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Counter-offensive Operations in Alaska: A Force Suitability Analysis

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This study compares the current force's capabilities and limitations for Alaskan counter-offensive operations against those of other force options.

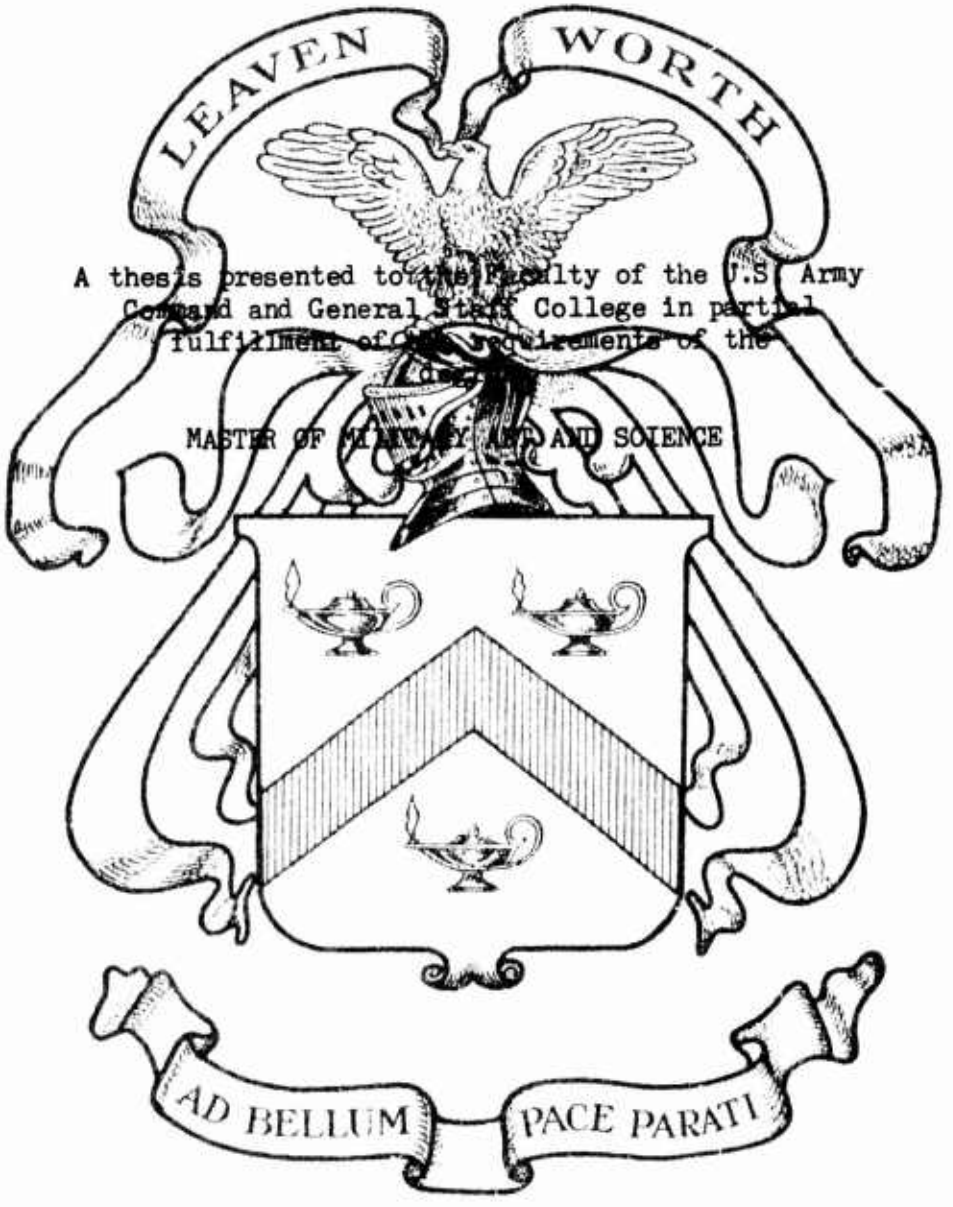
Investigation reveals that topographic changes will have no dramatic effect on the need for reliance on airmobility to provide timely response to anticipated threats.

None of the forces analyzed in this study possess sufficient means to respond adequately to all expected situations.

Expanding the airborne configuration of the present force structure will increase its capabilities dramatically and render it more suitable for counter-offensive operations in Alaska during the 1980-1990 time frame.

COUNTER-OFFENSIVE OPERATIONS IN ALASKA:

A FORCE SUITABILITY ANALYSIS



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by

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The opinions and conclusions expressed herein are those of the individual student author and do not necessarily represent the views of either the U.S. Army Command and General Staff College or any other governmental agency.
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ABSTRACT

The development of roads and facilities in support of petroleum extraction efforts has dramatically affected Alaska's topographic environment. These events suggest a need to investigate the composition of forces assigned in Alaska to determine their suitability for operations in a changing environment.

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Dedicated to the officers and men of the 172d Infantry Brigade "Snowhawks" whose courage and stamina have earned them the right to call themselves...

"GUARDIANS OF AMERICA'S LAST FRONTIER".

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CHAPTER I

INTRODUCTION

Scope

This study is specific in nature. Its primary purpose is to investigate the suitability of the 172d Infantry Brigade (Arctic) (Separate) for counter-offensive operations in Alaska during the 1980-1990 time frame.

This thesis explores the effects of the Alaskan environment on each of five infantry configurations: infantry, light, airborne, airmobile, and mechanized brigades. Given the existing specially trained force with a mix of light and airborne infantry units, how will its capabilities and limitations compare with other types of force configurations? Will developing road networks offer sufficient increased potential for ground tactical mobility to justify assignment of units configured for heavier firepower? The capabilities and limitations of the other infantry configurations will be compared against those of the 172d Brigade within the context of the Alaskan environment. Investigation will focus on two elements of combat power: tactical mobility and firepower. The goal of these comparisons is to determine whether the 172d Brigade's present Modified Tables of Organization and Equipment (MTOE) configuration will offer the best balance between firepower and tactical mobility during the specified time frame.

The need for this study is highlighted by dynamic topographic changes occurring in Alaska.

The oil fields at Prudhoe Bay present a lucrative target. When fully developed, the Alaska pipeline road network will offer the means for dramatically increased ground mobility throughout Eastern Alaska. The impact of these developments suggests a need to determine whether the present MTOE configuration of the 172d Brigade will possess adequate combat power to fulfill the needs of the 1980-1990 time frame.

Background

Alaska's 571,065 square miles of terrain,[1] roughly twice the size of Texas and one fifth the size of the remainder of the continental United States, offer a wide spectrum of obstacles to combat operations. Each of five isolated and distinct geographic regions within Alaska offers its own set of obstacles or challenges, the nature of which changes with the seasons.

Despite Alaska's immense size it currently has the least developed road system of any state. Before 1975 the relatively few miles of roadway were located largely in the south-central part of Alaska. The major portion of the state remained isolated from all high speed surface transportation means except, in some cases, water. The lack of roads has dictated a heavy reliance on air transport. There are over six hundred airfields in Alaska.[2]

Large scale combat operations in most Alaskan regions will be hampered by the requirement for development of bare bases for logistical support. Alaska's size, terrain, climate and isolation combine to favor the employment of small, highly mobile, independent task forces. The lack of sufficient roads and generally

poor cross-country trafficability have forced the 172d Brigade to tailor itself for maximum airmobility.

Discussion of what size force should be maintained in Alaska is beyond the scope of this study. It is pertinent, however, to note that the Combat Developments Agency (CDA), located at Fort Richardson, Alaska envisions employment of task forces in northern areas of brigade size or smaller regardless of the size force deployed.

Another related topic concerns the justification for maintaining a specially trained, arctic oriented force within Alaska. During 1964 the CDA position was that "...organization of specialized northern warfare units [was] not necessary or desireable."[3] On the other hand the value of maintaining a specially organized force for immediate employment in northern areas cannot be denied. The need for such a force becomes apparent in view of the increased strategic importance of Alaska created by the emergent development of Alaska's north slope oil fields. In a recent interview with the current officer in charge of CDA it was determined that the 1964 CDA position regarding force specialization is no longer held to be valid.[4] Discussion of the pros and cons in this area is purely academic since a specially trained and equipped force does exist and its composition, not justification for its existence, is the primary subject of this thesis.

Assumptions

This study is delimited by two broad assumptions to remain

valid during the 1980-1990 time frame. The first is that the nature of any threat to the security of Alaska will be of a secondary nature in the world scheme of events. It will not consist of employment of enemy forces in strength beyond the capability of a single separate infantry brigade with appropriate support to engage and defeat. The second assumption is a derivative of the first and assumes continued presence of a single separate infantry brigade of present structure in Alaska during the specified time period. Maximum economy of force will continue to be a dictatory principle for stationing U.S. Forces in Alaska.

The conclusions of this study are not necessarily dependent upon the assumptions. Larger forces deployed to Alaska in response to specific threats will probably be employed in smaller semi-independent or independent task forces. The relative effectiveness of any infantry force conducting counter-offensive operations in Alaska will be governed by the factors leading to the conclusions of this study.

Methodology

The relative combat power of the 172d Brigade is compared against that expected of other infantry brigade configurations (figure 1-1) within an Alaskan Scenario to determine which force configuration is best for counter-offensive operations during the 1980-1990 time frame.

Separate scenarios are proposed for two separate and distinct regions within Alaska. Each scenario includes a logical threat consistent with the assumptions of this thesis, a counter-offensive mission, and friendly forces.

	Firepower	Tactical Mobility
LIGHT INFANTRY	1	1
AIRBORNE INFANTRY	2	2
AIRMOBILE INFANTRY	3	4
INFANTRY	4	3
MECHANIZED INFANTRY	5	5

Figure 1-1

Comparative ranking of firepower and mobility indices in ascending order for infantry division force configurations under ideal conditions offering maximum trafficability and fields of fire for all weapons.[5]

In each scenario the suitability of each of five infantry force configurations is analyzed and compared against the 172d Brigade. In every scenario all brigades are configured by appropriate Table of Organization and Equipment (TOE) except the 172d Brigade.

The validity of this study depends upon the establishment of Alaska's unique environmental effects on tactical mobility. Chapter III explores the various aspects of those effects. It will be shown that Alaska possesses a wide spectrum of environmental peculiarities which differ dramatically between geographic regions. Those regions are identified and the major impact upon tactical mobility is determined for each region.

Chapter IV develops a logical threat for Alaska and discusses how the aspects of that threat might appear in microcosm for each Alaskan region.

A description of the 172d Brigade's present composition is contained in chapter V. Case studies of recent field training exercises are used as a vehicle for discussion of the capabilities and limitations of the brigade.

The ingredients of each of the preceeding chapters are combined in chapter VI in order to perform a force analysis for each scenario.

Findings and conclusions are contained in chapter VII.

Definitions

Northern Operations are defined as military combat operations in arctic, sub-arctic, and some areas within the North

Temperate Zone which dictate the implementation of cold weather techniques during the winter months. The term northern operations is used rather than cold weather operations to allow the parameters of this study to include employment of forces during the summer months in Alaska.

The 50° Isothermal Line circumscribes the earth's surface south of and generally parallel to the Arctic Circle. Along this line the temperature averages 50° Fahrenheit (F) for three months or less each year. Temperatures are lower the remainder of the year.[6] (figure 1-2.)

Northern Areas are those portions of the earth's surface which lie north of the 50° Isothermal Line.

Breakup is the transitional period between winter and summer. It is characterized by dynamic changes in trafficability due to the rapid movement of melting ice and snow.

Muskeg appears predominantly during breakup. The term muskeg is used all-inclusively in this thesis to refer to mud.

Permafrost occurs in both arctic and sub-arctic areas where the sub-surface of the ground is permanently frozen at varying depths depending upon the prevailing annual temperature range. The consistency of permafrost ranges from hard frozen earth to almost pure ice. In the summer and particularly during breakup, over most of Alaska, the melting of snow and surface earth causes vast areas of low flat lands to become untrafficable muskeg. In areas subject to permafrost this condition may last throughout the short summer.

Tundra refers to vast treeless plains predominant on the

North Slope and between the mountain ranges of Western Alaska. Grass and low shrubs offer no cover and little concealment on the tundra and trafficability is difficult in the summer due to an uneven surface. The water table is normally within inches of the surface and wheeled vehicles quickly become mired in muskeg.

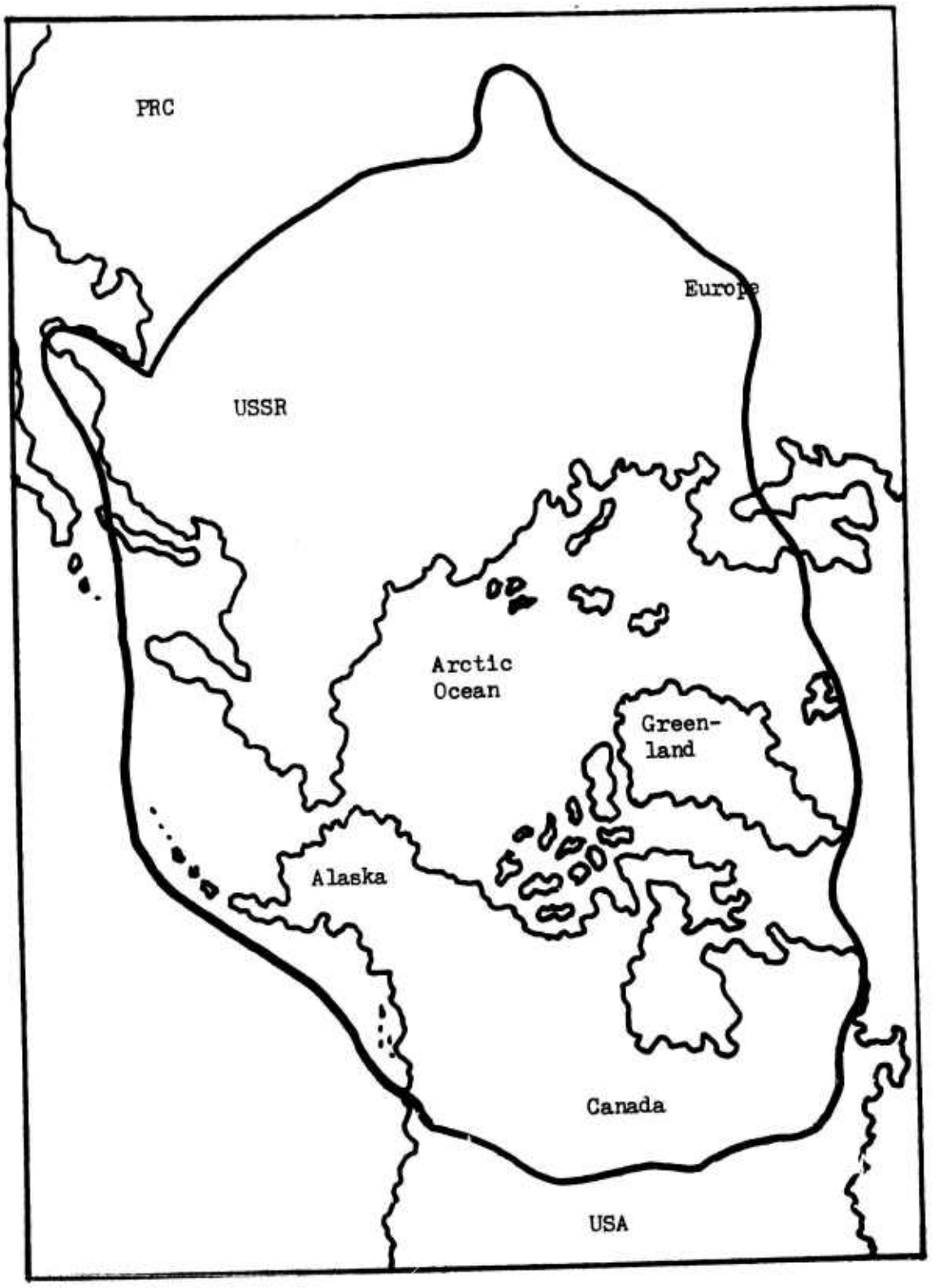

Figure 1-2

Area of northern operations circumscribed by the 50° Isothermal Line.[7]

CHAPTER II

REVIEW OF RELATED LITERATURE

This chapter reviews the literature which contributed directly to the development of this thesis. General information about northern areas, specifically Alaska, was gathered from both civilian and military publications. Pertinent historic data on Winter Warfare was gathered from accounts of Russian and German experiences in Northern Europe and from the Aleutian Campaign during World War II. U.S. Army Field Manuals provided doctrinal guidance for both the conduct of offensive operations by various infantry unit configurations and the conduct of northern offensive operations. The most important information on the techniques of northern offensive operations has been written by CDA, Alaska and by the 172d Brigade.

Specific studies of operations within Northern Areas presupposes familiarity with the environment, general topography, and other characteristics peculiar to areas north of the 50° Isothermal Line. Personal experience is the best way to gain that familiarity, but valuable supplemental data can be gathered from any encyclopedia, almanac, or authoritative periodical such as Alaska magazine.

A logical start point for a description of Northern Areas and their effects on military operations is Department of the Army Field Manual (FM) 31-71, Northern Operations. Emphasis on small unit operations under decentralized control is stressed and

"Mobility is a cardinal principle of [northern] operations..." FM 31-71 provides doctrinal guidance for the conduct of counter-offensive northern operations. Superficial treatment is afforded to airmobile operations.

FM 31-70, Basic Cold Weather Manual and FM 31-72, Mountain Operations provide additional doctrinal background essential to an understanding of northern operations. FM 31-70 provides information regarding required individual skills and equipment for effective operations in the north. Section III of chapter four of FM 31-70 is outdated and is being rewritten to include care and maintenance of the newer issue metallic skis and newer ski training techniques. The environmental parameters of FM 31-72 include a good portion of Northern Areas, particularly Alaska.

Many important reference documents have been produced by CDA. Of primary importance to this study are CDA's General Concept of Northern Operations and General Concept of Small Scale Northern Operations, both of which are intended to supplement and to indicate necessary adaptations to doctrine contained in FM 31-70 and 31-71. The latter CDA document stresses the importance of small unit semi-independent actions and specifies two capabilities as essential; "Full cross country mobility..." and "Mobile direct support logistical elements, capable of moving with supported forces." The importance of helicopter movement is stressed as a prime factor in northern area mobility. The defense of installations separated in many instances by vast distances is described as being accomplished most often by offensive or counter-offensive operations.

A CDA study related to this thesis which highlights the importance of small unit operations is entitled Small Unit Navigation in Underdeveloped Northern Areas. A pertinent bibliography is contained in this document.

William Cash's Northern Operations defines the 50° Isothermal Line. His thesis, written in partial fulfillment of the requirements for Master of Military Art and Science degree at Fort Leavenworth, Kansas, provides a northern area study. He establishes through Clarence Jones' The World's Nations that Alaska possesses the most hostile environmental extremes of any of the world's northern areas. Several of Cash's conclusions are relevant to this study. He, like CDA in its study, Organization and Equipment Modifications for Operation of ROAD Divisions in Northern Areas, concludes that unit tables of organization and equipment must be modified for northern operations. He reinforces the proponency for offensive operations by independent task forces, though he feels that these forces may be as large as division size.

Brigadier General Willard Pearson, in his Army magazine article, June 1966, "Fit to Fight Where?", agrees with Cash's claim that units must be specially trained and equipped for extended northern operations. General Pearson goes one step farther and proposes a justification for maintenance of a "specialized" arctic unit. He uses World War II experiences of the 10th Mountain Division and the U.S. Army in the Aleutian Campaign to illustrate his point.

Hal Burton's The Ski Troops provides a detailed history

of the 10th Mountain Division.

The problems of air trafficability and troop committment and support in the Aleutian Islands are highlighted in Brian Garfield's history of that campaign in The Thousand-Mile War.

World War II combat experiences in Finland and Russia are documented in several publications germain to this study.

Finnish techniques for conducting rapid cross-country movement with small, lightly equipped forces are cited in CDA's Strike Force Operations in the Far North.

The German experiences against the Russians in World War II contain several pertinent combat examples. The effects of snow on mobility for both sides and Russian methods of overcoming difficulties are reported in a translated study entitled Combat in Deep Snow, written after the war by a German officer, Lothar Pendulic. Experiences in the Caucasus Mountains including German principles of mountain warfare, particularly the techniques used by ski troops is reported by the Historical Division of HQ USAREUR in Mountain Warfare. The same source reports various effects of winter combat in a translated study entitled Small Unit Actions During the German Campaign in Russia.

The difficulties of sheltering forces and creating logistical bases in an undeveloped arctic region are underscored in Edmund Mueller's U.S. Army War College thesis, The Arctic Base.

The doctrinal basis from which to investigate the various infantry configurations for combat is obtained from Department of the Army Field Manuals. Since this study uses the existant separate light infantry brigade in Alaska organized under MTOE 77-102H, as a frame of reference, a logical start point for the

investigation of capabilities and limitations of various infantry configurations is FM 7-30, The Infantry Brigades, which discusses the separate brigade in chapter three. FM 7-30 "...provides doctrinal guidance for the employment of the infantry, airborne, airmobile, light, and mechanized-type brigades." Offensive operations are discussed in detail, but a doctrinal discussion of infantry units in northern operations is found in FM 61-100, The Division. Within the short paragraph on northern operations, reference is made to FM 100-5, Field Service Regulations-Operations, for general considerations in northern operations, and FM 31-70, and 31-71, both discussed earlier in this chapter.

Also pertinent to the investigation of capabilities and limitations of infantry units are FM 7-10, The Rifle Company, Platoons, and Squads, and FM 7-20, The Infantry Battalions.

Doctrinal background regarding airmobile operations is found in FM 57-35 and discussions in later chapters regarding possible use of armored cavalry are based on doctrinal guidance found in FM 17-36.

The U.S. Army Concepts Analysis Agency provided the necessary source for determining the ranking of firepower and tactical mobility of infantry units. Their document entitled Weapons Effectiveness Indices/ Weighted Unit Values explains the criteria and methods used to obtain the data listed in figure 1-1 of this thesis.

A primary resource document for this study is a manual entitled Operations in Alaska, produced by the 172d Brigade and used as a field guide for forces operating in Alaska. The

manual's primary purpose is to supplement existing field manuals, particularly on the subject of northern airmobility. The operational techniques discussed in the manual were developed during the four field exercises used as case studies within this thesis. These exercises, documented officially in after-action reports, were Ember Dawn IV (August, 1972), Ace Card V (December, 1972), Ace Card VI (February, 1973), and Ember Dawn V (August, 1973).

Ember Dawn IV was conducted at King Salmon, Alaska. Ace Card VI was conducted in Nome, Alaska. Both exercises were designed to test the brigade's ability to move great distances under varying conditions and to conduct effective airmobile counter-offensive operations on the Alaskan periphery. Ace Card V and Ember Dawn V were conducted near Fort Wainwright, Alaska as a test of the unit's ability to defend a main base complex using airmobile counter-offensive techniques. All four were joint exercises employing all 172d Brigade units plus a major portion of USARAL assets, Alaskan Air Command, Military Airlift Command, and Canadian exchange infantry units.

Progress reports on the month-by-month development of the Alaska pipeline and its supporting road network are contained in the 1974 editions of Alaska magazine. The six issues from July through December 1974 are pertinent to this story.

CHAPTER III

THE ENVIRONMENT

General Characteristics

Alaska's dramatic environmental variations represent the entire spectrum of the world's arctic and sub-arctic characteristics.[1]

The state is divided latitudinally into three land masses by its two major mountain ranges. The Brooks Range in the north separates the northern arctic region from the interior of Alaska. The Alaska Range separates the interior from southern Alaska. Both ranges span nearly the entire state and present formidable obstacles to north-south land traffic. Few mountain passes exist which are not glacially extruded and trafficable only to well trained foot troops. Mount McKinley, highest peak in North America and "tallest in the world from foot to peak",[2] lies at the heart of the Alaska Range.

As a general rule the hundreds of river systems may be considered obstacles to lateral movement during the summer and particularly during breakup. Most rivers are not fordable because of their swift current, but may be considered major avenues of approach during most of the winter season. Most of the rivers, when free of ice, are suitable for riverine operations except during breakup when river travel is rendered dangerous by ice flows. The largest river systems run through interior Alaska, generally from east to west. The largest of these, the Yukon

River, spans the entire state and is navigable to shallow draft, sea going vessels for approximately three months each year.

Road systems are limited. Alaska's two largest cities, Anchorage and Fairbanks are connected by two lane, partially paved highway which also connects both cities to the Alaska-Canada (ALCAN) Highway and provides the only ground access to Canada and the continental United States. Anchorage possesses the best developed local road system connecting it to several cities along the southern coastline, however this road net is subject to closure by avalanche and washout during much of the year. A single standard gauge rail line connects Fairbanks with sea ports at Anchorage, Seward, and Whittier. Most of Alaska's cities, including its capital at Juneau, possess no inter-connecting roadways and are isolated to all but air or water communications. Prior to 1975 Alaska's entire road net reached less than one fourth of the state. Since 1975 roads have been built north of Fairbanks in support of Trans-Alaska Pipeline operations. Of primary military importance is a road connecting Fairbanks with Prudhoe Bay on the northern coast. This development impacts dramatically on the tactical environment by approximately doubling the length of Alaska's road network and providing road access to the entire eastern portion of the state.[3]

Cross-country trafficability is virtually non-existant for wheeled vehicles throughout most of Alaska. Off-road trafficability for tracked vehicles varies greatly from region to region depending upon the season and the condition of the snow in the winter. Seldom do conditions permit any form of vehicular cross-country movement during breakup.[4]

An overview of the types of threats to Alaskan installations or terrain must consider the effects of the sheer vastness of territory on the ability to defend all possible targets. The impossibility of any such task within reasonable manpower limits leads to a logical conclusion that defensive plans will normally be offensive in nature. Specifically, the defense of Alaska requires planning for regaining whatever piece of terrain an enemy should decide to occupy. Thus any force charged with the defense of Alaska must be offensively oriented.[5]

Analytically, Alaska is divided into five separate and distinct geographic areas, each with its unique environmental peculiarities. The areas are: the "Panhandle" (or Southeastern Region), Interior Alaska, the Arctic (or North Slope), the South-central Region, and the Aleutian Chain.[6] The 172d Brigade prefers to use a more tactically oriented division of terrain providing a more accurate delineation between environmentally homogenious regions. These regions are: The Arctic Slope, The Interior, The Bering Coastal Region, The Alaska Gulf Region, and Insular Alaska.[7] (figure 3-1.)

The Arctic Slope

The barren northern plain stretching from the Brooks Range northward to the Arctic coast presents the most hostile operational environment in Alaska. It is not the coldest region nor is the ground often covered by more than one foot of snow, however its inhospitable terrain and climate during winter make operations difficult.

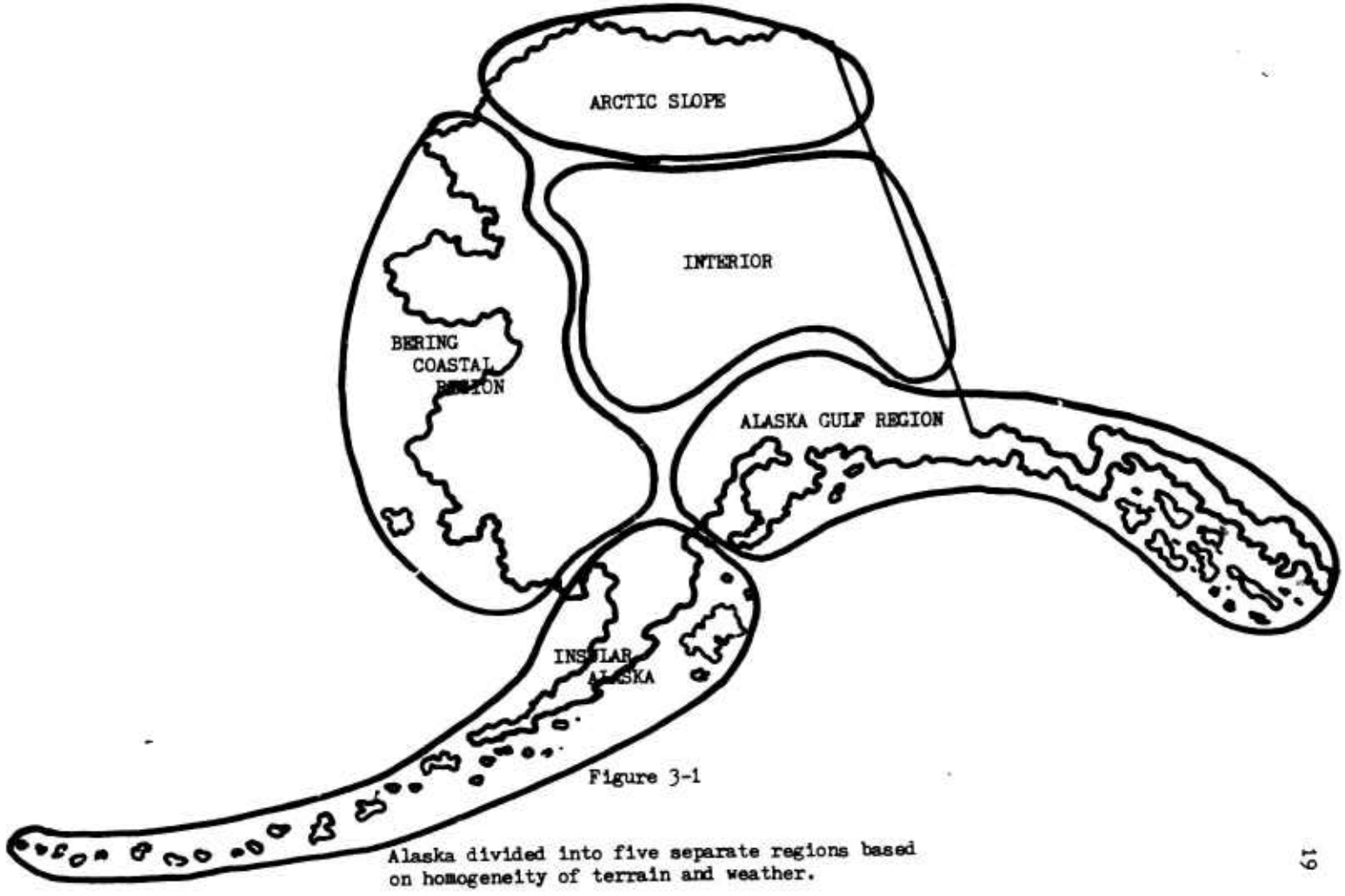

Figure 3-1

Alaska divided into five separate regions based on homogeneity of terrain and weather.

During the summer the tundra is a vast mosquito ridden bog over which foot movement is difficult and slow. Stunted grass and bushes offer scant covering for muskeg of varying depth on a base of permafrost. The area is impassable during this time for wheeled or tracked vehicles. During the nine month winter trafficability changes radically, offering unrestricted movement to foot troops and tracked vehicles.

There are many small airfields suitable for military operations and several paved strips suitable for jet aircraft. These strips provide the only year-round communications link between the isolated communities of northern Alaska.

Observation and fields of fire are generally excellent. The terrain consists almost entirely of flat plateaus near the Brooks Range and flat to gently rolling plains near the coast.

Lack of vegetation makes concealment difficult. Stream beds and depressions offer limited cover from direct fire. A high water table over permafrost precludes the digging of emplacements.

Snowdrifts caused by incessant winds offer the only obstacles to cross-country movement of tracked vehicles in the winter. Wheeled vehicles normally generate too much ground pressure and break through the crusted snow. In the summer the predominance of muskeg throughout the region presents an obstacle to all methods of ground movement.

All man made features such as villages, airfields, the Prudhoe Bay oil facilities, and the Trans-Alaska Pipeline road are considered key terrain.

Ground avenues of approach to key terrain are unlimited in the winter and almost non-existant during the summer except along the pipeline road from the south. Sea lanes are open for approximately six weeks each summer, but are restricted by ice floes.[8]

The Interior

Interior Alaska is located in the geographic center of the state between the Brooks and Alaska Ranges. Its terrain slopes gradually from the Canadian border to the Bering Coastal Region in the west. Land formations include several minor mountain ranges and belts of dense forest interspersed over wide ranges of tundra and brushy plains. Several major rivers traverse the region.

Alaska's most extreme temperatures are found in this region. The annual temperature variation ranges from plus 90°F to minus 70°F.

Three major military installations are located in The Interior. Fort Wainwright, Fort Greely, and Eieleson Air Force Base are all connected by road to the region's largest city, Fairbanks. This road system currently connects with the roads to Prudhoe Bay and to Anchorage.

The heavily forested areas offer poor observation and fields of fire. Conditions on the tundra are the same as for the Arctic Slope.

Cover and concealment are excellent below the 3,000 foot level in the mountains and in the forests. Permafrost is prevalent and impedes digging.

Cross-country mobility is hampered in the summer by the tundra and the many rivers. These areas are not obstacles in the winter when the land freezes over, however the region is subject to large accumulations of light powder snow which is an obstacle to all forms of cross-country movement. The mountains and forests are year-round obstacles to all but foot traffic. Temperatures may become so severe in the winter that they are often considered an obstacle to tactical mobility by units stationed in Alaska.

The military installations, Fairbanks, the railroad, and the highways are key terrain.

The Yukon River provides the only avenue of approach from the west. Roads provide avenues of approach from the north and the south.[9]

The Bering Coastal Region

The flat treeless plain bordering the Bering Sea is considered separately from other regions because its climate is rendered unique by maritime air masses. The region includes several marshy delta areas where the larger rivers flow into the sea. Otherwise it consists of barren hills rising inland.

The influence of the sea currents renders the climate milder in the winter than that found in The Interior except on the Seward Peninsula and northward where the winter temperatures drop as low as minus 40°F.

The maritime effect on the region results in less stable weather than in either of the previous regions discussed. Strong winds, low ceilings, and a greater amount of precipitation are

prevalent throughout the year.

Observation and fields of fire are excellent throughout the area. Observation is often hindered by weather.

The low lying hills will support all types of vehicular traffic in the summer. The delta areas are untrafficable. In the winter the entire region is trafficable to tracked vehicles.

The airfields at Nome, Kotzebue, and Bethel are key terrain.

Sea avenues of approach from the west are unlimited in the summer. In the winter the sea approaches are frozen from Nome northward. No land avenues of approach exist.[10]

The Alaskan Gulf Region

This region offers a combination of most of the environmental features found in all of the other areas. Its boundaries include the Alaska Range which contains numerous peaks taller than 10,000 feet. The lower slopes of the mountains are heavily forested. There is little coastal plain. In many areas the mountains drop precipitously into the sea. The largest relatively flat area within the region is the Matanuska Valley which contains the largest population centers in the state including Anchorage, Fort Richardson, and Elmendorf Air Force Base. Most of Alaska's road net lies within this area.

The summers are cool and the winters are relatively mild except in the mountains where arctic conditions prevail year-round.

Weather conditions vary greatly from one locale to another. Generally the best weather occurs during the winter months. Overcast skies prevail in the summer. Generally difficult flying conditions occur in this region because of atmospheric turbulance

and unpredictable weather.

Observation and fields of fire are restricted in most areas by broken and heavily forested terrain.

Cover and concealment are excellent throughout the region.

The mountains covering most of the area present a formidable obstacle to vehicular traffic. Tracked vehicles are restricted to road nets except in the Matanuska Valley and parts of the Kenai Peninsula. Foot movement is difficult and is restricted to troops trained in mountain techniques.

Key terrain consists of the Anchorage Borough with its military complexes, well developed airfields servicing approximately thirty towns, the seaports at Seward, Valdez, and Whittier, the railroad, and Alaska State Highway 1 which connects Seward and Anchorage with Fairbanks and Canada.

Avenues of approach from the sea are unrestricted. Land avenues of approach exist from north and south of Anchorage along the roads.[11]

Insular Alaska

This region contains Alaska's most formidable obstacles to offensive operations. Most of the islands consist of barren mountains rising out of the sea. Insular Alaska's challenge is weather. The islands in the Aleutian Chain average two to four clear days per month annually. Frequent gale force winds and fog make flying hazardous.[12]

Observation and fields of fire are generally unrestricted by terrain. Vegetation is sparse and consists of little else but grass except on the north end of Kodiak Island which is

heavily forested.

Concealment is poor, but adequate cover can be obtained as there are abundant folds in the predominantly rocky terrain.

The mountains act as obstacles. Little of the area is trafficable to tracked vehicles. Foot troops must be trained for mountain warfare.

Key terrain consists of major airfields at King Salmon, Port Heiden, Cold Bay, Kodiak, Adak, and Shemya.

There are no land avenues of approach. Sea approaches are unlimited, however landing areas are scarce.[13]

An Alternate Approach

Division of Alaska into the five regions just described is based upon specific criteria developed by the 172d Brigade for categorization of terrain and weather to suit its own needs. This method of partitioning the terrain serves as well as any other for a general description of th Alaskan environment and the unique characteristics of its parts, but should not be construed as necessarily the only, or even the best, method. Varying criteria will produce a differing apportionment of terrain.[14]

All of the regions except parts of the Alaskan Gulf provide excellent observation and fields of fire. Conversely, this area is the only one which possesses excellent cover and concealment. Within these criteria Alaska may be divided into two regions. South-central Alaska and the Panhandle are separate and distinct from the remainder of the state.

The many obstacles to ground mobility may be appraised as a whole or individually. Consideration of mountains as a

separate obstacle results in a primary compartmentalization into three regions using the Brooks and Alaska Ranges as boundaries. Adding the river systems might result in further division.

Selection of key terrain as a criterion will probably result in dividing Alaska into a western and an eastern region with the Panhandle considered separately. All the road systems, major military installations, and large cities are in the east. Key terrain in the west consists solely of airfields large enough to handle jet aircraft.

Another system of regional classification might be based upon the tactical capabilities of a unit selected for employment in Alaska. Wheeled vehicles, for example, are the primary means of mobility for infantry.[15] Retention of that capability would limit an infantry brigade's effective zone of action to eastern Alaska where a suitable road network exists. An airmobile brigade, on the other hand, is less restricted to road systems.[16] Its limitations for tactical mobility throughout the state are the weather and the positioning of refueling and rearming sites.

This study uses firepower and tactical mobility as criteria for dividing Alaska into two separate and distinct regions illustrated in figure 3-2. Maintenance of a unit's relative firepower ranking as illustrated in figure 1-1 are considered a function of its ability to maximize use of its assigned tactical vehicles.

For convenience the two regions are labeled "Interior" and "Exterior". The Interior Region includes that area in which each of the five infantry force configurations are capable of

maximizing their combat power through the use of existing road nets for tactical mobility. The Exterior Region contains no roads and restricts the tactical mobility of one or more of the five infantry unit configurations.

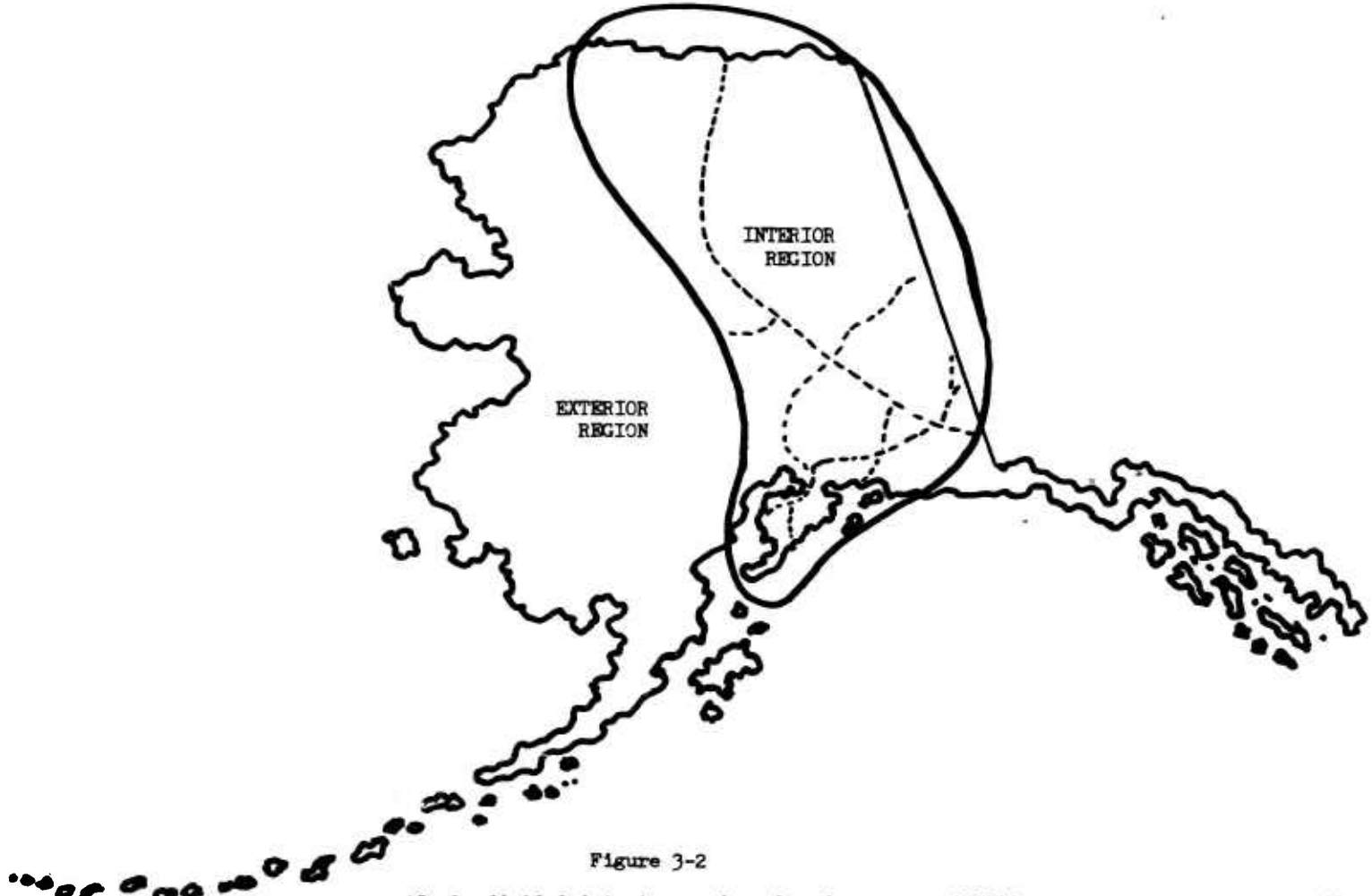

Figure 3-2

Alaska divided into two regions based on accessibility by road (roadnet indicated by dotted lines).[7]

CHAPTER IV

THE THREAT

Introduction

Development of a threat to Alaska within the parameters of the assumptions stated in chapter I limits the enemy force to approximately a reinforced infantry battalion.

This chapter investigates the most likely targets and missions for an enemy force of suitable composition, proposes a threat situation for each of the two Alaskan regions developed in chapter III, and discusses the plausibility of such an attack.

The resulting threat for each region will be used to develop separate counter-offensive scenarios in chapter VI against which each type of infantry brigade can be verbally wargamed in order to provide suitability comparisons.

General Situation

Toward the end of the 1970-1980 time frame previously amicable relations between North Atlantic Treaty Organization (NATO) Forces and major eastern powers began to deteriorate. In 1980 the Eastern Bloc enemy countries, after an unannounced withdrawal from the United Nations, suddenly invaded Western Europe. After initial successes the enemy advance toward the Atlantic coast of Europe began to lose its impetus and then faltered as NATO resistance stiffened. Taking advantage of a three month stalemate during which neither side was able to advance significantly, NATO was able to assemble sufficient forces

within Western Europe to initiate a successful counter-offensive in early 1981. Pushed eastward at an alarming rate, morale and discipline in the enemy satellite armies began to deteriorate.

In an attempt to draw off American Forces from Europe and thereby prevent total defeat in Central Europe, the enemy powers conducted a diversionary attack into the Middle East in September 1981.

Initial enemy armored advances into the Middle East met little resistance. American Forces were rushed into the Middle East from the United States as quickly as possible, but by January 1982 most of the oil producing lands were under enemy control.

Initiation of strict rationing in the United States and increased petroleum production from the Alaskan oil fields allowed the American Government to supply NATO Forces with enough oil to continue operations in Europe despite discontinuation of mid-eastern oil supplies.

By the winter of 1983-84 the European front was stabilized in Central Europe with neither side able to initiate major offensive operations. American Forces in the Middle East were gaining ground slowly against enemy forces.

During the three year conflict both eastern and western powers had maintained nuclear preparedness and had contemplated initiation of nuclear attacks during periods of crises. Neither side had, however, been willing to risk nuclear holocaust.

Special Situation (Interior Region)

The enemy powers reasoned that denial of Alaskan oil

for a period of thirty days would reduce fuel supplies to NATO Forces sufficiently to insure success of a planned enemy spring offensive in Europe.

In February 1984, enemy forces conducted a battalion sized airborne assault to secure the undefended airfields at Prudhoe Bay and Deadhorse, Alaska. The infantry battalion was reinforced with artillery and engineers. The enemy force's mission was to establish a forward base at Prudhoe Bay and neutralize oil production facilities. An additional mission was to retain the objective for thirty days in order to prevent repairs (figure 4-1).

Special Situation (Exterior Region)

The enemy's determination to stop the flow of Alaskan oil was frustrated by two major factors. First, sufficient forces for major ground operations were not available because of requirements on European and mid-eastern battlefields. Second, Eastern Asia lacked properly developed air bases close enough to Alaska to support effective air attacks.

After several abortive long range air attacks were conducted a plan was adopted to seize an airfield on the Alaskan west coast. The enemy selected King Salmon Air Force Station (KSAFS) as a base from which short range air strikes could be successfully launched against the Alaska pipeline, the pipeline terminus at Valdez, and the oil shipping lanes.

In February 1984 an enemy reinforced airborne infantry battalion conducted an airborne assault to secure the lightly defended base at King Salmon (figure 4-2).

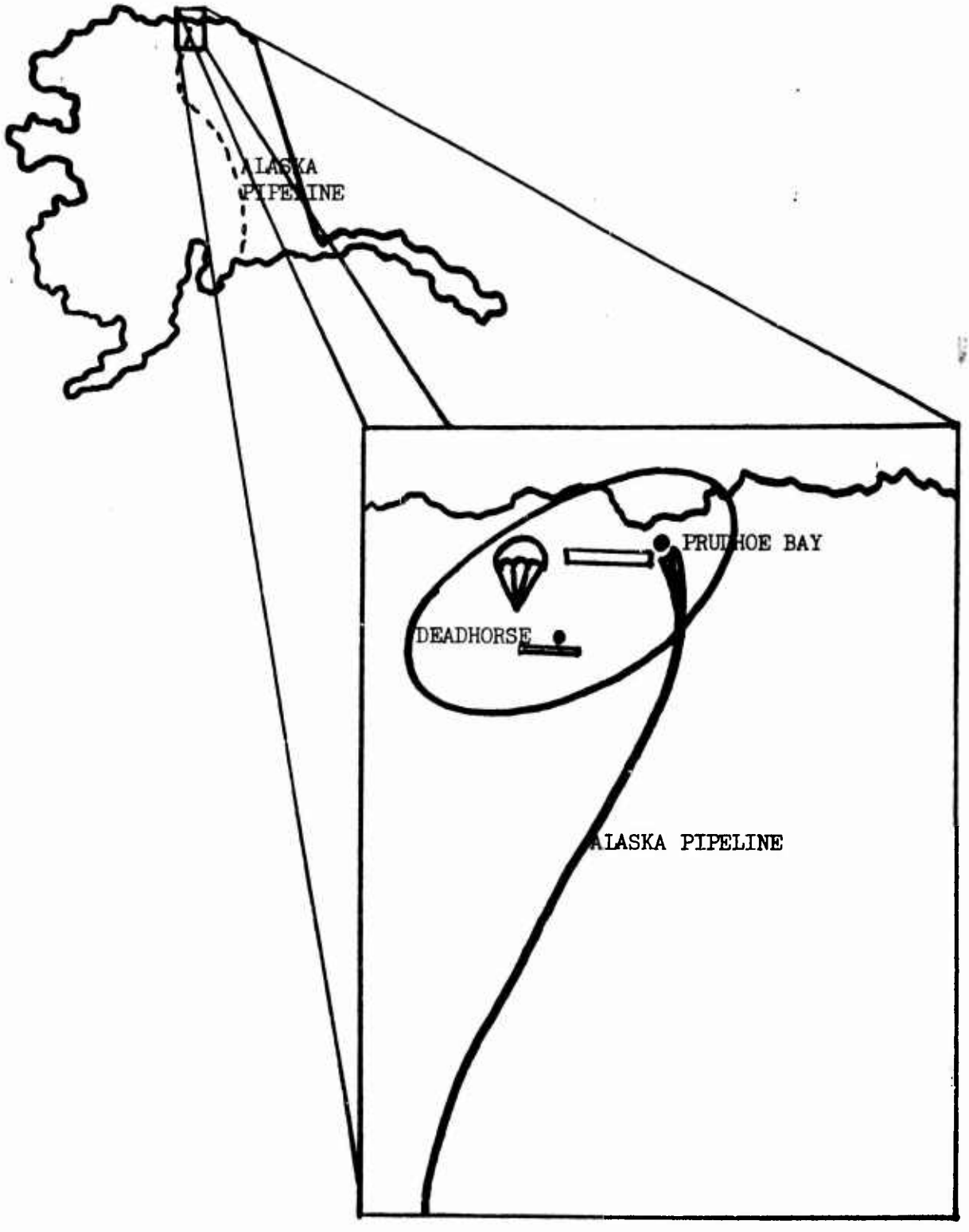

Figure 4-1

Aggressor airborne assault to secure
airfields at Prudhoe Bay and Deadhorse.

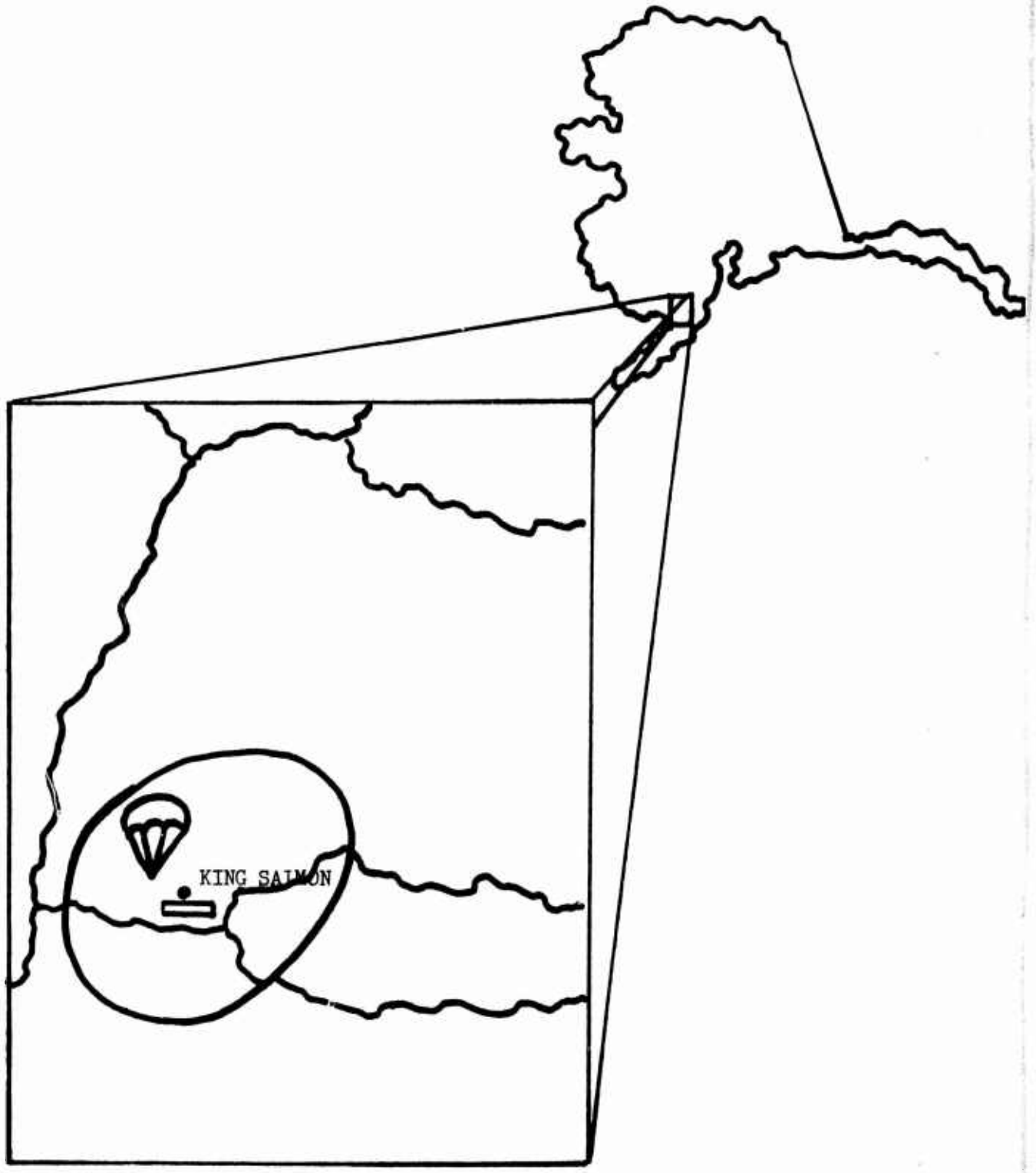

Figure 4-2

Aggressor airborne assault to seize King Salmon Air Force Station for use as a tactical fighter rearming and refueling site.

After securing the facilities at King Salmon the battalion's mission was to prepare the airfield to receive follow-on airlanded combat elements of an airborne regiment within four days.

Once effectively secured the airfield was to be used as a rearming and refueling site for an enemy tactical fighter aircraft unit.

Discussion

Discussion of a major invasion of Alaska, while beyond the scope of this thesis, helps to put the more likely threat into perspective. A major attack to seize Alaska might occur as illustrated in figure 4-3. Attacks are initiated from the Asian mainland against airfields along the Bering Coastal Plain. These airfields are used as forward bases from which to launch attacks against major base complexes at Fairbanks and Anchorage. Having secured these objectives the enemy would control the major portion of the state including all interior lines of communication.

The unlikelihood of a major campaign to seize the entire state of Alaska becomes apparent during discussion of the reasons for such an attack.

Use of Alaska as a forward base from which to launch an offensive thrust against the North American heartland must consider an enemy dependence upon extremely long and tenuous supply lines opposing Canadian and American interior lines of supply. The enemy logistical system would be dependent upon air lines of communication. The attack would have to be continued by air against warned and mobilized forces. A more practical course of action, if logistical bases were needed at all in Alaska,

would probably be to conduct an attack against the western United States while simultaneously seizing airfields on the Bering Coastal Plain for rearming and refueling purposes. Destruction of the airfields at Fairbanks-Eieleson and Anchorage-Elmendorf would effectively deter air interference with operation of the captured logistical bases. The success of this kind of venture is unlikely in the absence of preemptive nuclear strikes against selected targets throughout North America. In any event Alaska's environmental impact on operations would probably dictate bypassing Alaska entirely.

Another purpose for seizing Alaska might be possession of natural resources, particularly oil. Such a course of action might be pursued in terms of long range gain if the oil could be moved to refineries with impunity and if counter-offensive operations could be prevented. Both of these events are unlikely. The need for natural resources is an impractical reason for seizing Alaska since more lucrative and more vulnerable targets lie elsewhere in the world.

A more likely purpose for attacking Alaska in strength would be to deny American use of natural resources or airfields. These objectives could be attained without resort to a major campaign. The Japanese, for example, fearing American use of the Aleutians as a base from which to launch air attacks against Japan, seized Kiska and Attu in 1942 as a denial measure.[1]

The Aleutian experience sets the scene for a much more likely enemy scenario; seizure of unoccupied soil for denial or diversionary purposes in support of major campaigns elsewhere

in the world. The Japanese occupied Attu and Kiska with a relatively small force. Major counter-offensive operations under extreme environmental difficulties were required to eject the Japanese from the Aleutians.[2]

Thus, it is logical to assume that a likely enemy threat to Alaska consists of seizure of an installation by a small force for either denial or diversionary reasons. Denial of Alaskan oil during a critical period in a major overseas war could be accomplished by a small force conducting raid operations to cut the pipeline in any of several places along its more than seven hundred mile length between Prudhoe Bay and Valdez.[3] Seizure of the airfield at Nome, King Salmon, or any of several other suitable locations far from friendly forces would provide a facility for rearming and refueling aircraft for bombing missions further into North America on at least a short term basis.

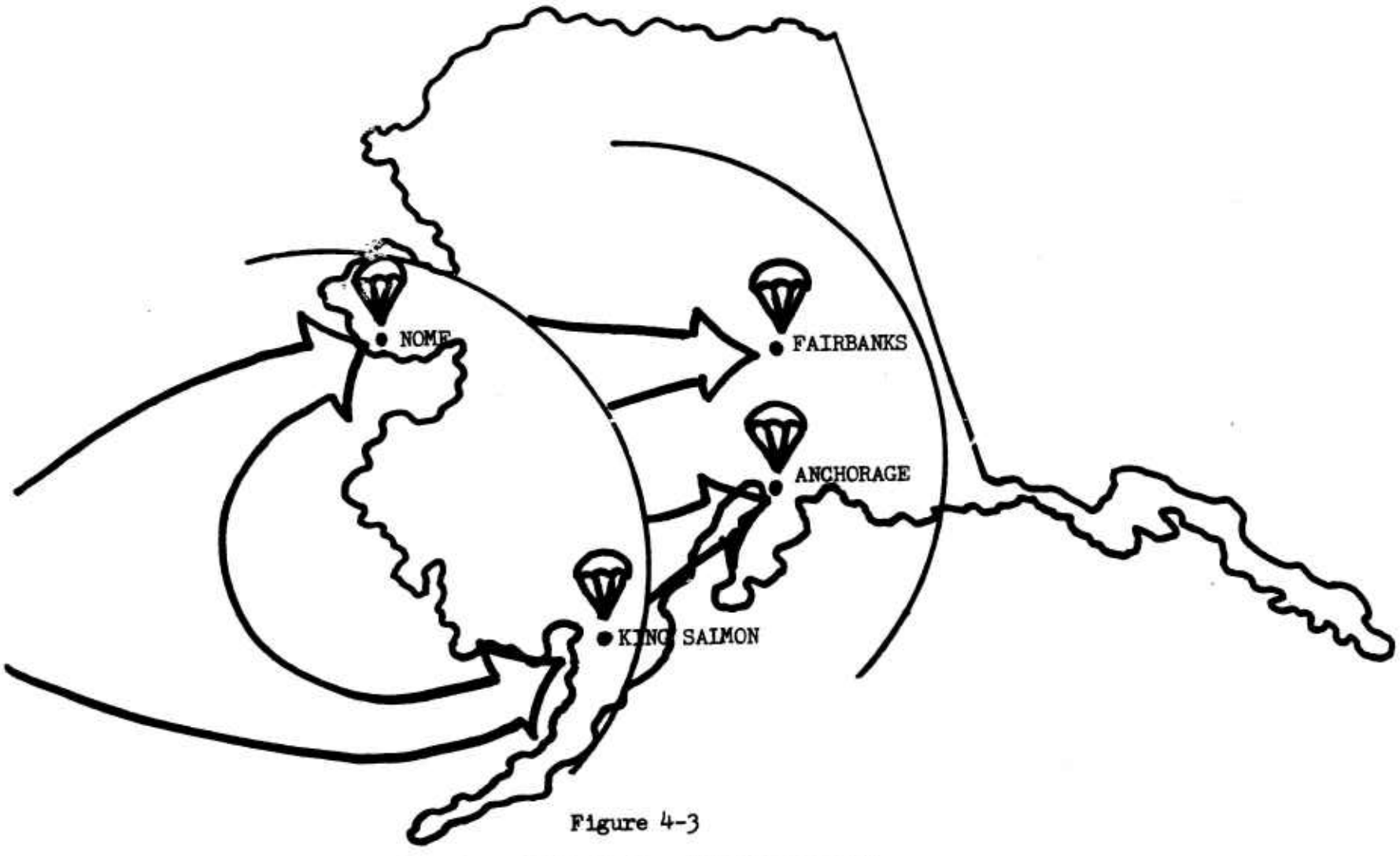

Figure 4-3

Invasion of Alaska by airborne assault. Initial objectives at Nome and King Salmon are seized as forward bases from which to conduct subsequent airborne attacks to seize Fairbanks and Anchorage.

CHAPTER V

THE 172d INFANTRY BRIGADE (ARCTIC) (SEPARATE)

Introduction

This chapter examines the composition of the 172d Brigade and discusses its capabilities and limitations. Peculiarities of configuration which distinguish the 172d Brigade MTOE from that of a TOE infantry brigade are highlighted. Case studies of two recently conducted joint field training exercises are examined in order to clarify the brigade's employment techniques within the Alaskan environment.

Composition

The 172d Brigade is organized as a separate light infantry brigade in accordance with MTOE 77-102H. The brigade's configuration is illustrated in figure 5-1. It consists of a brigade headquarters and headquarters company, three infantry battalions, a field artillery battalion, a support battalion, an air cavalry troop, and a combat engineer company.

The major differences between the configuration of the 172d Brigade and that of other infantry brigades appear in the composition of several elements. Each infantry battalion has three rifle companies, one of which is airborne. The heavy mortar platoons within each combat support company are equipped with 81mm mortars in lieu of the normal 4.2 inch mortars. The scout platoons in the combat support companies have no vehicles.

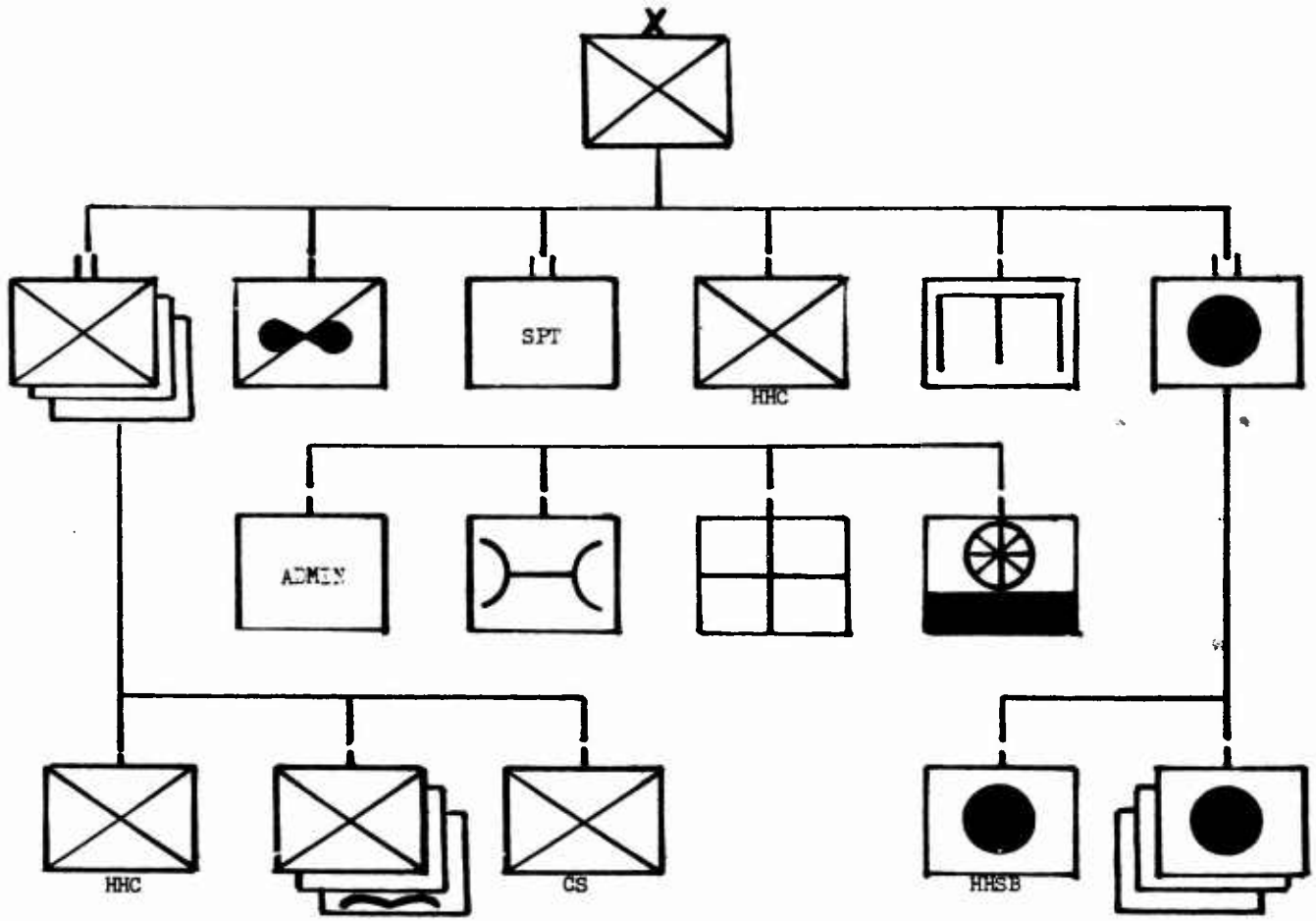

Figure 5-1

Organization of the 172d Infantry Brigade (Arctic) (Separate).[1]

The artillery battalion has two 105mm howitzer batteries (towed) and one 155mm howitzer battery (towed). The aviation section of the brigade headquarters and headquarters company is equipped with twelve OH58 and two UH1 helicopters. The support battalion consists of an administration company, a medical company, a supply and transportation company, and a maintenance company.

Rotary winged transportation is provided by the 222d Aviation Battalion. While the aviation battalion is not assigned to the separate brigade, discussion of the brigade's techniques for conducting counter-offensive operations in Alaska must include the aviation battalion since the brigade considers its airmobile role as primary to operations throughout Alaska. The aviation battalion contains all types of rotary wing aircraft currently in the active U.S. Army inventory, including the CH54. The battalion is capable of moving all assault elements of one infantry battalion in a single lift.[2]

Neither the 172d Brigade nor the 222d Aviation Battalion are located at a single base. Both units are fragmented between Forts Richardson and Wainwright as illustrated in figure 5-2.

Capabilities

The 172d Brigade is capable of conducting sustained ground operations throughout Alaska under all terrain and weather conditions. No special training or personnel/equipment augmentations are required for extended operations in cold regions. All personnel assigned to the brigade undergo cold weather indoctrination and sustained mountain, riverine, ski, and survival training. All units possess appropriate equipment for northern operations.

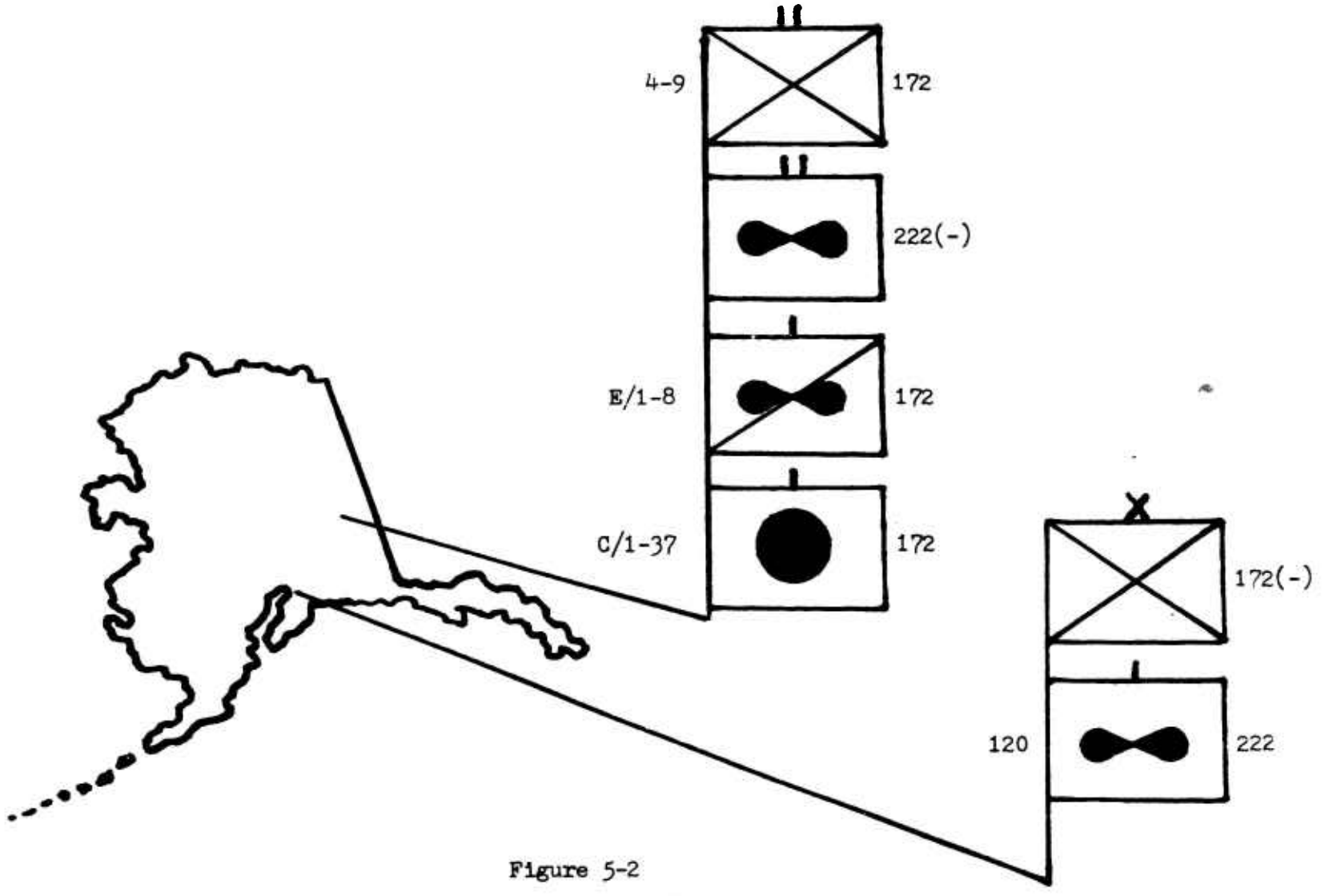

Figure 5-2

Location of the 172d Infantry Brigade and 222d Aviation Battalion units within Alaska.

Rifle companies are equipped and trained for sustained semi-independent and independent operations anywhere in Alaska during all seasons.

One vehicle worthy of discussion, though not authorized by the 172d Brigade MTOE, is the M571 Squad Carrier, an articulated full tracked vehicle. Thirteen of these vehicles, earlier dropped from the U.S. Army inventory as an unsatisfactory over-snow vehicle, were retained by the 172d Brigade for further testing during 1972-73. The vehicle was used as a squad subsistence load carrier. The M571 is capable of being sling loaded beneath a CH47 helicopter.[3] While maintenance problems were magnified by the lack of a spare parts inventory, the vehicle's use spotlighted the value of an over-snow squad subsistence load carrier in northern operations.[4]

Airlanded assault operations can be conducted wherever suitable airfields exist. All brigade MTOE equipment and allowances are air transportable by C130 aircraft.

Each infantry battalion is capable of conducting airborne operations with one of its companies.

Limitations

The 172d Brigade's configuration as light infantry provides limited capability for ground mobility. The brigade is dependent upon the U.S. Air Force for movement to operations areas and for resupply from main base complexes when operating in the Exterior Region.

The brigade is dependent upon the 222d Aviation Battalion for its airmobile capability. This is not necessarily a limitation

as long as the 172d Brigade is the only infantry unit deployed in Alaska. The aviation battalion's present mission of general support to Alaskan Army Forces would likely create competition for asset priority if additional ground combat units were added.

The brigade's airborne capability is limited to securing undefended company sized objectives beyond the range of enemy indirect weapons systems. An attempt was made during Exercise Ember Dawn V in August 1973, to task organize the three airborne rifle companies under a provisional battalion headquarters in order to conduct a limited objective airborne assault in the Eieleson Air Force Base area.[5] Equipment and personnel for the task force headquarters were drawn from other units throughout the brigade to the detriment of over-all mission accomplishment. The assault necessarily took place within friendly artillery range since no airborne artillery units exist within the brigade. Further investigation of this limitation occurs in the discussion section of this chapter.

Other limitations include a total lack of air defense artillery and limited ability to defend against armor, artillery, and nuclear attacks.

Discussion

As implied earlier in this chapter, the 172d Brigade conducts the majority of its training in an airmobile configuration. The brigade considers the use of airmobile assets and techniques a necessary attribute to the conduct of counter-offensive operations throughout the entire state of Alaska.[6] Within the Interior Region combinations of all forms of air and

ground transportation have been used to move the brigade to areas of operations. Movement of units from Fort Richardson to Fort Wainwright during Exercise Ember Dawn V entailed the use of wheeled vehicles, rail, helicopters, U.S. Army fixed wing aircraft, and U.S. Air Force C130 aircraft.[7]

Near total reliance on the Air Force has been a characteristic of transportation requirements to areas of operations in the Exterior Region. Army aviation elements have developed methods for ferrying helicopters to any destination within Alaska by using auxilliary fuel tanks and by establishing enroute refueling sites. These techniques preclude inordinate disassembly and reassembly times required when transported aboard C130 aircraft and allow the helicopters to arrive within an area of operations in a "ready for combat" condition.

Discussion of two recent field training exercises in the Exterior Region will assist in an understanding of the implications of the 172d Brigade's capabilities and limitations within the context of the Alaskan environment. Examination of these exercises will also assist in placing environmental effects into perspective as a prelude to the force analyses conducted in chapter VI of this thesis.

Ember Dawn IV

Ember Dawn IV was a joint Army/Air Force training exercise conducted in August 1972 at King Salmon Air Force Station (KSAFS), Alaska.

KSAFS is located on the Alaska Peninsula as illustrated in figure 4-2. The complex consists of a paved airfield suitable

for jet cargo and passenger aircraft, refueling and maintenance facilities, and buildings for housing approximately one hundred and fifty airfield operations personnel.

The main runway lies parallel to the Naknek River which flows westward for approximately ten miles where it empties into Bristol Bay. The river is not navigable to vessels larger than light landing craft. There is a two lane gravel road which connects KSAFS to the fishing cannery at Naknek located at the mouth of the river. Naknek has docking facilities for deep water salmon fishing boats. Bristol Bay allows access from the sea to Naknek for approximately five months each year.

The terrain immediately surrounding KSAFS is generally low, flat, and swampy during the summer. South of the Naknek River a tundra plain follows the coastline southward the entire length of the Alaska Peninsula. The area north of the river is bog and tundra sloping upward to round topped barren hills. The entire area is generally barren except immediately adjacent to streams where high bushes and trees grow thickly. The tundra grass lands provide a thin cover for muskeg of varying depths.

Temperatures are usually mild during the summer. Skies are often overcast.

Trafficability is difficult but passable for foot troops during the summer. The best avenues of approach are often in the stream beds which are mostly gravel bottomed and offer the best concealment. Off-road trafficability is limited for tracked vehicles and non-existant for wheeled vehicles.

The purpose of Exercise Ember Dawn IV was to test the

172d Brigade's ability to deploy from main base complexes and conduct airmobile counter-offensive operations to destroy enemy lodgements at King Salmon and Port Heiden.

The threat scenario assumed infiltration by sea of a company sized infantry force which would, when assembled north of KSAFS, assault to secure the station and prepare the airfield for airlanded follow-on forces.

The scenario's special situation announced the discovery of small groups of enemy concentrating in the King Salmon area.

The brigade's mission was to secure KSAFS and conduct offensive operations to destroy the enemy force before it could assemble.

On D-Day at H-Hour two airborne infantry companies were to conduct an airborne assault to secure the airfield for follow-on airlanded elements of the brigade. Bad weather forced cancellation of the airborne assaults and the two companies were airlanded. The remainder of the brigade and its equipment was on the ground within 24 hours. Elements of the 222d Aviation Battalion began arriving soon after H-Hour. The brigade was prepared to launch counter-offensive airmobile operations on D+1.[8]

Original brigade planning for Ember Dawn IV called for a battalion sized enemy force to seize KSAFS resulting in a requirement for the brigade to conduct counter-offensive operations to destroy the enemy lodgement. This scenario posed two major problems which provide insight into the limitations of the 172d Brigade's present structure.

Since no land avenues of approach exist into the Alaskan

Peninsula it was necessary to strike either from the air or from the sea. Courses of action using the sea were not considered since no naval resources were available. An obviously desireable course of action was to conduct an airborne assault to seize the airfield, however it seemed logical that an enemy infantry battalion would probably be reinforced with artillery and air defense weapons. An airborne assault to recapture King Salmon would be totally dependent upon the Air Force for its fire support. The unpredictability of weather underscored the undesireability of total reliance on the Air Force for fire support. A closely related factor involved the necessity for seizure of the airstrip to effect linkup with the airborne force. Failure to attain its assault objective would result in isolation of the force with little possibility of extraction. Thus, airborne assault as a viable course of action was discarded as too risky with available forces.

A second likely course of action (the most desireable alternative from an airmobile training objective viewpoint) involved securing an airfield within helicopter range of King Salmon and establishing a Forward Staging Base from which to launch a heliborne assault against KSAFS. The closest suitable airfield was located at Port Heiden, approximately one hundred and fifty miles farther south along the Alaskan Peninsula from King Salmon. While suitable for actual combat operations, this airfield was deemed unsafe for sustained heavy air transport traffic in a training environment.

The threat scenario outlined earlier in this chapter

was developed after detailed consideration of all the force limitations and a complete study of the restrictions imposed by the environment.

The fact that enemy seizure of King Salmon remained the more likely threat continued to be a matter of concern to the 172d Brigade exercise planners. The concept of conducting offensive airmobile operations from a Forward Staging Base appeared to be the key to operations in the Exterior Region. In order to test this concept it was decided to introduce a second enemy lodgement of platoon size at Port Heiden. This second threat was eliminated by a rifle company conducting a heliborne raid to destroy the enemy lodgement.[9]

The raid required establishment of a refueling site approximately fifty miles north of Port Heiden. Sufficient fuel bladders and a small security force were parachuted into the selected site. The helicopters were able to refuel and retrieve the empty bladders on the return trip from Port Heiden.

The Port Heiden raid, using KSAFS as a Forward Staging Base, established the concept as viable, at least on a small scale. Weather during the operation was marginal and underscored the dependence of this operational concept on the vagaries of Alaskan weather.

The conduct of offensive operations throughout the exercise was characterized by helicopter movement to landing zones as close as possible to objectives, followed by ground assault. This technique minimized ground trafficability problems while maximizing speed and shock action.

Ace Card VI

The only similarity between Exercise Ace Card VI and Ember Dawn IV was the fact that both exercises were conducted in the Exterior Region and that the training objectives for both exercises were identical. Ace Card VI was conducted at Nome, Alaska in February 1973.

Nome in the winter is a frozen coastal plain, devoid of vegetation, sloping inland to round topped, barren hills and mountains.

The weather during the exercise was usually clear. Winds were variable and unpredictable. Ground visibility was often obscured by blowing snow. Temperatures ranged from +15°F to -40°F.

Trafficability was virtually unlimited for tracked vehicles.

The threat scenario called for the seizure of Nome and its paved airfield by an enemy reinforced infantry battalion.

Recapture of Nome in the winter presented the same deployment problem discussed earlier for King Salmon during the summer. Suitable airfields to use as forward bases from which to launch airmobile assaults against Nome were too far away from the objective. Airfields at Unalakleet and Moses Point, both located south and east of Nome along Norton Sound, were considered for use as Forward Staging Bases, however both airfields would have required an intermediate refueling site somewhere between Moses Point and Nome. Neither airfield possessed fuel storage tanks and there were not enough fuel bladders present

in Alaska to operate two major refueling sites. Additionally, Moses Point is not maintained in the winter. Use of that airfield would have required the insertion of a bulldozer and crew to clear the runway. No capability for air insertion of engineers with suitable equipment existed within the brigade at that time. A frozen lagoon was located near Dickson, an abandoned mining town approximately thirty miles east of Nome. The ice thickness was tested and found satisfactory for use as an assault landing strip for C130 aircraft during actual combat, however U.S. Air Force representatives were reluctant to allow aircraft landings on the lagoon during peacetime training. All of these problems could have been circumvented given adequate time and funds, neither of which was available in sufficient quantity.

It was finally decided to establish a simulated Nome approximately thirty miles west of actual Nome on approximately identical terrain. Enemy forces erected a tent city on the site. The airfield at Nome was treated as if it was located at Dickson and used as an assault landing strip. None of the facilities at actual Nome were used except the airfield runway and fuel storage tanks.

As at King Salmon the brigade was able to move its units into Nome and be prepared to conduct offensive airmobile operations against simulated Nome within 24 hours after the first elements were on the ground.

Airmobile assaults to initially seize the high ground north of simulated Nome with subsequent attacks to destroy the enemy lodgement were successful despite extremely cold temperatures

and frequent winds in excess of thirty knots.[11]

Exercise Ace Card VI proved that the 172d Brigade could stage from main bases within the Interior Region and conduct successful counter-offensive airmobile operations to reduce an enemy lodgement on the Alaskan periphery during the worst part of the winter season. The validity of the concept of seizing an unoccupied forward staging area from which to conduct airmobile assaults to reduce enemy lodgements was reinforced.

The weakest area in the concept remained the initial airborne assault. Infantry without artillery fire support is vulnerable to enemy action. Infantry without engineer support is unlikely to be able to properly prepare landing strips for Air Force cargo aircraft.

A pertinent side-light to the exercise was the contingency plan to administratively evacuate forces from simulated Nome by M548 Cargo Carrier (since dropped from the MTOE) in the event the weather turned severe enough to prevent withdrawal by helicopter. The snow crust was tested and found strong enough along the shoreline to effect resupply of forces by tracked vehicle.

Summary

The two training exercises discussed in this chapter were deemed by the 172d Brigade to be worst case tests which proved that the brigade could successfully execute offensive airmobile operations anywhere in Alaska under any conditions likely to be presented by the environment. As a result of the lessons learned in those exercises, the brigade standardized its

airmobile techniques for the conduct of operations in Alaska. The ground mobility limitation is considered to be offset by the brigade's ability to move rapidly and economically by air. The problem of weakness in airborne capability remains to be solved.

CHAPTER VI

FORCE ANALYSIS

Introduction

The purpose of this chapter is to test five separate infantry brigades' capabilities for projecting combat power from main base complexes to peripheral areas of operations within an Alaskan scenario. Investigation into the strengths and weaknesses of the brigades' capabilities to conduct counter-offensive operations against the assumed enemy lodgements developed in chapter IV will assist in determining the best mix of forces for the unit permanently stationed in Alaska.

The measure of successful execution of counter-offensive operations on the Alaskan periphery lies in the ability to move combat units rapidly to Forward Staging Bases.[1] The build-up of supplies and the final preparation which takes place at the Forward Staging Base (FSB) allows the brigade to mass its combat power for the final assault to secure an objective.

Selection of the FSB requires consideration of several factors. Since no road network exists in most of the Exterior Region, men and equipment must be transported by air. Hence the base must have an airstrip capable of supporting every available type aircraft to be used for deployment. The FSB should be located as close as possible to the objective, but beyond the range of enemy indirect fire weapons. The maximum distance between the FSB and the objective is governed by the range of

helicopters for airmobile units and by appropriate tactical mobility means for other type units. When possible the base should possess a building complex which can be used for heated maintenance and troop housing facilities. Tentage may be used when buildings are nonexistant, however its usage increases equipment loads and decreases the speed of combat service support operations. Whichever the case, troops cannot exist for long periods of extreme cold without the availability of heated shelter.[2] The bases selected for each of the scenarios in this chapter are approximately 70 air miles from the objectives. They represent the closest useable airfields within range of the objectives.

This force analysis treats tactical mobility as a variable. All other elements of combat power are held constant by assumption. Relative firepower is held constant by requiring each force to maneuver with all organizational equipment forward when possible.

Given missions to destroy enemy lodgements first at Prudhoe Bay and then, in a separate scenario, at King Salmon, the expected concepts of operations for each of the five separate infantry brigade configurations are developed and analyzed. Conclusions regarding the best mix of forces for an Alaska based separate infantry brigade will be drawn from the analysis.

Assumptions

The weather will be generally clear and cold. Temperature ranges will be from +10°F to -40°F. Winds will average 12 knots and will not exceed 30 knots for periods of time in excess of four hours. The snow is crusted and will support

tracked vehicles in most areas. Both operational areas will average approximately ten hours of daylight during each twenty-four hour period. Visibility during daylight hours will be generally unlimited.

Airfields planned for use as Forward Staging Bases are not occupied by the enemy. Minimum snow clearing operations will be required for use by C130 aircraft.

Transportation assets beyond brigade organizational capability consist of twenty-four C130E aircraft. Air Force airlift capability will be maintained at 70% availability and a maximum of forty sorties flown per day.

Adequate Air Force close air support means are available for accomplishing all combat missions.

The organization of the separate brigades is illustrated in figures 6-1 through 6-5. Unit main base locations are the same as for the 172d Brigade (figure 5-2) except for the infantry and mechanized infantry brigades. One company from each of the tank battalions is stationed at Fort Wainwright in order to facilitate formation of combined arms teams for each brigade. All armored cavalry units are equipped with the M551, Armored Reconnaisance/Airborne Assault Vehicle. All units are at 100% strength. The status of morale, discipline, and training are constant. All equipment has been modified for arctic operations.[3] Relative firepower will not be appreciably affected by extreme cold.

The pipeline road is cleared from Prudhoe Bay to Fairbanks and will support single lane traffic.

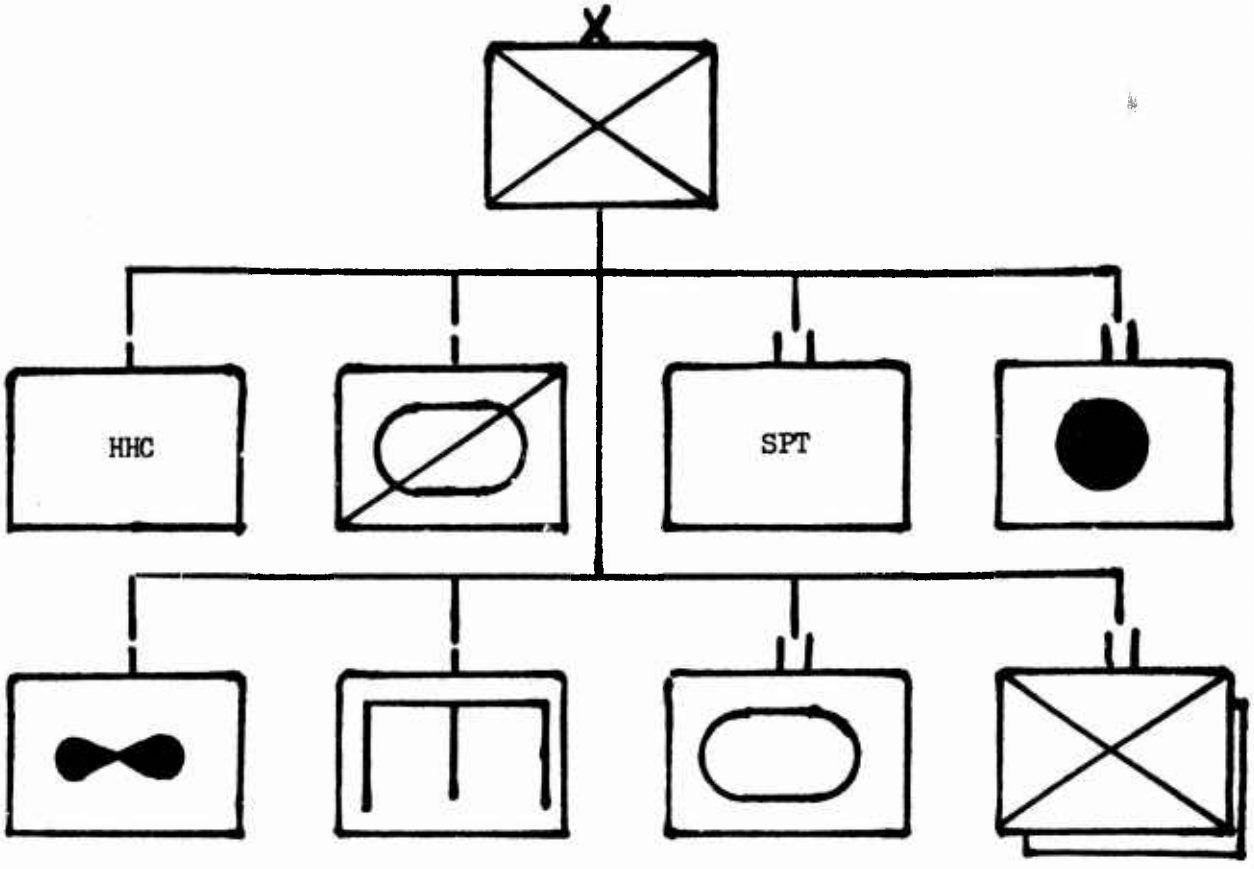

Figure 6-1

Infantry Brigade (Separate)

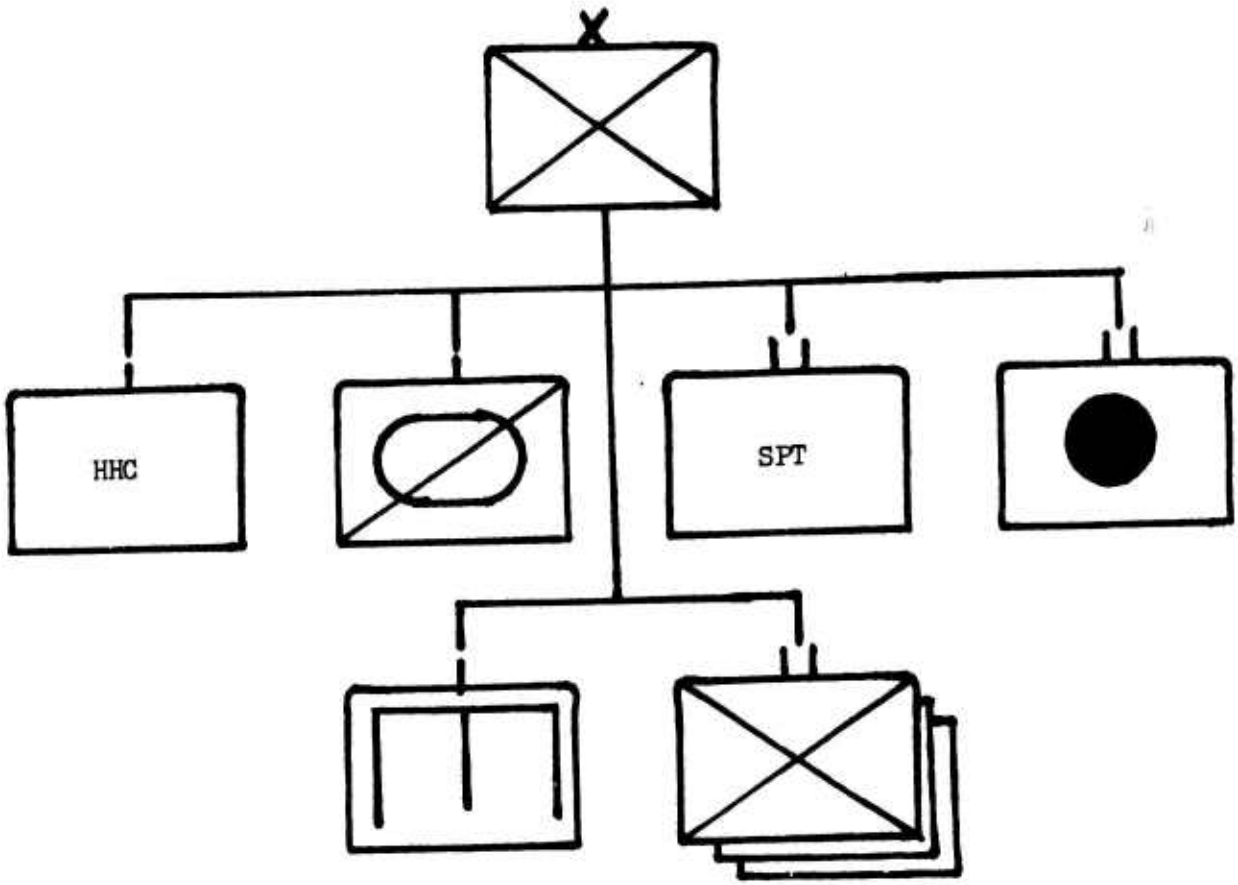

Figure 6-2

Light Infantry Brigade (Separate)

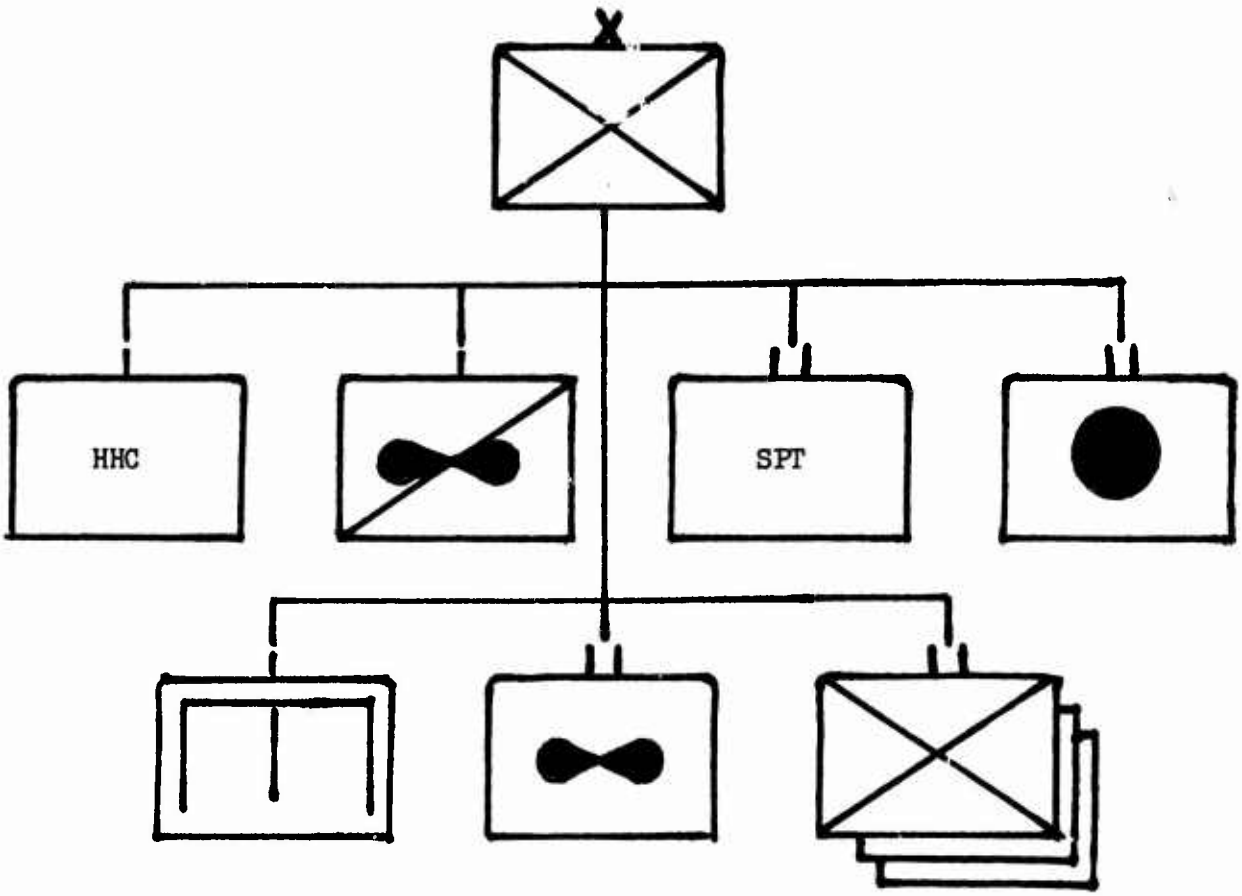

Figure 6-3

Airmobile Infantry Brigade (Separate)

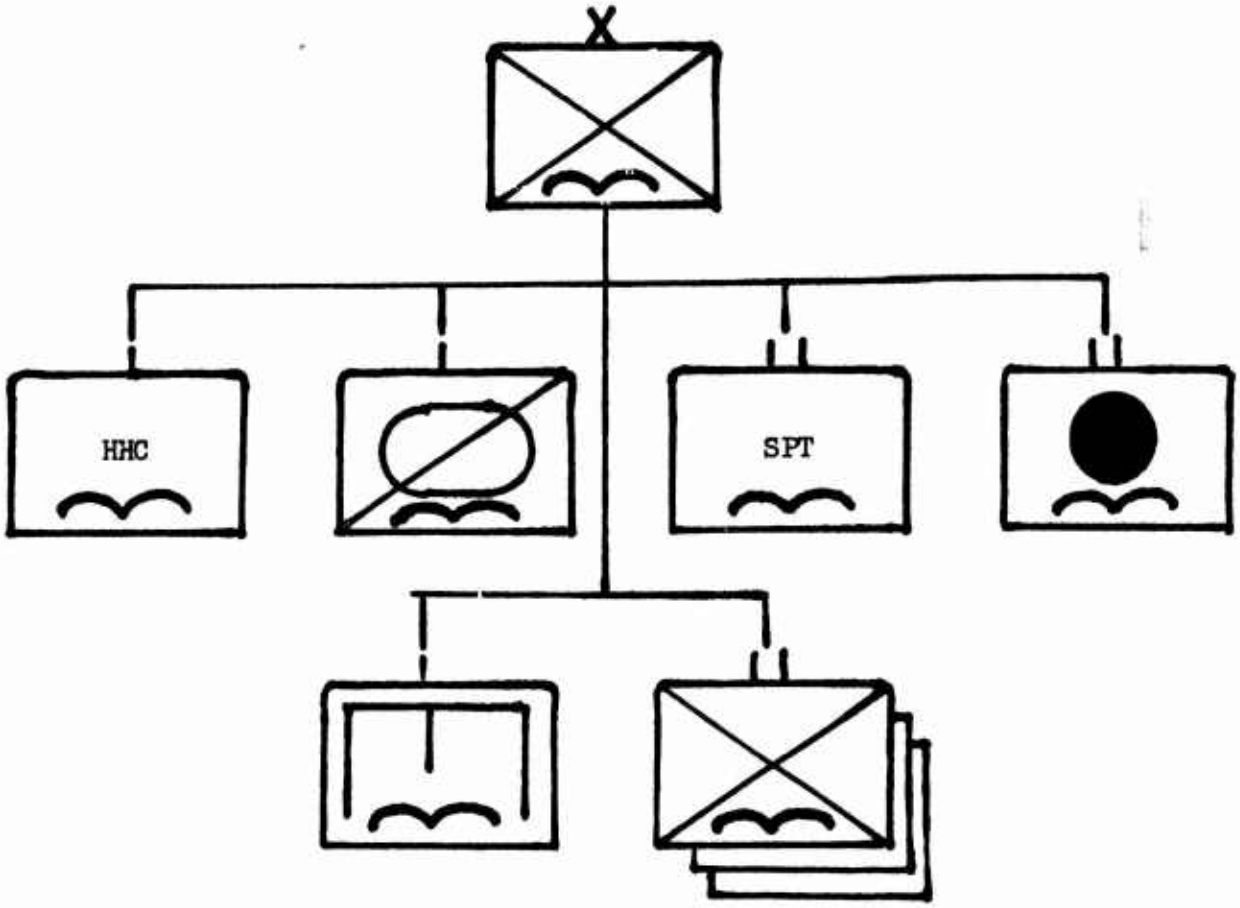

Figure 6-4

Airborne Infantry Brigade (Separate)

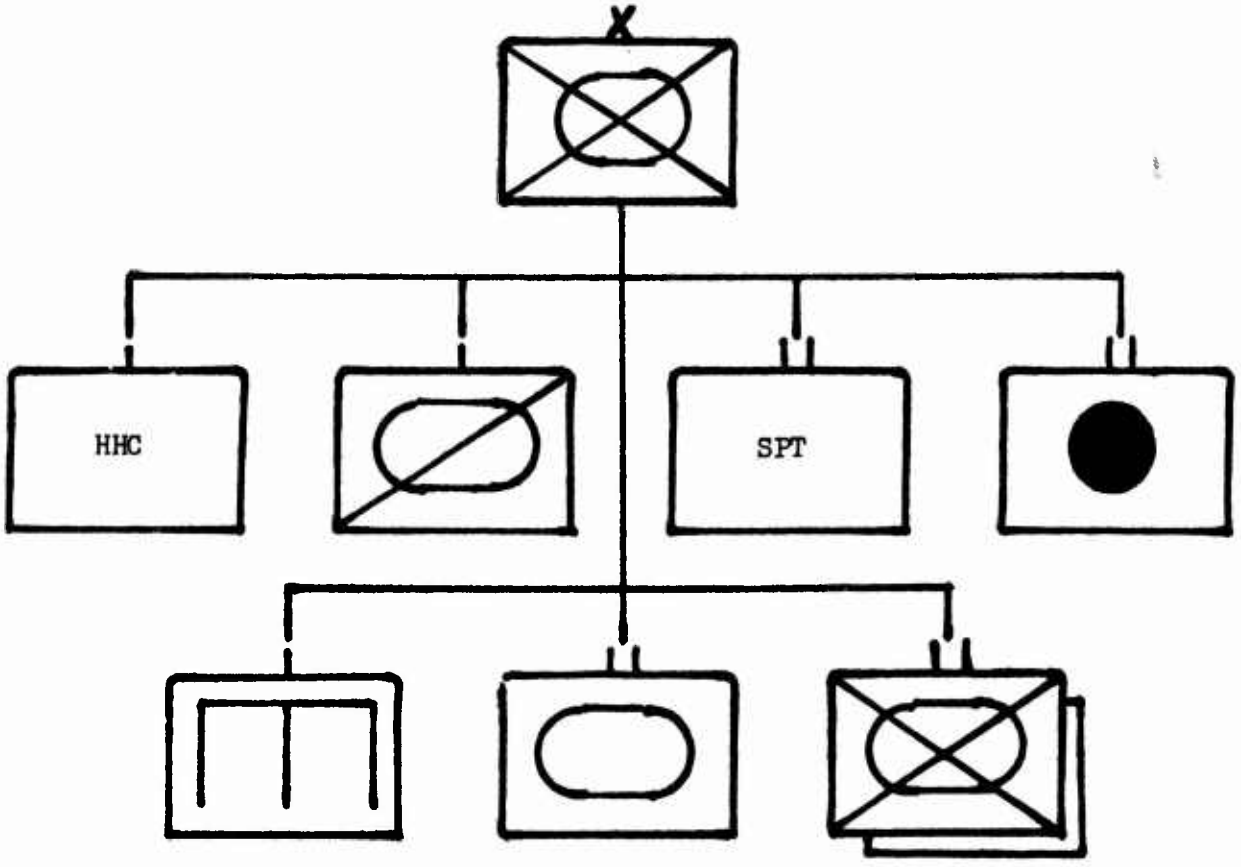

Figure 6-5

Mechanized Infantry Brigade (Separate)

Scenario I: Prudhoe Bay

Mission. U.S. Forces attack with one separate infantry brigade to secure the oil fields at Prudhoe Bay.

General Concept of Operation. U.S. Forces conduct coordinated attacks to destroy the enemy lodgement at Prudhoe Bay. The operation will be conducted in two phases. Phase I will consist of seizure of the airfield at Sagwon for use as a Forward Staging Base. Phase II will consist of a coordinated attack to seize objectives in the vicinity of Prudhoe Bay (figure 6-6).

Infantry Brigade (Separate) (TOE 7-100H) (figure 6-1)

Phase I. The brigade conducts a combined air and ground movement to secure Sagwon and establish a Forward Staging Base. The cavalry troop reinforced with one platoon of engineers, moves northword along the pipeline road from Fort Wainwright to Sagwon, secures Sagwon until relieved by infantry/armor forces, and subsequently screens north of Sagwon clearing the pipeline road as necessary. An infantry battalion task force composed of one infantry battalion, one tank company, one field artillery battery, the engineer company (-), and an appropriate portion of the support battalion, conducts a motor march behind the cavalry from Fort Wainwright to Sagwon. The brigade (-) conducts combined air and road movement from Fort Richardson to Sagwon with supplemental rail movement from Anchorage to Fairbanks.

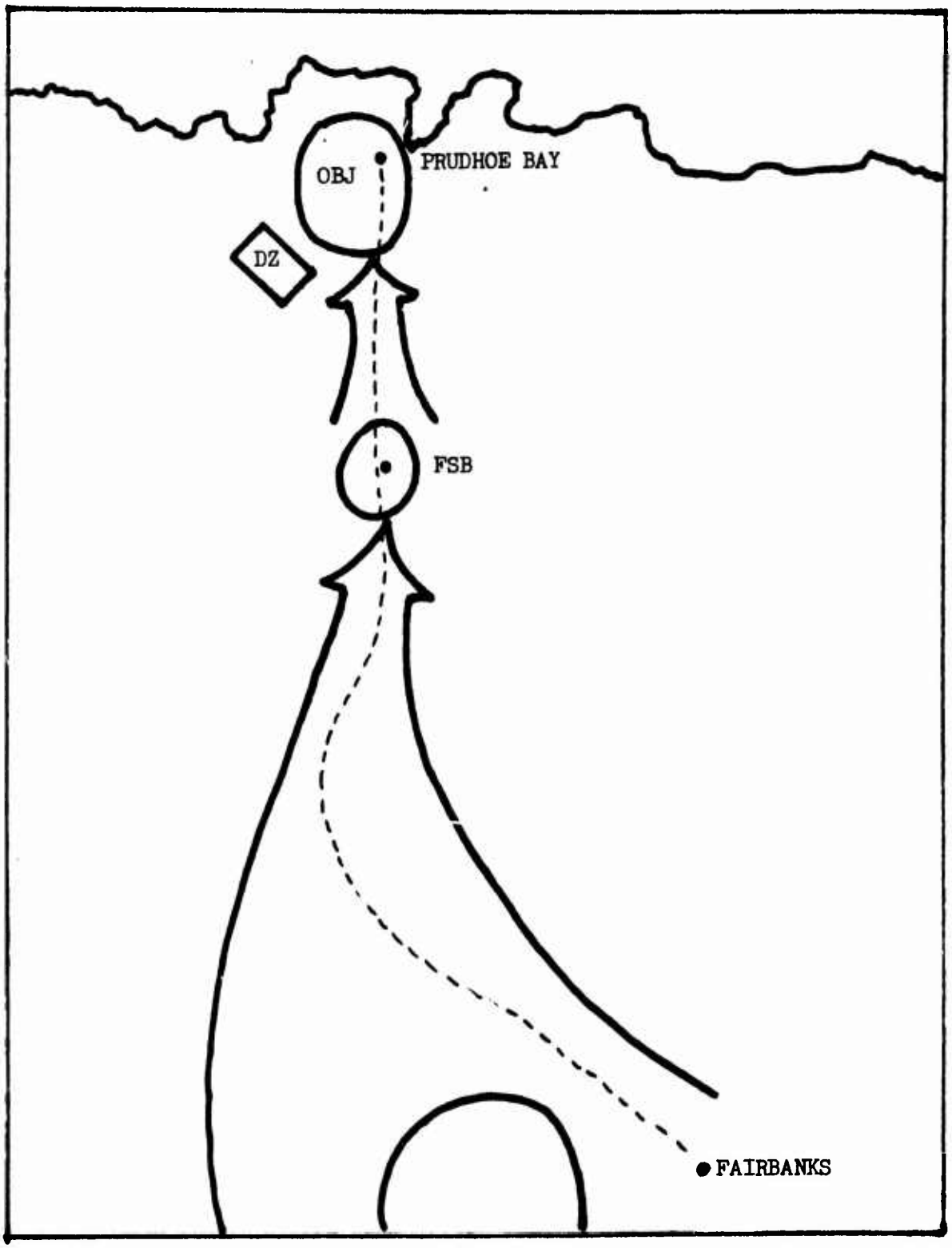

Figure 6-6

General Concept of Operation - Prudhoe Bay, Alaska

Phase II. Combat elements of the brigade conduct Movement to Contact mounted behind a cavalry advance guard to secure attack positions south of Prudhoe Bay. The field artillery supports the movement from bounding positions along the pipeline road. A coordinated attack is conducted from the attack positions to secure objectives at Prudhoe Bay.

Light Infantry Brigade (Separate) (TOE 77-100H) (figure 6-2)

Phase I. The brigade conducts a combined airland and ground movement to secure Sagwon and establish a Forward Staging Base. An infantry battalion task force composed of one infantry battalion, the armored cavalry troop, one field artillery battery, and one engineer platoon, conducts Movement to Contact along the pipeline road from Fort Wainwright to Sagwon, secures Sagwon, and prepares the airfield for airland operations. The armored cavalry troop screens north of Sagwon. The brigade (-) moves to Sagwon by C130 aircraft.

Phase II. Protected by a cavalry screen and field artillery positioned in selected locations north of Sagwon, the combat elements of the brigade are shuttled to attack positions using all available ground transport means. A dismounted coordinated attack is conducted from the attack positions to secure objectives at Prudhoe Bay.

Airmobile Infantry Brigade (Separate) (figure 6-3)

Phase I. The brigade conducts airlanded operations to

secure Sagwon and establish a Forward Staging Base. The air cavalry troop moves northward along the pipeline road from Fort Wainwright, establishes a helicopter refueling point south of Dietrick Pass, secures Sagwon until the arrival of sufficient infantry force, and subsequently screens north of Sagwon. An infantry battalion task force consisting of one infantry battalion, one field artillery battery, one engineer platoon, and an appropriate portion of the support battalion, moves from Fort Wainwright by C130 aircraft to secure Sagwon and prepares for the arrival of the remainder of the brigade. The brigade (-) moves by C130 aircraft from Fort Richardson to Sagwon. Helicopter elements conduct ferry operations to move aviation personnel and equipment to Sagwon.

Phase II. Airmobile assaults are initiated from Sagwon to secure objectives at Prudhoe Bay.

Airborne Infantry Brigade (Separate) (TOE 57-100H) (figure 6-4)

Phase I. The brigade conducts an airborne assault to secure a drop zone south of Prudhoe Bay. An infantry battalion task force consisting of infantry, field artillery, and engineer elements conducts the initial assault to secure the drop zone. Follow-on combat and combat support forces are parachuted into the drop zone during darkness.

Phase II. The brigade conducts a coordinated attack from the drop zone to secure objectives at Prudhoe Bay.

Mechanized Infantry Brigade (Separate) (TOE 37-100H) (figure 6-5)

Phase I. The brigade conducts combined air and ground movement to secure Sagwon and establish a Forward Staging Base. An infantry battalion task force composed of all elements stationed at Fort Wainwright conducts Movement to Contact along the pipeline road to secure Sagwon. Simultaneously, the combat and combat support elements of the brigade (-) conduct a combined rail and road movement from Fort Richardson to Fort Wainwright with subsequent ground movement to Sagwon. The support battalion (-) moves to Sagwon by C130 aircraft.

Phase II. The brigade conducts a Movement to Contact and a subsequent coordinated attack to secure objectives at Prudhoe Bay.

Scenario II: King Salmon

Mission. U.S. Forces attack with one separate infantry brigade to secure King Salmon Air Force Station (KSAFS).

General Concept of Operation. U.S. Forces conduct coordinated attacks with one infantry brigade to destroy the enemy lodgement at KSAFS. The operation will be conducted in two phases. Phase I will consist of seizure of Dillingham for use as a Forward Staging Base. Phase II will consist of a coordinated attack to secure objectives at KSAFS (figure 6-7).

Infantry Brigade (Separate)

Phase I. The brigade moves by C130 aircraft to secure

Dillingham and establish a Forward Staging Base. The armored cavalry troop with attached engineer and support battalion elements moves initially to secure Dillingham and subsequently screens toward KSAFS. The brigade, minus all of its armor and most of its wheeled vehicles, moves to Dillingham by C130 aircraft.

Phase II. The brigade conducts a dismounted movement to contact with two infantry battalions and one armored cavalry troop to secure attack positions north of KSAFS. Resupply enroute is conducted by air drop. Beyond the range of field artillery elements at Dillingham, the U.S. Air Force provides fire support. Dismounted coordinated attacks are launched from the attack positions to secure objectives at KSAFS.

Light Infantry Brigade (Separate)

Phase I. The brigade moves by C130 aircraft to secure Dillingham and establish a Forward Staging Base. The armored cavalry troop with attached engineer and support battalion elements moves initially to secure Dillingham and subsequently screens toward KSAFS. The combat elements of the brigade with selected elements of the support battalion (-) move to Dillingham by C130 aircraft.

Phase II. The brigade conducts a dismounted movement to contact and secures attack positions north of KSAFS. Resupply enroute is conducted by parachute drop. Beyond the range of field artillery elements at Dillingham, the U.S. Air Force provides fire support.

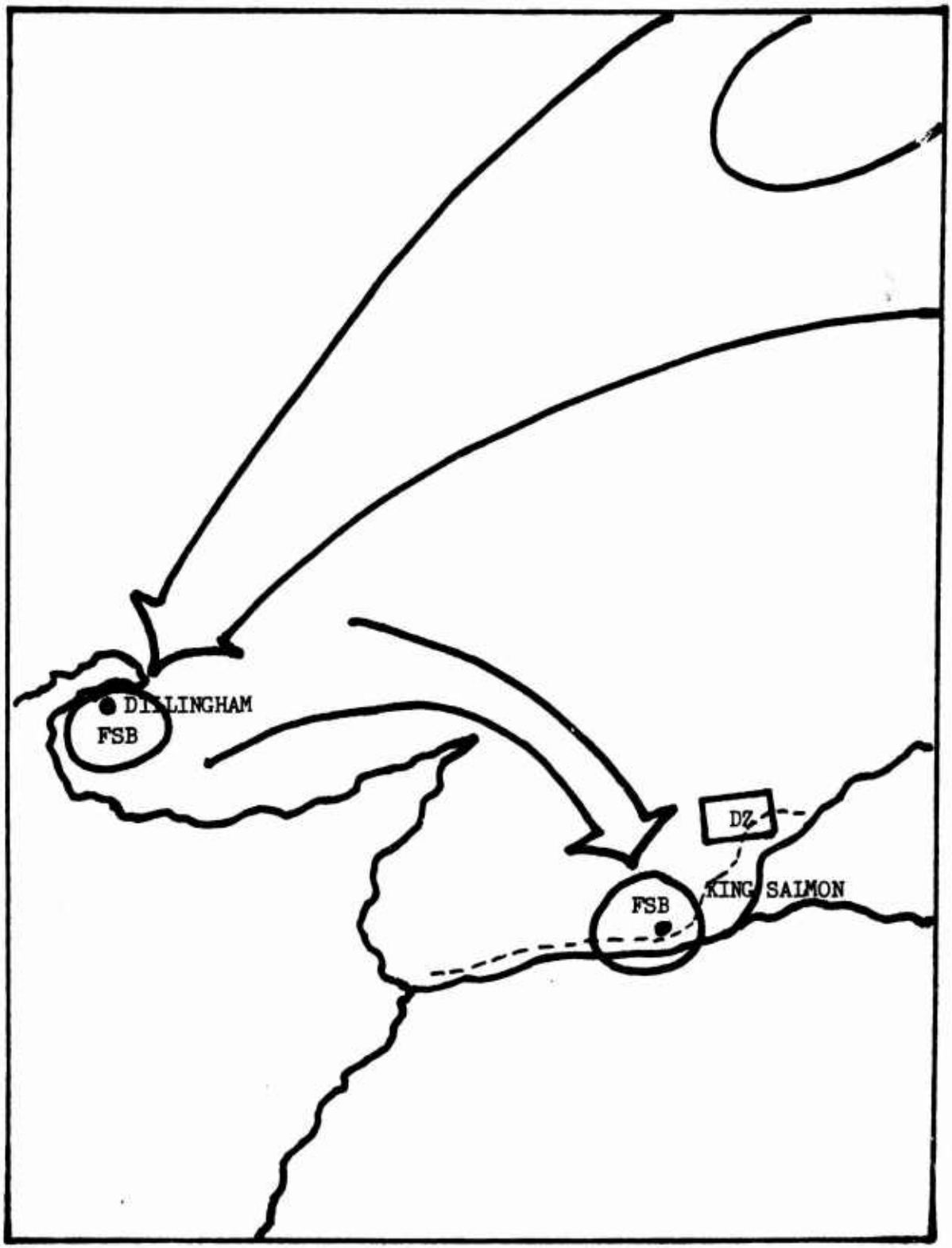

Figure 6-7

General Concept of Operation - King Salmon, Alaska

Dismounted coordinated attacks are launched from the attack positions to secure objectives at KSAFS.

Airmobile Infantry Brigade (Separate)

Phase I. The brigade moves by C130 aircraft to secure Dillingham for use as a Forward Staging Base. An infantry battalion task force consisting of one infantry battalion, one field artillery battery, and one engineer platoon airlands at Dillingham and prepares to assist airland reception of the brigade (-). Simultaneously, the air cavalry troop moves from Fort Wainwright to Dillingham by helicopter with refueling stops at Talkeetna, McGrath, Aniak, and Bethel. Upon arrival at Dillingham the air cavalry troop initiates screening operations southeast of Dillingham toward KSAFS. The brigade (-) moves to Dillingham by C130 aircraft.

Phase II. The brigade conducts airmobile assaults to secure objectives at KSAFS.

Airborne Infantry Brigade (Separate)

Phase I. The brigade conducts an airborne assault to secure a drop zone north of KSAFS. The assault echelon consists of an infantry battalion task force composed of one infantry battalion and one field artillery battery. The remaining two infantry battalions are dropped in during darkness.

Phase II. A dismounted coordinated attack is conducted to secure objectives at KSAFS.

Mechanized Infantry Brigade (Separate)

Phase I. The brigade conducts airland operations to secure Dillingham and establish a Forward Staging Base. The armored cavalry troop reinforced with engineers initially secures Dillingham and subsequently screens toward KSAFS. The remainder of the brigade minus the armor and artillery battalions moves by C130 aircraft to Dillingham.

Phase II. The brigade (-) conducts a mechanized movement to contact and subsequent coordinated attack to seize objectives at KSAFS.

Analysis

The airmobile brigade will be able to accomplish both missions. Whether it could be done within an acceptable time frame is questionable. The timing of the arrival of initial forces by both helicopter and C130 aircraft will be critical. The air cavalry troop possesses sufficient combat power to secure an initially unoccupied FSB location, however the airfield must be in good enough condition to allow at least one C130 aircraft to land with a light bulldozer and crew aboard. If the airfield at Sagwon was discovered to be snowed in too deeply, bulldozers could be hauled forward by truck from Fort Richardson. The required time expenditure might be prohibitive. Under normal circumstances local civilians living at Sagwon and at Dillingham could probably be relied upon for assistance in airfield preparation, however a nearby enemy might cause them to evacuate.

Helicopter refueling stops enroute to Dillingham presume adequate fuel supplies at each location. Shortage of fuel at one or more locations would require U.S. Air Force tanker support to build up supplies.

Time is critical in the KSAFS operation. If enemy aircraft are allowed to begin operations from the airfield at King Salmon, the air movement will be vulnerable to interdiction.

The assumed airmobile brigade's aviation battalion would not have the capability of moving the entire brigade at one time. Troops would have to be shuttled from the FSB to the attack positions. The initial assault must insure sufficient force to secure the landing zone until subsequent forces arrive. All of the lifts would probably take place at night. Extreme cold might place the initial assault forces in jeopardy if the movement of the remaining forces requires more than a few hours to complete.

The full tracked capability within the armored cavalry troop of the infantry brigade should allow adequate capability for accomplishment of its initial security mission at Sagwon. Accompanying engineers could be expected to have a bulldozer for any necessary repairs or snow removal along the pipeline road or on the airfield at Sagwon. The movement of forces by wheeled vehicle would be at the mercy of any change in the weather. A sudden blizzard would require road clearing operations probably beyond the capability of a single engineer company within an acceptable period of time. Under the best of conditions the wheeled vehicles would be required to stay on the road and would be subject to interdiction and ambush. The danger of ambush

would increase dramatically during the move from Sagwon to attack positions near Prudhoe Bay.

Neither the infantry nor the light infantry brigade could be expected to accomplish the KSAFS mission. Neither unit would be able to transport towed howitzers across 70 miles of frozen tundra. It is unlikely that the infantry troops could traverse the distance between Dillingham and KSAFS on foot and arrive in any condition for combat. Even if they could accomplish the march, the time requirement would be unacceptable. During final assault, either brigade would be totally dependent upon the Air Force for fire support. Failure to attain objectives speedily would increase the probability of destruction of the entire force. The infantry brigade could not transport its armor battalion to Dillingham,[4] thus reducing its combat power below acceptable limits for conduct of the KSAFS mission.

The light infantry brigade can move to Sagwon faster than the infantry brigade,[5] however the movement from Sagwon to attack positions near Prudhoe Bay would entail greater risk of enemy interdiction and weather change created by the requirement to shuttle forces forward.[6]

The airborne brigade could accomplish both missions with little more risk than normally attends any airborne operation. Use of airborne forces removes the requirement for establishing a Forward Staging Base at either Sagwon or Dillingham since placing the troops that far from the objective would serve no purpose beyond placing them at the same disadvantages faced by the light infantry brigade.

The greatest risk involved in the airborne assault lies in the inability to conduct link-up with the force until the airfield at KSAFS is secured. A failure to attain objectives in the projected time frame could result in destruction of the entire force from enemy action or weather or both.

Another risk attending both missions for the airborne force is the difficulty of moving howitzers from the drop zones once objectives are consolidated.

The only brigades able to mass their full combat power on the objective at KSAFS are the airborne and airmobile configurations.

The limitation of C130 aircraft sorties is probably not unrealistic within the parameters of the assumed world situation. The addition of C130 aircraft in sufficient numbers to drop the entire airborne brigade at one time would greatly enhance the probability of success. Given a critical time requirement, a commander might be willing to risk dropping directly on the objective providing adequate close air support was available.

The massing of the full combat power of a mechanized brigade at Sagwon requires ground movement greater than 500 miles for elements stationed at Fort Richardson. This operation presumes no weather change and an extraordinary maintenance capability. It is unlikely that phase I of the Prudhoe Bay operation could be accomplished within an acceptable amount of time. The probability of continuing good weather would decrease rapidly as required execution time increased. A slight warming trend or sudden blizzard, common occurrences during February in Alaska, would create extreme mobility problems.

While the mechanized brigade possesses combat power advantages over the other infantry brigade configurations during phase II of the Prudhoe Bay operation (figure 1-1), continued reliance upon this chapter's assumptions is essential for success. The brigade will be forced to surrender much of its combat power to accomplish the KSAFS mission because of the inability to move its armor and artillery by air.[7] It is probable, however that the brigade (-) could still mass enough combat power to defeat the enemy lodgement at KSAFS.

Deployment of the mechanized brigade by air for either contingency operation would require an unacceptable availability rate of C130 aircraft sorties. Even if an unlimited number of C130 aircraft were available, few of the airfields in the Exterior Region will support more than two or three aircraft on the ground at one time.

CHAPTER VII

FINDINGS AND CONCLUSIONS

Findings

The advantages of additional firepower found in the infantry and mechanized infantry brigades are more than counterbalanced by the effects of the environment on ground mobility and by the vast distances involved. It is doubtful that either unit possesses the ability to mass adequate firepower on objectives within much of the Exterior Region.

The two scenarios discussed in this thesis were intended as worst case contingencies. Both scenarios qualify in terms of distances from main bases, extreme environmental conditions, and the proximity of available Forward Staging Bases. However, a winter scenario may not qualify as the worst case for units relying upon ground tactical mobility for massing combat power. Ground deployment to Prudhoe Bay during the summer would be entirely restricted to the pipeline road. Units attempting to maneuver against an enemy lodgement would be unacceptably canalized. King Salmon during the summer would present an inaccessible objective if ground tactical movement from Dillingham was a prerequisite for combat operations. The obvious solution to such a situation would be to strip the units of heavy equipment and provide helicopter transportation, thus trading firepower for tactical mobility. The resultant force would, in effect, be light infantry with an airmobile capability.

The light infantry brigade is the least capable of accomplishing counter-offensive operations in Alaska. Its lack of firepower is complemented by a lack of tactical mobility. As with the other units, addition of helicopters changes the situation dramatically, as illustrated by earlier discussions of the present capabilities of the 172d Brigade.

Both of the scenarios in chapter VI are presented in a sterile atmosphere. Enemy interference with deployment is held at a minimum in order to concentrate on the environmental impact. In an actual situation the enemy can be expected to make every attempt to prevent the effective deployment of U.S. Forces. The slower the deployment the greater becomes the likelihood of effective enemy intervention. The problems attending the deployment of infantry, mechanized, and light infantry brigades in the Alaskan environment offer a wide spectrum of possibilities for enemy response.

The airmobile and airborne infantry brigades are better equipped for Alaskan operations than are the other three configurations.

A principal weakness of the airmobile unit lies in the requirement for multiple refueling sites. Effective deployment of helicopter assets to a peripheral FSB presumes adequate prestockage of fuel and multiple ferry routes. The 222d Aviation Battalion has proven itself capable of performing that operation in a training environment under all possible combinations of adverse weather.

The airborne brigade possesses the quickest response

time. A stringent deployment limitation is its dependency upon the availability of Air Force transport. Once on the drop zone the brigade faces an all or nothing situation. The force must maneuver against the enemy immediately and risks total annihilation if it fails to secure its objectives in the allotted time frame.

None of the five investigated units possesses adequate flexibility of response when configured purely by TOE. Given the requirement to establish a Forward Staging Base in the proximity of an established airfield with minimum and maximum allowable distances from the objective, the enemy could be expected to anticipate the probable U.S. response and take effective preventive action. In both scenarios the Forward Staging Bases are limited to one or two suitable airfields. The airborne configuration, while not requiring the establishment of a Forward Staging Base, presumes parachute assault within the range of enemy weapons. Again the enemy could be expected to anticipate the location of the assault.

A mix of forces combining elements of the airborne and airmobile brigades would greatly increase the flexibility of the resultant force. Substitution of a minimum of one each airborne infantry battalion, airborne field artillery battery, and airborne engineer platoon for equal sized airmobile forces within the airmobile brigade would allow the force a wide choice of sites for establishment of a Forward Staging Base. During the winter an airborne task force could be parachuted onto any one of several hundred frozen lakes surrounding both King Salmon and

Prudhoe Bay. An assault landing strip could then be established for airlanding the follow-on airmobile forces. In the summer the selection of FSB sites would be more restrictive, but the capability for preparing any one of the many small dirt airstrips for C130 aircraft use would still provide adequate flexibility of site selection. Reversing the mix of forces to provide an airmobile capability to the airborne brigade by attaching or assigning at least one assault helicopter battalion containing a mix of UH1 and CH47 helicopters would further increase the flexibility of the force by providing an option between a total airmobile or airborne assault or any combination of both.

These same findings apply to the selection of cavalry troop configuration for assignment to the brigade in Alaska. The armored cavalry troop possesses greater firepower, however during the summer its tactical mobility is severely restricted. The air cavalry troop is more suitable for operations in Alaska because of its greater tactical mobility.

Conclusions

The development of additional road networks in Alaska will have minimal impact upon tactical mobility during the 1980-1990 time frame. The environment, coupled with the vast distances between critical terrain features will require continued dependence upon airmobility for successful counter-offensive operations.

None of the five separate infantry brigades offers the best mix of forces for maximum combat power when deployed in TOE configuration.

The present configuration of the 172d Infantry Brigade does not offer the best mix of forces for accomplishment of counter-offensive missions in Alaska. Its lack of airborne field artillery and airborne engineers prevents airborne assault operations. The brigade's flexibility is restricted by its inability to develop assault landing strips for C130 aircraft throughout Alaska. In its present configuration the brigade possesses approximately the same capability for counter-offensive operations as does the separate airmobile infantry brigade.

Changing the present configuration of the 172d Infantry Brigade to provide one airborne infantry battalion, one airborne field artillery battery, and one airborne engineer platoon would increase the brigade's capability and flexibility dramatically. This change could be accomplished at little expense and with no additional personnel authorizations. (Figure 7-1.)

The best separate infantry brigade configuration for counter-offensive operations in Alaska during the 1980-1990 time frame is a separate airborne infantry brigade (figure 7-2). This conclusion assumes continued presence of the 222d Aviation Battalion in its present configuration. The airborne brigade would possess maximum capability and flexibility for massing combat power anywhere in Alaska under most environmental conditions.

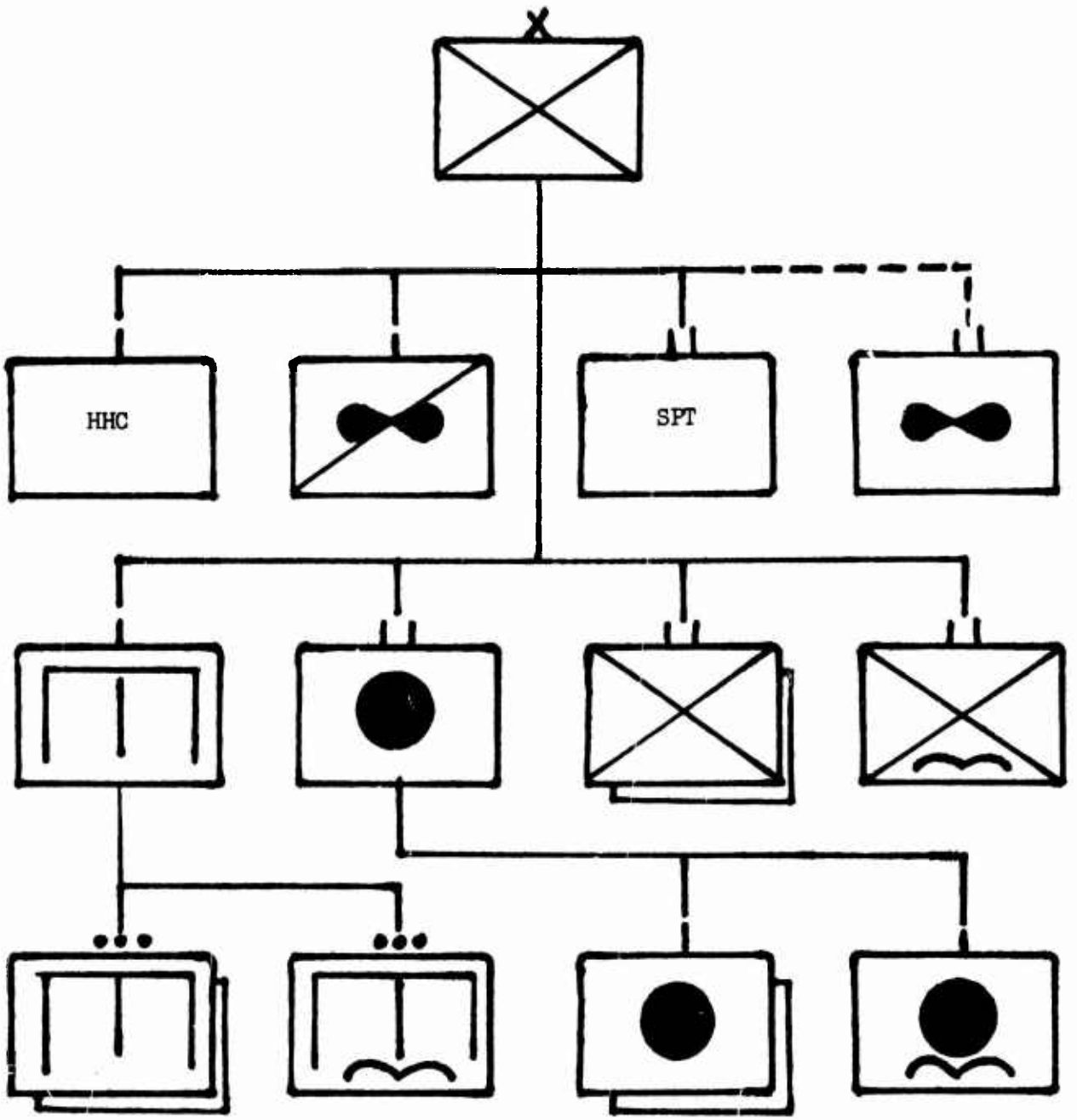

Figure 7-1

Modified Airmobile Infantry Brigade (Separate)

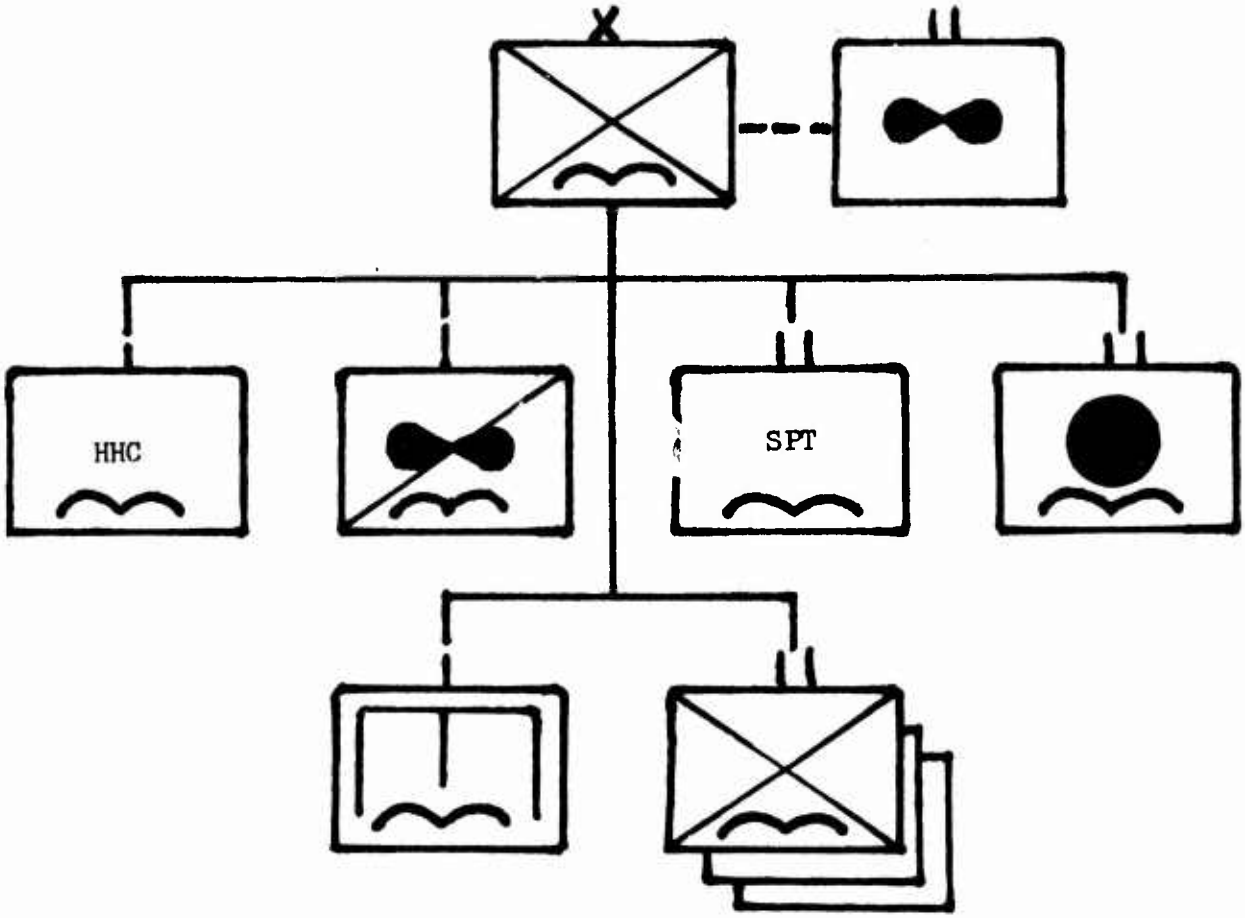

Figure 7-2

Modified Airborne Infantry Brigade (Separate)

ENDNOTES

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[12]Brian Garfield, The Thousand-Mile War, (New York, Ballantine Books, 1971), p. 127.

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[17]Rand-McNally (ed.), Alaska Highway Map, (Chicago, Ill., Rand-McNally and Co., 1973).

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[2]The Capture of Attu, p. 5.

[3]Robert Henning, (ed.), "From Ketchikan to Barrow", Alaska, (Anchorage, Alaska Northwest Publishing, 1974), p. 16.

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[2]Orientation Briefing, p. 16.

[3]Operations in Alaska, p. 125.

[4]After-Action Report: Exercise Ace Card V, (APO Seattle, HQ 172d Brigade, 1973), p. 3.

[5]After-Action Report: Exercise Ember Dawn V, (APO Seattle, HQ, USARAL, 1973), p. 6.

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CHAPTER VI

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[3]Organization and Equipment Modifications for Operation of ROAD Divisions in Northern Areas, (APO Seattle, HQ USARAL, 1966), p. III-4.

[4]TM 55-450-15, Air Movement of Troops and Equipment (Non-tactical), (HQ Dept. of the Army, 1971), p. 154.

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