

~~TOP SECRET UMBRA~~

*CRYPTOLOGIC HISTORY SERIES*

SOUTHEAST ASIA

Focus On Khe Sanh

Theodore Lukacs

December 1969

Declassified and Approved for Release by NSA on 12-19-2018 pursuant to E.O. 13526

~~TOP SECRET UMBRA~~

~~TOP SECRET UMBRA~~~~TOP SECRET UMBRA~~

## SECURITY NOTICE

Although the information contained in this journal ranges in security classification from *UNCLASSIFIED* to *TOP SECRET CODEWORD*, the overall security classification assigned to this issue is

~~TOP SECRET UMBRA~~

While the TSCW classification by itself requires careful handling, additional caution should be exercised with regard to the present journal and others in the series because of the comprehensive treatment and broad range of the subject matter.

## CRYPTOLOGIC HISTORY SERIES

## Southeast Asia

*Sponsors*

Vice Adm. Noel Gayler, USN	Director, NSA
Maj. Gen. Charles J. Denholm, USA	Commanding General, USASA
Rear Adm. Ralph E. Cook, USN	Commander, NAVSECGRU
Maj. Gen. Carl W. Stapleton, USAF	Commander, AFSS

*Joint Staff*

Juanita M. Moody	Chief
William D. Gerhard	General Editor
Lawton L. Sternbeck,	ASA
Hiram M. Wolfe, III	ASA
Raymond P. Schmidt	NAVSECGRU
Bob W. Rush,	AFSS
Thomas N. Thompson	AFSS
Mary Ann Bacon	Editor

~~TOP SECRET UMBRA~~~~TOP SECRET UMBRA~~

## Foreword

*Focus on Khe Sanh* recounts SIGINT assistance to the U. S. forces, particularly the 26th Marines, during the North Vietnamese attempt to take the Khe Sanh Combat Base in early 1968. It details the traffic analytic, direction finding, and other SIGINT operations that produced intelligence on the enemy buildup in the Khe Sanh area. It then relates the continuing SIGINT support to the commanders during combat and during the subsequent withdrawal of the North Vietnamese Army units from Khe Sanh. Finally, it gives a clear picture of how SIGINT was tactically employed by the U.S. combat commanders directly concerned.

All echelons of the SIGINT system—the in-country SIGINT units of all three Services as well as NSA—cooperated to give maximum assistance to the U.S. command. As a result, the command was able to use to good advantage the SIGINT of the total support system, including that produced by the USMC SIGINT unit at the Khe Sanh base itself. *Focus on Khe Sanh* exemplifies, therefore, the manner in which components of the SIGINT system are working together to provide a vital service to American commanders in Vietnam.

NOEL GAYLER  
Vice Admiral, U.S. Navy  
Director, NSA

## Preface

A large number of people, in addition to SCA project officers, gave invaluable assistance in the preparation of this volume. The following acknowledgements single out only a few who were of substantial help: 2d Lt. Bernard J. Prosser, USMC, A02F, for providing materials on the role of USN-414J4 during the battle; Capt. Lawrence A. Pollmiller, USMC, A02F, Marine Corps Headquarters, for arranging our interview with Col. David S. Lownds, senior USMC commander at Khe Sanh, and for providing a transcript thereof; SSgt. Frank E. Wieland, USMC, for pictures of Khe Sanh and information about USN-414J4 traffic analytic operations; SSgt. Robert M. Souza, USMC, for pictures of Khe Sanh; William G. Flynn, B605, NSA, for providing information about NSA reporting during the campaign; Robert S. Meck, B62, chief of the NSA branch responsible for the DMZ area, for answering many questions about Khe Sanh; David J. Tiren, B62, NSA, for providing continuing insight into the more technical traffic analytic aspects of enemy communications; and Ronald D. Laske, B62, for providing information on USM-808 contributions during the battle.

Special thanks are owed to two persons who were of singularly valuable assistance: Sgt. William F. Case, USMC, NSA, formerly NCOIC of the voice intercept team at Khe Sanh, for providing many pictures and furnishing a detailed description of voice intercept efforts at Khe Sanh during the siege; and to Arpad J. Torma, B62, for providing a resume of traffic analytic and intelligence developments pertaining to Khe Sanh and for a penetrating and thoughtful review of an early draft of this volume.

*Finally, my special thanks go to Mrs. Ida Ryder of NSA, whose typing and keying for PHOTON-713 processing made this work possible.*

The primary sources for this journal include technical and intelligence product issued by NSA and USM-808; materials furnished by Headquarters, ASA, and Headquarters, USMC; personal inter-

viii

views; and USIB Watch Committee and MACV reports that incorporated SIGINT. The author and his associates on the Southeast Asian Cryptologic History Project accept full responsibility for interpreting these source materials. A fully documented copy of this publication is available in P2, NSA.

September, 1969

Theodore Lukacs

## Contents

Chapter	Page
<b>I. THE SETTING</b>	1
<i>The Reasons for Khe Sanh</i> . . . . .	1
<i>The Opposing Forces</i> . . . . .	7
<i>Summary of 1968 Battle for Khe Sanh</i> . . . . .	8
<i>SIGINT Support System for Khe Sanh</i> . . . . .	10
 <b>II. THE BUILDUP</b>	 23
<i>325C Division, Spring-Summer 1967</i> . . . . .	23
<i>325C Division Units Withdraw</i> . . . . .	25
<i>304th and 320th Divisions Begin Deploying</i> . . . . .	27
<i>Additional Indicator of Deployment: The</i> <i>Way Station Complex</i> . . . . .	35
<i>The 325C Division</i> . . . . .	40
<i>Khe Sanh Area Front Established</i> . . . . .	44
<i>304th and 320th Divisions Complete Deployment</i> . . . . .	46
 <b>III. THE BATTLE FOR KHE SANH</b>	 51
<i>SIGINT Support in the Early Part of the Battle</i> . . . . .	52
<i>Continuing SIGINT Support Operations</i> . . . . .	59
<i>Enemy Operations During February and</i> <i>Early March</i> . . . . .	73
 <b>IV. KHE SANH SECURED</b>	 81
<i>325C Division Departs</i> . . . . .	81
<i>Operation PEGASUS</i> . . . . .	84
<i>Enemy Withdrawal Continues</i> . . . . .	90
 <b>LIST OF ABBREVIATIONS</b> . . . . .	 93
<b>INDEX</b> . . . . .	95

## Maps

Orientation, Quang Tri Province . . . . .	3
Corps Areas . . . . .	5

x

	Page
Communications Links for Khe Sanh Support . . . . .	18
NVA Military Regions . . . . .	26
304th Divisions Reported as of Late November . . . . .	29
304th Division Positions Reported as of 12 December . . . . .	34
NVA Buildup Reported as of 12 December . . . . .	41
NVA Buildup Reported as of 19 January . . . . .	47
NVA Buildup Reported as of 24 January . . . . .	56
304th Division Positions Reported as of Late January . . . . .	60
NVA Positions Reported as of Early March . . . . .	79
325C Division Departs Khe Sanh Area . . . . .	83

## Illustrations

Maj. Gen. Rathvon McC. Thompkins and Col. David E. Lownds . . . . .	7
USM-808 (8th USASA RRU) Operations	
Building, Phu Bai . . . . .	10
USN-414J (Sub Unit One, 1st Radio Battalion)	
Organizational Chart . . . . .	11
C-47 Used for AFSS SENTINEL SARA and	
COMPASS DART Missions . . . . .	12
COMPASS DART ARDF Position . . . . .	15
P-2V Used for ASA CEFLIEN LION Missions . . . . .	17
SRDF Position at Khe Sanh, October 1966 . . . . .	21
Perimeter Bunkers . . . . .	44
Truck and Aircraft Dug In for Protection . . . . .	45
1st Lt. Scott G. Nickel and 1st Lt. George J. Gornic . . . . .	62
Sgt. George N. Bailey . . . . .	63
Sgt. William F. Case . . . . .	64
Site of USN-414J4-ARVN Voice Team Operations . . . . .	65
Entrances of Command Post Bunkers . . . . .	67
Low-level Voice Intercept Positions . . . . .	68
USN-414J4 Bunkers . . . . .	70-71
Aircraft Damaged by NVA Artillery . . . . .	72-73
Runway at Khe Sanh . . . . .	76
UH-1D Used for LEFT BANK Missions . . . . .	87

## CHAPTER I

### The Setting

As a major part of the winter-spring campaign of 1967-68, the North Vietnamese and the Viet Cong began two major actions in January 1968—the battle for the Khe Sanh plateau and the Tet offensive. In both actions the cryptologic community played a significant role in the enemy's defeat. This volume tells the story of SIGINT's part in the battle for the Khe Sanh plateau.\*

#### *The Reason for Khe Sanh*

The war in South Vietnam has to a great extent been one for the control of the country's populace—the indigenous Viet Cong and the North Vietnamese vying with the South Vietnamese Government and its Allies for the loyalty of the population.\*\* In the I Corps Tactical Zone (the five northern provinces of South Vietnam) the Allies by mid-1966 were achieving their goal of winning over the population, and therefore the communists had to develop different strategies to counter the Allies' gains. The enemy's new plans included the occupation of Quang Tri, South Vietnam's northernmost province. Success in Quang Tri, the communists reasoned, might even cause the United States to withdraw from Vietnam. In executing their plans the communists intended to use the North Vietnamese Army (NVA) as well as Viet Cong forces. The

\*The role of SIGINT in the Tet offensive will be detailed in another volume in the series.

\*\*Non-cryptologic material for this volume has come, for the most part, from a draft manuscript, "The Battle for Khe Sanh," by Capt. Moyers S. Shore, II, of the Historical Branch, USMC Headquarters; from *Report on the War in Vietnam* (Government Printing Office, 1969), by Admiral U. S. G. Sharp and General W. C. Westmoreland; and from "Khe Sanh (Operation NIAGARA)," by Warren A. Trest of Project CHECO, Seventh Air Force, DOAC.

North Vietnamese first tried a frontal attack due south through the Demilitarized Zone (DMZ).\*

While the North Vietnamese built up forces along the DMZ for their attack, General William C. Westmoreland, Commander, U.S. Military Assistance Command, Vietnam (MACV), deployed his forces northward to meet the threat. The U.S. 3d Marine Division headquarters moved from Da Nang to Phu Bai. Division Forward set up operations still farther north, at Dong Ha in eastern Quang Tri where Route 9, coming east from the Laotian border, meets Route 1, the main north-south artery along the eastern coast of South Vietnam. U.S. Army artillery was also moved northward.

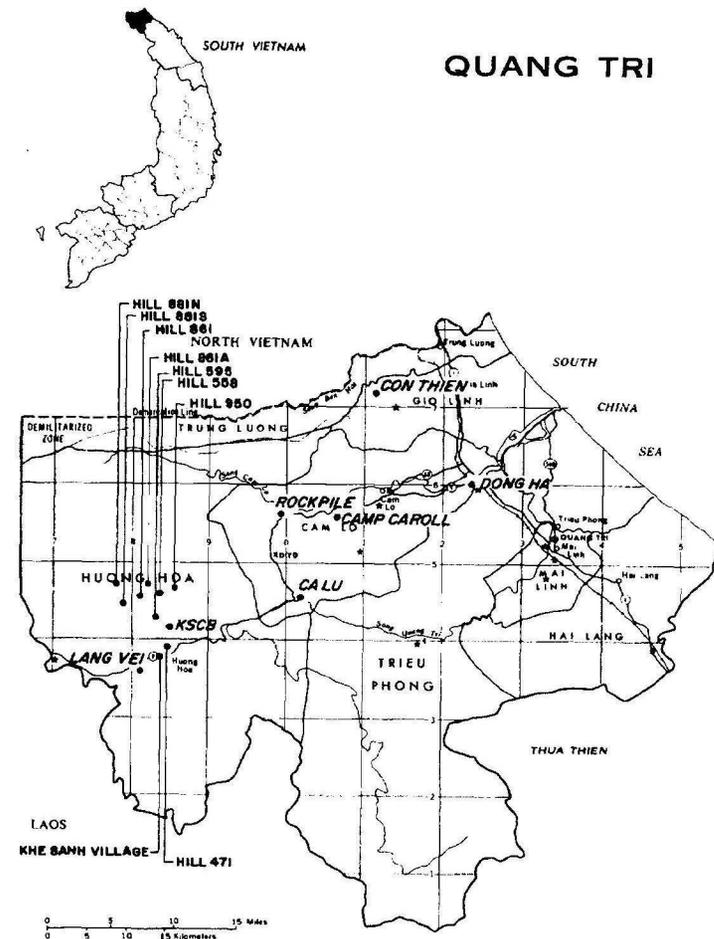
As American and Army of the Republic of Vietnam (ARVN) troops moved into Quang Tri in force, General Westmoreland set up a series of installations across Quang Tri Province, east to west, at Dong Ha, Camp J. J. Carroll, the "Rockpile," and Khe Sanh. In addition, the Marines began constructing strongpoints just south of the DMZ, two of which were in the east at Gio Linh and Con Thien, logical points of entry for the North Vietnamese.

In northwestern Quang Tri lies the Khe Sanh plateau. The plateau commands approaches from Laos, along Route 9, to Dong Ha and Quang Tri City and to the coastal corridor leading to Hue, the ancient capital of Vietnam on Route 1. He who holds the plateau controls an alternate year-round route from North Vietnam into Quang Tri Province. Should the North Vietnamese gain control of the plateau, they would be able to outflank Allied positions just south of the Demilitarized Zone.

The strategic importance of the plateau had been known for years. The French had built a fort near the village of Khe Sanh on Route 9 before World War II. The U.S. Army Special Forces (USSF)—the Green Berets—in August 1962 established a Civilian Irregular Defense Group (CIDG) on the plateau on the site that was later to become the Khe Sanh Combat Base (KSCB).

During the summer of 1966 the Navy "Seabees" bulldozed a small dirt airstrip at the CIDG camp, and in early October 1966, as part of

\*DMZ area in this volume is taken to mean that area between Route 9 and the vicinity of the DMZ's northern border.



5586 9-67

Orientation, Quang Tri Province

the U.S. buildup in Quang Tri Province, the Marines stationed the 1st Battalion, 3d Marines, at the base. The CIDG camp then relocated 9,000 meters southwest to a spot near Lang Vei on Route 9. From October 1966 on, the Marines maintained at least one company at the



Battalion (USN-414J). The detachment—known as USN-414J4—arrived at Khe Sanh on 22 August and was destined to play a leading role in the 1968 defense of Khe Sanh.

Having failed in their summer attempts to invade eastern and central Quang Tri through the DMZ, the North Vietnamese in late September again turned their attention to the west, toward the Khe Sanh plateau. In the latter half of October they withdrew the troops that had been operating in the Camp Carroll area to a base west of Khe Sanh in Laos. Concurrently they began deploying two divisions southward through North Vietnam.

On 1 November ARDMORE was renamed SCOTLAND, under which codename the U.S. 26th Marines, together with ARVN troops, continued their search and destroy actions to interdict any NVA infiltration into northwestern Quang Tri Province. The defense of Khe Sanh during early 1968 was part of Operation SCOTLAND.

Toward the end of 1967, it became known that the North Vietnamese were massing an unprecedented number of forces near the Khe Sanh base and that the possibility was developing that the base might be an objective of the enemy's winter-spring campaign. It was therefore important to the Allied forces in Vietnam that the Khe Sanh plateau remain in friendly hands.

To achieve that end, General Westmoreland had two alternatives open to him. He could reinforce the SCOTLAND troops with other mobile units and air support so that the force could continue its operations on an expanded scale, or he could let the troops of SCOTLAND defend the plateau from the Khe Sanh Combat Base. The first alternative General Westmoreland considered impractical. There were neither the troops nor the logistical capability in northern South Vietnam to carry out a large mobile operation—nor, for that matter, were there forces currently available elsewhere in Vietnam for such duty. Even had the troops and materiel been free for such an operation, the northeast monsoon, which was then in progress and which would last into March, would limit tactical and logistic support of a large, mobile combat action. General Westmoreland therefore chose the second alternative—a static defense of the plateau by SCOTLAND troops stationed at the Khe Sanh Combat Base. On 13 December the 3d



General Tompkins and Colonel Lownds

Battalion, 26th Marines, was airlifted to the base to reinforce the position.

*The Opposing Forces*

The U.S. Marine forces at KSCB in early January 1968 consisted of the 1st and 3d Battalions of the 26th Marines, commanded by Colonel Lownds and under control of Maj. Gen. Rathvon McC. Thompkins, the 3d Marine Division commanding general. The large U.S. Army Special Forces and South Vietnamese Civilian Irregular Defense Group camp was still at Lang Vei, and a similar camp was now located adjacent to the base.

At the beginning of the battle for Khe Sanh, Headquarters, 3d Marine Division, was at Dong Ha, having moved north from Phu Bai on 10 January. Elements of the 3d Marine Division, supported by U.S. Army and Marine artillery, were operating along the Demilitarized Zone out of the bases and strongpoints along Route 9. Various units of

the ARVN 1st Division, whose headquarters was at Hue, northwest of Phu Bai, were stationed in Thua Thien and Quang Tri Provinces. The South Vietnamese forces usually operated in the areas south of Route 9, but upon occasion joined the Marine units during actions in the DMZ area.

In mid-January 1968, the North Vietnamese opposing the Americans and South Vietnamese in western Quang Tri Province were the 304th, 320th, and 325C North Vietnamese Army (NVA) Divisions plus independent units and supporting forces. The structure of the North Vietnamese Army is in some ways similar and in some dissimilar to that of the U.S. Army. The lower echelons of the North Vietnamese Army are similar in that there are battalions, regiments, brigades, and divisions, but the strength of each is smaller than that of its U.S. counterpart. For example, an NVA infantry regiment numbers approximately 1,500 men, roughly equivalent in size to a U.S. infantry battalion. Deployed NVA divisions, which usually consist of three infantry regiments plus minimal headquarters, support personnel, and supporting arms, seldom exceed 5,000-6,000 men, while U.S. divisions contain 12,000-18,000. At or above the division level, the North Vietnamese upon occasion have introduced a formation called a *front*. The *front* is often a temporary headquarters established to exercise tactical control over multiregimental forces; it sometimes evolves into a permanent administrative and tactical command for a given geographical area, splitting off its own detached or forward elements for specific operations. At times these detached elements, more transient and tactically oriented than their parent organization, are more truly representative of the original *front* concept. Some of the *fronts* have been redesignated divisions, but many continue to bear the designation *front*.

#### *Summary of the 1968 Battle at Khe Sanh*

On 16 January 1968, when it had become apparent that the North Vietnamese might well attack the Khe Sanh base, General Tompkins sent Colonel Lownds the 2d Battalion, 26th Marines. For the first time Colonel Lownds had his whole regiment at the base. The U.S. tactical plan for the defense of KSCB called for the troops to dig in at the base

and on surrounding hills and confine their maneuvering to patrols needed for local security, thus eliminating the possibility that the force would be defeated in detail and allowing General Westmoreland the free use of massive all-Service supporting firepower—both close in and well beyond the Marine perimeter.

On 17 January North Vietnamese troops ambushed a Marine reconnaissance team near Hill 881N. For the next three days there were small unit actions in the Hill 881N area, and on 21 January the North Vietnamese began a series of ground and artillery attacks against the outposted hills and artillery attacks against the base itself. On 22 January the 26th Marines was further reinforced with the 1st Battalion, 9th Marines; on 27 January the South Vietnamese sent in the 37th ARVN Ranger Battalion. Colonel Lownds therefore had under his control five battalions plus supporting artillery and armor, in all some 6,000 troops.

For the next two months, the enemy launched heavy ground and artillery attacks against the outposted hills and repeatedly made artillery attacks against the base. On 7 February an NVA force, supported by Soviet PT-76 tanks, overran the Lang Vei Special Forces camp on Route 9. This marked not only the most successful of the NVA operations at Khe Sanh but also the first NVN use of tanks in the war. After an unsuccessful ground attack on the base on the night of 29 February-1 March, the North Vietnamese concentrated on shelling the base in an attempt to disrupt U.S. resupply operations. They singled out the Khe Sanh airstrip as a target for particularly intense treatment and succeeded in inflicting considerable damage on aircraft and installations. However, the defenders of Khe Sanh continued to receive supplies by air, and thus the North Vietnamese failed in a most significant aspect of their plans.

By mid-March the North Vietnamese apparently conceded that their campaign had failed, for they withdrew their much battered 325C Division into Laos. The 304th Division remained in the Khe Sanh area for a while and continued to shell the base, but no longer posed so serious a threat.

In early April a U.S.-ARVN task force, in an operation known as PEGASUS, opened Route 9 from Ca Lu to Khe Sanh and then, together with forces from the Khe Sanh base, swept the surrounding hills, driving

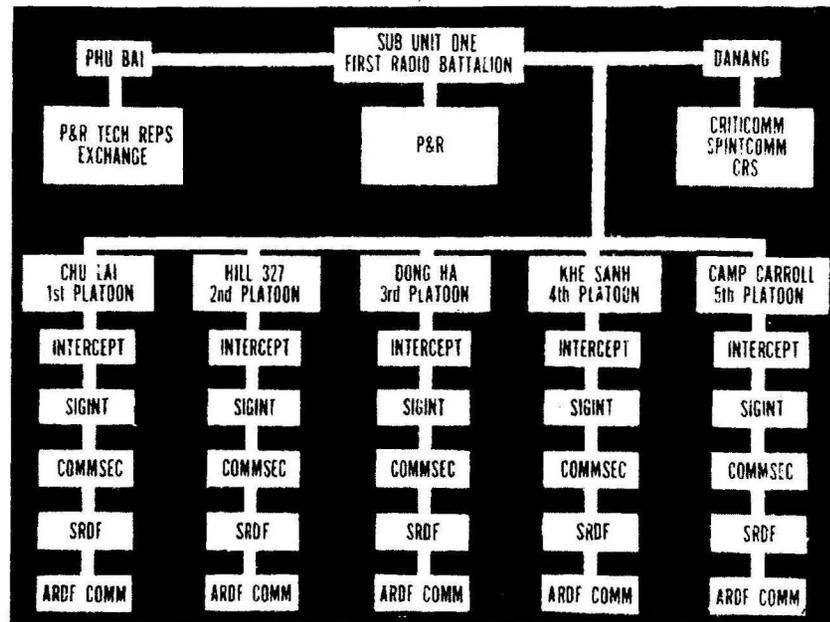


USM-808 Operations Building, Phu Bai

the 304th out of its fortifications and dispersing its components into the western DMZ-Laotian border area. Several weeks later the North Vietnamese withdrew the remnants of the 304th to North Vietnam, replacing them with elements of the 308th Division.

*SIGINT Support System for Khe Sanh*

Operations undertaken by the Army Security Agency (ASA), the Naval Security Group (NAVSECGRU), the Air Force Security Service (AFSS), and the National Security Agency made a significant contribution to the defeat of the enemy at Khe Sanh by providing vital support to the tactical commanders involved. The cryptologic agencies furnished detailed information on the enemy's preattack buildup of forces, kept the local commanders supplied with timely, tactically exploitable intelligence during the defense of Khe Sanh, and traced the dispersal of the enemy attack forces.



USN-414J Organizational Chart

*CMA's and DSU's*

To enhance SIGINT support for tactical ground commanders in South Vietnam, the Director, NSA (DIRNSA), in 1965 and 1966 had designated three field processing stations (USM-604, USM-626, and USM-808) of the 509th USASA Radio Research Group as Collection Management Authorities (CMA's), and made them directly responsible for the effective steerage of U.S. collection facilities targeted against enemy communications, primarily within broad geographic areas. In this division, USM-808 (8th USASA Radio Research Field Station) at Phu Bai, the northernmost of the three 509th Group CMA's and the largest station in Southeast Asia, was responsible for enemy communications originating in North Vietnam, the DMZ area, the two northern provinces of South Vietnam (Quang Tri and Thua Thien), North Vietnamese military and overland infiltration communications in Laos, and the communications linking Hanoi to the headquarters of major



C-47 Used for AFSS SENTINEL SARA and COMPASS DART Missions

commands in South Vietnam. USM-808 was, accordingly, the CMA for enemy communications associated with the battle for Khe Sanh.

In its role as CMA, USM-808 provided direct SIGINT support to Headquarters, III Marine Amphibious Force (MAF), at Da Nang; to the 3d Marine Division headquarters at Phu Bai and, from 10 January on, at Dong Ha; and to U.S. Army commands throughout the I Corps Tactical Zone (CTZ). USM-808 also worked closely with SCA direct support units (DSU's) deployed in the two northern provinces of South Vietnam and attached to the military units they supported. USM-808 provided technical assistance as needed to make the DSU collection and processing responsive to the intelligence requirements of the supported units. In tailoring support to the USMC units in the northern provinces, USM-808 worked jointly with the Naval Security Group's USN-414J at Da Nang.

USN-414J provided direct support to Headquarters, III MAF. It also provided guidance and support to its detachments, which were deployed with various USMC units in I Corps, including USN-414J4 at Khe Sanh. (See Map, page 18.)

#### ACRP

Collection of enemy communications in the northern provinces and adjoining areas by USM-808 and the USMC DSU's was augmented by ASA and AFSS airborne communications reconnaissance program (ACRP) aircraft flying out of Da Nang and Phu Bai. USM-808 tasked the ACRP aircraft, provided technical support, received and incorporated the ACRP take with its own intercept, and issued SIGINT product for the entire collection.

During the operations at Khe Sanh, ACRP platforms were the primary source of intercept on enemy low-level tactical manual Morse communications. For these communications, the enemy used low-power, 2-watt transmitters and passed exploitable traffic of exceptional intelligence value, in contrast to the unreadable traffic transmitted over the higher power 15-watt radio links employed at higher echelons. The ACRP aircraft's capability of intercepting the low-level enemy communications far outstripped that of the ground stations. Even USN-414J4 at Khe Sanh often had difficulty intercepting these communications because of the nature of the terrain and other hearability factors.

SENTINEL SARA, an Air Force C-47 airborne tactical collection platform under operational control of the Seventh Air Force, was the most productive of the ACRP aircraft during the battle. SENTINEL SARA (earlier known as DRILL PRESS) had shown a remarkable capability for intercepting the low-level tactical MM communications ever since its introduction into the DMZ area in September 1966. The AFSS C-47 COMPASS DART platform, an airborne radio direction finding (ARDF) aircraft with supplemental manual Morse communications facilities, also provided collection of enemy low-level Morse.

Some USAF platforms landed at Phu Bai, which expedited recovery of the material collected; others off-loaded at Da Nang, from where

their collection was couriered to USM-808. However, Air Force platforms sometimes landed as far away as Pleiku, causing a delay in recovery.

ASA's P-2V CEFLIEN LION airborne collection and electronic communications countermeasures platform also copied enemy low-level Morse communications in the Khe Sanh area. J-2 MACV ordered the CEFLIEN LION platform to change its orbit from the Cambodia-Laos-South Vietnam triborder area to the Khe Sanh area on 23 January. Both CEFLIEN LION and COMPASS DART were able to pass traffic air-to-ground to USM-808 when the operators on board felt that the information was of immediate value or perishable.

CEFLIEN LION was off-loaded at Phu Bai, or at Da Nang where a courier aircraft of the 138th Aviation Company (Radio Research) flew the take to USM-808. USM-808 thus had possession of all the traffic collected within a few hours of off-loading, and, during the campaign, this period was reduced to two hours, maximum.

CEFLIEN LION intercept, like that of SENTINEL SARA and COMPASS DART, also provided important source materials for traffic analytic and cryptanalytic work at USM-808. To mention only one example, during February and March CEFLIEN LION intercept yielded 312 readable messages to supplement those from other collection, and its intercept contributed to the solution and exploitation of several new enemy cryptosystems.

### ARDF

The airborne radio direction finding (ARDF) program, like the airborne collection program, was an excellent example of effective inter-Service cooperation. The ARDF program, conducted in South Vietnam since 1962, constituted a major component of the in-country SIGINT system, since by the time of the battle for Khe Sanh, ARDF fixes had come to be recognized as the most important single source of tactical intelligence. Under the control of J-2 MACV and operated by ASA's 509th Group at Saigon and the Seventh Air Force, the ARDF Coordination Center managed the in-country ARDF program, assigning and allocating ASA and AFSS platforms in accordance with J-2 MACV priorities. In close support of U.S. forces at Khe Sanh, USM-808



COMPASS DART ARDF Position

provided the tasking and support for the ARDF missions. Thus assigned, tasked, and supported, the platforms provided most of the enemy unit locations mentioned in this journal and depicted on its maps. The principal exceptions are locations of enemy units in North Vietnam, which were obtained through medium range direction finding (MRDF) operations conducted by ASA.\*

ASA's 138th Aviation Company, based at Da Nang and having one flight detachment at Phu Bai, flew most ARDF missions in the I Corps Tactical Zone. During the Khe Sanh campaign, a major portion of the ARDF resources available in the I CTZ was allocated to priority missions in close support of the 3d Marine Division, especially the base

\*In all, three MRDF nets—the WHITE BIRCH and SEA Nets #1 and #2—covered enemy targets within South Vietnam, North Vietnam, and adjoining areas.

at Khe Sanh. The Khe Sanh campaign illustrates the value of those timely close support and area support ARDF missions to a tactical command.

The 138th Aviation Company flew RU-8 aircraft in support of KSCB. The craft were equipped with improved AN/ARD-15 DF systems, Doppler navigation, and the KY-28 secure ciphony system, which was compatible with the ground-based KY-8. In addition, the RU-8's carried HESTIA 1-time pads (OTP's) for encryption of ARDF data as backup to the KY-28/KY-8, and for communications with ground units that did not have the KY-8.

USM-808 monitored ground-air-ground communications between the ARDF platforms and SIGINT DSU's, provided whenever possible SIGINT-derived identifications of the targets that had been fixed, and reported the information to tactical consumers within the area of interest. Supported commanders thus received pertinent SIGINT locations from USM-808 within 10-30 minutes of the time the fix was taken.

Other ARDF missions were flown in area support roles. These did not rely on close support ground tipoff, operating mainly from "cherry sheets," which listed target data derived from traffic analytic operations. Area support missions, like close support missions, were directed against enemy targets of primary concern to the supported commanders, and reported results air-to-ground immediately when within range of a concerned DSU.

USN-414J4 received and processed hundreds of ARDF fixes during the campaign, either directly from ARDF platforms or by FLASH precedence from USM-808 through Marine SIGINT detachments at Da Nang and Dong Ha. USN-414J detachments had the KY-8 ciphony device, backed up by HESTIA OTP's when the KY-8 was out, and consequently were able to tip off the on-board ARDF operators to enemy Morse targets. While analysts were plotting fixes received from the ARDF aircraft, USN-414J4 passed the fix information to the Marine S-2 at Khe Sanh. The S-2 relayed the information to the Marine gun positions in the form of target data when the radius of fix was sufficiently small. Under good conditions, the time lag between the

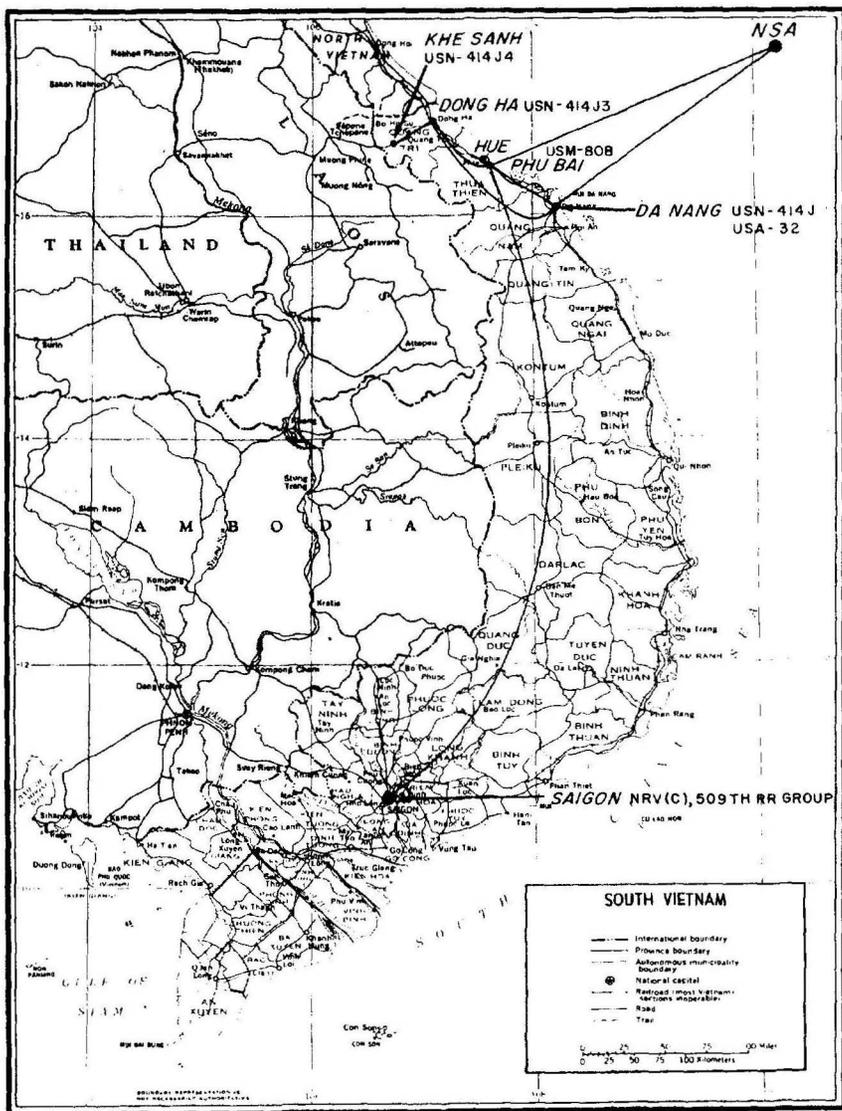


P-2V Used for ASA CEFLIEN LION Missions

instant the ARDF aircraft fixed the position of an enemy unit and the time the first artillery shells were in the air was approximately 10 minutes. On a less timely but nonetheless effective basis, the ARDF results were often used to target the air strikes that played such an important role in the enemy's ultimate defeat.

ARDF information was of inestimable tactical value to the defenders at Khe Sanh. Colonel Lownds noted that he combined his personal knowledge of the local situation with SIGINT-derived enemy locations to gain insight into the enemy's strategy. In Lownds' own words: "COMINT played an important part in giving me current, accurate intelligence about possible and actual enemy movements."\*

\*Interview, author with Lownds, Jan 69.



Communications Links for Khe Sanh Support

Rev 54740 9 66

*Production and Dissemination*

The intelligence produced by the various components of the extensive SIGINT service varied from recurring, serialized reports issued by NSA and the CMA's to reports on target activity passed by the DSU's and CMA's on an as-soon-as-possible basis to tactical commanders and other interested recipients.

NSA received SIGINT and technical data from the CMA's and DSU's, collated and analyzed the total production received from the field, and issued a periodic report on given subjects and one major periodic SIGINT product—the daily Southeast Asia Summary (SEAS). One primary continuing source of SIGINT incorporated in the SEAS was the twice-daily COMINT summary produced by USM-808. The SEAS was distributed to more than 100 consumers, including, at the national level: the White House; State Department; Assistant Chief of Staff for Intelligence, Department of the Army; the Joint Chiefs of Staff; [redacted] and the National Indications Center. The SEAS also reached the Commander-in-Chief, Pacific (CINCPAC), and Service component commands at the Pacific theater level. In South Vietnam, the summary was distributed to Headquarters, MACV; to the various Service commands; to U.S. Army divisions and Navy and Air Force units of comparable echelon; to major SIGINT units; and to others.

In the DMZ area and South Vietnam's two northern provinces, timely tactical intelligence primarily came from the various USMC and ASA DSU's and, following analysis and processing, from USM-808 in the form of high precedence intelligence reports, tactical reports (TACREP's), and SIGINT summaries. SIGINT produced by the DSU's and USM-808 reached tactical SIGINT recipients within several minutes to several hours through SIGINT communications links. Concurrently, it was reported to NSA via the Southeast Asia SIGINT joint communications system—the CRITICOMM network—or by direct joint operational communications (OPSCOMM) circuits.

*Arrangements at Khe Sanh*

During the battle for Khe Sanh USN-414J4, commanded by 1st Lt. George J. Gornic, USMC, was the Marine DSU at Khe Sanh. In the fall of 1966 USN-414J sent a mobile short range direction finding (SRDF) team to the Khe Sanh area for several weeks, but no permanent SIGINT operations were conducted at Khe Sanh until USN-414J established a detachment there on 22 August 1967. SIGINT produced by USN-414J4 went directly to the S-2\* of the 26th Marines or to the base commander, Colonel Lownds. Because Colonel Lownds had been cleared for COMINT for nearly ten years, he was well aware of what it could do for him. In an interview that he granted after his return to the United States from Vietnam, Colonel Lownds indicated that knowledge of SIGINT was "not universal among regimental commanders," and then referred to his experience. He was, he said, familiar with SIGINT when serving as G-3 of the 4th Marine Expeditionary Brigade, which had been sent to the Dominican Republic during the country's political crisis in 1964. Later, while on a tour of duty at Headquarters, Fleet Marine Force Atlantic, he gained a more comprehensive understanding of SIGINT: "What its potential is; how you can make it work for you as a commander; the necessity of providing an adequate staff to get the job done. . . . Because I was already familiar with COMINT, I was able to use it effectively in tactical situations at Khe Sanh."\*\*

USN-414J4 did not issue formal serialized SIGINT product. It passed intelligence directly to Colonel Lownds and his S-2 and sent technical and intelligence information to its parent headquarters at Da Nang. Since the detachment did not have direct communications with Da Nang, the messages had to be relayed through another Marine DSU, USN-414J3, at Dong Ha. Inasmuch as USN-414J maintained close technical exchange with USM-808, much of the information developed at USN-414J4 later appeared in serialized SIGINT product issued by the two primary generators of formal SIGINT product in the system,

\*During the period covered by this work, three men held the S-2 billet: Capt. Harper L. Bohr, Jr. (1 August 1967-7 February 1968), Maj. Jerry E. Hudson (8 February-17 March), and Capt. Thorvald P. E. Holm (18 March through the end of the battle).

\*\*Interview, author with Lownds, Jan 69.



SRDF Position at Khe Sanh, October 1966

USM-808 and NSA. Similarly, SIGINT and technical support from USM-808 and NSA, along with that generated by USN-414J, was forwarded to USN-414J4. Part of the SIGINT published as formal product by USM-808 and NSA had already been made available to the Marine force at Khe Sanh. And the same applied to ARDF fixes passed directly to USN-414J4 from ARDF aircraft of the AFSS and the ASA.

During the Khe Sanh defense, the USN-414J4 complement ranged from a high of approximately 25 to a low of 14. At the time of the opening of hostilities, USN-414J4 had three manual Morse positions, one communications security position, and one ARDF support position. The detachment also maintained SRDF sites on Hills 881S and 950 before the early skirmishes. However, these hills soon became untenable for the SRDF operators and they withdrew to the base.

*The NIAGARA Team*

In mid-December 1967, when it became apparent that the North Vietnamese Army was moving unprecedented numbers of units southward, General Westmoreland agreed to the establishment of a

special all-source reconnaissance intelligence collection and evaluation group known as NIAGARA. While SIGINT was a major intelligence source for military commanders concerned with infiltration, other sources were also important. Understandably, military commanders wanted all the data they could obtain in order to check one report against another and thus assure themselves that information on which they committed Allied forces to battle was as accurate as possible. Also, upon receiving information from one source, commanders frequently used the material to target other sources in order to develop additional material.

Brig. Gen. Philip B. Davidson, Chief of J-2 MACV, with the concurrence of Lt. Gen. Robert E. Cushman, Jr., commanding general of the III Marine Amphibious Force, established the all-source intelligence group in mid-December 1967. General Davidson utilized SIGINT, deserters, prisoners of war, captured documents, aerial reconnaissance, aerial photography, side-looking airborne radar, and infrared, as well as other sensors and sources, frequently targeted by ARDF fixes, to pinpoint enemy support bases, infiltration routes, facilities in Laos and North Vietnam, and major enemy concentrations in a broad area around Khe Sanh.

The NIAGARA special collection team was headed by Maj. Charles Schmidt, USA, and was located at J-2 MACV in Saigon. There the team collated the information collected through III MAF operations with SIGINT and other data to produce an integrated all-source intelligence evaluation. The team operated throughout the period of the defense of Khe Sanh. At its peak it was staffed by 213 men drawn from MACV, the III MAF, the Seventh Air Force, and from organizations in the Philippines, Hawaii, and the continental United States. The concept proved so effective that it was continued for other operations after the Khe Sanh action ended.

The Khe Sanh Combat Base thus had the support of an extensive and effective intelligence system. This is the story of the SIGINT support provided the U.S. commanders defending Khe Sanh.

## CHAPTER II

### The Buildup

Ever since World War I the nations of the world, when they could not break each others codes and ciphers, have gathered intelligence on each other through radio direction finding and through analysis of intercepted messages for call signs, operating frequencies, volume, types of nets, chatter, addresses, methods of routing messages, and so forth. This has been especially true in Vietnam.

As the war there progressed in the early and mid-1960's, the NVA communicators grew ever more sophisticated in the encipherment of their messages, with the result that fewer and fewer of the intercepted messages—particularly those passed on high-level nets—could be deciphered by U.S. analysts. Since a major portion of the enemy's communications were transmitted in high-grade cryptographic systems, rather than in the low and medium-grade systems that cryptanalysts were routinely solving, the SIGINT community came to rely heavily on those versed in traffic analysis.

By the fall of 1967 traffic analysts had acquired enough experience in following NVA communications first to recognize the indicators—in the form of deviations from the norm—that presaged unit movements, and then to deduce the possible designations, destinations, and missions of the deploying NVA units. Using this process, analysts at USN-414J, USM-808, and NSA ascertained vital order of battle intelligence on NVA units moving southward toward Khe Sanh. It was in large part this hard intelligence on which the U.S. commanders made the plans to repulse the enemy on the Khe Sanh plateau.

#### *325C Division, Spring-Summer 1967*

Two major actions comprised the enemy buildup near Khe Sanh between late October 1967 and January 1968: the staging of NVA 325C Division components from Laos and the northern DMZ and the deployment of the NVA 304th and 320th Divisions from North Vietnam. The prelude to the first action was the withdrawal of various

units of the 325C Division from the eastern and central DMZ areas, where they had operated during the spring and summer of 1967.

In the spring and summer of 1967 U.S. commanders used SIGINT to follow 325C Division units during their various moves in the DMZ area. In February 1967 the 95C Regiment, 325C Division, deployed from North Vietnam to a base area in Laos, west of Khe Sanh. As early as mid-April, one component of the division—the 5th Battalion, 95C Regiment—was located in the Khe Sanh area itself. By 17 April the 5th Battalion had been joined by the 325C Division's 8th Battalion, 29th Regiment, and less than a week later the remainder of the 29th Regiment had infiltrated through the DMZ into South Vietnam and had turned east toward Con Thien.

In late April and early May, U.S. Marine units stationed at Khe Sanh drove the 5th and 8th Battalions from positions on Hills 861, 881S, and 881N near Khe Sanh, killing over 900 of the enemy in the process. Following the battle, the remnants of the two units retreated into Laos and joined the 95C Regiment headquarters at its base camp. Elements of the two battalions later re-entered Quang Tri Province and were active along Route 9 southwest of Khe Sanh until July. By late July the 95C Regiment, its 5th Battalion (still operating independent of the regimental headquarters), and the 29th Regiment's 8th Battalion were identified in the Camp Carroll area, northeast of Khe Sanh. During August, these units fought several minor engagements, but no major actions developed.

Meanwhile in late May, and again in early July, the remainder of the 325C Division's 29th Regiment became involved in heavy action in the Con Thien area. The regiment took severe losses in an 8 July clash with the Marines and withdrew into North Vietnam, leaving its 8th Battalion in the Camp Carroll area.

In mid-August the remaining regiment of the 325C Division, the 101D, deployed into the DMZ. The 101D remained in reserve during the August–September operations directed against Con Thien by the NVA 90th, 803d, and 812th Regiments,\* which were operating under

\*The three regiments had been subordinate to the former 324B Division, whose headquarters had been absorbed into the DMZ Front by 1 March 1967. Reports occasionally used the 324B designation long after March 1967.

the control of the DMZ Front, the major NVA command for the DMZ area. Following the late September withdrawal of these regiments across the Ben Hai River, which bisects the DMZ, the 101D Regiment moved into South Vietnam and became engaged southwest of Con Thien.

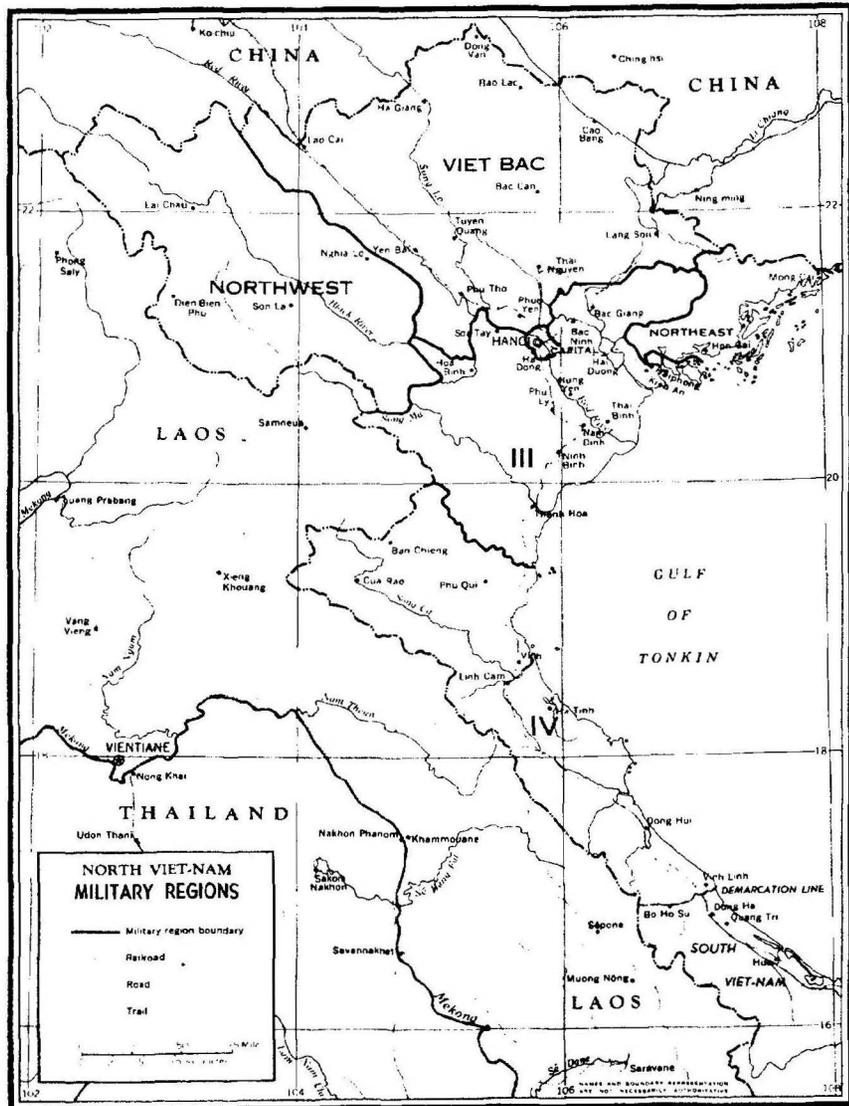
### *325C Division Units Withdraw*

In October units of the 325C Division in the Camp Carroll area began to withdraw. SIGINT showed that the 8th Battalion, 29th Regiment, left the central DMZ area and returned to its base camp in Laos and that the 95C Regiment also returned to Laos.

Reports also revealed that tactical communications facilities serving the 101D Regiment, 325C Division, began operating at a sharply reduced level following the substantial losses it incurred in a 26 October clash several kilometers south of Con Thien. The regiment's tactical communications were inactive during the first week of November, suggesting that the regiment had withdrawn from combat during that week. There were strong indications that elements of the 90th Regiment, which had resumed tactical communications on 30 October, were replacing the 101D Regiment in that tactical zone.

The withdrawal of the 101D Regiment from the Con Thien area came about in part as a result of combat losses, but the renewed combat readiness of the refitted 90th Regiment was another significant factor. By 3 November the 101D Regiment was located north of Con Thien in the DMZ; later in November it was fixed well north of the DMZ, where it underwent refitting for several weeks.

Thus, by early November 1967 SIGINT had shown that elements of the 325C Division were disengaging from the central and eastern DMZ areas. The 325C Division's 101D Regiment had withdrawn northward from the eastern DMZ area, and its 95C Regiment and the 8th Battalion of its 29th Regiment had returned to their base camp in Laos. The return of the 95C Regiment and the 8th Battalion of the 29th Regiment to the area of Laos opposite Khe Sanh marked the first phase in the enemy buildup in the Khe Sanh area.



NVA Military Regions

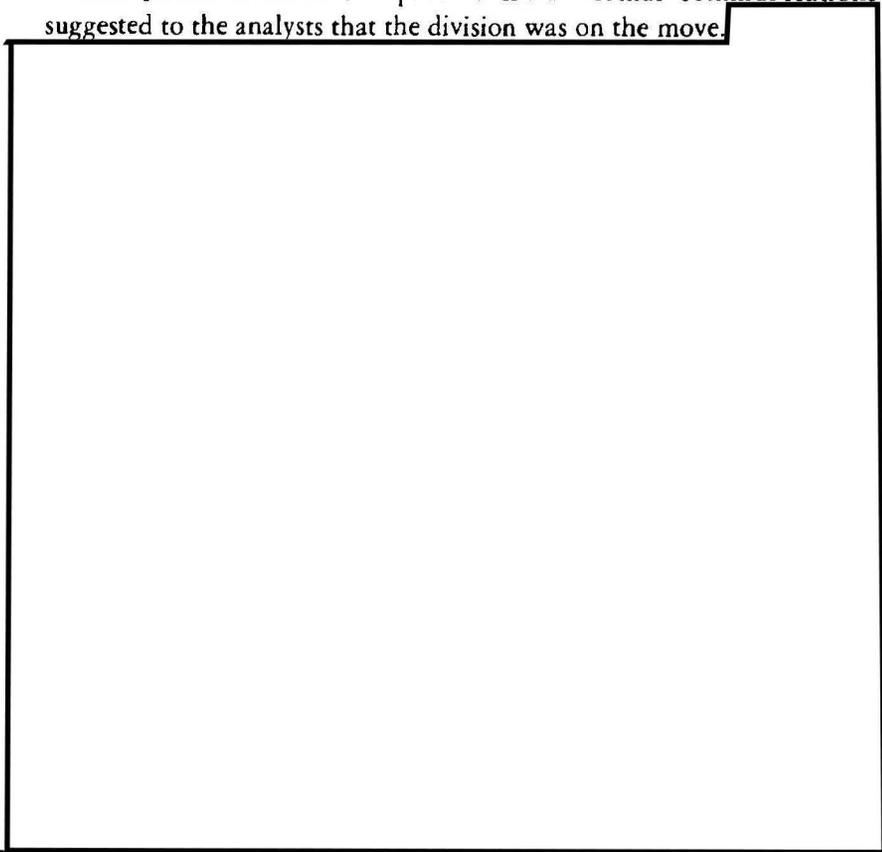
EO 3.3(h)(2)  
 PL 86-36/50 USC 3605

56997 9-67

304th and 320th Divisions Begin Deploying

By the end of October 1967, the volume of communications of the NVA 304th and 320th Divisions, stationed in Military Region (MR) 3 of North Vietnam, had dropped noticeably, and in November the two divisions virtually ceased normal communications activity. The 304th was the first of the two divisions to be singled out by SIGINT analysts as exhibiting communications characteristics indicative of deployment. On 18 November NSA noted that the 304th was preparing to deploy, citing as evidence the gradual cessation of its normal communications and a 12 November identification of a new communications group serving the division headquarters and at least two of its regiments.

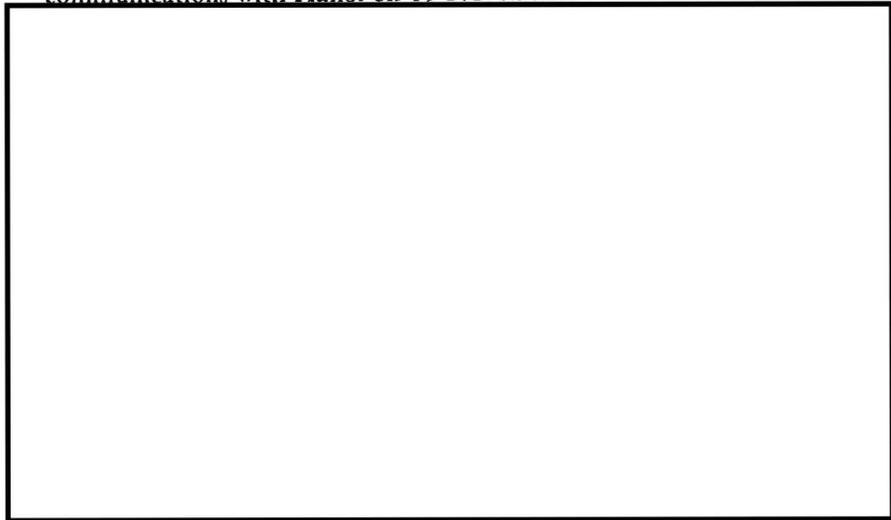
The 304th Division's departure from normal communications suggested to the analysts that the division was on the move.



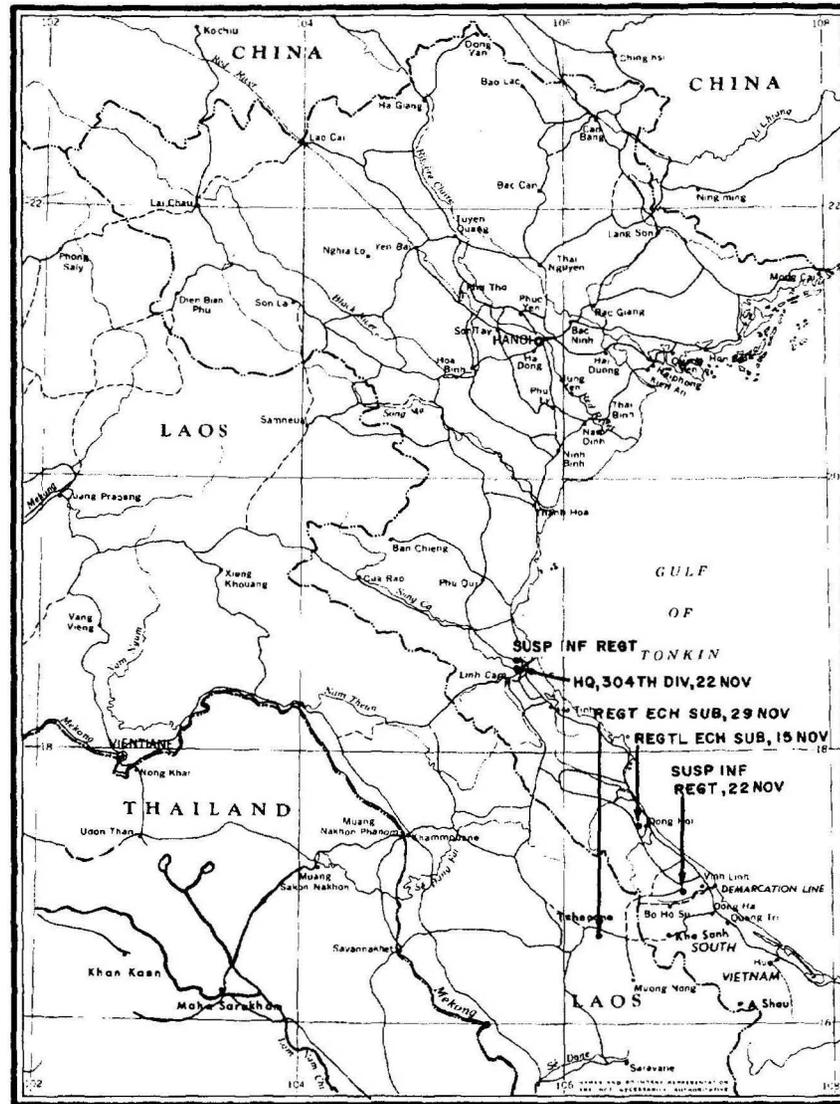
On 21 November NSA provided further information on the deployment of the 304th:

The most recent communications posture assumed by the probable 304th Infantry Division indicated that the division, with the exception of the possible 14th AAA Battalion, is now in deployment. SIGINT also suggests that the subordinates of the division are deploying under radio silence.\*

The 304th Division apparently had left its 14th Antiaircraft Artillery Battalion behind, following the precedent established by other divisions deploying from North Vietnam in the past. The suggestion that subordinates of the 304th Division were observing radio silence was prompted by the apparent inactivation of the communications group that was first reported on 12 November. By 18 November only one of the division's subordinates remained active on that facility. In addition, the 304th Division had activated a broadcast facility on 13 November that allowed it to pass messages to its subordinates, but provided no means for the subordinates to reply. The division headquarters still communicated with Headquarters, Military Region 3 South, but had terminated communications with Hanoi on 15 November.



THE BUILDUP  
NORTH VIETNAM



22 REV. 1-68

304th Division Positions Reported as of Late November

\*2/O/VCM/R232-67, 211535Z Nov 67, Probable 304th Infantry Division In Deployment.

EO 3.3(h) (2)  
PL 86-36/50 USC 3605

the division headquarters and Hq, MR 3 North have continued through 22 November.\*

Three days later USM-808 provided further indications of the 320th Division's deployment.



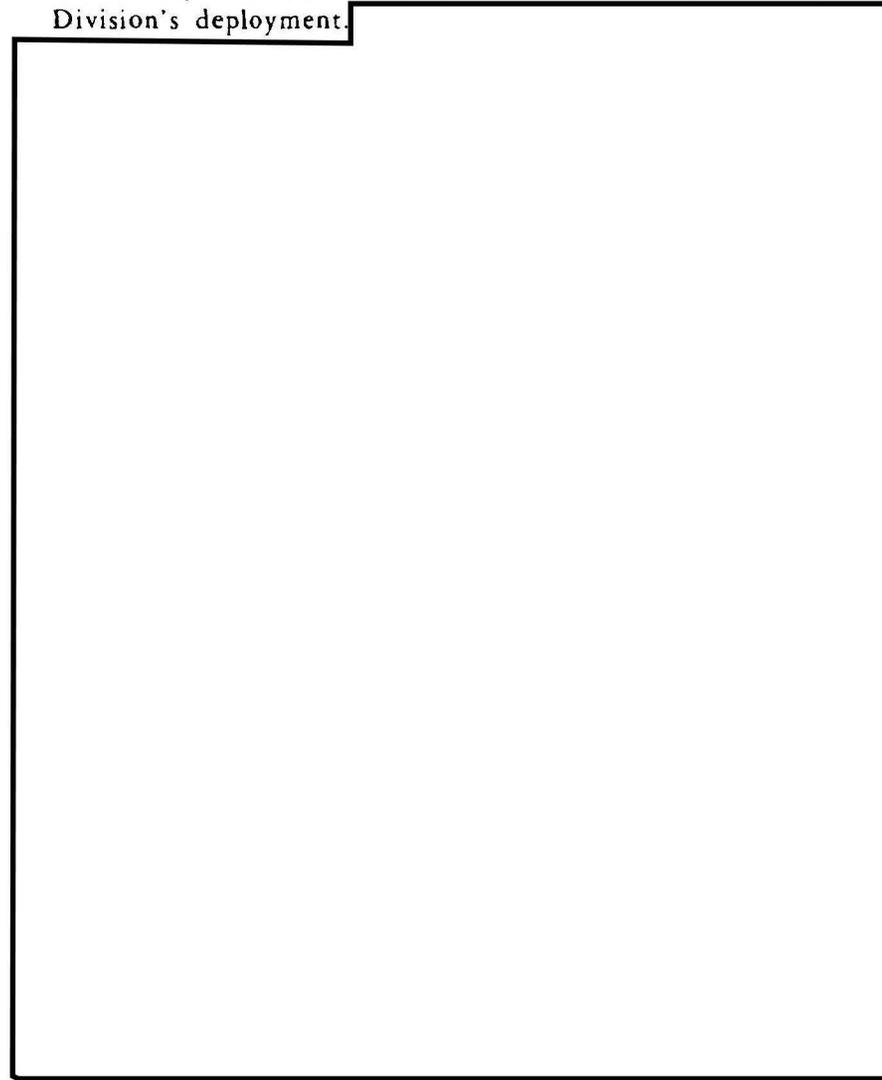
On 23 November NSA reported on indications of impending deployment of the 320th Division.



The manual Morse communications complex serving the probable PAVN 320th Infantry Division has been unobserved since 14 November.

\* \* \*

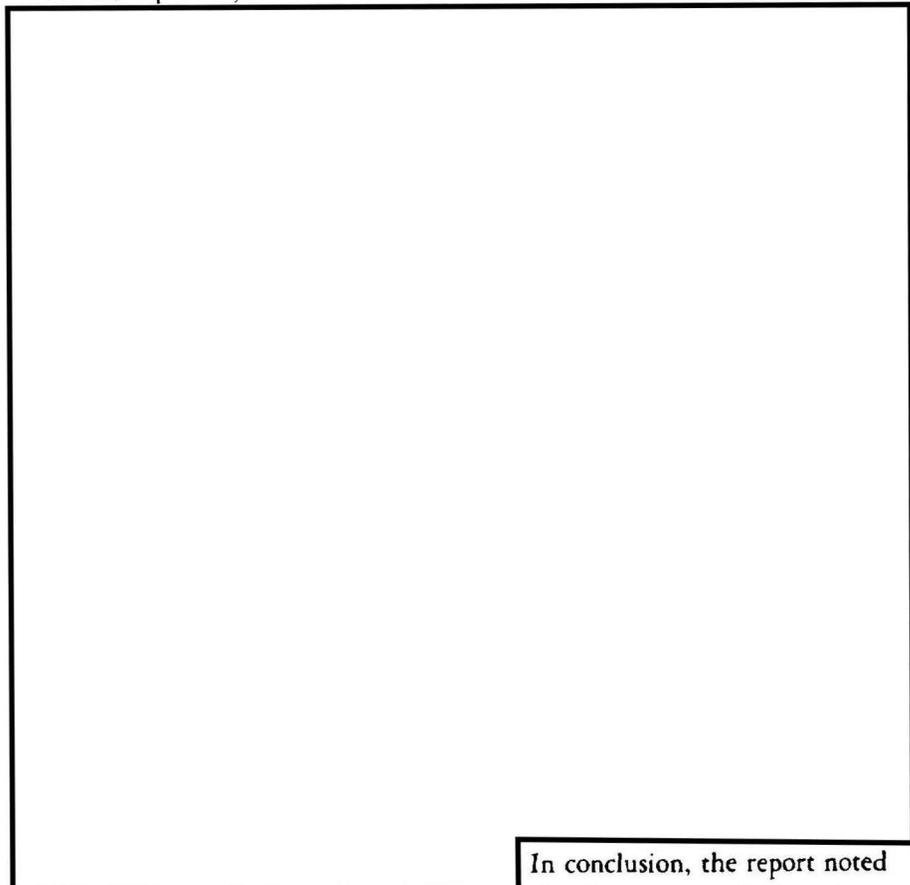
Communications between the probable 320th Infantry Division and PAVN High Command ceased on 18 November; however, communications between



\*2/O/VCM/R237-67, 23 Nov 67, Probable 320th Division in Unusual Communications Activity.

On 30 November NSA summarized the indications of deployment of the NVA 304th and 320th Divisions:

SIGINT now indicates that a major deployment by PAVN ground force units from MR 3 is currently underway. The two units involved are the probable PAVN 304th and 320th Infantry Divisions from MR 3 South and North, respectively.



In conclusion, the report noted that at least eight subordinates of the two divisions were deploying: three suspected infantry regiments, two suspected artillery regiments, and three unidentified subordinates of apparent regimental echelon.

\*2/O/VCM/R241-67, 301907Z Nov 67, Major Ground Force Deployments from Military Region 3 North and South.

EO 3.3(h) (2)  
PL 86-36/50 USC 3605

At the national level, the United States Intelligence Board (USIB) was also following the deployment of the two NVA divisions. The USIB Watch Report began including items about possible 304th and 320th Division deployment in its 22 November issue. From that point on, the weekly Watch Reports contained brief highlights of the most significant SIGINT items concerning these units.

Echoing NSA's 30 November report on the 304th and 320th Divisions, the 7 December Watch Report observed:

A major deployment of NVA forces toward South Vietnam appears to be under way. The headquarters of the NVA 304th Division and subordinate regiments are continuing to move southward . . . with one regiment apparently moving via the Tchepone area of Laos toward the DMZ. While there is no specific evidence on the location of the 320th Division and its subordinates, SIGINT indicates that elements of this division are also moving southward.

The Watch Report then discussed the implications of the moves:

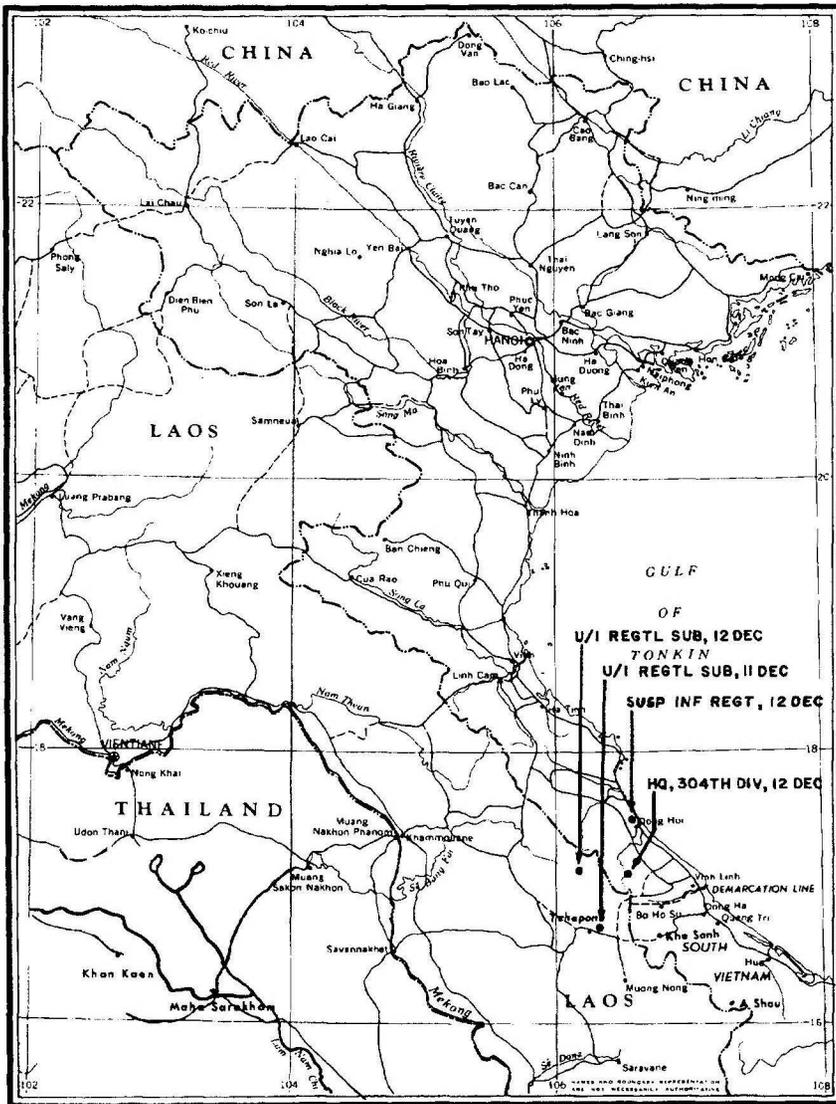
The simultaneous southward deployment of the bulk of two North Vietnamese divisions would be unprecedented. The ultimate destination of the units remains uncertain, although it appears likely that some will reinforce the DMZ area and the northern provinces of South Vietnam.\*

During early December there were continuing indications that 304th Division units were in Laos and the DMZ area, and MRDF reports indicated a southward move of the division headquarters. On 12 December ARDF located Headquarters, 304th Division, north of the western portion of the DMZ, approximately 150 kilometers southeast of its 7 December position. On 12 December, NSA summarized this evidence, pointing out also that the division had been inactive in communications with its regimental subordinates and with Headquarters, Military Region 3 South, between 7 and 11 December. Normal communications activity resumed on 12 December.

In Vietnam MACV analysts were also following the deployment of the 304th and 320th Divisions with much interest. MACV reports had

\*USIB Watch Report, 7 Dec 67.

NORTH VIETNAM

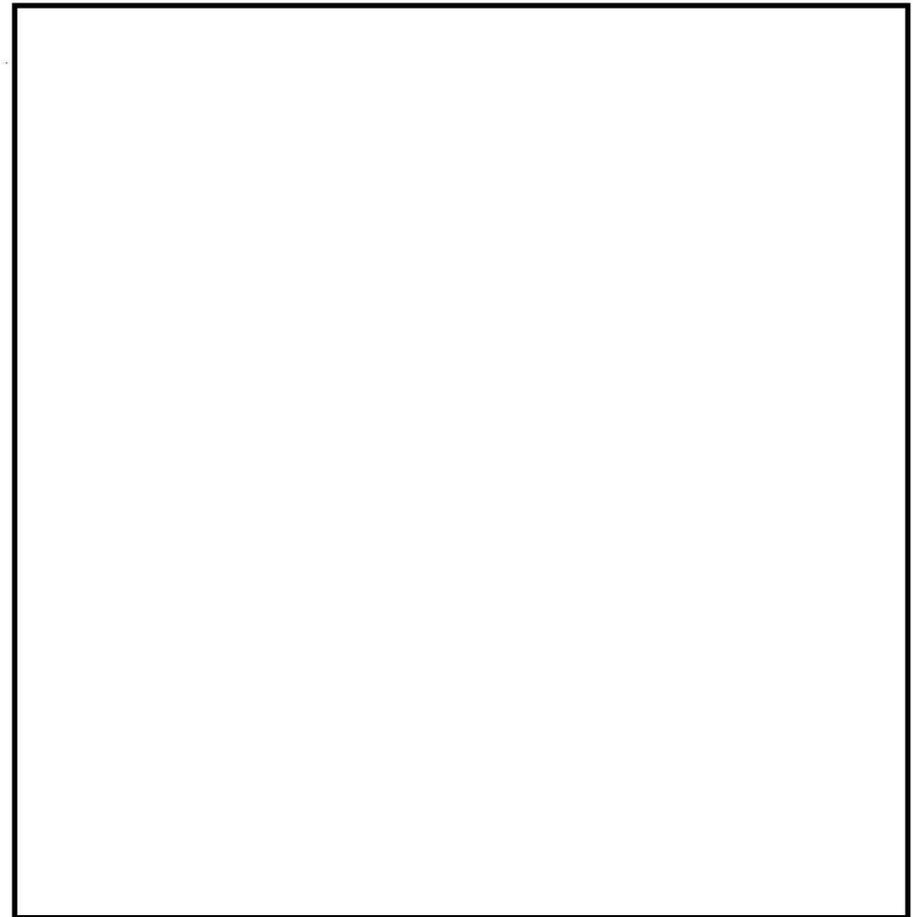


22 REV. 1-68

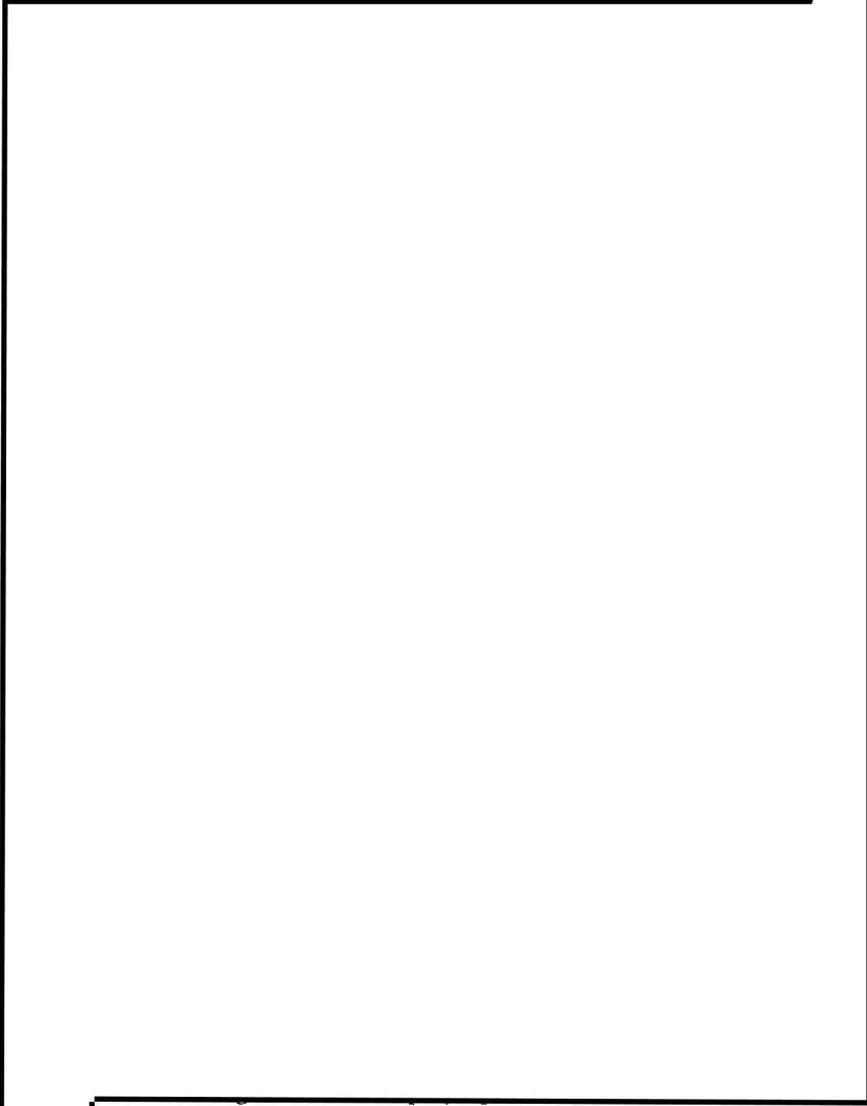
304th Division Positions Reported as of 12 December

been carrying SIGINT-derived items on the activity of the divisions for three weeks, and in mid-December MACV reviewed the activity:

COMINT continues to reflect a southward movement of NVA 304th and 320th Divisions. It seems virtually certain 304th is headed for SVN, but exact destination is not clear. Three of its regiments have been identified in Laos, 2 of them some 30 nm W of Khe Sanh on 11 Dec. Info on 320th remains sketchy, but it appears div might reinforce DMZ although there are some indications that it, like 304th, will move into Laos and toward SVN at some point S of DMZ.



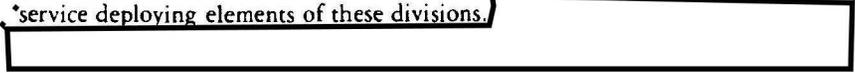
On 7 December NSA made its first report on the new complex.



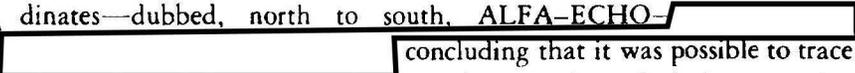
On 15 December NSA labeled the facilities *way stations*, and outlined their activity:

The subordinates of the PAVN High Command communications group first observed on 9 November, and originally identified as serving elements of the

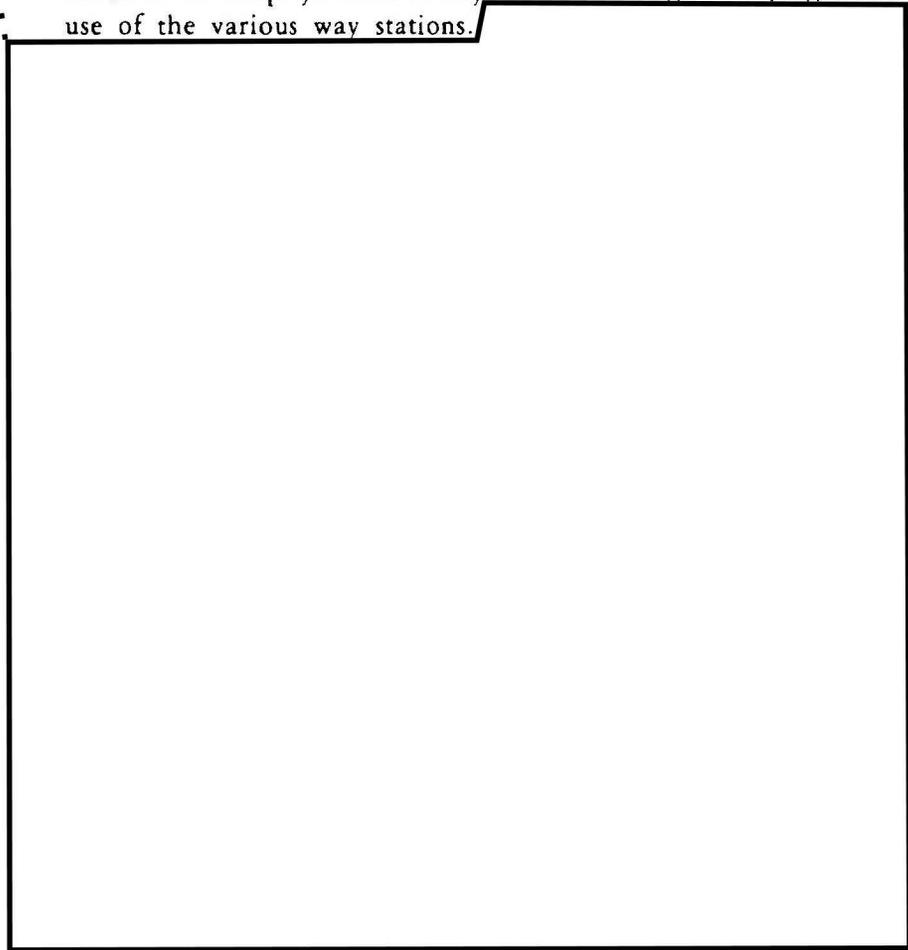
probable 304th and 320th Divisions, may actually be "way stations" which service deploying elements of these divisions.



The report detailed information on the location of the five subordinates—dubbed, north to south, ALFA-ECHO—



concluding that it was possible to trace the southward deployment of enemy elements through their progressive use of the various way stations.



\*2/O/VCM/R262-67, 152255Z December 1967, Deployments of Probable 304th and 320th Divisions Reflected in PAVN High Command Communications.

[REDACTED]

Activity on the complex furnished evidence of the general physical whereabouts of elements of the two deploying divisions. In the past, abundant SIGINT indications had accompanied preparations for and the early stages of deployment by enemy divisions. Actual indications of physical whereabouts, on the other hand, were less common, and it was on this score that discovery of the way station communications played a part. Since ARDF, by far the most reliable DF information, was not available until a unit entered the immediate DMZ area, the analysts were dependent upon MRDF in tracing the deployment of units within North Vietnam. The communications of deploying divisions were sporadic, which limited the availability of MRDF results. In some

[REDACTED]

Analysis of the way station complex provided information on deploying elements of both the 304th and the 320th Division, but was more significant in the case of the 320th. Several factors reduced the importance of the complex in the case of the 304th Division. The most significant was that abundant DF information, including some ARDF results, had been obtained on major elements of the 304th Division on 11 and 12 December, several days before the full importance of the way station complex had been recognized.

\*2/O/VCM/R271-67, 212138Z December 1967, Probable PAVN 304th and 320th Divisions, 21 December 1967.

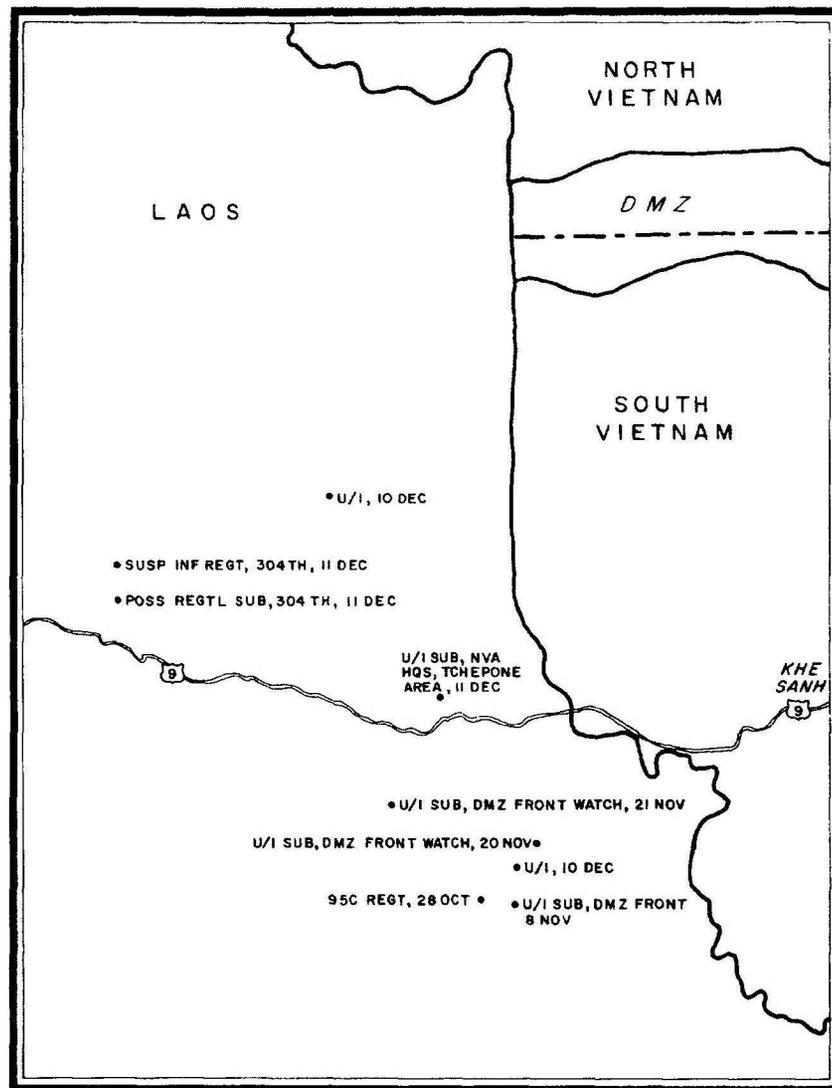


*The 325C Division*

By early December it was apparent that an enemy buildup of major proportions was underway in the Khe Sanh area. The 30 November SEAS reviewed definite SIGINT warnings of the growing concentration of enemy forces in the area, noting that several enemy elements, including those of the NVA 95C Regiment, 325C Division, were concentrating in the Laos-Quang Tri Province border area.

On 12 December analysts reported that there were now nine NVA radio terminals in an area west of Khe Sanh. Their report identified three as the 95C Regiment of the 325C Division and two regimental-echelon subordinates of the 304th Division.

On 16 December SIGINT showed that a detached element of Headquarters, 325C Division, had arrived in the Khe Sanh area by 13 December. In the past, activation of a detached element by the 325C Division headquarters had generally been followed by relocation of the division headquarters or of major subordinate elements of the division. The detached element had been observed, for example, during September 1966, during the southward movement within North Vietnam of the 325C Division from its base in Thanh Hoa to the Dong Hoi area. In early 1967 the detached element of the 325C Division headquarters had been noted in communications during the period that the division's 29th and 95C Regiments were deploying to the DMZ



NVA Buildup Reported as of 12 December

area. In September 1967 the detached element had been in communications with the 29th Regiment. The appearance of a detached element in December 1967 and its identification in the Khe Sanh area

indicated to analysts that major 325C Division elements, possibly including the division headquarters, were enroute to the area to join the 95C Regiment and 8th Battalion of the 29th Regiment, which had arrived there in October. A report on 27 December also indicated that for two days the detached element had been communicating with a new, major headquarters in the Khe Sanh area.

In reviewing SIGINT on the 325C Division, MACV saw in it a probable prelude to offensive activity by that division:

There are tenuous indications that Hqs this div has moved from Dong Hoi area to Laos near western end of DMZ but no signs that its regimental subordinates are involved. (Div's 29th Regt withdrew from DMZ area in late Nov to northern Quang Binh Prov and its 101D Regt deployed from Con Thien area to psn N of central area about same time. . . .) If move of Hqs 325C true, it would be in same gen area as those of NVA 304th and 320th Divs. Would be logical for Hqs 325C Div to join 95C Regt, and they could be sent with additional regts into SVN as opnl forces.\*

By year's end, MACV had concluded that the move of the 325C Division, coupled with moves by the NVA 812th and 90th Regiments, posed a further threat to Khe Sanh:

SIGINT has indicated recent significant shift of elms these divs to western end of DMZ, where they constitute threat to Khe Sanh as well as to the construction of barrier system W of Con Thien.\*\*

MACV also continued to note indications that the 304th and 320th Divisions were gathering for offensive action near Khe Sanh:

As of 29 Dec, Hqs 304th Div, plus 1 unident but prob regt-echelon subord thereof, had relocated some 20 nm eastward toward SVN-Lao border (and Khe Sanh) from their 26 Dec loc near Tchepone. SIGINT also indicates that at least a forward elm of Hqs 320 Div is loc in SVN (poss Quang Tri Prov)

\*OIS, 29 Dec 67.

\*\*OIS, 1 Jan 68.

and may be associated with Hqs, MR 5; on 21 Dec, this suspect hqs elm had been indicated by SIGINT to be in Laos about 15 nm S of Khe Sanh.\*

By the end of December, intercept of communications passed by elements associated with the 325C Division showed that the enemy was collecting intelligence in the Khe Sanh area. On 4 January USM-808 revealed that these troops, which had provided similar support in the Con Thien area in August and September 1967, were mentioning elements of all three 325C regiments in their reconnaissance reports on the Khe Sanh area. On 7 January other reports showed that enemy intelligence activity was particularly heavy in the area of Hills 595 and 845 northwest of Khe Sanh.

By mid-January Headquarters, 325C Division, and all three subordinate regiments had been identified in the Khe Sanh area. When the 325C Division ceased communicating with its detached element, analysts inferred that the two formations were again together, the headquarters having joined its detached element near Khe Sanh. ARDF fixes on the division's 29th, 95C, and 101D Regiments confirmed the presence of all three 325C regiments in the Khe Sanh area.

USM-808 shed further light on the late-December move of the 325C Division headquarters:

The initial indication of a move by Hq, 325C Division was observed on 15 December when the headquarters indicated that it would suspend communications and possibly relocate. During this same period [redacted]

[redacted] After this 15 December activity and through 27 December, with only one exception on 21 December, the division headquarters was not observed in the daylight hours.\*\*

Soon there was SIGINT in depth on the relocation of the 325C Division to Khe Sanh. There were the reports of communications inactivity: the division headquarters had not communicated with Hanoi or with its 101D Regiment between 29 December and 7 January, or with its 95C Regiment between 18 December and 9 January. This

\*OIS, 1 Jan 68.

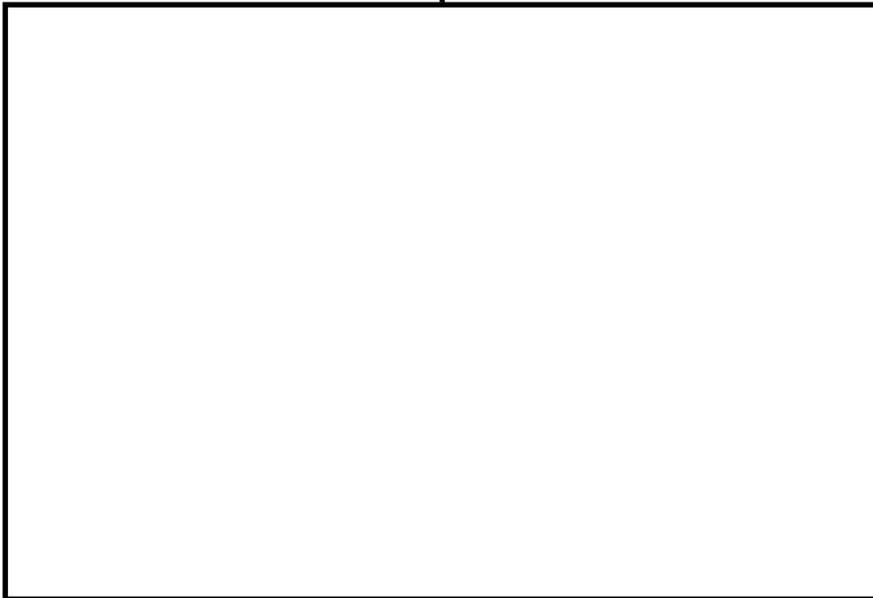
\*\*2/G11/VCJ/R016-68, 16 Jan 68.

EO 3.3 (h) (2)  
PL 86-36/50 USC 3605

FOCUS ON KHE SANH



Perimeter Bunkers



THE BUILDUP



Truck and Aircraft Dug In for Protection From NVA Artillery Attacks



The new headquarters soon emerged as the controlling authority for North Vietnamese forces deployed around Khe Sanh and in the adjacent areas of North Vietnam and Laos. However, until the new headquarters was arbitrarily designated the Khe Sanh Area Front (KSAF) in a SIGINT report of 31 January, it continued to be referenced as a "major headquarters in Laos."

\*2/O/VCM/R09-68, 153019Z Jan 68.

On 17 January, NSA supplied amplifying information: The Khe Sanh Area Front was an NVA High Command subordinate that since 29 November 1967 had been active on the Hanoi-controlled network serving major NVA and Viet Cong commands in South Vietnam and adjacent border areas. ARDF fixes indicated that the KSAF was approximately 50 kilometers northwest of Khe Sanh in Laos. KSAF was



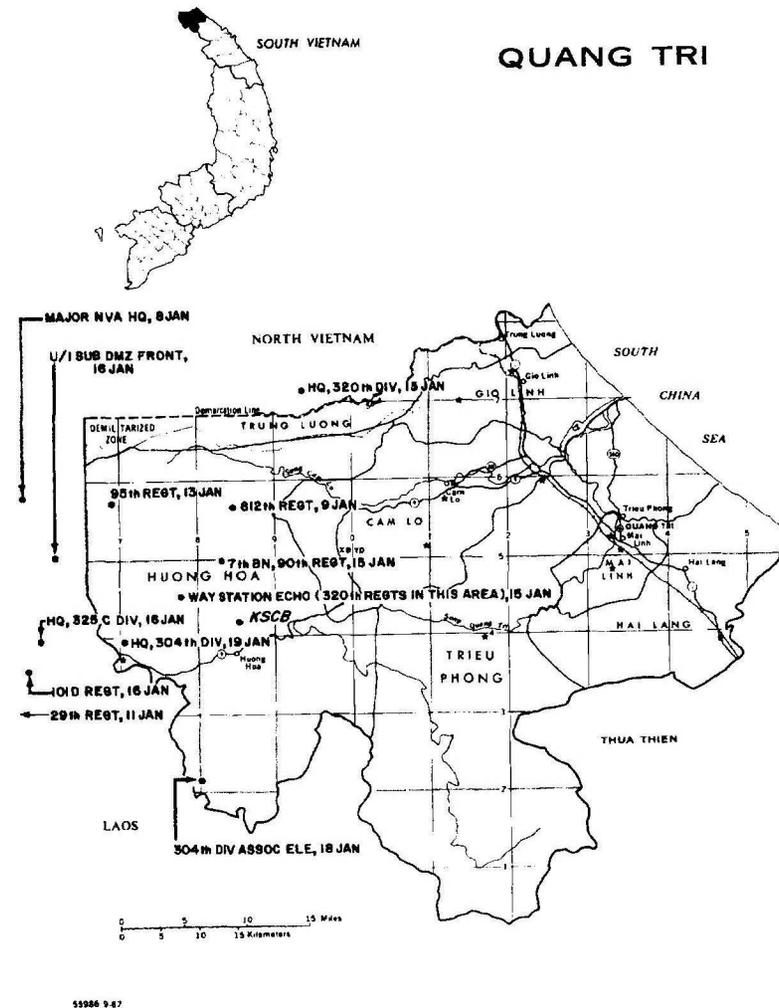
KSAF was representative of the original Vietnamese Communist *front* concept. It was activated to control enemy operations in the Khe Sanh area and was inactivated at the end of the campaign. It is possible that KSAF was an extension of the DMZ Front, which had established detached elements in the past. One of the most notable of the latter was the DMZ Forward, which had coordinated enemy tactical activity in the eastern DMZ area between March and July 1967 and had been inactivated after NVA forces in the eastern DMZ area took severe combat losses.

KSAF, however, was apparently not as closely related to the DMZ Front as that formation's confirmed detached elements had been. Furthermore, in late January 1968 KSAF split off a detached element of its own that first made contact with KSAF on 26 January and

The detached element was also located in Laos, but well south of KSAF and only a few kilometers from the South Vietnamese border, almost due west of Khe Sanh. Its emergence coincided with the early days of hostilities near Khe Sanh, and it apparently exercised some degree of control over tactical operations.

### 304th and 320th Divisions Complete Deployment

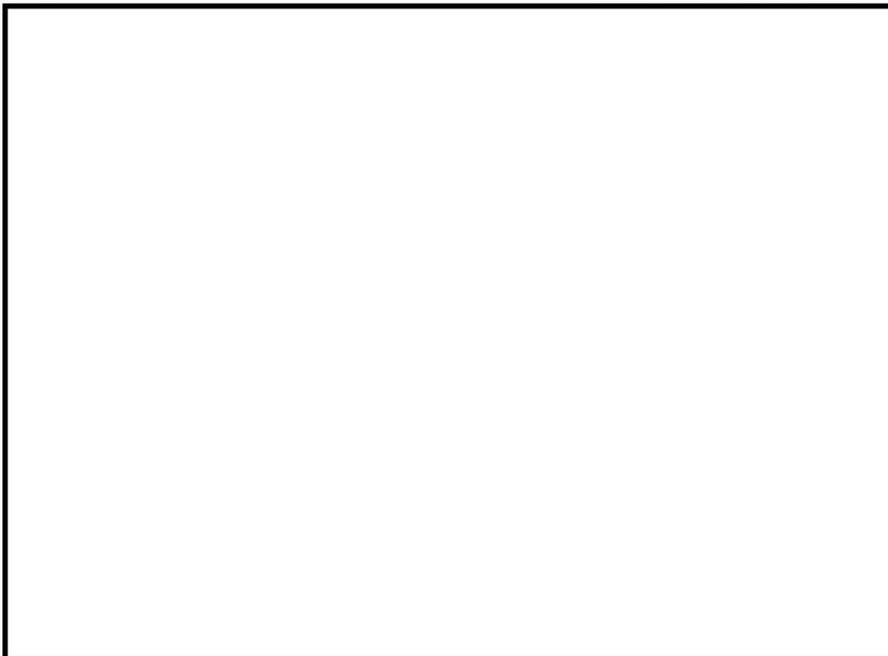
By mid-January, the 304th and 320th Divisions were completing their deployment. On 12 January USM-808 reported that Hanoi had



NVA Buildup Reported as of 19 January

passed messages to an element of the 320th Division





By 19 January the 304th Division had also stepped up its communications activity. Major units were at the time in the Laos-Quang Tri Province border area.

As of 19 January, major combat elements of the 304th, 320th, and 325C Divisions were menacing Khe Sanh, as were the 812th Regiment and elements of the 90th Regiment. The 304th and 325C Divisions seemed to pose the primary threat. Reviewing in depth the SIGINT and other intelligence relating to the buildup of North Vietnamese units, MACV concluded that the enemy intended to launch a major offensive in the Khe Sanh area:

KHE SANH: SIGINT indicates that a maj NVA Hqs has been formed and is now in Laos near western end of DMZ. The control of NVA units in northern SVN has been responsibility of Tri-Thien MR, while units in DMZ area have been commanded by DMZ Front. The movement of additional NVA units into area and anticipation of extensive mil acty in near future prob reason for Hanoi est a superior hqs to coordinate/control mil opns in area. Meanwhile, number of NVA regts in the Khe Sanh area totals at least 7. Three regts of NVA 304th Div remain in Laos NW to SW of Khe Sanh; 3

regts of NVA 325C Div are in Laos-SVNese border area NW of Khe Sanh; 1 regt of NVA 324B Div (812th) is NNE of Khe Sanh with 1 other regt (90th) poss moving from Con Thien area to join one of its bns already in Khe Sanh area (tac commo suggest 812th and 90th preparing for combat). NVA 320th Div and its subordinates are still not firmly loc. One regt is believed to be in border area W of Khe Sanh. SIGINT indicates Div Hqs is in west-central portion of DMZ area of NVN.\*

EO 3.3(h) (2)  
PL 86-36/50 USC 3605

\*OIS, 19 Jan 68.

## CHAPTER III

### The Battle for Khe Sanh

SIGINT had helped U.S. military commanders in tracing the movements of NVA units into the Khe Sanh sector and in recovering their order of battle. Colonel Lownds credited SIGINT with providing him valuable early warning as various enemy forces entered the Khe Sanh area.\* From the time he took over the 26th Marines in August, he had followed closely the movements of the various elements deploying within the DMZ area and from North Vietnam, plotting their locations and estimating their size. 304th Division units moving southward could continue along the infiltration routes to the A Shau Valley or to the triborder area of Laos, Cambodia, and Kontum Province of South Vietnam. The question was whether or not they would make Khe Sanh itself their objective.

When SIGINT revealed that the units had remained in Laos opposite Khe Sanh for some time, Colonel Lownds predicted that the objective of the units was Khe Sanh. His prediction was confirmed by other intelligence sources, and a clear pattern of NVA deployment against Khe Sanh emerged. Some days later, Lieutenant Gornic, the USN-414J4 OIC, came to him and reported: "Colonel, they're here!"—ARDF had indicated that 304th Division troops were unmistakably inside South Vietnam.

Success in recovering the enemy order of battle helped Colonel Lownds estimate the size of the force he faced; ARDF now told him where those forces were located. With the onset of hard and bitter fighting, SIGINT continued to support Colonel Lownds and other U.S. commanders in their estimations of enemy moves and in their day-to-day planning and execution of the defense of Khe Sanh throughout the January–April period.

---

\*Interview, author with Lownds, Jan 69.

*The Battle Begins*

On 17 January 1968 a Marine reconnaissance team was ambushed southwest of Hill 881N. On 19 January a platoon from the 26th Marine Regiment's I Company, 3d Battalion, patrolling in the area of the ambush, was taken under fire by an estimated 25 NVA troops, but after a short fight the forces broke off. The next morning Company I returned to the scene in force and was soon involved in an intense firefight that lasted most of the day. Late in the afternoon the opposing forces disengaged, collected their casualties, and withdrew. The battle for Khe Sanh had begun.

In the early hours of 21 January Colonel Lownds' units repulsed a force, estimated at 300 men, attacking Allied positions on Hill 861. Near dawn, the North Vietnamese began an intense barrage on the Khe Sanh base, and about an hour later tried, unsuccessfully, to take the village of Khe Sanh and the Hung Hoa District Headquarters located there. The battle for Khe Sanh was to last for 77 days from the formal opening of hostilities to the linkup of PEGASUS and KSCB forces on 6 April 1968. However, although the NVA encircled the KSCB, the Marines were never completely cut off from the outside. They kept forces on Hills 881S, 861, 861A, and 558, sent patrols beyond the defensive perimeter, received supplies by air from Da Nang and Dong Ha, evacuated their wounded, and even effected normal rotation of tours.

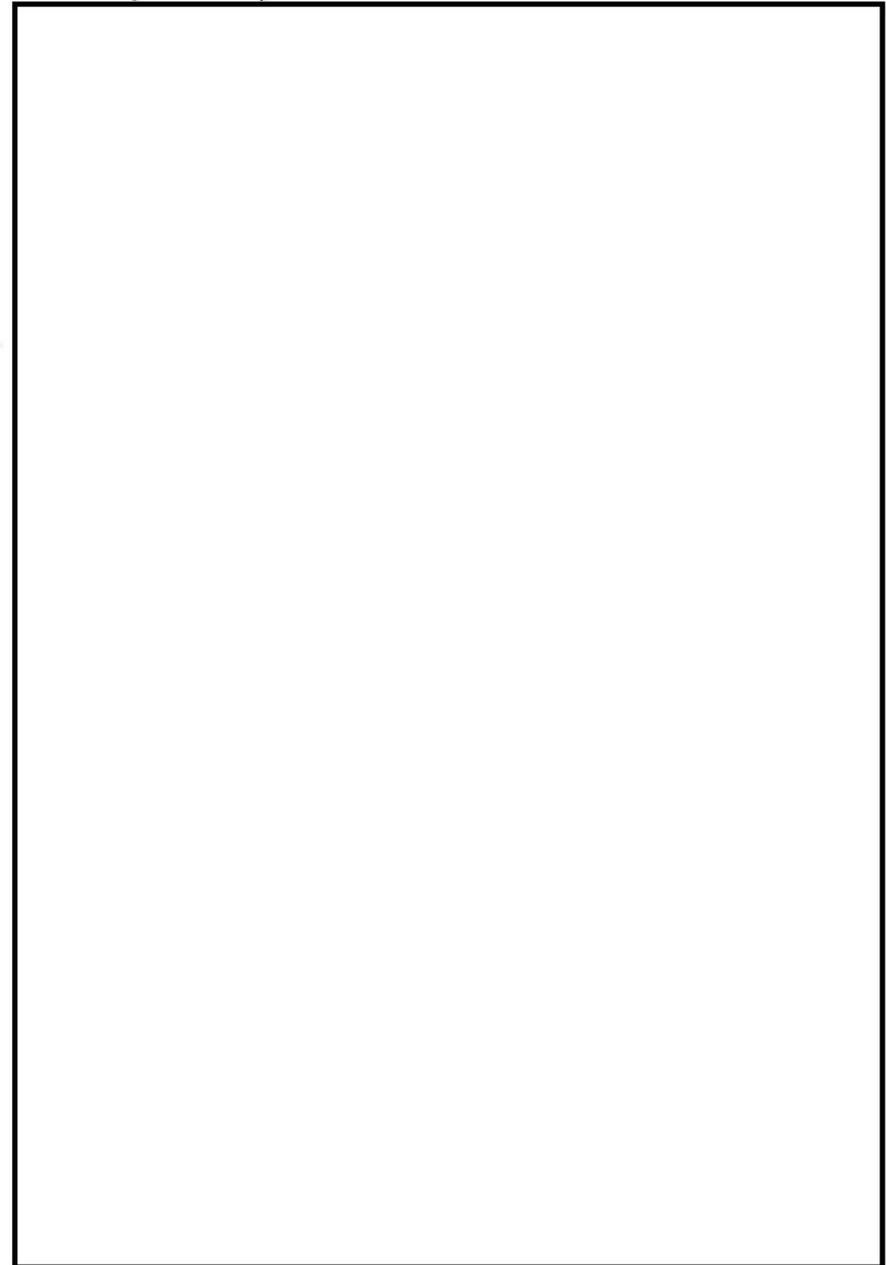
*SIGINT Support in the Early Part of the Battle*

SIGINT during the first few days of the battle provided the supported commanders with information on the enemy's organization and command structure, his dispositions, and his tactical intentions. Although ARDF fixes furnished the most immediately usable combat intelligence, analysis of the numerous enemy tactical communications collected during these early days also provided valuable information on enemy activities.

*Analyzing the Enemy's Tactical Signal Plans*

On the first day of hostilities, USM-808 reported that the NVA 29th Regiment of the 325C Division, which was involved in the initial

actions, had resumed tactical communications activity for the first time since the previous September.





*Exploiting the Enemy's Tactical Intelligence Communications*

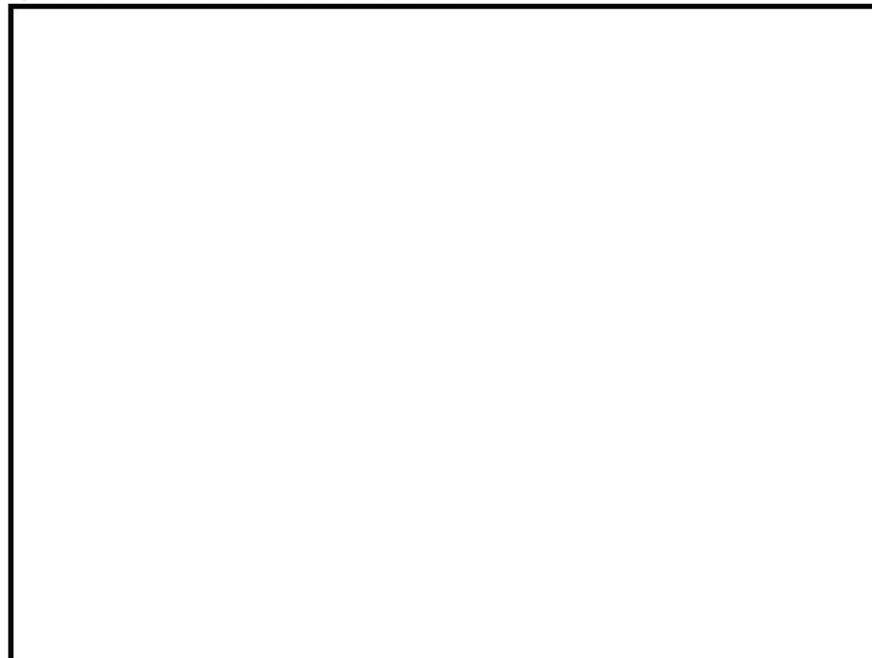
In the first few days of the campaign, in-country SIGINT analysts followed closely the communications passed by tactical intelligence elements of the 325C Division and outlined the activities of these intelligence units in their reports. The categories of information being collected by the enemy intelligence units—Allied dispositions, movements, and helicopter and other air activity, for example—as revealed in enemy messages intercepted, constituted in themselves an indication of North Vietnamese tactical interests and intentions. SIGINT released on 26 January stated that tactical intelligence elements of the 101D Regiment were collecting intelligence at least as early as 23 January, when one message mentioned Hill 595. This suggested that the 101D Regiment was also now tactically engaged near Khe Sanh. Several days later, two tactical intelligence elements associated with the 101D Regiment were reporting Allied helicopter activity west and southwest of Khe Sanh.

Meanwhile, SIGINT was providing the Khe Sanh force and others with information on enemy artillery operations. For example, SIGINT derived from messages passed by tactical intelligence elements serving the 29th Regiment pointed to the presence of 12.7-mm. guns in the area, the first SIGINT confirmation of enemy antiaircraft guns near Khe Sanh. In another instance, an NVA tactical voice net, reported on by USM-808, came up on 20 January, apparently to serve artillery elements, since information passed on the net concerned NVA reconnaissance and fire direction.

In that first week of the campaign, SIGINT was also yielding material on the evolving enemy command structure in the Khe Sanh area. SIGINT of 22 January revealed that the Khe Sanh Area Front, the major NVA headquarters in the Khe Sanh area, had added at least seven new  subscribers, including headquarters of the 304th Division and two of its subordinate elements. By this time, SIGINT was reporting that KSAF was communicating with 19 subscribers: Hanoi; Head-

quarters, Military Region 4, Vinh; the DMZ Front and its detached element; General Directorate, Rear Services; Headquarters, 559th Transportation Group; Headquarters, 304th Division, and two of its subordinates; Headquarters, 320th Division, and one of its associated elements; Headquarters, 325C Division, and an element associated with the division; and six other stations.

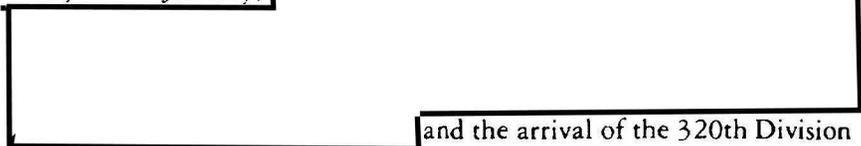
On 22 January, an ARDF fix on the 320th Division headquarters located the headquarters well south of the DMZ in the vicinity of Cam Lo, considerably southeast of its 15 January location. The relocation of the headquarters to the Cam Lo area signified to SIGINT analysts that the 320th Division was scheduled for duty east of Khe Sanh, in the central DMZ area. Before that time, in view of the division's sporadic communications with KSAF and the presence of elements of the division near Khe Sanh, SIGINT analysts had suspected that the 320th would join the concentration near Khe Sanh.



Thus, during the first week or so of the campaign, the SIGINT reports to the U.S. military commanders dealt with the significance of the reactivation of tactical intelligence communications and reporting by

EO 3.3 (h) (2)  
PL 86-36/50 USC 3605

early as 21 January;



and the arrival of the 320th Division headquarters in the Cam Lo area on 22 January.

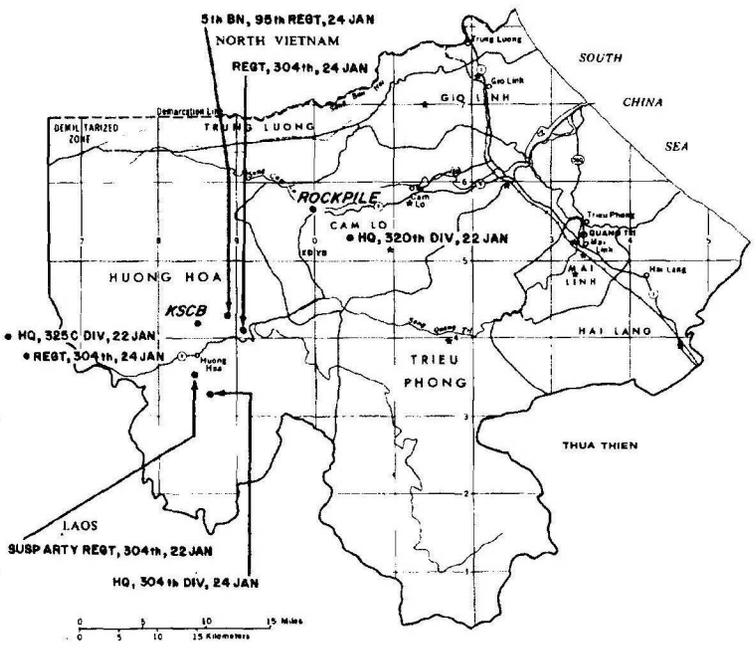
At the national level, USIB's Watch Committee reviewed SIGINT and collateral information on the early phase of hostilities at Khe Sanh and drew some inferences:

North Vietnamese forces in the area of Khe Sanh and the DMZ have begun the offensive against US positions for which the buildup has been under way for several weeks. Reports suggest that the enemy attacks are to be intensified just prior to and after the Tet holiday. Prisoners have confirmed that the mission of the NVA 325C Division is to launch attacks in the Khe Sanh area, while SIGINT has reflected a further concentration of major elements of the NVA 304th Division in the area, including its suspect artillery regiment. SIGINT indicates that a new major NVA headquarters, apparently directly subordinate to High Command, Hanoi has emerged in the area northwest of Khe Sanh, probably to coordinate operations. Available evidence continues to indicate that major elements of the NVA 320th Division will be committed in the area of the central DMZ.

There is mounting evidence that the NVA operations in the DMZ/Khe Sanh area are part of a general plan to intensify Communist operations throughout much of South Vietnam; there have been numerous indications of preparations for coordinated attacks in the near future elsewhere in the two northernmost provinces and in the central highlands.\*

This theme of a general offensive would be increasingly emphasized in USIB reports during February, as national-level intelligence analysts attempted to place the Khe Sanh campaign into the framework of overall enemy intentions in South Vietnam. Particularly after the Tet offensive of late January and early February, USIB analysts were concerned about the possibility that the Khe Sanh campaign was merely a prelude to a major enemy effort to seal off the two northern provinces.

\*USIB Watch Report, 25 Jan 68.



NVA Buildup Reported as of 24 January

the 29th Regiment and the activation of an artillery fire direction control net, both on 20 January; the reactivation of tactical reconnaissance activity by elements of the 101D Regiment at least as

At the theater level, MACV was trying to evaluate the extent of the threat to Khe Sanh and to ascertain whether the enemy planned major activity elsewhere in the I Corps Tactical Zone. Just before the main attacks on Khe Sanh got under way, a MACV report, as conveyed in a [ ] summary, had suggested that the enemy currently had four regiments in attack positions at Khe Sanh and might launch diversionary attacks elsewhere to prevent reinforcement of Khe Sanh:

*Khe Sanh:* Immediate threat to Khe Sanh includes 3 regts (1 is unidentified arty regt) of NVA 304 Div loc S of city and 95C Regt of NVA 325C Div to the N. Other important changes in unit dispositions is move of 90 Regt, NVA 324B Div, to SW and is now loc on Rte 9. COMINT indicates that NVA 320 Div is in NVN's MR 4 but is prob destined for DMZ. Tenuous COMINT info indicates that div hqs may be just N of central DMZ and 1 of its regts is believed to be W of Khe Sanh near Lao border.

*Hue/Da Nang:* COMINT indicates that Hue and Da Nang areas may be atkd. En action against either or both might be attempted as a diversionary measure to tie down US and ARVN trps in 1 CTZ to preclude their use if Khe Sanh is atkd.\*

It was clear that MACV's primary concern was the immediate threat to Khe Sanh, while national level consumers feared that the units near Khe Sanh might stage damaging attacks in other areas. Of interest in DIA's 23 January report, for example, was MACV's reading of attack indications in the Hue and Da Nang areas as primarily designed to prevent reinforcement of Khe Sanh, and MACV's continued concern that the 320th Division might still pose a threat to Khe Sanh. After reviewing SIGINT, notably the ARDF-derived relocation of Headquarters, 320th Division, to the Cam Lo area, MACV ruled out participation of the 320th Division in the Khe Sanh battle:

*Khe Sanh:* Hqs NVA 320 Div was loc by ARDF 3 nm NNE of US Marine base at Than Son Lam "(Rockpile)" on 22 Jan. A terminal associated with 320th was also detected on 22nd near "Rockpile."\*\*

\*OIS, 23 Jan 68.

\*\*OIS, 24 Jan 68.

MACV listed seven regiments as posing a threat to Khe Sanh—three from the 325C Division and four, including one artillery regiment, from the 304th. SIGINT analysts later determined that the artillery regiments organic to the 304th and 320th Divisions did not deploy with their units, both remaining in North Vietnam. At least two artillery regiments took part in the Khe Sanh battle, but they were subordinates of the NVA 351st Artillery Division.

#### *Continuing SIGINT Support Operations*

Support of U.S. commanders at or concerned with Khe Sanh came from many SIGINT operations. From outside the Southeast Asia theater of operations, it came from NSA. Within the theater, it came from direct support operations of the Army Security Agency and the Air Force Security Service and from NAVSECGRU's direct support units, including USN-414J4 at Khe Sanh itself.

#### *Command-SIGINT Relationships At Khe Sanh*

During the battle for Khe Sanh, the base commander, Colonel Lownds, received SIGINT information directly from Lieutenant Gornic, the OIC of USN-414J4, when the intelligence demanded Lownds' immediate attention. Colonel Lownds stopped by the USN-414J4 bunker several times each day to check the latest SIGINT, and often Lieutenant Gornic went over to the command post to brief him. Colonel Lownds gave explicit instructions that Lieutenant Gornic should get in touch with him "no matter where I am" if significant intelligence was received during the day and should awaken him if anything important developed during the night. Colonel Lownds was thus usually aware of vital SIGINT before his S-2 was, since the S-2 had to sift a huge volume of intelligence from all sources, including prisoner of war interrogations and sensors.

At KSCB daily staff briefings, the S-2 presented a sanitized version of the previous 24 hours of SIGINT collection. Initially the briefings were held in the evening, but when the Marines found that NVA shelling were not as heavy during the early morning, Colonel Lownds switched the briefings to the quieter hours.

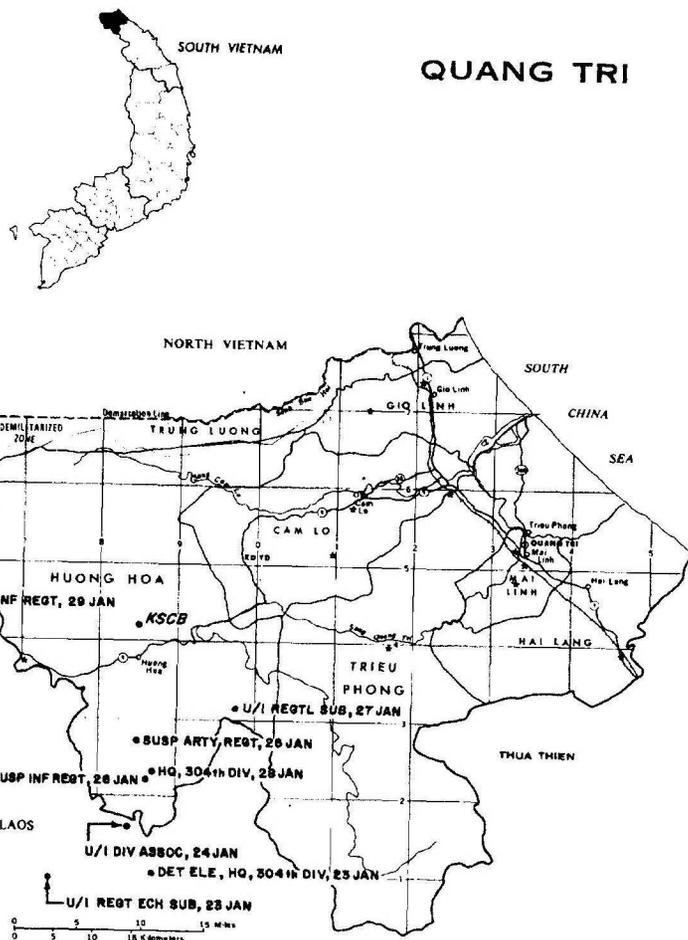
*Exploiting the Enemy's Tactical Voice Communications*

One valuable source of direct and timely SIGINT support to the Khe Sanh base during the campaign came from enemy tactical voice communications that USN-414J4 was able to intercept and exploit. USM-808 supplemented this effort by processing voice traffic intercepted by the airborne collection platforms operating under USM-808's guidance and tasking, and both USM-808 and NSA provided technical backup.

The enemy began using tactical voice communications in the Khe Sanh area during the third week of January. At first USN-414J4 taped the transmissions and forwarded them to its parent headquarters, USN-414J, at Da Nang for processing and preparation of SIGINT reports. However, with the onset of major enemy action on 20 January, it became obvious that this procedure was too slow for U.S. commanders to make tactical use of the intelligence. Accordingly, USN-414J on 22 January sent to Khe Sanh a voice intercept team headed by Sgt. William F. Case, USMC, a Vietnamese linguist, and the next morning an NSA Vietnamese linguist, Mr. Berkeley Cook, arrived from Da Nang with some of the needed equipment. The team soon had a voice intercept operation underway, augmenting its equipment by cannibalizing the USN-414J4 communications security position to form two more voice intercept positions.

In addition to the enemy artillery net that was first intercepted on 20 January, USN-414J4 developed voice nets serving other artillery elements and combat units of the NVA 304th Division. The heaviest volume of voice intercept came from artillery communications and from the 304th Division headquarters net, although the team heard a considerable volume of voice traffic on regimental nets, including those serving the 9th and 66th Regiments of the 304th Division.

Soon after voice intercept operations began, Colonel Lownd's S-2, the primary recipient of SIGINT produced from these voice communications, informed USN-414J4 that he was receiving substantially the same information from an ARVN voice intercept team located at the USSF/CIDG camp adjoining the base. The ARVN SIGINT detachment, consisting of six men, was headed by an exceptionally able ARVN officer, Captain Phat. The detachment's



304th Division Positions Reported as of Late January



Lieutenants Nickell and Gornic

mission was to conduct voice intercept in support of the ARVN 37th Ranger Battalion.

On 28 January, after a check showed that there was indeed considerable duplication of effort between the ARVN and Marine voice intercept teams, the USN-414J4 team moved to the command post area of the Special Forces Camp, approximately a mile from the rest of the DSU, and the operations of the two teams were combined under the guidance of USN-414J4 personnel.

Because of hazardous duty restrictions, NSA linguist Berkeley Cook left Khe Sanh on 31 January and was replaced by 1st Lt. Scott Nickell, USMC, who was also a trained Vietnamese linguist. Lieutenant Nickell took charge of the voice intercept operations, and Sergeant Case functioned as his NCOIC. In addition, Lieutenant Nickell became assistant OIC of USN-414J4.

At first the voice transmissions were relatively simple, employing plain language almost exclusively, and SIGINT analysts exploited the



Sergeant Bailey

messages to the full. However, as the battle developed the North Vietnamese increasingly used cover designators and brevity codes, complicating exploitation somewhat.

In the early stages of the operation, voice transmissions were first recorded and then later transcribed by ARVN linguists. Soon, ARVN linguists were able to transcribe the signal live while simultaneously recording it, and only rarely needed any playback. The development of an ability to correctly transcribe from live transmissions reduced the time between intercept and delivery from two hours to fifteen minutes, thus making support to Colonel Lownds all the more effective.

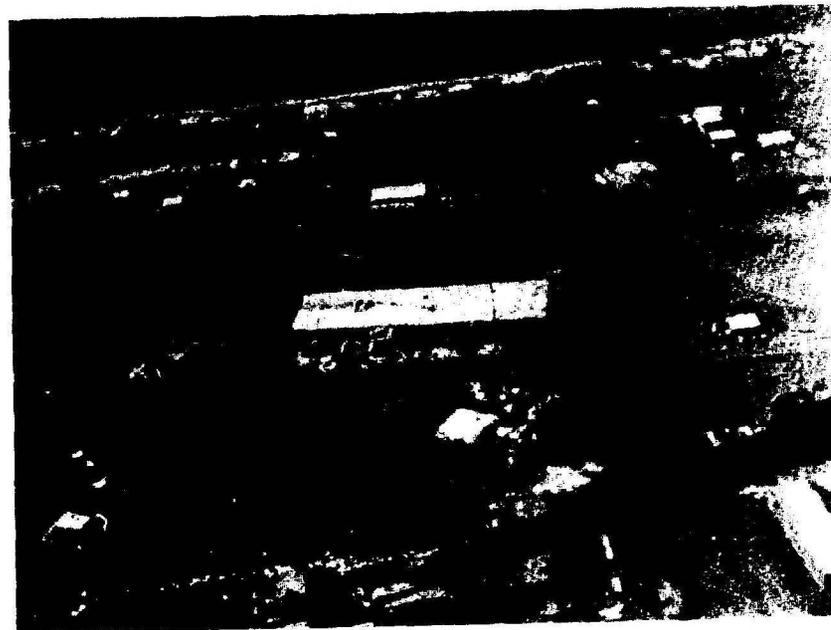
After the ARVN linguists transcribed the messages into Vietnamese plain text, the messages went to USMC linguists for translation and evaluation. Items deemed of immediate tactical value were passed simultaneously by phone to Colonel Lownds' S-2 and to the USN-414J4 bunkers. Couriers also made runs, usually twice daily, from



Sergeant Case

the voice section at the USSF/CIDG camp to both USN-414J4 and the S-2 to deliver confirmation copies of the items that had been called in by phone, as well as hard copies of all other significant but less immediately valuable items not reported by phone. USN-414J4 then edited the translations and transmitted them to Da Nang via the relay link through Dong Ha. USN-414J in turn forwarded significant items to USM-808 and NSA, and to in-country intelligence consumers. The voice tapes processed at Khe Sanh went to Da Nang via courier plane approximately twice a week. One measure of the scope of the voice operation at Khe Sanh was the number of translations issued by USN-414J4 for the S-2. Between 21 January and 8 April, USN-414J4 issued 786 translations, or better than 10 a day.

In general, the voice intercept kept KSCB and other supported commands advised of enemy dispositions, movements, supply operations, and casualties. In addition, enemy artillery communications often



Site of USN-414J4-ARVN Voice Team Operations

discussed firing plans for the day, enabling the Marines at Khe Sanh to be safely in their bunkers during artillery attacks. On one occasion, the order to fire was itself heard over an artillery voice net, and USN-414J4 informed Lownds' S-2 instantly. Since the S-2 was already in the command post bunker, he simply activated the siren, and the men reached cover before the first enemy shells landed. Since the passing of fire orders over the voice net did not occur again, the orders thereafter apparently went over more secure communications facilities. Artillery firing plans, however, continued to appear periodically on the voice net and constituted valuable warnings for the men at Khe Sanh.

On many occasions, SIGINT derived from voice intercept gave forewarning of enemy ground probes of the base proper. Often in late afternoon, the enemy sent out messages ordering a force of undetermined echelon to launch a night probe. Although the location of the probe would not be given, the Marines knew it would probably be

against the ARVN Ranger sector since they almost always occurred in that area. On receiving the warnings, the ARVN Rangers and U.S. Marines would reinforce the sector and ask for extra artillery support. The probes were invariably blunted, and the enemy usually incurred heavy casualties. About 90 percent of these particular enemy ground actions were predicted in advance, usually with at least a 4-hour warning.

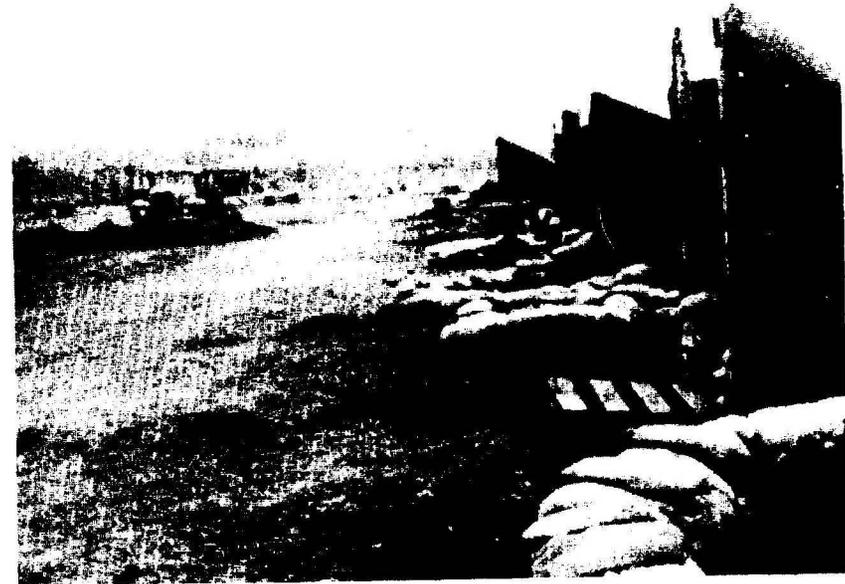
#### *Manual Morse Intercept and Processing*

Although manual Morse intercept and processing at Khe Sanh's USN-414J4 was less productive than voice intercept, USN-414J4 traffic analysts who worked on the MM intercept operations made significant contributions to on-base intelligence. The traffic analysts provided valuable guidance for ARDF through their knowledge of enemy manual Morse nets in the Khe Sanh area and kept the Marine force informed on SIGINT order of battle information that USM-808 and NSA produced from traffic analysis of the Morse communications.

USN-414J, and to a lesser extent USN-414J3 at Dong Ha, USN-414J5 at Camp Carroll, and USN-414J4 at Khe Sanh, exploited low-level tactical manual Morse communications serving the NVA 325C Division's regiments and reconnaissance elements, which used little tactical voice.

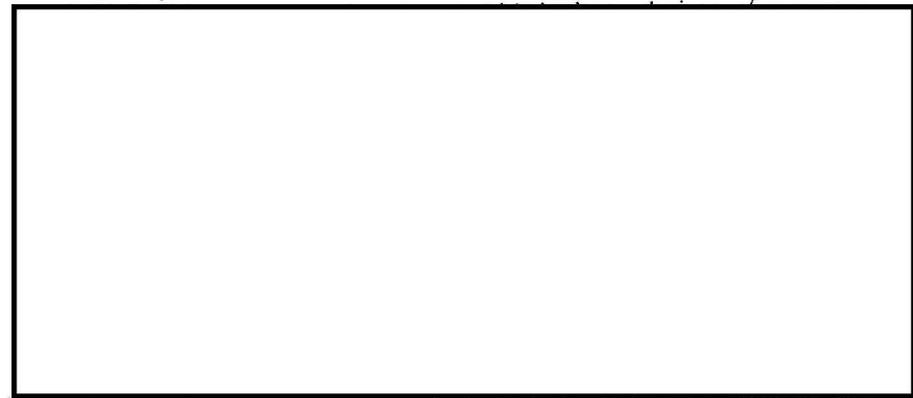
USN-414J4's manual Morse intercept, after a fast processing at Khe Sanh, was forwarded to USN-414J for further processing and analysis. USN-414J included significant technical items in its daily report, which went to USM-808, NSA, and other technical consumers. In accordance with established SIGINT reporting procedures, USN-414J translations and other SIGINT items were forwarded to USM-808 at Phu Bai for inclusion in that station's SIGINT reporting.

In addition to publishing tactical manual Morse messages and other SIGINT received from USN-414J, USM-808 disseminated the results of its own collection, analytic, and linguistic operations to the Marines at Khe Sanh and to other supported commands. USM-808 devoted a considerable share of its 100 positions to enemy manual Morse communications in the DMZ area, including those serving the units threatening Khe Sanh. USM-808 traffic analysis, coupled with NSA



Entrances of CP Bunkers (Left to Right: Medical Station, Sleeping Quarters, S2-S3, USN-414J4)

traffic analytic activity, provided the primary SIGINT base on which effective SIGINT reporting and other SIGINT activity, primarily ARDF, depended.



Through its own coverage and that of the airborne collection and ARDF resources it controlled, USM-808 passed hundreds of ARDF

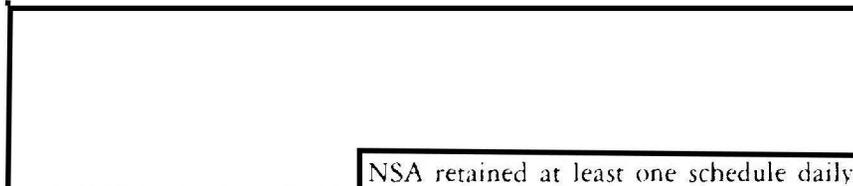


Low-level Voice Intercept Positions. Manned Transcriber (above);

Low-level Voice Intercept Position  
Manned by Vietnamese Linguist (below).



location reports, tactical reports (TACREP's), translations, artillery warnings, and so forth, to the G-2 of the 3d Marine Division at Dong Ha. USM-808 also maintained a direct secure communications link to the Special Intelligence Officer of the 3d Marine Division at Dong Ha. This enabled USM-808 to pass to the SIO, 3d Marine Division, and thence to the S-2 at Khe Sanh, the same information it was giving G-2, 3d Marine Division. The link enabled USM-808 to forward information on a more timely basis than would have been possible had it used the normal channels of communications—that is, routing traffic from Phu Bai to Hue to Da Nang and then to Dong Ha. The continual flow of information USM-808 provided by way of Dong Ha and Da Nang supplemented USN-414J4's own service and influenced Marine planning.



NSA retained at least one schedule daily over an OPSCOMM circuit with DMZ area traffic analysts at USM-808, which allowed for a thorough analytic interchange. USM-808 passed the results of USM-808 and NSA traffic analysis to USN-414J4, which forwarded them to traffic analysts at USN-414J4. Thus, analytic results derived at USM-808 and NSA reached the traffic analysts at Khe Sanh in one form or another.

Colonel Lownds acknowledged the importance of this SIGINT support when he noted that on occasion Lieutenant Gornic would have little SIGINT for him because the circuit through Dong Ha was out, and USN-414J4 was temporarily unable to receive current information developed at other support echelons. He referred to these outages as a most serious handicap to SIGINT support of his command. He added, however, that this implied no criticism of the communications, just that as commander of a base under attack he wanted all the intelligence he could get, and any outages, no matter how infrequent, limited the intelligence available to him.\*

\*Interview, author with Lownds, Jan 69.



USN-414J4 Bunkers



USN-414J4 Bunkers

### *Preparations for Jamming*

During the latter part of the Khe Sanh battle, USN-414J4 developed a plan for jamming enemy artillery forward observer communications on an emergency basis in the event that a major enemy attack would endanger the base. On 2 March USN-414J ordered USN-414J4 to prepare for the coordination and control of jamming. USN-414J4 therefore established a contingency plan for jamming enemy artillery communications. Through mid-March, additional equipment arrived at USN-414J4 to facilitate possible jamming operations, but jamming was never required since by then the North Vietnamese no longer had the capability of overrunning the Marines.

Three of the Army's five CEFLIEN LION aircraft were also involved in the planning for jamming enemy communications at Khe Sanh. The NSA Representative, Vietnam (NRV(C)), investigated the possible use of CEFLIEN LION in such operations, but decided that because the

lead time of six hours for active ECM reconfiguration was too long, CEFLIEN LION would be considered only as a backup resource.

### *NIAGARA Operations*

General Westmoreland called on all three Services to render close-in and general fire support to the Khe Sanh defenders. Much of the intelligence on which the Army targeted its 175-mm. guns, the Marine, Air Force, and Navy targeted their tactical fighters, and the Air Force targeted its B-52 bombers came from the NIAGARA all-source intelligence evaluation team at J-2 MACV in Saigon. Much of the team's data, in turn, came from various SIGINT ARDF sources. ARDF was the primary source for targeting the B-52 program—begun on 15 February and known as BUGLE NOTE—which normally allocated 48 sorties per day in support of Khe Sanh, with additional missions flown against special targets.



Aircraft Damaged by NVA Artillery

Even before the actual battle for Khe Sanh began, the Special Security Group at MACV noted USM-808's ARDF role in targeting the B-52's when on 17 January it relayed through NRV(C) a commendation to the commander of USM-808:

Gen. Westmoreland has ordered TAC air, artillery, and B-52 strikes based on fix reported by your unit. BG Davidson is extremely pleased with the good and timely reporting and has asked that you be especially watchful during the next few hours for any reflections of the above operation. NRV(C) extends its congratulations to the 8th RRFS for its continuing fine reporting efforts.\*

Information from the NIAGARA special collection operation, amplified by SIGINT from USM-808, was used to target a devastating 30-plane B-52 strike against the Khe Sanh Area Front headquarters on 30 January. That strike and others like it contributed heavily to the

\*SSG, Hq MACV, to CO 8th RRFS, 17 Jan 68.



Aircraft Damaged by NVA Artillery

North Vietnamese March decision to give up their attempt to take the Khe Sanh base.

In a review of his years in Vietnam, General Westmoreland, in discussing the 1968 operations at Khe Sanh, acknowledged the role played by the all-source collection and evaluation team when he said: During this battle, I slept in my headquarters next to the combat operations center and personally decided where the B-52's would strike. To assist me in making these decisions, I met at least twice daily with my intelligence and operations officers.\*

#### *Enemy Operations During February and Early March*

The foregoing SIGINT operations and related intelligence activities such as the NIAGARA special collection project provided Colonel

\**Report on the War in Vietnam*, Section II, "Report on Operations in South Vietnam: January 1964-June 1968," by General W. C. Westmoreland, p. 163.

Lownds with vital information during the opening days of the battle for Khe Sanh. During early February, these resources continued to support him.

SIGINT revealed that on 3 February an NVA artillery observer was queried about Allied strength on Hill 595, which had been a focus of enemy interest since the beginning of the battle. On 4 February the enemy fire plan for the day was heard—20 rounds of 140-mm. rocket ammunition were to be directed at American positions on Hill 595; suppressing fire would be by 122.4-mm. rockets. On 5 February an enemy force attacked Allied positions on nearby Hill 861A following a heavy rocket and mortar barrage. The enemy lost more than 100 killed in this contact. On the 6th, elements of the NVA 95C Regiment attacked Hill 881S, and the Khe Sanh base was subjected to intense rocket and mortar fire.

On 7 February the North Vietnamese overran the USSF/CIDG camp at Lang Vei. USN-414J4 SIGINT, using material obtained from voice intercept, warned Colonel Lownds of that assault approximately two hours before it began, and both USN-414J4 and USM-808 continued to give the supported commanders timely results of voice intercept throughout the attack. Soon the North Vietnamese shifted their fire from Lang Vei to Khe Sanh in order to interdict Allied reinforcements and to allow NVA infantry and tanks to breach the wire at Lang Vei. SIGINT warned Colonel Lownds of the shift 15 minutes before it took place. During the night of 7-8 February, enemy tactical voice communications tipped off the Marines to a planned attack on a Laotian camp\* near Lang Vei, and the Allied command received the information well in advance of the actual assault.

Increased enemy tactical activity on the Khe Sanh plateau and the battle at Hue in the aftermath of the Tet offensive prompted national-level analysts to become increasingly concerned over indications of a massive enemy offensive brewing in the northern provinces. The 15

\*A Laotian force had been driven from its base just across the border in Laos by the North Vietnamese and was camping near Lang Vei.

February USIB Watch Report, summarizing enemy movements and logistic and construction activity, reflected this broader concern:

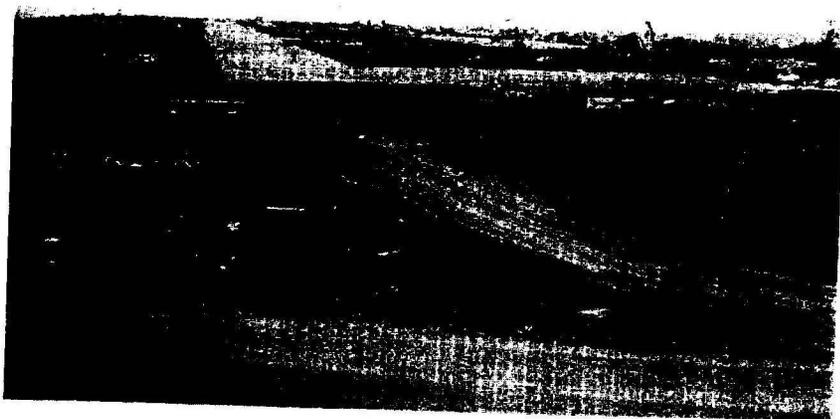
The movements and activity of NVA units in the DMZ area and the two northernmost provinces during the week reinforce the likelihood that North Vietnam may initiate a major offensive, a primary objective of which might be to gain control of Quang Tri and Thua Thien Provinces. In addition to the major buildup near Khe Sanh, SIGINT indicates that at least two infantry regiments of the 324B Division have moved southward through the eastern DMZ; these units could be committed against targets in eastern Quang Tri Province, including the provincial capital. We further note extensive Communist logistic and construction activity in the A Shau Valley and other areas of western Thua Thien Province which suggest preparations for major military activity in this area. Other indications of a coming offensive are the shipment of large quantities of artillery, mortar and rocket ammunition to points just north of the DMZ in the past week, SIGINT evidence that the NVA High Command is taking more direct control of NVA regimental size units in the DMZ/Quang Tri area, and tactical messages by these units.\*



By this time, the 29th Regiment, minus its 8th Battalion, had moved to Thua Thien Province. SIGINT showed that the 7th and 9th Battalions, 29th Regiment, took part in the battle for Hue, beginning their participation at least as early as 8 February, although this was not evident in SIGINT until late February. The 8th Battalion remained in

\*USIB Watch Report, 15 Feb 68.

## FOCUS ON KHE SANH



Runway at Khe Sanh

the Khe Sanh area and was resubordinated directly to Headquarters, 325C Division.

During the middle two weeks in February, the North Vietnamese concentrated their attention on the Khe Sanh airfield, attempting to disrupt the U.S. resupply air operations by shelling the field. SIGINT derived from enemy tactical communications furnished the Marines with detailed information on these efforts. One message between two enemy artillery support elements stated the Khe Sanh airfield "must be dominated completely." One element requested that the other provide the exact locations where Allied aircraft took off and landed, and passed on orders to fire on the airstrip.

During mid-February, 101D Regiment reconnaissance elements reported on Allied aircraft activity at the base and continued to relay information on NVA artillery rounds impacting in the area. On 15 February a "14th Battalion" reported that it had expended 74 rounds of

## THE BATTLE FOR KHE SANH

77

ammunition. *14th Battalion* was the standard North Vietnamese designation for the antiaircraft artillery battalion organic to an infantry division. However, deploying enemy divisions generally left their 14th AAA Battalions behind, and the 304th and 320th Divisions were no exceptions. SIGINT analysts were unable to determine the subordination of this 14th Battalion.

In trying to take the Khe Sanh plateau in early 1968, the North Vietnamese made a number of ground attacks on the various hill positions that the Marines held beyond the base perimeter, but attempted only one major ground assault on the base itself. That assault, in about regimental strength, came on the night of 29 February-1 March, and Colonel Lownds recalled vividly the role intercepted messages played in his defense of the base.\*

The intercepts he had in mind came from enemy low-level tactical voice and manual Morse communications processed and translated at USN-414J4 and USM-808, respectively, and then furnished to Colonel Lownds. On 22 February, references to an "N-Day" appeared in intercepted enemy messages. An unidentified artillery element stated that 140-mm. rockets would be used from "N-Day plus Two" to "N-Day plus Seven." *N-Day*, the Vietnamese equivalent for the American *D-Day*, had appeared in connection with enemy tactical activity in the DMZ area in 1967 and was also used in enemy communications in late January 1968, just before the Tet offensive. Appearance of the term in late February accordingly foreshadowed a major enemy attack.

On 28 February, the USN-414J4 voice team intercepted a message from an unidentified artillery element stating that artillerymen would fire 100 rounds on the night of 28-29 February in support of an infantry assault, and would fire an additional 200 rounds the following day. Later, another message indicated that the scheduled attack had been postponed.

On 29 February, an unidentified artillery element, possibly associated with the 304th Division, reported that it was going to conserve its ammunition in order to have enough to "support at night." Later that day, the same source stated, "Tonight, the infantry will attack. Our

\*Interview, author with Lownds, Jan 69.

artillery will assist." About that time, the North Vietnamese probed the western side of the perimeter, causing Colonel Lownds to speculate that the probe was a feint and that the North Vietnamese would attempt to break through on the eastern side of the perimeter in the ARVN Ranger area.

Basing his actions on SIGINT and his own knowledge of the surrounding area, Colonel Lownds made his plans to repulse the attack. He picked what he believed to be the most logical route of approach for the enemy force and selected a killing zone along the route. Next he estimated how long it would take the force to traverse the zone, and then arranged for a B-52 strike on the zone, to be followed by an artillery barrage. He also reinforced the ARVN perimeter.

During the night of 29 February-1 March NVA troops three times tried to break through the ARVN sector of the perimeter but each time were driven back with heavy losses. The main NVA force, however, never reached the perimeter—it was caught in Colonel Lownds' killing zone by the B-52's and the artillery.

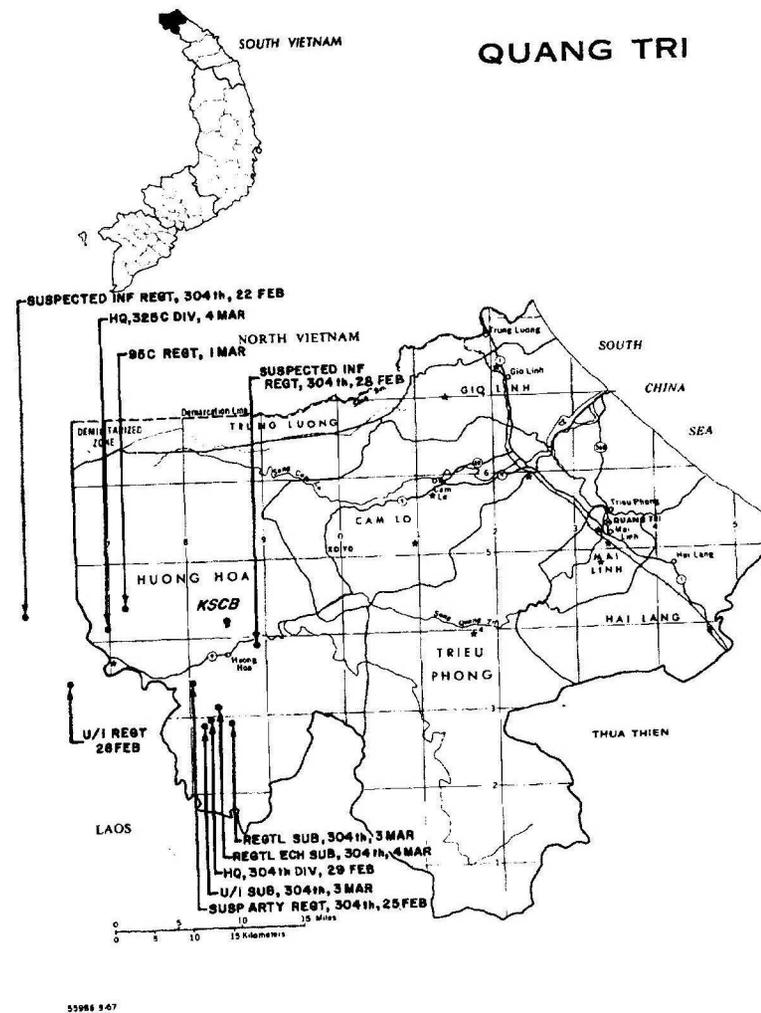
During the barrage, Lieutenant Gornic reported that the two NVA stations in the area were still operating. Suddenly one operator announced that shells had just barely missed his position. Lieutenant Gornic reported the near miss to Colonel Lownds, who adjusted the artillery fire accordingly. When the next rounds landed, the two stations went off the air and, Colonel Lownds noted with satisfaction, "were never heard again."

Colonel Lownds later gave his own evaluation of the operation:

In my own mind, I feel that this had been a major enemy effort, probably a regimental size attack. They appeared to be heading in a direction where they had demonstrated the most interest—down at the ARVN end, where the 37th Ranger Battalion was located. I concluded that the enemy was making his move; that we had correctly analyzed where he was going; and that by putting maximum fire power in his zone of advance, we had stopped him. These are my explanations of what happened, and if I live to be 90 I will continue to believe it. Anyone would have a hard time convincing me that this is not what happened.\*

\*Interview, author with Lownds, Jan 69.

## THE BATTLE FOR KHE SANH



NVA Positions Reported as of Early March

The 29 February attack was the last major ground assault in the Khe Sanh area. During late February and early March North Vietnamese units began to show the results of the severe poundings by Allied air and

~~TOP SECRET UMBRA~~  
80

FOCUS ON KHE SANH

artillery, often targeted by ARDF results. SIGINT at the beginning of March, for example, noted that a reconnaissance element of the NVA 101D Regiment had reported it had taken 50 rounds of artillery fire in its bunker area from Khe Sanh-based artillery. Its bunkers had completely collapsed and its antenna was almost totally demolished. The unit was subsequently ordered to abandon its positions and withdraw to its regimental command post.

Enemy artillery attacks and light probing actions continued in early March. 101D Regiment troops were still evincing interest in Allied positions on Hill 595, northwest of Khe Sanh, and at Chau Lang Chanh, southeast of the base. An enemy "2d Battalion" was ordered to organize an attack against Allied positions on Hill 595, and to fire at American aircraft.

At the national level, intelligence analysts were still concerned over the potential enemy threat to the two northern provinces. The 29 February USIB Watch Report stated:

The principal North Vietnamese military concentration continues to be focused on the two northernmost provinces, where we expect a sustained military effort during the coming weeks. SIGINT indicates the Communist force includes four NVA divisions, at least four NVA artillery regiments, and elements of at least five separate infantry regiments. North Vietnamese engineer troops are making a major effort to complete the road from the A Shau Valley to the Hue area. Messages suggest that they are preparing to move artillery and tanks over the route. Communist *antiaircraft* has been moved into the A Shau Valley to protect the western portion of the supply line.\*

Although it would not become apparent for some weeks, the issue at Khe Sanh had already been decided. However, as of early March, national-level consumers still feared that the Khe Sanh campaign was only the prelude to a major enemy offensive designed to wrest Thua Thien and Quang Tri Provinces from Allied control.

\*USIB Watch Report, 29 Feb 68.

## CHAPTER IV

### Khe Sanh Secured

Although artillery attacks continued, the volume of fire in March actually exceeding that of February, the enemy's failure to mount a successful ground assault against the base in late February apparently signaled the end of his hopes of overrunning KSCB. By early March the enemy command had taken the first steps toward dispersing his Khe Sanh attack forces. In April the Allies, in Operation PEGASUS, drove the remaining North Vietnamese from the Khe Sanh area and secured the base.

#### *325C Division Departs*

On 6 March an enemy message revealed that the communications troops of the NVA 325C Division's 101D Regiment were to turn over their station to unidentified replacements. SIGINT on 13 March reported that tactical communications serving the 101D Regiment had not been heard for a week. USM-808 reported about this time that Headquarters, 325C Division, had reactivated its detached element. On 15 March the 325C Division headquarters ordered the 95C and 101D Regiments to begin communicating with the detached element, and on 19 March the detached element attempted to raise division headquarters. USM-808 postulated that the activation of the detached element indicated a scheduled repositioning of the division, since previously activations of the element had signalled major 325C divisional or regimental relocations. On 20 March USM-808 reported that ARDF fixes indicated the 325C Division headquarters and its 95C and 101D Regiments had withdrawn to Laos. Thus, the SIGINT evidence for withdrawal of the 325C was firm.

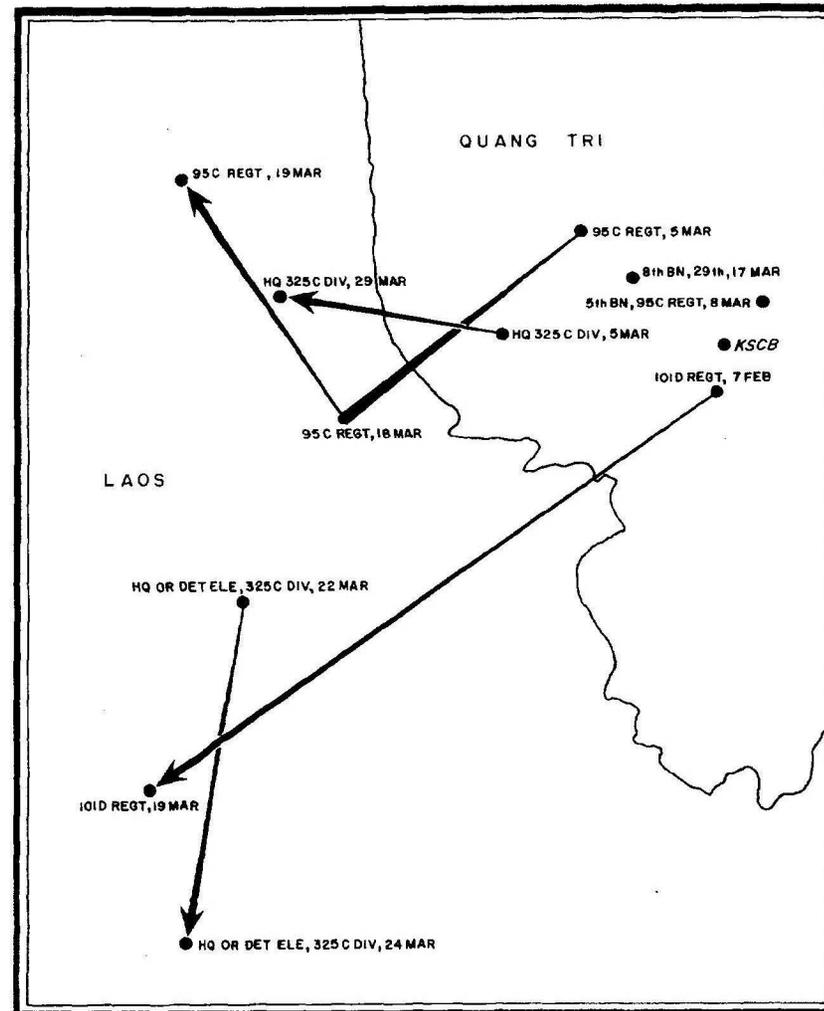
Colonel Lownds later stated that SIGINT had provided him with the first information that the 325C Division was withdrawing and that this

indicated to him that his Khe Sanh force had won its battle.\* However, despite the withdrawal of a substantial portion of the 325C Division, artillery, rocket, and mortar attacks against Khe Sanh continued. On 22 March USM-808 reported that, in a message intercepted on the 21st, an artillery position of the 304th Division had received orders from its fire direction control unit to send 500 rounds into Khe Sanh on the night of 22-23 March. A particularly high volume of fire was delivered on the night of 22d-23d, the Khe Sanh defenders counting 300 artillery rounds, 92 rockets, and 250 mortar rounds.

During the latter part of March, USM-808 reports continued to reflect the further withdrawal of the 325C Division and soon provided indications of its ultimate destination. On 22 March USM-808 reported that, within Laos, the 325C Division headquarters and the 101D Regiment were moving southward. The SIGINT report noted that the 8th Battalion of the 29th Regiment and the 5th Battalion of the 95C Regiment, however, remained in the Khe Sanh area. On 24 March USM-808 issued a follow-up item stating that 325C Division's headquarters or its detached element had moved still farther south and on that date had established radio communications with Headquarters, B3 Front. This indicated, USM-808 concluded, that the 325C Division and its subordinates were deploying to the B3 Front area of responsibility in the Kontum-Pleiku Province area. In connection with the relocation of these elements, the 325C Division headquarters had not been observed in communications with its 101D and 95C Regiments since 14 and 19 March, respectively.

On 23 March USM-808 reported that between 18 and 23 March the 304th Division headquarters had relocated 29 kilometers northwest of its last noted position concurrent with erratic communications activity. On 27 March NSA issued a report detailing current dispositions of enemy forces in the northern provinces. The report noted that 304th Division units were now operating in areas vacated by the 325C Division. The detached element of the 325C Division was coordinating the southward movement of elements of that division, although the use of duplicate signal plans by the division headquarters and its detached

\*Interview, author with Lownds, Jan 69.



325C Division Departs Khe Sanh Area

element precluded differentiation between the two in radio communications.

Even after a partial withdrawal of enemy forces from the Khe Sanh area became evident, national and theater consumers still thought that

FOCUS ON KHE SANH

the NVA withdrawal was only a prelude to the resumption of tactical operations by these units elsewhere in the northern provinces.

MACV, in reviewing the withdrawal of the 325C Division, expressed concern that the division might be recommitted to the Hue area, a fear also expressed in USIB Watch Reports at this time:

Communications intelligence of 22 March discloses a significant shift of enemy forces from their normal operating area south of Khe Sanh. An unidentified unit of regimental size is now located about 10 miles northwest of the combat base, and the artillery regiment of the 304th Division and a radio terminal serving the division's headquarters are about the same distance to the west of the base, in Laos. There are indications that the 304th may now have sole tactical responsibility for the Khe Sanh area. Meanwhile, units of the 325C Division are continuing their southward movement in Laos toward the A Shau Valley area from their earlier positions northwest and west of Khe Sanh; the fact that elements of the division's 29th Regiment are already located on the A Shau Valley-Hue road is an indication that the division may be reassigned to the Hue area.\*

*Operation PEGASUS*

At the end of March enemy tactical pressure near Khe Sanh was stepped up for what turned out to be the last time. On 30 March, just three kilometers from Khe Sanh, a company-sized patrol of the 1st Battalion, 26th Marine Regiment, engaged an enemy unit estimated to be of battalion size. During the action the North Vietnamese lost 115 killed. SIGINT provided tactical commanders with an enemy assessment of this encounter when it intercepted a message from an unidentified subordinate of the 304th Division reporting on a "battalion-sized" American attack on its positions. The message revealed that the NVA units involved had taken heavy casualties and that an entire battalion would be used to recover the dead.

Meanwhile, Allied forces were poised to launch PEGASUS, an operation to re-establish land contact with the Marines on the Khe Sanh plateau. The planning for PEGASUS had begun on 10 March,

\*OIS, 25 Mar 68.

KHE SANH SECURED

concurrent with the activation of the Provisional Corps, Vietnam, at Phu Bai. The Provisional Corps was established to counter the increasing enemy threat to the two northern provinces. On 25 January MACV had ordered the establishment of a MACV Forward Command Post at Phu Bai. Headquarters, MACV Forward, was organized with an all-Service joint staff. General Creighton W. Abrams, Deputy MACV, was designated as head of the staff during its formative period and assumed temporary operational control of all U.S. forces in I Corps Tactical Zone. Six weeks later MACV Forward headquarters was redesignated the Provisional Corps, Vietnam (PCV), and Lt. Gen. William B. Rosson replaced General Abrams as commander. The PCV included all Army and Marine Corps forces in northern I CTZ and exercised operational control over ARVN forces in the area as well. With the organization of the Provisional Corps, the mission of USM-808 was expanded. It began to function as a provisional radio research battalion, providing command support, CMA guidance, and technical support to four ASA DSU's supporting Army tactical forces that deployed into I CTZ to reinforce the III Marine Amphibious Force.

PEGASUS was an air assault by the 1st Cavalry Division (Airmobile) to landing zones northeast and southeast of Khe Sanh, in conjunction with a Marine regimental-sized attack along Route 9 from Ca Lu, and an ARVN airborne task force attack from a base southwest of Khe Sanh.

On 12 March General Cushman, the commanding general of the III MAF, directed that an airstrip capable of receiving C-123 aircraft be constructed at Ca Lu to serve as a forward logistic base for PEGASUS. Construction commenced on 22 March. Meanwhile, the assault forces for PEGASUS gathered. Three Marine battalions—two from the 1st Marine Division (Task Force CLEARWATER) and one from the 3d Marine Division—constituted the USMC contingent for PEGASUS. On 28 March the South Vietnamese approved the attachment of three ARVN airborne battalions to the 1st Cavalry Division.

On 26 March the 1st Squadron, 9th Cavalry, began reconnaissance operations west of Ca Lu, in which it was supported by artillery and air strikes. The squadron's mission was to become familiar with the terrain and to pinpoint enemy unit concentrations and antiaircraft sites for

86

## FOCUS ON KHE SANH

strikes. Of particular importance to the command was the early neutralizing of the enemy antiaircraft artillery.

On 1 April PEGASUS was launched. The 2d Battalion, 1st Marines, and 2d Battalion, 3d Marines, attacked westward along Route 9 from Ca Lu. The 3d Brigade, 1st Cavalry Division, deployed three battalions west of enemy positions along Route 9, approximately midway between Ca Lu and Khe Sanh. On 3 April the 2d Brigade, 1st Cavalry Division, air-assaulted into the area southeast of Khe Sanh. The 1st Cavalry Division's technique of air-assaulting units into positions behind enemy strongpoints and astride their route of withdrawal, coupled with continued devastating B-52 strikes targeted by SIGINT and the NIAGARA collection team, effectively demoralized the enemy.

On 4 April during a battle for Hill 471, southwest of Khe Sanh, a regiment of the 304th Division informed the detached element, 304th Division, that it was still fighting for the hill. It asked whether the unit should keep fighting at Chau Lang Chanh (near Hill 471) if Hill 471 could not be held. On 5 April, elements of an enemy battalion, believed to be the 7th Battalion, 66th Regiment, 304th Division, attacked American positions on Hill 471 and were repulsed with heavy losses. The 4 April message had indicated a continuing enemy interest in Hill 471.

On 5 April the 1st Brigade, 1st Cavalry Division, air-assaulted two battalions to the area south of Khe Sanh in an attempt to cut off the retreat of some enemy units.

SIGINT support to the 1st Cavalry Division during PEGASUS was furnished by its ASA direct support unit, the 371st Radio Research Company (RRC). USM-808 provided tasking and technical support to the 371st RRC and relayed intelligence product from the SIGINT support system. The 371st RRC provided the 1st Cavalry Division with SIGINT developed from its own resources and interpreted information provided for the division by USM-808, NSA, and other SIGINT producers.

Of especial value to the division were the many ARDF fixes acquired from operations of the 371st RRC's three LEFT BANK HU-1D

KHE SANH SECURED

87



UH-1D Used for LEFT BANK Missions

platforms. These were heliborne ARDF/RFP\* platforms controlled by the commanding officer of the 371st RRC, responsive to the intelligence requirements of the 1st Cavalry Division to which the craft were assigned, and flown by SIGINT-indoctrinated pilots from the division. The platform positions were manned by 371st RRC personnel, who passed fixes to 371st RRC ground positions, from where they were relayed over the division intelligence net. The passing of ARDF fixes over the division intelligence net was a new refinement in technique and speeded the dissemination of ARDF information.

\*Radio fingerprinting (RFP) basically involves taking a picture of the electronic emissions of a radio transmitter. Since the emission patterns of all radio transmitters are, like fingerprints, unique, an RFP "shot" on an unidentified radio transmitter can be compared with previously acquired RFP "shots" in an attempt to match it with a shot on an identified transmitter, thus establishing the transmitter's identity; or with a shot on an unidentified transmitter, thus establishing traffic analytic continuity on the unidentified station.

A fix received from an orbiting ARDF fixed-wing aircraft or LEFT BANK helicopter was passed air-to-ground via KY-28/KY-8 secure voice. When he could, the analyst on the ground identified the entity, sanitized the intelligence by using a cover name in place of the enemy unit designation carried in SIGINT, and passed the intelligence to the ARDF ground tipoff operator. The latter next entered the division intelligence net, to which the DSU subscribed, called CQ, and passed the fix simultaneously to the division G-2 and to subordinate divisional commands via the VRC-47 radio and KY-8 ciphony system. The G-2 and G-3 in the Division Tactical Operations Center then directed the appropriate units to act on the information. The range of responses by the action units to the ARDF fixes included air and artillery strikes, reconnaissance, and ground probes. The entire process was usually accomplished within 10 minutes of an ARDF fix, representing a major improvement in the timeliness of ARDF support in that the information was passed directly to the action units themselves as well as to the division G-2.

The 371st RRC also used RFP shots acquired by the LEFT BANK platforms in an attempt to identify ARDF fixes or at least establish traffic analytic continuity on unidentified enemy stations that had been fixed by LEFT BANK and other ARDF platforms.

During PEGASUS, the 371st RRC operated one low-level voice and two manual Morse positions at landing zone BETTY, a forward support base near Quang Tri City, which provided timely information to the air-assault commands. In addition, the 371st RRC relayed SIGINT from positions at the division base and from supporting SIGINT channels to those commands.

The USMC contingent in PEGASUS was not accompanied by a USMC SIGINT detachment. The 371st RRC passed timely SIGINT support to the Marine component through the S-2, 3d Brigade, 1st Cavalry Division.

The 1st Cavalry Division acknowledged the contributions of the 371st RRC in PEGASUS and in succeeding operations by way of a Meritorious Unit Citation, noting:

During the time . . . 1 February 1968 through 1 July 1968, the 371st Radio Research Company has provided timely intelligence support to the 1st

Air Cavalry Division throughout five Division-size operations. . . . The 371st Radio Research Company deployed three separate detachments which provided continuous support to the Brigades of the 1st Air Cavalry throughout the operation and into the Khe Sanh area with Operation PEGASUS. These Brigade Detachments were very valuable to each of the Brigade Commanding Officers for on-the-spot interpretation of Special Intelligence. . . . It has always been the responsibility of the 371st . . . to deliver ARDF fixes to the 1st Cavalry in the fastest, most efficient manner possible. . . . Consequently, . . . a method was developed whereby the use of the Division's "DELTA One" Secure Intelligence Net enabled all ARDF fixes received at the 371st . . . to be effectively disseminated to the needed consumers in 5-7 minutes. . . . Throughout the period there were numerous occasions where secondary explosion were resultant from the Division's reaction to the Special Intelligence product of the 371st. . . . (Their) timely product . . . has also placed "Sky Troopers" on the ground and have been the base for complete S & D and sweep operations. . . . The 371st . . . has proven to be an essential and integral part of the 1st Air Cavalry's operations.\*

On 6 April the 2d and 3d Battalions, 26th Marines, launched successful attacks north and northwest of their hill outpost positions. On the same day a small group of forces were airlifted to Khe Sanh, and on 8 April cavalymen from the PEGASUS force linked up with Marine elements at KSCB. The linkup of the two forces and the subsequent clearing of enemy elements from surrounding areas marked the end of the battle for the Khe Sanh plateau.

For the defense of Khe Sanh from 20 January to 1 April the 26th Marines and its supporting forces on 23 May 1968 received the Presidential Unit Citation. The citation reads, in part: "Through their indomitable will, staunch endurance, and resolute courage, the 26th Marines and supporting units held the Khe Sanh Combat Base. The actions of the 26th Marines contributed substantially to the failure of the Viet Cong and North Vietnamese Army winter-spring offensive. The enemy forces were denied the military and psychological victory they so desperately sought." USN-414J4, as one of the "supporting units," in no small way contributed to that denial.

\*S Ltr, Sub: Meritorious Unit Citation, 13 Jul 68.

A measure of the intensity of the combat on the Khe Sanh plateau and during PEGASUS is the high number of casualties inflicted on the enemy forces. Beginning on 1 November and culminating in the defense of Khe Sanh, Operation SCOTLAND terminated on 31 March. SCOTLAND accounted for 1,561 enemy dead; U.S. losses during the operation were 204 killed in action and 1,622 wounded in action, of which approximately half were wounded seriously enough to be evacuated. Operation PEGASUS, covering the period 1-15 April, accounted for 1,506 enemy killed and 26 prisoners of war captured; U.S. losses were 145 killed and 940 wounded.

The total enemy death toll during the two operations was undoubtedly much higher than the 3,067 confirmed by body count, since many mass graves were later found and it is probable that many more were not found. Subsequent collateral evaluations indicate that enemy losses may have surpassed 7,000.

#### *Enemy Withdrawal Continues*

During mid-April, SIGINT continued to report the movement of enemy elements away from the immediate vicinity of Khe Sanh. The 325C Division continued its redeployment toward Kontum Province. The division last contacted the Khe Sanh Area Front on 30 March, and by mid-April it had established regular communications with Headquarters, B3 Front, in Kontum Province. Meanwhile, communications facilities serving subordinate elements of the division were inactive—typical behavior for an NVA division undertaking an extended relocation. In May ARDF information confirmed the presence of the 325C Division and its subordinates in the Dak To area of the Kontum-Cambodia border; subsequent information indicated that elements of the division had arrived in that area as early as mid-April.

The 304th Division and its regimental subordinates remained in the western DMZ-Laotian border area for several weeks longer, although they had also been greatly weakened by American artillery and air strikes and had taken heavy casualties in the battles of 30 March-14 April. By June the division had begun returning to North Vietnam. Elements of the NVA 308th Division, some of which had started

deploying from North Vietnam as early as March according to non-SIGINT intelligence, took over from the 304th in the western DMZ-Laotian border area.

This treatment has covered, from a SIGINT point of view, the North Vietnamese deployment of two divisions into South Vietnam and the subsequent employment of a 2-division force in a sustained attempt to defeat the Allied forces on the Khe Sanh plateau. SIGINT collection and production was the sole reliable source of intelligence information on those enemy divisions while they were deploying from North Vietnam and was a major source of intelligence to U.S. commanders during the battle itself.

During the battle for Khe Sanh, USMC units for the most part stayed within the Khe Sanh base perimeter, except for frequent close-in reconnaissance sorties. Aerial reconnaissance of enemy positions was difficult because of poor weather conditions and the jungle cover. Under these circumstances, SIGINT became of prime importance, keeping the Marines informed on the dispositions and activities of the enemy. It enhanced the effectiveness of American artillery fire and air strikes by providing valuable targeting information that would not otherwise have been available. SIGINT predictions of enemy ground attacks, when they were mounted, often eliminated the enemy's hoped-for element of surprise and usually enabled the Marines at Khe Sanh to inflict heavy casualties.

Many tactical commanders have acknowledged that SIGINT provided the major part of the immediately usable tactical intelligence available to their commands during the defense of Khe Sanh and in actions in the northern provinces of South Vietnam. In discussing the value of SIGINT support to his command, Col. Charles A. Morris, who played a major role in planning Operation PEGASUS in his capacity as G-2 of the Provisional Corps, Vietnam, stated:

From my Corps G-2 point of view, SI was the only reliable source of early warning on enemy infiltration and movements. . . . At the Corps and higher level in SVN, 85 percent of the early warning intelligence derived from SIGINT. . . . In terms of early recognition and early warning of the

approach of the enemy forces and tracking them toward position locations, it is the best source.\*

SIGINT's contribution to the defense of Khe Sanh was made possible through cooperation and coordination among all the SIGINT services and echelons. The Marine Corps DSU at Khe Sanh, USN-414J4, concerned itself not only with results of its own SIGINT production but, as a link in the broader SIGINT system serving U.S. military forces in South Vietnam, it was also able to provide the commander with pertinent SIGINT and interpretive comments amplified by other intelligence and technical support from ASA, AFSS, and NAVSECGRU in-country SIGINT resources, as well as up-to-date in-depth analysis, technical support, and intelligence product from NSA.

While other intelligence sources were valuable during the Khe Sanh campaign, it was SIGINT that most often went to the heart of the military commander's questions: "Who?" "What?" "Where?" "When?" "How many?"

## List of Abbreviations

AAA	antiaircraft artillery
ACRP	airborne communications reconnaissance program
ARDF	airborne radio direction finding
ARVN	Army of the Republic of Vietnam
CIDG	Civilian Irregular Defense Group
CMA	Collection Management Authority
CRITICOMM	World Wide System for Critical Intelligence Transmissions Combined with Improved Communications Support of Communications Intelligence
CTZ	corps tactical zone
det	detachment
DIA	Defense Intelligence Agency
DMZ	Demilitarized Zone
DSU	direct support unit
ech	echelon
ele	element
KSAF	Khe Sanh Area Front
KSCB	Khe Sanh Combat Base
MACV	Military Assistance Command, Vietnam
MAF	Marine Amphibious Force
MM	manual Morse
MR	military region
MRDF	medium range direction finding (er)
NRV(C)	NSA Representative, Vietnam
NVA	North Vietnamese Army
OPSCOMM	operational communications
OTP	one-time pad
PAVN	People's Army of Vietnam (North)
PCV	Provisional Corps, Vietnam
poss	possible
RFP	radio fingerprinting
RRC	radio research company

\*Col. Charles A. Morris, CO USCONARC Intel Center, Hq USASA, Staff Briefing, 29 Jul 68.

## FOCUS ON KHE SANH

RRU radio research unit  
 SEAS Southeast Asia Summary  
 SRDF short range direction finding (finder)  
 sub subordinate  
 susp suspected  
 TACREP tactical report  
 U/I unidentified  
 USIB United States Intelligence Board  
 USSF U.S. Army Special Forces

~~TOP SECRET UMBRA~~

## Index

Abrams, General Creighton W.: 85  
 Air attacks  
   effect on NVA deployment: 39, 90  
   in support of Khe Sanh: 4, 71-73, 78, 79-80, 86, 91  
 Airborne Communications Reconnaissance Program (ACRP)  
   low-level voice intercept: 61  
   manual Morse: 13, 67, 69  
   support for: 13-14, 61  
 Airborne radio direction finding (ARDF)  
   Coordination Center: 14  
   in direct support of action units: 87-88  
   effective area of: 38  
   and NIAGARA: 22, 71-73  
   and NVA order of battle: 22, 33, 38, 39, 43, 46, 55, 58, 81  
   position at Khe Sanh: 21  
   support for: 14-17  
   in support of artillery: 16-17, 71  
   in support of Khe Sanh: 17, 22, 51, 66-67, 69, 71-73, 80, 81  
   in support of PEGASUS: 86-89  
   targeting air strikes: 71-73, 78, 79-80, 86  
 Air Force Security Service  
   and ACRP: 13-14  
   and ARDF: 15, 21  
 ARDMORE: 4, 6  
 Army Division, 1st Cavalry (Airmobile): 85-86, 87, 88-89  
 Army Security Agency (ASA). *See also* Army Security Agency units; USM-808.  
   and ACRP: 13, 14  
   and ARDF: 14, 15, 21  
   DSU's in ICTZ: 85  
 Army Security Agency units  
   509th Radio Research Group: 11, 14  
   8th Radio Research Field Station. *See* USM-808.  
   138th Aviation Company (RR): 15, 16  
   371st Radio Research Company: 86-89  
   Meritorious Unit Citation for: 88-89  
 Artillery, U. S.  
   along DMZ: 2, 7  
   long-range support by: 4, 71, 79-80, 90, 91  
   Khe Sanh-based: 7, 78, 80, 90, 91  
 ARVN. *See* Republic of Vietnam Army.  
 A Shau Valley: 51, 75, 80, 84  
 B-52 strikes: 71-73, 78, 80, 86  
 Ben Hai River: 25  
 Bohr, Capt. Harper L., Jr.: 20n  
 BUGLE NOTE: 71  
 C-47's: 13  
 C-123's: 85  
 Ca Lu: 85, 86  
 Cam Lo: 55, 57, 58  
 Camp J. J. Carroll: 2, 6, 24, 25, 66  
 Case, Sgt. William F.: 61, 62  
 CEFLIEN LION: 14, 70-71  
 Chau Lang Chanh: 80, 86  
 Civilian Irregular Defense Group (CIDG) at Lang Vei: 3, 7, 74  
 CLEARWATER: 85  
 Collection Management Authorities (CMA's): 11

~~TOP SECRET UMBRA~~~~TOP SECRET UMBRA~~

## FOCUS ON KHE SANH

COMINT. *See* SIGINT, use of.  
 Communications Security (COMSEC)  
   cannibalizing equipment of: 61  
   position at Khe Sanh: 21  
 COMPASS DART: 13, 14  
 Con Thien  
   operations around: 24, 25, 42, 43, 49  
   strongpoint near: 2  
 Cook, Berkeley: 61, 62  
 CRITICOMM network: 19  
 CROCKETT: 4  
 Cryptanalysis, in support of Khe Sanh: 14, 67, 69  
 Cryptomaterials: 16  
 Cushman, Lt. Gen. Robert E.: 22, 85  
  
 Dak To: 90  
 Da Nang: 7, 13-14, 16, 58. *See also* USN-414J.  
 Davidson, Brig. Gen. Philip B.: 22  
 Demilitarized Zone (DMZ)  
   attacks across: 2, 4, 6  
   NVA in area of: 23-24, 25, 28, 32, 33, 35, 37, 38, 42, 46, 47, 48, 49, 51, 55, 57, 58, 75, 90  
   NVA cryptosystems in: 46, 48  
   strongpoints along: 2, 7, 8  
 Direct support units (DSU's). *See also* Army Security Agency units; USN-414J.  
   relationships to CMA and command units: 9, 11-13  
   reporting channels: 19, 20  
 Dong Ha: 7, 64  
 DRILL PRESS: 13  
  
 Electronic countermeasures (ECM): 70-71

Equipment  
 AN/ARD-15 DF system: 16  
 KY-8: 16, 88  
 KY-28: 16, 88  
 VRC-47: 88  
  
 Gio Linh: 2  
 Gornic, 1st Lt. George J.: 20, 51, 59, 78  
  
 HESTIA pads: 16  
 Hill 471: 86  
 Hill 558: 52  
 Hill 595: 43, 54, 74, 80  
 Hill 845: 43  
 Hill 861: 4, 24, 52  
 Hill 861A: 52, 74  
 Hill 881N: 4, 9, 24, 52  
 Hill 881S: 4, 21, 24, 52, 74  
 Hill 950: 21  
 Holm, Capt. Thorvald P. E.: 20n  
 Hudson, Maj. Jerry E.: 20n  
 Hue: 2, 58, 74, 75, 84  
 Hung Hoa District Headquarters: 52  
  
 Infiltration. *See* Demilitarized Zone; Laos, NVA units in.  
  
 Jamming, preparation for: 70-71  
  
 Khe Sanh Combat Base. *See also* SIGINT support system.  
   enemy buildup around: 40-44, 45, 46, 48-49, 51, 58-59, 66  
   enemy withdrawal from: 81-84, 90-92  
   ground attack against: 9, 77-79  
   forces at: 7  
   resupply operations for: 9, 52, 76  
   role of S-2 at: 59, 61, 65  
   SIGINT-command relationships at: 16, 20, 59, 63  
   tactical plans for: 8-9

## Index

tactical operations in area of, 1968:  
   8-10, 52, 61, 64-66, 73-74, 76, 77-80, 81-82, 86, 89  
   U. S. buildup at: 3-8  
 Khe Sanh plateau  
   importance of: 1-7  
   operations on, 1967: 4, 24  
 Khe Sanh Village, attack on: 52  
 Kontum Province: 82, 90  
  
 Lang Vei  
   enemy attack on: 9, 74  
   forces at: 3, 7  
 Laos  
   "major headquarters" in. *See* North Vietnamese command organizations, Khe Sanh Area Front.  
   NVA units in: 23, 24, 25, 31, 32, 33, 35, 36, 37-38, 40, 42, 43, 45, 48, 49, 51, 82, 84, 90  
 LEFT BANK: 86-87, 88  
 Low-level voice intercept (LLVI): 54, 61-66, 74, 76, 77-78, 88  
 Lownds, Col. David E.  
   assumes command of 26th Marines: 4  
   forces under: 7, 8, 9  
   relationship with USN-414J4: 20, 59, 63  
   SIGINT training: 20  
   uses of SIGINT: 17, 20, 51, 69, 73-74, 77-78, 81-82  
  
 Manual Morse intercept: 13-14, 16, 54, 66-67, 69, 76, 77, 88  
 Marine air operations: 71  
 Marine Amphibious Force (MAF), III: 12, 22, 85  
 Marine artillery: 7  
 Marine Battalions  
   2d, 1st Marines: 86  
   1st, 3d Marines: 3  
   2d, 3d Marines: 86  
  
 1st, 9th Marines: 9  
 1st, 26th Marines: 4, 7, 84  
 2d, 26th Marines: 8, 89  
 3d, 26th Marines: 6-7, 52, 89  
 Marine Division, 1st: 85  
 Marine Division, 3d  
   ARDF for: 15-16  
   Division Forward: 2  
   move to Da Nang: 2  
   move to Dong Ha: 7  
   and USM-808: 12, 69  
 Marine Regiments  
   3d: 3, 4  
   9th: 9  
   26th: 4, 7, 8. *See also* Khe Sanh Combat Base.  
 Medium range direction finding (MRDF) and NVA order of battle: 33, 36, 38  
   in support of Khe Sanh: 15  
 Military Assistance Command, Vietnam (MACV)  
   and ACRP: 14  
   and ARDF: 14  
   Forward Command Post, Phu Bai: 85  
   J-2: 14, 22  
   and NIAGARA: 22  
   reporting of: 33, 35, 42-43, 48-49, 58-59, 84  
   and SIGINT support system: 15, 22  
 Morris, Col. Charles A.: 91-92  
  
 National Security Agency (NSA) and ACRP: 61  
   cryptanalysis at: 67  
   and national-level consumers: 57, 74-75  
   reporting of: 19, 20-21, 23, 28, 31, 32, 35, 36-38, 40, 44-45, 46, 48, 82-83

## FOCUS ON KHE SANH

and SIGINT support system: 11, 19, 21, 61, 62, 64, 66-67, 69, 86  
 in support of PEGASUS: 86  
 traffic analysis at: 66-67, 69  
 Naval air operations: 71  
 Naval Security Group. *See* USN-414J; USN-414J4.  
 NIAGARA: 21-22, 71-73, 86  
 Nickell, 1st Lt. Scott G.: 62  
 North Vietnamese Army (NVA)  
 artillery communications: 54, 56, 61, 64-65, 69, 74, 76-78, 82  
 artillery units and operations: 58, 59, 80, 81, 85-86  
 begins deployment southward, 1967: 6  
 cryptosystems: 23, 31, 46, 48  
 divisional headquarters detached element: 40, 42-43, 81, 82-83  
 forces in Khe Sanh area, January 1968: 8  
 front concept: 8, 46  
 Hanoi communications nets: 28, 31, 32, 35, 39, 46, 54, 75  
 manual Morse communications: 13, 14, 54, 61-66, 69, 76, 77  
 MR 3: 27, 32  
 MR 4: 58  
 operations, 1966: 40  
 operations, 1967: 4, 6, 24, 40-41, 43, 46  
 signal equipment: 53  
 signal plans: 27, 31, 38, 39, 52-54  
 size of units compared with those of U. S.: 8  
 sophistication of communications: 23, 62-63  
 strategy, 1966-67: 1-2, 4, 6  
 tactical intelligence communications: 43, 54-59, 66, 80  
 tactical voice communications: 54, 61-66, 74, 76, 77-78  
 Tri-Thien MR: 48  
 Tri-Thien-Hue MR: 76  
 watch nets: 28, 30, 32, 35, 46, 54  
 way station complex: 35-40, 48, 55, 57  
 North Vietnamese Army Battalions  
 5th, 95C Regiment: 24, 82  
 8th, 29th Regiment: 24, 25, 42, 75-76, 82  
 14th AAA, 304th Division: 28, 32  
 North Vietnamese Army command organizations  
 B3 Front: 82, 90  
 DMZ Forward: 46  
 DMZ Front: 25, 28, 30, 44, 45, 46, 55  
 GDRS: 55  
 GDRS Forward: 46  
 Headquarters, MR 3 North: 31, 48  
 Headquarters, MR 3 South: 28, 31, 32, 33  
 Headquarters, MR 4: 45, 46, 47, 55  
 Headquarters, MR 5: 43  
 High Command communications: 30, 35, 36-39, 45, 46, 57, 75  
 Khe Sanh Area Front: 42, 44-46, 48, 54-55, 57, 72, 90  
 North Vietnamese Army Divisions  
 304th: 8, 9-10, 23, 27, 28-29, 30, 31-35, 36-39, 40, 42, 46-47, 48, 51, 54, 55, 57, 58, 59, 61, 75, 77, 82, 84, 90  
 308th: 10, 90-91  
 320th: 8, 23, 27, 30-31, 32-33, 35, 36-39, 40, 42-43, 45, 46-48, 49, 55, 57, 58, 59, 75, 77  
 324th: 27  
 324B: 24n, 75. *See also* North Vietnamese Army Regiments, 90th, 803d, and 812th.

## Index

325C: 8, 9, 23-24, 25, 40-42, 43-44, 46, 48, 49, 53-54, 55, 57, 59, 66, 75, 76, 81-84, 90  
 351st Artillery: 59  
 North Vietnamese Army Group, 559th  
 Transportation: 35, 46, 55  
 North Vietnamese Army Regiments  
 9th, 304th Division: 61  
 29th, 325C Division: 24, 40-41, 42, 43, 52-53, 54, 56, 75-76  
 66th, 304th Division: 61, 86  
 90th: 24-25, 42, 49, 58, 75  
 95th, 325C Division: 24, 25, 40-41, 42, 43, 44, 53, 57, 58, 74, 82  
 101st, 325C Division: 24, 25, 42, 43, 44, 53, 54, 56, 76, 80, 81, 82  
 803d: 24-25, 75  
 812th: 24-25, 42, 49, 75  
 NSAPAC Representative, Vietnam (C) (NRV(C)), and jamming: 70-71  
 I Corps Tactical Zone (CTZ): 58, 85  
 Operational communications (OPS-COMM) circuits: 19  
 P-2V's: 14  
 PEGASUS: 9-10, 52, 81, 84-90, 91  
 Pleiku: 14  
 Pleiku Province: 82  
 Production and dissemination, systems of: 19, 20, 21, 64, 69  
 Provisional Corps, Vietnam (PCV): 85  
 Quang Tri City: 2, 88  
 Quang Tri Province: 2, 80  
 Radio fingerprinting (RFP): 87, 88  
 Republic of Vietnam Army (ARVN)  
 low-level voice intercept team: 61-62, 63  
 MACV on threat to, in I CTZ: 58  
 operational area of: 2, 8  
 and PEGASUS: 85  
 Republic of Vietnam Army units  
 1st Division: 8  
 37th Ranger Battalion: 9, 62, 66, 78  
 "Rockpile," the: 2, 58  
 Rosson, Lt. Gen. William B.: 85  
 RU-8's: 16  
 Schmidt, Maj. Charles: 22  
 SCOTLAND: 6-7, 90  
 SENTINEL SARA: 13, 14  
 Seventh Air Force, and NIAGARA: 22  
 Short range direction finding (SRDF): 20, 21  
 SIGINT, use of. *See also types by name.*  
 evaluation of: 90-91  
 tactical: 17, 20, 51, 54-57, 59, 61, 63, 64-69, 71-74, 76, 77-80, 81-82, 84, 86, 88-89, 90, 91-92  
 strategic: 57-59, 74-75, 80, 84  
 SIGINT support system  
 for ACRP: 13-14, 61  
 for ARDF: 14-17  
 for LLVI: 61-64  
 and MACV: 15, 22  
 for manual Morse: 13-14, 16, 66-67, 69  
 NIAGARA: 22  
 and NSA: 11, 19, 21, 61, 62, 64, 66-67, 69, 86  
 for I CTZ: 12  
 and 371st RR Company: 86-88  
 for III MAF: 12, 13  
 for 3d Marine Division: 12, 15-16, 69  
 and USN-414J: 12-13, 16, 20-21, 61, 64, 69  
 and USN-414J4: 13, 16, 20, 59, 61-64, 66, 69, 77

and USM-808: 11-12, 13, 14, 15, 16, 19, 20-21, 61, 64, 66-67, 69, 77, 85, 86

Southeast Asia Summary: 19, 40

Tactical reports (TACREP's): 19

Tchepone: 33, 37, 42

Tet offensive: 57, 74, 77

Thua Thien Province: 75, 80

Thompkins, Maj. Gen. Rathvon McC.: 7, 8

Traffic analysis

- indicators: 23, 27, 28, 30, 31, 32, 35-42, 43-44, 48, 53-54, 75, 81
- at NSA: 23, 27, 28, 30-31, 32, 36-38, 66-67, 69
- at USN-414J: 23, 66
- at USN-414J4: 66
- at USM-808: 14, 16, 23, 31, 66-67, 69, 75, 81

U. S. Army Special Forces (USSF)

- at Khe Sanh: 2, 7, 61, 62, 64
- at Lang Vei: 3, 7, 9, 74

U. S. Intelligence Board (USIB), reporting of: 33, 57, 75, 80, 84

USN-414J

- cryptanalysis at: 67
- low-level voice intercept: 61
- mission of: 13
- relationship to USM-808: 12
- reporting: 66
- and SIGINT support system: 12-13, 16, 20-21, 61, 64, 69
- traffic analysis at: 23, 66

USN-414J3: 20, 66

USN-414J4

- and ARDF: 16, 21, 66
- arrives at Khe Sanh: 4, 6
- composition of: 21
- lines of communications: 16, 20
- operations of: 16, 21, 51, 61-66, 74, 77-78

preparation for jamming: 70

Presidential Unit Citation: 89

relationship to USN-414J: 13

SIGINT-command relationship: 16-17, 20, 59

and SIGINT support system: 13, 16, 20, 59, 61-64, 66, 69, 77

traffic analysis at: 66

voice intercept team at: 61-66, 74, 77-78

USN-414J5: 66

USM-604: 11

USM-626: 11

USM-808

- and ACRP: 13-14, 61
- and ARDF: 14-15, 16, 72
- as CMA: 11-12
- cryptanalysis by: 67
- and low-level voice intercepts: 61, 74
- and manual Morse intercepts: 66, 67
- positions at: 66
- reporting by: 20-21, 23, 31, 43, 46-48, 52-53, 54, 75, 81, 82
- and SIGINT support system: 11-12, 13, 14, 15, 16, 19, 20-21, 61, 64, 66-67, 69, 77, 85, 86
- in support of Khe Sanh: 74, 82
- in support of PEGASUS: 86
- in support of 3d Marine Division: 67, 69
- tasking of: 11-12, 85
- traffic analysis at: 66-67

Viet Cong communications nets: 46

Westmoreland, General William C. and NIAGARA: 22, 72-73

strategy of: 2, 6, 9