[redacted]

DECLASSIFIED BY:
AFDO IAW E.O. 12958
(AS AMENDED)

DECLASSIFIED ON:
[redacted] 19930331

APPROVED FOR
PUBLIC RELEASE

THE AIR FORCE IN SOUTHEAST ASIA

LOGISTIC PLANS AND POLICIES

1968-1969

by

D. E. Krudener

OFFICE OF AIR FORCE HISTORY

March 1972

K 168.2-25 1972

[redacted]

When this study is no longer needed, please return it to the Office of Air Force History (AF/CHO).

(This page is UNCLASSIFIED)

FOREWORD

This study is the fourth in a series prepared by the Office of Air Force History concerning logistics support of the air war in Southeast Asia. As in the case of the preceding works, its purpose is not to describe Air Force logistic support as such. Rather, it is to point up some of the problems dealt with and plans formulated by the air logistic staff in the period January 1968 through December 1969.

The series also includes the following titles: USAF Logistic Plans and Policies in Southeast Asia, 1965; USAF Logistic Plans and Policies in Southeast Asia, 1966; and USAF Plans and Policies: Logistic and Base Construction in Southeast Asia, 1967. In addition, the Office of Air Force History has issued nine other studies dealing with various aspects of Air Force participation in Southeast Asia. Among the latter titles are: The Air Force in Vietnam: The Search for Military Alternatives, 1967; USAF Plans and Policies: R&D for Southeast Asia, 1968; and The Air Force in Southeast Asia: The Administration Emphasizes Air Power, 1969.

Robert N. Ginsburgh

ROBERT N. GINSBURGH
Major General, USAF
Chief, Office of Air Force History

Author's Note

The author wishes to acknowledge the considerable assistance received from the office of the Air Force Assistant for Logistic Planning, in particular that of Col. James T. Nelson, Jr., Chief of the Logistic Plans Division, and members of his staff. Others throughout the office of the Deputy Chief of Staff for Systems and Logistics also gave generously of their time. With the Directorate of Plans, particular thanks are due Lt. Col. Lloyd G. McBride, Chief of the Joint and Special Actions Branch, Tactical and Airlift Forces Division. The author is especially indebted to the staff of the Administrative and Records Branch of the Directorate of Plans, who provided research facilities and made available their extensive collection of files.

CONTENTS

	Page
FOREWORD	iii
LIST OF ILLUSTRATIONS	ix
FRONTISPIECE	x
I. STATUS OF THE LOGISTIC POSTURE IN SEA	1
The Logistic Challenge	1
Supply Effectiveness	3
Maintenance Effectiveness	6
II. AIR MUNITIONS	13
Munition Requirements	13
Munition Expenditures	21
New Munitions	23
III. REDEPLOYMENT PLANNING	31
VNAF Requirements	37
A Change in Withdrawal Policy	42
IV. LOGISTIC SUPPORT OF THE VNAF	46
The UH-1 Issue	46
Logistic Deficiencies in the VNAF	51
NOTES	59
GLOSSARY	79

LIST OF ILLUSTRATIONS

Figure		Page
1.	AIRCRAFT NOT OPERATIONALLY READY - SUPPLY (NORS) RATES	7
2.	AIR FORCE AIR MUNITIONS SEA ALLOCATIONS/EXPENDITURES PACAF	14
3.	USAF AIR MUNITIONS SEA ALLOCATIONS/EXPENDITURES PACAF	15
4.	CONTROLLED AIR MUNITIONS	24


NAMES AND BOUNDARY REPRESENTATION ARE NOT NECESSARILY AUTHORITATIVE
CHINA
Meng-tzu
Nan-ning
Yü-lin
Hsipaw
Chiang-ch'eng
Lao Cai
Cao Bang
CHINA
Mandalay
Bac Kan
Ning-ming
BURMA
Ta-lo
Phong Saly
Dien Bien Phu
NORTH
Mong Cai
Pei-hai
Ta-kaw
HANOI
Haiphong
Chan-chiang
Ban Botene
Muong Khoua
Taunggyi
Muong Sai
Samneua
Nam Dinh
Houei Sai
Muong Houn
VIETNAM
Pak Beng
Chiang Rai
Fang
Louangphrabang
Thanh Hoa
Xiangkhoang
HAI-NAN TAO
Ban Longtiang
Nammehek
Chiang Mai
Nan
Vinh
Paksane
Nape
Lampang
Hot
Paklay
VIENTIANE
Uttaradit
Dong Hoi
Udon Thani
Nakhon Phanom
Sittang
Demarcation Line
Sakhon Nakhon
LAOS
RANGOON
Tak
Phitsanulok
Sepone
Savannakhet
Hue
Moulmein
Mae Sot
Phetchabun
Khon Kaen
Da Nang
THAILAND
Ubon Ratchathani
Ye
Ta Khli
Pakse
Attopeu
Lop Buri
Nakhon Ratchasima
Surin
Dak To
Sara Buri
Kontum
Tavoy
Kanchanaburi
Kabin Buri
Phumi Samraong
Pleiku
BANGKOK
Watthana Nakhon
Sisophon
Lumphat
ANDAMAN SEA
Siemreab
Stoeng Treng
Phet Buri
Battdambang
CAMBODIA
Kampong Thum
Ban Me Thuot
Sattahip
Pailin
TONLE SAP
Chanthaburi
Kracheh
SOUTH
Nha Trang
Mergui
Ban U Taphao
Pouthisat
Trat
Kampong Cham
Da Lat
Cam Ranh
MERGUI
Prachuap Khiri Khan
Krong Kaoh Kong
PHNOM PENH
ARCHIPELAGO
Kampong Spoe
VIETNAM
Bien Hoa
SAIGON
Chumphon
Kampong Saom
Vung Tau
GULF OF THAILAND
Can Tho
PHU QUOC
Ranong
Quan Long
Surat Thani
CON SON
Nakhon Si Thammarat
Phuket
Phatthalung
Songkhla
Pattani
Satun
STRAIT OF MALACCA
Alor Setar
Kota Baharu
MALAYSIA
Mainland Southeast Asia
0 100 200 Miles
0 100 200 Kilometers

500539 7-71

[redacted]

I. STATUS OF THE LOGISTIC POSTURE IN SEA

(U) During the 1968-1969 time frame, Air Force logistic planning for Southeast Asia (SEA) changed sharply in complexion. Previously, planning had centered on providing a logistic base capable of supporting the massive buildup of Air Force units in SEA. By the start of 1968, however, most of the logistic support problems that had been the inevitable concomitant of the rapid buildup in SEA were well in hand. Permanent type field maintenance facilities comparable to those in the United States had been established at all 17 main bases where major USAF tactical units were stationed. The lay-in of supplies and equipment had levelled off. Supply accounts had been automated at all but two bases, and standard operating procedures had replaced the emergency measures of earlier years. Although a few problems remained, primarily in the area of supply, a normal logistic pipeline capable of supporting an air war of virtually indefinite duration had been established and was functioning smoothly.[1]

The Logistic Challenge

(U) With the main elements of a responsive logistic support base operative in SEA, the attention of Air Force logistic planners turned from buildup problems to challenges of a different nature. In large part, these stemmed from the two-fold objective of reducing U.S. involvement in the war and cutting military spending. Growing domestic pressure to disengage U.S. forces from SEA and the consequent search for a means to that end touched off a series of policy reappraisals which began in early 1968 and continued throughout most of the next two years. In the course of these reappraisals, every conceivable combination of military, political, and negotiating strategy was weighed--and several were tried--ranging from greatly increased military pressure to withdrawal of all U.S. and allied forces within six months.[2]

[redacted] These reassessments, by calling into question the premises on which force planning was originally based, introduced an element of uncertainty that enormously complicated planning for effective logistic support of the war. As Mr. Paul H. Nitze, Deputy Secretary of Defense, observed in mid-May 1968, nothing was firm. Uncertainties existed concerning the

[redacted]

[redacted]

nature of the future threat; the size and mix of future U.S. forces in SEA; and the ultimate cost of maintaining the U.S. posture and commitments in SEA. There might be a continuing requirement for substantial U.S. forces, for only a few forces, or even for no forces. Those needed to launch a successful offensive, to sustain a defensive posture, or to bring the war to an end were equally unknown. Above all, the outcome of the war and the U.S. ability to conclude it on favorable terms were in doubt. Given these uncertainties, a realistic planning basis was totally lacking.[3]

(U) The dilemma created by lack of a firm planning platform was intensified by sharp fluctuations in the level of air activity as military pressure was alternately increased and relaxed in an effort to induce the start of peace negotiations. Corresponding variations occurred in the posture of U.S. forces. Supporting force and activity levels that were constantly changing presented difficult if not unfamiliar managerial problems.[4] Compounding them, and underlying all others, were those created by successive budget reductions, which disrupted orderly planning throughout the entire spectrum of production, maintenance, and supply support.

(U) Difficulties in preparing the Fiscal Year 1970 budget exemplified the impact of increasingly severe fiscal constraints. Under the original guidance for preparing that budget, the Air Force was directed to assume that the forces deployed in SEA in 1968 would remain for an indefinite time. It was also to assume that operational activity would decline by about 20 percent from the levels sustained during post-Tet operations. Rather than decreasing, air operations continued at the same and even higher rates. Funds to support those operations were reduced, however, by amounts ranging from 10 to 20 percent.[5] By the spring of 1969, when the budget was finally presented to Congress, further cuts had been made. These were followed in the summer and fall of 1969 by those ordered under Project 703, an administration effort to trim $3 billion from the defense budget, $1 billion of which was to come from Air Force funds. Of this, approximately $300 million was scheduled to be cut in the munitions budget alone.

(U) To stay within the lower funding levels, the Air Force had to reduce tactical air sorties in SEA from 20,000 to 15,000 a month, for a savings of $71.8 million in total obligating authority (TDA) for munitions; and B-52 Arc Light sorties from 1,600 to 1,400 a month, for a further munitions savings of $216 million.[6]

[redacted]

(U) In the final analysis, then, the challenge facing Air Staff logisticians in the 1968-69 period was to support forces of unknown size over a period of unknown duration at activity levels of unknown and frequently changing magnitude, given budget resources that were rapidly shrinking.

Supply Effectiveness

(U) One measure of how well the challenge was met could be found in the supply effectiveness rates of Air Force units in SEA. During 1968-69, air combat activity rose to record highs with USAF aircraft flying more than 1,000,000 sorties in 1968 (an increase of about 18 percent over 1967) and another 900,000 in 1969.[7] Despite correspondingly heavy demands on the supply system, and notwithstanding the arrival of additional aircraft--including several for which no previous operational experience existed--the overall SEA NORS (Not Operationally Ready for Supply) rate exceeded 3 percent only twice in the entire 2-year period.[8]

(U) These rates--the lowest in Air Force history--were the more remarkable in view of the variety of aircraft supported. Among the nearly 1,800 USAF aircraft in SEA at the end of 1968 were some three dozen different types.[9] Many were nonstandard configurations representing models which had been modified to perform special missions, such as transports which had been converted into gunships and flareships (C-47's, C-119's, and C-130's) and fighters that had been reconfigured as ECM (Electronic Counter Measures) planes. Many others were aircraft that had been reclaimed from storage, rehabilitated, and put back into service long after equipment and supply production lines had closed down.[10] Inevitably, NORS rates for individual aircraft fluctuated, occasionally surpassing the overall norm.[11] In general, however, such supply problems as arose were temporary in nature and not the result of prolonged deficiencies. This was true even in the case of the AC-130 gunships deployed in late 1968 and early 1969, which had to be supplied directly from the manufacturer until a normal resupply pipeline could be developed.[12]

(U) The only exception--and from a supply standpoint the problem of greatest continuing concern--was the large quantities of surplus assets which had accumulated at bases in SEA. These excesses were the direct consequence--and almost inevitable

byproduct--of the rapid buildup of forces in 1965 and thereafter. During the initial buildup stages, enormous amounts of materiel had to be furnished by the fastest possible means. To accomplish this, the Air Force resorted to several emergency programs, and to automatic or "push" shipments, for laying in supplies and equipment.[13] In many cases, planning factors used to provide initial support items did not correspond with actual consumption rates. Assets that were not used accordingly became excess.[14] The deployment of combat units with mobility support packages containing equipment which duplicated that already provided by other means also generated excesses, as did changes in mission or operational concepts and failure to use aircraft to the extent provided for in logistic planning.[15]

(U) Lack of control over the movement of supplies into the theater was another major cause of surplus assets. There were not enough supply personnel authorized to receive and control the huge volume of supplies moved into the theater in 1965-66, and as a result the depots became inundated. Many urgently required assets were therefore placed into immediate use, disregarding the normal receiving, accounting, and issuing procedures.[16] The rapid rotation of supply personnel, use of manual supply procedures in the initial buildup stages, and lack of adequate warehousing further contributed to the mounting chaos.[17]

(U) The accumulation of huge quantities of excesses in SEA began to concern Air Staff supply officials as early as January 1966.[18] At about the same time, Headquarters Pacific Air Forces (PACAF), becoming equally concerned, directed its base materiel managers to purify base supply accounts and institute normal supply operations. Personnel shortages, however, delayed positive action until the following year.[19] The first concrete step was taken in March 1967 when PACAF established the PACAF Equipment Redistribution Center (PERC) at Don Muang Royal Thai Air Force Base (RTAFB), Thailand, for the purpose of identifying and redistributing base-funded excesses throughout PACAF.[20]

(U) Although some progress was made in eliminating surplus assets, in November 1967 Gen. Thomas P. Gerrity, Commander, Air Force Logistics Command (AFLC) singled out the status of supply accounts as the "most serious logistic problem of the entire war." General Gerrity accordingly called for an inventory of all supplies in SEA to determine "what we have and where it is."

He then ordered a redistribution of excess items to other areas in the Air Force where they were needed.[21]

(U) PACAF meanwhile had initiated, in mid-October 1967, a command-wide equipment redistribution program, nicknamed "Commando Ripe" (Redistribution of Idle Programmed Equipment). It was established to identify and redistribute all reparable equipment not needed at SEA bases. Under this program, assets worth more than $40 million were redistributed by mid-April 1968, when it came to an end. An additional savings of $5.3 million was realized in reconciled depot and base requisitions.[22]

(U) Commando Ripe was the first of several projects which PACAF undertook, partly in conjunction with AFLC, to purge base supply accounts of excess assets. Similar work continued throughout 1968 and 1969, gaining additional impetus from plans for the possible withdrawal of U.S. forces from SEA. Notable in connection with this effort was the option given PACAF at the start of the buildup not to maintain equipment and supply accountability. The command had elected to do so, however, with the result that equipment accountability was maintained in a combat environment for the first time in U.S. military history.[23] The wisdom of this decision proved itself many times over, becoming particularly apparent in the program to dispose of surplus assets. By the end of 1969, PACAF had identified and reported for disposal excess equipment valued at some $75.1 million. In addition, it had redistributed property valued at $191.8 million.[24]

(U) Paralleling the program pioneered by PACAF was a similar one which the Department of Defense (DOD) established in late November 1967 following a visit to South Vietnam by Mr. Thomas D. Morris, Assistant Secretary of Defense for Installations and Logistics. On his return, Secretary Morris called for an aggressive attack on the problem, first because excesses directly inhibited supply effectiveness by causing congestion and frustration, and second, because delay in identifying and redistributing assets undercut potential savings in new procurement. Vietnam was already being called an "Auditor's Paradise," he warned, adding: "No more fruitful area for headline hunting exists than in the area of excesses."[25]

(U) Acting on this recommendation, Defense Secretary Robert S. McNamara directed the immediate redistribution of excesses

in Vietnam. In so doing, Mr. McNamara observed that the aftermath of past conflicts had invariably been the accumulation of huge surpluses which, because of deterioration and obsolescence, had little salvage value. To insure that this did not happen in Vietnam, and to avoid the "inefficiencies and waste experienced in the past," he designated the Secretary of the Army to serve as DOD Executive Agent for a program named Project PURE (Prompt Utilization and Redistribution of Excess), which was to identify the excess materiel of all services in SEA and make it available for redistribution. At the same time, he directed CINCPAC (Commander in Chief, Pacific Command) to establish a special agency, to be known as PURA (Pacific Utilization and Redistribution Agency) to supervise the redistribution or disposal of excess materiel.[26] These programs, to which the Air Force effort became linked, were unique in the history of U.S. warfare in representing the first time positive steps were taken to retrieve surpluses from a combat area while fighting was still going on.[27]

(U) As was evident from the low NORS rates of Air Force units in SEA, the excesses did not significantly interfere with USAF support of the war. The high effectiveness of the USAF supply system--which was put to the test of supporting sustained combat operations for the first time during the Vietnamese conflict--was confirmed by a steady decline in NORS rates between 1967 and 1969. These reached a low of 2.4 percent in January 1969, and rose but gradually throughout the first 7 months of 1969.[28] (See Figure 1.)

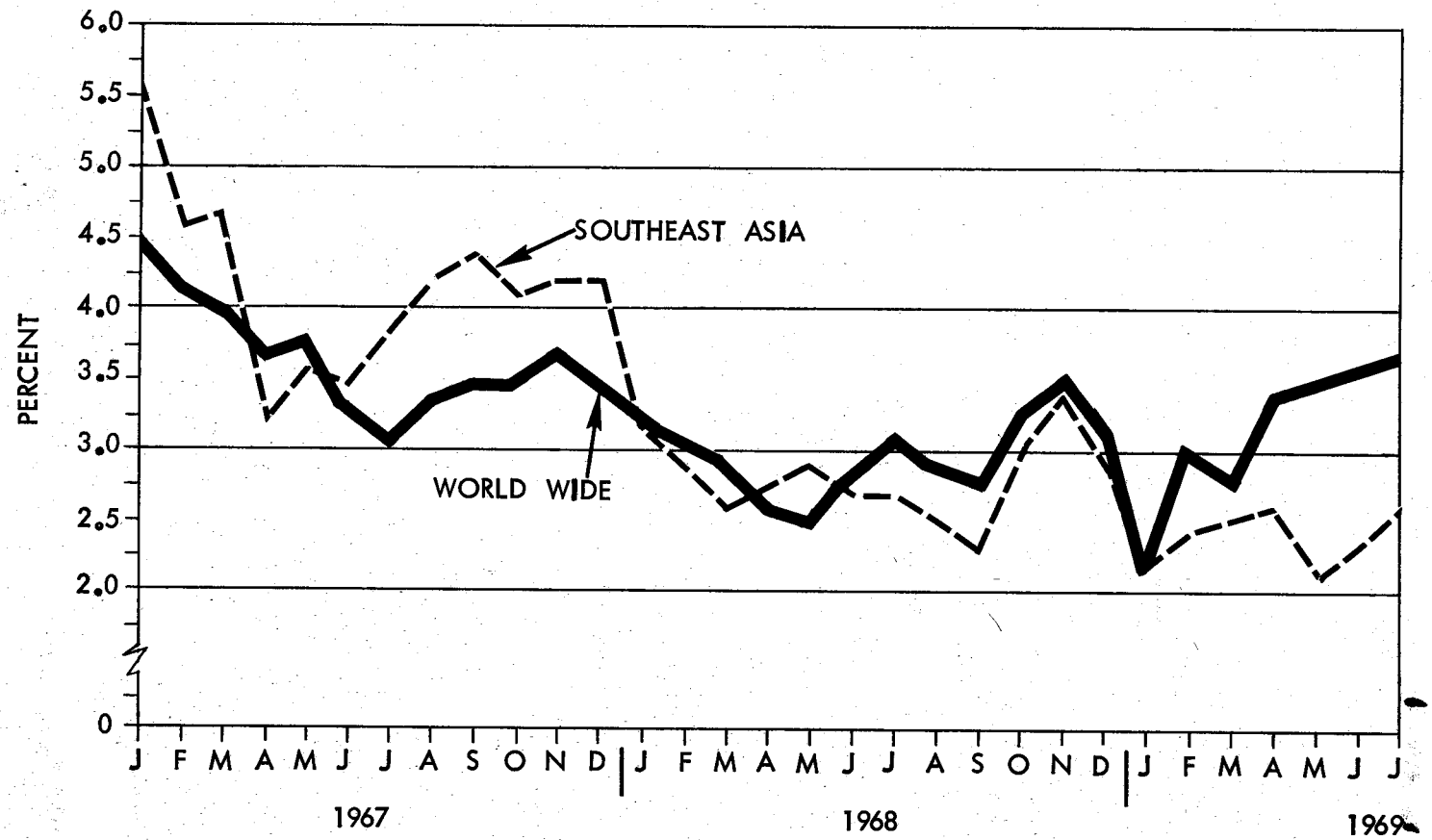
Maintenance Effectiveness

(U) The record for aircraft maintenance gave further evidence of the effectiveness of SEA logistic support in the 1968-69 period. Even though maintenance workloads were the highest ever experienced on a protracted basis, and notwithstanding severe shortages of skilled maintenance personnel, aircraft NORM (Not Operationally Ready for Maintenance) rates generally remained well within the Air Force standard of 24 percent throughout the 2-year period.[29] These rates were sustained despite flying hour programs that were two to three times the normal, the highest aircraft utilization rates in Air Force history, and a variety of adverse conditions, including prolonged combat usage, battle damage, structural failures, exposure to environmental hazards, and the advancing age of aircraft.[30]

[redacted]

(This page is UNCLASSIFIED)

AIRCRAFT NOT OPERATIONALLY READY-SUPPLY (NORS) RATES



SOURCE: JOINT LOGISTICS REVIEW BOARD REPORT, VOL II, p. 256.

Figure 1

[redacted]

[redacted] As in the case of NORS rates, NORM rates for individual aircraft varied from month to month. In October 1969, for example, the NORM rate for B-52's rose to 54.6 percent. In the same month, NORM rates for five other aircraft also exceeded the standard, ranging from 25.2 percent for the C-130 to 32.4 percent for the C-121. In no case, however, were aircraft unable to accomplish their programmed operational missions.[31]

(U) Prolonged combat use of aging aircraft had begun to exact a severe toll, however, and in 1968-69 the penalties were becoming increasingly apparent. Many of the aircraft supporting the war had already seen lengthy service. Indeed, 56 percent in the active Air Force inventory were at least 9 years old, including 76 percent of the USAF's attack aircraft, 74 percent of its bombers, 48 percent of its fighters, and 59 percent of its transports.[32] To keep these aircraft flying, it had been necessary to extend their safe service lives, resulting in accelerated fatigue failures and wear-out rates.[33] Moreover, as noted earlier, many in use in SEA had been reclaimed from storage and converted to perform missions never envisioned in their original design.[34]

(U) The advancing age of aircraft, usage beyond their designed life, stresses imposed during combat, rigorous operating conditions and crash and battle damage were among factors that contributed to structural problems that surfaced during 1968-69. These problems created heavy unscheduled maintenance workloads, and in a growing number of cases, necessitated extensive aircraft rehabilitation programs to correct weaknesses that threatened standdown of major portions of the fleet.[35] Sooner or later, virtually all of the aircraft that had proved most effective in prosecuting the war, including the F-4, F-100, F-105, C-130, and B-52, were, to some extent or other, afflicted with structural problems.

(U) One of the first to show fatigue symptoms was the C-130 transport--the so-called "workhorse" of the tactical airlift fleet. This aircraft, which was already 10 years old at the time it began major operations in Vietnam, was subjected to a combination of stresses which included prolonged usage at high aircraft utilization rates, continuous short field landings, takeoffs on rough, debris-strewn runways, high gross operating weights, and numerous short-duration sorties.[36] By 1967, fatigue cracks had appeared in both the upper and lower surfaces of the center wing sections,

limiting the operational availability of the entire C-130 fleet. Although temporary repairs were made in the field, it subsequently became necessary to replace the center wing box beam in all C-130B/E aircraft. This required recycling the entire force of some 400 aircraft, at the Lockheed plant in Marietta, Georgia, to complete repairs that took 30 days per aircraft and cost $187,000 each. Work began in November 1968 and was scheduled for completion in the summer of 1971 at an estimated total cost of $74.7 million.[37]

(U) Another aircraft equally vital to the effective prosecution of the war, the F-100 fighter bomber, also developed cracks in the wing center box section. Nearly 900, including 342 assigned to PACAF, needed fixing. In the case of the F-100, however, it proved possible to make corrections in the field using maintenance teams furnished by AFLC. Repairs to the wing center section were completed on schedule in August 1969. By then, however, other cracks had been found. To mend these, the lower skins of the wing center section had to be replaced on all aircraft before they reached 4,000 hours flying time. More than 600 F-100's required this modification, which was also performed in the field by AFLC maintenance teams.[40] Work progressed satisfactorily but was still under way at the end of 1969.

([redacted]) The operational availability of major portions of the tactical force was also limited by wing spar cap failures, which affected A-1, A-37, T-37, F-105, and C-124 aircraft. An example of problems in this area was provided by the A-1 Skyraider, a Navy aircraft reconfigured for Air Force use which began entering the USAF inventory in 1964. The first failure occurred in October 1968 at Eglin AFB, Fla., where a modification program was in progress to extend the safe service life of the aircraft.[41] This incident caused AFLC to ground all A-1's with more than 6,500 hours flying time and to restrict the operations of those with more than 3,500 hours pending completion of structural modifications. Although none of PACAF's 80 A-1's and none of the 68 possessed by the Vietnamese Air Force (VNAF) were grounded, most were subject to flight restrictions.[42]

([redacted]) Repairs were still under way when AFLC discovered that 15 A-1's assigned to PACAF and 34 belonging to the VNAF had little or no wing spar life remaining. These aircraft would therefore either have to be phased out or undergo major

modification. As all A-1's were essential to the effort in SEA, the Air Staff directed AFLC to fix them as quickly as possible. By April 1969 it had become apparent that the number requiring modification would be significantly greater than originally envisioned since, by then many other A-1's had exhausted their fatigue life.[43] The Sacramento Air Materiel Area (SMAMA) accordingly established new flight restrictions. At the same time, it formulated a program to replace the spar caps in 166 A-1's--a modification that was expected to increase the safe life of wings by 3,000 hours at a total cost of $7.5 million.[44]

(S-C[redacted]) In the meantime, cracks continued to appear even in aircraft being operated under the new flight restrictions (3.5"G"s). In consequence, during the Project 703 budget exercise of September 1969, AFLC suggested phasing out the A-1 force altogether. The Air Staff was sympathetic to this proposal, but since all available A-1's were needed for the war's duration, it had no choice but to proceed with the modifications. The program to replace fatigue-damaged lower wing spar caps in PACAF and VNAF aircraft was accordingly scheduled to start in February 1970 and was due for completion in May 1971.[45]

(S-C[redacted]) Severe cracks were also found in the wing spar caps of the A-37A Forward Air Control (FAC) fleet at Bien Hoa Air Base, South Vietnam. In this instance, however, PACAF was forced to ground all 20 aircraft comprising the force.[46] As the defects proved too extensive to be corrected by straps, spar caps had to be replaced on both the upper and lower wings. This work was performed on site by a team of 37 AFLC technicians, who began work at Bien Hoa in February, finishing in record time in March.[47] Due to the severe flight and taxi loads placed on A-37's operating in SEA, however, the safe service life of the aircraft was extended by only 1,000 hours.[48] In view of this, AFLC proposed the immediate phaseout of all A-37's. To support this recommendation, it argued that the Air Force was attempting to maintain a modified and aging training aircraft of unknown service life in a combat environment and that a savings of about $5 million would be realized from its early phaseout.[49] The Air Staff was forced to veto this proposal since replacement aircraft were not available. It agreed, however, that when the aircraft's safe service life was exhausted the force would be phased out. At current flying rates, this meant the summer of 1970.[50]

(U) Whereas prolonged usage and age were the primary factors causing structural failures in the C-130, F-100, A-1, and A-37, environmental conditions in SEA triggered other problems. Even the newest aircraft in the USAF inventory were not immune to the harsh environment, as became apparent in 1968 when the potting compound used to insulate electrical connections in F-4 aircraft reverted from a solid to liquid state, causing the compound to lose its insulating properties and the structure of electrical components to be weakened. Though use of an inferior potting compound was the principal reason, the humidity and high temperatures in Vietnam accelerated deterioration.[51]

([redacted]) The problem initially affected 200 F/RF-4C aircraft in SEA, 55 of which had to be grounded. Depot teams provided by AFLC and contract personnel began repotting 700 connectors in each aircraft in November 1968.[52] With about 4,000 manhours required per aircraft, the F-4 potting compound reversion problem turned into what maintenance engineers termed a "back-breaker of unprogrammed depot workloads."[53]

(U) This problem was only the first of several experienced in the F-4--and merely one of the myriad affecting aircraft in SEA. Between 1966 and the end of 1968, more than $1.1 billion was spent on modification programs solely in support of SEA operations.[54] Concurrently, programmed and unprogrammed depot level maintenance workloads were, of course, greatly increased. In fiscal year 1968, for example, some 120.7 million manhours were expended for depot level maintenance support. In fiscal year 1969, the workload rose to a total of 128.9 million direct manhours expended.[55]

(U) Ironically, all of the problems afflicting aircraft in SEA came at a time when the maintenance capabilities of Air Force depots were feeling the pinch of shrinking budgets most severely. One result was massive manpower cuts which drastically limited AFLC's maintenance resources. In fiscal year 1968, the AFLC manpower program was underfunded by almost 2,500 man years. This situation grew worse during fiscal years 1969-70 when another 6,400 maintenance spaces were lost.[56]

(U) These cuts forced AFLC to rely increasingly on contractor support. In fiscal year 1969, less than 50 percent of the depot maintenance was done in-house, the remainder on contract. To stay within existing budgets and manpower ceilings, maintenance

also had to be deferred whenever possible. As of October 1968, AFLC's deferred depot maintenance workload amounted to more than $285 million. By August 1969, the deficit increased to $363.64 million and was expected to grow still larger in view of the further budget and manpower cuts then pending.[57]

(U) Since the depot maintenance requirements of major commands were funded on a priority basis, the bulk of the deferrals occurred in mission support areas and in non-SEA operations. As support and administrative aircraft had been among the chief victims, their condition was a matter of growing anxiety.[58] Of possibly even greater concern to Air Staff planners was the almost total deferral of force modernization programs, which had implications for future capabilities of the USAF. Even programs providing for the normal replacement of equipment due to age and condition had been repeatedly postponed, however.[59]

(U) Thus, even though worldwide supply and maintenance rates had generally remained within satisfactory limits,[60] the necessity to finance the war from existing budgets without a corresponding increase in fiscal resources, coupled with the overriding operational priorities assigned to forces in SEA, resulted in less than optimum support and, in some cases, lowered operational readiness rates for USAF forces stationed elsewhere in the world.[61]

(U) To minimize the impact of SEA support on non-SEA units, procurement programs were stretched out and incrementally funded--despite the fact that this practice often resulted in greater costs in the long run. Depot stocks were reduced to zero and base stocks by 20 percent. Engine modernization programs were halted. Storage aircraft were cannibalized. The rebuilding of War Materiel Readiness (WRM) stocks, which had been drawn down in the early stages of the war, was almost totally suspended. In short, to a large extent, the high level of support provided forces in SEA was achieved at the expense of other Air Force commands and to the detriment of other major projects and programs. As one member of the air logistics staff summed up, "SEA support has been and continues to be maintained by a great deal of improvising, and at the sacrifice of badly needed support in other areas."[62]

II. AIR MUNITIONS

(U) Of the various logistic problems arising from support of the air war in 1968-69, few, if any, exceeded the complexity of those associated with munitions planning. Since munitions formed the sinews of war, requirements for them were not only tied to, but they directly reflected the operations they were designed to support. Indeed, nowhere was the course of the conflict mirrored more clearly than in the changing needs for air munitions. As these varied with alterations in the tempo and direction of operations, as well as with changes in sortie rates and force posture, Air Staff planners found themselves perpetually adjusting ordnance production rates to match anticipated demand. This process was complicated by the need to contract for munitions well in advance, and by DOD production limitations imposed to avoid accumulating large quantities of stocks that would become surplus when the war ended.[1] Budget reductions and the necessity to employ incremental funding procedures posed further complications.

Munition Requirements

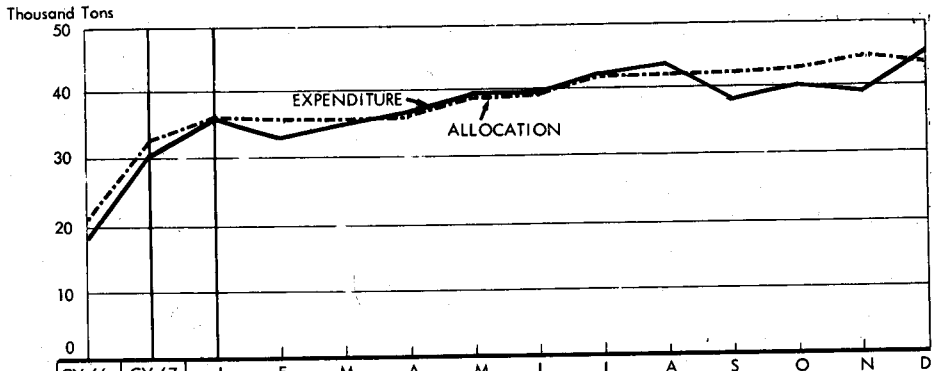
([redacted]4) The tortuous nature of munitions planning was implicit in the many revisions made in the tonnages allocated to the Air Force in SEA in the 1968-69 period. During 1968, monthly allocations rose from approximately 65,300 tons in March to 102,000 tons in December. The trend continued in the opening months of 1969 but thereafter was sharply reversed. By the end of 1969 the Air Force allocation had dropped to 78,600 tons a month. (See Figures 2 and 3.)

([redacted]) The first change occurred in early January 1968 when the Air Force allocation was raised to 72,500 tons to accommodate an increase in the SAC B-52 Arc Light sortie rate from 800 to 1,200 a month.[2] A revised munitions allocation plan was no sooner issued than another increase was approved in the B-52 Arc Light sortie rate, raising it to 1,800 a month. The Air Force allocation was accordingly altered in late April to cover an estimated monthly expenditure of 94,400 tons through 30 June 1968.[3]

([redacted]) As the tempo of combat operations increased, CINCPAC's air munition requirements--and with them Air Force

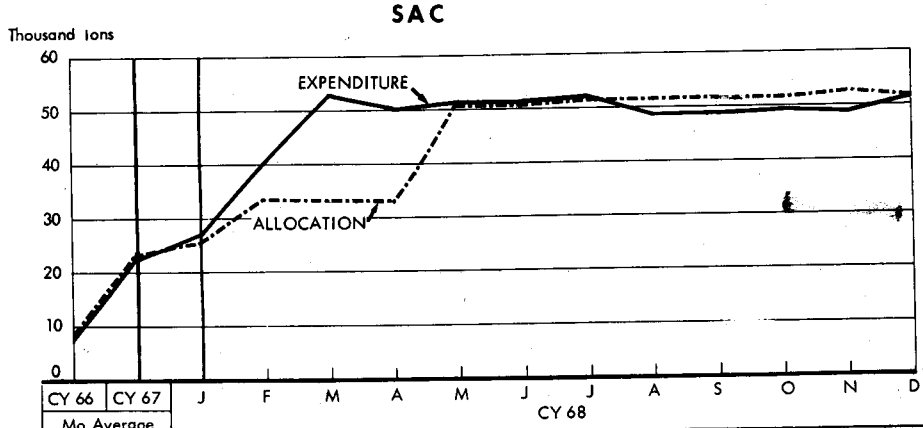
[redacted]

AIR FORCE AIR MUNITIONS
SEA ALLOCATIONS / EXPENDITURES
PACAF



	CY 66 Mo Average	CY 67 Mo Average	CY 68 J	F	M	A	M	J	J	A	S	O	N	D
ALLOCATION	21.0	32.9	35.1	35.3	35.2	35.3	38.2	38.8	41.8	42.1	42.5	43.6	45.5	44.7
EXPENDITURE	18.0	30.8	35.9	33.1	34.9	36.2	39.5	39.3	42.1	43.3	38.4	40.0	38.9	45.6

SAC



	CY 66 Mo Average	CY 67 Mo Average	CY 68 J	F	M	A	M	J	J	A	S	O	N	D
ALLOCATION	8.9	23.8	25.4[1]	33.5[1]	33.5[1]	33.5[1]	51.2	50.9	51.5	51.5	51.5	51.5	52.5	51.5
EXPENDITURE	8.8	22.2	27.3	40.6	52.8	50.9	51.7	51.7	52.0	48.7	49.0	49.2	48.7	51.4

MAP

ALLOCATION	5.0	4.7	4.8	4.8	4.7	4.7	4.9	4.7	5.1	4.9	5.2	5.6	5.8	5.8
EXPENDITURE	3.6	3.8	4.4	4.3	4.0	3.5	4.2	4.7	3.7	4.2	4.4	4.6	5.0	4.1

TOTAL

ALLOCATION	34.9	61.4	65.3	73.6	73.4	73.5	94.3	94.5	98.4	98.5	99.2	100.7	103.8	102.0
EXPENDITURE	30.4	56.8	67.5[2]	78.1	91.7	90.6	95.3[2]	95.7	97.8	96.2	91.8	93.8	92.6	101.1

[1] CINCPAC did not publish a revised allocation change to compensate for the increase to 1800 B52 sorties approved by JCS to begin 15 Feb 68; therefore, expenditures for these months exceed allocations.

[2] Arithmetic difference caused by rounding.

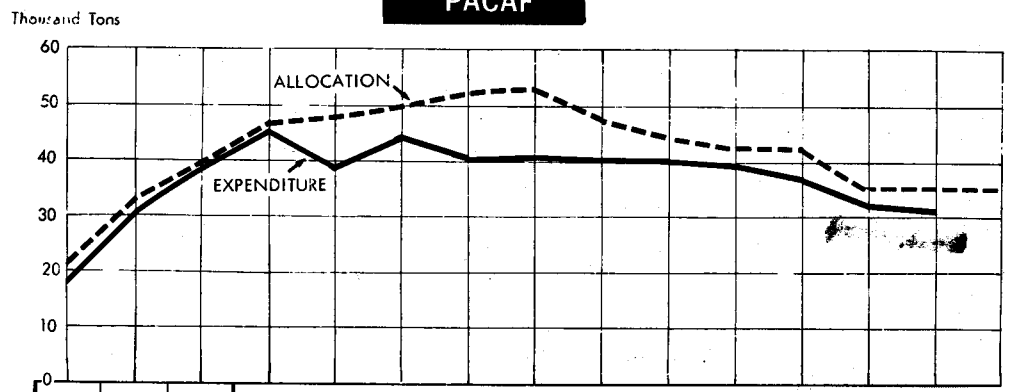
Source: CINCPAC Revised PACOM Allocations, 18 Sep 68
PACOM Air Munitions Status Report, 31 Dec 68

Figure 2

[redacted]

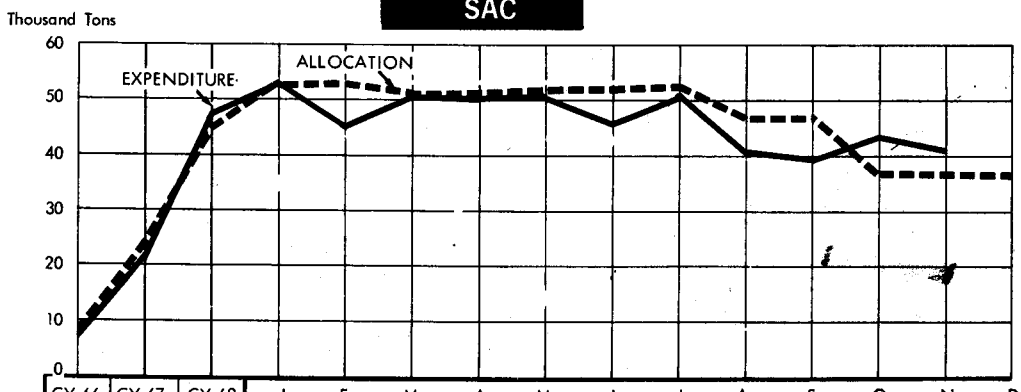
USAF AIR MUNITIONS
SEA ALLOCATIONS/EXPENDITURES

PACAF



	CY 66	CY 67	CY 68	J	F	M	A	M	J	J	A	S	O	N	D
	Monthly Average			CY 69											
Allocation	21.0	32.9	39.8	47.0	47.8	49.6	52.1	52.7	47.7	44.9	42.8	42.8	34.6	35.0	35.2
Expenditure	18.0	30.8	38.9	45.3	38.3	44.7	41.0	41.8	41.0	40.5	39.7	37.3	32.4	31.2	

SAC



	CY 66	CY 67	CY 68	J	F	M	A	M	J	J	A	S	O	N	D
	Monthly Average			CY 69											
Allocation	8.9	23.8	44.8	52.5	52.5	51.5	51.8	51.8	51.8	52.7	47.1	47.1	36.8	36.8	36.8
Expenditure	8.8	22.2	47.8	52.5	46.4	51.1	50.8	51.1	46.3	50.2	40.7	39.8	44.0	41.2	

MAP

Allocation	5.0	4.7	5.1	6.0	5.9	6.4	6.6	6.7	6.7	6.9	6.9	7.1	6.9	6.9	6.9
Expenditure	3.6	3.8	4.3	5.1	4.4	5.4	4.9	5.6	5.2	5.6	6.0	5.8	6.9	6.9	

TOTAL

Allocation	34.9	61.4	89.7	105.5	106.2	107.6[1]	110.5	111.2	106.2	104.4[1]	96.8	97.0	78.3	78.6	
Expenditure	30.4	56.8	91.0	102.9	89.1	101.2	96.7	98.4[1]	92.6[1]	96.4[1]	86.4	82.9	83.4	79.2	

[1] Arithmetical differences due to rounding.

Source: CINCPAC Revised PACOM Allocations,
12 Nov 69, w/sub Revisions
PACOM Air Munitions Status Report, 30 Nov 69

Figure 3

allocations--rose steadily in the summer and fall. Thus, in July 1968, following arrival of the additional tactical air forces deployed in the aftermath of the Tet offensive, CINCPAC raised his monthly air munitions requirement to 135,000 tons to support approximately 37,000 combat sorties, including 1,800 Arc Light sorties.* Under this revision, monthly Air Force expenditures were expected to reach 99,339 tons in the last half of 1968--an increase of more than 9,000 tons over the April projections for that period.[4]

(S [redacted]) Little more than a month later, CINCPAC projected the need for another 17,000 tons, bringing his monthly requirement to 152,000 tons as of August 1968.[5] These requirements were again revised sharply upwards in early December, at which time CINCPAC asked for an all-time high of 182,000 tons a month.[6] As was obvious from this revision, the total halt in the bombing of North Vietnam, begun in early November,+ had in no way diminished CINCPAC's munition requirements. Rather, as the Joint Chiefs of Staff (JCS) pointed out, the bombing halt had merely shifted the geographical location of targets from North Vietnam to Laos. In fact, more than three-fourths of the sorties previously flown over North Vietnam had been redirected to interdict North Vietnamese supply routes in Laos as part of a massive interdiction campaign known as "Commando Hunt." Therefore, even though the need for certain types of munitions, such as heavy bombs, had decreased, overall tonnage requirements were substantially greater than before.[7]

([redacted]) Up to that point, the Office of the Secretary of Defense (OSD) had supported CINCPAC's requests, and in the course of 1968 had approved a series of production increases which progressively raised average monthly output from 96,760 tons in March to just under 104,000 tons in October to meet projected Air Force needs.[8] While this still left a deficit between planned production and forecast consumption, the Air Staff assumed--optimistically as it turned out--that further production increases would follow.[9]

---

*The CINCPAC allocations included not only the tonnages for the Air Force indicated in Figures 2 and 3 but also those of the Navy and Marine Corps.

+A partial halt in the bombing of North Vietnam commenced the previous spring incident to President Johnson's announcement of 31 March 1968 that bombing above the 20th parallel would cease.

[redacted] Pressure to slow down military spending had been mounting, however, and by December air munition budgets had undergone the first of several cuts that were to sharply limit Air Force ability to support operational requirements. The initial reduction was relatively minor ($27.4 million, primarily in training items), but the second--ordered under Program Budget Decision (PBD) 177 on 19 December--eliminated the far more substantial sum of $427.7 million, $30.1 million of which was for air ordnance for SEA. (The remaining $442.6 million represented a cut in the development and production of new munitions.) This reduced the Air Force budget to $1,651.3 million, $1,446.0 million of which was for SEA support.[10] Air Force protests were largely in vain, as became evident when an additional $265 million was eliminated under a subsequent budget decision, PBD 471.[11]

[redacted]) The net effect of these actions was to reduce the Air Force's fiscal year 1970 munition budget from the $2,375.1 million requested originally in September 1968 to $1,610.4 million as of January 1969. Planned munitions procurement was simultaneously cut from 1,326,000 to 1,075,000 tons. The lower procurement would support expenditures at a rate of only 91,200 tons per month, compared to the previously planned rate of 104,800 tons. But even the new rate could only be sustained by drawing approximately 30,300 tons per month from existing inventories.[12]

[redacted] In view of the gap between programmed production and projected consumption, the JCS deferred approval of CINCPAC's December request pending results of a munition planning conference scheduled for early February 1969.[13] Based on decisions reached at that conference, CINCPAC subsequently scaled down his request from 182,000 to 145,000 tons per month, of which 90,000 tons were to support tactical air requirements.*[14]

[redacted] A significant deficit, nevertheless, still existed between anticipated ordnance consumption and planned munitions production. Under the most recent schedules, total Department of Defense production was expected to provide approximately

---

*As against the planning factor of 1.96 tons per sortie used in loading aircraft for bombing operations over North Vietnam, the new tactical air munition requirements were based on a loading factor of 2.15 tons per sortie.

[redacted]

[redacted]

129,000 tons per month through calendar year (CY) 1969, decreasing to approximately 113,500 tons per month (89,900 for the Air Force) in 1970. Since this would not even sustain current operations in SEA, let alone allow for replenishing munition stocks elsewhere in the world, Gen. Earle G. Wheeler, Chairman of the JCS, ordered a survey to determine future trends in tactical air and B-52 operations in SEA, the status of munition stocks outside the theater, and the capabilities of current production and funding programs to meet requirements.[15]

[redacted] As part of this survey, CINCPAC was to estimate monthly tactical air sortie and air munition requirements through June 1970. In developing estimates, he was to assume that Arc Light sorties would continue at the rate of 1,800 per month; that tactical air forces would remain at the current deployment level; and that the tempo of operations would continue at approximately the same rate and within the same geographical limitations currently in effect.[16]

[redacted] Not surprisingly, given these assumptions, CINCPAC replied that the magnitude of the total SEA effort would remain relatively unchanged through mid-1970. Tactical air sorties were expected to average 43,000 per month, while monthly air munition expenditures would approximate 145,000 tons through the remainder of 1969.[17] The Joint Chiefs accordingly informed Secretary of Defense Melvin R. Laird in early March 1969 that during the next 15 months total sortie and air munition requirements would not vary significantly from recent experience. Between March and December 1968, expenditures had averaged approximately 125,000 tons a month. In January 1969, however, consumption rose to nearly 140,000 tons, due mostly to the demands of accelerated Commando Hunt operations. Since any reduction from the January levels would seriously impair the interdiction effort in Laos, the JCS held that tactical air and B-52 sorties, hence air munition expenditures, should be based on that level. If consumption continued at the January rate, however, either production would have to be increased or a drawdown in the worldwide munitions inventory could not be avoided.[18]

[redacted] The Joint Chiefs reiterated the importance of maintaining the current level of B-52 and tactical air sorties, as well as the need to increase production. In early April 1969 they

[redacted]

presented CINCPAC's revised (February) 1969 air munition requirements for Secretary Laird's approval.[19] Several weeks later, the Joint Chiefs again stressed the need to continue Arc Light sorties at the rate of 1,800 a month,[20] reaffirming a position they had taken ever since the preceding December when the outgoing Deputy Defense Secretary, Mr. Nitze, ordered a reduction in the number flown to a maximum of 1,600 per month. Under Mr. Nitze's directive, any combination of sortie rates would be permitted so long as the monthly average flown did not exceed 1,600.[21]

[redacted] MACV strongly protested this directive, arguing that a reduction in B-52 sorties could not be justified in view of the need to strike enemy base areas and to protect U.S. forces from the enemy buildup. If anything, the demand had increased, due to Commando Hunt operations.[22] Based on the views of the field commanders, the JCS recommended retaining the rate of 1,800 a month through 30 June 1970 unless major changes occurred in the strategic or tactical situation to permit a reduction.[23]

[redacted] A key consideration underlying the B-52 sortie rate question was the high cost of munitions. The whole issue, which was prolonged over a number of months, was in fact directly tied to the administration's desire to cut the cost of the war. Reducing B-52 sorties by 200 a month was expected to save about $103.6 million each month, $53.4 million of which represented the cost of munitions.[24] The munitions budget had meanwhile been cut to the point where it could only sustain 1,600 Arc Light sorties monthly. Therefore, several budgetary actions would be needed if OSD approved continuing the 1,800 sortie rate. Specifically, $36 million in fiscal year 1969 funds and $27 million in fiscal year 1970 funds that were currently earmarked to sustain munitions production beyond June 1970 would have to be reprogrammed. These funds would then have to be replaced by a fiscal year 1970 supplemental appropriation. In addition, General McConnell told the Joint Chiefs of Staff, operational and maintenance support would have to be funded by borrowing from other fiscal year 1970 resources.[25]

[redacted] In view of the military's opposition to reducing B-52 sorties, Secretary Laird offered a choice between maintaining the current rate and accepting a cut of $100 million in the tactical air effort, or maintaining the current level of tactical air sorties and reducing the B-52 rate to 1,600 a month.[26] CINCPAC

[redacted]

[redacted]

preferred neither alternative. Of the two, however, the "least objectionable" was to reduce Arc Light sorties to 1,600 a month.[27] The Joint Chiefs accordingly advised Mr. Laird on 27 June that the combat situation in Vietnam and Laos required keeping both tactical air and Arc Light efforts at current rates "as a matter of military prudence." Since it would be militarily inadvisable to reduce either one, both should be retained at their current levels. However, if budgetary constraints forced acceptance of one alternative or the other, reducing the Arc Light sortie rate would be the least undesirable course.[28]

(S-[redacted]) While the Arc Light sortie rate was being debated, in mid-March 1969 CINCPAC revised his December 1968 munition allocation plan to reflect an increase in Air Force ordnance consumption to 109,730 tons per month through the end of 1969--3,813 tons over the December projection. Under the new plan, PACAF's allocation was increased by 4,490 tons to 52,079 tons per month. SAC's allocation, however, was decreased by 1,082 tons to an average of 51,444 tons a month, reflecting a decision to provide a proportionately greater share of the production-limited M-117 and MK-82 general purpose bombs to PACAF. A few days earlier, the Office of the Secretary of Defense published a new air munition production schedule, the net effect of which was to increase production to an average of 100,444 tons a month for the period March through December 1969. This represented a gain of 1,013 tons per month.[29]

(S-[redacted]) As it turned out, expenditures in the March-June 1969 period fell below forecasted rates, due mainly to a decrease in PACAF attack sorties. Actual outgo averaged 97,983 tons per month (7,500 tons less than the allocation) in the first half of the year. In consequence, on 27 June CINCPAC decreased the Air Force allocation to 103,885 tons per month (44,511 tons for PACAF and 52,328 tons for SAC) for the remainder of the year.[30]

(S-[redacted]) With the decision to cut the Arc Light sortie rate, endorsed by Secretary Laird on 11 July, and in light of plans to reduce the number of F-4 squadrons in the theater, on 26 July CINCPAC again revised his air munition requirements, lowering them by 11,000 tons to 134,000 tons per month. The most significant changes were made in requirements for MK-82 and M-117 bombs, which were decreased in consonance with the new Arc Light rate and F-4 posture.[31]

[redacted]

[redacted] Further reductions in Air Force allocations for SEA followed on 30 July, at which time CINCPAC lowered the Air Force allocation from 103,074 to 97,260 tons per month--a drop of 5,814. This revision was succeeded by a further scaling down of requirements as the level of air activity tapered off and additional budget cuts were imposed. On 12 November, CINCPAC reduced the Air Force monthly allocation to 79,800 tons--17,948 less than before. The PACAF allocation was decreased to 35,500 tons while SAC's allocation declined to 36,800. These tonnages were keyed to a simultaneous cut in tactical sorties from 20,000 to 14,000 per month and in Arc Light sorties from 1,600 to 1,400.[32] By the end of 1969, CINCPAC's air munitions requirement had decreased from the high of 184,000 tons sought in December 1968 to about 123,000 tons per month.[33]

[redacted] Paralleling the reductions in forecast consumption, air munitions production had also been successively reduced in the last half of 1969. Thus, in early August, planned Air Force production was cut from approximately 105,000 to 94,769 tons monthly.[34] By December, planned monthly production was down to an average of 70,700 tons, versus an anticipated monthly expenditure of 79,800 tons. The deficit between programmed production and forecast expenditures was to be made up by using JCS reserve assets.[35] The Air Force fiscal year 1970 munitions budget had simultaneously undergone further cuts which lowered it by another $566.1 million to a total of $1,044.3 million as of December 1969--less than half the amount requested in the original budget submission of September 1968.[36]

Munition Expenditures

[redacted] As in the case of munition requirements, actual munition expenditures also mirrored the continuing heavy reliance on air power to thwart enemy operations. Thus, in line with the enormous increase in combat sorties flown, during 1968 Air Force ordnance consumption reached an all-time high of 1,092,514 tons[37]--nearly 10 times the amount consumed in 1965. By the end of 1968, cumulative expenditures had climbed to 2.3 million tons--155,000 more than the total air munitions tonnage expended in World War II.[38] On a month-to-month basis, outgo rose from 67,500 tons in January to a peak of 101,100 in December.[39] Expenditures averaged 86,510 tons per month during the first six months,

increasing to an average monthly consumption of 95,509 in the last half of the year.[40] (See Figures 2 and 3.)

(S-[redacted]) Total outgo in 1969 nearly matched that of 1968, amounting to 1,088,568 tons.[41] A new monthly record was set in January 1969 with the expenditure of 102,900 tons.[42] Although dropping to 89,100 tons in February, Air Force consumption again exceeded 100,000 in March, when expenditures climbed to 101,200. From April through July, tonnage consumption fluctuated between 96,000 and 98,000, dropping to the neighborhood of 80,000 between August and October and to about 79,000 in November and December.[43] Average monthly expenditures in the first half of 1969 equalled 96,828 tons--1.4 percent higher than the monthly average in the last six months of 1968.[44] In the last half of 1969, however, expenditures dropped to a monthly average of 84,600 tons, a decrease of 13,362 or 12.6 percent less than in the previous 6 months.[45] A 2-year low occurred in November when expenditures declined to 79,200 tons.[46] (See Figures 2 and 3.) Tactical air sorties simultaneously declined from the 20,048 flown by PACAF in December 1968 to 12,144 in December 1969. By the end of the year, cumulative air munition expenditures had reached 3,426,000 tons, exceeding the total air munitions dropped during both World War II and the Korean war by 1,267,000.[47]

(S-[redacted]) Two weapons--the 500-pound MK-82 general purpose bomb and the 750-pound M-117 general purpose bomb--accounted for more than 80 percent of the air munition tonnage expended in 1968 and 1969. In all, more than 1,300,000 of these bombs were dropped in the first half of 1968, amounting to nearly 442,000 tons.[48] In the last half of the year, consumption increased to 1,450,000 (nearly 480,000 tons).[49] During the first half of 1969, the two bombs were expended at about the same rate as during the last half of 1968 (1,440,000 were dropped, equating to 475,000 tons, or about 82 percent of total SEA outgo).[50] In the last six months, consumption decreased slightly, in line with the general trend, to 1,320,000 or 426,000 tons (84.2 percent of total expenditures).[51]

(S-[redacted]) Keeping up with the succession of changes that occurred in 1968-69 had necessitated constant Air Staff review and planning. On many occasions, monthly production rates were revised virtually overnight to accommodate changes in requirements or production.[52] The success of these efforts was evidenced in the

fact that munition inventories in SEA remained relatively stable despite the multiplicity of revisions and heavy expenditures of the 1968-69 period. (See Figure 4.) During 1968 a total of 1,164,320 tons of air munitions was produced for the Air Force.[53] In 1969, production reached 1,183,394 tons.[54] At the end of that year, the inventory of Air Force munitions in SEA stood at 142,401 tons compared with 166,456 tons on hand at the start of 1968.[55]

New Munitions

[redacted] Although, for all practical purposes, the production crisis of the early war years had ended by the spring of 1967, shortages of certain types of munitions continued to hamper air operations. For the most part, these shortages were due to the shift in the air war from North Vietnam to Laos, which gave rise to the need for weapons of a different type and mix from those previously employed. Among munitions required to attack the variety of interdiction targets found in Laos were anti-vehicle mines, anti-personnel mines, anti-materiel munitions, air-delivered land mines, area denial munitions, time-delay fuzed bombs, fragmentation weapons, incendiaries and fire bombs, and explosive fuel weapons.

[redacted] Since the Air Force had concentrated much of its research and development (R&D) effort on munitions for use against North Vietnam, interdiction weapons of the type needed in Laos had been generally neglected until the summer of 1968.[56] In consequence, many of the desired munitions were still in R&D or operational test stages at the time Commando Hunt operations began. Examples included the CBU*-3 anti-vehicle land mine; the CBU-38 ("Ringtail") anti-materiel weapon; the CBU-42 wide area anti-personnel mine; CBU-53/54 incendiary bombs; the BLU+-31 air-delivered land mine; and the BLU-72 explosive fuel munition.[57]

[redacted] Due to the voracious demands of the Laotian campaign, quantities were also a problem. In most cases, planned production rates were far below theater needs for both new munitions and those currently being produced. In the case of the

---

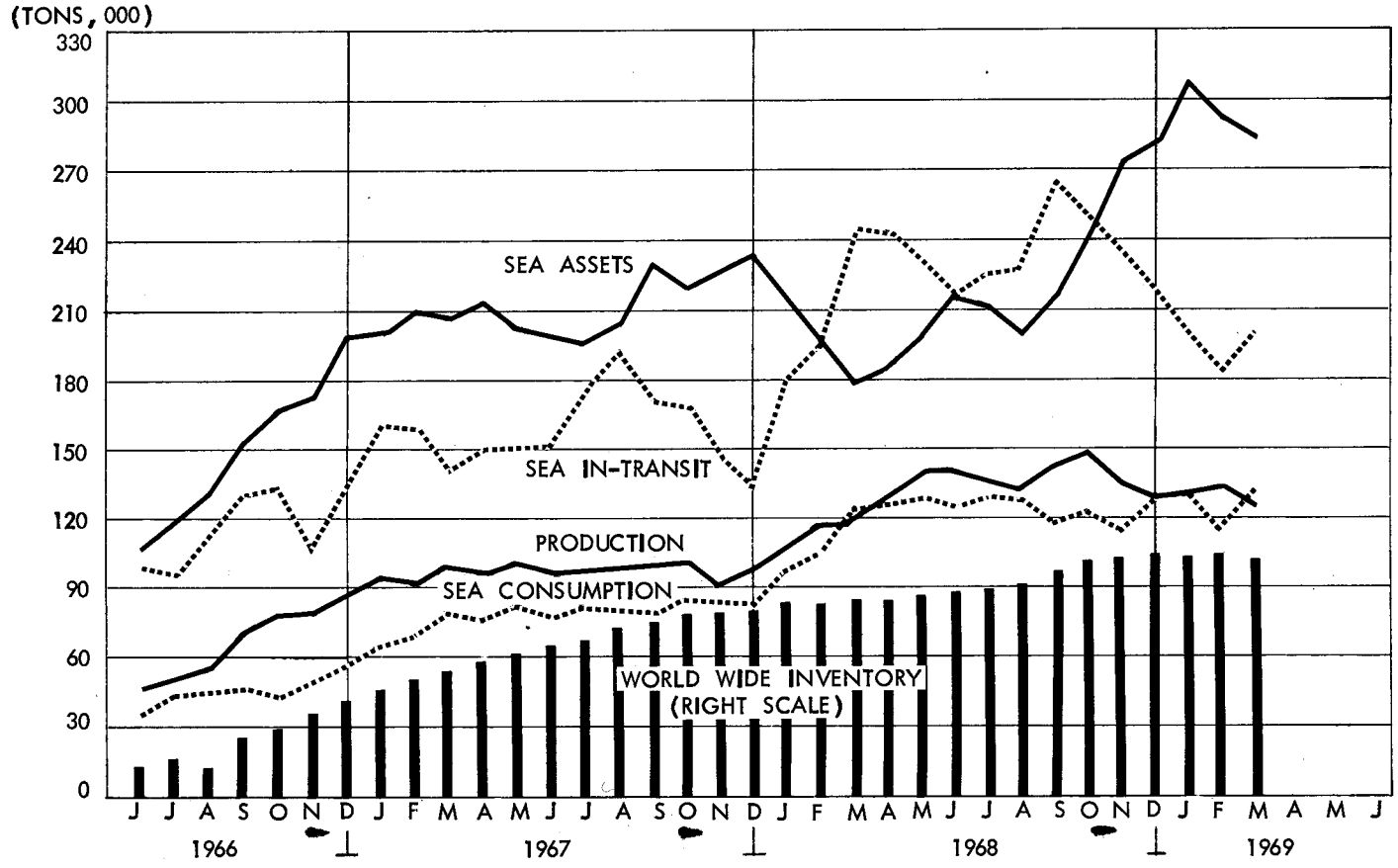
*Cluster Bomb Unit

+Bomb, Live Unit

[redacted]

(This page is CONFIDENTIAL)

CONTROLLED AIR MUNITIONS
(TONS IN THOUSANDS)



PRODUCTION FOR MARCH 1969 IS FORECAST SINCE ACTUAL DATA WAS NOT RECEIVED IN TIME TO PERMIT POSTING. WORLDWIDE INVENTORY IS ESTIMATED FOR MARCH.

Figure 4

BLU-31 air-delivered land mine, for example, the planned monthly production rate was 600 versus the 1,820 desired by CINCPAC. The rate planned for CBU-24/49 dispenser munitions was 9,000--one-third of CINCPAC's stated requirement. Similarly requirements for CBU-34/42 wide area anti-personnel mines were double the planned monthly production rate of 408. Other munitions in short supply included CBU 2/14 fragmenting cluster munitions, the BLU-10 fire bomb, and BLU 23/32 anti-personnel fire bomb, all of which were out of production. Due to production leadtimes and, in some cases, facility limitations, none of these could be manufactured at rates high enough to support consumption even if budgetary cuts and OSD refusal to release funds had not been factors.[58]

[redacted] In response to repeated pressure from CINCPAC to rush development of a more effective incendiary for truck interdiction, in late June 1968 the Joint Chiefs sought OSD authority to begin producing the CBU-53 anti-materiel and CBU-54 anti-personnel incendiary weapons--the intended replacements for the M-36.[59] Even though both weapons were still in research and development stages, OSD approved.[60] Under contracts awarded in mid-July, CBU-53 production was to reach 200 per month by December 1968, while production of the CBU-54 was to reach a monthly rate of 200 in January 1969.[61] These rates, however, fell far short of the desired 24,600 units per month, and even under the most favorable circumstances (for example, no delay in weapon evaluation and production), CINCPAC's requirements could not be met before October 1969.[62]

[redacted] Circumstances were far from favorable, however, since the production of both munitions involved new and untried techniques. Production was complicated, moreover, by the requirement that the bomblets be of the same size, shape, and weight as the BLU-26 to permit their use with SUU-30 type dispensers.[63] Although both programs were coping with severe developmental problems, in view of the importance attached to the weapons, the Air Force, in late October 1968, asked OSD to release $27 million to produce as many as 1,000 units per month.[64] Shortly thereafter, the initial production items were submitted to a First Article Acceptance Test. As results indicated a lack of military potential, the Air Force issued a production stop order pending investigations to identify and resolve developmental problems.[65] Subsequently, the Air Force Research Development and Acquisition Council recommended a halt in development and production of CBU-53/54 munitions and work was terminated altogether in February 1969,[66] leaving the Air Force without a replacement for the M-36.

[redacted] In the meantime, when it became apparent that quantitative requirements for the CBU-53/54 could not be met for at least another year, the M-36 had been placed back in production in the fall of 1968 to serve as an interim substitute for the CBU-53/54.[67] Initially, 5,950 units had been ordered as backup, with the first 1,500 due for delivery by December 1969. Following cancellation of the CBU-53/54 program, the original M-36 production order was increased to 8,150 units. These were expected to cost $16.9 million in fiscal year 1969 funds. An additional 12,346 units were to be procured in fiscal year 1970 at a cost of $23.1 million, to be followed by 5,040 units costing $10 million in fiscal year 1971.[68]

[redacted] Although initial M-36 production was delayed by various problems, by October 1969 the level-off rate of 1,250 units per month had been reached.[69] At about the same time, effectiveness testing of the weapon commenced against generic SEA truck targets at Eglin AFB, Fla. Far from verifying the reported combat effectiveness of the weapon, these tests indicated that the probability of its damaging or destroying a truck was so low that approximately 100 sorties carrying 600 M-36's would be needed to destroy 1.4 and damage 7 trucks.[70]

[redacted] This low kill probability prompted Gen. John D. Ryan, Air Force Chief, to question whether M-36 production should be continued. PACAF, however, had already reconfirmed its continuing need for the weapon by placing it second on a Munitions Priority List developed during the Project 703 budget exercise.[71] Since testing was due to continue into the opening months of 1970, the question was left open at the end of 1969.[72]

[redacted] In the meantime, the lack of an effective truck-killing weapon had exposed the Air Force to severe criticism from certain Defense Department circles. On one occasion the deficiency was used as an argument for reducing the level of the tactical air commitment in SEA. Thus, coinciding with the start of the total bombing halt in November 1968, the Assistant Secretary of Defense for Systems Analysis suggested withdrawing some of the aircraft previously involved in bombing North Vietnam as a means of cutting the fiscal year 1970 budget. In support of this proposal, he maintained that even if all of the aircraft previously committed to North Vietnamese operations were reallocated to interdiction operations in Laos, only a few additional trucks would be destroyed,

due in part to the lack of proper munitions for the job. As most of the additional sorties diverted from North Vietnam would have to carry conventional iron bombs, which were inefficient against roads and trucks, he recommended returning the tactical aircraft previously engaged in North Vietnam to the United States rather than employing them in the Laotian campaign.[73]

[redacted] Continuing OSD interest in the improvement of effective truck-killing munitions became apparent in mid-April 1969 when Dr. John S. Foster, Director of Defense Research and Engineering (DDR&E), asked each military department to provide a summary of its plan for improving the truck-killing capability of munitions in SEA.[74] Some weeks later, Dr. Lee A. DuBridge, Science Adviser to President Nixon, discussed the problem of getting more effective weapons into the theater with Defense Secretary Laird.[75] Incident to this discussion, Dr. DuBridge sent the Defense chief a study which pointed up what he termed a problem of major concern in the Laotian campaign, "that of developing accurate weapon delivery systems for the destruction of trucks delivering supplies to South Vietnam." In this study he strongly criticized the lack of a coherent program within DOD for the research, development, and procurement of accurate interdiction weapon systems, attributing this deficiency to inadequate organization.[76]

([redacted] The case of the B-57 was cited as an example of the kind of problem that had arisen. This aircraft had been used very effectively in the interdiction campaign in Laos in 1966 and 1967. Its effectiveness depended primarily on the availability of the M-36 fire bomb, but production of the M-36 had lapsed in 1967 "so that no supplies were available for the interdiction campaign in 1968." It was frequently alleged, the study continued, that M-36 production had been allowed to terminate in the expectation that new fire bombs then under development would be more effective. It was "by no means clear," however, that even if the test program for the new weapons had been entirely successful, adequate numbers could have been produced for a 1968 campaign. "Thus the organization lacked a mechanism sufficient to predict its real needs and to control production so that they would be actually met." The study further revealed that:[77]

> Even at the present time, when the worth of the M-36 is well known, production has been increased as a result of pressure from this office, as well as many other sources, the total production of M-36's (a maximum of 1500/month to be achieved by December 1969) seems inadequate if one contemplates full use of B-57 and propeller fleet now available for the interdiction campaign of 1969.

In an effort to remedy this organizational deficiency and to improve the capability of anti-truck operations in SEA Dr. Foster, on 12 July 1969, asked the Air Force to designate a single individual to be responsible for planning and executing an integrated program to develop truck-killing munitions, including both missiles and ordnance. This individual, who was to be given suitable authority, resources, and responsibility "to successfully accomplish this function within the Air Force," was to review relevant Army and Navy ordnance activities and recommend which items within those departments might be initiated or accelerated to assist the Air Force. Dr. Foster also announced that he was programming $15 million in fiscal year 1970 funds as a separate line item for truck interdiction munitions. This would accelerate development of weapons "suitable for killing truck targets in the Southeast Asia environment."[78]

Preceding these steps was an exchange of views between Mr. Leonard Sullivan, a member of Dr. Foster's office, and Lt. Gen. Glen W. Martin, Air Force Deputy Chief of Staff for Plans and Operations. During this exchange, Mr. Sullivan conceded that the Air Force had devoted considerable effort to improve munitions and aircraft delivery systems and thereby increase the effectiveness of truck interdiction in Laos. Some of the munitions developed--ranging from electro-optical and laser-guided weapons to better distributed bomblet munitions, such as the Rockeye II* and CBU-34/42--had been successfully tested in

---

*The Rockeye II was hardly a very good example of an Air Force development program, however, as it had been developed by the Navy. Arrangements to procure it for Air Force use were initiated following cancellation of the CBU-53/54 program to help fill the void in the Air Force capability to destroy armored targets and trucks. [See Personal Summary (S), Dir/Sup & Svcs, 7 Feb 69; also Personal Summaries (S), Asst for Prgmg, 13 June and 3 Jul 69].

combat. In other cases, however, the Air Force had not done so well. "In incendiary munitions, our development did not pan out and we are forced to return an older munition to production," wrote Mr. Sullivan.[79] He continued:

> It is alarming to me that our capabilities to detect and find insignificant targets in the Laotian environment still exceed our ability to kill them by a factor of roughly 4:1. In theory, the detection should be the harder job. Yet I do not see a real "task force" approach to correcting the target killing deficiencies--just separate scattered projects.

Mr. Sullivan also expressed disappointment that among the best truck-killer aircraft configurations ("all born of the demands of this war,") none were available in quantity, and "none will persist into the post-war inventory due to their age."[80]

[redacted] In defense of USAF efforts, General Martin pointed out that within the limitations imposed by funding, technical problems, and production capabilities, the Air Force had supported and promoted many munitions with increased effectiveness in SEA. As examples, he cited the CBU-34/42, laser guidance kits, electro-optical kits, and infrared guidance kits. The CBU-33 program was also being developed, as were the CBU-38 ("Ringtail" anti-materiel mine) and the CBU-52 (anti-materiel munition). All represented accelerated efforts to provide better truck killers.[81]

[redacted] Unfortunately, developmental problems and production slippages had marred several of these programs, a case in point being the CBU-33. This was a magnetic mine, to be aerially sown, which was designed to provide area coverage. This weapon was expected to increase significantly the effectiveness of the truck interdiction effort, especially at night and during inclement weather.[82] Originally planned for field use in March 1969,[83] various delays caused slippage of its initial combat employment first to July[84] and then to December 1969, by which time it was decided to cancel the program in January 1970 after contracted deliveries were completed.[85] However, with production deliveries running well behind (8 items delivered out of 130 scheduled as of November), the approved schedule was being revised as of December 1969.[86]

[redacted] As against the various setbacks encountered in the R&D program, several new or improved munitions were introduced into SEA during 1968-69. Among them were three new missiles: the AIM-9E, an air-to-air missile with improved maneuverability; the AIM-7E/2, an improved version of the Sparrow missile; and the AGM-78A, an improved air-to-ground missile that was particularly well suited for use against SAM sites.[87] In addition, four new fuzes were put into combat use: the FMU-26, for general purpose bombs; the FMU-54, used with the MAU-91 retarding fin to improve the low-level delivery of 750-pound bombs; the FMU-56/B proximity fuze, which insured proper bursting patterns for cluster bomb units; and the FMU-72/B, a long-delay fuze which could be set to explode any time between 20 minutes and 36 hours after activation.[88]

[redacted] Concurrent with other actions, an effort to reduce the number of different types of munitions in SEA commenced in the spring of 1969. By far the most important result was a decision to delete the M-117 general purpose bomb in favor of the MK-82. Additionally, the MK-81 was to be dropped from the Air Force inventory in SEA.[89]

[redacted] The percentage of older (pre-Korean War) munitions in the Air Force SEA inventory declined significantly in 1968-69. By the end of the period they constituted less than 2 percent of the air munitions assets in the theater, compared to 4.8 percent on 31 December 1967.[90]

III. REDEPLOYMENT PLANNING

[redacted] Although support of USAF combat units remained the Air Staff's primary and immediate concern, during 1968 and 1969 logistic planning centered increasingly on the prospective withdrawal of U.S. forces from SEA. As early as January 1966, members of the Supply and Services staff, prodded by memories of past experience, suggested the need to begin laying plans to preclude recurrence of the "wasteful and profligate wrap-up that followed World War II and Korea."[1] By August, a preliminary logistic plan had been drafted and was being reviewed at joint staff level at the time of the Manila Conference in October 1966.[2] Following that conference, the United States and its allies issued a formal communique in which they unilaterally pledged to withdraw all of their forces from South Vietnam within six months of the time hostilities ceased, provided the North Vietnamese withdrew their forces also.[3]

([redacted] This pledge, which both Presidents Johnson and Nixon reaffirmed several times, touched off two JCS planning cycles concerned with the redeployment of forces. One addressed the withdrawal under the terms of the Manila commitment. The other, known as "T-Day" ("Truce-Day" or "Termination-Day") planning, considered the withdrawal under conditions that differed from those specified in the Manila Communique.[4] These planning cycles, which proceeded in tandem throughout most of 1968 and 1969, pivoted on three key issues that were fundamental to the development of realistic logistic plans: time-phasing of the redeployment; length of time in which to prepare for the withdrawal; and the size and composition of residual forces.

[redacted] Attempts to resolve these issues, especially those pertaining to residual forces, commanded the attention of both JCS and OSD planners throughout much of the 2-year period. At the end of 1969, firm decisions on which to base overall plans for an orderly redeployment were still awaited. By that time, the premises which had governed original planning had, in any case, changed to the point where much of it was no longer valid. Sooner or later, however, the massive buildup in SEA would have to be undone. This meant that installations would have to be closed, equipment and supplies screened and prepared for shipment, facilities dismantled, and myriad similar actions taken.

[redacted]

[redacted]

Considering the magnitude of the buildup, regardless of when and how the war was wound down--and whether the redeployment took place incrementally or en masse--an enormous logistic effort would obviously be involved.

The Air Staff T-Day Plan

([redacted]) From the outset of the JCS planning effort, the Air Staff worked hand-in-glove with the Joint Staff on practically every action related to the withdrawal and structuring of residual forces.[5] At the same time, however, it pursued planning of its own. In the absence of firm decisions, the primary purpose of this Air Staff activity was to develop guidelines for the orderly withdrawal of USAF forces and the economic disposal of Air Force assets in SEA.[6] With that end in mind, the Air Staff published a unilateral T-Day plan in mid-September 1968.[7] In line with OSD guidance, four main logistic objectives were set. These were aimed at precluding the unnecessary depletion of national resources, avoiding an overly abrupt transition to new production rates, avoiding the accumulation of materiel above authorized levels, and providing sufficient logistic support to redeploying units so that they could maintain or rapidly regain an operational readiness status.[8]

([redacted]) To meet these objectives, all major commands as well as bases and units involved, were to begin detailed planning for an orderly withdrawal. By mid-1969, a network of mutually supporting, closely interfaced T-Day plans had emerged which, taken together, provided a basic framework for accomplishing the withdrawal mission. Included in the network was a materiel program guide which contained detailed instructions for PACAF units and a programming plan which outlined the responsibilities and commitments of the Logistics Command for the withdrawal of USAF units and assets.[9]

([redacted]) Work on these plans had, in several cases, begun well before the Air Staff issued its T-Day plan. PACAF, for example, published its first T-Day plan in May 1967. PACOM, for its part, had been working on redeployment plans since early 1967. These efforts gained new momentum in the spring of 1968 when the prospective start of peace negotiations gave hope that U.S. forces might be withdrawn under the terms of a negotiated settlement. That possibility, coupled with President Johnson's reaffirmation on 31 March 1968 of the Manila pledge, prompted

[redacted]

CINCPAC to convene the first of several conferences held in 1968-69 to examine the logistic implications of the withdrawal.[10]

[redacted] The primary purpose of the initial CINCPAC conference, which was held in May 1968, was to identify problems and discuss courses of action to execute CINCPAC's OPLAN 67-68. As that plan covered the withdrawal of forces in accordance with the Manila Communique, it posed the most demanding logistic task of all options considered: withdrawal of all U.S. and allied forces except a small Military Assistance Advisory Group (MAAG) within 6 months of the time hostilities ended.[11]

[redacted] In view of the highly compressed time frame associated with this option, the feasibility of the option was far from a foregone conclusion. Initial estimates indicated that from 10 to 12 million tons of materiel might have to be relocated. This was little more than a rough estimate, however, since no one knew how much materiel was actually in SEA, nor what would be removed versus left there or given away. As an accurate inventory of assets was essential, PACOM, among other actions taken to prepare for the redeployment, began collecting and refining data on all its units in SEA, including data on their unit and non-unit equipment, supplies, and depot stocks.[12] At the same time, it also commenced work on an automated data processing system which, upon completion, would theoretically permit the time-phased redeployment of personnel and materiel. This system (originally named "WITHREP," but later changed to "REDREP") was conceived as a companion to the JCS Deployment Reporting System (DEPREP). Like the latter, it was to use punched cards to report details concerning units, materiel, and movement schedules.[13]

[redacted] In the months following the May conference, PACOM also took a number of other steps to prepare for the withdrawal. For example, it developed plans to redeploy high priority facilities, to phase down construction in SEA, and to recover critical construction assets. It also developed an air munitions management plan, established procedures to dispose of controlled air munitions, and improved procedures for redistributing assets through the PURA system. In addition, it began to identify the cargo handling capacities of in-country aerial and seaports and to determine the capabilities of the Military Airlift

[redacted]

Command (MAC) and Military Sea Transport Service (MSTS) to support the redeployment.[14]

([redacted]) A principal objective of these actions, CINCPAC advised in summing up the status of logistic planning, was to accomplish as much as possible in advance of the redeployment so that this would be the "most efficient and effective withdrawal in US military history."[15] As of March 1969, however, much remained to be done before the military would be in an ideal position to withdraw economically and effectively from SEA. Analyses of the workload and other factors indicated that a minimum of 12 months would be needed to complete the withdrawal from the time T-Day was declared. This assumed that a minimum of 3 months would be devoted to pre-withdrawal tasks, to make certain that deployment tonnage would not exceed 6 million tons, and to assure that port handling capabilities would at least equal 75 percent of their rated capability. If port outload rates fell below 50 percent of their rated capacity (this was regarded as the optimum rate that could be achieved), or if retrograde cargo was more than 6 million tons, the 6 months withdrawal becomes unrealistic "and reverts to a question of how much materiel is to be abandoned." Under no circumstances would it be possible to complete the withdrawal in 6 months if less than 3 months' advance notice were given in which to prepare for the redeployment.[16]

(U) While PACOM pursued these preparations, the Air Force bases and units involved in the redeployment continued to work on individual withdrawal plans. To aid in the preparation of these plans, AFLC established advanced logistic assistance teams (ALAT), consisting of supply and transportation specialists for each base involved in withdrawal actions. In early February 1969, team captains together with AFLC and PACAF project officers visited the 18 bases concerned to determine the progress of T-Day planning and resolve individual problems through direct contact.[17]

(U) This visit revealed that lack of decisions on key force structure and timing questions was severely impeding the development of realistic withdrawal plans. "Without exception, each activity needed to know three basic things: (a) what force structure will apply upon R-Day (Removal Day); (b) what in-country agreements will apply and therefore; (c) what buildings, equipment, and CEM [Communications and Electronics Materiel] will remain." Without answers to these questions, all T-Day planning was necessarily tentative. "The sooner force structures are firm," the team concluded, "the sooner firm T-Day plans can be fully identified."[18]

[redacted]

(U) Since the buildings and shelters to be moved would have a major impact on transportation, packaging, and crating agencies, base officials needed to know what facilities and equipment were to be transported and where they were to be shipped. A multitude of unique situations that would have a major impact on supply and transportation existed throughout Vietnam and Thailand. Equipment at radar sites, telephonic circuits, antenna farms, mobile communications, and other communications had to be identified and detailed plans drawn up for their disposition. Also, the agencies that would actually disconnect the systems and perform the packing and crating, and shipment of such items had to be identified.

(U) Although vast improvements had been made in the disposition of excesses, the team warned that unrecorded assets could present a serious problem. Continued high-level emphasis was therefore needed to clean up excesses and to identify and record all assets in order to prevent a major blockage when the redeployment began. A speedier method of processing disposable assets through the PERC and PURA systems was needed also. The team further reported that cargo and materials handling equipment was in poor condition and that there were heavy maintenance backlogs at most SEA bases. In addition, most bases lacked sufficient packaging and crating facilities, equipment, and personnel.

(U) In conclusion, the team stated that actions taken to eliminate deficiencies before T-Day would aid actual execution immeasurably. To that end, they suggested designating "sister" bases in the CONUS for each base involved in the redeployment of forces, publishing a "very carefully prepared time-phased last-to-go list of men and materials," and expansion of packaging facilities and manpower. They also proposed holding coordination meetings between AFLC, TAC, and PACAF to keep everyone briefed on the latest redeployment plans and concepts for logistical support of tactical units.[19]

[redacted] Most of these problems and recommendations were discussed at a meeting which the air logistic staff convened at TAC headquarters on 6-7 May 1969 to review the status of T-Day planning and determine the actions needed to provide a more precise planning base.[20] Several areas of major concern arose including continued uncertainty over the post-hostilities beddown of SEA forces, priorities for the distribution of assets, and the poor

condition of materials handling equipment. One decision made at this conference was to adopt the "sister base" concept recommended by the ALAT captains. Under this concept TAC would dispatch a logistics representative from the receiving base to assist in determining the disposition of supplies and equipment.[21]

(S [redacted]) The meeting also hammered out detailed procedures for handling the retrograde and redistribution of ISSL (Initial Supply Spares List) items. These assets, though not normally part of the equipment moved with the unit, were to be treated as such. They would be moved by air and accorded the same movement priority as unit assets. Under procedures devised at the meeting, each gaining base would receive from AFLC complete Initial Supply Spares List for incoming units. After screening their on-hand items against that list, gaining bases would submit requisitions to AFLC for needed items on a package basis. AFLC would then determine the source of supply for items under its control. A list of those items not managed by AFLC would be forwarded intact to losing bases, which would screen their assets to determine what items were available and advise gaining bases what they would ship. Gaining and losing bases would then create due-ins and due-outs for items and quantities to be shipped.[22]

[redacted] Other problems raised at the May meeting included procuring sufficient packaging material and cargo handling equipment for loading and unloading at aerial and sea ports and developing plans for receiving redeployed units with their supplies and equipment. The question of how to stop shipments en route to SEA on T-Day was also discussed. The Air Staff had been working on this issue with the Defense Supply Agency, but as of May 1969 no satisfactory solution had been found.[23]

(S [redacted] Unexpected difficulties had meanwhile developed in the use of the supply summary ("G") cards prepared in conjunction with CINCPAC's new redeployment reporting system. These cards--which were to identify supplies and equipment not associated with a specific unit but required for overall base support--had proved "practically valueless for Air Force use."[24] This was due, in part, to the fact that supplies and equipment were listed by basic supply class and overall tonnage only. Also, the cards were supposed to be coded to denote the final destination of tonnage. The Air Force system of depot responsibility (by weapon system, end item, and federal supply class) made it

impossible for the Air Force to designate the final destination of innumerable tons of the various classes of equipment and supplies.[25] As Lt. Col. Richard E. Benson of the Air Staff logistical planning office put it: "It is not clear how we can identify retrograde material by federal stock number from an inventory which is in constant flux and determine destinations for shipment of these materials."[26] Changes in processing procedures for these cards were therefore needed before this part of the REDREP system could be completed.

(S) PACOM for its part faced considerable difficulty in developing the large amount of data needed to prepare the force identification cards (Card "A") that were basic to the new redeployment reporting system. These difficulties delayed the initial REDREP listing from February to late May 1969. In reviewing this list, which represented the first step in the development of a time-phased redeployment troop list, the Air Staff discovered numerous errors in the Unit Identification Codes (UIC) as well as in other records. A new listing therefore had to be prepared. When CINCPAC submitted the revised list, further errors and administrative problems were found. Correction of these delayed formal review of the list, leaving the Air Staff in the position of trying to operate the system before procedures were either finalized or approved.[27] The end result was that as of September 1969 effective troop list and time-phased redeployment schedules, which were the heart of CINCPAC's T-Day plan, did not exist. Without these--and without certain vital logistics data which was also missing--CINCPAC's T-Day plan was not, in the Air Staff view, either a workable operations plan or an effective withdrawal instrument.[28]

VNAF Requirements

(S-C) Difficulties in completing the REDREP system were among other problems discussed at the second Air Staff T-Day planning conference convened at Headquarters USAF in late August. Also discussed were the method and command responsibility for planning and budgeting, for storing, packing, and crating materials, and for procedures to interrupt shipments already in transit.[29] Although several problems were settled, others persisted throughout the fall of the year. The majority of those left unresolved stemmed from the close connection between redeployment planning and the program to modernize and expand the Vietnamese Air Force (VNAF). For the most part, the unresolved issues concerned

policies and procedures for distributing assets generated by the phasedown from Vietnam.

(S [redacted]) Questions relating to the disposition of such assets were initially triggered by the planned turnover of Nha Trang Air Base to the VNAF in September 1969. One pertained to priorities for the redistribution of assets that became excess incident to the transfer of units or phasedown of Air Force installations. In response to PACAF's request for guidance, General Ryan, Air Force Chief of Staff, adopted the policy that USAF units relocating from Vietnam were to receive first priority. Second priority was to be accorded Air Force units remaining in Vietnam. Any assets excess to their requirements would then be available for allocation to the VNAF.[30] This policy--which elevated VNAF requirements from seventh, and even eighth, in the previously established hierarchy of priorities--was reasonably clear. Its application, however, was complicated by the fact that the VNAF Improvement and Modernization (I&M) program included only major end items, weapon systems, and spares which the VNAF required to perform its combat mission. And it did not include housekeeping, administrative, and base support items of the kind that would be available at Nha Trang and that the VNAF would need to sustain day-to-day operations.[31]

(S [redacted]) To get around this problem, the Air Force ruled that excesses resulting from USAF base closures or phasedowns that were not part of the VNAF I&M program but were required by the VNAF in its day-to-day operation could be transferred with the base as personal property.[32] In the process of actually closing the base and transferring assets, however, AFLC took the position that only items previously programmed for transfer to the VNAF could be turned over without prior approval of the AFLC Inventory Manager (IM).[33]

(S [redacted]) This position elicited strong protest from the Air Force Advisory Group (AFAG), which pointed out that neither VNAF requirements nor the availability of assets were firm enough to permit complete programming in advance. With the sudden increase in the size of the VNAF and lack of a current Unit Authorization List (UAL), known requirements were often not finalized to the point where they were programmed, while other needs were not even identified until almost the same time as assets became available for transfer. A further complication

arose from the fact that often the assets that would be available were not known until the last minute. AFLC's policy would therefore severely restrict redistribution to the VNAF. Accordingly, the Advisory Group, supported by PACAF, requested that it be changed to conform with the guidance received from Headquarters, USAF. They also suggested a joint Air Staff-AFLC team review the problem on-site.[34]

At the request of the Air Force Assistant for Logistic Planning, AFLC dispatched two officers to Vietnam together with representatives of PACAF's Directorate of Materiel.[35] In the course of this visit, detailed procedures were finalized relative to the transfer, accounting, and elimination of excesses, and the turnover of USAF assets to the VNAF.[36]

A closely related problem that arose in the fall of 1969 concerned policy regarding reimbursement for items transferred from the Air Force Stock Fund to the VNAF. Many of the assets necessary to maintain a viable Air Force installation--for example, petroleum products, spares for installed property, Civil Engineer bench stocks, shop equipment, furniture, dishes, and other housekeeping and base support items--came from this fund.[37] As regulations governing fund operations normally required reimbursement for items issued from it, PACAF requested guidance as to whether such items were to be transferred on a reimbursable or non-reimbursable basis.[38] General Ryan decided that stock fund assets transferred to the VNAF at Nha Trang would be handled on a non-reimbursable basis. Before this policy could be applied across-the-board at other installations transferred to the VNAF, however, OSD approval was required.

Under Secretary of the Air Force John L. McLucas sought the requisite authority on 30 September.[39] Somewhat unexpectedly, it turned out that Secretary Laird was not prepared to give carte blanche approval to the Air Force request. Replying in mid-November, Mr. Laird observed that already one base had apparently been transferred under the conditions proposed by Mr. McLucas. While he was willing to make an exception to the regulations governing stock fund operations in that one instance, before he approved that approach as a matter of general policy, the Defense chief wanted more information. He wanted to know the dates of other proposed base transfers, the estimated value of assets involved in each case, and an evaluation of the drain in the proposed transfer of $300 million from the Air Force Stock Fund

to the aircraft procurement appropriation.[40] Data developed in response to the Secretary's request indicated that stock fund assets at Nha Trang amounted to $100,054; known future transfers at Binh Thuy and Pleiku Air Bases would involve assets worth an estimated $429,291.[41]

(S [redacted] Another problem encountered by PACAF in the opening stages of the phasedown concerned disposition of aircraft. To begin with, the command was hampered by lack of specific information on which aircraft were to be turned over to the VNAF, which were to be inactivated, and which were to be retained in the active Air Force inventory. It also needed detailed procedures for transferring aircraft to the VNAF.[42] In answer to the first question, the Air Staff advised that aircraft authorized for transfer to the VNAF were listed in the I&M program. As for turnover procedures, MACV--in conjunction with AFLC and the losing base--was to determine what specific line items would be required to support the aircraft and which should, accordingly, be transferred to the VNAF concurrently with the aircraft. These items might be part of or additional to the I&M program and could include Aerospace Ground Equipment (AGE), ISSL, aircraft ISSL, communications equipment and spares, test equipment, and base support items and spares which would be required by the VNAF to perform its mission and within the Vietnamese capability to use. AFLC was to prepare spares lists for aircraft, vehicles, ground support equipment, and communications-electronics equipment based on major end items contained in the VNAF program. It would then forward these lists to MACV for screening, changes in quantities, and line item additions or deletions based on VNAF inventory and retention levels, and based on VNAF capability to use the items. After screening, MACV was to furnish the net requirements list to the appropriate base supply chief, who would determine what assets were available for transfer. The phasedown of Nha Trang was to be used as the pilot test for this procedure. PACAF was then to refine procedures and submit them for Air Staff concurrence.[43]

(S [redacted] Notwithstanding this guidance, PACAF continued to have problems. In December, the PACAF Director of Materiel, Maj. Gen. Roland K. Campbell, apprised Lt. Gen. Harry Goldsworthy, Air Force Deputy Chief of Staff for Systems and Logistics, that instructions for disposing aircraft, supplies, and the equipment of units being inactivated or reduced as a result of Presidential withdrawal directives or Project 703 actions

were frequently incomplete and untimely. Moreover, instructions for disposing aircraft and related equipment and supplies rendered surplus as a result of force reductions were generating serious manning problems. When force reductions were ordered, in-country personnel ceilings and personnel authorizations were simultaneously reduced on a mandatory basis by a specified date. Since force reduction directives contained a mandatory deadline for getting the people out of the country, personnel were not available to prepare the aircraft and related equipment for transfer when disposition instructions were not furnished promptly. In the case of one B-57 unit slated for inactivation, it took nearly a month after inactivation instructions had been received to determine the disposition of the unit's supplies and equipment.[44]

([redacted]) PACAF was also concerned over directions to place aircraft in storage. As of October 1969, PACAF had been directed on two occasions to store aircraft. Fourteen A-26's were to be kept in flyable storage at Clark AB in the Philippines for an undefined period, and 15 AC-47's were to be kept in storage in Vietnam until fiscal year 1972, when they were to be turned over to the VNAF. There were no manpower spaces authorized to support programs of this type. Also storage of aircraft and their maintenance presented serious problems in the western Pacific. In addition to the lack of authorized support personnel, ramp space at Clark was saturated. Moreover, the unfavorable environment in the area caused rapid corrosion of the airframe and aircraft systems. Also, there was the danger of typhoons, for which there was no evacuation capability. PACAF therefore asked that complete disposition instructions be issued concurrently with inactivation or relocation notices, and that storage of aircraft in the western Pacific be held to an absolute minimum. If storage was unavoidable, PACAF thought AFLC should provide the necessary support.[45]

[redacted] While these issues were being aired and resolved, redeployments were meanwhile proceeding, but under completely different ground rules from those governing the T-Day planning cycle. Thus, in line with the President's announced hopes of withdrawing more than 100,000 men before the end of 1969, the first 25,000 troops had been ordered home in July, and another 40,500 were due back by the end of the year.[46] Although no USAF personnel were included in the first increment, the second involved 2,541 USAF spaces and entailed the inactivation of two special operations squadrons (the 5th at Nha Trang and the 6th at Pleiku)

and one B-57 squadron (the 8th Tactical Bomber Squadron at Phan Rang).[47] In addition, another 2,869 Air Force spaces were to be withdrawn from Thailand.[48]

[redacted] Due to the President's desire not to prematurely disclose his intentions, withdrawal announcements had come so abruptly that advance planning had been almost negligible. To meet the President's deadline of 31 August for the first increment, for example, it had been necessary to resort to a series of unplanned, crash actions.[49] Such preparations as had been made had drawn extensively on the existing T-Day planning base. This base, according to Secretary Laird, had proved extremely helpful, especially in the areas of logistics and transportation. Therefore, despite the difference in planning assumptions, he wanted all personnel involved in future redeployments to use existing T-Day plans to the maximum extent possible. He also wanted both the T-Day and Manila Pact withdrawal plans maintained in a current status.[50]

A Change in Withdrawal Policy

[redacted] Notwithstanding this affirmation of the need to continue T-Day planning, by August many officials had begun to wonder whether T-Day planning had been superseded by planning conducted in response to the President's request for a study on "Vietnamizing" the war, i.e., on transferring responsibility for the war to the Vietnamese armed forces. To carry out the President's wishes, the National Security Council issued a study directive, National Security Study Memo (NSSM) 36, containing guidelines to be used in preparing the study.[51] These guidelines augured a radical change in withdrawal policy. Up to that time, all redeployment planning had premised an end of hostilities and mutual withdrawal of forces. Under NSSM 36, however, plans were to be made for withdrawing forces even though hostilities continued unabated. Specifically, four alternative timetables were to be drawn up for transferring the combat role to the Vietnamese and for concurrently withdrawing U.S. forces. As a Vietnamese capability was generated, a like U.S. capability was to phase out. The timetables were to be based on a starting date of 1 July 1969 and were to be phased over 18, 24, 30, and 42 months, respectively. Alternative completion dates were, accordingly, 31 December 1970, 30 June 1971, 31 December 1971, and 31 December 1972.[52]

[redacted] The impression that T-Day planning had been superseded was reinforced by a further directive received from

Secretary Laird in mid-August 1969 which enunciated a fundamental change in the strategy and objectives of the "Vietnamization" program. Just as all withdrawal planning had previously predicated the cessation of hostilities and mutual withdrawal of forces, so also, until August 1969, the program to improve and modernize the Vietnamese armed forces had been designed to provide the Vietnamese with a capability to counter only the internal insurgency threat posed by the Viet Cong after hostilities had ceased and North Vietnamese forces had withdrawn. Under the new directive, however, plans for transferring responsibility for the war were to assume, for the first time, that current levels of North Vietnamese and Viet Cong forces remained in South Vietnam and that the war continued at its current level.[53] The South Vietnamese were therefore to be groomed to take over full responsibility for the war and the redeployment of U.S. forces was to continue.

([redacted]) To carry out this policy, Secretary Laird wanted a review of current plans for improving and modernizing the Vietnamese armed forces. The goal was to develop a Vietnamese capability that could "cope successfully with the combined Viet Cong-North Vietnamese Army threats." Among other things, the review was to consider ways to improve the logistic capabilities of the Vietnamese and, "most important," the strategy and tactics best matched with RVNAF capabilities.[54]

([redacted]) In the midst of the considerations resulting from his August instructions, Secretary Laird issued another directive on 10 November in which he called for a "consolidation" phase (Phase III) that would lead to complete self-sufficiency on the part of the Vietnamese armed forces by 1 July 1973. At the same time he wanted alternative redeployment plans developed that would reduce U.S. forces to either 190,000 or 260,000 by July 1971, with the balance to be redeployed by July 1973.[55] Under the "high" option, forces remaining after July 1971 were to include a USAF contingent of 51,000. The low option was to include 40,000 USAF personnel.[56] In both cases, all forces except a small MAAG were to be withdrawn by July 1973.

([redacted]) This directive further strengthened the conviction that T-Day plans would never be executed and that future redeployments would continue under the current pattern of incremental unit inactivations and withdrawals. In light of these indications,

[redacted]

the Air Staff considered it advisable to adapt T-Day planning to the "real world situation we now face." Decisions pertaining to adjustments in production, construction, personnel, and operations programs therefore had to be made to fit the new pattern of withdrawals. These would be needed, moreover, regardless of withdrawal conditions.[57]

[redacted] Seventh Air Force, MACV, and PACAF had meanwhile recommended that T-Day planning be cancelled and replaced by a new "integrated planning" concept which would coordinate both the buildup of the VNAF and redeployment of Air Force units. Similarly, some members of the air logistics staff believed that guidance for the Vietnamization program should be included in the T-Day plan, especially in view of the fact that many of the withdrawal problems that arose in the fall of 1969 were due to the close tie-in between planning for a possible pull-out from Vietnam and the program to strengthen the capabilities of the VNAF.[58]

[redacted] The Assistant Secretary of the Air Force for Installations and Logistics, Mr. Phillip N. Whittaker, also shared this view. Thus, upon his return from a trip to SEA where he reviewed the status of the VNAF modernization program and related matters, Mr. Whittaker reported that planning for acceleration of the VNAF modernization program had been greatly complicated by the lack of definitive plans for the phased withdrawal of USAF units. This deficiency was causing unnecessary movement of supplies and equipment, it was generating a requirement for added construction, and it was creating a duplication of resources at joint occupancy bases to satisfy both USAF and VNAF requirements.[59]

[redacted] Col. Howard R. Bullen, Air Staff Deputy Assistant for Logistic Planning, pointed out, however, that the T-Day plan did not go into effect unless the President declared a T-Day and indicated the size of the residual force he desired. Since to become effective, the T-Day plan required a Presidential decision, Colonel Bullen thought a more suitable document was needed to consolidate such guidance. He had in mind a guidance document comparable to those drawn up by PACAF and AFLC.[60]

[redacted] In the meantime, in view of Secretary Laird's 10 November directive, the Air Staff anticipated that another withdrawal announcement would soon be forthcoming--and that the

services would then be expected to reduce the force in consonance with the prescribed number of people and within the given time limit without preliminary military recommendations or planning inputs.[61] The Air Staff hoped to forestall further crash planning actions, first by reducing USAF forces to an authorized strength ceiling before the reduction requirement was levied,* and, second, by continuing T-Day planning until the network of T-Day plans was complete and refined.[62] As Lt. Col. Delbert E. Smith, a member of the air logistics staff, told a Worldwide Air Force Materiel Conference in November:

> Obviously, the goal of the present incremental withdrawal procedures is to develop a climate of de-escalation of the war which will hopefully lead to the termination of hostilities. If this situation develops, we must be prepared to complete the withdrawal operation in an orderly fashion within the directed time frame and under the most economical of conditions.[63]

[redacted] The Air Staff therefore believed that it behooved all concerned to keep their plans constantly current and to take all possible steps to facilitate the smooth withdrawal of forces regardless of conditions. The broad guidance necessary for major commands to plan T-Day actions in detail was contained in the logistics and military assistance annexes of the USAF T-Day plan, an updated version of which was published in July 1969.[64] However, the air logistics staff agreed that an overall operational plan was also needed to provide guidance for withdrawing USAF units, for base closures, and for transfer of facilities to the VNAF. Such a plan should set forth policy regarding the transfer of real property, installed communications, vehicles, housekeeping equipment, and similar items, all of which should tie into T-Day planning as well as Project 703 actions.[65] Preparation of such a plan would come in 1970. In the meantime, PACAF summed matters up when it pointed out that regardless of whether future redeployments continued under the current trend of incremental unit inactivations and withdrawals or whether the redeployment took place in accordance with T-Day plans, the workload was basically the same and required the same amount of support.[66]

---

*In the first two phases, authorized personnel ceilings, rather than specified numbers of people, were reduced. However, the Phase I reduction resulted in the actual withdrawal of 25,000 troops. [Talking Paper (TS), subj: SEASIA Withdrawal Planning and Vietnamizing the War (ca Nov 69).]

[redacted]

[redacted]

IV. LOGISTIC SUPPORT OF THE VNAF

[redacted] The other side of the coin from withdrawal planning was, of course, the program to strengthen the capabilities of the Vietnamese armed forces. This program, though given new prominence by President Nixon, had originated during the Johnson administration, which initially set the goal of shifting responsibility for the war to the Vietnamese in the spring of 1968.[1]

[redacted] Under plans formed to meet that objective, the VNAF was scheduled for a 2-phase expansion that would ultimately more than double its previously planned size. In the first phase, a relatively modest five squadrons were to be added. In the second, however, it was to gain 16 squadrons, for an end force of 40.

[redacted] That the VNAF was not to be modeled strictly in the image of the USAF was implicit in the planned composition of the force, a sizable proportion of which was to consist of helicopter squadrons. Thus, nine of the 24 squadrons contained in the Phase I program were to be equipped with helicopters, while 14 of the 40 programmed in Phase II were to be rotary wing units. This not only differentiated the VNAF from the USAF but it also was to generate most of the difficulties experienced by the Air Staff in supporting the stepped-up VNAF modernization program, inasmuch as the U.S. Army was sole owner and procurement agent for the UH-1's that were to form the backbone of the VNAF helicopter force. Two principal problems emerged: training of the pilots and technicians needed to man the VNAF helicopter force; and procurement of the UH-1's--eventually to number over 500--to equip the new helicopter squadrons.

The UH-1 Issue

[redacted] From the time acceleration of the on-going VNAF improvement and modernization was first proposed, it was apparent that training would be a problem. As early as May 1968 PACAF indicated that this would be the main factor limiting expansion of the VNAF beyond the currently approved force of 19 squadrons.[2] Merely to meet requirements for the Phase I

(This page is [redacted]

program, which added five helicopter squadrons to the existing four, some 1,200 new helicopter pilots plus 3,000 supply and maintenance technicians would have to be trained. This was above and beyond the training required for the first two UH-1 squadrons, which was to be accomplished in-country by the U.S. Army Vietnam (USARV).[3]

Although it had been generally assumed that the Army would conduct the rest of the required training at its facilities in the U.S., existing Army installations were inadequate for the job and would require major expansion. Since the Air Force lacked the means to train the UH-1 force itself, one possibility which the Air Staff contemplated in the summer of 1968 was setting up a VNAF training complex either within Vietnam or at some offshore island.[4] Neither the Air Force Advisory Group nor CINCPAC, however, considered in-country training feasible while fighting was still going on. Apart from the security problem, in-country training would degrade the VNAF's combat capability since experienced VNAF personnel would have to be used as instructors. Building an offshore facility was not considered practical either, because of the time and costs involved.[5]

The Army, for its part, showed little inclination for the job and from the outset resisted plans to expand the VNAF helicopter force. Its opposition initially surfaced in early September 1968, at which time the Army Chief of Staff outlined the impact on the Army of training additional VNAF pilots in the U.S. He simultaneously questioned the operational effectiveness of the existing VNAF helicopter force, expressed serious doubts over its ability to absorb additional helicopter squadrons, and suggested forming a joint study group to reevaluate VNAF modernization and expansion plans. In addition, he suggested sending a joint USAF/U.S. Army survey team to South Vietnam to assess the VNAF's ability to handle additional helicopter squadrons, to determine the impact of the proposed helicopter training program on U.S. resources, and to investigate the possibility of conducting training within South Vietnam.[6]

When the Joint Chiefs asked CINCPAC if he would receive such a team, both CINCPAC and MACV rejected the suggestion, recommending, instead, that a conference be held to resolve the training program. Until the size and composition of the VNAF were firm, however, CINCPAC thought such a conference would be premature. It was therefore deferred pending OSD approval of the Phase I and II force proposals.[7]

[redacted] Meanwhile, in addition to training, a second problem had emerged--procurement of the helicopters needed to finish equipping the initial UH-1 squadrons. To meet activation schedules for the first two units, 17 additional UH-1's were required.[8] The Army, however, maintained that meeting programmed delivery dates would have a serious impact on the readiness of its own forces. It therefore strongly opposed all attempts to secure the extra aircraft.[9]

[redacted] With the approval of the Phase I program in mid-October, the deficit grew from 17 to 60. Since only nine had been delivered as of that time, and since no further deliveries were expected until February--after which none were scheduled at all--MACV attempted to prod the Joint Chiefs into hastening procurement of the needed aircraft.[10] On learning that more than 90 percent of the UH-1's due from production in the next 6 months were tagged for the U.S. Army in Vietnam, MACV recommended their diversion to the VNAF.[11] The Joint Chiefs tabled this recommendation pending results of the training conference, which had been scheduled for early January 1969.[12]

[redacted] The magnitude of the training and the equipment problems had meanwhile mushroomed still further incident to approval of the 40-squadron Phase II program. This added four more UH-1 squadrons to the eight already programmed, bringing the VNAF's total helicopter force to 14 squadrons.[13] In light of this development, the Army introduced an intricate plan in which it proposed to substitute 10 CH-34 squadrons for 10 of the 12 UH-1 squadrons, and to equip the remaining two UH-1 squadrons with 25 instead of the programmed 31 aircraft. The Army maintained that this proposal to provide 180 CH-34's instead of 262 UH-1's[14] would be less costly and would reduce training requirements.[15] MACV, however, completely rejected the plan, pointing out that the approved 14-squadron helicopter force already constituted a shortfall in actual lift requirements and that lowering unit equipment to 25 would further diminish lift capabilities.[16]

[redacted] Failing to win support for its substitution proposal, the Army changed its position to one of qualified support for the expanded VNAF modernization program, contingent on the demonstrated capability of the VNAF to perform air mobile operations. Nevertheless, it continued to argue that substituting CH-34's would be an economy measure and that training VNAF pilots in the required time frame would reduce the output of U.S. pilots, since Army training facilities were already operating at near capacity. As the Joint Chiefs had meanwhile ordered the 60 UH-1's diverted,[17]

in late January the Army tendered tentative delivery schedules and a week later formally outlined delivery procedures and schedules. It simultaneously invited interested parties to attend a conference in mid-February to develop plans and identify problems that would impede the efficient support of UH-1's.[18]

[redacted] At the February conference the Army agreed to accept responsibility for the procurement, production, distribution, and support of all UH-1's furnished the VNAF. Except for the first 60, as many as possible were to be turned over to the VNAF from in-country Army assets. Until the VNAF established its own logistic support system, the Army was to furnish backup maintenance and supply support on a reimbursable basis. It was also to provide airframe and component overhaul support until the VNAF developed an adequate capability of its own.[19] All Army aircraft furnished the VNAF were to be paid for by the Air Force--an arrangement that was to create certain budgetary problems for Headquarters USAF, since funds for UH-1's had been cut from the Air Force budget in the expectation that the Army would furnish them without reimbursement.*

(U) The conference also approved a concept for providing logistical support to the VNAF helicopter force, under which the Army's 34th General Support Group (GSG) in Vietnam would continue support until the VNAF depot was capable of assuming responsibility on its own. Requisitions received from VNAF UH-1 units were to be transmitted by the VNAF depot to AFLC, which

---

*The original Air Force budget submission for FY 1970 included $45.1 million for purchase of 147 UH-1's, plus $82 million for 70 C-7's to replace the C-123's which the AF was to turn over to the VNAF. In the expectation that the Army would be required to provide aircraft to the VNAF without reimbursement, money for the UH-1's was deleted in the budget cuts of early 1969. Funds for the C-7's were also cut from 70 to 53 to match the number of C-123's to be given to the VNAF. Pursuant to the above agreement, the Air Force submitted an aircraft reprogramming action which included $39.8 million to finance 129 UH-1's for the VNAF. The cost of these helicopters was to be financed from reductions in the F-11 program and in reduced cost estimates for the ZO-4A (formerly OX-1) aircraft. Final Congressional approval of the USAF reprogramming request to finance acquisition of 129 UH-1's was received in June 1969. [Source: Personal Summaries (S), Col Joe M. Whitfield, Dep Dir Mil Asst & Sales, to DCS/Sys & Log, 14 Mar 69; (S) Brig Gen Harold V. Larson, Dir Mil Asst & Sales, to DCS/Sys & Log, 2 May 69; (C), Gen Larson to DCS/Sys & Log, 20 Jun 69.]

[redacted]

would forward them to the Air Force Helicopter Systems Manager at Warner Robins Air Materiel Area (WRAMA). The latter would then return them to the 34th General Support Group, which would either issue the items or establish a due-out.[20]

[redacted] These arrangements, although seemingly somewhat unwieldy, were consistent with those being used to support other VNAF aircraft and were expected to result in a minimal pipeline for all items included in the Joint Stockage List (JSL), which would flow from U.S. Army depots at Qui Nhon or Tan Son Nhut to the VNAF depot at Bien Hoa. No less important, when the Army does withdraw its logistic support from the Vietnamese, minimal changes would be required.[21] These procedures were formalized in an interservice support agreement (ISSA) which the Army Materiel Command (AMC) concluded with AFLC in early May 1969.[22]

[redacted] Shortly before the agreement was signed, Army Secretary Stanley R. Resor outlined to Secretary Laird the Army's plans for training, equipping, and supporting the VNAF. In presenting them, Secretary Resor took the opportunity to stress the impact on the Army of supporting the VNAF. Expansion of the VNAF had posed special problems in the areas of training, logistic support, procurement, and distribution of assets, he said. Those problems could be "reduced but not eliminated." The main impact lay in the fact that providing UH-1's to the VNAF would delay their distribution to U.S. Army commands in Europe and Korea, forcing them to retain less modern helicopters as first line aircraft. During fiscal year 1971, about 500 Army helicopters, more than half of them UH-1's, would have to be diverted from their programmed Army use to support the VNAF program. By January 1972, 489 UH-1's would have been furnished, of which the Air Force would have paid back 342. Another 141 UH-1's, plus 225 OH-23's, would have to be diverted to training the VNAF. Secretary Resor concluded, however, that if the Army were authorized a few additional resources, it could fully support the VNAF training program.[23]

[redacted] In mid-June Secretary Laird approved the Army plans, as well as the additional resources which it sought. He expressed concern, however, that the procedures for supporting the VNAF helicopter force might prove "cumbersome rather than fully responsive to VNAF requirements." He therefore urged that the Army and Air Force continue to explore ways which would

[redacted]

improve and accelerate every aspect of the VNAF program. Although recognizing that the bulk of the logistic support for the VNAF helicopter program would "flow through" Army channels, he would "continue to look to the Secretary of the Air Force for overall direction of the VNAF improvement and modernization program."[24]

[redacted] Inasmuch as the Air Force was responsible for VNAF modernization and inasmuch as the Army was providing much of the helicopter force and its support, Maj. Gen. Andrew W. Low, Air Force Assistant for Logistic Planning, was also concerned by the complicated arrangements for providing logistic support to the VNAF. He wondered whether the Army, Air Force, and VNAF logistic systems were compatible enough to "pull this off in a timely manner."[25] Col. Dayton R. Taylor, chief of General Low's Operations Division, assured him that the VNAF helicopter force, including its logistic support, was progressing satisfactorily, and that the three logistic systems were "sufficiently compatible to see the program through to a successful conclusion."[26]

Logistic Deficiencies in the VNAF

[redacted] The logistic support capabilities of the entire VNAF had meanwhile received growing attention from the new emphasis on making the Vietnamese self-sufficient. Since primary emphasis had previously been placed on improving combat capabilities, logistic support had received relatively little attention. When President Nixon decided to begin withdrawing U.S. forces, and when Secretary Laird made it known that "balanced" forces, not merely combat forces, were to be withdrawn,[27] strengthening Vietnamese logistic capabilities suddenly became a primary objective.

[redacted] Although the VNAF had made considerable strides in improving its logistic potential between April 1968, when Secretary Nitze first announced the goal of making the Vietnamese self-sufficient, and April 1969, when "Vietnamizing" the war became the Nixon administration's primary objective, major weaknesses still existed in the VNAF's logistic support capabilities. In the supply field, operations were limited by a lack of ability to compute requirements, by inadequate inventory control and supply responsiveness, and by a shortage of trained personnel. In the maintenance area, VNAF ability to perform IRAN (Inspection and Repair as Necessary) of aircraft and to repair crash and battle damage needed further expansion. Logistic control

[redacted]

needed strengthening at each echelon of authority, and a more responsive communications system between logistic activities was sorely needed. To achieve the most effective use of materiel, manpower, and facilities, management and supervisory skills had to be improved, as did the system's ability to respond to priority requests for aircraft spares and to expedite the requisitioning process. In short, as of July 1969 the VNAF possessed neither a total maintenance management capability nor an adequate level of technical skills to attain and sustain the desired degree of self-sufficiency.[28]

[redacted] Due in large measure to the help of AFLC, which sent assistance teams in the summer of 1969, significant progress was made in the next few months, and by November both supply and maintenance capabilities had markedly improved. The enormous backlog in the supply receiving section had been reduced to a normal daily workload. A stock records purification project had been started, and a program to dispose of excesses was planned. The VNAF ability to manage its logistics system was also improving.[29]

(U) A number of weaknesses nevertheless still remained. One of the foremost was the lack of an automated capability in the VNAF supply depot at Bien Hoa. Although the VNAF supply account contained more than 100,000 line items, accounting was accomplished manually, and it failed to provide the responsiveness, accuracy, and managerial data required to sustain modern weapon systems at peak efficiency. Accordingly, in early October the Air Force Advisory Group proposed automating the VNAF depot system.[30] In support of that proposal, Seventh Air Force pointed out that given the published policies regarding expansion of the Vietnamese armed forces, it could be assumed that the RVNAF would double in size within 3 years. This would entail an increase in the range and depth of depot supply items which, it said, would "outstrip the capabilities of the present manual system."[31]

[redacted] PACAF also supported the need to automate the VNAF logistics operation. The existing manual supply accounting system was incapable of effectively supporting the buildup of supplies and equipment related to its programmed expansion and to its ever increasing follow-on support requirements. Moreover, experience to date indicated that with its current system the VNAF could not take full advantage of the assets made available by Project 703 actions. PACAF therefore considered the automation proposal not only feasible but fully justified by the potential savings that could be realized by extending the U-1050-II system to the VNAF depot.[32]

[redacted]

(U) Since the provision of a U-1050 computer--recommended by the Advisory Group--would require modifying the standard base supply system to meet the requirements of the VNAF supply system, the air logistics staff was divided over the merits of the proposal. Whereas the Assistant for Logistic Planning and Director for Supply and Services questioned the need to automate the VNAF, the Directorate for Military Programming and Sales regarded automation as the "only salvation for the VNAF," and the only remaining issue was to determine the equipment best suited to the VNAF.[33] In view of this conflict, General Goldsworthy, Deputy Chief of Staff for Systems and Logistics, asked AFLC to examine in-depth, together with PACAF and the Air Force Advisory Group, the VNAF depot operation and to develop a specific plan for AFLC to meet its commitments to the VNAF improvement and modernization program through Phase III. Regarding the automation issue, General Goldsworthy advised that "the availability of hardware should not be the driving force for automating the VNAF Depot Supply Account, rather, a sound appraisal of the requirement to improve the VNAF system--whether to automate, and how it should be done is the first order of business."[34]

(U) General Goldsworthy believed, however, that it was in the best interest of both the VNAF and USAF to avoid converting the VNAF depot account to the USAF standard base level system or the AFLC depot system. Such a conversion "would undoubtedly prolong our involvement with the VNAF and require USAF people in Vietnam for an indefinite future." He continued:

> It would also establish a break from the precedent that internal country logistics systems are a nation responsibility. We suggest it is preferable that the effort concentrate on recommending how best to improve the VNAF system. We would therefore avoid expanding the responsibilities of the Data Systems Design Center (DSDC) and/or the Advanced Logistics System Center (ALSC) at a time when neither has sufficient capability to absorb responsibilities outside the USAF programs underway.[35]

[redacted] The feasibility of this proposal was still being investigated in December when the Assistant Secretary of the Air Force for Installations and Logistics, Mr. Phillip Whittaker,

visited SEA. Upon his return, he emphatically concurred in the need to give the VNAF an automated capability. The present VNAF method of manually screening Seventh Air Force assets was unsatisfactory, and as a result items were probably returned unnecessarily to the CONUS or sent to disposition activities, he observed. As the VNAF program accelerated, an automated capability had to be developed, if only to enable the VNAF to efficiently utilize available U.S. assets.[36]

(S-C[redacted]) The continued use of manual supply methods was only one factor, however, limiting further improvement in the VNAF logistic system. A problem which Seventh Air Force considered far more serious was the difficulty of recruiting personnel capable of being trained to perform logistic functions at the required level of skill. In fact, it was Seventh Air Force's view that the inability of the VNAF to recruit and concurrently train combat forces and personnel who could be molded into an effective logistics complex was the primary factor limiting further expansion of VNAF logistic capabilities.[37] This problem, which had been long-standing, stemmed in large measure from the failure of the Vietnamese Joint General Staff to appreciate the importance of logistic support and its resultant failure to authorize manpower for logistic activities.[38] To remedy the shortcomings in this area, Secretary Laird, following the Midway Conference of June 1969 approved U.S. support for an increase of 3,199 personnel in the VNAF force structure. The bulk of this increase was intended for manning logistic and base support functions.[39] Nevertheless, during Secretary Whittaker's visit to SEA in December, Colonel Be, head of the Vietnamese Air Logistics Command, indicated that lack of appreciation for logistic support at the VNAF headquarters level and a consequent lack of emphasis on manning logistic functions, remained his Number One problem.[40]

(S[redacted]) Compounding it was a severe slippage in the training of maintenance personnel, caused, in turn, by lack of students qualified in the English language. A shortage of language-qualified students had already disrupted the planned flow of students into UH-1 maintenance training as early as April 1969.[41] The severity of the language training problem mounted in the summer, when only 32 of 272 students scheduled reported for UH-1 maintenance training, forcing cancellation of eight classes in July and August.[42] By November, slippages had reached the point where they

jeopardized the entire future development of the VNAF, which depended on training schedules being met.[43]

(S) Since English language proficiency was the factor pacing the rest of the training program, measures to accelerate teaching it received major attention at a conference held at Randolph AFB, Tex., in June 1969. Discussions centered on the establishment of an in-country technical training capability,*[44] and several actions were taken to improve English language training. Among them, the classroom and housing facilities of the RVN Armed Forces Language School in Saigon were expanded, additional language training equipment was provided, and a remedial language training program was established within the U.S.[45] By October, a peak enrollment of 4,460 students was reached in the English language school in Vietnam. As of that time, however, the school was just beginning to produce students qualified for pilot and technician courses in the United States.[46]

---

*(S) As in the case of UH-1 funds, training funds had been severely slashed in the budget cuts of early 1969. Originally the budget included $7.8 million in construction funds which were to be used to build in-country training facilities for the VNAF. These funds were eliminated altogether in the budget submitted to the Bureau of the Budget in mid-March 1969. O&M funds earmarked for training the VNAF were simultaneously reduced from $31.8 to $20 million. All told, the USAF budget submission for Phase II of the VNAF I&M program was cut from $207.4 million to $20 million--a staggering amount for a program that was soon to receive the nation's top defense priority. In view of these cuts, the Air Staff informed the Air Force Advisory Group in early March 1969 that the in-country portion of the VNAF I&M training program might have to be deferred to January 1971 rather than starting on the planned date of 1 January 1970. This deferral was expected to increase CONUS training requirements and would also have an impact on in-country English language training. These funds, or a portion of them, were evidently restored, as became apparent from the fact that a target date of March 1970 was set for beginning in-country technical training at the June training conference. [Personal Summary (S), Dir/Mil Assistance & Sales to DCS/Sys & Log, 7 Mar 69, 14 and 28 Mar 69.]

(This page is

[redacted] Secretary of the Air Force Robert C. Seamans, Jr. advised Secretary Laird, if the problem of producing enough language-qualified candidates was overcome, he foresaw no appreciable training problems that would hinder attainment of the currently programmed VNAF force. Considerable progress toward that goal had already been made. Three A-1 squadrons had completed their conversion to A-37's and were combat ready. The conversion of four CH-34 squadrons to UH-1's was proceeding well, and two squadrons were currently capable of airlift and command control operations. Turnover of the first two AC-47 squadrons was also complete, giving the VNAF a gunship capability.[47] In addition, 32 O-1's had been turned over to VNAF liaison squadrons.

[redacted] But though the program was advancing reasonably well toward the programmed 40-squadron objective, Secretary Seamans had serious doubts over the possibility of expanding the VNAF to the point where it could cope by itself with the threat posed by the current level of North Vietnamese and Viet Cong forces--a goal set by Secretary Laird the preceding August.* The current program, he advised the defense chief, was in itself "ambitious." The VNAF would be unable to support additional aircraft beyond those already programmed because of the lack of skilled technicians and other qualified personnel.

> Based on available manpower, the GVN [Government of Vietnam] is rapidly approaching the upper limits of its capability to sustain the presently programmed VNAF force structure. Within the limitations of manpower availability and long lead time training requirements, the effort is proceeding apace; any attempt to hasten it by introducing more hardware, unbalancing force structures, or assuming capabilities that do not yet exist would be unrealistic and counterproductive.[48]

[redacted] Seventh Air Force also believed that the VNAF improvement and modernization program could not realistically be accelerated beyond 10 percent without compromising the quality or

*See Chapter III.

[redacted]

level of training, and, ultimately, the VNAF's combat capabilities. The VNAF was neither equipped at that time, nor could it be in the foreseeable future, to cope with the demands involved in countering a joint Viet Cong/North Vietnamese threat. Although development of a logistic capability was progressing as rapidly as could be expected, in Seventh's opinion the goal of self-sufficiency could not be reached before July 1972 "by the most optimistic estimates." Any decision attempting to further accelerate the I&M program or to draw down on residual USAF forces "would force acceptance of an unacceptable degree of risk with respect to ultimate capability to meet the current VC/NVA threat."[49]

([redacted]) Assistant Secretary Whittaker also singled out logistics and training as the pacing items in the "Vietnamization" program. Although the VNAF logistics command was competent in supporting the current force, between December 1969 and December 1971 the VNAF inventory was scheduled to increase from 415 to 934 aircraft, primarily in the number of UH-1's--"one of the more complex airplanes of their force." The VNAF Air Logistics Command therefore faced the difficult task of doubling its capability in the next 2 years. As it currently had only 43 percent of its programmed manpower, this would mean "a mass training effort in the maintenance and supply skills from a meager nucleus."[50]

([redacted]) Deputy Defense Secretary Packard reached somewhat similar conclusions during a visit to SEA the same month. It became "abundantly clear," he reported, that a serious shortage of skilled and capable manpower existed. These manpower constraints had to be recognized in developing a revised VNAF force structure. Above all, care had to be taken not to overload the Vietnamese beyond their basic needs. Attention accordingly had to be focused on what the VNAF required to perform its mission, rather than on those functions the Air Force was currently performing that could be transferred to the VNAF. This, he said, placed a "real premium" on supplying the Vietnamese with "simple, maintainable" equipment. He therefore suggested that the Air Force concentrate on furnishing types of aircraft and other equipment that offered the "best mix of capability, maintainability and low manpower requirements," and on finding ways to overcome the long training times created in part by the need for English language training.[51]

([redacted]) Several of the points which Secretary Packard raised were being studied by a special Air Staff task group formed

in November 1969 to review the Vietnamization program and recommend further acceleration. Under its terms of reference, this task group, designated "Credible Crusade," was to examine all functions currently performed by the Air Force and determine which could be transferred and which could be discontinued so that USAF units could be withdrawn. In analyzing what residual USAF forces would be needed, the group concluded that, due to the delay in authorizing and manning VNAF logistic manpower spaces, and in view of the limited training of VNAF personnel, the greatest single requirement would be to provide logistic support to the VNAF, including supply, aircraft and vehicle maintenance, transportation, and civil engineering functions. "Considering the current U.S. timetable for Vietnamization," the task group noted, "it is axiomatic that a maximum effort must be initiated in the very near future to provide the required VNAF manpower spaces, and formal training and realistic OJT [On-the-Job Training] programs for VNAF logistics personnel." The group concluded that the Air Force should make every effort to give the VNAF an in-house capability in the areas of supply maintenance, transportation, and base civil engineering functions, "and thus enable the withdrawal of USAF and contractor personnel without fear of a logistically ineffective VNAF."[52]

(S [redacted]) It was evident, however, that it would take time to achieve that objective, for giving the VNAF a self-sufficient logistic capability would have been a formidable undertaking even in peacetime, let alone under fire. Moreover, if the expanded force structure then being studied in response to Secretary Laird's Phase III directive was, in fact, approved, the magnitude of the undertaking could be expected to grow rather than shrink. In the meantime, the air war continued. And though the VNAF was assuming a progressively larger combat role as 1969 drew to a close, all evidence indicated that it would be some time before the VNAF would be able to carry on alone. By the same token, it was equally apparent that the USAF, especially its logistic forces, would have to remain in Vietnam indefinitely. In the final analysis, then, logistic support remained, as always, the key to a sustained combat capability, while training remained the pacing factor.

(This page is [redacted])

NOTES

Chapter I

1. Intvws, author with Col James T. Nelson, Jr., Ch, Log Plans Div, Asst for Log Plng, DCS/Sys & Log, 9 Jul 70, 10 Jul 70, 7 Oct 70; Col Howard R. Bullen, Dep Asst Log Plng, DCS/Sys & Log, 8 Oct 70; Col Levin Tull, Dep Dir/Sup & Svcs, DCS/Sys & Log, ca 8 Oct 70; Rprt (U), Joint Logistics Review Board (JLRB), Logistic Support in the Vietnam Era, Vol II, A Review of Logistic Support in the Vietnam Era, undtd (ca Oct 70), p 297; JLRB Rprt, Mono 13, Maintenance (U), pp 172-174. All monographs published as part of the JLRB report cited hereafter as JLRB Mono (by number and title).

2. NSC Stf Paper (S), subj: Vietnam Policy Alternatives, undtd (ca 28 Jan 69), in JCS 2472/415-1 (S), 28 Jan 69.

3. Memo (S), Paul H. Nitze, Dep SECDEF, to Secys of Mil Depts, CJCS, DDR&E, Asst SECDEFs, subj: Asia Strategy and Force Structure, 17 May 68, with incl: Preliminary Draft Memo (S), SECDEF to the President, subj: Asia Strategy and Force Structure, 16 May 68.

4. See Herman S. Wolk, USAF Plans and Policies: Logistics and Base Construction in Southeast Asia, 1967 (TS) (USAF Hist Div Ln Ofc, Oct 1968), pp 1-2.

5. Memo (S), Asst SECDEF (Sys Analys) to SECDEF, subj: Adequacy of the FY 70 Budget for Support of Operations in Southeast Asia, 5 Feb 69.

6. Memo (S), Wesley G. Pace, Asst for Prgms, DCS/Sys & Log, to DCS/Sys & Log, subj: Personal Summary, 25 Jul 69 and 5 Sep 69. [All personal summaries from DCS/Sys & Log directorates are hereinafter cited as Pers Sum with originating ofc and date specified. All were submitted to the DCS/Sys & Log.]

7. USAF Management Summary, Southeast Asia (S), 10 Jan 69, 9 Jan 70. [Hereinafter cited as Mgt Sum for SEA.]

8. Hists (S), Dir/Sup & Svcs, Hq USAF, Jan-Jun 68, pp 5-6; Jul-Dec 68, p 6; Jan-Jun 69, p 5; Jul-Dec 69, p 4.

9. Mgt Sum for SEA, 10 Jan 69.

10. Hist (S), Dir/Maint-Engrg, Hq USAF, Jul-Dec 68, p ix.

11. Hists (S), Dir/Sup & Svcs, cited above.

12. Annual Report of the Secretary of the Air Force, FY 1968 (U); Hist (S), Dir/Sup & Svcs, Jul-Dec 68, p 2; Pers Sum (S), Dir/Sup & Svcs, 14 Feb 69.

13. Ltr (U), Maj Leigia F. Emmick, Proj Ch/Coordinator PACAF Equipment Control Team, Hq PACAF, to Dir/Mat, Hq PACAF, subj: PACAF Equipment Authorization and Redistribution Program, 12 July-31 Oct 66, 31 Oct 66.

14. JLRB Mono 9, Excesses (U), p 25.

15. Ibid; ltr (U), Col Bernardino O. Tortosa, Dir/Sup & Svcs, DCS/Mat, Hq PACAF, to distrib, subj: Project COMMANDO RIPE, 10 Dec 67.

16. JLRB Rprt, Vol II (U), p 252.

17. JLRB Mono 17, Supply Management (U) pp 253, 254.

18. Talking Paper (S), [prep. by Lt Col Ben Van Horn, Ofc of Asst for Log Plng, DCS/Sys & Log] for presentation to AFLC T-Day Planning Conf on 19 Nov 68, subj: Post Hostilities Planning, T-Day, 15 Nov 68.

19. Ltr (U), Dir/Mat (DMSE), Hq PACAF to Dir/Mat (DMSM), Hq PACAF, subj: Data for Briefing Mr. Charles (DMS Letter, Undated), undtd (ca Dec 67).

20. Memo (U), [prep. for Lt Gen Robert G. Ruegg, DCS/Sys & Log], subj: PACAF Materiel Redistribution Programs, undtd (ca Nov 68).

21. Ltr (C), Gen Thomas P. Gerrity, Cmdr AFLC, to Gen John D. Ryan, CINCPACAF, no subj, 20 Nov 67.

22. Ltr (U), Col Bernardino O. Tortora, Dir/Sup & Svcs, DCS/Mat, Hq PACAF, to Dir/Mat, Hq PACAF, subj: PACAF Supply Improvement Program, 15 May 68, Atch 2: Final COMMANDO RIPE Report (U).

23. Ltr (U), Lt Col James T. Nelson, Ch Equip Mgt Div, Dir/Sup & Svcs, DCS/Mat, Hq PACAF, to Dir/Mat (DMSM), Hq PACAF, subj: The USAF Supply Surveillance Program (DMS Letter 31 July 67), 31 Jul 67.

24. JLRB Mono 9, Excesses (U), p 24.

25. Memo (C), Thomas D. Morris, Asst SECDEF (Instl & Log), subj: Notes for Discussion with Secretaries McNamara and Nitze 24 November 1967 - Visit to South Vietnam to Investigate Excess Stocks of Materiel, 24 Nov 67.

26. Memo (U), Robert S. McNamara, SECDEF, to Secys of Mil Depts, CJCS, Asst SECDEFs, et al, subj: Utilization and Redistribution of Excess Materiel in the Pacific Area - Project PURE, 24 Nov 67.

27. JLRB Mono 9, Excesses (U), p 49.

28. JLRB Mono 17, Supply Management (U), p 256.

29. Ltr (C), Lt Gen Robert G. Ruegg, DCS/Sys & Log, to Sys & Log stf agcys, no subj, 22 Jan 69; JLRB Mono 13, Maintenance (U), pp 164, 173.

30. Stmt of Brig Gen William F. Pitts, Dir of Budget, Hq USAF, 29 Jul 69, before the Senate Subcommittee of the Committee on Appropriations, 91st Cong, 1st sess, DOD Appropriations for FY 1970, pt 4, p 280; stmt of Gen John P. McConnell, CSAF, 29 Jul 69, before the Senate Subcommittee of the Committee on Appropriations, 91st Cong, 1st sess, DOD Appropriations for FY 1970, pt 4, p 74; JLRB Mono 13, Maintenance (U), p 189.

31. Memo (C), [prep. by Aerospace Maint Div, Dir/Maint Engrg for SAFIL], subj: NORM Status, Nov 69.

32. JLRB Mono 13, Maintenance (U), p 174; Hist (S), Dir/Maint Engrg, Jul-Dec 68, pp viii-ix.

33. Hist (S), Dir/Maint Engrg, Jul-Dec 68, p ix.

34. JLRB Mono 13, Maintenance (U), p 173; Hist (S), Dir/Maint Engrg, Jul-Dec 68, pp vi-ix, 103-104; stmt by Brig Gen Pitts to Senate Subcommittee on Appns, 29 Jul 69, cited above.

35. JLRB Mono 13, Maintenance (U), p 168; pers sum (S), Dir/Maint Engrg, 14 Feb 69.

36. Hist (S), Dir/Maint Engrg, Jan-Jun 69, p 99.

37. Ibid., Jul-Dec 68, p 15.

38. JLRB Mono 13, Maintenance (U), p 168.

39. Pers sums (S), Dir/Maint Engrg, 3 Jul 69, 29 Aug 69.

40. Ltr (C), Col Harold D. Cameron, Jr., Ch Aerospace Maint Div, Dir/Maint Engrg, to Plans and Prgms Div, Dir/Maint Engrg, subj: Impact on Readiness Posture of Logistics Support to SEA (Your 5 Aug 69 Ltr), 13 Aug 69.

41. Memo (S), Lt Col Jason H. Decker, Aerospace Maint Div, Dir/Maint Engrg, to SAFIL, subj: A-1 Aircraft Wing Fatigue undtd (ca Nov 69).

42. Ltr (C), Lt Gen R. C. Ruegg, DCS/Sys & Log, to CSAF, subj: A-1 Aircraft Wing Fatigue Inspection and Repair, 12 Nov 68.

43. Pers Sum (S), Dir/Maint Engrg, 11 Apr 69.

44. Hist (S), Dir/Maint Engrg, Jan-Jun 69, pp xii-xiii; 63-64.

45. Memo (S), Lt Col Jason H. Decker, Aerospace Maint Div, Dir/Maint Engrg, to Asst Secy of the Air Force (Installations and Log), subj: A-1 Aircraft Wing Fatigue, undted (ca Nov 69), cited above.

46. Talking Paper (S), subj: A-37A Wing Spar Cracks, undtd (ca Feb 69).

47. Pers Sum (S), Dir/Maint Engrg, 16 May 69.

48. Ltr (C), Col H. D. Cameron, Jr., Ch Aerospace Maint Div, Dir/Maint Engrg, to Plans and Prgms Div, Dir/Maint Engrg, 13 Aug 69, cited above.

49. Talking Paper (S), prep. by Col J. R. Diepenbrock, Aerospace Maint Div, Dir/Maint Engrg, for Maj Gen Gerald F. Keeling, Asst DCS/Sys & Log, no subj, 14 Jul 69; pers sum (S), Dir/Maint Engrg, 20 Jun 69; hist (S), Dir/Maint Engrg, Jan-Jun 69, p viii.

50. Talking Paper (S) for Gen Keeling, 14 Jul 69, cited above; pers sum (S), Dir/Maint Engrg, 20 Jun 69.

51. JLRB Mono 13, Maintenance, (U), pp 159, 170.

52. Talking Paper (S), prep. by Maj R. Hoover, Aerospace Maint Div, Dir/Maint Engrg, for Lt Gen R. G. Ruegg, DCS/Sys & Log, subj: F/RF-4 Aircraft Potting Compound, undtd (ca Nov 68).

53. JLRB Mono 13, Maintenance (U), pp 159, 170.

54. Hist (S), Dir/Maint Engrg, Jul-Dec 68, pp vi-vii.

55. JLRB Mono 13, Maintenance (U), p 168.

56. Ibid.

57. Ibid., pp 171, 188-189.

58. Ibid., pp 176, 188; Hist (S), Dir/Maint Engrg, Jul-Dec 68, pp vi-ix, 103; JLRB Mono 10, Financial Management (U), p 25.

59. JLRB Mono 13, Maintenance (U), p 189.

60. Ibid., p 173.

61. Ibid., p 176; Ltr (FOUO), Col Robert W. Collette, Dir/Rsch, Studies & Concepts, DCS/Plans & Ops, Hq USAF, to Asst for Log Plng, DCS/Sys & Log, subj: Impact of Readiness Posture of Logistics Support to SEA (Your ltr, 6 Aug 1969), 25 Aug 69, Incl 2 - Materiel Management (U), Selected Indicators Representative of the Impact on Readiness Posture of Logistics Support to SEA (AFLC 1965 - 1969).

62. Ibid.

Chapter II

1. JLRB Mono 2, Ammunition (U), p 89.

2. JCSM-379-68 (S), Jt Stf to SECDEF, subj: Revised Southeast Asia Munition Requirements, 19 Jun 68.

3. Hist (S), Dir/Sup & Svcs, Hq USAF, Jan-Jun 68, pp 171-172.

4. JCSM-477-68 (S), Jt Stf to SECDEF, subj: Revised Southeast Asia Air Munition Requirements Through CY 68 Based on Program #6, 30 Jul 68.

5. Ltr (S), CINCPAC to JCS, subj: Revised PACOM Modern Air Munition Requirements Through CY 68 Based on Program #6; Change 1, 23 Aug 68.

6. Ltr (S), CINCPAC to JCS, 2 Dec 68, referenced in JCS 2491/22 (S), 27 Feb 69.

7. JCSM-666-68 (S), Jt Staf to SECDEF, subj: Southeast Asia Air Munition Requirements, 7 Nov 68.

8. Hist (S), Dir/Sup & Svcs, Jul-Dec 68, p 182.

9. Ibid.

10. Talking Paper (S), prep by W. B. Winters, Muns Div, Dir/ Sup & Svcs, DCS/Sys & Log, Hq USAF, subj: FY 70 Munitions Budget (BP 8100), 19 Mar 69.

11. Ibid.: Hist (TS), Dir/Plans, Jan-Jun 69, p 229.

12. Talking Paper (S), prep by W. B. Winters, 19 Mar 69. Cited above.

13. J-3 SM 10-69 (S), Maj Robert E. Pennington, Comd Plng Div, Dir/Plans, to Asst Dir/Plans for Jt & NSC Matters, DCS/Plans & Ops, subj: Southeast Asia Air Munition Requirements, 13 Jan 69.

14. Ltr (S), CINCPAC to JCS, subj: Revised PACOM Modern Air Munition Requirements Through CY 69 Based on Program #6, 24 Feb 69.

15. JCSM 118-69 (S), Gen Earle G. Wheeler, CJCS, to SECDEF, subj: Survey of Worldwide Status of Conventional Air Munitions, 3 Mar 69, in JCS 2491/22, 27 Feb 69; rprt (S), J-4 to JCS, subj: Survey of Worldwide Status of Conventional Munitions, 27 Feb 69, in JCS 2491/ 22, 27 Feb 69.

16. Memo (S), Lt Col Robert J. Cabaniss, Comd Plng Div, Dir/ Plans, to CSAF, subj: Survey of Worldwide Status of Conventional Air Munitions (JCS 2491/22), 28 Feb 69.

17. Msg (S), CINCPAC to JCS, et al (JCS IN 25461), 261954Z Feb 69.

18. JCSM 118-69 (S), Gen Earle G. Wheeler, CJCS, to SECDEF, subj: Survey of Worldwide Status of Conventional Air Munitions, 3 Mar 69, in JCS 2491/22, 27 Feb 69.

19. JCSM-200-69 (S), JCS Jt Stf to SECDEF, subj: Southeast Asia Air Munition Requirements, 7 Apr 69.

20. JCSM 253-69 (S), JCS to SECDEF, subj: Arc Light Sortie Rate, 26 Apr 69.

21. Memo (S), Lt Col Samuel W. Lockerman, Dir/Ops, to CSAF, subj: Arc Light Sortie Rate (JCS 2472/389-5), 11 Feb 69.

22. Ibid.

23. Memo (S), J-3 to JCS, subj: Review of the Tactical Air/B-52 Sortie Capability in Southeast Asia, in JCS 2472/389-8, 15 May 69.

24. Ibid.

25. Talking Paper (S), subj: JCS 2472/389-7, undtd; memo (S), Lt Col Irving B. Reed, Ofc Asst for Jt Matters, DCS/Plans & Ops, to CSAF, subj: Arc Light Sortie Rate (JCS 2472/389-7), 25 Apr 69; talking paper (S), Lt Gen Buward L. Crow, AF Comp, to Lt Gen Seth J. McKee, Asst VCS, subj: B-52 Sortie Rates, 7 Apr 69.

26. Memo (S), Melvin R. Laird, SECDEF, to JCS, subj: Arc Light Sortie Rate, 18 Jun 69.

27. Msg (S), CINCPAC to JCS (JCS IN 69968), 221818Z Jun 69.

28. JCSM-401-69 (S), Gen John P. McConnell, Actg CJCS, to SECDEF, subj: Arc Light Sortie Rate, 27 Jun 69.

29. Pers Sum (S), Dir/Sup & Svcs, 4 Apr 69.

30. Pers Sum (S), Dir/Sup & Svcs, 1 Aug 69.

31. Ltr (S), CINCPAC to JCS, subj: Revised PACOM Modern Air Munition Requirements Through CY 69 Based on Program #6, Change #3, 26 Jul 69; JCSM-588-69 (S), JCS Jt Stf to SECDEF, subj: Southeast Asia Air Munition Requirements, 25 Sep 69.

32. Pers Sum (S), Dir/Sup & Svcs, 5 Dec 69.

33. Memo (TS), Lt Col Robert J. Cabaniss, Comd Plng Div, Dir/Plans, to CSAF, subj: PACOM Air Munition Requirements and Allocations (JCS 2491/203), 5 Jan 70.

34. Pers Sum (S), Dir/Sup & Svcs, 29 Aug 69.

35. Ibid., 5 Dec 69.

36. Hist (S), Dir/Sup & Svcs, Jul-Dec 69, p 163.

37. Pers Sum (S), Dir/Sup & Svcs, 7 Feb 69.

38. Hist (S), Dir/Sup & Svcs, Jul-Dec 68, p 180.

39. Mgt Sum for SEA (S), 17 Jan 69.

40. Hists (S), Dir/Sup & Svcs, Jan-Jun 68, p 173; Jul-Dec 68, p 179.

41. Pers Sum (S), Dir/Sup & Svcs, 6 Feb 70.

42. Ibid., 20 Feb 69.

43. Mgt Sum for SEA (S), 9 Jan 70.

44. Hist (S), Dir/Sup & Svcs, Jan-Jun 69, p 150.

45. Ibid., pp 179-180.

46. Pers Sum (S), Dir/Sup & Svcs, 28 Nov 69.

47. Hist (S), Dir/Sup & Svcs, Jul-Dec 69, p 180.

48. Ibid., Jan-Jun 68, p 174.

49. Hist (S), Dir/Sup & Svcs, Jul-Dec 68, p 181.

50. Ibid., Jan-Jun 69, p 151.

51. Ibid., p 180.

52. Pers Sum (S), Asst for Prgmg, 9 May 69.

53. Pers Sum (S), Dir/Sup & Svcs, 7 Feb 69.

54. Ibid., 6 Feb 70.

55. Hist (S), Dir/Sup & Svcs, Jul-Dec 69, p 179; hist (S), Dir/Sup & Svcs, Jan-Jun 68, p 171.

56. Memo (S), Dr Lee A. DuBridge, Science Adviser to the President, to Melvin R. Laird, SECDEF, no subj., 26 Jun 69, App C, memo (S), subj: Accurate Weapons Delivery Systems, undtd.

57. Talking Paper (S), prep by Lt Col William J. Clem, Dir/Prod & Prgmg, for Lt Gen Robert G Ruegg, DCS/Sys & Log, subj: Commando Hunt, 30 Oct 68.

58. Ibid., JCSM-666-68 (S), JCS Jt Stf to SECDEF, subj: Southeast Asia Air Munition Requirements, 7 Nov 68, App, subj: Operational and Logistic Considerations.

59. JCSM-379-68 (S), JCS Jt Stf to SECDEF, subj: Revised Southeast Asia Munition Requirements, 19 Jun 68.

60. Memo (S), Paul H. Nitze, Dep SECDEF, to CJCS, subj: Revised Southeast Asia Munition Requirements, 24 Jul 68.

61. JCSM-552-68 (S), 17 Sep 68, cited above.

62. Talking Paper (S), prep by Lt Col Clem for Gen Ruegg, subj: Commando Hunt, 30 Oct 68, cited above.

63. JCSM-552-68 (S), 17 Sep 68, cited above.

64. Talking Paper (S), prep by Lt Col Clem for Gen Ruegg, subj: Commando Hunt, 30 Oct 68, cited above.

65. Memo (S), Asst SECDEF (Instls & Log) to Dep SECDEF, CJCS, et al, subj: Air Munitions Production Report, 15 Feb 69. Herinafter cited as Air Muns Prod Rprt for date specified.

66. Air Muns Prod Rprt (S), 14 Mar 69.

67. Talking Paper (C), prep by Lt Col W. L. Petree, Non-Nuclear Br, Dir Sup & Svcs, DCS/Sys & Log, subj: M-36 Incendiary Munition, 10 Sep 69.

68. Pers Sum (S), Dir/Sup & Svcs, 29 May 69.

69. Pers Sum (S), Dir Sup & Svcs, 39 May 69, 5 Sep 69; hists (S), Dir/Sup & Svcs, Jan-Jun 69, p 155, Jul-Dec 69, p 186.

70. Hist (S), Dir/Sup & Svcs, Jul-Dec 69, p 186; memo (C), Lt Gen Lucius D. Clay, Jr., Dep CSAF, subj: Item of Interest, 3 Oct 69.

71. Talking Paper (C), prep by Harry Bracken, Dir/Sup & Svcs, for Lt Gen Harry Goldsworthy, DCS/Sys & Log, subj: M-36 Incendiary Cluster Production, 7 Oct 69.

72. Hist (S), Dir/Sup & Svcs, Jul-Dec 69, p 186.

73. Memo (S), Russell Murray, 2d, Ofc Asst SECDEF (Sys Analys), to SECDEF, subj: Impact of the Bombing Halt on Budget Planning, 7 Nov 68.

74. Memo (C), John S. Foster, Jr., DDR&E, to Asst Secys of Army, Navy, & AF for R&D, subj: Effective Air Armament for Truck Interdiction, 12 Jul 69, in JCS 2491/116, 23 Jul 69.

75. Ltr (S), Lee A. DuBridge, White House Science Adviser, to Melvin R. Laird, SECDEF, no subj., 26 Jun 69.

76. Ibid., App C (S), subj: Accurate Weapons Delivery Systems.

77. Ibid.

78. Memo (C), John S. Foster, Jr., DDR&E, to Asst Secys of Army, Navy, & AF for R&D, subj: Effective Air Armament for Truck Interdiction, 12 Jul 69, cited above.

79. Memo (S), Leonard Sullivan, ODDR&E, to Lt Gen Glen W. Martin, DCS/Plans & Ops, Hq USAF, subj: Dialogue on "Commando Hunt '70," 14 Jul 69.

80. Ibid.

81. Memo (S), Lt Gen Glenn W. Martin, DCS/Plans & Ops. Hq USAF, to Leonard Sullivan, Jr., ODDR&E, w/atch, Air Staff Annotation and Analysis "Commando Hunt 70." 8 Jul 69.

82. Ltr (S), CINCPAC to JCS, subj: Revised PACOM Modern Air Munition Requirements Through CY 69 Based on Program #6, 24 Feb 69.

83. Memo (S), Brig Gen Charles W. Lenfest, Dep Dir Force Dev, Dir/Plans, DCS/Plans & Ops, Hq USAF, to Maj Gen Richard H. Ellis, Dir/Plans, subj: Improvement in TAC Air Capability to Destroy Tanks, 13 May 68.

84. JCS 1725/886-9 (S), 28 Mar 69.

85. Ltr (S), Lt Gen John W. Carpenter, III, Asst VCS, to VCS, et al, subj: Status of CBU-33 Program, 3 Oct 69; Air Muns Prod Rprt (S), 21 Sep 69.

86. Air Muns Prod Rprt (S), 27 Jan 70.

87. Project CHECO SEA Rprt (TS), Air War in Vietnam, 1968-69, p 53.

88. Draft Annual Report of the Secretary of the Air Force, FY 1968 (U), p 80, and FY 1969 (U), p 60.

89. Memo (S), Lt Col R J Cabaniss, Comd Plng Div, Dir/Plans to CSAF, subj: Revised PACOM Modern Air Munition Requirements Through CY 69 (JCS 2491/146), 19 Sep 69; talking paper (S), prep by W. B. Winters, Muns Div, Dir/Sup & Svcs, subj: FY 70 Munitions Program, 1 Jul 69.

90. Hists (S), Dir/Sup & Svcs, Jan-Jun 68, p 171; Jul-Dec 69, p 179.

Chapter III

1. Talking Paper (S), [prep. by Lt Col Ben A. Van Horn, Ofc of Asst for Log Plng, DCS/Sys & Log, for presentation to AFLC T-Day Planning Conference on 19 Nov 68], subj: Post Hostilities Planning, T-Day, 15 Nov 68.

2. Ibid.

3. White House Press Release, subj: Text of Joint Communique Issued at the Manila Summit Conference, Manila, The Philippines, 24 Oct 66, dtd 25 Oct 66.

4. Background Paper (S), [prep. by Lt Col Lloyd G. McBride, Tac & Alft Forces Div, Dep Dir for Force Development, Dir/Plans, Hq USAF], subj: T-Day Planning for Complete Withdrawal (ca Dec 68).

5. Hist (S), Asst for Log Plng, DCS/Sys & Log, Jan-Jun 68, p 49.

6. Background Paper (S), (unsgd), subj: Redeployment Planning (ca Mar 69).

7. Hq USAF Oplan 12-68, subj: T-Day Plan, 18 Sep 68.

8. Briefing (U), prep. by Lt Col Fred Jones, Ofc Asst for Log Plng, DCS/Sys &Log, to Professional Staff of the Preparedness Subcmte, Senate Armed Svcs Cmte, subj: Logistics Briefing for T-Day Planning (ca Nov 69). Hereinafter cited as Jones, Logistics Briefing for T-Day Planning, Nov 69.

9. Briefing (S), [prep. by Lt Col Ben Van Horn, Ofc of Asst for Log Plng, DCS/Sys & Log, for presentation to JCS (J-4) Conference on 3-6 Feb 69], no subj [T-Day logistics planning] (ca 3 Feb 69). Hereinafter cited as Van Horn briefing on T-Day logistics planning, Feb 69.

10. Address by President Lyndon B. Johnson, 31 Mar 68 [published in Dept of State Publication 8376, 5 Apr 68]; Msg (S), CINCPAC to JCS, subj: T-Day Planning, 280337Z Mar 69 (AFIN 10624).

11. Msg (S), CINCPAC to JCS, subj: T-Day Planning 280337Z Mar 69 (AFIN 10624).

12. Briefing (S), (unsgd), subj: MACV T-Day Planning, (ca Feb 69).

13. Background Paper (U), (unsgd), subj: The PACOM Time Phased Redeployment Troop List (PIN 5069) (ca Aug 69).

14. Msg (S), CINCPAC to JCS, subj: T-Day Planning, 280337Z Mar 69 (AFIN 10624).

15. Ibid.

16. Background Paper (S), (unsgd), subj: T-Day Planning and the Impact of Withdrawal Under the Manila Communique, 25 Apr 69, Atch 2: (S) "Is the Option Feasible?"

17. Rprt (U), Hq AFLC, subj: T-Day Planning/Freighter Cargo/ PACER HARVEST ALAT Orientation Visit to SEA, 5 Mar 69.

18. Ibid.

19. Ibid.

20. Memo (S), Lt Col Richard E. Benson, Ofc Asst for Log Plng DCS/Sys & Log, to Asst for Log Plng, subj: Report of T-Day Planning Meeting, 6-7 May 1969, 13 May 69.

21. Ltr (S), Col Charles M. Conrad, Dep Dir Log Plans, Hq TAC, to AFLC & CINCPACAF, subj: Minutes of Pacer Harvest Conference, 15 May 69, Atch 1: Minutes, Pacer Harvest Conference, 6-7 May 1969, Langley AFB, Virginia.

22. Ibid.

23. Ibid.

24. Memo (S), Lt Col Richard E. Benson, Ofc Asst for Log Plng, subj: Report of T-Day Planning Meeting, 6-7 May 1969, 13 May 69, cited above.

25. Ibid.

26. Briefing (S), prep. by Lt Col Richard E. Benson, Ofc Asst for Log Plng, subj: Briefing on T-Day Planning, undtd.

27. Background Paper (U), subj: The PACOM Time Phased Redeployment Troop List (PIN 5069), undtd.

28. MR (S), prep. by Lt Col Lloyd G. McBride, Tactical and Alft Forces Div, Dep Dir for Force Development, Dir Plans, Hq USAF, subj: The Use of Redeployment Reporting System (REDREP) for CINCPAC OPLAN 5069 (T-Day Plan) Redeployment Schedules, 17 Sep 69.

29. Minutes (S), T-Day Planning Work Group Meeting, Hq USAF, 26 Aug 69, Atch 3: (S) T-Day Planning Work Group, 26 Aug 69.

30. Msg (S), CSAF to CINCPACAF, COMUSMACV, AFLC, 7AF, subj: Nha Trang AB Turnover, 041916Z Sep 69.

31. Minutes (S), T-Day Planning Work Group Meeting, Hq USAF, 26 Aug 69, Atch 4: (S) T-Day Planning Work Group Meeting 26 August 1969, Air Staff Conclusions.

32. Msg (S), CSAF to CINCPAC, COMUSMACV, AFLC, 7AF, subj: Nha Trang AB Turnover, 041916Z Sep 69.

33. Memo (U), [prep. in Dir/Sup & Svcs, DCS/Sys & Log], subj: Transfer of Excess AF Assets at PACAF Bases to Support VNAF I&M Program (ca Nov 69).

34. Msg (S), 7AF/AFAG to CINCPACAF [info to DCS/Sys & Log, Hq USAF], subj: Vietnamese Air Force Improvement and Modernization Program, 201030Z Oct 69.

35. Memo (S), [prep. by Maj Carl Everley, Capabilities Br, Dir/ Sup & Svcs, DCS/Sys & Log], subj: CORONA TOP Action Items - VNAF Depot and Supply System, 12 Dec 69; memo (U), [prep. by Maj Everley], subj: Transfer of Excess AF Assets at PACAF Bases to Support VNAF I&M Program, (ca Nov 69).

36. Msg (C), CINCPAC to JCS, subj: Logistic Progress Report on RVNAF I&M, 170516Z Dec 69 (AFIN 33790).

37. Memo (S), John L. McLucas, Under SAF, to SECDEF, subj: Transfer of Air Force Stock Fund Assets to RVNAF, 30 Sep 69.

38. Minutes (S), T-Day Planning Work Group Meeting, Hq USAF, 26 Aug 69, Atch 3: (S) T-Day Planning Work Group, 26 Aug 69.

39. Memo (S), McLucas to SECDEF, 30 Sep 69, cited above.

40. Memo (S), Melvin R. Laird, SECDEF, to Under SAF, subj: Transfer of Air Force Stock Fund Assets to RVNAF, 10 Nov 69.

41. Memo (U) [prep. by Dir/Sup & Svcs for SAFIL], subj: Transfer of Stock Fund Assets to RVNAF, undtd (Nov 69).

42. Minutes (S), T-Day Planning Work Group Meeting, 26 Aug 1969, Atch 4: (S) Air Staff Conclusions.

43. Ibid.

44. Briefing (S) [presented by Maj Gen William B Campbell, PACAF Dir of Mat, to Lt Gen Harry Goldsworthy, DCS/Sys & Log, Hq USAF] no subj. ["Freighter Cargo"], undtd (ca Dec 69). Hereinafter cited as PACAF briefing to Gen Goldsworthy, Dec 69.

45. Memo (S), [prep. by Maj Carl Evereley, Dir/Sup & Svcs, no addressee,] subj: Disposition Instructions for Aircraft and Related Equipment/Supplies, undtd (ca Nov 69).

46. Talking Paper (TS), [unsgd], subj: SEASIA Withdrawal Planning and Vietnamizing the War, undtd (ca Nov 69).

47. Pers Sum (S), Asst for Log Plng, 19 Sep 69.

48. Hist (TS), Dir/Plans, Jul-Dec 69, p lll.

49. Talking Paper (TS), subj: SEASIA Withdrawal Planning and Vietnamizing the War (ca Nov 69), cited above.

50. Memo (S), SECDEF to JCS, subj: T-Day Planning and Force Redeployments from Southeast Asia, 29 Jul 69.

51. National Security Study Memorandum (NSSM) 36 (TS), subj: Vietnamizing the War, 10 Apr 69.

52. Memo (TS), Melvin R. Laird, SECDEF, to Secs of Mil Depts, CJCS, et al, subj: Progress on NSSM 36, 21 May 69.

53. Memo (S), Melvin R. Laird, SECDEF, to Secs of Mil Depts Army, Navy, AF, CJCS, subj: Government of Vietnam Proposals Presented at the Midway Conference, 8 June 1969, 12 Aug 69.

54. Ibid.

55. Memo (TS), SECDEF to JCS, subj: Vietnamization--RVNAF Improvement and Modernization Aspects and Related US Planning, 10 Nov 69.

56. Ltr (S), Col Howard R. Bullen, Dep Asst for Log Plng to DCS/Sys & Log, et al, subj: VNAF Improvement and Modernization Planning and T-Day Planning, 14 Nov 69. Hereinafter cited as Ltr, Bullen to DCS Sys & Log, 14 Nov 69.

57. Briefing (U), [prep. by Lt Col Delbert E. Smith, Ofc of Asst for Log Plng, for Presentation to Worldwide Materiel Conference, Ramey AFB, 5-7 Nov 69], subj: T-Day Planning, (ca 31 Oct 69). Hereinafter cited as Smith briefing on T-Day Planning, 31 Oct 69.

58. Ltr (S), Bullen to DCS/Sys & Log, et al, 14 Nov 69, cited above.

59. Report of Trip by Phillip N. Whittaker, SAFIL, to PACAF, 1-10 Dec 69, (S), 17 Dec 69.

60. Ltr (S), Bullen to DCS/Sys & Log, et al, 14 Nov 69, cited above.

61. Talking Paper (TS), subj: SEASIA Withdrawal Planning and Vietnamizing the War, (ca Nov 69), cited above.

62. Smith briefing on T-Day Planning, 31 Oct 69, cited above.

63. Ibid.

64. Ibid.

65. Ltr (U), Brig Gen Peter R. DeLonga, Asst for Log Plng, DCS/Sys & Log, to Dir/Plans, subj: Comments on AFLC-MCV 15 Dec 69 Letter "VNAF Improvement and Modernization," 30 Dec 69.

66. PACAF briefing to Gen Goldsworthy, Dec 69, cited above.

Chapter IV

1. Memo (S), Paul H. Nitze, Dep SECDEF, to CJCS, subj: RVNAF Improvement and Modernization, 16 April 1968.

2. Msg (S), CINCPACAF to CSAF, 26 Apr 68 (AFIN 38011).

3. Ltr (S), Col Joe M. Whitfield, Dep Dir Mil Asst, DCS/ Sys & Log, Hq USAF, to Air Stf agcys, subj: (S) Training in Support of VNAF Helicopter Force Expansion, 3 Oct 68.

4. Ibid.

5. Ltr (S), Maj Gen Richard H Ellis, Dir of Plans, DCS/ Plans & Ops, Hq USAF, to Dir/Mil Asst, DCS/ Sys & Log, Hq USAF, subj: (S) Training in Support of VNAF Helicopter Force Expansion, 18 Oct 68; MR (S), prep by Lt Col Billy J. Moore, Pacific-SEA Br, Dep Dir Plans & Plcy, Dir/Plans, DCS/Plans & Ops, Hq USAF, no subj, 13 Oct 68.

6. MR (S), Lt Col Billy J Moore, 13 Oct 68, cited above.

7. Ibid.

8. Talking Paper (S), (unsgd), subj: RVNAF Improvement and Modernization (ca Sep 68).

9. Memo (S), Lt Col B J Moore to CSAF, subj: RVNAF Improvement and Modernization (JCS 2472/272-7), 23 Aug 68.

10. Msg, COMUSMACV to CINCPAC, 25 Dec 68 (AFIN 32884). Cited in Background Paper (S) (unsgd) subj: VNAF Helicopter Improvement and Modernization Program (ca Jan 69).

11. Background Paper (S), (unsgd) subj: RVNAF Improvement and Modernization, Phase II Acceleration (ca Jan 69).

12. Memo (S), CSAF to JCS, subj: Acceleration of VNAF Helicopter Program, 17 Jan 69.

13. Memo (S), Paul H Nitze, Dep SECDEF, to JCS, subj: T-Day Planning and the RVNAF Improvement and Modernization Program, 18 Dec 68.

14. Talking Paper (S), (unsgd), subj: Acceleration of VNAF Helicopter Program (ca Jan 69).

15. Memo (S), Lt Col B J Moore to Asst Dir Plans for Jt & NSC Matters, DCS/Plans & Ops, subj: VNAF Improvement and Modernization Program (J-5 P2337), 11 Jan 69.

16. Memo (S), Lt Col B J Moore to CSAF, subj: Substitution of CH-34 for UH-1 Helicopters in the VNAF Improvement and Modernization Program (JCS 2472/272-29), 16 Feb 69.

17. Memo (S), (unsgd), subj: Synopsis of CSAM on Substitution of CH-34 for UH-1 Helicopters in VNAF Improvement and Modernization Program (ca Feb 69); Talking Paper (S), (Unsgd), subj: CSAM's Proposed Memo to SECDEF, (ca Feb 69).

18. Background Paper (S), (unsgd), subj: VNAF Helicopter Improvement and Modernization Program (ca Feb 69); MR (C), Maj Robert E. Pennington, Muns Pls Br, Dep Dir for Force Development, Dir Plans, subj: Logistical Support of VNAF Improvement and Modernization (I&M) Program Case No. AFIN 628887, 17 Feb 69.

19. Msg (C) DA 898803, Dept of Army to CSAF, CINCPAC, MACV, et al, subj: Logistical Support of VNAF Improvement and Modernization (I&M) Program, 26 Feb 69.

20. Msg (C) DA 898803, Dept of Army to CSAF, CINCPAC, MACV, et al, subj: Logistical Support of VNAF Improvement and Modernization (I&M) Program, 26 Feb 69.

21. Ltr (C), Thaddeus R Beal, Act Sec Army, to SECDEF, subj: Improvement and Modernization of the Vietnamese Air Force, 28 Aug 69.

22. Ltr (U), Hq US Army Pacific to distrib, subj: VNAF Logistical Support Conference, Hq USARPAC 28 April - 2 May 1969, 3 May 69, Incl 1: ISSA, 3 May 69.

23. Ltr (S), Stanley R Resor, Sec Army, to SECDEF, subj: Improvement and Modernization of the Vietnamese Air Force, 22 Apr 69.

24. Memo (S), Melvin R Laird, SECDEF, to Secs Army, AF, & CJCS, subj: Improvement and Modernization of the Vietnamese Air Force, 18 Jun 69.

25. Memo (U), Maj Gen Andrew S Low, Asst for Log Plng, DCS/Sys & Log, Hq USAF, to Ofc of Asst for Log Plng, no subj, 7 Jul 69.

26. Memo (C), Col Dayton R Raylor, Ch Ops Div, Asst for Log Plng, DCS/Sys & Log, to Maj Gen Low, subj: Helicopter Support for VNAF, 11 Jul 69.

27. Memo (TS), Melvin R Laird, SECDEF, to Secs of Mil Depts, CJCS, et al, subj: Progress on NSSM 36, 21 May 69.

28. Rprt (C), Hq MACV, subj: Country Logistics Improvement Plan, 1 Jul 69.

29. Ltr (S), Brig Gen Kendall S Young, Ch AF Advisory Gp, MACV, to Dir/Mil Asst & Sales, DCS/Sys & Log, Hq USAF, subj: VNAF Progress, 22 Oct 69, Incl 1: Tab B (S) Advisory Activities to 7AF OPlan 498-69, 22 Oct 69.

30. Ltr (U), AFGP-MDC, Brig Gen Kendall S Young, Ch AFAG to 7AF, PACAF, & Hq USAF, subj: Computerization of the Air Logistics Command Supply Account, Republic of Vietnam Air Force, 3 Oct 69.

31. Ltr (C), Brig Gen Paul F Patch, DCS/Mat, Hq 7AF, to Dir Mat, Hq PACAF, subj: Computerization of the Air Logistics Command Supply Account, Republic of Vietnam Air Force, 17 Oct 69.

32. Ltr (S), Maj Gen Roland A Campbell, DCS/Mat, Hq PACAF, subj: Computerization of the Air Logistics Command Supply Account, Republic of Vietnam Air Force, 3 Nov 69.

33. Action Item Report (U), [prep by Dir of Sup & Svcs, DCS/Sys & Log] subj: Automation of VNAF Supply System, 21 Nov 69.

34. Ltr (C), Lt Gen Harry E Goldsworthy, DCS/Sys & LMg, Hq USAF, to Gen Jack Merrell, Cmdr AFLC, no subj, 28 Nov 69.

35. Ibid.

36. SAFIL Trip Rprt, 17 Dec 69.

37. Stf study (TS), Hq 7AF/AF Advisory Gp, subj: (C) Vietnamizing the War, 20 Nov 69.

38. Report of Trip by Phillip N. Whittaker, SAFIL, to PACAF, 1-10 Dec 69 (S), 17 Dec 69. Hereinafter cited as SAFIL Trip Rprt, 17 Dec 69.

39. Memo (S), Lt Col B J Moore to CSAF, subj: GVN Proposals Presented at the Midway Conference (JCS 2472/497-3), 26 Jul 69.

40. SAFIL Trip Rprt, 17 Dec 69.

41. Pers Sum (S) Col Joe M. Whitfield, Dep Dir Mil Asst & Sales, to DCS/Sys & Log, 18 Apr 69.

42. Talking Paper (C), unsgd, subj: VNAF I&M Training (ca Aug 69).

43. Talking Paper (TS), (unsgd) subj: SEASIA Withdrawal Planning and Vietnamizing the War (ca Nov 69).

44. Pers Sum (S), Gen Larson, Dir Mil Asst & Sales, to DCS/Sys & Log, 13 Jun 69.

45. Pers Sum (S), Brig Gen Donald F. Blake, Dir Mil Asst & Sales, DCS/Sys & Log, to DCS/Sys & Log, 31 Oct 69.

46. Memo (S), Robert C. Seamans, Jr., SAF, to Melvin R. Laird, SECDEF, subj: Review of RVNAF Improvement and Modernization Program, 6 Oct 69. Hereinafter cited as Memo (S), Seamans to Laird, 6 Oct 69.

47. Ibid.

48. Ibid.

49. Stf study (TS), Hq 7AF/AFAG, subj: (C) Vietnamizing the War, 20 Nov 69.

50. SAFIL Trip Rprt, 17 Dec 69.

51. Memo (S), David Packard, Dep SECDEF, to SAF, subj: VNAF Modernization, 19 Dec 69.

52. Ltr (TS), Col. Abner M. Aust, Jr., Ch Tac Div, Dir Opns, to DCS/Plans & Ops, subj: CREDIBLE CRUSADE Final Report, 9 Jan 70, Atch 1: (TS) CREDIBLE CRUSADE Final Report.

GLOSSARY

Actg	Acting
AFAG	Air Force Advisory Group
AFLC	Air Force Logistics Command
Agcy	Agency
AGE	Aerospace Ground Equipment
AID	Agency for International Development
ALAT	Advanced Logistic Assistance Team
ALSC	Advanced Logistics System Center
AMC	Army Materiel Command
App	Appendix
Appn	Appropriation
Asst	Assistant, Assistance
BP	Background Paper
Br	Branch
ca	circa
CBU	Cluster Bomb Unit
CEM	Communications and Electronics Materiel
CJCS	Chairman, Joint Chiefs of Staff
CINCPAC	Commander in Chief, Pacific Command
Comd	Command
COMMACV	Commander, Military Assistance Command Vietnam
Comp	Comptroller
Conf	Conference
Cong	Congress
CONUS	Continental United States
CSAF	Chief of Staff, Air Force
DCS	Deputy Chief of Staff
DDR&E	Director of Defense Research and Engineering
DEPREP	Deployment Reporting
Dept	Department
dist	distribution
DSA	Defense Supply Agency
DSDC	Data Systems Design Center

ECM	Electronic Counter Measure
Engrg	Engineering
FAC	Forward Air Control
FWF	Free World Forces
FY	Fiscal Year
GEEIA	Ground Electronics Engineering Installation Agency
GSA	General Services Administration
GSG	General Support Group
GVN	Government of Vietnam
Hist (s)	History; histories
I&M	Improvement and Modernization
IM	Inventory Manager
Instl	Installations
IRAN	Inspection and Repair As Necessary
ISSA	Interservice Support Agreement
ISSL	Initial Spares Support List
JCS	Joint Chiefs of Staff
JLRB	Joint Logistic Review Board
Jt	Joint
JSL	Joint Stockage List
LIMDIS	Limited Distribution
Log	Logistic(s)
Ln	Liaison
MAAG	Military Assistance Advisory Group
MAAGV	Military Assistance Advisory Group Vietnam
MAC	Military Airlift Command
MACV	Military Assistance Command Vietnam
Mat	Materiel
Maint	Maintenance
MAP	Military Assistance Program
Mgt	Management
Msg	Message

Mil	Military
Mono	Monograph
MR	Memo for Record
Muns	Munitions
MSTS	Military Sea Transportation Service
NFN	Noforn (no foreign nationals)
NOA	New Obligating Authority
NORM	Not Operationally Ready for Maintenance
NORS	Not Operationally Ready for Supply
NSC	National Security Council
NSSM	National Security Study Memorandum
NVA	North Vietnamese Army
O&M	Operating and Maintenance
ofc	office
OJT	On-the-job training
OPLAN	Operations Plan
OSD	Office of the Secretary of Defense
PACAF	Pacific Air Forces
PACOM	Pacific Command
PBD	Program Budget Decision
PERC	PACAF Equipment Redistribution Center
Pers	Personal
Plcy	Policy
Plng	Planning
Plns	Plans
POL	Petroleum, Oil and Lubricants
prep	prepared
prgm	program
prgmg	programming
prod	production
pt	part
PURA	Pacific Utilization and Redistribution Agency
PURE	Prompt Utilization and Redistribution of Excess
RAM	Rapid Area Maintenance
R&D	Research and Development
R-Day	Redeployment Day
REDREP	Redeployment Reporting
RIPE	Redistribution of Idle Programmed Equipment

Rprt	Report
Rsch	Research
RTAFB	Royal Thai Air Force Base
RVN	Republic of Vietnam
RVNAF	Republic of Vietnam Armed Forces
SAFIL	Assistant Secretary of the Air Force for Installations and Logistics
SEA	Southeast Asia
SEASIA	Southeast Asia
Sess	Session
SMAMA	Sacramento Air Materiel Area
Spt	Support
Stf	Staff
Sum	Summary
Sup	Supply
Svcs	Services
Sys	System
TAC	Tactical Air Command
TOA	Total Obligating Authority
T-Day	Termination or Truce Day
UAL	Unit Authorization List
UE	Unit Equipment
UIC	Unit Identification Code
unsgd	unsigned
USA	United States Army
USARPAC	U.S. Army Pacific
USARV	U.S. Army Vietnam
VC	Viet Cong
VCS	Vice Chief of Staff
VNAF	Vietnamese Air Force
WESTPAC	Western Pacific
WRAMA	Warner Robins Air Materiel Area