As with PWC supply activities, there is no established rule on the number of demands which will automatically result in store stockage. However, Supply Department policy is that there should be a requirement at least four separate times during the previous 12-month period before the item is considered for shop stock. The maintenance shop foreman and a representative of the Supply Department review and approve the addition of new items to the shop store inventory. The stockage objective authorized for shop stock materiel is as follows:

1 90 days - Materiel available from a main supply inventory, e.g., materiel which is stocked by ICPs.

2 150 days - Materiel not available from a main supply inventory, e.g., local purchase or local manufacture items.

3 180 days - Nonstandard materiel, i.e., items not listed in Federal Supply Catalogs.

Replenishment requisitions are automatically generated by the computer for shop store stocked items, including both standard (National Stock Numbered) or nonstandard (nonstock numbered) items. Requisitions for standard items result in MILSTRIP requisitions directed to a Naval Supply Center; to GSA; or to the Supply Department Purchase Division. Nonstandard item requests are processed the same as those with stock numbers except that requisitions are directed to the Purchase Division for procurement action. If standard items are not in stock or not carried and an immediate requirement exists (required within 30 days to meet a scheduled job date), the Supply Department Purchase Division may procure standard items through local purchase procedures up to a prescribed limit. For nonstandard materiel, the Supply Department has authority to make purchases, usually to a higher dollar limit, to satisfy urgent requirements. Generally this authority is used only at the discretion of the Head of the Supply Department.

(2) Not-Carried Items. Not-carried items are those items required for special requirements of a nonrecurring nature (DMIs, special projects, emergency work orders, etc.). As materiel is received it is forwarded direct to the requesting activity or to the appropriate shop DMI holding area. Generally, not-carried items are procured with customer funds and are not carried as shop stock inventory.

(3) Insurance Items. These are slow moving items for which consumption or usage cannot justify a regular stock level, and the items are required to meet emergency needs or to continue the operation of essential equipment. Stockage is limited to a replacement time period. A 90-day level of stock is authorized with replacement reordered on a "one-for-one" basis, that is, when one is issued to a customer a replacement is ordered immediately for stock. The shop foreman and the installation supply officer approve the retention level of insurance items, with the limitation that not more than 10% of the items stocked in the shop store outlets may be carried as insurance type materiel.

c. Pre-expended Bins. A 90-day stock of low cost (unit cost of under $2), fast moving expendable items available without a formal issue request to maintenance shop personnel. Items are either standard or nonstandard and are located in the maintenance shop areas for customer convenience. Pre-expended bin items are expended when issued to the maintenance shops. Thereafter, replacement of stock is made on a quarterly replenishment cycle, although out-of-stock items are replenished at any time during the cycle to insure that stock is always available. After each quarterly replenishment cycle the Navy revolving capital fund is charged for items used during the preceding quarterly period.

d. Direct Materiel Inventory. For approved customer job orders, routine materiel requirements are submitted to the appropriate shop store by the Maintenance Control Division of the Public Works Department. Materiel available from shops is immediately issued or noted as available, while items not available from shop stores are individually requisitioned through the Supply Department. As materiel for the job order is issued from shop stores or received from off base sources, it is assembled into the designated shop store DMI staging area. When materiel is assembled and the job is scheduled for action all materiel collected to support the job order is released to the PWD maintenance shop for the job requirements as requested by the Public Works Department.

e. Residual Materiel. Generally, DMI excess items are retained, without formal accounting in shop areas and attrited on subsequent jobs. Examples of items attrited are locknuts, straps, and screws.

4. Supply Replenishment

a. ICP Managed Items

In CONUS, requisitions for standard items are automatically submitted directly to a Naval Supply Center or Depot. If not in stock at the NSC, the requisitions are passed to the appropriate ICP source for replenishment action. After the requisition is passed, all subsequent transactions (status, follow-up, passing actions, etc.) are between the supplier and the requiring activity.

At PWC Guam, the Naval Supply Depot serves as the source of supply for standard items. If materiel is not in stock at the NSD, the requisition is passed directly to the appropriate ICP, GSA Region # 10 (Seattle), or to NSC Oakland for DSA managed items. If not available at NSC Oakland, the requisition is passed on to the appropriate DSA source for direct issue to PWC Guam. As with CONUS activities, after NSD Guam passes the requisition, all subsequent transactions and follow-up actions are directly between the supplying activity and PWC Guam supply department.

At PWC Guam requirements for nonstandard items are submitted on a manual document containing space for item description and source identification. These requirements are processed through the NSD Technical Department in an attempt to identify an NSN. If this cannot be done, the NSD Purchase Department will attempt to buy the item locally. If a local source cannot be identified, the buy requirement will be passed to NSC Oakland.

b. Procurement Techniques. Procurement techniques available to obtain local purchase materiel to support public works requirements are established and governed by ASPR. These are generally as described for the Army in Paragraph B. above, except as follows:

(1) Use of BPAs. The Public Works Department at the Norfolk Naval Shipyard receives its materiel support from the Supply Department. One individual from the Purchase Division of the Supply Department is assigned to the shop store which supports the PWD, and is authorized to place orders for BPA materiel up to $750. Orders under $500 require only a determination of price reasonableness. Generally, orders of $500 or more require a call to two or more sources.

(2) Procurement Authority. PWCs are generally authorized to obtain materiel up to a limit of $250; however, the two largest PWCs, San Diego and Norfolk, have been granted purchase authority up to $2,500. The PWC Guam authority is $250, and that is limited to placing orders against BPAs established by the Naval Supply Depot Guam. The Norfolk Naval Shipyard procurement authority has a $15,000 maximum; buy requirements above that amount are referred to the Naval Supply Center, Norfolk.

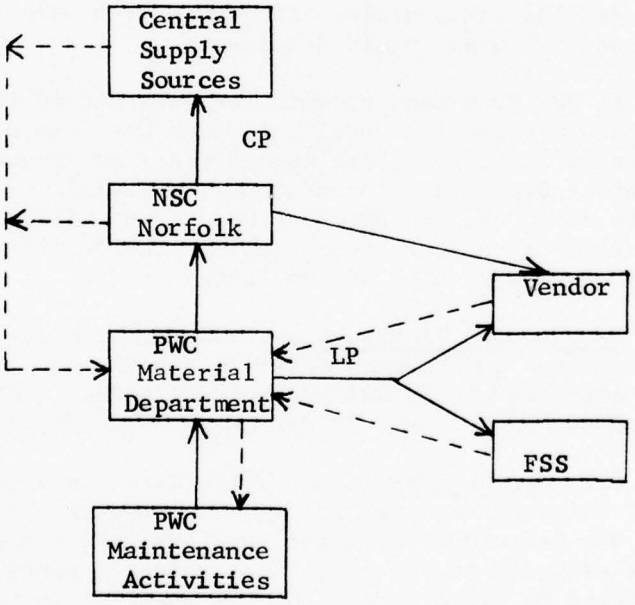
c. Overall Materiel/Document Flows. The overall flows of documents and materiel for Navy activities are shown as follows:

(a) For PWC Norfolk, in Figure II-9,

(b) For PWC Guam, in Figure II-10, and

(c) For a typical activity with a PWD, in Figure II-11.

DOCUMENT AND MATERIEL FLOW
PWC NORFOLK



——————— Document Flow
- - - - - - - - Materiel Flow

Figure II-9

DOCUMENT AND MATERIEL FLOW
PWC GUAM

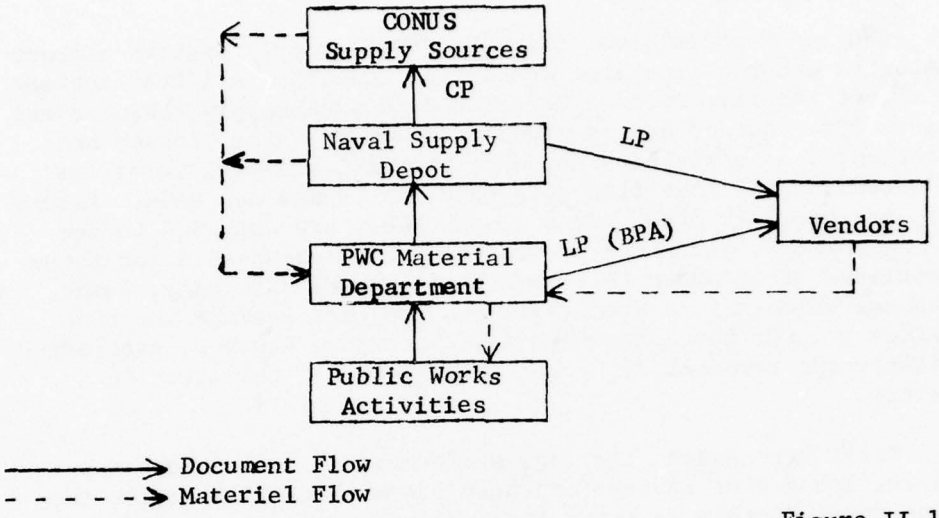


Figure II-10

DOCUMENT AND MATERIEL FLOW
NAVY PWD (NNSY)

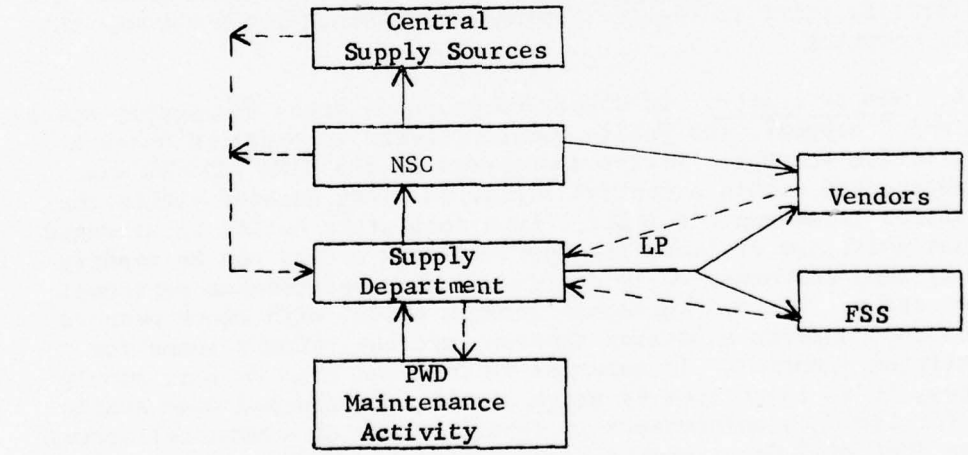


Figure II-11

5. Supply Accounting

PWC and Norfolk Naval Shipyard (NNSY) supply systems account for materiel under a line item accounting concept. All transactions which affect the item records maintained in each supply computer are automatically recorded and adjusted on a daily basis. Issues are adjusted under a "post-post" concept; that is, balances for items are adjusted against the item records after issues are made. Issues to DMI, pre-expended bins, bench stock, etc., are expended to the maintenance shops, and stock record balance is maintained for these prepositioned items after they have been issued. Normally, issue adjustments which affect stock balances are made against the computer item records the following day. Receipts, however, are posted to item records immediately, prior to positioning the stock in a shop store.

Daily transaction listings are provided to stock control clerks for management review for those items which were active the previous day. Monthly, a total item record summary is provided which reflects all item record information (including on-hand balance, due-in and due-out); however, the computer may be questioned any time to determine stock status for any item. Monthly, each store is also provided an updated directory which lists all stocked items in shop stores. This directory does not contain on-hand quantity information and is used primarily to cross-check with other shop stores for availability prior to requisitioning out-of-stock items through the supply computer.

6. Supply Issues. In CONUS and overseas areas the supply operation which supports the Public Works activity is operated under a self service concept. Stocks in support of the RPMA mission are stored/stocked within a central outlet facility located within the facilities maintenance complex. Each shop store outlet is arranged so that selection of items for approved work orders can be readily made by shop personnel or by designated shop maintenance personnel if necessary. Bin and warehouse locator cards, with stock numbers and/or part numbers annotated thereon, are the primary means for identifying materiel. As materiel is received from various supply sources, it is identified by stock number, stocked and made available for issue to maintenance personnel by use of a Materiel Service Request/Materiel Requirements Issue Document. When materiel is released by the shop store, craft shop personnel sign an issue document indicating receipt for the items and the dollar amount to be charged.

7. Funding

Materiel on hand at the PWCs and those items stocked in NNSY shop stores account are financed by the Navy Industrial Fund (NIF). These items are capitalized as NIF assets and are accounted for until issued for use in the performance of work. Within this concept however, there is a difference between the PWC and NNSY funding process regarding Direct Materiel Inventory assets. PWC requires that DMI assets continue to be carried in the NIF; thus, NIF funds are tied up in holding this stock until the materiel is issued for specific job requirements, at which time the PWC NIF fund is reimbursed. At NNSY, the policy is that customers are required to pay for their DMI requirements immediately: materiel carried in the shop stock is paid for by the customer upon issuance of DMI; materiel not-in-stock or not carried requires reimbursement to the Supply Department NIF when the requisitions are submitted to off-base sources (NSC, GSA, or local purchase). As assets are received, they bypass the shop store account and are forwarded directly to a designated DMI holding area pending release to the PWD. Assets held in the DMI holding area for PWD projects are owned by the PWD, but are stored and controlled by the Supply Department until released upon request by the PWD.

For PWC Guam, materiel held by NSD Guam is in the Navy stock fund, and there is a buy-sell relationship between the NSD and the PWC. If materiel required of the NSD is carried but not in stock, the NSD stock funds are cited on customer requisitions for DSA, GSA or local purchase materiel passed to NSC Oakland. If required materiel is not carried by the NSD, customer funds are used for the passed requisition.

8. Excess Processing. At PWC Norfolk, excess items generated from DMI work orders are either turned into the shop store for credit or processed direct to disposal if less than $10 and no requirement exists. If items can be reutilized, credit is given to the customer for turn-in. If items are excess to stock level requirements, no credit is given. NSN items are reported to NSC/DSA for disposal action; non-NSN items are processed direct to disposal after an established holding period of 6 months. The general criteria for excessing an item from shop stock are (1) whether or not a demand has been placed against the item in the last 6 months, and (2) whether a line item has a balance on hand greater than 150% of the stock level. Excess listings are automatically generated by the computer to determine whether or not excess items should be reported to the appropriate NSC/DSA for disposition, or processed to disposal.

D. AIR FORCE CE MATERIEL SUPPORT SYSTEM

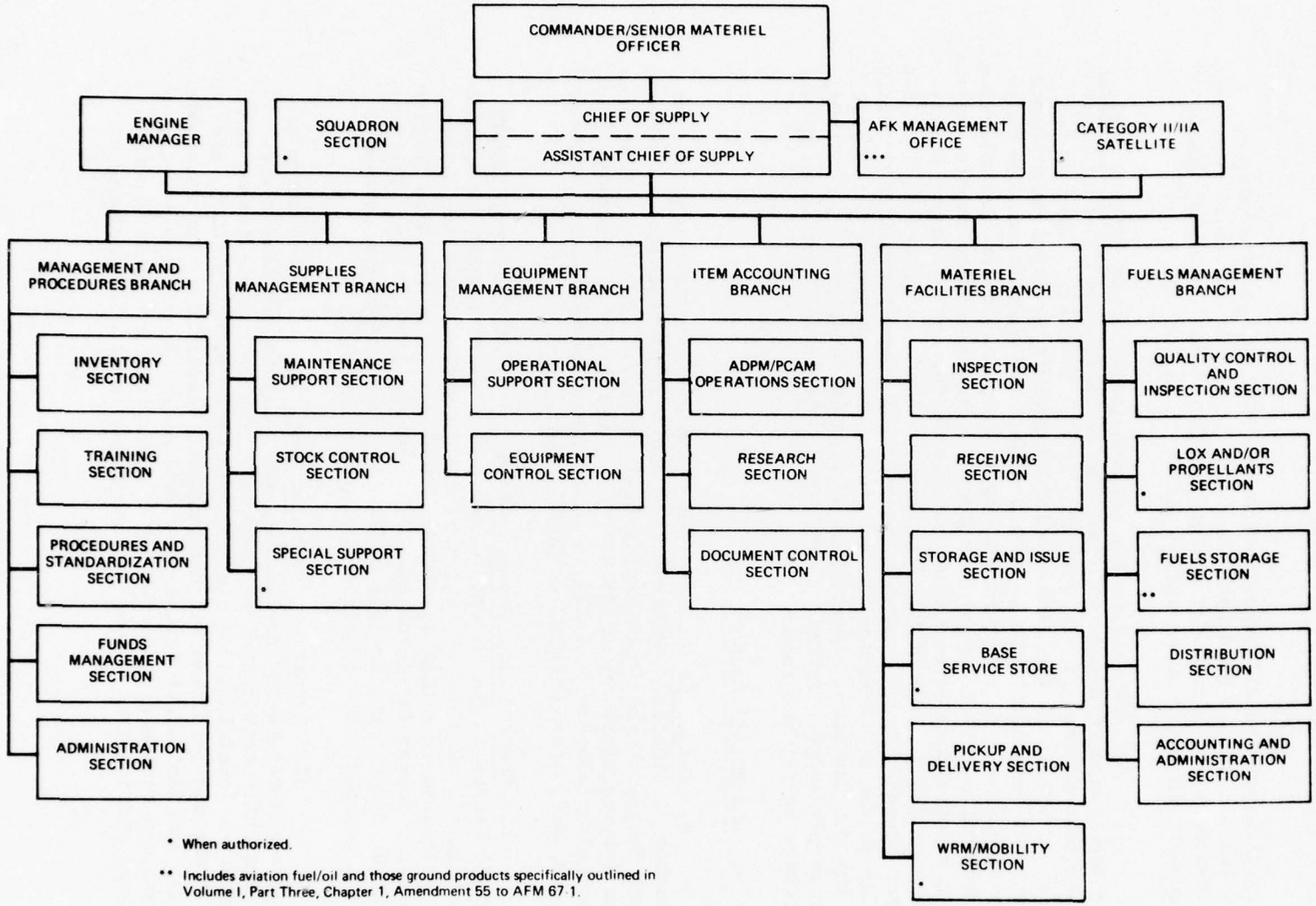
1. Introduction. The Base Civil Engineer (BCE) is responsible for the maintenance, operation, and construction of Government-owned real property. Within the BCE organization, the Materiel Control Section of the Programs Branch is responsible for providing budget information for projected materiel requirements; insuring the development and maintenance of a materiel substitution register; estimating and assisting in establishing stock levels; turn-in of materials and supplies; and, research of stock numbers, nomenclatures, prices, and other data for requesting of materiel. The BCE receives materiel support primarily from 3 sources: the Air Force supply system; COCESS; and, local purchase. In addition, the Air Force has a test of a dedicated internal system-- the Government Operated Civil Engineer Supply Store (GOCESS) at Offutt Air Force Base. In all cases in the Air Force except for the test situation at Offutt Air Force Base, the BCE relies on others for his materiel support: either on the central installation supply and procurement organizations, or on a Contractor Operated Civil Engineer Supply Store, or on a combination of these.

2. Central Supply Organization

a. Introduction. The Air Force BCE is supported primarily by COCESS at a number of locations. The COCESS organization is described in Chapter I and in Paragraph 3.g. below. Therefore, this paragraph concentrates on describing the organizational structure for providing supply support to the BCE from an internal Air Force organization. This support can be provided through two automated supply systems: supply support to the BCE located at Wing-Base level is provided through the Standard Base Supply System (SBSS) which uses the UNIVAC 1050-II computer; BCE activities located on the five Air Logistics Centers (ALCs) obtain supply requirements through the Air Force depot support system. Both systems conform to the overall Air Force retail stockage policies and rules, except for minor adjustments in the depot support system because of local conditions at the ALCs.

b. Standard Base Supply System. SBSS is a standard supply organization which employs standard computer hardware and programs. The SBSS uses a dedicated computer system that features real time, random access and extensive use of remote devices. Supply activities at a typical Air Force base function through a single organization called the Supply Squadron under a Chief of Supply manager as portrayed in Figure II-12. This activity is responsible for providing

CHIEF OF SUPPLY ORGANIZATION



* When authorized.

** Includes aviation fuel/oil and those ground products specifically outlined in Volume I, Part Three, Chapter 1, Amendment 55 to AFM 67-1.

*** Authorized only when AFK account is officially designated and when it is not assigned to another base organization.

Figure III-12

supply support to all organizations located on, or attached to, the installation. SBSS computers are located at 127 base locations, and support 145 additional activities (satellite accounts) which share the computer at an active Air Force base.

c. Air Force Logistics Command (AFLC) Depot Support System. The depot support system is under the operation and computer program management control of Headquarters, AFLC. Generally, this system is an extension of the SBSS insofar as supporting depot maintenance and other retail activities at the ALCs. The system operates under the Directorate of Distribution who is responsible for accomplishing installation retail supply functions-- i.e., providing supply support to all units located on the ALC complex-- through the Depot Supply Division (DSD). The DSD is organized as shown in Figure II-13. The Depot Support Branch provides the materiel support required by activities on the installation and is the branch most active in support of the BCE function. Regardless of type of local support required, the supply support functions conform to the overall Air Force retail stockage policy and rules.

3. BCE Supply Sources

a. Introduction. The BCE draws his materiel support from a number of sources: directly from the central installation supply (Base Supply or the Depot Supply Division); from Bench Stock or the Base Service Store, materiel sources supported by Base Supply; from materiel obtained especially to support work orders; from residual stocks; and, from a COCESS or GOCESS operation.

b. Central Base Supply. Base Supply or the Depot Supply Division serve as the direct source for materiel to support the BCE which is not obtained through any other sources-- that is, materiel not available from COCESS, GOCESS, bench stock, or the Base Service Store can be requisitioned directly from the SBSS or DSD. Stockage policies cover three general types of items: recurring or demand level, seasonal, and contingency support items.

(1) Recurring or Demand Level Items. These items are required in day-to-day operations, and their supply levels are automatically established by computer. For expendable items, the SBSS stock level includes the Economic Order Quantity (EOQ), and the Order and Ship Time and Safety Level quantities. For reparable items, the SBSS stock levels are based on the local repair cycle length and the portion of the total unserviceables which process through the local repair cycle; the total level also includes a

DEPOT SUPPLY DIVISION, AIR LOGISTICS CENTER
Typical Organization

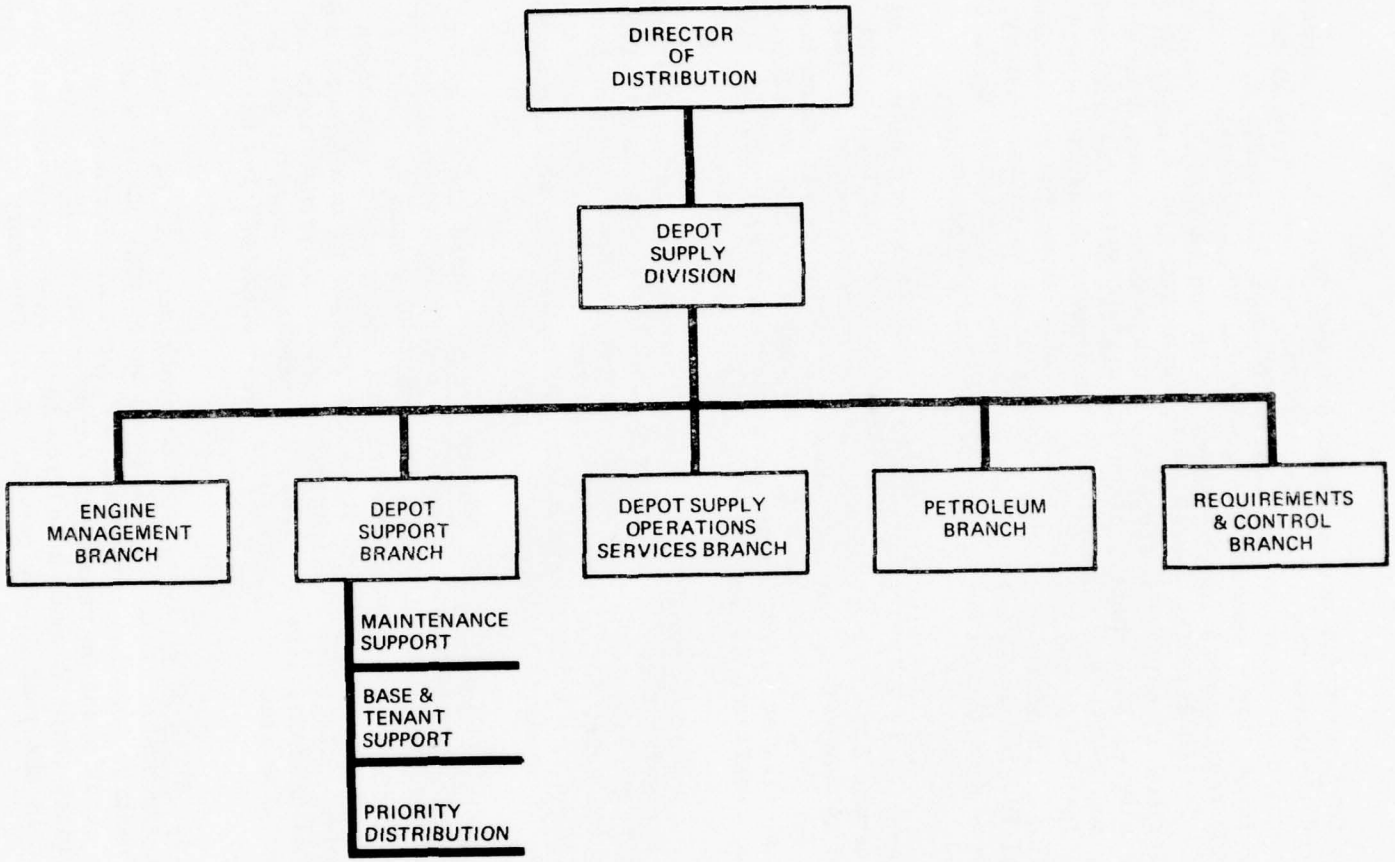


Figure II-13

Safety Level quantity and an Order and Ship Time quantity covering required replacements. Stockage criteria for items held in the SBSS require at least two demands in 180 days for repair cycle items and at least three demands in 180 days for EOQ expendable items. AFLC DSD requirements for stockage, as of the team visit, were three demands in 180 days for repair cycle items and five demands in 180 days for EOQ items; these stockage criteria were expected to change to the same as SBSS shortly after the visit. Files are screened daily, and levels are automatically recomputed whenever on-hand assets fall below the reorder point or rise above the requisitioning objective. In addition to stock levels based on demand history, special levels can be established to identify quantities to be held by supply even though not supported by demand experience.

(2) Nonrecurring Items. These items are used on an infrequent basis or for an unusually large one-time requirement for which demand data is not included in the computer records. Materiel ordered in support of contract work or one-time construction work orders for large requirements (such as rehabilitation of a building, repair of fire or flood damage, or construction of a new facility) would be considered as nonrecurring item requirements.

(3) Seasonal Items. Requirements for seasonal items are so irregular that the computer demand level does not provide satisfactory consumption to warrant stockage. Most seasonal items, such as top soil, fertilizer, and snow salt are issued to and stored by BCE based on planning work orders (AF Form 1445) which support anticipated seasonal requirements.

(4) Contingency Support Items. These are items for which the BCE has indicated a specific requirement to meet his needs where consumption is so low that the SBSS/DSD system is unable to maintain a realistic demand level to meet emergency requirements when they occur. Examples of items for standby or contingency support include motors for refrigeration equipment, transformers for electrical systems, fire hydrants, and sandbags. Special level items are also used for emergency or back-up support for utilities systems.

c. Bench Stock Items. Bench stock consists of a 30-day level of expendable items prepositioned in several BCE work centers, or in a central location within the BCE complex. Items are authorized for stock based on repetitive consumption-- that is, items must have at least three demands resulting in an issue or a due-out release within the past 90-day period. Total inventory of bench stocks

is required every 30 days and stock is replenished when the quantity on-hand is approximately 50% or less of the 30-day level. A weekly walk through is accomplished to look for "out-of-stock" items, and to initiate replenishment actions for empty bin requirements. To insure that bench stock levels are adequate, the computer automatically recalculates the consumption rates every 30 days, according to the replenishment action taken by the Base Supply Bench Stock Support Unit immediately after the replenishment cycle. Items must have a minimum of one demand in 180 days to be retained in bench stocks. Deletion from bench stock is based on quarterly computer reviews; the computer will recommend deletion after a 90-day period with no demand, and will direct deletion from bench stock after a second 90-day period with no demand.

d. Base Service Store (BSS) Items. The BSS serves as the source of low cost expendable janitorial and administrative supplies which have a high degree of substitutability. Authorized stock levels for items in BSS are the same as for items held by base supply. Unlike bench stock items, for which back-up stocks are held by base supply, total base stocks of items in the BSS are held in the BSS. Sales are made by the customer walking the aisles of the store and selecting desired items. Sales are in dollar terms, with a single billing containing no itemized listing of the materiel which has been purchased.

e. BCE Work Order Materiel. All materiel requirements for approved work orders are listed on an AF Form 1445 (Materiel and Equipment List), which is the principal document used by the BCE Materiel Control Center to order materiel from base supply. In addition to being used as a requisitioning document by the BCE, the AF Form 1445 also provides a consolidated up-to-date status list of materiel requirements for each approved work order project. As materiel is issued from base supply to the BCE holding area, the holding area personnel annotate their copy of the AF Form 1445 showing the storage location. When all materials have been received (work orders, service calls, job orders, etc.), holding area personnel notify the appropriate BCE work centers that the work order can be released for scheduling.

f. Residual Items. Materials left over from a work or job order after completion or cancellation are placed in the residual holding area for possible use at a future date. Items are held for 6 months and then turned into base supply for disposal if no foreseeable requirement exists.

g. COCESS Supply Sources. The Air Force has been authorized to use Contractor Operated Civil Engineer Supply Stores for the support of the Base Civil Engineer. COCESS is based on an indefinite delivery type contract with a single vendor. The vendor establishes an on-base outlet for civil engineering type supplies required for real property maintenance, operations, and minor construction projects. Materiel is owned and stored by the contractor until sold to the BCE at a prearranged (bid) discount rate. The Air Force usually provides the space for the COCESS facility, including building maintenance and security. BCE personnel process their requirements to the COCESS for items covered by the contract; requirements for items not covered by the contract are processed to the central base supply (SBSS or DSD) organization. In addition to the items of supply which the COCESS contractor is authorized to provide on a regular basis, the contractor can provide excluded items on an emergency basis, and he may stock these items in his COCESS facility in anticipation of such emergency requirements. There are three degrees of COCESS implementation within the Air Force:

(1) Full COCESS. Thirteen Strategic Air Command (SAC) bases have authority from the Office of the Secretary of Defense to contract for a COCESS operation which provides for a full range of BCE materiel. Full COCESS operations have authority to provide:

(a) GSA stores items in assigned classes with unit price of $50 or less.

(b) GSA nonstores items when the extended line item value is $100 or less.

(c) DSA centrally managed, stocked, and nonstocked items with a unit price of $50 or less.

(d) Items listed in supply catalogs as "stocked for overseas only."

(e) Items listed in supply catalogs with a local purchase source of supply.

(f) Items not listed in supply catalogs.

(2) Partial COCESS. An additional 13 SAC bases have been authorized to contract for COCESS BCE supply support under the same general contract guidelines established for full COCESS, except that DSA centrally managed, stocked items with a unit price of $50 or less are excluded from the COCESS.

(3) Local Purchase COCESS. All Air Force bases have authority to establish a COCESS contract for local purchase materiel. Nineteen Air Force activities have now established COCESS contracts for purchase of LP BCE materiel.

(4) Statistics. The value of expenditures for BCE materiel for Fiscal Year 1975 at installations with some form of COCESS is shown in Table II-1. Examination of this table shows that the exclusion of DSA centrally managed stocked items from the partial COCESS did not have any discernible effect on the extent to which the COCESS was utilized--about two thirds of all expenditures at bases with either full or partial COCESS operations were made through the COCESS. At those bases whose COCESS coverage was limited to local purchase items only, about half the BCE expenditures for materiel were through the COCESS.

h. GOCESS. The GOCESS operation was established at Offutt Air Force Base after an unsuccessful attempt to establish a COCESS operation at that site. The GOCESS operates under the same full waiver authority granted to full COCESS operations with the difference that, while COCESS operations are contractor operated, the GOCESS involves government ownership and operation. The GOCESS employs Blanket Purchase Agreements (BPAs) and Purchase Orders (POs) to procure BCE materiel. Air Force personnel from the procurement function are assigned to, and located in, the BCE to place orders against established BPAs. BPA calls are used extensively, with minimum administrative action. The GOCESS also operates a central bench stock for the BCE under a dollar value accounting system. The buyer determines which vendor is to provide the item, and arranges for delivery of the items. The vendor's sales slip serves as the receiving document. The invoice is used for bill paying purposes by the Base Accounting and Financing Division. Quarterly, the Comptroller Office furnishes an Obligation Authority (OA) to the GOCESS. The OA contains the BCE O&M funds which are used by the procurement buyers to make purchases for the GOCESS. Status of expenditures under the OA are maintained by the Civil Engineer Funds Manager. During Fiscal Year 1975, Offutt Air Force Base BCE materiel expenditures totaled $1.4 million; of this, $1.2 million (85.4%) was spent through the GOCESS.

4. Supply Replenishment

a. ICP Sources. The supply computers are programmed to automatically generate MILSTRIP requisitions and the related supply action documents to DoD ICPs and to the base Purchasing and Contracting (P&C) Office for local purchase action.

Table II-1

BCE EXPENDITURES AT BASES WITH COCESS
(FY 1975)

Air Force Base	COCESS	Non-COCESS	Total Expenditure	Percent COCESS
FULL COCESS:				
Barksdale	$621,619	$524,260	$1,145,879	54.2%
Beale	871,046	400,376	1,271,422	68.5
Carswell	448,275	405,273	853,548	52.5
Castle	432,797	324,389	757,186	57.2
Dyess	640,921	184,516	825,437	77.6
F.E. Warren	398,289	406,830	805,119	49.5
K.I. Sawyer	481,971	277,565	759,536	63.5
March	963,261	194,042	1,157,303	83.2
Minot	857,596	283,615	1,141,211	75.1
Pease	890,925	195,415	1,086,341	82.0
Vandenberg	947,900	962,800	1,910,700	49.6
Sub-Total	$7,554,600	$4,159,081	$11,713,682	64.5%
PARTIAL COCESS:				
Blytheville	$398,927	$339,214	$738,141	54.0%
Davis-Monthan	582,082	254,654	836,736	69.6
Ellsworth	842,969	381,174	1,224,143	68.9
Fairchild	944,064	337,523	1,281,587	73.7
Grand Forks	626,642	387,281	1,013,924	61.8
Griffiss	678,383	395,378	1,073,761	63.2
Kincheloe	568,619	297,132	865,751	65.7
Lowry	934,699	405,537	1,340,237	69.7
Malmstrom	810,772	339,730	1,150,502	70.5
Plattsburgh	721,893	304,326	1,026,219	70.3
Rickenbacker	573,685	459,050	1,032,735	55.6
Whiteman	458,543	407,734	866,277	52.9
Wurtsmith	532,513	290,675	823,188	64.7
Sub-Total	$8,673,791	$4,599,408	$13,273,201	65.3%
LP COCESS:				
Brooks	$248,023	$97,191	$345,214	71.8%
Hill	843,500	1,231,298	2,074,798	40.7
Luke	673,602	568,055	1,241,657	54.3
Sub-Total	$1,765,125	$1,896,544	$3,661,669	48.2%
Grand Total	$17,993,516	$10,655,033	$28,648,552	62.8%

Source: Data Call

b. Procurement Techniques. Procurement techniques available to obtain local purchase materiel to support civil engineer requirements are established and governed by ASPR. These are generally as described for the Army in Paragraph B. above, except as follows:

(1) Purchase Request Flow and Ordering Authority. Air Force procedures require that all requests for the local purchase of supplies come from Base Supply to the procurement office, and not directly from the requiring activity. Generally, only personnel assigned to the procurement office are authorized to act as buyers or to place orders against established contracts.

(2) Customer Integrated Automated Procurement System (CIAPS). Most Air Force procurement activities operate under CIAPS. This computerized system stores information concerning local purchase sources of supply and identifies these sources upon input of a specific requirement. After a source is selected and negotiations completed, the system automatically produces a purchase or delivery order for submission to the source. Under CIAPS, the most widely used purchase instrument is the purchase order; BPAs are used infrequently, since the individual orders are not adaptable to CIAPS. CIAPS is also designed to consolidate low priority (IPD 09-15) requirements for like items, by holding them until a $500 order has been reached, but for not more than ten days; this is intended to reduce the production of purchase instruments.

c. Overall Materiel/Document Flows. The overall flow of documents and materiel for Air Force activities are shown as follows:

(1) For non-COCESS activities, in Figure II-14;

(2) For COCESS activities, in Figure II-15; and

(3) For the GOCESS, in Figure II-16.

DOCUMENT AND MATERIEL FLOW - NON-COCESS BASES
(CONUS/Overseas)

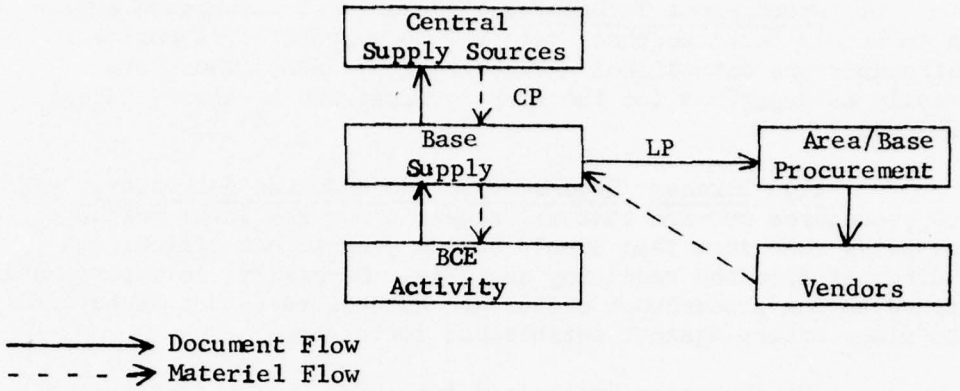
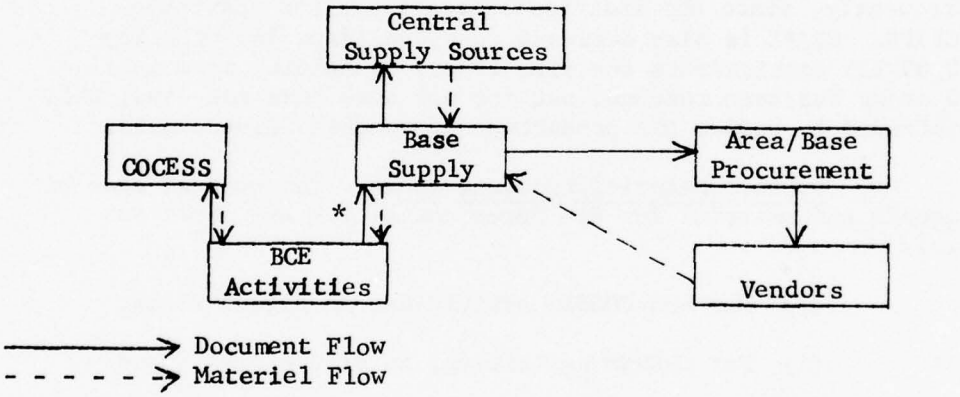


Figure II-14

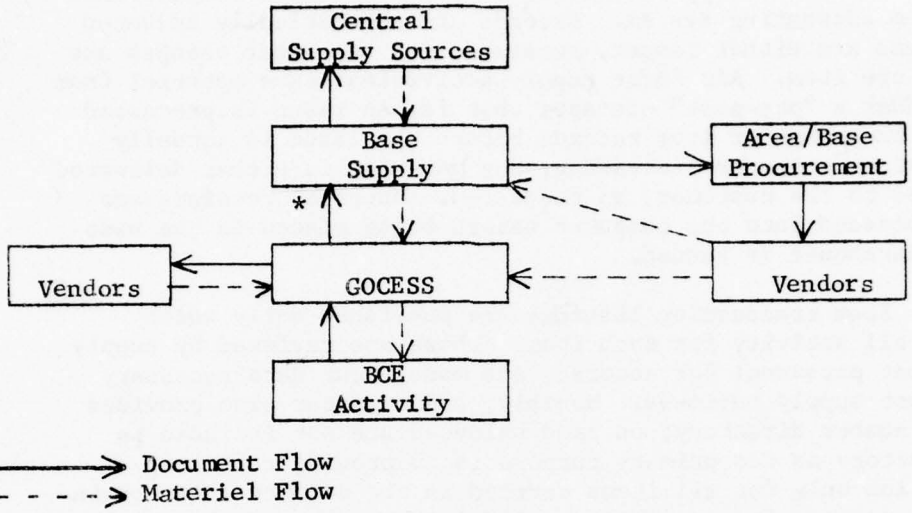
DOCUMENT AND MATERIEL FLOW - COCESS BASES
(CONUS)



* For items not authorized to be procured through COCESS.

Figure II-15

DOCUMENT AND MATERIEL FLOW - GOCESS



* For items not authorized to be procured through GOCESS.

Figure II-16

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d. Statistics. For Fiscal Year 1975, Air Force activities obtained FE support as follows:

	COCESS/GOCESS ($000)	Other ($000)	Other %	Total ($000)
Full COCESS Bases	$7,554.6	$4,159.1	35.5%	$11,713.7
Partial COCESS Bases	8,673.8	4,599.4	34.7	13,273.2
LP Only COCESS Bases	1,765.1	1,896.5	51.8	3,661.7
GOCESS (Offutt AFB)	1,199.2	205.6	14.6	1,404.8
Other Bases	—	103,757.8	100.0	103,757.8
Total	$19,192.7	$114,618.5	85.7%	$133,811.2

NOTE: Totals do not always add due to rounding.

5. Supply Accounting

Air Force supply activities operate under a computerized line item accounting system. Records are automatically adjusted when items are either issued, received, or when other changes are made to the item. Air Force supply activities issue materiel from stock under a "pre-post" concept; that is, an issue is processed against the computer item records before the issue is actually made. After computer processing, the materiel is either delivered or issued to the customer, as requested. Materiel receipts are also processed into the computer before being placed in the base supply warehouse or issued.

Item transaction listings are published daily which reflect all activity for each item. These are reviewed by supply management personnel for accuracy and management data necessary to conduct supply business. Monthly, the computer also provides a stock number directory; on hand balances are not included in the directory as its primary purpose is to provide reference information only for all items carried in the account. To obtain a stock position for any item carried in the account, the supply computer may be queried at any time. Once an item is issued or placed in a prepositioned account, such as bench stocks, BOM areas, etc., asset visibility is not maintained or continued, except that bench stock items are inventoried monthly for resupply of low inventories.

6. Supply Issues. The Base Civil Engineer obtains materiel requirements to support the RPMA operations from base supply outlets or from COCESS/GOCESS. The AF Form 1445 (Materials and Equipment List) is the basic document used by the BCE materiel control activity for all materiel requests except for Base Service Store items, bench stock replenishment actions, and COCESS/GOCESS outlets. Bench stock items are prepositioned in various work centers or a central location within the BCE complex, and are issued as necessary without a formal issue request. BSS items are positioned in a self-service store and sales are made to authorized customers in terms of the total dollar value of the purchase, with no itemized listing of the materiel sold. COCESS materiel is obtained by "over the counter" sales; as each sale is made, the vendor is required to include on each sales slip the following data: date, work order number (job order and shop code), organization code, Materiel Requirements List (MRL) number, part number, descriptive noun, unit price, period of warranty, discount, and total price. All COCESS transactions are between the BCE and the contractor, with reimbursement for items acquired through COCESS financed by BCE O&M funds.

7. Funding. All materiel maintained on base supply records in support of the BCE operation are in the Air Force stock fund, and materiel requisitioned in support of BCE requirements is paid for by the General Support Division of the Air Force stock fund. As long as the items are held in stock by base supply, the materiel is considered stock fund assets. Upon issue to BCE, the materiel is "sold," and BCE pays with O&M funds. Thus, bench stock assets held to support planned work orders have all been bought from the stock fund and are financed by BCE O&M funds.

8. Excess Processing. Under both the base and depot supply systems the processing of excess items against the Accountable Supply Item Records is automatic.

a. Bench Stock Excess. Computer programs perform level adjustments and recommend range of additions or deletions. If no usage is recorded for 90 days, a list of these items is provided to the BCE for review and decision to retain for another 90 day period. If no recorded issue is made after 180 days, the items are automatically deleted from bench stock and stocks returned to base supply. If a requirement exists for these items elsewhere on base and a base level is maintained, full credit from the stock fund will be allowed for that quantity which does not exceed the requisitioning objective.

b. Residual Excess. All BCE materiel held in the materiel control area "Hold for 6 Months Bin" which has not been used for approved work orders or has been identified as not having a foreseeable requirement is turned into the base DPDO through base supply. Unserviceable excess property is immediately turned into the disposal activity by the BCE without processing through the base supply account.

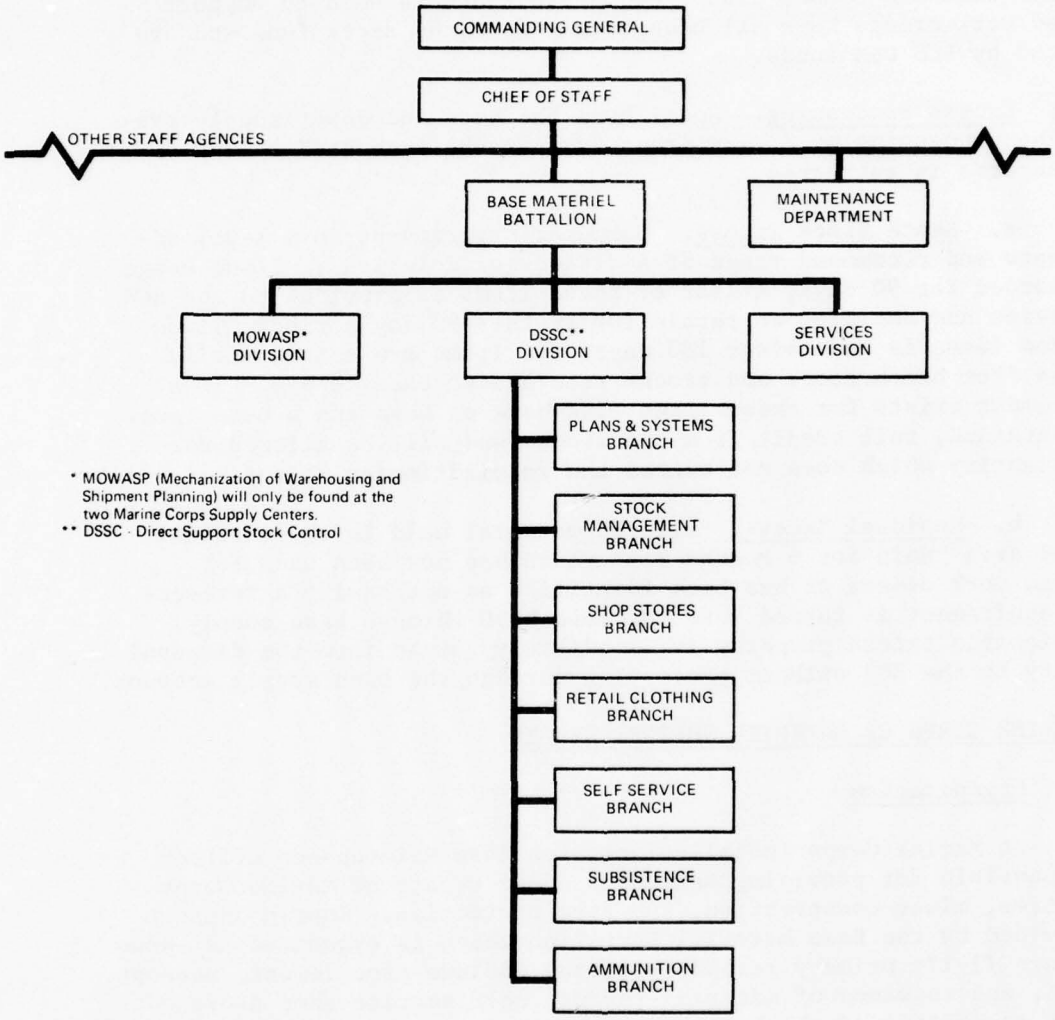
E. MARINE CORPS CE MATERIEL SUPPORT SYSTEM

1. Organization

At Marine Corps installations, the Base Maintenance Officer is responsible for providing maintenance and repair of Marine Corps facilities, minor construction, and fire protection. Supply support is provided by the Base Materiel Battalion which is organized as shown in Figure II-17; primary responsibilities include procurement, receipt, storage, and issuance of materiel through self service shop store outlets to activities of the battalion.

Supply functions are accomplished through a computer operated Direct Support Stock Control (DSSC) activity of which there are eight in CONUS and one overseas - MCB Camp Butler, Okinawa, Japan. The

BASE MATERIEL BATTALION - ORGANIZATION



* MOWASP (Mechanization of Warehousing and Shipment Planning) will only be found at the two Marine Corps Supply Centers.
** DSSC - Direct Support Stock Control

Figure II-17

computer automatically provides the DSSC office all item record management data, DSSC catalog changes, and stock record file maintenance, such as computation of requirements, maintenance of stock levels, replenishment and disposition actions for items stored in the shop store outlets.

2. FE Supply Sources

a. Shop Stores. The DSSC shop store outlet is considered a retail type operation. As consumable items are received they are placed in the various shop store issue points and are either sold to the facilities maintenance activity through a "self-service" operation or by "over-the-counter" issues. All items in DSSC shop stores are for direct support of day-to-day operations where the customer selects required items without a formal requisition. In addition, the shop stores receive or preposition materiel for Facilities Engineer planned requirements based on approved work orders. Items stocked/processed by the DSSC outlets generally fall into three types of supplies: stocked, not carried, and insurance items.

(1) Stocked Items. These items are regularly stocked in the DSSC shop store outlets and are items for which line item inventory records are maintained and identified in the DSSC catalogs. Replenishment levels for stocked items are based on demand frequency, and are controlled by uniform stockage criteria established by Headquarters Marine Corps. Initial stockage of items in DSSC activities is generally in response to requests from a supported unit or activity. In order to qualify for initial stockage, items must meet the demand-based stockage criterion of three recurring demands in six months. Stock levels are automatically recomputed and adjusted by the computer after each issue. The initial stockage levels for DSSC materiel is an operating level of 60 days for centrally-procured items and 90 days for local purchase items plus the actual Order and Ship Time; a Safety Level is not authorized. The retention level is 36 months consumption.

(2) Not-Carried Items. These are items whose demand is of a nonrecurring nature, and for which no requisitioning objective has been established. These items are usually required for special projects, Bills of Material (BOMs), or emergency work orders. As materiel is received it is forwarded directly to the requesting activity or to the BOM holding area. Not-carried items are procured with customer O&M funds and are not carried as shop inventory while stored pending work order release.

(3) Insurance Items. These are the slow moving items for which consumption or usage cannot justify a computed level, but for which a numeric stockage quantity has been authorized for emergency purposes. Stockage is limited to one-for-one replacement, with a replacement ordered immediately. The Base Maintenance Officer and the Accountable Supply Officer approve the retention of these items.

b. Bench Stock Items. A 15-day supply of fast moving, low cost expendable items located within the FE maintenance shop area. Resupply of the items from DSSC stocks is generally accomplished by submission of a locally prepared issue request.

c. Self-Service Stores. The self-service store is used to draw hand tools, minor property items, and office and janitorial supplies. Operating levels at Camp Lejeune were 60 days for CP items and 90 days for LP, plus the actual procurement leadtime. Camp Butler, Okinawa, Japan maintained a 30-day operating level plus the required acquisition leadtime. All assets of items included in the self-service stores are stocked in that store; no backup stocks are located in any other supply location.

d. Bills of Materials. Items accumulated for major specific job orders are stored in a designated holding area maintained by the DSSC. BOM materiel, although owned by the Civil Engineer, is stored by supply personnel until drawn by the appropriate maintenance shop. BOM requirements are forwarded to the DSSC from the maintenance materiel coordinator, and action is initiated to acquire the items and assemble them in the holding area.

e. Residual Area. Materiel left over from cancelled or completed major specific job orders are collected and stored in the maintenance area, frequently in the respective work centers where they are likely to be used. Residual area materiel are checked for availability for newly planned jobs prior to initiating supply or procurement action.

3. Supply Replenishment

a. ICP Sources. At the DSSCs, requisitions are processed either as MILSTRIP requisitions to the ICP, or to the local procurement activity for purchase. Sources of supply are programmed into the computer, with standard DoD Source Codes programmed into each item record for automatic requisitioning when a supply demand is placed into the system. The DSSC serves as the principal source of supply for RPMA activities. At Camp Butler, Okinawa, a customer service outlet is used for items

which are either not-carried or are not-in-stock at the issue point. The customer must submit a MILSTRIP requisition, which carries a job order number. This requisition is input to the computer, which produces a requisition to the inventory control point and establishes due-in and due-out records. (For items which are not carried, the computer maintains a record of demands for 12 months.) Status on these requisitions is received at the DSSC, which then advises the customers. Requests for local purchase of centrally procured items are also processed through the DSSC, and must be initiated by the requisitioner. It was estimated that about 15 to 20 requests for local purchase of CP items are received monthly.

b. Procurement Techniques. Procurement techniques available to obtain local purchase materiel to support base maintenance requirements are established and governed by ASPR. These are generally as described for the Army, in Paragraph B. above, except as follows:

(1) Individual Support Arrangements. At Camp Lejeune, a BPA clerk was assigned to the DSSC shop store operated for the benefit of the base maintenance function. At Camp Butler, Okinawa, where the purchasing and contracting (P&C) function is organizationally assigned to the Supply Officer, the P&C Office had authorized designated personnel within the Base Maintenance organization to place calls against BPAs.

(2) Blanket Purchase Agreements. The upper limit for BPA orders at Camp Lejeune is $2,000, although BPA clerks located in the Base Maintenance Shop Store are only authorized to place orders up to $500.

c. Overall Materiel/Document Flow. The overall flow of documents and materiel for Marine Corps activities supported by DSSC is shown in Figure II-18.

d. Statistics. For Fical Year 1975, Marine Corps activities obtained FE support as follows:

Source	Amount ($000)	%
ICPs	$1,789.6	19.2%
Local Purchase	5,779.4	62.2
(BPA)	(658.7)	(7.1)
(Other)	(5,120.7)	(55.1)
GSA	386.4	4.2
Other	1,339.5	14.4
Total	$9,294.9	100.0%

DOCUMENT AND MATERIEL FLOW - BASE MAINTENANCE
SUPPLY SUPPORT

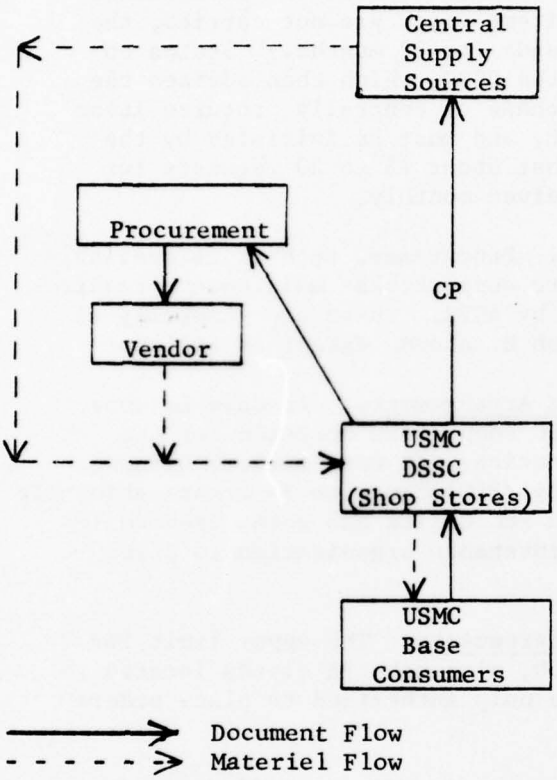


Figure II-18

4. Supply Accounting

Marine Corps DSSC supply accounts maintain a computerized line item accounting system. All transactions which affect DSSC item records are automatically adjusted against appropriate stock numbers on a daily basis. Issues are adjusted on a "post-post" basis; that is, stock balances for items issued are adjusted against the item record after issues are made from shop stores/issue points, usually the following day. Issues to bench stock, BOMs, or special projects are expended, and no asset accountability is maintained after the issues are made. Receipts are posted to DSSC item records upon receipt, prior to storing in the various shop stores.

Daily transaction listings are provided to DSSC item managers for those items which were active the previous day. Weekly, an item record history is provided which lists on-hand balances and other management data for item manager review. However, the computer may be queried at any time to determine the current stock position.

5. Supply Issues. Stocks in support of the RPMA mission are stored/stocked within a central outlet facility located within the maintenance complex. Each shop store outlet is arranged so that selection of items can be readily made by shop personnel or by designated shop maintenance personnel, as necessary. Bin and warehouse locator cards, with stock numbers and/or part numbers annotated thereon, are the primary means for identifying materiel. As materiel is received from various supply sources, it is identified by stock number, stocked and made available for issue to maintenance personnel. Customers request materiel through use of Material Requirements Issue Document (NAVFAC Form 9-11014/8), or a DSSC shopping list. When materiel is released by the shop store, FE shop personnel sign the issue document indicating receipt for the items and confirming the dollar amount to be charged.

6. Funding. Materiel maintained on DSSC accountable records in support of the maintenance operation are considered as Marine Corps Stock Fund (MCSF) materiel except for base maintenance insurance items. (Replacements required for insurance items are procured with customer funds, but remain in the DSSC issue point until required.) When requisitions for stocked items are forwarded to the ICP or local purchase source, the Marine Corps stock fund pays for the item(s). Upon issue, O&M funds are used to reimburse the MCSF. Customer requirements for "not-carried" items are funded with customer O&M funds when requisitioned and are issued immediately to the customer when received, or placed in the BOM holding area until work order materiel is assembled and ready for release. Summary financial accounting data for items located in self-service centers or in shop store outlets located in the facilities maintenance areas is provided to Headquarters, Marine Corps periodically to provide a basis for recycling command stock funds to DSSC.

7. Excess Processing. For DSSC activities, the economic retention stock (ERS) level for excess assets is thirty-six months. This quantity is over the requisitioning objectives established for each item carried on shop store records. Excessing actions are computed through established automated excess

program techniques, with an excess review of assets conducted on a semiannual basis (end of first and third quarters--March/September). In addition, each DSSC may determine that an item is excess at any point in time prior to the established quarterly review cycle and may and may reduce those assets considered detrimental to their stock fund budget.

CHAPTER III

COCESS POTENTIAL

A. INTRODUCTION

The preceding chapter described the systems used by the Military Services to provide supply support to their civil engineering operations. Included in these descriptions was that of the Contractor Operated Civil Engineer Supply Store--the COCESS. The basic objectives of this Study relate to the COCESS concept and should answer the questions:

a. If an item has been identified for local purchase, is it appropriate for individual Department of Defense (DoD) installations to obtain these items from COCESS? That is, should the COCESS concept be used as a procurement technique for the acquisition of local purchase items?

b. If an item has been identified for central management and procurement by a DoD Inventory Control Point (ICP), is it appropriate for individual DoD installations to obtain these items from a COCESS?

The COCESS technique is widely used within the Air Force, which has authority from the Office of the Secretary of Defense to establish such an operation at any of its bases to purchase items normally obtained through local procurement. As of June 1976, 45 Air Force bases had a COCESS supporting local purchase (LP) items, and a number of additional bases were in the process of establishing this same capability. Of these 45, 26 bases were authorized to use the COCESS concept to obtain varying portions of their requirements for Central Procurement (CP) items.

Air Force advocacy of the COCESS concept raises several questions:

(1) Is COCESS the optimum technique for acquiring materiel items to support the Civil Engineer (CE)?

(2) What makes the COCESS concept desirable to the Air Force?

(3) Is COCESS desirable for the other Services, even though they have not advocated its use, or should the Air Force adopt the techniques used by the other Services to obtain materiel for the Civil Engineer?

Air Force personnel have identified the following reasons for the Air Force advocacy of the COCESS concept:

(1) Although the COCESS is not a separate stock record account, it provides dedicated supply support to the Air Force Base Civil Engineer (BCE) which is comparable to that enjoyed by the civil engineer at many installations in other Military Services.

(2) Using the COCESS for acquiring BCE supplies shortens the paperwork flow by eliminating the requirement to send all requests to Base Supply and, for local purchase transactions, on to base procurement. Instead, the BCE requests materiel directly from the COCESS which is located within, or contiguous to, the BCE work area.

(3) Eliminating Base Supply from the flow eliminates dealing with the stock fund and eliminates the surcharge which the BCE was paying to the stock fund for processing local purchase requirements.

(4) Eliminating Base Supply from the flow eliminates inventories stocked by Base Supply in behalf of the BCE. Under COCESS these inventories belong to the contractor and do not become government property until they are sold to the BCE to satisfy specific maintenance requirements. Inventories maintained within the BCE organization are also reduced because rapid acquisition reduces the requirement for maintaining large stocks.

(5) COCESS eliminates processing individual requirements under the Customer Integrated Automated Procurement System (CIAPS), which is the normal method of Air Force local procurement support. Since the COCESS is an Indefinite Delivery Type Contract (IDTC), one purchase instrument is all that is required to handle the many small purchases that would otherwise need to be handled under individual purchase instruments, i.e., purchase orders. Because of the reduced processing, COCESS is believed to be the more economical and responsive local purchase support method.

This Chapter analyzes:

a. The effect of using COCESS to obtain local purchase items; and,

b. The effect of using COCESS to obtain items identified for central management and procurement by an ICP.

Each of these analyses considers the relative cost of the competing techniques, including the cost of the materiel itself; the cost to acquire materiel, comparing the COCESS contracting and bill paying costs with the cost of local purchase or the cost of requisitioning and shipping, as appropriate; and, the amount of inventory investment for each acquisition methodology, and the cost of holding that inventory. The cost to change from one acquisition methodology to another was examined, and this was considered to be too insignificant for inclusion in these analyses.

In addition to cost, a significant factor in an analysis of competing supply support systems is the relative responsiveness of those systems, and appropriate elements of information were included in the data call levied on the Military Services to perform such an analysis. However, examination of the data which was submitted raised a number of questions about the validity of its intended use in a relative responsiveness analysis. For example, the submitted data showed that the following portion of the total receipts of local purchase materiel were received within one day:

a. An Army Forces Command activity: 5.7%

b. An Army Materiel Development and Readiness Command activity: 0.1%

c. A Navy Public Works Center: 16.6%

d. An Air Force CIAPS Base: 30.5%

e. An Air Force LP-only COCESS base: 0.6%

f. Another Air Force LP-only COCESS base: 63.5%

g. The Offutt Air Force Base Government Operated Civil Engineer Supply Store (GOCESS): 96.7%

h. A Marine Corps activity: 96.5%

The surprising values shown for some of the activities were suspect, and in some cases did not coincide with what could be expected of these activities/systems based on information and data obtained during field research. As a result, efforts were made to confirm the contents of the data submission insofar as it pertained to responsiveness. This effort revealed the following:

a. The responsiveness data was intended to include all receipts during the 60-day data collection period, and each receipt

was to be identified as to the actual source from which the item was obtained (e.g., local purchase, ICP shipment, or available from on-hand stocks) and the source from which it was authorized to be obtained. Three activities advised that, since they could not identify which issues from stock were LP and which were CP items, no issues from stock were reported. This produced an artificially low response rate.

b. One activity advised that it was unable to identify the date on which the requirement was established for those items which were ordered to meet customer requests. For all such receipts, the issue date was also submitted as the requirement date, and this produced an artificially high response rate.

Further examination raises questions about the accuracy of the data which has been submitted, even though it has been confirmed by the submitting activities. For example, one activity confirmed that it had included receipts by the CE from both on-hand stocks and from purchase action in its responsiveness data on local purchase items; despite this, its overall responsiveness was significantly poorer than that of several activities which limited their responsiveness data to purchased items only and included no receipts from on-hand stocks. Another example pertains to COCESS responsiveness: one activity reported a first day fill rate from its COCESS of 0.6% of its receipts, and another reported a first day fill rate of 3.4%, with both activities confirming the validity of their submission; this level of responsiveness is not only completely incompatible with that of the other reporting COCESS activities (the next lowest activity reported a first day fill rate of 21% of its receipts), it is incompatible with the requirements of the COCESS contracts at these activities.

This examination of the responsiveness data submitted in response to the Study data call establishes the incompatibility of the information contained in the Study data bank, and this incompatibility prevents the use of this information to evaluate the relative responsiveness of the systems supporting these activities. Instead, based on observations made during field research, and on general relationships observed in the submitted statistical data, it was the collective judgement of the Study Team that the systems reviewed would rank in responsiveness as follows:

Most responsive: the Offutt Air Force Base GOCESS and the COCESS concept; and,

Relatively responsive: the dedicated CE materiel support systems of the Army and Navy relying heavily on local purchase.

All other systems ranked significantly behind these in terms of their responsiveness.

B. COCESS FOR LP ITEMS

1. Introduction

Based on data received from the Military Services, about two-thirds of the supplies used by the Civil Engineer in the real property maintenance effort are acquired through local purchase. As shown in Chapter II, methods for acquiring LP supplies differ between Services, and there are even different means used within each Service.

Field research established that there are actually a number of different systems for the local purchase of materiel to support the civil engineering function: COCESS; and local purchase, both within and outside the Air Force, using dedicated and nondedicated materiel support organizations. Since each of the different system for local purchase could achieve different costs in these analysis areas, a simple COCESS vs non-COCESS comparison would not be sufficient. Accordingly, the analysis in this Paragraph considers each of these variations.

2. Materiel Costs

a. Introduction

In terms of materiel costs, two different types of items are obtained from the COCESS:

(a) Price Listed (PL) Items. These are the "best sellers" which can be identified by the Civil Engineer as the ones which will be repetitively procured, frequently in sizeable quantities and with high dollar volume. For these items, specific prices are published as part of the COCESS contract, or their prices are established in the contract as being an agreed-upon discount from the price shown in a catalog which is identified in the COCESS contract.

(b) Non-Price Listed (NPL) Items. These are the remaining items used by the Civil Engineer. Their pricing, as specified in the COCESS contract, is generally the cost to the COCESS contractor plus a service charge to reimburse the contractor for his efforts in obtaining the item. These service charges generally vary with the total amount of NPL materiel procured--the rate of the service charge drops as the amount of materiel procured increases.

Data was collected from four Air Force bases to determine the relationship between Price Listed and Non-Price Listed Items, and the amount of the service charge applicable to the NPL items; this data is shown in Table III-1. Examination of this data shows that Price Listed items represent 61% of the total value of the materiel obtained through the COCESS, and the service charge on NPL items averaged less than 6% of the value of the materiel procured.

This comparison of the cost of materiel procured through a COCESS or through more conventional local purchase arrangements is organized as follows:

(a) First, a comparison of COCESS and local purchase materiel costs for Price Listed Items;

(b) Next, a comparison of COCESS and local purchase materiel costs for Non-Price Listed Items considering the effect of the NPL service charge shown in Table III-1; and,

(c) Finally, a synthesis of these two comparisons which results in the development of a single, overall relationship between COCESS and local purchase in terms of materiel costs.

Table III-1

COCESS SALES OF PRICE LISTED AND NON-PRICE LISTED ITEMS, AND NPL SERVICE CHARGES
(October 1975 - March 1976)

AIR FORCE BASE	PRICE LISTED ITEMS		NON-PRICE LISTED ITEMS	TOTAL	SERVICE CHARGE	
	VALUE	%			AMOUNT	AS PERCENT OF NPL COST
A	$205,003	62.0%	$125,409	$330,412	$ 5,400	4.3%
B	158,527	65.0	85,508	244,035	5,200	6.1
C	58,605	41.0	84,195	142,800	5,500	6.5
D	170,020	67.9	80,519	250,539	5,200	6.5
TOTAL	$592,155	61.2%	$375,631	$967,786	$21,300	5.7%

Source: Field Research

b. Price Listed Items

Four Air Force Bases were identified which had been obtaining materiel through local purchase during Fiscal Year 1975 but had converted to an LP-only COCESS for Fiscal Year 1976. These bases were asked to identify their 100 LP "best sellers", i.e., the 100 local purchase items which had experienced the highest dollar value of demand during Fiscal Year 1975. For each of these items, the bases were asked to identify the quantity procured during Fiscal Year 1975, the most recent price paid for the item through local purchase, and the price which is to be paid for the item to the COCESS contractor.

Table III-2 shows the total value of these "best sellers" at the price the COCESS is charging under the current contract, the price paid for the same quantities of these items from the local purchase market, and the dollar and percentage difference between these two costs. This data presents a "market basket" approach to this cost analysis, since each item is weighted in terms of its relative importance in determining total cost - that is, in terms of its relative use and price. Analysis of this data shows that, overall for the four bases, COCESS materiel prices were almost 3% lower than the prices for the same items acquired through other local purchase methods.

Table III-2

THE COST OF PRICE-LISTED ITEMS--COCESS vs LP

Air Force Base	Number Items Compared	COCESS Cost	Local Purchase Cost	COCESS Savings (Loss)	
				Amount	% 1/
A	101	$228,572	$225,616	$(2,956)	(1.3%)
B	99	173,001	185,415	12,414	6.7%
C	100	123,664	133,556	9,892	7.4%
D	100	44,981	42,939	(2,042)	(4.8%)
Total	400	$570,218	$587,526	$17,308	2.9%

Source: Data Call

1/ Calculated using the local purchase cost as the base.

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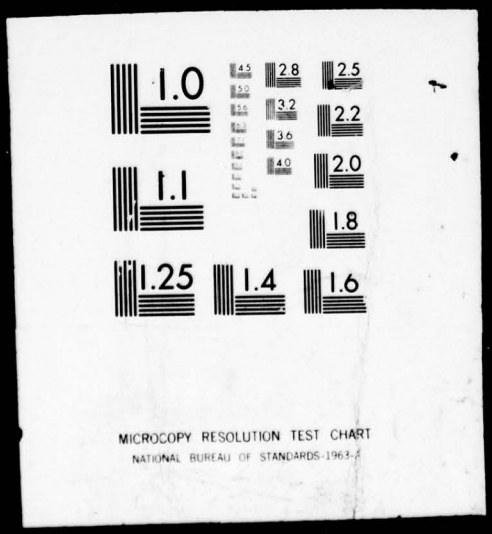
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c. Non-Price Listed Items

NPL items are those which are used infrequently, so they are not included in published price lists or discount lists which are part of the COCESS contract. Five Air Force bases provided COCESS and local purchase cost information on a sample of NPL items, to permit an evaluation of the relative cost of NPL materiel acquired through these two methods.

Table III-3 shows, by installation, the number of items on which data was submitted; the total cost of these items when obtained through the COCESS; the cost of these items if obtained from the local purchase market; and the dollar and percentage differences between these two costs. As with the Price Listed items, this data presents a "market basket" approach to this cost analysis; however, the market basket is not as significant for NPL items, since these are, generally, the items which are not subject to repetitive buys.

The data in Table III-3 shows the difference in the materiel cost between COCESS and local purchase for NPL items. However, NPL items are subject to a service charge, as described in sub-paragraph 2a above. Table III-1 data shows that this service charge averaged 5.7% for the bases reviewed, and this amount must be added to the materiel cost of NPL items received from the COCESS for a proper cost comparison. The results of this calculation are shown on the bottom line of Table III-3--with the addition of the service charge, NPL items received through the COCESS would cost 15.2% more than if they were obtained through other local purchase methods.

Table III-3

THE COST OF NON-PRICE LISTED ITEMS--COCESS vs LP

AIR FORCE BASE	NUMBER OF ITEMS	COCESS COST	LOCAL PURCHASE COST	COCESS SAVINGS (LOSS)	
				AMOUNT	%
A	15	$ 361.71	$ 429.18	$ 67.47	15.7%
B	16	1,194.88	1,169.38	(25.50)	(2.2%)
C	17	380.79	411.52	30.73	7.5%
D	16	3,634.03	3,092.55	(541.48)	(17.5%)
E	14	191.78	185.34	(6.44)	(3.5%)
Total	78	$5,763.19	$5,287.97	($475.22)	(9.0%)
Total with Service Charge		$6,091.80		($803.83)	(15.2%)

Source: Field Research

d. Materiel Cost--Summary

Sub-paragraph 2a, above, established that 61.2% of the local purchase items obtained through a COCESS were Price Listed items. Sub-paragraph 2b established that Price Listed Items were obtained through the COCESS at a cost which averages 2.9% less than the price charged through other local purchase techniques. Sub-paragraph 2c established that Non-Price Listed items are obtained through COCESS at a cost which averages 15.2% more (including the COCESS service charge) than the price charged through other local purchase techniques. The overall difference in materiel cost between the COCESS and other local purchase techniques is the sum of these two price differences, weighted in terms of the relative significance of Price Listed and Non-Price Listed items. This overall difference is developed in Table III-4, which establishes that local purchase items procured through a COCESS cost 4.1% more than if obtained through another local purchase method.

The transaction information submitted by the Military Services in response to the Study data call supports this amount as an approximation of the difference in materiel cost between COCESS and other local purchase techniques. An analysis of this data matched 40 different stock numbered items, totaling 373 transactions, which were procured both from a COCESS and from other local purchase sources. The cost of this materiel through COCESS totaled $11,707, while the cost through LP totaled $11,115. However, adjusting the COCESS cost to add the 5.7% service charge applicable to NPL items raises the total COCESS cost to $11,966, or 7.7% higher than the cost of the materiel when obtained from more conventional local purchase sources.

Table III-4

SUMMARY PRICE DIFFERENCE

TYPE ITEM	PERCENT OF TOTAL	COCESS PRICE DIFFERENCE	WEIGHTED PRICE DIFFERENCE
Price Listed	61.2%	-2.9%	-1.8%
Non-Price Listed	38.8%	+15.2%	+5.9%
Total	100.0%	---	+4.1%

Source: Team Analysis

3. Operating Costs

a. Introduction. These are the costs incurred to acquire materiel. The elements included in operating costs are:

(1) Supply Costs - Included in this element are personnel costs incurred by the CE activity for ordering LP supplies, and by the supply activity which receives requests from the Civil Engineer function for local purchase of supplies. The costs incurred by the supply activity include requisitioning, receiving, storing, issuing, and accounting for supplies.

(2) Procurement Costs - This element includes costs incurred by the purchasing and contracting activity in making purchases from commercial vendors.

(3) Accounting and Finance Costs - This element includes costs incurred by the comptroller function for paying bills to commercial vendors for supplies obtained.

b. Estimating Operating Costs

Precise operating costs were not generally available, and activities were sometimes unable to estimate them. In lieu of an expensive, time-consuming collection of cost information to develop a precise cost, the Study Team accepted approximations of the actual costs. These approximations were based on the premise that the CE portion of the total cost of any operation would be the same as the CE portion of the total production, or total output, of that operation. For example, if the dollar value of materiel issued to the CE represented 20% of the total dollar value of all materiel issued, it would be assumed that 20% of the total cost of the supply function could be attributed to CE materiel.

In most instances, operating costs consisted entirely of personnel costs since these make up the overwhelming portion of total operating costs, and non-personnel costs were generally extremely difficult or impossible to develop from current cost accounting systems.

c. Operating Cost Data

Actual operating costs, activity estimates of their operating costs in areas of interest to this Study, or other statistical data from which operating costs could be estimated, were collected only during field research. As a result, the operating costs presented in this paragraph are limited to individual activities and are not Military Service summaries or averages.

These activities, however, are each representative of one of the several different types of local purchase arrangements identified in Paragraph B1, above:

(a) Full COCESS: Carswell Air Force Base;

(b) LP-only COCESS: Hill Air Force Base;

(c) Air Force local purchase using CIAPS: Dover Air Force Base;

(d) Local purchase using a dedicated materiel support organization: Ft. Bragg; Public Works Center, Norfolk; and Offutt Air Force Base (GOCESS).

(e) Local purchase using a non-dedicated materiel support organization: New Cumberland Army Depot; Norfolk Naval Shipyard; and Camp Lejeune.

Table III-5 shows the cost to acquire local purchase CE materiel for the activities listed above. Specifically, this table identifies:

(a) the amount expended for local purchase of CE materiel;

(b) the total cost of acquiring that amount of materiel through local purchase, separately identified to the supply, procurement, and finance and accounting areas; and,

(c) the cost to procure materiel through local purchase, expressed as a percent of the amount of materiel procured.

Examination of Table III-5 shows that the operating costs of COCESS activities range from 6.0% to 7.2% of the amount spent for local purchase materiel to support the civil engineer, while the range for non-COCESS activities was from 5.5% to 13.4%.

4. Inventory Investment

a. Introduction

There are expenses involved in holding inventory. Money invested in stock cannot be invested elsewhere, and a cost--the loss of investment opportunity--can be ascribed to this. In addition, direct costs are incurred for such items as warehousing and security, and for in-storage maintenance; additional expense occurs when

Table III-5

LOCAL PURCHASE OPERATING COSTS

Installation	Amount Expended for CE Local Purchase ($000)	Cost to Acquire				Cost as a Percent of Expenditure
		Supply	Procurement	Finance and Accounting	Total	
Fort Bragg	$2,200.0	$164,737[1]	$42,006	$19,264	$226,007	10.3
New Cumberland AD	400.8	28,373[2]	19,264	3,500[3]	51,137	12.8
Norfolk Naval Shipyard	544.9	53,621[1]	9,632	951	64,204	11.8[4]
PWC Norfolk	6,752.0	239,756[1]	95,564	37,454	372,774	5.5
Carswell AFB	448.3[5]	25,993[1]	5,366	1,100[3]	32,459	7.2
Dover AFB	487.1	15,912	46,827	2,695	65,434[6]	13.4
Hill AFB	843.5	39,971[1]	8,244	2,064	50,279	6.0
Offutt AFB	1,199.2	73,349[1]	13,457	4,131	90,937	7.6
Camp Lejeune	1,182.9	108,057[1]	12,761	8,608	129,426	10.9

Source: Field Research

1/ Estimated, based on the CE portion of total workload.
2/ Includes wages of FE materiel coordinator ($9,632); remainder computed as in Note 1.
3/ Estimated, based on the installation's ratio of these costs to total expended.
4/ This value was probably heavily affected by the high volume of expenditures for LP materiel, which is over three times greater than the next highest procurement volume illustrated.
5/ Estimated by activity as 50% of total annual expenditures.
6/ All operating cost factors were estimates by the activity.

stored materiel becomes unusable due to obsolescence. Thus, a monetary advantage accrues to any system which reduces the amount of inventory investment.

A major influence on the amount of inventory investment is the individual Service policies defining the range and depth of stock to be held. Thus, analyses which involve both differences in local purchase methodology and different Military Services must be considered carefully, to distinguish the effects of the system differences from the effects of the Service differences.

b. Inventory Investment Data

To offset this problem, data on inventory investment is presented both in terms of different Military Services and, to the extent specific data was available, in terms of different local purchase methodologies within the same Service. Thus, data for this analysis is presented as follows:

(a) Statistics on the several different local purchase systems within the Air Force were developed from the overall Air Force data submission, which identified data separately for the various types of COCESS arrangements as well as for the GOCESS at Offutt Air Force Base and for non-COCESS activities.

(b) Statistics on Navy activities were furnished separately for the Public Works Centers and for activities with Public Works Departments, and these are equal to dedicated and non-dedicated materiel support systems, respectively.

(c) Statistics for Fort Bragg and New Cumberland Army Depot were collected during field research, while total Army data was furnished as part of the overall data submission.

(d) Marine Corps data was furnished as part of the overall data submission.

Table III-6 shows the amount of inventory held to support the civil engineer function for the types of activities listed above. Specifically, this table identifies:

(a) the total amount expended for CE materiel;

(b) total value of stocks held by both the civil engineer and by installation supply to support the civil engineer; and,

Table III-6

CE INVENTORY INVESTMENT

Activity	Expenditures ($000)	Inventory Investment ($000)	Inventory Investment As a Percent of Expenditures
Air Force:			
Full COCESS	$ 11,713.7	$ 1,831.8	15.6%
Partial COCESS	13,273.2	2,091.1	15.8
LP-only COCESS	3,661.7	473.4	12.9
Offutt AFB (GOCESS)	1,404.8	140.5	10.0
Other[1/]	103,757.8	31,336.3	30.2
Navy:			
Public Works Centers	38,200.0	12,800.0	33.5
Public Works Depts	56,600.0	14,000.0	24.7
Army:			
(Fort Bragg)	(3,000.0)	(629.7)	(21.0)
(New Cumberland AD)	(1,082.0)	(226.7)	(21.0)
Total Army	103,425.3	35,541.0	34.4
Marine Corps	9,294.9	1,341.1	14.4

Source: Individual Army installations--Field Research; all other--Data Call.

1/ Generally the Air Force CIAPS system.

(c) the amount of inventory investment as a percent of total expenditures.

Data used in the inventory investment analysis shown in Table III-6 does not distinguish between local purchase and centrally procured items; thus this table does not show only the effects of differences in local purchase methodology. Several inferences can, nevertheless, be drawn from the data in this table if the examination is limited to the several different types of Air Force activities shown. Examination of the Air Force data shows that the "normal" Air Force local purchase methodology, which is largely the CIAPS system, is the most expensive in terms of the amount of required supporting inventory--these activities held twice as much supporting inventory as did the next closest types

of activities, those with Full and Partial COCESS. The contrast between the largely CIAPS activities and Local Purchase-only COCESS activities is even greater, and the relationship is even more direct--for these two types of activities, centrally managed materiel is obtained from Inventory Control Points, and only local purchase materiel is obtained by different methods. For this comparison, the CIAPS activities held two and one-third times as much inventory as did the LP-only COCESS activities.

5. Summary Cost Analysis

a. Cost Factors

The preceeding paragraphs have established that there is a range of values which apply to the cost factors included in this analysis:

(a) Materiel Costs. Materiel costs more when procured from a COCESS than when procured from other local purchase sources, by an amount which ranges from 4.1% to 7.7%.

(b) Operating Costs. The costs to acquire local purchase materiel varied significantly among the activities examined. For the COCESS activities reviewed, this cost ranged from 6% to 7.2% of the cost of the materiel procured; for non-COCESS activities, this ranged from 5.5% to 13.4%.

(c) Inventory Investment. The inventory investment rate for LP COCESS activities overall was 12.9% of the amount expended. Inventory investment rates are not only possibly affected by the materiel acquisition system, but are also definitely affected by Military Service stock level policies; to avoid the latter effect, the Study Team decided to limit the factors used in this analysis to those applicable to Air Force activities only. Accordingly, the inventory investment rate for non-COCESS activities in this analysis is considered to range from 10% to 30.2%.

A summary of these factors follows:

FACTOR	COCESS FACTORS		NON-COCESS FACTORS	
	LOW	HIGH	LOW	HIGH
Materiel Cost	4.1%	7.7%	----	----
Operating Cost	6.0	7.2	5.5%	13.4%
Inventory Investment	12.9		10.0	30.2

b. Range of Total Costs

Using the factors identified above, a Present Value analysis was developed to identify the range of the total costs which could accrue. (A Present Value analysis is required since the differences in inventory investment have a one-time effect only, while all other costs are recurring.) This analysis is based on an eight-year life, and uses the appropriate factor (5.597) from Attachment 4 to Enclosure 2 of DoD Instruction 7041.3.

This Present Value analysis, which is based on an assumed annual expenditure of $1 million to support a single installation, is shown in Table III-7. Examination of this data shows that, over the assumed eight-year period, the total cost of supporting this level of effort through a COCESS would range from $6.4 million to $6.7 million; the cost of supporting the same level of effort through normal local purchase sources would range from $6.1 million to $6.9 million.

Table III-7

PRESENT VALUE ANALYSIS--
COCESS vs LOCAL PURCHASE
($000)

Cost Element	COCESS		Non-COCESS	
	Low	High	Low	High
Materiel Cost	$5,826.5	$6,028.0	$5,597.0	$5,597.0
Operating Cost	349.6	434.0	307.8	750.0
Inventory:				
Investment 1/	134.3	138.9	100.0	302.0
Holding Cost 2/	112.7	116.6	84.0	253.5
Total Present Value	$6,423.1	$6,717.5	$6,088.8	$6,902.5

Source: Team Analysis

1/ One-time cost only; all other amounts are Present Value based on an eight-year life.
2/ Computed at 15% annual cost to hold.

c. Cost Comparison of Specific Techniques

The preceding analysis establishes that the economic advantage of COCESS for the acquisition of local purchase materiel depends on the technique to which it is being compared, and that costs other than the actual acquisition price of the materiel are factors which assist in determing the most economical system. Table III-8 shows the operating cost and inventory investment factors for a number of the installations visited during field research; materiel cost factors are not included since they were not identified on an individual installation basis. Table III-9 shows the cost of supporting the civil engineering effort at these installations from COCESS and from other local purchase sources, as a Present Value analysis over an eight-year life. To facilitate comparison, this analysis in Table III-9 is based on an assumed annual expenditure of $1 million at each installation in support of the civil engineering function.

Table III-8

COST FACTORS IN LOCAL PURCHASE

Activity	Operating Costs	Inventory Investment
Fort Bragg	10.3%	21.0%
New Cumberland Army Depot	12.8	21.0
PWC Norfolk	5.5	33.5 1/
NSY Norfolk	11.8	24.7 1/
Offutt Air Force Base (GOCESS)	7.6	10.0
Dover Air Force Base	13.4	30.2 2/
Camp Lejeune	10.9	14.4 3/

Source: Field Research and Data Call

1/ Based on overall Navy data for Public Works Centers and Public Works Departments, respectively.
2/ Based on overall Air Force data for CIAPS-supported CE operations.
3/ Based on overall Marine Corps data.

TABLE III-9

PRESENT VALUE ANALYSIS--
COCESS vs SELECTED SPECIFIC SYSTEMS
($000)

Activity	Materiel Cost	Operating Cost	Inventory		Total Cost (Over 8 Years)
			Investment 1/	Holding Costs 2/	
COCESS (Low Factors)	$5,826.5	$349.6	$134.3	$112.7	$6,423.1
COCESS (High Factors)	6,028.0	434.0	138.9	116.6	6,717.0
Fort Bragg	5,597.0	576.5	210.0	176.3	6,559.8
New Cumberland AD	5,597.0	716.4	210.0	176.3	6,699.7
PWC Norfolk	5,597.0	307.8	335.0	281.2	6,521.0
NSY Norfolk	5,597.0	660.4	247.0	207.4	6,711.8
Offutt AFB (GOCESS)	5,597.0	425.4	100.0	84.0	6,206.4
Dover AFB	5,597.0	750.0	302.0	253.5	6,902.5
Camp Lejeune	5,597.0	610.1	144.0	120.9	6,472.0

Source: Team Analysis

1/ One-time cost only.
2/ Computed at 15% annual cost to hold.

Examination of the data in Table III-9 shows the following:

(a) There are six activities with a lower total cost over the eight-year period than the high COCESS, but only one of these is lower than the low COCESS.

(b) The least expensive system, that represented by the GOCESS at Offutt Air Force Base, has a Present Value cost for the eight years which totals $6.2 million, a difference of approximately $700,000 over the eight-year period.

(c) The factor which most significantly affects total cost in this analysis is the cost of the materiel itself. Of the six activities whose total eight-year cost is lower than that of the high COCESS, the COCESS has a lower operating cost than all but two, and a lower inventory investment and inventory holding cost than all but one of these. The only factor on which the COCESS was

consistently higher than these activities was in terms of the actual cost of the materiel procured.

d. Breakeven Analysis

This examination of the data in Table III-9 shows that there is an interrelationship between materiel cost, operating cost, and inventory cost in an economic comparison of COCESS with other forms of local purchase, and an analysis was made of this. Using materiel cost in a non-COCESS (local purchase) system as a base, a series of calculations were made to determine the breakeven point for COCESS against the other local purchase methods. These calculations, the results of which are shown in Table III-10, were accomplished as follows:

(a) Calculations were based on an assumed non-COCESS annual expenditure level of $1 million. Calculations included a Present Value analysis based on an assumed eight-year life and used the appropriate factor (5.597) as in Paragraph 5b.

(b) A separate series of calculations were made for selected non-COCESS inventory investment percentages--15%, 20%, and 25%--which were within the ranges actually being used by various activities. The Present Value of the inventory investment and inventory holding costs were calculated.

(c) Non-COCESS operating costs were calculated within each inventory investment range. The percentages selected for these calculations--10% through 13%--were also within the range of values actually being used by various activities.

(d) Operating and inventory investment costs for the COCESS were fixed based on the high factors (percentages) included in Paragraph 5a. Use of these factors lowers the acceptable amount by which the cost from the COCESS can exceed the cost from the non-COCESS techniques.

(e) Based on the above, calculations were made to determine the maximum percent by which the COCESS materiel costs could exceed the local purchase materiel costs in order to achieve an equal eight-year total cost for materiel support through both acquisition methods.

The values derived from the calculations were charted, and the results are shown in Figure III-1. The area above and to the left of each line in this chart represents a region in which

Table III-10

INTERACTION OF MATERIEL, OPERATING, AND INVENTORY COSTS

Cost Factors	COCESS %	COCESS Amount ($000)	Non-COCESS %	Non-COCESS Amount ($000)
FOR NON-COCESS INVENTOY INVESTMENT = 15%				
Materiel	3.1%	$5,770.5	--	$5,597.0
Operating Costs	7.2	415.5	10.0%	559.7
Inventory	12.9	244.7	15.0	275.9
Total		$6,430.7		$6,432.6
Materiel	4.6%	$5,820.9	--	$5,597.0
Operating Costs	7.2	419.1	11.0%	615.7
Inventory	12.9	246.8	15.0	275.9
Total		$6,486.8		$6,488.6
Materiel	4.9%	$5,871.3	--	$5,597.0
Operating Costs	7.2	422.7	12.0%	671.6
Inventory	12.9	248.9	15.0	275.9
Total		$6,542.9		$6,544.5
Materiel	5.8%	$5,921.6	--	$5,597.0
Operating Costs	7.2	426.4	13.0%	727.6
Inventory	12.9	251.1	15.0	275.9
Total		$6,599.1		$6,600.5
FOR NON-COCESS INVENTORY INVESTMENT = 20%				
Materiel	4.6%	$5,854.5	--	$5,597.0
Operating Costs	7.2	421.5	10.0%	559.7
Inventory	12.9	248.2	20.0	367.9
Total		$6,524.2		$6,524.6
Materiel	5.5%	$5,904.8	--	$5,597.0
Operating Costs	7.2	425.1	11.0%	615.7
Inventory	12.9	250.4	20.0	367.9
Total		$6,580.3		$6,580.6
Materiel	6.4%	$5,955.2	--	$5,597.0
Operating Costs	7.2	428.8	12.0%	671.6
Inventory	12.9	252.5	20.0	367.9
Total		$6,636.5		$6,636.5
Materiel	7.3%	$6,005.6	--	$5,597.0
Operating Costs	7.2	432.4	13.0%	727.6
Inventory	12.9	254.6	20.0	367.9
Total		$6,692.6		$6,692.5
FOR NON-COCESS INVENTORY INVESTMENT = 25%				
Materiel	6.1%	$5,938.4	--	$5,597.0
Operating Costs	7.2	427.6	10.0%	559.7
Inventory	12.9	251.8	25.0	459.9
Total		$6,617.8		$6,616.6
Materiel	7.6%	$5,988.8	--	$5,597.0
Operating Costs	7.2	431.2	11.0%	615.7
Inventory	12.9	253.9	25.0	459.9
Total		$6,673.9		$6,672.6
Materiel	7.9%	$6,039.2	--	$5,597.0
Operating Costs	7.2	434.8	12.0%	671.6
Inventory	12.9	256.1	25.0	459.9
Total		$6,730.1		$6,728.5
Materiel	8.8%	$6,089.5	--	$5,597.0
Operating Costs	7.2	438.4	13.0%	727.6
Inventory	12.9	259.2	25.0	459.9
Total		$6,787.1		$6,784.5

Source: Team Analysis

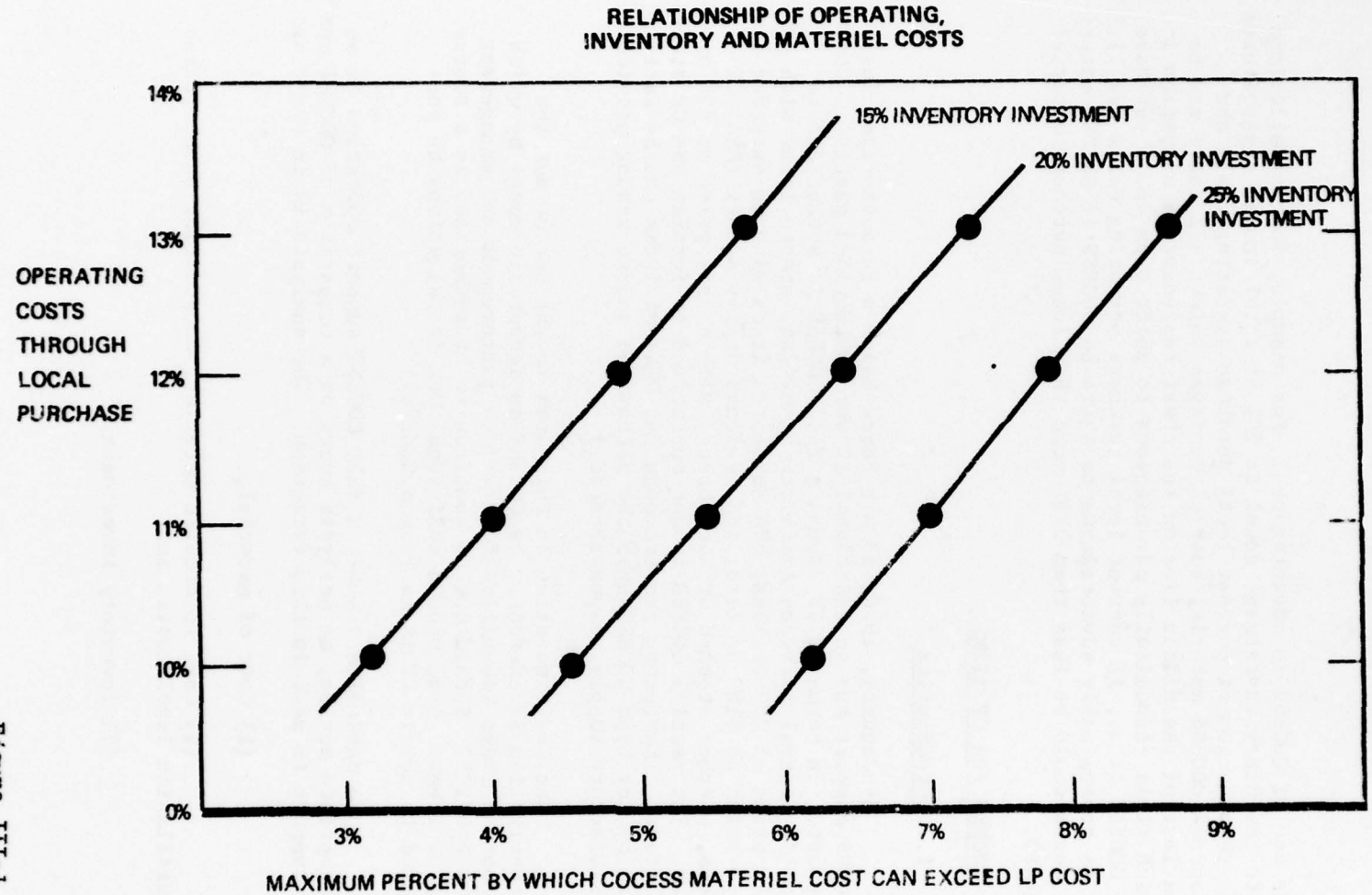

RELATIONSHIP OF OPERATING,
INVENTORY AND MATERIEL COSTS
14%
13%
12%
11%
10%
0%
OPERATING
COSTS
THROUGH
LOCAL
PURCHASE
15% INVENTORY INVESTMENT
20% INVENTORY INVESTMENT
25% INVENTORY
INVESTMENT
3%
4%
5%
6%
7%
8%
9%
MAXIMUM PERCENT BY WHICH COCESS MATERIEL COST CAN EXCEED LP COST

Figure III-1

the use of COCESS is advantageous. For example, for installations with inventory investment equal to 20% of total annual expenditures, any combination of current local purchase operating costs and proposed COCESS materiel cost percentages which fall above and to the left of the middle line on the chart represents a situation in which it is economically advantageous to shift from local purchase to COCESS (e.g., if current local purchase operating costs are 11.5%, it is economically advantageous to shift to COCESS if COCESS materiel costs would be less than 5.9% more than local purchase materiel costs).

C. COCESS FOR CP ITEMS

1. Introduction

By January, 1976, 13 Air Force bases were authorized full COCESS support and an additional 13 were authorized partial COCESS support. In terms of CP items, a full COCESS is authorized to provide General Services Administration (GSA) stores items with a unit price of $50 or less; GSA nonstores items with an extended line item value of $100 or less; and, Defense Supply Agency (DSA) CP items, whether stocked or nonstocked, with a unit price of $50 or less. The partial COCESS is not authorized to furnish DSA CP stocked items. (Emergency requirements for DSA/GSA items can be satisfied by any type COCESS when the authorized source cannot provide satisfactory supply responsiveness.)

The basic question in this area is whether or not the authorization is correct. Is COCESS an acceptable means by which to obtain items identified for central procurement and management by a DoD ICP? Should COCESS continue to be authorized as a source for CP items? And, should additional DoD installations be permitted to obtain CP items from a COCESS?

To determine whether a full COCESS support operation is an appropriate action, an analysis based on a comparison of COCESS and CP support is made in this Paragraph. The analysis is in terms of:

(1) Cost of materiel,

(2) Cost to acquire materiel, considering both ICP and installation level costs, and,

(3) Inventory investment.

2. Materiel Cost

a. ICP Items

Three Air Force bases using an LP-only COCESS were asked to identify the 100 "best seller" items which they were obtaining from DoD inventory control points, and to obtain from their COCESS contractors the price which would be charged were he to provide the items. These activities then compared the cost of their "market baskets" of CE support materiel as quoted by the COCESS contractor with the cost of the materiel as actually obtained from ICPs. The results of this comparison are shown in Table III-11.

Examination of this data shows that the COCESS cost for CP items was always higher than the cost of the items when obtained from the ICP. There was a rather large variation in the amount by which the COCESS price exceeded the ICP price, ranging from just over one-half of 1% at one base to over 25% greater at another; overall, the COCESS prices for CP items were 14.3% greater than the ICP prices.

An analysis was also made of the difference in materiel cost of CP items when they are obtained by the GOCESS operating at Offutt Air Force Base. Continental United States (CONUS) receipt data submitted by the Military Services identified 289 different items, which involved 6,371 transactions, which were obtained both by the GOCESS from his local purchase sources and by other activities from the managing inventory control points. The total quantities acquired were priced both at the ICP price and at the price paid by the GOCESS. This analysis shows that this amount of materiel would have cost a total of $67,911 had it all been obtained at the ICP price, but a total of $80,472 had it all been obtained at the GOCESS price. This analysis indicates that the GOCESS materiel cost is 18.5% higher than the ICP materiel cost.

Table III-11

THE COST OF CP ITEMS - COCESS vs. ICPs

Base	Number of Items	Cost		COCESS Overage	
		From COCESS	From ICPs	Amount	%
1	96	$25,565	$22,731	$2,834	12.5%
2	92	30,162	23,916	6,246	26.1
3	100	17,813	17,700	113	0.6
Total	288	$73,540	$64,347	$9,193	14.3%

Source: Data Call.

b. LP Items

During preliminary discussions on the effect of authorizing COCESS as a source of supply for CP items, it was suggested that such an action, by increasing the annual dollar volume of the COCESS contract, would increase the size of the COCESS discount, and thus reduce the cost of the local purchase items procured through the COCESS.

To test this thesis, data was collected from all Air Force bases which had ever had a COCESS contract. For each contract, the bases were asked to identify the dollar value of the demand included in the bid invitation and the amount of discount which was offered by the winning contractor.

An analysis was made of the discount rates received from COCESS contractors as contracts expired and a contractor renewed or was replaced at the same base. A total of 28 such contract changes were reviewed and the data, expressed in terms of the percentage change in the discount offer by the contractor, is shown in Table III-12. Analysis of this data shows that these replacement contracts were almost invariably placed at a higher discount rate--in 85% of the cases, the discount rate was higher in the replacement contract than in the original contract.

Table III-12

COCESS CONTRACTS - CHANGE IN DISCOUNT RATES

Percent Change in Discount Rate	Number	%
Lower Discount	1 1/	3.6%
No Change	3	10.7
Higher Discount	24	85.7
1% - 10%	(10)	(35.7)
11% - 20%	(11)	(39.3)
21% - 30%	(3)	(10.7)
Total	28	100.0%

Source: Data Call.

1/ However, a service charge for operation at the COCESS store was deleted from the follow-on contract; this charge averaged 11% of monthly sales.

Detailed information relating discount rate to the projected dollar volume of the contract, was obtained for a random sample of nine of these 28 pairs of contracts, and this data is shown in Table III-13. Specifically, this table shows the projected annual expenditures in the initial Invitation For Bid (IFB) with the discount rate offered by the winning COCESS contractor against that dollar volume, and the projected annual expenditure contained in the follow-on IFB and the discount rate offered by the winning contractor against that amount. As examination of the data in Table III-13 shows, the increased projected annual expenditure contained in the renewal IFB was always accompanied by an increased discount offer by the winning contractor.

The percentage change in IFB value coupled with the comparable change in discount value were examined to determine if some relationship could be developed between these, and this examination is shown in Table III-14. The percentage change in the value of the IFB and in the amount of the discount is shown in the first two columns of Table III-14; the ratio of the change in the

Table III-13

IFB VALUE AND DISCOUNT RATES -
INITIAL AND RENEWAL COCESS CONTRACTS

Air Force Base	INITIAL CONTRACT		FOLLOW-ON CONTRACT	
	IFB Value ($000)	Discount %	IFB Value ($000)	Discount %
Castle	$ 180.4	22%	$ 334.7	35%
Griffiss	103.0	23	592.0	25
Warren	137.5	18	359.5	39
Carswell	164.4	23	570.4	47
Dyess	153.4	17	327.9	35
Malmstrom	237.0	29	423.4	42
Sawyer	200.8	22	311.3	35
Beale	228.4	30	702.1	40
Pease	243.8	27	543.6	39
TOTAL	$1,648.7	24%	$4,164.9	38%

Source: Field Research.

Table III-14

DISCOUNT INCREASE RELATED TO IFB VALUE INCREASE--
COCESS CONTRACTS

Air Force Base	Percent Increase		Ratio
	IFB Value (1)	Discount % (2)	Col 2: Col 1 (3)
Castle	86%	59%	.69
Griffiss	475	9	.02
Warren	161	117	.73
Carswell	247	104	.42
Dyess	114	106	.93
Malmstrom	79	45	.57
Sawyer	55	59	1.07
Beale	207	33	.16
Pease	123	44	.36
Overall	153%	58%	.38

Source: Team Analysis

discount value to the change in the IFB value was calculated, and this is shown in the third column of Table III-14. As examination of this data shows, there is no apparent mathematical relationship between the increase in the projected annual volume of business and the increase in the discount percentage for an individual installation--the discount increase to business volume increase ratio ranged from a low of .02 (that is, each percentage increase in the annual volume of business resulted in two-hundredths of a percentage increase in discount percentage) to a high of 1.07 (each percentage increase in the annual volume of business resulting in a little over 1% increase in discount percentage).

In view of the wide disparity in the factors developed from this data, only generalized statements can be made in this area:

(a) As the projected dollar volume of business for a COCESS contract increases, the amount of discount offered by the COCESS contractor will also increase; and,

(b) Adding CP items to a COCESS contract will raise the discount offered by the contractor for all items and thus serve to reduce the cost of the LP items.

3. Operating Costs

a. ICP Level

Standard costs for ICP materiel do not represent the total cost to the Government for centrally-managed materiel. While standard ICP prices include some of the costs associated with the wholesale support process (such as transportation and inventory losses), they do not include costs associated with ICP operation itself, such as requisition processing, shipment processing, and procurement costs.

The Compendium of Inventory Control Point Management Information (hereafter referred to as the ICP Compendium), published in November 1974, provides data on the cost of operating DoD ICPs. About three-fourths of the centrally-managed materiel used by the Civil Engineer is obtained from the ICPs of the Defense Supply Agency (see Table I-10 and the accompanying discussion in Paragraph G.5. of Chapter I of this Report). Accordingly, an overall ICP operating cost, expressed as a percent of the value of expenditures, has been developed based on the DSA ICPs. Table III-15 shows the value of the receipts of CE materiel from each Defense Supply Center (DSC), the percent each DSC's receipts represent of the total receipts from these four Defense Supply Centers, the individual DSC operating cost expressed as a percent of issue value (obtained from the ICP Compendium), and the portion of the overall operating cost which is contributed by each DSC in developing the overall weighted operating cost rate. Examination of this data shows that overall ICP operating costs average 13% of the value of the materiel issued.

Table III-15

DEVELOPMENT OF ICP OPERATING COST RATE

Defense Supply Center	Total Receipts of CE Materiel		Operating Cost Rate	
	Amount ($000) 1/	%	Total 2/	Weighted
DCSC	$664.8	45.4%	14.8%	6.7%
DESC	56.0	3.8	13.6	0.5
DGSC	474.0	32.4	8.8	2.9
DISC	268.6	18.4	15.9	2.9
Total	$1,463.4	100.0%	-	13.0%

Sources: 1/ Data Call
2/ Compendium of Inventory Control Point Management Information, Table VII-4.

b. Installation Level

Two Air Force bases conducted analyses to identify the costs of the various types of actions associated with the supply of Civil Engineering materiel, in order to determine the economic desirability of establishing a local purchase COCESS. Examination of the data used in these analyses established that most of the identified and costed transactions were equally applicable to centrally procured as well as locally procured transactions.

Accordingly, this data was used with minor adjustments in developing a transaction cost at installation level for the acquisition of centrally procured items. The adjustments included averaging the individual element costs to arrive at a single transaction cost, and omitting costs that were peculiar to LP transactions only. The data selected for computing the cost per transaction shown below included elements of cost in BCE Materiel Control and Base Supply as follows:

Materiel Control	Base Supply
Supervision	Stock Control
Research and Document Preparation	Research
Hand Processing	Receiving and Storage
Bench Stock Administration	Bench Stock Warehouse
	Bench Stock Service

Based on the data developed by these two bases, costs for the acquisition of CP materiel were computed as ranging from $3.16 to $4.90 per transaction. These individual transaction costs were applied to the reported receipt data for the three Air Force bases visited during field research--Carswell, Offutt, and Hill Air Force Bases--to develop the operating cost rate for the acquisition of CP materiel, and this data is shown in Table III-16. Examination of this calculation in Table III-16 shows that these operating costs range from 4.3% to 6.7% of the value of the materiel acquired.

Paragraph B.3. developed the operating costs associated with the acquisition of materiel through a COCESS, and these were identified as ranging from 6.0% to 7.2%. These is no reason for the costs to the Government to be different for the acquisition from a COCESS of "CP-type" materiel or of "LP-type" materiel. Accordingly, the same factors are used as the range of operating costs which would apply to the support of CP items through a COCESS. Similarly, Paragraph B.3. also identified the operating costs for the acquisition of materiel through the GOCESS at Offutt Air Force Base, and the factor of 7.6% which is identified there will also be used in this analysis.

Table III-16

INSTALLATION OPERATING COSTS FOR CP ITEMS

Installation	Transactions 1/		Operating Costs	
	Value	Number	@ $3.16	@ $4.90
Carswell AFB	$ 73,287	535	$1,690.60	$2,621.50
Offutt AFB	64,053	862	2,723.92	4.223.80
Hill AFB	91.734	1,750	5,530.00	8,575.00
Total	$229,074	3,147	$9,944.52	$15,420.30
Average Cost per transaction as % 2/			4.3%	6.7%

1/ Source: Data Call
2/ Calculated as Total Operating Cost/Total Transaction Value.

4. Inventory Investment

a. ICP Level

Central procurement and management of consumable materiel generally results in central stockage. With three-fourths of the CP materiel requisitioned from DSA, examination of the inventory investment of the four involved Defense Supply Centers (DCSC, DESC, DGSC, and DISC) provides an appropriate representation of the wholesale-level inventory investment to support the Civil Engineering function.

In examining wholesale-level data to identify the relevant statistics, the following determinations were made:

(a) The base for developing the ICP inventory investment rate should be annual value of issues, since ICP issues are the equivalent of installation-level procurement of CP items.

(b) ICP inventories contain strata which should be excluded from the inventory investment rate used for this economic analysis since they do not represent quantities of materiel which would be bought to support normal CE operations. These excludable strata are: war reserve stocks held at the ICP level, since there is no comparable expenditure at the COCESS level; and, economic retention and excess stocks, since there is no deliberate ICP expenditure for this materiel (although it could be argued that these retention and excess stocks are an inevitable concomitant of ICP management).

An examination of the inventory investment of the four involved Defense Supply Centers (DCSC, DESC, DGSC, and DISC) provides an appropriate representation of the wholesale-level inventory investment to support the Civil Engineering function. The ICP Compendium contains data on inventory related to issues for these four activities. Table III-17 combines this data to develop an inventory investment rate for ICPs. Specifically, Table III-17 identifies the portion of the total receipts of CP materiel received from each of the four DSCs identified above; the amount of inventory held by each activity, expressed as a percent of the issue value; and, the development of a weighted average inventory investment rate, also expressed as a percent of the issue value.

Examination of this data shows that the inventory investment rates of the Defense Supply Centers are extremely high when compared to those applicable to installation level activities--these ICPs rates ranged from just over 50% to almost 100%, while the installation level rates ranged up to a high of 30%. Overall, the inventory investment rate for the ICPs was 64.9%. As discussed above, this rate excludes from the inventory any materiel which would not have been deliberately procured by the ICP--the retention and excess stocks--so this must be considered a conservative estimate of the DSCs inventory investment rate.

Table III-17

DEVELOPMENT OF ICP INVENTORY INVESTMENT RATE

Defense Supply Center	% Receipts Per 1/ DSC	Inventory Investment Rate 2/	
		Total 3/	Weighted
DCSC	45.4%	64.8%	29.4%
DESC	3.8	94.2	3.6
DGSC	32.4	52.4	17.0
DISC	18.4	81.0	14.9
Total	100.0%	--	64.9%

1/ Source: Data Call, as developed in Table III-15.
2/ Based on peace time operating inventory only, excluding war reserves and excess/retention stocks.
3/ Source: Developed from Compendium of Inventory Control Point Management Information, Table VII-12.

b. Installation Level

Analysis of the data in Table III-6 shows that the inventory investment rate for full and partial COCESS activities ranged from 15.6% to 15.8%, with an average of 15.7%.

As in the previous discussion, the data in Table III-6 identifies the non-COCESS inventory investment rate as ranging from 10.0% to 30.2%, and these values will be used in this analysis for non-COCESS activities. That table also identifies the specific inventory investment factor for the Offutt Air Force Base GOCESS as 10.0% and that specific value will be used in this cost analysis.

5. Summary Cost Analysis

a. Cost Factors

The preceding paragraphs have established the following range of values which apply to the cost factors included in this analysis:

(a) Materiel Costs

Materiel costs 14.3% more when it is obtained from a COCESS than when it is obtained from its managing inventory control point. However, the addition of CP items to an LP-only COCESS would result in an increased discount rate applicable to the LP items but this effect could not be precisely quantified.

Materiel also costs more when it is obtained by a GOCESS through local procurement channels than when it is obtained from an ICP, and this difference has been calculated as 18.5%

(b) Operating Costs

The acquisition of materiel from an ICP incurs cost at both the installation and the ICP level. Analysis of the data in the ICP Compendium shows that ICP operating costs are 13% of the value of the materiel supplied. Analysis of installation operating costs indicates that obtaining materiel from ICPs would cost from 4.3% to 6.7% of the value of the materiel obtained.

When CP items are obtained from a COCESS, no costs are incurred at the ICP level. As the analysis in Paragraph B.3. indicates, the cost at installation level to obtain materiel from a COCESS ranges from 6% to 7.2% of the value of the materiel acquired. The cost to obtain materiel through the Offutt Air Force Base GOCESS was calculated as 7.6%.

(c) Inventory Investment

When ICP-owned materiel is involved, there is an inventory investment at both the ICP and the installation level. Analysis of the data in the ICP Compendium shows that inventory investment at that level is 64.9% of the value of the materiel supplied. As the analysis in Paragraph B.4. indicates, inventory investment at non-COCESS activities ranges from 10% to 30.2% of the value of the materiel acquired.

Only installation-level inventory investment is involved for CP items obtained through a COCESS or GOCESS arrangement. The inventory investment rate at installation level for COCESS activities averaged 15.7% of the value of issues. The inventory investment rate at the Offutt Air Force Base GOCESS was 10%.

A summary of these factors follows:

FACTOR	COCESS FACTORS		NON-COCESS FACTORS		GOCESS FACTORS
	LOW	HIGH	LOW	HIGH	
Materiel Cost	14.3%		---	---	18.5%
Operating Cost					
Installation	6.0%	7.2%	4.3%	6.7%	7.6%
ICP	---	---	13.0%		---
Inventory Investment					
Installation	15.7%		10.0%	30.2%	10.0%
ICP	---	---	64.9%		---

b. Range of Total Costs

Using the factors identified above, a Present Value analysis was developed to identify the range of the total costs which could accrue with the establishment of a COCESS for CP items. This analysis, which is based on an assumed annual expenditure of $1 million to support an installation, is shown in Table III-18. Examination of this data shows that, over the assumed eight-year period, the total cost of supporting this level of effort through a COCESS would range from $7.11 to $7.19 million; the cost of supporting that effort through the Offutt Air Force Base GOCESS would total $7.4 million; and, the cost of supporting the same level of effort through requisitioning from the managing inventory control point would range from $7.9 to $8.4 million.

Table III-18

PRESENT VALUE ANALYSIS--COCESS, GOCESS, AND CP
($000)

Cost Element	COCESS		Non-COCESS		GOCESS
	Low	High	Low	High	
Materiel Cost	$6,397.4	$6,397.4	$5,597.0	$5,597.0	$6,632.4
Operating Cost					
Installation	383.8	460.6	240.7	375.0	504.1
ICP	---	---	727.6	727.6	---
Inventory Investment 1/					
Installation	330.2	330.2	184.0	555.5	218.0
ICP	---	---	1,193.9	1,193.9	---
Total Present Value	$7,111.4	$7,188.2	$7,943.2	$8,449.0	$7,354.5

Source: Team Analysis

1/ Includes one-time cost of acquiring inventory plus the present value of the cost of holding the inventory, computed at a 15% annual cost to hold.

A sensitivity analysis was performed on this calculation, to identify the magnitude of the change in the cost factors which would be required to produce a change in the cost relationships shown in Table III-18. Two factors were included in this sensitivity analysis: materiel cost and ICP inventory investment.

A calculation was made of the effect of increasing the COCESS materiel cost factor by one-half--i.e., raising the percent by which the COCESS materiel cost exceeds the ICP materiel cost from 14.3% to 21.5%. This would produce a total eight-year COCESS cost which would range from $7.56 to $7.64 million, values which are still lower than those generated by the non-COCESS calculation, although higher than those of the GOCESS.

Increasing the GOCESS materiel cost factor by one-half--from 18.5% to 27.8%--produces an eight-year GOCESS cost of $7.93 million, which falls between low and high non-COCESS total costs.

Similarly, a calculation was made of the effect of reducing the ICP inventory investment by one-half--i.e., reducing the amount of inventory held to 32.4% of the value of the materiel issued. This would produce a total eight-year non-COCESS cost which would range from $7.31 to $7.79 million, values which are still higher than those generated by the COCESS calculation, although the lower end of the range is about the same total cost as the GOCESS.

D. SUMMARY AND CONCLUSIONS

1. Introduction. This paragraph relates the analyses of this Chapter to the two basic questions of the Study:

a. Is the COCESS concept a viable, acceptable, practical means for providing materiel support to the Civil Engineer when the items required are, normally, central purchase (CP) items?

b. Is the COCESS concept a viable, acceptable, practical means for providing materiel support to the Civil Engineer when the items required are local purchase (LP) items?

2. Cost Analyses

a. COCESS for CP Items. The cost analyses evaluating the multiple support systems for CE materiel demonstrate that two local purchase systems making maximum use of commercial distribution systems are significantly more economical than central procurement and management systems for CE support. These analyses also demonstrate that of the two local procurement systems, the COCESS concept provides the greater economy. The Offutt Air Force Base GOCESS provides CE support at only a slightly higher total cost.

b. COCESS for LP Items. The cost analyses evaluating the multiple local purchase support systems for CE materiel demonstrate that the Offutt Air Force Base GOCESS using a broad range of Blanket Purchase Agreements (BPAs) is the least costly system, followed closely by the low cost COCESS arrangements. A few other dedicated local purchase arrangements also displayed relatively low overall cost. However, the range of costs involved in the COCESS and several other dedicated local purchase arrangements prevents the establishment of a clearcut economic advantage for one system over another, and an individual analysis would be required at each installation to determine the most economical method for providing supply support to the CE.

c. Overall Cost Relationship. Combining the findings of these two separate cost analyses produces the following progression, which is graphically shown in Figure III-2.

(1) Items currently obtained from inventory control points can be more economically obtained from a COCESS.

(2) An individual installation cost analysis is required to determine if the sum of LP and CP items can be obtained more economically through a COCESS or through other forms of local purchase.

COST ANALYSIS PROGRESSION

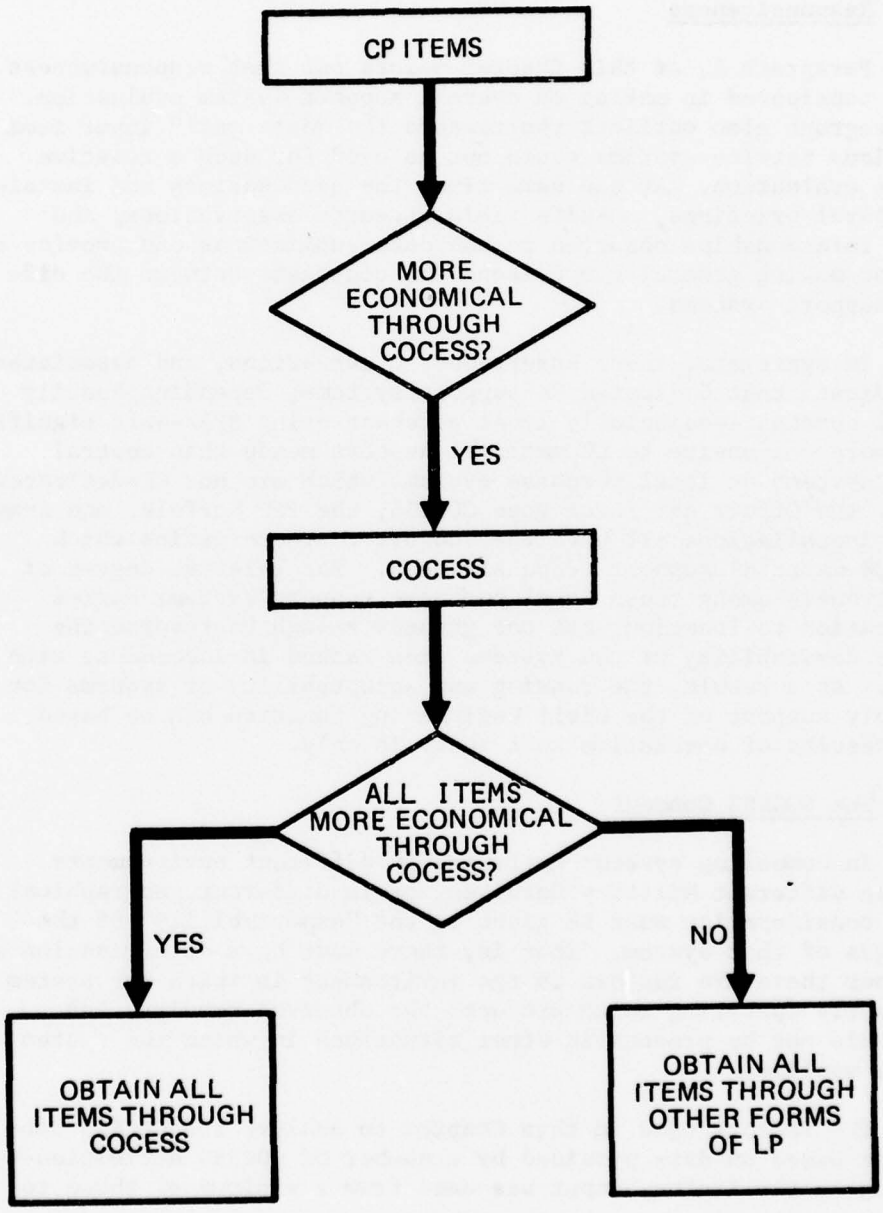


Figure III-2

(3) Since a COCESS should not be established for CP items while LP items are obtained from other sources, the results of the individual installation cost analysis will determine whether the entire item range should be obtained through a COCESS or through other forms of local purchase.

3. Responsiveness

Paragraph A. of this Chapter points out that responsiveness must be considered in making an overall support system evaluation. That paragraph also outlines the reasons the "data call" input from the various Service systems could not be used for such a relative response evaluation. At the same time, the headquarters and installation level briefings, on-site field research observations, and general relationships observed in the data submissions did provide a means for making general comparisons and contrasts between the different support systems.

In aggregate, these assertions, observations, and associated data indicate that dedicated CE support systems, depending heavily on local purchase--especially local purchase using BPAs--are significantly more responsive to CE materiel support needs than central support systems or local purchase systems which are not CE-dedicated. COCESSs, the Offutt Air Force Base GOCESS, the PWC Norfolk, and Army FORSCOM installations all have the support characteristics which foster CE materiel support responsiveness. The relative degree of responsiveness among these local purchase support systems varies from location to location, but not greatly enough to reverse the relative desirability of the systems when ranked in accordance with economy. As a result, the ranking and acceptability of systems for the supply support of the Civil Engineering function can be based on the results of a relative cost analysis only.

4. The GOCESS Concept

In comparing systems operating in different environments (e.g., in different Military Services, or in different geographical areas), consideration must be given to the "exportability" of the advantages of that system. That is, there must be a determination as to whether there are factors in the environment in which the system is currently operating which produces the observed results, but which would not be present in other situations in which the system might be applied.

The factors used in this Chapter to analyze the COCESS concept were based on data provided by a number of COCESS activities--depending on the factor, input was used from a minimum of three to

as many as 26 COCESS activities. The factors so developed were "averages" of various kinds and, as such, the calculations using these factors represented the exportable results of applying the COCESS concept to a number of activities.

Factors used in this analysis pertaining to the GOCESS concept were based on data from only one activity. Although the GOCESS has been in operation since 1971, the Air Force has not extended its service test of this concept beyond the single location at Offutt Air Force Base. There is no evidence on which to determine whether or not the Offutt Air Force Base cost and responsiveness experience is exportable, and a significant amount of additional experience--both within and outside the Air Force--would be required before its cost and responsiveness advantages could be attributed to the GOCESS concept itself, rather than to some factor peculiar to the Offutt Air Force Base environment.

5. Conclusions

a. Local purchase, maximizing the use of commercial distribution systems, should be the primary means for providing materiel support to the Civil Engineer.

b. The COCESS concept is a viable, desirable means for providing materiel support to the CE, especially when a broad materiel range (LP and CP items) is provided through the COCESS.

c. The specific arrangements used by the Offutt Air Force Base GOCESS should be applied and evaluated for 12 months at a minimum of six installations, including two each of the Army, Navy, and Air Force, with the objective of defining the characteristics of this arrangement which can be exported to other installations.

d. The decision to establish a COCESS should be based on an individual economic analysis at each installation.

e. Generally local purchase systems such as the COCESS concept and the Offutt Air Force Base GOCESS approach are responsive to CE materiel requirements and, therefore, the COCESS or GOCESS decision can be based on the results of a relative cost analysis only.

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CHAPTER IV

INVENTORY INVESTMENT TO SUPPORT SPECIFIC JOBS

A. INTRODUCTION

The facilities engineer work effort generally falls into four categories:

a. Emergency Work. Work that requires immediate attention, to correct a condition which could prove detrimental to the installation mission or to the health or safety of its personnel, or which requires correction to protect property and equipment. This work generally involves only small amounts of materiel and, by its nature, must rely on available materiel.

b. Standing Operations. Work that is repetitive, routine, or cyclic in nature, such as the operation of utility plants, or the periodic overhaul of heating and air conditioning systems. Because it is routine and repetitive, materiel requirements are frequently included in basic authorized stock levels.

c. Minor Maintenance and Repair. Work which is neither emergency nor a standing operation, but which is limited in size and materiel requirement; the general limitation on this type of effort is that it not exceed 16 man-hours or $200 of materiel. Materiel support for this type of work is generally supportable by available stock levels.

d. Specific Jobs. Work that includes maintenance, repair, and minor construction; due to their relatively large manpower and materiel requirements, these jobs must be carefully planned, estimated, and scheduled, and special arrangements are necessary to insure the availability of the materiel needed to support the work force.

As these descriptions indicate, support of Specific Jobs requires a special effort for the identification and collection of the required materiel. Field research showed that there were two basically different approaches to the collection of materiel to support Specific Jobs, and review indicated that there is a potential for a significant difference in the amount of inventory investment required to support Specific Jobs as a result of this difference.

This Chapter:

a. Describes the systems used by the Military Services to collect the Bills of Materials (BOMs) to support Specific Jobs, and to schedule those jobs;

b. Identifies the differences between these systems and analyzes the impact of these differences on inventory investment; and,

c. Draws conclusions on the optimization of inventory investment in support of Specific Jobs.

B. BILLS OF MATERIALS (BOMs) AND JOB SCHEDULING

1. Army System

Bills of Materials to support specific jobs were furnished to an individual responsible for collecting and reserving such materiel. After all materiel had been collected, the job was then scheduled in terms of the availability of, and requirements for, the various types of skills required for the accomplishment of the project.

This system was the general policy followed, although "unusual circumstances" would result in a job being scheduled before all materiel had been made available. These "unusual circumstances" could not be precisely defined and, at one installation, no one could remember the last time such action had been taken; all 96 jobs then in progress had been scheduled only after all required supporting materiel had been received.

This same relationship between materiel availability and job scheduling was observed at the several different types of Army installations researched.

2. Navy System

Two different systems were identified for the collection of materiel to support specific jobs, one in use at Public Works Center (PWC) Norfolk, and the other observed at the Norfolk Naval Shipyard and at PWC Guam.

At PWC Norfolk, required materiel was identified to the Material Department, which was then allowed 30 working days--45 calendar days--to obtain all items. This deadline was established

without regard to manpower availability or the actual scheduling of the job for accomplishment, in order to insure that jobs with fully satisfied BOMs are available in case slippages occur in scheduled work.

At the Norfolk Naval Shipyard, and at the Public Works Center on Guam, a different procedure was in use. At these locations, identified Bills of Materials were collected by the materiel organization (by the Supply Department of the Shipyard, and by the Material Department of PWC Guam), and no action was taken to schedule jobs until all materiel had been received.

3. Air Force System. Under the Air Force system, materiel requirements to support specific jobs were identified to the Base Civil Engineer (BCE) organization, and this information was held in suspense. In the meantime, the job itself was "programmed" --i.e., a tentative schedule was developed which considered the man-hour requirements, by skill, for the accomplishment of the job. The amount of time required to obtain needed materiel was determined, and BOM requirements were ordered this materiel lead time before the month in which the job was programmed for accomplishment. Final scheduling decisions were made one month in advance, and a job was not placed on the firm schedule unless all required materiel was on hand at the time this final firm schedule was developed.

4. Marine Corps System

At Camp Lejeune, schedulers reviewed job estimates which identified both shop (i.e., manpower by skill) and materiel requirements. A tentative schedule was developed based primarily on manpower availability, but also considering materiel availability and long lead time materiel problems. Based on this tentative schedule, Required Delivery Dates (RDDs) were established for the materiel requirements associated with a job, and the Uniform Materiel Movement and Issue Priority System (UMMIPS) priority of the requirement was selected based on this RDD.

Final scheduling decisions were made approximately one week prior to the date the job was scheduled to begin, based on the availability of the materiel, since jobs were generally not started until all required materiel was available. Jobs were rescheduled if all materiel was not available at the time of this final schedule review and their place taken by preventive maintenance jobs, or Specific Jobs which were held over from previous schedules due to the late arrival of materiel.

C. ANALYSIS

Examination of the systems in the four Military Services for obtaining materiel for the support of Specific Jobs, and for scheduling those jobs, shows that there are really only two different approaches: either the materiel required for the accomplishment of the job is obtained, and then the job is placed on the work schedule--the Army and Navy systems; or, the job is placed on the work schedule and the required supporting materiel is ordered lead time before the scheduled accomplishment date--the Air Force and Marine Corps systems.

This difference in approaches should have an effect on the amount of materiel which is held to support Specific Jobs. However, further examination showed that the effect of the difference between the systems would vary depending on whether or not a workload backlog existed.

This examination showed that there is no difference in these two approaches when manpower available to the Facilities Engineer is equal to the workload:

Under the first system, required materiel would be ordered as soon as the job has been approved; when the materiel is received, an attempt would be made to schedule the job, and it would be determined that required manpower would be available the "next day"; the job would be so scheduled, and so started.

Under the second system, the job would be scheduled; it would then be determined that the scheduled starting date is materiel lead time away, and supporting materiel requirements would be ordered immediately; the materiel would be received "the day before" the job was scheduled to be started, and the job would be started the "next day".

In this environment, of manpower matching the workload, the idle inventory investment--the amount of inventory which is being held for a scheduled starting date--is virtually zero. Materiel for a Specific Job is received and is used immediately, and holding costs are minimal.

However, field research indicated that there was generally a backlog at the Facilities Engineer--that is, there was more work for the FE to do than he had manpower with which to do it.

For example, at one activity the backlog was estimated as being about 15 days; at another, it was about one month; however, at a third activity it was estimated as being over three months, while a fourth activity estimated the backlog as between three and four months. What happens to inventory investment when there is a backlog at the Facilities Engineer?

Analysis indicates that receiving all required materiel to support a Specific Job before any attempt is made to schedule that job results in unnecessary inventory investment--how much would be a function of the amount of materiel being held and the amount by which the Facilities Engineer workload exceeds the manpower available to accomplish that workload. That is, if the relationship between workload and available manpower is such that Specific Jobs are being scheduled only one month in the future, there would be a much lower idle inventory investment that if all shop manpower is fully utilized for four months in the future, and jobs must be scheduled--and materiel held--for that length of time.

A theoretical analysis of the two different approaches to materiel collection and job scheduling illustrates their different effects on idle inventory investment when workload and available manpower are not in balance. Assume that required materiel to support a Specific Job has a 60-day lead time, and that the scheduling procedure calls for a final review for materiel availability 15 days before the scheduled starting date of a job.

If the available manpower equals available work:

Under the First System: Materiel is ordered on Day 1 and received on Day 60; the scheduling conference on day 60 schedules the job for the first available date, which is 15 days in the future, and the job is started on day 75. The inventory waiting time is 15 days.

Under the Second System: The job is scheduled for day 75 (60 days materiel lead time plus 15 days final scheduling lead time), and the materiel is ordered immediately; materiel arrives on day 60; the scheduling conference on day 60 determines that materiel is available, and the job is started on day 75. The inventory waiting time is 15 days.

However, this situation changes drastically if there is more work than there is manpower available to accomplish it--assume for this analysis that there is a 75-day backlog of work:

Under the First System: Materiel is ordered on day 1 and received on day 60; the scheduling conference on day 60 determines that the first date when manpower will be available is 75 days in the future, on day 135, and the job is so scheduled; the scheduling conference on day 120 confirms the continued availability of required materiel and manpower, and the job is confirmed for day 135. The inventory waiting time is from day 60, when the materiel arrives, until day 135, when the job starts, or 75 days.

Under the Second System: The job arrives on day 1 and is scheduled for day 90 (the greater of the 60 days materiel lead time and the 75 days workload backlog, plus 15 days final scheduling lead time); the materiel is ordered on day 15 (60 days materiel lead time plus 15 days final scheduling lead time prior to the scheduled start of the job); materiel arrives on day 75 and the scheduling conference on that date determines that materiel is available and manpower will be available as scheduled; the job is started on day 90. The inventory waiting time is 15 days.

This examination shows that the first system--under which jobs are not scheduled until after the supporting materiel has been received--has two disadvantages when compared to the second system:

a. Inventory waiting time, and therefore idle inventory investment, increases as the workload backlog increases--that is, as the amount by which the FE workload exceeds the manpower available to accomplish that workload increases, greater quantities of supporting Bills of Materials will be on hand awaiting the job starting date; and,

b. Delays in starting Specific Jobs increases as the workload backlog increases--that is, under the first system a Specific Job must wait through a materiel lead time period and then through a workload backlog period, while under the second system these two will run simultaneously, and the job must wait only the longer of these two periods.

Data was submitted by the Military Services showing the Facilities Engineer inventory which is held to support Specific Jobs, and the Army reported an inventory of $3.0 million. There

were workload backlogs at all installations visited during field research, and estimates of this backlog for the CONUS Army installations are shown in Table IV-1. Examination of Table IV-1 shows that the smallest backlog was about 1-1/2 months, the largest about 3-1/4 months, and the weighted average backlog about 2-3/4 months. Under the system used in the Army for the collection of Bills of Materials for the support of Specific Jobs and for the scheduling of such Jobs, the $3 million inventory is at least partially caused by the wait between the time all the materiel for a BOM is on hand and the Job is placed on the work schedule, and the time when the Job is actually started. If this waiting time could be reduced by only one month--from 2-3/4 months to 1-3/4 months--because of a change in the materiel collection/job scheduling relationship, the following savings could be realized:

a. A one-time reduction of about $1 million in the inventory being held for the support of Specific Jobs; and,

b. Recurring savings (based on a cost to hold factor of 15%) of just over $160,000 per year.

If this inventory waiting time could be reduced to one month, the one-time Army inventory saving would total about $1.9 million, with an annual savings in reduced inventory holding costs of just over $286,000.

The Navy reported an inventory of $7.5 million to support Specific Jobs, but backlog data to permit a comparable analysis could not be developed. However, assuming a Navy backlog of about three months (a not unreasonable assumption in view of the available Army data, and one which produces a conservative calculation of possible savings), a one-month reduction in waiting time would result in a one-time Navy inventory reduction of about $2.5 million, with annual savings of about $375,000.

This entire analysis is theoretical, and data (other than that contained in Table IV-1) was not available which would provide a direct support and quantification of the potential savings. However, this thesis has sufficient merit to justify a moderate amount of additional research effort to permit the development of a definitive policy in this area.

Table IV-1

WORKLOAD BACKLOG
(as of May 1976)

Installation	Backlog	
	Estimated Months	Man-Hours Involved
Fort Bragg	1-1/2	34,000
Fort Sill	3-1/4	90,865
New Cumberland A.D.	1-1/2	1,869
Total		126,734
Weighted Average	2-3/4 months	

Source: Field Research

D. CONCLUSIONS

1. Theoretical analysis indicates that the two different approaches used in the DoD for materiel collection and job scheduling result in significantly different amounts of inventory investment to support Specific Jobs.

2. Since there are workload backlogs in all Military Services, those Services using the system under which no attempt is made to schedule Specific Jobs until after receipt of the supporting materiel are apparently incurring unnecessary inventory holding costs.

3. Analysis of workload backlog and inventory investment data indicates a potential one-time reduction in inventory investment of about $3.5 million, and annual recurring savings of over $500,000, from a change in the materiel collection/job scheduling relationship for Specific Jobs.

CHAPTER V

LOCAL PROCUREMENT SUPPORT OF CIVIL ENGINEER OPERATIONS

A. INTRODUCTION

1. General Observations

The descriptions of Civil Engineer (CE) materiel support systems contained in earlier chapters of this Report indicates the extent to which local purchase organizations and practices play a role in such support. As illustrated, local procurement is always a significant portion of the materiel support for FE operations, generally providing approximately two-thirds of the materiel consumed by the FE. The extent to which local procurement is a source of FE materiel caused the Study Team to review local procurement organizations and practices in each location visited.

In two geographic areas overseas, Germany and Okinawa, the review of local procurement showed a trend toward consolidation of procurement, provided rationale for such consolidation, and revealed a potential for further consolidation.

Because of the foregoing factors, this Chapter is devoted primarily to a description of local procurement in Germany and Okinawa and an analysis of the potential for procurement consolidation in these areas. In examining the potential for greater consolidation of procurement, the discussions and analyses consider:

- Organizational arrangements for procurement
- Application of procurement methods
- Commonality of items procured
- Commonality of market sources
- Proximity of procurement agents to each other and their customers
- Responsiveness
- Cost factors

While the procurement discussion is aimed primarily at the acquisition of materiel (supplies) for CE support, procurement actions also include the acquisition of services (e.g., construction contracts and utilities) and the support of customers other than the CE. Therefore, discussion and analyses of CE materiel procurement will, on occasion, extend beyond the initially stated scope of this Study.

2. Armed Services Procurement Regulation (ASPR) Influence

Throughout the review of procurement organizations and practices, it was observed that certain procurement techniques - Indefinite Delivery Type Contracts (IDTCs) and Small Purchase Procedures - are used widely and play a major role in the provision of materiel for CE operations. At the same time, it was observed that emphasis on the use of certain techniques varies and, on occasion, has an impact on procurement organizational arrangements. Because the extensive, but varied, use of these purchase techniques plays a role in this analysis, certain pertinent characteristics of the techniques require description. Because of the DoD-wide applicability of the Armed Services Procurement Regulation, the following characteristics of the most commonly used procurement techniques are based on pertinent excerpts from the ASPR:

a. IDTCs (ASPR 3-409). There are three specific types of IDTCs: Definite Quantity Contracts, Requirements Contracts, and Indefinite Quantity Contracts. Each has applicability for obtaining CE materiel.

(1) Description. A "Definite Quantity" IDTC "provides for a definite quantity of specified supplies or for the performance of specified services for a fixed period, with deliveries or performance at designated locations upon order." A "Requirements" IDTC "provides for filling all actual purchase requirements of specific supplies or services of designated activities during a specified contract period with deliveries to be scheduled by the timely placement of orders upon the contractor by activities designated either specifically or by class." An "Indefinite Quantity" IDTC "provides for the furnishing of an indefinite quantity, within stated limits, of specific supplies or services, during a specified contract period, with deliveries to be scheduled by the timely placement of orders upon the contractor by activities designated either specifically or by class."

(2) Applicability.

Generally, IDTCs are used only when one or more of the key factors (1) quantity, and/or (2) specific items, and/or (3) specific delivery time cannot be forecasted, when the required item or service is commercial or modified commercial in type, and a recurring need is anticipated. Each type of IDTC is used to provide CE materiel.

IDTCs may be negotiated locally, by an installation (post/camp/base) procurement organization and used exclusively by that organization, or centrally, by an ICP, theater, regional, or area procurement organization and used by multiple "ordering" organizations.

(3) Delivery Orders. Ordering processes and limitations are prescribed in the contract. ASPR 3-409.4 prescribes (a) the content of the order and (b) media which may be used for submitting orders. ASPR 3-608.6 describes use of the DD Form 1155 as a Delivery Order, which is the most commonly used medium for ordering materiel under IDTCs.

b. Small Purchase Procedures. Generally the simplified procedures for the procurement of supplies, nonpersonal services, and construction, the aggregate amount of which does not exceed $10,000, are referred to as "small purchases." Purchase Orders, Blanket Purchase Agreements, and Imprest Funds are each small purchase methods used in support of FE materiel procurement.

(1) Purchase Orders. ASPR 3-608 describes the use of Purchase Orders. It states that negotiated purchases of supplies, nonpersonal services, and construction not in excess of $10,000 may be effected by using DD Form 1155, "Order for Supplies or Services/Request for Quotations" and its ancillary forms. In using the purchase ordering method, competition must be solicited in accordance with ASPR 3-604.

(2) Blanket Purchase Agreement (BPA). ASPR 3-605 describes the BPA as a simplified method of filling anticipated repetitive needs for small quantities of supplies or services by establishing "charge accounts" with qualified sources of supply, designed to reduce administrative costs by eliminating the need for issuing individual purchase documents. Generally, BPAs contain, among others, the following provisions:

- A statement that the supplier shall furnish supplies or services, described therein in general terms.

- A statement that the Government is obligated only to the extent of authorized calls actually placed against the BPA.

- A statement that the prices to the Government shall be as low as, or lower than, those charged the supplier's most favored customer.

- A statement that no individual call under the agreement shall exceed $5,000.

- A list of names of individuals authorized to place calls under the agreement, identified by organizational component, and the dollar limitation per call.

ASPR further specifies that "calls against blanket purchase agreements generally will be made orally, except that informal correspondence may be used when ordering against agreements outside the local trade area" and that "documentation of calls shall be limited to essential information."

(3) Imprest Fund. ASPR 3-607 describes an imprest fund as a cash fund of a fixed amount established through an advance of funds, without appropriation charge, to an authorized imprest fund cashier to effect immediate cash payments of relatively small amounts for authorized purchases of supplies and nonpersonal services and states that such a fund may be used when:

(a) the transaction is not in excess of $150 ($300 under emergency conditions);

(b) the supplies or services are available for delivery within 30 days, whether at the supplier's place of business or at destination; and

(c) the purchase does not require detailed technical specifications or technical inspection.

Throughout this Report, when Delivery Orders (under IDTCs), Purchase Orders (DD 1155s), BPAs and associated "calls", and Imprest

Funds are referred to, it may be assumed that they possess the characteristics described above. Specific exceptions, if any, will be emphasized.

B. PROCUREMENT IN GERMANY

1. Background. A review of procurement support to European CE/FE programs reveals the following key factors:

a. In contrast to the Army and Air Force, the Navy installations requiring materiel support in Europe are relatively few. Only one major base, Rota, Spain, and the support activity Naples, Italy, have significant military and civilian populations to require materiel support. The primary source of supply for these activities is Norfolk, Virginia; only minimal local purchases are made by the Navy in Europe for materiel support.

b. The vast majority of U.S. Army and Air Force major installations and their associated military and civilian populations are located in Germany (primarily the southern and western regions of West Germany).

c. Even though many relatively small installations and activities as far away as Greece, Turkey, North Africa, and Great Britain are organizationally associated with and/or satellited upon the European support structure, the structure is oriented primarily toward the support of facilities in West Germany.

Because of these factors, procurement support arrangements and practices described and discussed here are limited to those of the Army and Air Force and concentrate on the support systems for West Germany.

2. Army.

a. Procurement Organization

The U.S. Army, Facilities Engineers in Europe receive offshore, European, procurement support through the U.S. Army Procurement Agency, Europe (USAPAE). Figure V-1 shows the overall organization of USAPAE. Central procurement is accomplished at the USAPAE Headquarters in Frankfurt. Decentralized procurement is effected by the Area Procurement Offices located at:

Kaiserslautern	Frankfurt	Seckenheim	Augsburg*
Stuttgart	Fuerth	Bremerhaven	Grafenwoehr*

* Sub-Area Offices under Fuerth

As of 1 November 1975 USAPAE was staffed as shown in Table V-1.

US ARMY PROCUREMENT AGENCY, EUROPE

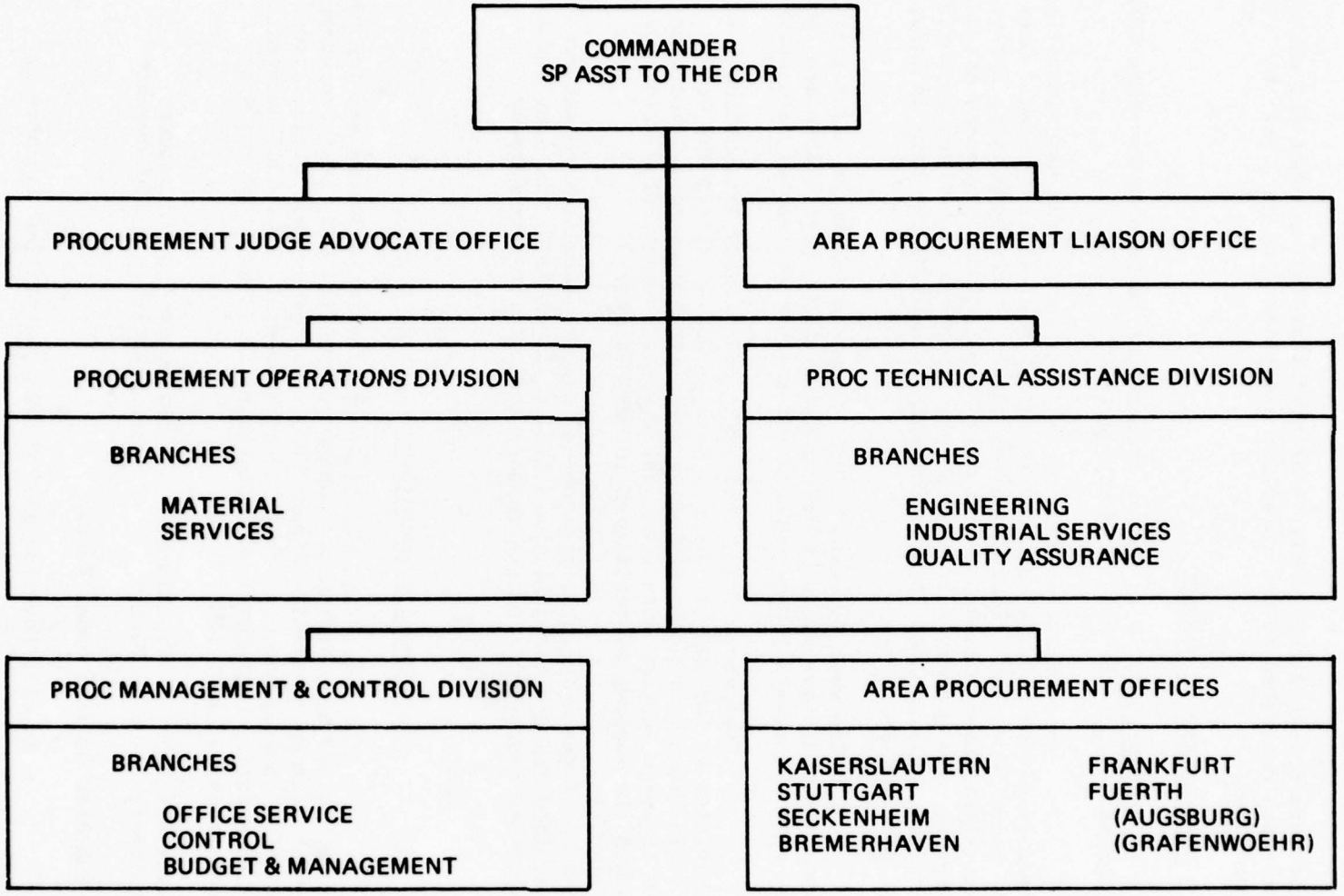


Figure V-1

Table V-1

USAPAE STAFFING

Organization	Military		DA Civilians	Local Nationals	Total
	Officer	Enlisted			
Office of Commander	1	0	2	0	3
Judge Advocate Off.	2	0	3	0	5
Area Liaison Off.	1	0	0	2	3
Mgmt & Control Div.	0	3	11	19	33
Procmt. Operations Division	5	0	11	43	59
Technical Assist. Division	1	0	9	44	54
Area Procmt. Offices	1	1	35	130	167
Total	11	4	71	238	324

Source: Field Research

b. Procurement Volume

Of a $392.8 million USAPAE procurement program in Fiscal Year 1975, $333.4 million (85%) was obligated in Germany. The estimated procurement program for Fiscal Year 1976 exceeds $425 million. Major categories (i.e., project areas expected to exceed $10 million) are as follows:

Category	Estimated Expenditure
Utilities (Gas, water, electric, steam)	$100 million
Repair & Utilities (R&U) Projects	84 million
Solid Fuels Program(s)	82 million
POL	76 million
U.S. Army Maintenance Plant (Mainz)	33 million
Packing & Containerization (plus local drayage)	15 million
Communications	14 million
R&U Supplies	13 million

The procurement offices visited estimated that 30% to 50% of their workload is in support of facilities engineering operations; however, this estimate includes contracts for FE services and construction as well as utilities and materiel. Of

the eight major procurement areas listed above, several, including utilities, R&U projects, fuels, and R&U supplies, are related directly or indirectly to FE operations and responsibilities. Of these, the $13 million R&U supplies procurement effort is most directly related to the materiel support analysis of this Study. The value of R&U supplies procurement in Europe for Fiscal Year 1975 was approximately $11 million; purchases/orders were effected by the six Area Offices as follows:

Area Office	$ Value of FY 1975 R&U Procurement
Frankfurt	$5.3 million
Fuerth	2.6 million
Seckenheim	1.3 million
Stuttgart	0.8 million
Kaiserslautern	0.6 million
Bremerhaven	0.3 million

c. Centralized Contracting - Decentralized Ordering

The Central Procurement Office in Frankfurt lets a set of Indefinite Delivery Type Contracts (IDTCs) having system-wide application. The Area Procurement Offices let smaller IDTCs and BPAs having area-wide application. To facilitate use of the IDTCs and BPAs, USAPAE appoints "Ordering Officers" within the organizations requiring support. This arrangement is illustrated in Figure V-2.

The most widely used IDTCs are those let by the Central Office in Frankfurt. During FY 1975 over 60 such IDTCs were for FE materiel support. These IDTCs ranged from industrial gases (FSC 6830), lighting fixtures (FSC 6220), and plumbing fixtures and accessories (FSC 4510), commodity areas for which USAPAE has single Service "Coordinated Procurement Assignments", to traffic signs (FSC 9905), bulk construction materiel (FSC 5610), and hardware (FSG 53). A few examples of such IDTCs are as follows:

EXAMPLE # 1: Plumbing Supplies and Accessories (FSC 4510)

Number of Items - 58
Minimum Order Value - 250 DM (approximately $100)
Delivery - 3 weeks from receipt of Delivery Order
Prices - Based on estimated requirements by District
Estimated annual volume - over $100,000

USAPAE APPOINTED ORDERING OFFICERS INCLUDING AREA PROCUREMENT OFFICES



Figure V-2

EXAMPLE # 2: Screws, Nails, and Pins (FSC 5305)

Number of Items - 75 (modifications to add and delete)
Minimum Order Value - 200 DM (approximately $80)
Delivery - 2 to 3 weeks from receipt of Delivery Order
Prices - Based on estimated requirements by District
Estimated annual volume - over $10,000

EXAMPLE # 3: Hardware; e.g., door handles, hinges, keys (FSC 5340)

Number of Items - 49
Minimum Order Value - 600 DM (approximately $240)
Delivery - 6 weeks from receipt of Delivery Order
Prices - Based on single estimate for Germany
Estimated annual volume - over $40,000

Normally, materiel is obtained from the IDTCs described above as follows:

— An FE employee (e.g., an individual in the Materiel Control Office) or an FE support activity employee (e.g., an individual in a main warehouse or sub-warehouse) identifies the materiel requirement to an item in the Facilities Engineer Support Activity Europe (FESAE) catalog.

— The FESAE catalog number is then included on a requisition/purchase request forwarded to an Area Procurement Office.

— The Area Procurement Office relates the item to a specific IDTC and prepares a Delivery Order against the IDTC let by the USAPAE Central Office in Frankfurt.

d. Decentralized Procurement - Area Procurement Offices

Local procurement support to the FE is provided by the Area Procurement Offices. Area Procurement Office organizations and practices were observed in two communities, Kaiserslautern and Stuttgart. These offices and the USAPAE Headquarters provided the following information.

(1) Organization and Volume

The Area Procurement Offices are organized similarly, having organizational units responsible for:

(a) Repair and Utilities and Custodial Services Procurement, (b) Contract Administration, (c) Power Procurement, (d) Materiel and Services Procurement, and (e) Procurement Support. Most materiel procurement support for the Directorate of Facilities Engineering (DFAE) is effected by the Materiel and Services procurement organizational unit.

The Area Procurement Offices at Kaiserslautern and Stuttgart were staffed as follows: (As of October 1975)

	Kaiserslautern	Stuttgart
Department of Army Civilians	3	2
Local Nationals	20	16
Total	23	18

The annual procurement actions and values for the two Area Offices were as follows: (FY 1975)

	Kaiserslautern	Stuttgart
Actions	9,000	5,000
$ Value	$35 million	$29 million

Of the total procurement values illustrated, approximately two-thirds were for power and POL, and about 10% was for FE materiel (supplies).

(2) Procurement Practices

These Offices, in addition to ordering FE materiel under USAPAE Headquarters IDTCs, use Imprest Funds, BPAs, and Purchase Orders to support FE requirements. Review of FE materiel support actions at Kaiserslautern and Stuttgart indicate that the techniques are used as follows:

Techniques	Application
Imprest Fund	Less than 2%
BPA Orders	About 20%
Purchase/Delivery Orders	About 75%

(a) BPAs. Generally, where BPAs are used, ordering is accomplished by personnel in the Area Procurement Office as well as by FE or FE support personnel who have been designated ordering personnel. BPA orders made by the Area Procurement Offices have a $5,000 limitation. However, BPA ordering personnel located outside of the Area Procurement Office (e.g., in the DFAE) have a $500 ordering limitation. At Kaiserslautern there were 56 active BPAs; 28 (50%) were for DFAE materiel. At Stuttgart there were 62 active BPAs; 27 (44%) were for DFAE materiel. All BPA vendors were located within 50 miles of the ordering personnel. Because BPAs account for a large portion of the FE materiel support, 200 transactions were reviewed to ascertain response on BPA orders; the results are as follows:

Delivery Time (days)	Number of Actions			
	Kaiserslautern	Stuttgart	Total	Percent
1	0	13	13	6.5
2	0	1	1	0.5
3	0	3	3	1.5
4	0	5	5	2.5
5-10	13*	21	34	17.0
>10	87*	57	144	72.0
Total	100	100	200	100.0

* The relatively longer delivery times for Kaiserslautern are attributed primarily to two factors: (1) nearly all BPA orders have a "confirming order" typed and mailed to the vendor and (2) very few (estimated at 1%) of the items are picked up.

(b) Purchase Orders/Delivery Orders. Purchase Orders (POs) have the normal $10,000 limitation; Delivery Orders (DOs) are limited by the terms of the contract under which the order is placed (see subparagraph B.2.c. for examples). Since POs and DOs account for the vast majority of materiel purchased for the FE, 80 orders were reviewed to ascertain sources and responses; the results are as follows:

No. of Days Order to Delivery	Number of Items			
	Kaiserslautern	Stuttgart	Total	Percent
10 or less	0*	5	5	6.2
11-20	4	15	19	23.8
21-30	10	5	15	18.8
31-45	12	11	23	28.8
46-60	4	3	7	8.7
61-90	0	1	1	1.2
over 90	10*	0	10	12.5
Total	40	40	80	100.0

* Longer delivery times at Kaiserslautern were associated primarily with a greater degree of procurement control, as was the case with BPA orders.

Distance to Vendors (miles)	Number of Orders			
	Kaiserslautern	Stuttgart	Total	Percent
> 50	21	25	46	57.4
50 — 100	10	5	15	18.8
> 100	9	10	19*	23.8
Total	40	40	80	100.0

* Most of the orders from vendors outside of a 100 mile radius are orders under centrally let IDTCs.

Thirty of eighty orders were for stock replenishment. Review of stock replenishment orders at Stuttgart showed that 80% of the Delivery Orders were for stock, while 20% of the Purchase Orders were for stock. At Kaiserslautern, a review of 20 Delivery Orders showed that 100% were for stock. A further review showed that the vast majority of stock replenishment Delivery Orders were under the USAPAE IDTCs, indicating extensive use of the centrally let IDTCs by both Area Procurement Offices.

3. Air Force.

a. Procurement Organization. The United States Air Force, Europe (USAFE) receives off-shore procurement support through theater-wide procurement structure. The hub of this structure is in Southwest Germany. The Procurement Directorate is organizationally assigned to the Deputy Chief of Staff for Logistics Hq USAFE, Ramstein Air Base, Germany. Figure V-3 shows the overall organization for Air Force procurement in Europe, including the Headquarters USAFE (at Ramstein

PROCUREMENT ORGANIZATION
U.S. AIR FORCE, EUROPE

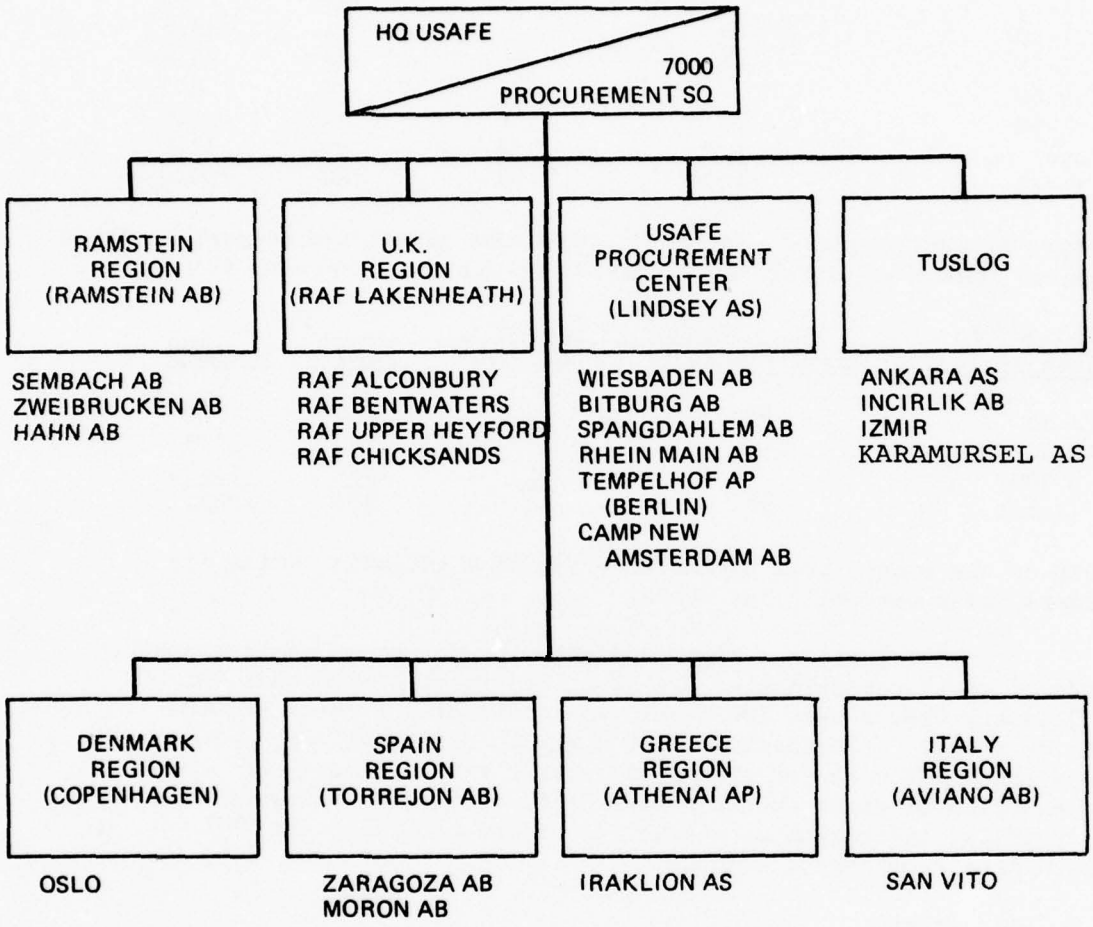


Figure V-3

Air Base), the USAFE Procurement Center (at Lindsey Air Station, Wiesbaden), the six Regional Procurement Offices, and the local, base procurement offices. USAFE central procurement is accomplished at the USAFE Procurement Center. Decentralized procurement is effected primarily by the Regional Procurement Offices; each of the Regional Offices provides procurement support for the base/activity on which it is located, plus the activities/bases in its "region" (see Figure V-3). Small contingents of personnel at bases/activities provide some local buying/ordering support. Total dollar value of USAFE procurements was approximately $180 million in FY 75. Manning to accomplish these procurements is shown in Table V-2.

(1) The USAFE Procurement Center, Wiesbaden

The USAFE Procurement Center is responsible for providing centralized procurement, mechanization, and administration capability to Air Force activities throughout Europe. While these responsibilities are extended to all materiel and services, a significant portion (estimated at approximately 75%) is associated with functions and tasks of the Civil Engineer, including construction contracts, plus their administration.

Of 3,686 supply (materiel) line items purchased during October 1975, it was estimated that 70-80 percent were for civil engineer support. Most of these purchases were for the CE operations at Wiesbaden Air Base, Bitburg Air Base, Spangdahlem Air Base, and Rhein Main Air Base, especially Rhein Main Air Base, because of its size. These activities are served on a regional basis by the USAFE Procurement Center.

(2) The Regional Procurement Office, Ramstein

The Regional Procurement Office, located at Ramstein Air Base, is organized as shown in Figure V-4 and is staffed as shown on the Table V-2. As of November 1975, the staff was being increased by four. The office is responsible for providing procurement support to USAFE Headquarters, Ramstein Air Base, Sembach Air Base, Hahn Air Base, and Zweibrucken Air Base.

Table V-2

USAFE PROCUREMENT PERSONNEL

Organization 1/	Military	Civilian	Total #
USAFE Headquarters (Ramstein AB)	9	3	12
USAFE Procurement Center (Lindsey AS)	34	83	117
Bitburg AB	2	5	7
Tempelhof Airport (Berlin)	2	23	25
Camp New Amsterdam AB	3	4	7
Ramstein AB (Region)	15	38	53
Hahn AB	2	2	4
Zweibrucken AB	1	3	4
Lakenheath RAF (UK Region)	16	23	39
Alconbury RAF	3	2	5
Bentwaters RAF	4	1	5
Upper Heyford RAF	4	4	8
Chicksands RAF	2	1	3
Torrejon AB (Spain Region)	16	15	31
Zaragoza AB	6	4	10
Moron AB	0	3	3
Copenhagen (Denmark Region)	1	7	8
Oslo	0	3	3
Athenai Airport (Greece Region)	10	9	19
Iraklion AS	8	4	12
Aviano AB (Italy Region)	3	11	14
San Vito	5	10	15
Ankara AS (TUSLOG HQ)	11	8	19
Incirlik AB	7	4	11
Izmir	1	3	4
Karamursel AS	8	5	13
Total	173	278	451 2/

Source: USAFE Headquarters

1/ Sembach AB, Wiesbaden AB, and Spangdahlem AB are not listed in this Table, because they did not have procurement personnel on board as of October-November 1975. Rhein Main AB also excluded, see footnote 2/.

2/ Six personnel (1 military, 1 DAF civilian, and 4 local nationals) at Rhein Main AB excluded, because Rhein Main is part of a separate command.

USAFE PROCUREMENT REGION - RAMSTEIN

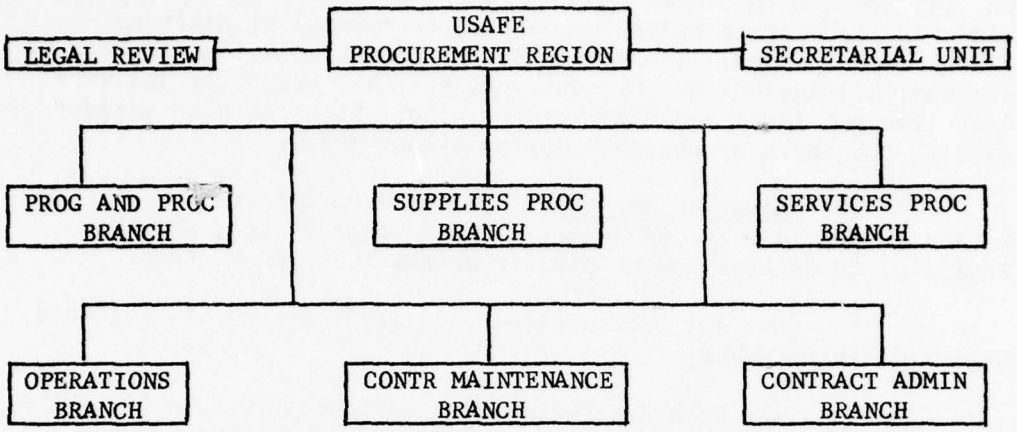


Figure V-4

During Fiscal Year 1975 the Regional Procurement Office accomplished 10,200 actions for 37,200 line items valued at $16.3 million. It was estimated that 75% of the workload was associated with CE support. Again, the estimates include such things as minor construction, utilities, and POL. Materiel support for CE operations represents about one-third of the total estimated CE support or one-fourth of the total workload.

A review of the "Emergency Vendor Source Lists" which include the most frequently used local contractors in the Region, shows that 28 of 33 vendors listed provide CE support items, such as hardware, plumbing and heating, electrical, paint, sanitation, lock, lumber and woodwork, and roofing materiel.

b. Procurement Support at Base Level

With the establishment of the Regional Procurement Concept, base procurement offices were eliminated, or virtually eliminated. For example, Zweibrucken and Hahn Air Bases in the Ramstein Region each has four procurement personnel. These local, base procurement personnel are responsible for three tasks: (1) emergency local procurement actions (for materiel or services); (2) contract maintenance of local base equipment (e.g., typewriters); and (3) contract administration for immediate area contracts let by other procurement offices.

To evaluate CE materiel support operations more closely, CE procurement techniques were observed at three Air Bases: Ramstein, Hahn, and Rhein Main. Ramstein and Hahn Air Bases are USAFE bases; Rhein Main Air Base is under the management control of Military Airlift Command (MAC). The review of the procurement techniques used shows that all actions are by contract, purchase order, or delivery order. Imprest funds and BPAs are not used. Specific observations regarding the three procurement organizations follow.

(1) Ramstein Air Base. Procurement support for the CE Ramstein is provided by the Regional Procurement Office, Ramstein. A review of 40 CE procurement support transactions shows that:

— All transactions were accomplished via purchase order or delivery order;

— Some deliveries were effected using USAPAE IDTCs; (these were praised by the Base Civil Engineer (BCE) Ramstein and the Regional Procurement Office personnel);

— A wide range of materiel was ordered, including plumbing and heating items, electrical supplies, structural materiel, hardware, and repair parts;

— Ordering was accomplished in the immediate area, throughout the "Region", and throughout West Germany; and

— Delivery times were as follows:

Days	No. of Items	Percent	Cumm. Percent
10 or less	7	17.5	17.5
11-20	9	22.5	40.0
21-30	3	7.5	47.5
31-45	5	12.5	60.0
46-60	3	7.5	67.5
61-90	10	25.0	92.5
over 90	3	7.5	100.0

(2) Hahn Air Base

Hahn Air Base has four procurement personnel, two military and two local nationals. These personnel are limited to performing procurement services for: (1) contract maintenance,

(2) local contract administration, and (3) small emergency buying. Procurement of supplies is limited to buying/ordering mission essential items, with the approval of the Base Commander. All buys are by PO/DO. DOs are limited to Base Exchange and/or Buy United States Here (BUSH) contracts. From April to November 1975 the following supply buys were made by PO or DO:

	For CE	For Other Than CE	Total
Number of Orders	28	95	113
Number of Line Items	51	268	319
Dollar Value	$33,144	$62,115	$95,259

Delivery times for the 51 CE items were as follows:

Days	No. of Items	Percent
10 or less	39	77
11-20	12	23
over 20	0	0

Distance to vendors was as follows:

Distance	Items	Percent
50 miles or less	35	70
51-100 miles	12	23
over 100 miles	4	7

Types of items purchased included paint, hardware, electrical parts, steel wire, floor tile, concrete pipe, and bulk items such as gravel, ash, stone, asphalt, and cement.

The vast majority of CE purchase actions are accomplished by the Regional Procurement Office Ramstein. A review of work order/project order folders indicated that deliveries based on Regional POs/DOs ranged from 14 to 113 days with a median of approximately 60 days.

A concurrent review of 22 plumbing items on a single work order showed that:

— 16 items were ordered in Germany using "PV Numbers" (USAFESAE identification) and had delivery times from 20 to 105 days.

— 4 items were ordered in Germany using LOO numbers (local identification) and had delivery times from 20 to 105 days.

— Two items were ordered from CONUS using National Stock Numbers (NSNs) and had delivery times of 20 days and 106 days.

BCE and Supply Personnel at Hahn Air Base conducted an eight month review (which was continuing) of "empty bench stock bins" for three materiel categories as follows:

Month	CE	Aircraft Maint.	Vehicle Maint.
Feb	7.9%	6.0%	3.6%
Mar	4.9	5.1	3.2
Apr*	3.6	2.7	1.7
May	4.8	4.3	3.5
Jun	12.1	4.9	9.3
Jul	12.4	3.4	3.9
Aug	11.0	3.0	5.4
Sep	12.9	3.9	6.3

* Month local procurement capability was virtually eliminated.

The BCE and Supply personnel at Hahn Air Base indicated that the loss of Base procurement capability had a significant impact on the higher percentage of empty bins for vehicle and CE support — with the greatest impact on CE — because of their extensive dependence on local procurement.

(3) Rhein-Main Air Base

Rhein Main Air Base had six procurement personnel (one military, one DAF civilian, and four local nationals). Materiel buys are limited to "emergencies." Buys are effected using POs/DOs and Imprest Funds. Buys for the CE are minimal. From July to November 15, 1975 approximately 63 CE line items were purchased on an emergency basis. Most were obtained in the Frankfurt area; a few came from the Wiesbaden-Mainz area. Of the 63 items, 26 were electrical, five were paint, five were locks, and four were lumber.

The vast majority of CE purchase actions are effected by the USAFE Procurement Center (Lindsey AS) in Wiesbaden. A review of work order folders indicated that deliveries based on Procurement Center POs/DOs ranged from one day to 112 days with about two-thirds of the items received in 60 days or less.

CE personnel noted a switch in "local" vendors with the movement from Base Procurement to Regional Procurement. For example: an electrical supplies vendor outside of the Rhein Main Air Base gate (near Frankfurt) was replaced by a Wiesbaden area vendor.

4. Miscellaneous Factors Regarding CE Procurement Support

a. The Factors. Throughout Germany, at each of three Army and three Air Force installations, local CE personnel, and/or procurement personnel, and/or local commanders pointed out the following factors:

— Real estate and facilities in Europe range from very old to relatively new;

— Real estate and facilities, including a wide range of equipment, supported by the CE are of European construction/ manufacture;

— Certain major and minor construction and utilities systems are controlled by local rules and regulations;

— Facilities supported by the CE are frequently of the same configuration as those supported by the local economy;

— A wide range of equipment (e.g., washers, dryers, and stoves) obtained from CONUS must also be supported; and

— Policy changes, such as emphasis or deemphasis on gold flow, have an impact on CE support.

In aggregate, these factors result in a wide range of facilities, utility systems, and equipments that require support. Standardization is not the name of the game. Hence, a wide range of supply sources are used, and many of them are, of necessity, within the theater.

b. RPMA Supply, Individual Determination and Findings

(1) Purpose. To facilitate CE materiel identification and procurement in Europe, the Army Facility Engineer Support Activity developed a listing of approximately 1,500 items which are "not normally available in CONUS and may be purchased off-shore without any additional Flow of Gold (FOG) determination." The listing contains items having an estimated annual demand in excess of $500 and is used to facilitate materiel identification, and location of sources. Army and Air Force CE organizations and their supporting organizations are invited to recommend additions to the listing based on their local or regional experience.

(2) Content of the Listing

The listing, arranged in identification number sequence, within FSC, illustrates: the identification number, the unit of issue, descriptive data (nomenclature, size, and on occasion, related item), unit price, estimated annual requirement, and extended cost for estimated annual requirement quantity. The items had the following characteristics:

.. Item Unit Price Range - $.02 to $600

.. Estimated Item Annual Procurement Quantity Range - 5 to 780,000

.. Estimated Item Annual Dollar Value Range - $502 to $73,250

The Fiscal Year 1976 listing consists of 1,431 line items with an estimated procurement value over $5 million. This volume represents a significant portion of the anticipated procurement for support of the U.S. Army Facilities Engineer in Europe.

C. PROCUREMENT ON OKINAWA

1. Background.

A review of procurement support to CE programs on Okinawa reveals the following key factors:

(1) During the 1960's and early 1970's, three Services, Army, Air Force, and Marine Corps, had separate procurement organizations supporting their respective installations on Okinawa.

(2) As a result of reduction in the number of facilities, personnel, and operating programs from 1973 to present, certain consolidations and realignments have taken place.

(3) During Fiscal Year 1975, procurement responsibilities of the Army were assumed by the Air Force; the Air Force procurement organization is now supporting the Army.

(4) The largest, most active Army, Air Force, and Marine Corps installations on Okinawa are located in the southern one-third of the island; so are the major cities. (These are shown on Figure V-8.)

Because of these factors, the procurement arrangements described here are those operated by the Air Force and Marine Corps in support of their own CE operations as well as the support provided to the Army FE programs.

2. Air Force

a. Procurement Organization

Air Force procurement support in Okinawa is provided through the Pacific Air Force (PACAF) Procurement Region Okinawa. The organization, located on a Marine Corps installation - Camp Butler - in the Zukeran area, is assigned to Kadena Air Base for operational control and administrative support. As a PACAF Procurement Region, the office receives technical surveillance and guidance from the PACAF Procurement Center in Japan (see Figure V-5), and the Procurement Directorate, Deputy Chief of Staff Logistics, Headquarters PACAF.

The PACAF Okinawa Regional Procurement Office is staffed as shown in Table V-3.

During Fiscal Year 1975 the Regional Office did approximately $30.7 million in procurement business; volume by type of purchase instrument was provided as follows:

Contracts	$6,481,540
Purchase Orders	4,456,820
Imprest Fund	1,865
Delivery Orders	34,091
Blanket Purchase Agreements	287,181
Modifications	500,365
Utilities and related contracts	18,901,605
Total	$30,663,467

Among the CE support items procured are: metric tools, splice kits, oil, hot water heaters, doors, glass, plumbing supplies (American and Japanese), paint (generally, Japanese), locks, electrical supplies, sickles, generator parts, aluminum and steel, and the usual bulk materials (asphalt, sand, gravel, and cement).

AIR FORCE ORGANIZATION FOR PROCUREMENT ON OKINAWA

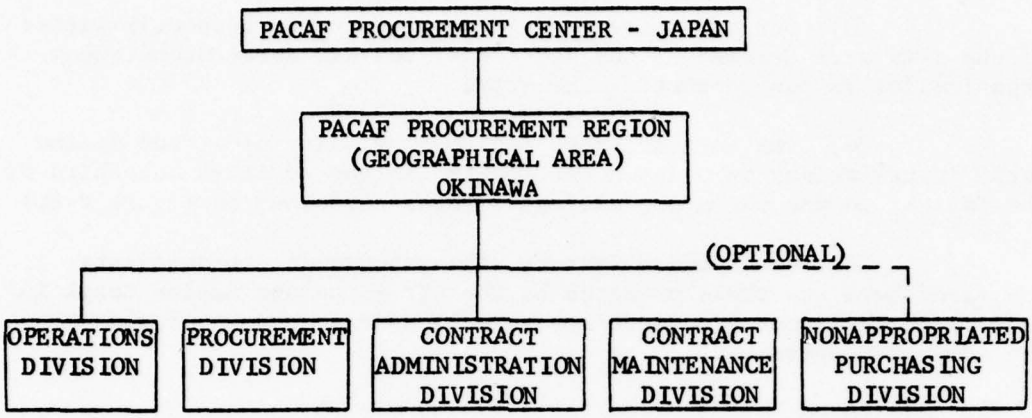


Figure V-5

b. Flow of Procurement Requests

(1) Within the Air Force. Within the Air Force system, all requests by requiring Air Force units, including the BCE, are processed through Base Supply and then to the procurement organization. In Base Supply, requests are reviewed to determine CIS availability and/or the normal source of supply, and to record demand data. When it is determined that local purchase will be effected, Base Supply cites funds on a purchase request which is forwarded to the procurement organization.

(2) Support of the Army CE. In the case of the Army Facilities Engineer (FE), when supplies eligible for local purchase are required, FE shop personnel submit requests to the FE Supply Division where determination is made if the requirement can be satisfied from available stocks, or if not available, to determine the proper source of supply. If the source is determined to be local purchase, the Supply Division prepares a purchase request, obtains a fund citation from the funds manager, and obtains approval for the purchase from the Director of Services. The purchase request is then sent directly to the Air Force procurement organization for action.

Table V-3

REGIONAL OFFICE - PERSONNEL
(November 1975)

Office	Military	Civilian	Total
Regional Director	2	2	4
Operations Division	3	11	14
Procurement Division	7	17	24
Contract Administration Division	11	10	21
Contract Maintenance Division	1	2	3
Nonappropriated Purchasing Division	4	6	10
Total	28	48[1/]	76

Source: PACAF Field Research; includes expanded resources for support of Army Okinawa procurement requirements.

1/ 20 DAF civilians and 28 Local Nationals.

c. Procurement Techniques. Materiel procurement support for CE operations is provided primarily through POs/DOs and BPAs; a small volume of Imprest Fund purchases are made.

(1) POs/DOs. As indicated by the volume of business, by instrument, shown in subparagraph 2.a. above, purchase orders account for a significant volume of the procurement support. This applies to CE materiel as well as other materiel. POs/DOs are used for procurement throughout Okinawa and in Japan.

(2) BPAs. The PACAF Regional Procurement Office, Okinawa, also uses BPAs extensively in support of Air Force and Army requirements. There are 60 BPAs of which at least 40 (two-thirds) are used to obtain CE materiel, including plumbing and heating supplies, electrical supplies, lumber, decals, bulk items (asphalt, concrete, and gravel), construction materiel, paint, carpets, and hardware.

To the extent BPAs are used the Regional Office lets the BPA and does the ordering; normally, ordering is not decentralized to requiring organizations. The range of BPAs used by the Air Force Regional Procurement Office has been expanded to facilitate the support of Army installations.

(3) Imprest Funds. Imprest Fund purchases are made only in behalf of the Army. As illustrated above, imprest fund buys represent a miniscule part of the overall procurement volume.

3. Marine Corps

a. Procurement Organization

Marine Corps procurement on Okinawa is performed by the Procurement and Contracting (P&C) Office which is organizationally assigned to the Marine Corps Base Supply Officer (see Figure V-6). The Procurement and Supply functions are physically separated by about 15 miles with the base supply function located at Camp McTureous and the P&C function located on Camp Butler in the Zukeran area. The mission for the P&C functions is to procure nonstandard supplies, provide service contracts, and provide procurement assistance to all Marine Corps units on Okinawa.

The Marine Corps P&C Office is staffed as shown in Table V-4.

MARINE CORPS PROCUREMENT ORGANIZATION ON OKINAWA

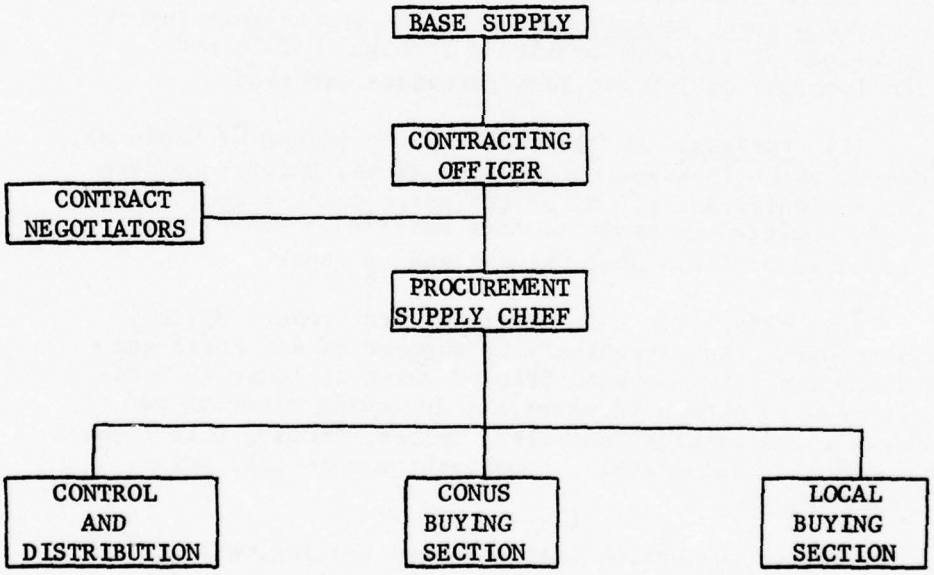


Figure V-6

Table V-4

MARINE CORPS PURCHASING & CONTRACTING OFFICE STAFFING
(November 1975)

Office	Military	Civilian	Total
Contracting Officer	1	-	1
Contract Negotiator	1	1	2
Procurement Chief	1	-	1
Control & Distribution Section	4	-	4
CONUS Buying Section	1	3	4
Local Buying Section	3	12	15
Total	11	16[1/]	27

Source: Field Research

1/ Three U.S. Civilians and 13 Local Nationals.

In FY 1975 the Marine Corps P&C Office procured supplies and services valued at $4.8 million. Of this total approximately $1.2 million was for FE support.

b. Flow of Purchase Requests. Materiel requests from various Marine Corps units, including the FEs, located throughout Okinawa flow to the Direct Support Stock Control (DSSC) of the Base Supply Office located at Camp McTureous. At the DSSC, materiel requests are screened for availability and/or source of supply. As appropriate, materiel requests are converted to purchase requests, funds are cited, and the PR is forwarded to the P&C Office on Camp Butler, 15 miles to the south.

c. Procurement Techniques

(1) POs/DOs. POs/DOs are used to purchase materiel on Okinawa and from CONUS. Of $3.8 million worth of PO/DO transactions in FY 1975, $2.4 million was expended on Okinawa and about $1.4 million was expended in CONUS. Only about 15% of this volume was in support of the FE.

(2) BPAs

BPAs are used extensively by the P&C Office, especially in support of FE operations. The P&C Office had BPAs

with 88 Okinawa vendors in November 1975. At least 46 of the 88 vendors were used as sources for FE support. These included vendors providing plumbing and heating supplies, chemicals, electrical supplies, construction materiels, hardware, glass, plastic, steel, paint, and bulk materiel (asphalt and concrete).

As used by the Marine Corps P&C Office, BPAs are let by the Office with orders by personnel in the P&C Office and by ordering personnel in decentralized organizations. The FE had one BPA clerk who ordered materiel valued at approximately $93,000 from BPA vendors in Fiscal Year 1975.

(3) Imprest Funds. Imprest Funds are used, but account for a very small volume of procurement.

D. ANALYSIS

1. Organizational Arrangements for Procurement

a. Organizational Alignment, Size, and Trend

The alignment and relative size of procurement organizations in Germany and Okinawa are portrayed in Table V-5.

The procurement "organizations" shown in Table V-5 illustrate the number and size of such organizations as of the latter part of Calendar Year 1975. In each geographic area there has been a trend toward consolidation of procurement organizations and a decrease in the total numbers of procurement personnel from 1973 to present.

In Germany, each major Component (Army and Air Force) has had a decrease in the number of procurement offices and personnel. The Air Force reduction has been particularly extensive and has resulted in the virtual elimination of Base Procurement Offices; at Bases retaining a procurement mission the tasks performed have been drastically curtailed and the numbers of procurement personnel reduced to four to seven personnel (in contrast to personnel authorizations of from 14, at Hahn AB, to 25, at Rhein Main AB, prior to July 1974). With the Base Procurement Office reduction, the bases have become almost totally dependent on the Central and Regional Offices for support - especially for supplies.

Table V-5

PROCUREMENT ORGANIZATIONS

GERMANY	ARMY	AIR FORCE
Central Procurement Office:	USAPAE (157)[1]	USAFE Prcmt C. (117)
Area/Regional Offices:	Kaiserslautern (23) Stuttgart (18) Seckenheim (24) Bremerhaven (17) Frankfurt (27) Fuerth[2] (68)	Ramstein AB (53)
Installations/Activity Offices:	At Installations/ Offices throughout Germany (See Figure V-2 for an indication of locations)[3]	Bitburg AB (7) Hahn AB (4) Zweibrucken AB (4) Rhein Main AB (6)
OKINAWA	MARINE CORPS	AIR FORCE
Area/Regional Prcmt Office:	Camp Butler (27)	Okinawa Region(76)

Source: Field Research

1/ *Numbers in parenthesis indicate total number of personnel in* October-November 1975 time frame.
2/ The Area Procurement Office Fuerth has two sub-Area Offices, Augsburg and Grafenwoehr.
3/ The multiple locations portrayed in Figure V-2 represent ordering personnel who are authorized to use BPAs let by Area Offices.

On Okinawa, the Army procurement organization was phased out in 1975 and the Air Force procurement mission was expanded to include support for Army units on the Island.

In each area the consolidation of procurement missions and procurement personnel reductions were based on declining procurement volume and a move toward greater procurement operating efficiency.

b. Proximity of Procurement Agents

In Germany, the Army Central Procurement Office, USAPAE, is located in Frankfurt and the Air Force Central Procurement Office,

USAFE Procurement Center, is located in Wiesbaden — approximately 40 miles apart. The Army Area Procurement Office Kaiserslautern and Air Force Regional Procurement Office Ramstein are approximately 6 miles apart. Figure V-7 shows the location of the Army and Air Force procurement offices in Germany.

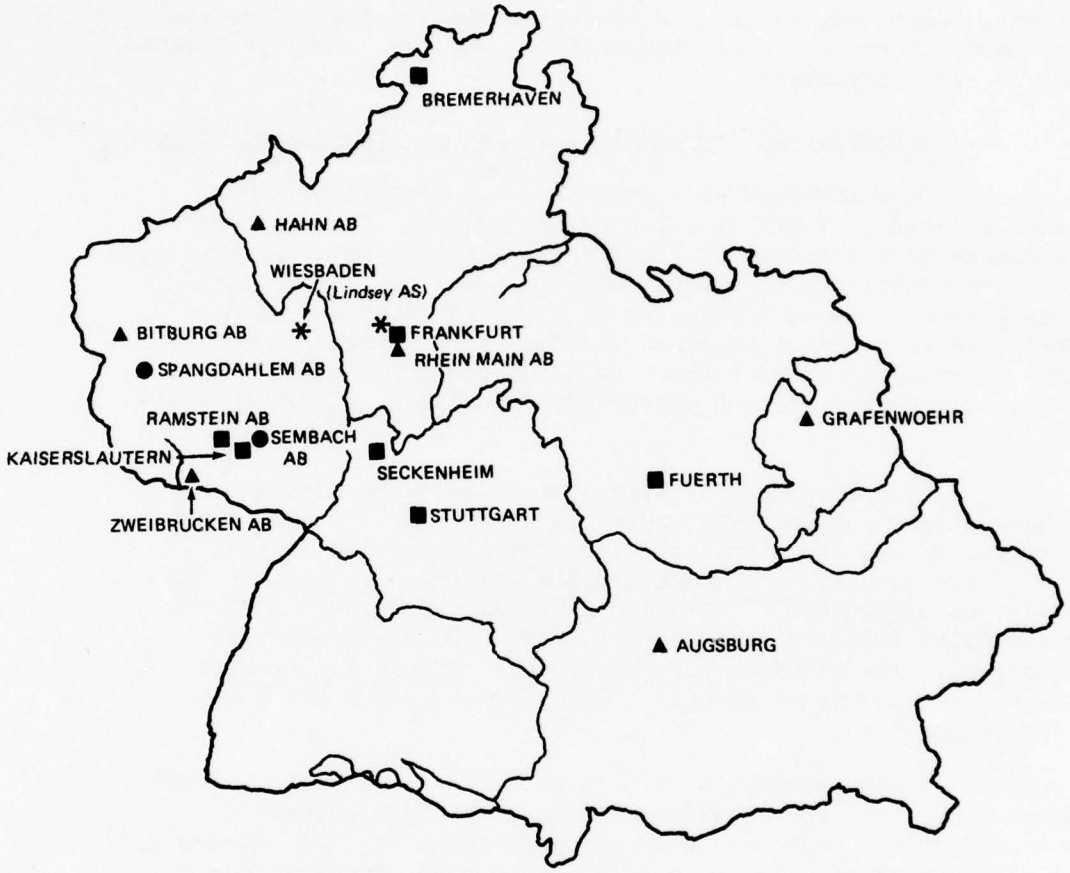
On Okinawa, the Area/Regional Offices of the Marine Corps and Air Force are both on Camp Butler in the Zukeran area — a distance of less than two miles apart.

c. Proximity of Customers to Procurement Offices

In Germany, Army customers (i.e., activities, installations, and organizational units including FEs) within the various Communities receive a significant portion of their procurement support from Army Area Procurement Offices located within several miles of the customer's location. Further, ordering personnel (see Figure V-2) are frequently situated contiguous to the user/consumer. Air Force customers, including the BCEs, in Europe, receive very little procurement support from their immediate Base locations. (An exception is Ramstein AB which is supported by the Ramstein Regional Procurement Offices.) Most procurement support is provided by the Central Procurement Office in Wiesbaden or the Regional Office on Ramstein AB. Generally, the Air Force Bases and their organizational units, including the BCE, are located about equally distant from an Army and Air Force Procurement Office as follows:

AF Customers	AF Procurement Support Office	Army Procurement Support Office
Bitburg AB	USAFE Procurement Center (122 miles)	USAPAE, Frankfurt (118 miles) Area Office Kaiserslautern (107 miles)
Hahn AB	Ramstein Regional Office (100 miles)	Area Office Kaiserslautern (94 miles) USAPAE, Frankfurt (49 miles)
Ramstein AB	Ramstein Regional Office (less than 1 mile)	Area Office Kaiserslautern (6 miles)
Rhein Main AB	USAFE Procurement Center (44 miles)	USAPAE, Frankfurt (6 miles)
Sembach AB	Ramstein Regional Office (20 miles)	Area Office Kaiserslautern (14 miles)
Zweibrucken AB	Ramstein Regional Office (33 miles)	Area Office Kaiserslautern (29 miles)

USAREUR & USAFE PROCUREMENT OFFICES
IN WEST GERMANY



✱ *CENTRAL PROCUREMENT OFFICES (ARMY & AIR FORCE)*
■ AREA/REGIONAL PROCUREMENT OFFICES (ARMY & AIR FORCE)
▲ SUB-AREA OFFICES (ARMY) & SMALL PROCUREMENT CONTINGENTS (AF)
● AIR BASES WITHOUT PROCUREMENT CONTINGENTS

Figure V-7

On Okinawa, Army and Air Force customers supported by the Air Force Okinawa Regional Procurement Office and Marine Corps customers supported by the Marine Corps Procurement Office are located north and south of the two procurement offices which are virtually collocated in the Zukeran area. The major Air Force customer, Kadena AB, is located approximately 5 miles north; the major Marine Corps customer, the DSSC at Camp McTureous, is located about 15 miles northeast.

d. Proximity of Vendors to Procurement Offices and Customers

Of a European procurement program exceeding a half billion dollars, over 80% is effected in Germany. The two central procurement offices, Army at Frankfurt and Air Force at Wiesbaden, effect and administer contracts throughout Europe, but primarily within Germany. Commodity buying is effected under a European coordinated procurement program; however, each Service purchasing office provides materiel support to CE programs. For the central offices, procurement sources (vendors) are located theater-wide.

To the extent the Army Area Procurement Offices use purchase orders and delivery orders to obtain FE materiel, about 60% of the orders are within the immediate trade area (within 50 miles of the Procurement Office and the customers). Another 20% is obtained within about 50 to 100 miles of the area offices and the remaining 20% is obtained outside of a 100 mile radius of the offices. The single Air Force Regional Office at Ramstein estimated that a higher percent of their vendors are outside of the immediate area.

To the extent the Army Area Offices use BPAs, the BPA vendors are within the immediate vicinity of the procurement office and/or the customers with ordering authority (see Figure V-2). To the extent Air Force base procurement personnel buy BCE support materiel (the volume is very small), it is purchased using POs, is of an immediate need nature, and is obtained, over 90% of the time, within 100 miles of the requiring base.

On Okinawa, which is approximately 75 miles long and from 4 to 7 miles wide, the major DoD installations and the major sources of supply (vendors) are located in the south-central portion of the Island. The Air Force and Marine Corps procurement office locations and the cities in which virtually all vendors are

located are portrayed in Figure V-8; also shown are three major Army, Air Force, and Marine Corps customers. The distance among and between, the customers, procurement offices, and vendors is generally less than 30 miles and less than one and one-half hours driving time.

2. Application of Procurement Methods

a. General. Throughout the review of procurement support to the CE, it was observed that IDTCs with Delivery Orders and Small Purchase techniques were used extensively. To the extent these procurement methods are used, the general guidelines prescribed by ASPR, as outlined in paragraph A.2. of this Chapter, are applicable. However, the extent to which certain techniques are applied and the specific processes or arrangement under which they are applied vary significantly from procurement organization to procurement organization. The degree of usage in support of CE materiel component procurement organizations is illustrated as follows:

Component	IDTCs	POs	BPAs	Imprest Fund
Army	Extensive	Extensive	Extensive	Small
Navy	Extensive	Extensive	Extensive	Small
Air Force	Moderate	Extensive	Nil	Nil
Marine Corps	Moderate	Extensive	Extensive	Small

The degrees of usage portrayed here are general, across many installations, and exceptions for a single installation can be found. The varying degrees of usage, from extensive to moderate and from extensive to nil, are most evident for IDTCs and BPAs. These two methods also have the widest differences in ordering arrangements — especially between the Air Force and other Components. These are discussed in the following paragraphs.

b. Use of IDTCs

In an area, such as southern and western Germany, where there are many DoD Installations/Communities having extensive common usage of FE/CE materiel, the USAPAE has made extensive use of IDTCs. Subparagraphs B.2.c. and d. describe the arrangements of such contracts.

The Army (AFESAE) has developed a listing of approximately 1,500 items having estimated annual demand of over $5 million. Many of these items are or will ultimately be on centrally-let IDTCs of the Army. Ordering from these IDTCs is effected by procurement offices throughout Germany.

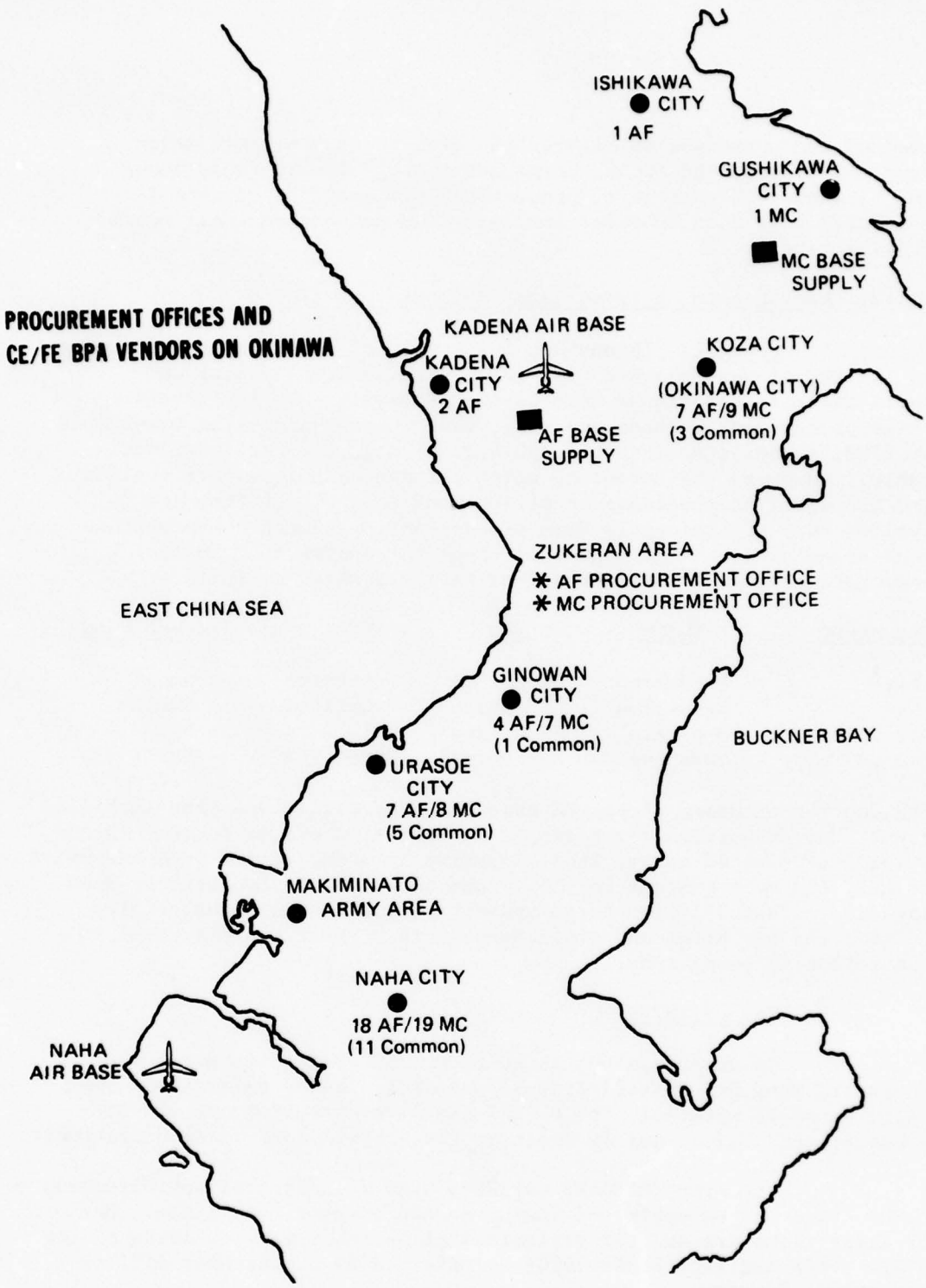

PROCUREMENT OFFICES AND
CE/FE BPA VENDORS ON OKINAWA
ISHIKAWA
CITY
1 AF
GUSHIKAWA
CITY
1 MC
MC BASE
SUPPLY
KADENA AIR BASE
KADENA
CITY
2 AF
AF BASE
SUPPLY
KOZA CITY
(OKINAWA CITY)
7 AF/9 MC
(3 Common)
ZUKERAN AREA
* AF PROCUREMENT OFFICE
* MC PROCUREMENT OFFICE
EAST CHINA SEA
GINOWAN
CITY
4 AF/7 MC
(1 Common)
BUCKNER BAY
URASOE
CITY
7 AF/8 MC
(5 Common)
MAKIMINATO
ARMY AREA
NAHA CITY
18 AF/19 MC
(11 Common)
NAHA
AIR BASE

Figure V-8

Army area procurement offices and FE personnel throughout Germany praised the IDTCs containing these items because of (1) the ease of ordering (i.e., ease of locating sources), (2) the reasonableness of materiel cost, and (3) the responsiveness of the vendors (i.e., their ability and willingness to meet or do better than delivery times specified in the contracts). Table V-6 displays the 20 Federal Supply Classes reflected on the AFESAE listing which have the highest estimated annual value of demand.

These 20 Federal Supply Classes (FSCs) contain approximately 90% of the items and 94% of demand value displayed on the AFESAE listing. A review of CE work orders and procurement support documents at six DoD southeast Germany installations, three Army and three Air Force, showed that items within this range of 20 FSCs are commonly required by Army and Air Force CE organizations throughout the area.

In response to queries, Air Force BCE personnel expressed a desire to order from the Army IDTCs and to use Army documentation media for identifying CE items and supply sources (vendors). In response to such requests, the U.S. Army Facility Engineer Activity, Europe, has solicited Air Force input to the AFESAE Real Property Maintenance Activity Supply Listing, which can serve as a basis for expanding the range and depth of CE items on IDTCs for use in Germany.

c. Use of BPAs

(1) Extent of Use

In CONUS, Army, Navy, and Marine Corps activities use BPAs extensively in supporting CE materiel requirements. The Air Force, with only minor exceptions, has discouraged the use of BPAs for CE materiel support. The philosophical difference in application of BPA support for CE requirements is reflected in overseas procurement practices.

In Germany, each Army area procurement office makes extensive use of BPAs using them for about 20% of the FE materiel requirements. The Kaiserslautern Area Office had 56 active BPAs of which 28 (50%) were used to support the FE. The Stuttgart Office had 62 active BPAs of which 27 (44%) were for FE materiel support. The Air Force did not support CE materiel requirements with BPAs.

Table V-6

FEDERAL SUPPLY CLASSES WITH HIGH ANNUAL DEMAND VALUE

FSC	Name	Dollar Value	%	Number	%
4510	Plumbing Fixtures and Accessories	$851,795	16.98	210	14.67
5340	Miscellaneous Hardware	722,791	14.41	181	12.64
5935	Electrical Connectors	509,121	10.15	73	5.1
6240	Electric Lamps	381,635	7.61	77	5.38
5920	Fuses and Lighting Arresters	278,616	5.56	70	4.89
	TOTAL TGP 5	$2,743,958	54.71	611	42.68
5930	Switches	219,917	4.38	50	3.49
4730	Fittings & Specialties: Hose, Pipe & Tube	202,438	4.04	109	7.61
5975	Electrical Hardware & Supplies	194,294	3.87	40	2.79
4820	Nonpowered Valves	191,513	3.82	91	6.35
6210	Indoor & Outdoor Electric Lighting Fixtures	175,032	3.49	50	3.49
4520	Space Heating Equipment & Dom. Water Heaters	164,850	3.29	51	3.56
9905	Signs, Adversting Displays & ID Plates	141,853	2.83	48	3.35
7230	Draperies, Awnings, and Shades	132,088	2.63	25	1.74
6145	Electrical Wire and Cable	131,462	2.62	61	4.26
4710	Pipe and Tube	96,683	1.93	36	2.51
6810	Chemicals	68,597	1.37	13	.9
5306	Bolts	62,774	1.25	38	2.65
5970	Electrical Insulators & Ins. Materiel	61,034	1.22	12	.83
5330	Packing and Gasket Materials	59,178	1.18	35	2.44
6250	Ballasts, Lampholders, and Starters	48,617	.97	16	1.11
	TOTAL TOP 20	$4,694,288	93.6	1,286	89.76

Source: European Field Research

On Okinawa, the Marine Corps Procurement Office had 88 active BPAs of which at least 44 (50%) were used to support the FE. The Air Force Procurement Office, in November 1975, had 60 active BPAs of which at least 40 (67%) were used to support Army and Air Force FE/CE materiel requirements.

(2) Arrangement for Use

There are two basic arrangements for the use of BPAs. In each arrangement a procurement office lets the BPAs. In one arrangement orders/"calls" under the BPA are centralized — i.e., made from the procurement office. In another arrangement orders/"calls" against the BPA are made by "ordering" personnel usually located in an area contiguous to the customer/user/consumer organization. Data for 800 calls, 600 from decentralized ordering systems and 200 from centralized (procurement office only) systems, are shown in Table V-7.

Table V-7 demonstrates a cumulative delivery picture as follows:

	Decentralized Ordering	Centralized Ordering
10 days or less	73.5	13.5
Greater than 10 days	26.5	86.5

While other factors such as item identification, source identification, urgency of the requirement, and quantity ordered may impact on the lead time, the significant difference in results reflected in Table V-7 support customer (CE) assertions that the most responsive arrangement is the one offering decentralized ordering authority.

d. Relative Responsiveness

Of the procurement support to FE/CE materiel requirement in the overseas areas, 65 to 80% is effected through the use of POs and DOs, while 15 to 25% is effected through the use of BPAs, and the balance of 5 to 10% is effected using other techniques. A review and analysis was made to determine the relative responsiveness using POs, DOs, and BPAs.

A review of 270 Purchase Order actions at eight activities, five in CONUS and three in overseas areas, showed responsiveness to be as illustrated in Table V-8.

Table V-7

RESPONSE TO BPA CALLS

Time[1] (Days)	5 CONUS & 1 Overseas Activity With Decentralized Ordering[2]		1 CONUS & 1 Overseas Activity With Centralized Ordering[3]	
	Number	%	Number	%
1	167	27.9	6	3.0
2-4	131	21.8	4	2.0
5-10	143	23.8	17	8.5
>10	159	26.5	173	86.5
Total	600	100.0	200	100.0

Source: CONUS and Overseas Field Research

1/ Delivery Time from CE order date to delivery date.
2/ Each activity had ordering personnel dedicated to the CE.
3/ Ordering by procurement office personnel only.

Table V-8

RESPONSE TO PURCHASE ORDER ACTIONS

Time[1] (Days)	No. of Items	Percent	Cumulative Percent
1-10	41	15.2	15.2
11-30	117	43.3	58.5
31-60	73	27.0	85.5
61-90	25	9.3	94.8
> 90	14	5.2	100.0
Total	270	100.0	XXX

Source: CONUS and Overseas Field Research; 5 CONUS and 3 Overseas Activities.

1/ Delivery Time from CE order date to delivery date.

A review of fifty Delivery Orders, approximately half on CONUS IDTCs and half on Army Procurement Center (Frankfurt, Germany) IDTCs, show delivery items from CE order to delivery displayed in Table V-9.

Table V-9

RESPONSE TO DELIVERY ORDER ACTIONS

Time (Days)	No. of Items	Percent	Cumulative Percent
1-10	9	18	18
11-30	17	34	52
31-60	18	36	88
61-90	3	6	94
> 90	3	6	100
Total	50	100	XXX

Source: CONUS and Overseas Field Research; 3 CONUS and 2 Overseas Activities.

In summary, procurement response to CE materiel requirements, by technique, is portrayed as follows:

Technique	1-10 Days	>10 Days	>60 Days	>90 Days
BPAs with decentralized ordering responsibility:	73.5%	26.5%	1/	1/
BPAs with centralized ordering responsibility:	13.5%	86.5%	1/	1/
Delivery Orders under IDTCs:	18.0%	82.0%	(12.0%) 2/	(6.0%)
Purchase Orders:	15.2%	84.8%	(14.1%)	(5.3%)

1/ Data not accumulated in this manner for BPAs.
2/ Percents in parenthesis included in the immediately preceding percentage.

The data indicates that (1) BPAs with decentralized ordering are an extremely responsive procurement technique for a significant range of CE/FE requirements; (2) other techniques (BPAs with centralized ordering, DOs, and POs) provide short response times for some actions, but relatively longer times for the vast majority, (3) PO and DO response times are relatively similar; and (4) a relatively small percentage (6% or less) of the items fall into the most difficult to obtain category requiring over 90 days for delivery.

3. Commonality of Commodity Range and Market Sources

Commonality of commodity range and common market sources (vendors) go hand-in-hand; the former leads to the latter. Findings in all geographic areas, CONUS and Overseas, having multi-CE operations, provide illustrations showing CE support with common commodity ranges and by common vendors. "Commodities" on inventory and/or on procurement documents in support of CE/FE operations in CONUS and overseas include:

Plumbing and heating equipment and supplies
Air conditioning equipment and supplies
Hardware
Electrical equipment and supplies
Lumber and millwork materiel
Paints and related supplies
Glass
Sheet metal
Flooring materiel
Signs, identification plates, and decals
Construction materiels, including welding supplies
Bulk materiels, i.e., sand, gravel, asphalt, and concrete

In Germany, the vast majority of items on the AFESAE, Real Property Maintenance Activity (RPMA) Supply Listing fall within these commodity categories. These are also the commodities most prevalent on the USAPAE IDTCs, on Army Area Procurement Office BPAs, and on Army and Air Force POs/DOs. Within areas such as Frankfurt, Kaiserslautern, and Wiesbaden, it is the reason common vendors support Army and Air Force CE materiel requirements.

On Okinawa, the Air Force and Marine Corps procurement offices have 60 and 88 active BPAs, respectively. Of these, 40 (67%) of the Air Force and 44 (50%) of the Marine Corps BPAs are primarily for support of CE/FE operations. Table V-10 arrays the BPAs for CE support to show the number of BPAs, the city/area in which BPA vendors are located, and the commonality of vendors.

Table V-10 provides information indicating that:

-- 50% of the Air Force BPAs supporting CE/FE operations are common to Marine Corps BPAs.

-- 45% of the Marine Corps BPAs supporting CE/FE operations are common to Air Force BPAs.

-- a 24% reduction in the number of these BPAs would result if one of the two offices provided procurement support to both Services.

Table V-10

COMMONALITY OF BPA VENDORS

City/Area[1/]	AF BPAs	MC BPAs	Total (gross)	Vendors	
				Common[1/]	Net
Naha	18	19	37	11	26
Okinawa City	7	9	16	3	13
Urasoe	7	8	15	5	10
Ginowan	4	7	11	1	10
Kadena	2	0	2	0	2
Ishikawa	1	0	1	0	1
Gushikawa	0	1	1	0	1
APO (exchange)	1	0	1	0	1
Total	40	44	84[2/]	20	64

Source: Okinawa Field Research

1/ The relative location and commonality of BPA vendors supporting CE/FE operations is also portrayed on Figure V-7.

2/ Sixty-four additional, active, non-CE BPAs exist (20 Air Force and 44 Marine Corps). Of these only 7 (10%) are with common vendors. The seven additional common vendors are in support of office equipment and supplies, and automotive materiel.

The commodities provided by common BPA vendors in Okinawa are shown in Table V-11.

Comparison of information in Tables V-6, V-10, V-11, and Figure V-8 illustrates:

— The extent to which common commodities support CE/FE operations and

— The extent to which common vendors provide support to CE/FE operations within any geographic area.

Table V-11

COMMODITIES PROVIDED BY COMMON BPA VENDORS

Commodities	Common Vendors
Plumbing and Heating, includes air conditioning	6
Hardware, includes keys and locks	5
Construction Materiel	3
Electrical components and parts	3
Concrete	2
Paint and associated items	2
Chemicals (cleaners)	1
Identification plates, decals	1
Carpets and draperies	1
Glass	1
Total	25 1/

Source: Okinawa Field Research

1/ More than 20, because certain of the 20 common vendors provide multiple commodities (e.g., plumbing and hardware items).

4. Summary of Key Findings and Observations. In summary, the foregoing analyses indicate that:

a. Within the same general geographic area(s) there are parallel procurement organizations which support their respective Component customers within the area/region.

b. These procurement organizations generally have similar missions and, frequently, are within short distances of each other.

c. Similarly, the customers supported by one procurement organization are frequently equi-distant or closer to a procurement support organization of another Component.

d. Similarly, the market sources (vendors) used by one procurement organization are frequently equi-distant or closer to another procurement support organization within the area/region.

e. Regardless of the geographic area in which CE/FE operations are performed or the DoD Component within which they are performed, certain commodity categories generate a large portion of the procurement support requirements.

f. The commonality of CE/FE materiel procurement support requirements leads to the use of common market sources (vendors).

g. In overseas areas, especially as observed in Germany and Okinawa, there has been a trend toward consolidation of procurement support within Component and among Components; decreasing operating programs and a desire for greater procurement proficiency are factors stimulating such consolidations; objectives sought, claimed and/or observed, as a result of the consolidation are:

(1) Reduction in the gross number of IDTCs and/or BPAs and the associated workload;

(2) Decrease in the competition for market sources;

(3) Increases in the estimated (and actual) value of IDTC requirements and orders;

(4) Reduced materiel costs, through price decreases and/or discount increases;

(5) Increased competition between vendors;

(6) Decreased billings and payments; and

(7) Reduction in the net number and cost of procurement personnel.

h. Procurement support for CE/FE materiel requirements is effected extensively through IDTCs, Purchase Orders, and BPAs; however, the relative degree of usage and the procedural techniques used varies significantly among the procurement support organizations.

i. Centrally-let IDTCs with their concomitant decentralized delivery order processes are an effective means for supporting CE/FE procurement in commodity ranges having a significant volume of requirements.

j. BPAs, especially with decentralized ordering/"calls", are effective means of providing local procurement support to CE/FE operations.

E. CONCLUSIONS

In aggregate the preceding findings and analyses indicate that:

1. Purchase in local, area, or regional markets will continue to be a major source of support for CE operations in many geographic areas.

2. For commercially available items with significant volume of demand the use of area or region-wide Indefinite Delivery Type Contracts (IDTCs) with decentralized ordering is an effective means for supporting CE materiel requirements.

3. For commercially available items with relatively small and not readily predictable requirements, the use of Blanket Purchase Agreements (BPAs) with decentralized, orally consummated calls is another effective means for supporting CE materiel requirements.

4. Within a given geographic area such as Germany and Okinawa the trend toward procurement consolidation should continue until a single procurement organization supports DoD customers within the area or region.

5. In Germany, the Air Force Base Civil Engineer (BCE) can be effectively supported by the U.S. Army Procurement Agency Europe (USAPAE) especially if (1) the USAPAE IDTCs are expanded to include Air Force BCE requirements, and (2) the Army Area Procurement Offices use BPAs with decentralized, orally consummated calls for Air Force, as well as Army, customers.

6. On Okinawa, the Air Force Procurement Office can support Air Force, Army, and Marine Corps civil engineer materiel requirements as effectively and more efficiently than the Air Force and Marine Corps procurement offices currently do; however, the Air Force Procurement Office should adopt the use of BPAs with decentralized, orally consummated calls.

7. ASPR is applicable to all DoD Components and any Component procurement organization can apply effective procurement techniques. The Component procurement organization within the area, region, or theater with the most procurement resources, the largest procurement workload, and the most comprehensive geographical coverage (currently the Army in Europe and the Air Force on Okinawa) in the most logical candidate for an area, regional, or theater procurement assignment.

8. The net impact of area, region, or theater procurement organization consolidations will be:

a. Decreased competition by DoD for market sources, resulting in decreased materiel cost.

b. Workload decreases (less contracts, billings, and payments) and, hence, decreased procurement personnel requirements and operating costs.

c. Little or no increase in Procurement Leadtime; decreased procurement leadtime where the use of BPAs is expanded because of consolidation.

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CHAPTER VI

SUMMARY AND RECOMMENDATIONS

A. INTRODUCTION

The primary objective of this Study was to determine whether or not the COCESS (Contractor Operated Civil Engineer Supply Store) concept is an acceptable technique for providing materiel support to the Civil Engineering (CE) function in the Department of Defense (DoD). This examination was to consider the COCESS concept separately for items designated for local purchase at installation level and for those items required to be requisitioned from inventory control points.

During the course of research for this Study, two additional areas of management interest were identified: — —

(a.) The Military Service systems for the collection of materiel to support Specific Jobs, and for the scheduling of those jobs; and,

(b.) The potential for interservice consolidation of the procurement of civil engineering materiel within local geographic areas or regions.

Each of these subjects was discussed in one of the preceding Chapters of this Report. This Chapter summarizes the findings and conclusions which have been developed, and presents the recommendations for action which derive from them.

B. THE CIVIL ENGINEERING FUNCTION AND ITS MATERIEL SUPPORT

1. The Nature of the Civil Engineering Workload

This Study is concerned with materiel support to the Civil Engineering function as it is accomplished at fixed DoD installations. This function is the same in all Military Services in terms of the kinds of work performed and the environment in which it is accomplished.

Basically, the Civil Engineering mission consists of the maintenance and repair of fixed facilities, such as buildings, roads, and grounds; operation of utility systems, such as water supply, electrical, and heating; providing such services as trash collection and insect control; and, minor construction. This work is generally grouped into four categories of effort:

(1) Emergency Work--Work requiring immediate attention due to a possible detrimental effect on installation mission or on the health or safety of personnel.

(2) Standing Operations--Repetitive, routine, cyclical work, such as the operation of utility plants, or trash collection.

(3) Minor Maintenance and Repair--Nonemergency work not falling in the Standing Operations category, and usually limited to efforts involving less than 16 man-hours and costing less than $200.

(4) Specific Jobs--Maintenance, repair, and minor construction which must be planned, estimated, and scheduled, due to its impact on manpower and materiel requirements.

2. Civil Engineering Support Materiel

The materiel used by the Civil Engineer ranges from that which is common around the world--cement and nails, for example--to that which is common only in a local region--such as some electrical system components.

Because of its commercial nature and general availability, CE materiel is largely obtained from commercial sources, i.e., about two-thirds of the materiel support requirements are satisfied through local purchase action by the requiring installation dealing directly with commercial sources, while only about 20% of the requirement is satisfied by requisitions from a DoD inventory control point (ICP).

3. Systems for Materiel Support to the Civil Engineer

Arrangements for the materiel support of the Civil Engineering function vary widely across the DoD, and even within some of the Military Services.

At one extreme of this range, the Civil Engineer is supported by the normal central installation supply and procurement organizations which support the other activities on the installation. At the other end of this spectrum, the Civil Engineer is provided with his own supply and procurement capability which is dedicated to the materiel support of the civil engineering function only.

4. COCESS

Included among the various techniques used for the support of the Civil Engineering function is the Contractor Operated Civil

Engineer Supply Store (COCESS). This technique is now used exclusively by the Air Force at a total of 45 bases in the Continental United States (CONUS). At 26 of these bases, the COCESS is authorized to provide the full range of materiel required by the Civil Engineer--both local purchase and ICP-managed items-- while it is limited to providing local purchase items only at the remaining sites.

The key characteristics of this supply support method are that a commercial contractor is provided an operating location on a DoD installation with contractor personnel operating the facility, and the materiel remaining the property of the contractor until it is actually drawn out by DoD personnel for use. Contract terms specify the responsiveness standards which the contractor is required to meet, and the prices which will be charged for the materiel.

C. MATERIEL SUPPORT TO THE CIVIL ENGINEER

Cost and responsiveness are the two factors to consider in a relative evaluation of competing supply support systems. Based on observations during field research and general relationships in the submitted data, the various systems reviewed rank as follows in terms of responsiveness.

Most responsive: the Offutt Air Force Base Government Operated Civil Engineer Supply Store (GOCESS) and the COCESS concept;

Relatively responsive: the dedicated CE materiel support systems of the Army and Navy, which rely heavily on local purchase.

Other systems ranked significantly behind these in terms of responsiveness.

Cost analyses were made of the various techniques for providing local purchase and ICP materiel to the Civil Engineer. For each technique, these analyses considered the cost of the materiel itself, the cost to acquire the materiel, the amount of inventory which would be held, and the cost to hold that inventory.

The following conclusions developed from these analyses:

a. Local purchase, maximizing the use of commercial distribution systems, should be the primary means for providing materiel support to the Civil Engineer.

b. The COCESS concept is a viable, desirable means for providing materiel support to the CE, especially when a broad materiel range (LP and CP items) is provided through the COCESS.

c. The specific arrangements used by the Offutt Air Force Base GOCESS should be applied and evaluated for 12 months at a minimum of six installations, including two each of the Army, Navy, and Air Force, with the objective of defining the characteristics of this arrangement which can be exported to other installations.

d. The decision to establish a COCESS should be based on an individual economic analysis at each installation.

e. Generally, local purchase systems such as COCESS and the Offutt Air Force Base GOCESS are responsive to CE materiel requirements and, therefore, the COCESS or GOCESS decision can be based on the results of a relative cost analysis only.

D. SUPPORTING SPECIFIC JOBS

Specific Jobs are those which must be carefully planned, estimated, and scheduled, and special arrangements must be made to insure that required materiel is available.

Field research showed that there are two basic ways in which materiel is obtained to support Specific Jobs--either the materiel is obtained first and then the job is scheduled, or the job is scheduled and materiel is ordered leadtime before the scheduled accomplishment date.

Theoretical analysis shows that there is no difference between these approaches in the amount of inventory investment when there is no work backlog. However, when there is more work to be done than manpower available to do it, this analysis shows that the first system results in the DoD holding a much greater amount of inventory than when the second system is used.

The theoretical analysis in this area led to the following conclusions:

a. The two different approaches used in the DoD for materiel collection and job scheduling result in significantly different amounts of inventory investment to support Specific Jobs.

b. Since there are workload backlogs in all Military Services, those Services using the system under which no attempt is made to schedule Specific Jobs until after receipt of the supporting materiel are apparently incurring unnecessary inventory holding costs.

c. Analysis of workload backlog and inventory investment data indicates a potential one-time reduction in inventory investment of about $3.5 million, and annual recurring savings of over $500,000, from a change in the materiel collection and job scheduling relationship for Specific Jobs.

E. LOCAL PROCUREMENT SUPPORT

Two-thirds of the materiel required in support of the Civil Engineer is obtained through local purchase. Since purchasing practices are accomplished in accordance with the Armed Services Procurement Regulation (ASPR), purchase methods in all Military Services and all geographic areas are similar.

Because of the relative proximity of consumer activities in Germany and Okinawa, these geographic areas were used as the basis for detailed review and analysis. This review shows that there are parallel procurement organizations within the same geographic area which independently support the respective Service customers within the area. These procurement organizations generally have similar missions; frequently are within short distances of each other; often use the same vendors; and, frequently use similar procurement methods.

Regardless of the geographic area or the DoD Component, certain commodity categories (e.g., plumbing supplies and general hardware) generate a large portion of the procurement support requirements. As a result, the separate Service procurement organizations tend to use many of the same local vendors for such materiel.

In Germany and Okinawa, there has been a trend toward consolidation of procurement support operations; decreasing operating programs and a desire for greater procurement efficiency are factors stimulating such consolidations.

Since ASPR is applied universally, procurement support for civil engineer requirements is accomplished in a similar fashion, using Indefinite Delivery Type Contracts (IDTCs), Purchase Orders, and Blanket Purchase Agreements (BPAs) extensively. However, the relative degree of usage of each of these techniques varies significantly among the procurement support organizations. Procurement responsiveness and cost data show that centrally-let IDTCs with their concomitant decentralized delivery order processes, and BPAs, especially with decentralized calls, are effective means of providing local procurement support to CE operations.

The review and analysis of local procurement support led to the following conclusions:

a. Purchase in local, area, or regional markets will continued to be a major source of support for CE operations in many geographic area.

b. For commercially available items with a significant volume of demand, the use of area or region-wide Indefinite Delivery Type Contracts (IDTCs) with decentralized ordering is an effective means for supporting CE materiel requirements.

c. For commercially available items with relatively small and not readily predictable requirements, the use of Blanket Purchase Agreements (BPAs) with decentralized, orally consummated calls is another effective means for supporting CE materiel requirements.

d. Within a given geographic area such as Germany and Okinawa the trend toward procurement consolidation should continue until a single procurement organization supports all DoD customers within the area or region.

e. In Germany, the Air Force Base Civil Engineer (BCE) can be supported by the U.S. Army Procurement Agency Europe (USAPAE), especially if (1) the USAPAE IDTCs are expanded to include Air Force BCE requirements, and (2) the Army Area Procurement Offices use BPAs with decentralized, orally consummated calls for Air Force, as well as Army, customers.

f. On Okinawa, the Air Force Procurement Office can support Air Force, Army, and Marine Corps civil engineer materiel requirements as effectively and more efficiently than the separate Air Force and Marine Corps procurement offices currently do; however, the Air Force Procurement Office should adopt the use of BPAs with decentralized, orally consummated calls.

g. The Component procurement organization within the area, region, or theater with the most procurement resources, the largest procurement workload, and the most comprehensive geographical coverage (currently the Army in Europe and the Air Force on Okinawa) is the most logical candidate for an area, regional, or theater procurement assignment.

h. The net impact of area, region, or theater procurement organization consolidations will be:

(1) Decreased competition by DoD for market sources, resulting in decreased materiel cost.

(2) Workload decreases (less contracts, billings, and payments) and, hence, decreased procurement personnel requirements and operating costs.

(3) Little or no increase in procurement leadtime; decreased procurement leadtime where the use of Blanket Purchase Agreements can be expanded because of consolidation.

F. RECOMMENDATIONS

REGARDING MATERIEL SUPPORT TO THE CIVIL ENGINEER:

1. IT IS RECOMMENDED THAT THE ASSISTANT SECRETARY OF DEFENSE (INSTALLATIONS AND LOGISTICS):

A. DIRECT THE DOD COMPONENTS TO AUTHORIZE THEIR INSTALLATIONS TO USE LOCAL PURCHASE AND COMMERCIAL DISTRIBUTION SYSTEMS TO OBTAIN THE COMPLETE RANGE OF MATERIEL REQUIRED FOR THE SUPPORT OF THE CIVIL ENGINEERING FUNCTION.

B. AUTHORIZE THE MILITARY SERVICES TO ADOPT THE COCESS CONCEPT FOR THE SUPPORT OF THE CIVIL ENGINEERING FUNCTION WHEN IT IS ECONOMICALLY JUSTIFIED BY AN INDIVIDUAL INSTALLATION COMPARATIVE COST ANALYSIS AS DESCRIBED IN PARAGRAPH B, CHAPTER III, OF THIS STUDY.

C. DIRECT THE MILITARY DEPARTMENTS, UNDER THE CHAIRMANSHIP OF THE AIR FORCE, TO EXPAND THE OFFUTT AIR FORCE BASE SERVICE TEST OF THE GOVERNMENT OPERATED CIVIL ENGINEER SUPPLY STORE (GOCESS) CONCEPT TO INSTALLATIONS OF ALL MILITARY DEPARTMENTS; THE OBJECTIVE OF THIS EXPANDED TEST SHALL BE TO IDENTIFY THE CHARACTERISTICS OF THE GOCESS CONCEPT WHICH ARE EXPORTABLE TO OTHER INSTALLATIONS AND WHICH PROVIDE THE ECONOMY AND RESPONSIVENESS IN CIVIL ENGINEERING SUPPORT ATTAINED AT OFFUTT AIR FORCE BASE.

REGARDING MATERIEL SUPPORT FOR SPECIFIC JOBS

2. IT IS RECOMMENDED THAT THE ASSISTANT SECRETARY OF DEFENSE (INSTALLATIONS AND LOGISTICS) ESTABLISH A 45-60 DAY STUDY TO:

A. ACCUMULATE, THROUGH A MILITARY SERVICE HEADQUARTERS DATA REQUEST, THE TOTAL VALUE OF MILITARY SERVICE CIVIL ENGINEERING INVENTORY BEING HELD FOR SPECIFIC JOBS.

B. ACCUMULATE, THROUGH ON-SITE FIELD RESEARCH AT A REPRESENTATIVE RANGE OF DOD INSTALLATIONS, SUCH INFORMATION AS THE FOLLOWING:

(1) TECHNIQUES FOR ORDERING MATERIEL FOR, AND SCHEDULING, SPECIFIC JOBS;

(2) VALUE OF INVENTORY HELD TO SUPPORT SPECIFIC JOBS, AND THE LENGTH OF TIME FOR WHICH THAT INVENTORY IS HELD;

(3) AMOUNT OF INVENTORY HELD TO SUPPORT SPECIFIC JOBS, EXPRESSED IN TERMS OF THE AMOUNT OF TIME REQUIRED TO ACCOMPLISH THOSE JOBS;

(4) MONTHS OR DAYS OF SPECIFIC JOB BACKLOG DUE TO INSUFFICIENT SHOP (CRAFTS) MANPOWER; AND,

(5) THE VALUE OF MATERIEL CONSUMED FOR CIVIL ENGINEERING SPECIFIC JOBS DURING THE PAST YEAR.

C. APPLY THE ACTUAL DATA ACCUMULATED THROUGH PARAGRAPHS A AND B TO EVALUATE THE RESULTS OF THE THEORETICAL ANALYSIS CONTAINED IN CHAPTER IV OF THIS REPORT, AS A BASIS FOR IDENTIFYING THE OPTIMUM TECHNIQUE FOR SCHEDULING SPECIFIC JOBS AND ORDERING MATERIEL FOR SUCH JOBS.

REGARDING LOCAL PROCUREMENT SUPPORT

3. IT IS RECOMMENDED THAT THE SECRETARY OF DEFENSE, THROUGH THE JOINT CHIEFS OF STAFF, DIRECT:

A. THE COMMANDER-IN-CHIEF EUROPE TO ESTABLISH A SINGLE PROCUREMENT STRUCTURE WITHIN THE UNITED STATES ARMY EUROPE TO SUPPORT ALL DEPARTMENT OF DEFENSE CUSTOMERS IN GERMANY; AND,

B. THE COMMANDER-IN-CHIEF PACIFIC TO DIRECT THE UNITED STATES AIR FORCE PACIFIC TO ESTABLISH A SINGLE PROCUREMENT STRUCTURE ON OKINAWA TO SUPPORT ALL DEPARTMENT OF DEFENSE CUSTOMERS ON THAT ISLAND.

4. IT IS RECOMMENDED THAT THE ASSISTANT SECRETARY OF DEFENSE (INSTALLATIONS AND LOGISTICS) IDENTIFY ADDITIONAL AREAS IN CONUS AND OVERSEAS IN WHICH IT IS FEASIBLE AND DESIRABLE TO ESTABLISH A SINGLE PROCUREMENT ACTIVITY TO SUPPORT ALL DEPARTMENT OF DEFENSE ACTIVITIES IN AN AREA, REGION, OR THEATER IN ORDER TO AVOID DUPLICATE ORGANIZATIONAL ARRANGEMENTS AND COMPETITION FOR MARKET SOURCES.

5. IT IS RECOMMENDED THAT THE ASSISTANT SECRETARY OF DEFENSE (INSTALLATIONS AND LOGISTICS) DIRECT THE ARMED SERVICES PROCUREMENT REGULATION (ASPR) COMMITTEE TO MODIFY ASPR 3-605 TO ADVOCATE INCREASED USE OF BLANKET PURCHASE AGREEMENTS (BPAs) AND DECENTRALIZED ORDERING THROUGH ORAL CALLS WHEN THE CIRCUMSTANCES DESCRIBED BY ASPR 3-605 ARE IN EVIDENCE, AND TO REQUIRE SPECIAL DOCUMENTED JUSTIFICATION WHEN BPA ORDERS OR CALLS ARE ALL MADE CENTRALLY OR ORDERS ARE ACCOMPANIED BY EXCESSIVE DOCUMENTATION.

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APPENDIX A

ASSISTANT SECRETARY OF DEFENSE
WASHINGTON, D.C. 20301

SR
INSTALLATIONS AND LOGISTICS

28 March 1975

MEMORANDUM FOR THE ASSISTANT SECRETARY OF THE ARMY (I&L)
ASSISTANT SECRETARY OF THE NAVY (I&L)
ASSISTANT SECRETARY OF THE AIR FORCE (I&L)
DIRECTOR, DEFENSE SUPPLY AGENCY
DIRECTOR, JOINT STAFF, JCS

SUBJECT: Materiel Support to Civil Engineer Operation

During the past year, we have become increasingly concerned about the different approaches the military services are using for the support of commercially available materiel. Commercially available items coded for centralized management within the Department of Defense (DoD) are obtained by a variety of ways: from the designated materiel manager; from General Services Administration Federal Supply Schedules; through local (activity/installations) purchase; and from Contractor Operated Parts Stores (COPARS). Current policy permits the use of each method of supply, but does not prescribe specific criteria for selecting the most appropriate method or combination of methods. Past, current and prospective cost increases accentuate the need for determining the most cost effective mode of supply support.

The inadequacies of present policy are evident in the materiel support arrangements for civil engineer operations where all of the methods listed above are being applied, to varying degrees, by the Military Departments. Therefore, a study of materiel support patterns for civil engineer operations will provide an appropriate vehicle for evaluating the relative advantages and disadvantages of each method of supply, with the objective of proposing more definitive DoD policy and/or criteria regarding the use of alternate support methods.

In view of the situation described, the Director, Defense Supply Agency (DSA) is requested to direct the DSA Analysis Division to undertake a study of the materiel support arrangements for civil engineer operations world-wide. A Study Plan prescribing the objectives, scope and approach to the task is enclosed.

The attention of each addressee is directed specifically to paragraphs F, H, and K of the Study Plan which describe the requirements for headquarters level briefings, study team augmentation, and establishment of contact points, respectively.

This has been coordinated with the DASD (Administration).

/s/ John J Bennett
/t/ JOHN J BENNETT
Acting Assistant Secretary of Defense
(Installations & Logistics)

Enclosure
As Stated
(Not attached)

APPENDIX B

ACTIVITIES VISITED

CONUS

Army
- Fort Belvoir
- Fort Bragg
- Fort Sill
- New Cumberland Army Depot

Navy
- Washington Navy Yard
- Public Works Center, Norfolk
- Norfolk Naval Shipyard

Air Force
- Andrews Air Force Base
- Carswell Air Force Base
- Dover Air Force Base
- Hill Air Force Base
- Offutt Air Force Base

Marine Corps
- Camp Lejeune

OVERSEAS

Army
- Headquarters, U.S. Army Europe (USAREUR), Heidelberg, Germany
- U.S. Army Facilities Engineer Support Activity, Europe, Frankfurt
- U.S. Army Procurement Agency, Europe, Frankfurt, Germany
- V Corps and Community Command, Frankfurt, Germany
- VII Corps and Community Command, Stuttgart, Germany
- 1st Support Brigade and Community Command, Kaiserslautern, Germany
- U.S. Army Garrison Okinawa

Navy
- Public Works Center, Guam

Air Force
- Headquarters, U.S. Air Force Europe (USAFE), Ramstein Air Base, Germany
- USAFE Procurement Center, Lindsey Air Station, Germany
- Ramstein Regional Procurement Office, Ramstein Air Base, Germany
- Hahn Air Base, Germany
- Rhein Main Air Base, Germany
- Ramstein Air Base, Germany
- Kadena Air Base, Okinawa
- Andersen Air Force Base, Guam

Marine Corps
- Camp S.D. Butler, Okinawa