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Contemporary
Historical
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REPORT

TIGER HOUND

6 SEP 66

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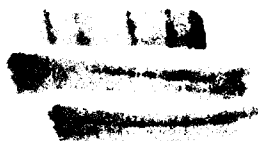
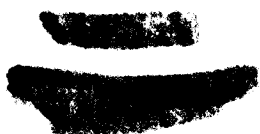
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Edward C. Burtenshaw
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TIGER HOUND

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FOREWORD

The following report has been prepared to document the development of the TIGER HOUND program. The air interdiction program in Laos is traced from its inception in late 1964 through 26 May 1966 to provide an overview for the reader.

The program for the early BARREL ROLL missions through the separation of Eastern Laos into BARREL ROLL and STEEL TIGER areas and finally, the introduction of the TIGER HOUND program is shown. The evaluation of the rules of engagements, the gradual easing of the political and geographical restraints, and the increase in the level of effort is discussed. The original BARREL ROLL program, which required a minimum 48-hour sterile period between strikes is contrasted to the TIGER HOUND program which reached a level of 200 strike sorties per day achieved in late spring of 1966. The increase in weight of effort and the corresponding increase in effectiveness is set forth.

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CHAPTER I

THE PLAN TAKES SHAPE

Late in 1964 the Commander, United States Military Assistance Command, Vietnam (COMUSMACV), was faced with increasing evidence that North Vietnam was infiltrating considerable quantities of men and supplies into South Vietnam through neutral Laos. Following coordination between CINCPAC, CINCPACAF, the Secretaries of Defense and State, the United States Ambassadors to Laos and Thailand, and General Joseph H. Moore, Commander 2d Air Division, a program of air interdiction in Laos called BARREL ROLL was implemented. It was designed to harass and interdict the Pathet Lao and North Vietnamese Army Force in Laos.

The first BARREL ROLL mission, flown on 24 December 1964, inaugurated a low key program. The initial effectiveness was hampered by involved channels of communications, restrictions on rules of engagement and weaponing and an overall low priority for sorties.

In April 1965, the BARREL ROLL program was divided into two programs to insure that the interdiction programs in both the northern and southern BARREL ROLL areas received equal emphasis. The second program was named STEEL TIGER and covered that portion of eastern Laos, south of the 17th Parallel. The BARREL ROLL program was responsible for the close air support of the FAR (Force Armee Royale) and Meo soldiers plus the air interdiction of the North Vietnamese supply lines

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to the Pathet Lao that fell within the area. STEEL TIGER's primary objective was the interdiction of PAVN and Viet Cong infiltration routes in the south. The effectiveness of both programs continued to be hampered by the restrictions imposed on their execution and the low sortie priority assigned to them. CINCPACAF noted in January 1965 that, for the interdiction program to be effective, it would be necessary to waive the current 48-hour sterile period between BARREL ROLL strikes and increase the U.S. air effort to not less than eight ^{1/} to twelve strike aircraft per day.

As United States troop involvement mounted through the summer of 1965, the NVN government countered by stepping up infiltration efforts. It was estimated that by October and November 1965, the Ho Chi Minh Trail was disgorging 4500 enemy troops per month and 300 tons of supplies per day into South Vietnam. Heavy confrontation with these well-supplied communists came during October and November in the Central Highlands precisely at the foot of the trail. ^{2/} On 27 October, COMUSMACV stated in a message to CINCPAC that the infiltration of North Vietnamese forces had been greater than expected and indicated that something should be done to accelerate the interdiction program. ^{3/} He reviewed with CINCPAC the difficulties in satisfying the targeting requirements of the U.S. Embassy at Vientiane and requested that the Ambassador to Laos fully support a strike program against these infiltration routes.

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Roadwatch reports and photo reconnaissance verified the weight of the NVN buildup along the lines of communication from the North Vietnamese border, down through Laos and into South Vietnam. A
PACAF Intelligence Summary noted on 7 October 1965: ^{4/}

Hi alt photos on 2 Oct reveal new unnumbered road under construction in Laotian Panhandle, southward from Route 923. This marks furthest observed southern penetration of continuous vehicular road system connecting with DRV to date. If extended southward, road may bypass suspect waterborne infiltration on Se Kong River.

Another, on 26 October 1965, reported in detail: ^{5/}

Communists again sending trucks into Laos via Mu Gia Pass, and will probably resume southbound truck movements in panhandle soon. Roads built or improved in panhandle throughout rainy season and traffic from DRV to SVN Kontum province will soon be possible along routes 23, 92, and 165, and two alternate routes now under construction. 10 Oct photographs reveal vehicle tracks across Mu Gia Pass choke point. Roadwatchers reported 17 westbound trucks beyond choke point on same day. Last year, few trucks per day were reported on Route 12 until mid-Dec, southbound trucks Route 23 not reported until 20th. Extent this year's road construction suggests increase in truck traffic at earlier date than last year. A trail route (Route 911) improved east of Route 23 provides alternate link to Route 9 in Tchepone area. Route 23 from Mu Gia Pass to Route 911 appears serviceable and well used. Several new bridges on Route 92 near DMZ provide link with Routes 102 and 103 in North Vietnam. Route 92 being extended south to connect Route 165. Latter road extends east through Chavane and across SVN border. Construction includes improvements to Routes 922 and 923 and connecting link from 923 south to Chavane area. Current construction making ox cart and "jeepable" trails available to traffic, will permit through-trucking from DRV to SVN and provide alternate routes. High priority assigned to work indicates Hanoi determined continue supporting Viet Cong. More substantial traffic panhandle can be expected any time.

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On 7 November 1965, the Joint Chiefs of Staff requested a review of the North Vietnamese infiltration of men and supplies into South Vietnam, along with comments and recommendations on actions to control it. ^{6/} CINC PAC gave his concept, in the military sense, for the NVN and Laos campaign in support of Phase II. It called for destruction, at the sources of VC/NVN logistics and for interdiction of their lines of communication. CINC PAC felt that unless the restrictions against striking at the sources, distribution points and LOC's of the North Vietnamese infiltration effort were lifted, especially in the Hanoi-Haiphong area, the air effort could harass infiltration but could not effectively deter it. CINC PAC recommended attacks against water LOC's, and against the port facilities at Haiphong, Hong Gai, and Port Wallut. He wanted these major ports mined to discourage foreign shipping of war materials to North Vietnam and, although he stressed that air interdiction of the inland LOC's should continue, he did not feel they would be completely effective because of infiltration under cover of jungle foliage, by ox-cart, bicycle and human ^{7/} convoy.

Two factors became prime considerations in any program for interdicting the area - the ability to acquire the target, and the assets to fix it and strike it once acquired. A weight of effort sufficient to strangle the determined infiltration was necessary.

General Westmoreland was certain there were sufficient targets under the jungle canopy to make it worthwhile to mount such a major

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effort. He had plenty of evidence at Plei Me, Chu Phong and Ia Drang to indicate that a sizeable enemy force was being well-supplied and reinforced. Everything pointed to the Ho Chi Minh Trail in south-eastern Laos and northeastern Cambodia as the terminus supplying the majority of these enemy assets.

*W HONG CINCPAC
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VIEWS*

In a message to Amemb Vientiane 7 Nov 1965, CINCPAC noted the following actions he considered necessary for effective operations in Laos: 8/

1. Maximum feasible interdiction of the Communist logistic corridor centered on Routes 911, 9, 922, 23, and 111.
2. Designation of appropriate segments of inland waterways of the Panhandle for armed recce.
3. Designation of controlled strike zones in the Panhandle.
4. Conduct detailed photo analysis of infiltration routes in the STEEL TIGER area in order to develop maximum number of targets for validation by Amemb Vientiane.
5. Get maximum utilization of O-1 aircraft in support of strikes with U.S. FAC's and Royal Laotian observers, thus enhancing General Ma's (Chief of the Laotian Air Force) participation and, hopefully, his approval of increased air operations.
6. Defoliation of selected LOC's and crop destruction.
7. Possible use of IR and SLAR.
8. Increase in SHINING BRASS (U.S. Army Special Forces teams in cross-border operations), BANGO/WHIPLASH operations. (BANGO and WHIPLASH are fast-reaction ground alert aircraft based in Thailand.)

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CINCPAC felt that priority in the Laotian Panhandle interdiction effort should go to harassment, disruption and attrition of LOC support facilities, such as storage and bivouac areas, truck parks, repair equipment. Top priority should also go, CINCPAC felt, to photo recce of the major infiltration access points and the associated routes leading south, in order to effect timely exploitation of lucrative but fleeting targets.

On 15 November 1965, COMUSMACV directed that a committee be formed (J-5, 2nd Air Division; Joint Research and Test Agency; MACSOG; AMCPD; and COMSEVENFLT) as a "Think Group" in fostering ideas and recommendations to use airpower more effectively in interdicting border infiltration. He wanted this group to come up with a plan specifically designed to increase surveillance and promote the actual attack against enemy troops and supplies along the Laos border adjacent to South Vietnam, from the Demilitarized Zone down to the Cambodian border. ^{9/} This differed with the thinking of CINCPAC, whose concept stressed hitting the sources of supply and accesses to the infiltration routes. General Westmoreland said that he wanted a task force composed of Army, Air Force and Marine personnel and that he was ready to use all assets available in South Vietnam for the job. He envisioned this task force, headed by a USAF Colonel and an Army Lieutenant Colonel, as being based near the scene around Pleiku with its own assets.

In support of his intention to mount a stronger interdiction program along the Laotian/South Vietnam border, General Westmoreland

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directed that 2nd Air Division schedule up to 100 air strikes per day into Southern Laos. ^{10/} With reference to the concept of operations, he stated that the 2AD Airborne Command and Control Center (ABCCC), a C-130 aircraft, would be utilized to direct sorties in the armed recce sectors of Southern Laos, and that it would be authorized to request the diversion of in-country aircraft through TACC if a lucrative target was discovered in the STEEL TIGER armed recce area. In a message to CINCPACFLT, ^{11/} COMUSMACV requested on 24 November that Task Force 77 increase its participation in the Laos air operations. He asked that the Navy increase its minimum BARREL ROLL sorties from 16, as requested by MACV on 30 August 1965, to a level of 30 sorties per day. For STEEL TIGER operations, he desired a sortie level of 66 sorties daily from TF 77 resources; this would include the agreed minimum of 16 sorties plus the 50 sorties that are made available for support of in-country operations. These 50 sorties, even though flown in Laos as STEEL TIGER missions, would be considered by COMUSMACV to be, in fact, in direct support of in-country operations. Additional sorties for use in South Vietnam would not be requested on these days.

COMUSMACV had asked for B-52 strikes and defoliation of key LOC's in the Laotian Panhandle. On 25 November, the Ambassador to Laos concurred in the B-52 proposal along the Laos/SVN border, but stipulated that there be no publicity. Any public statements regarding the strikes must describe them as "just another strike in South Vietnam." ^{12/} The Secretary of State, together with the Secretary of Defense, expressed

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their thoughts on the use of defoliants in the Eastern Panhandle of Laos in a message to the Ambassador in Vientiane on 25 November 1965.^{13/} They approved action to defoliate routes validated by the Royal Laotian Government in the area defined by the Ambassador, under the assumption that Souvanna Phouma would agree to the use of defoliants against other routes and trails in addition to Route 911. They noted that in the past there was little public reaction to Communist propaganda accusing the U.S. of using defoliants in Laos as well as toxic chemicals and napalm. They expected that the Communists, however, would put on a concerted propaganda campaign when defoliants were actually used. The Secretaries indicated that such charges would be handled, in the event of press queries, in accordance with the standing guidance; U.S. air operations in Laos would not be reported, acknowledged or otherwise commented on beyond stating that since May 1964 the U.S. has conducted air reconnaissance over Laos at the request of the Laotian government.

With these actions, plus the enlargement of STEEL TIGER/BARREL ROLL operating areas in November to include the realignment of the northern end of STEEL TIGER with the Ban Nape Pass, the stage was set for the inception of TIGER HOUND.^{14/} General Westmoreland's indication that he would like his own aerial task force, with its own assets, prompted the Commander 2AD to direct his staff to come up with a counter-proposal.^{15/} It was felt by the 2AD Director of Operations, Brigadier General George Simler, that the Air Force had sufficient assets to handle the

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interdiction program within the existing organizational setup. His position was that, rather than introduce a special operation with new rules under a new name on top of a rather complex Laotian situation, it would be better to apply more realistic rules of engagement allowing the present sorties allocated to be applied more effectively. ^{16/}

General Westmoreland was briefed on both proposals and tentatively accepted that of 2AD. The Air Force proposal would interdict the Laos/
SVN border, under the 2AD TACS (Tactical Air Control System) with FAC's performing visual reconnaissance and directing strikes on approved targets as in South Vietnam. Under the 2AD proposal the TIGER HOUND program (nicknamed by General Westmoreland) would have 10 USAF and 10 Army O-1 aircraft manned by 30 USAF crews; it would also have 13 Army Mohawks (OV-1A's and B's) manned by Army crews; all aircraft would stage from four South Vietnam airstrips close to the Laotian border. The Mohawks would be used to discover targets at night with IR and SLAR (Infra-Red and Side Looking Aerial Radar) and perform visual recce in more remote areas. ^{17/}

This proposal was presented to the Secretary of Defense in a MACV briefing held in Saigon on 28 Nov 1965. He was told that the STEEL TIGER operation had not achieved full effectiveness in containing the infiltration of men and material into South Vietnam. Major North Vietnamese Army forces were continuing to infiltrate through the Laotian Panhandle in increasing numbers; the enemy had devoted major engineering efforts building roads, bypassing choke

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points, camouflaging route segments, repairing portage areas on major roads previously damaged by repeated air strikes, and was probably infiltrating up to 300 tons of supplies daily into South Vietnam. COMUSMACV felt that the best potential targets were in the southeastern portion of the Panhandle, but that U.S. aircraft were not permitted to operate there in any substantial degree until mid-November when the Royal Laotian Government opened the area to armed reconnaissance and interdiction. 18/

The Secretary of Defense was given a rundown on the TIGER HOUND rules of engagement, which would permit unlimited armed reconnaissance along all motorable roads within a specified area of the Laos Panhandle. However, only targets of opportunity which were within 200 yards of the road could be struck. Beyond 200 yards from motorable roads or anywhere outside the specific geographical area, strikes could be made only on previously approved RLAF targets, or targets marked by RLAF FAC's. Infiltration trails or way stations could not be attacked. Napalm would not be employed. The Secretary of Defense's response to the plans indicated full support for the requirements generated by them. 19/

The U.S. Ambassador to Laos, Mr. William Sullivan, was briefed at Udorn, Thailand, on 1 December 1965 by COMUSMACV and Lt General Moore, Commander 2AD, on the TIGER HOUND plans and expectations. Mr. Sullivan did not fully concur in the concept. USAIRA Vientiane had already made his and Mr. Sullivan's view known in a 25 November message wherein

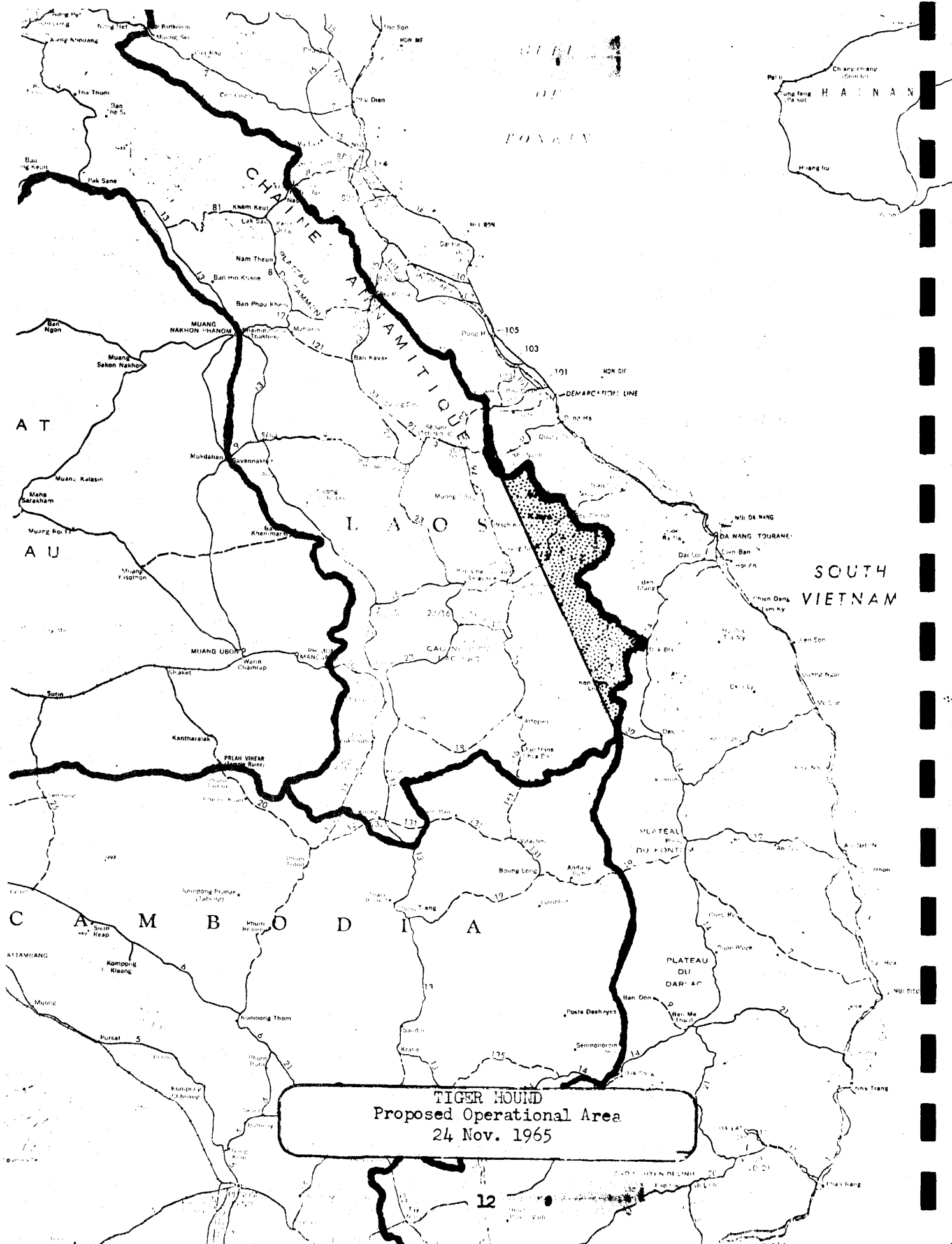
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he stated he believed the procedures presently employed for diversion of BARREL ROLL and STEEL TIGER flights as given by COMUSMACV on 17 November were not responsive enough; that they were losing good targets. The recent emphasis on the STEEL TIGER area and corresponding neglect of BARREL ROLL was a matter of concern in Vientiane, he pointed out, since it was viewed that all of Laos was an area of interest. Vientiane believed that the destruction of communist assets in the north contributed to the enemy's problem of maintaining and supporting a sizable force in Laos which, in turn, affected his ability to support the Viet Cong in the south. ^{20/} Ambassador Sullivan did not attempt to stop the TIGER HOUND program; however, he did make it clear that there would be no relaxation of the rules of engagement. He proposed to confine efforts to the special zone east of a line from the intersection of Cambodia, Laos, and South Vietnam to XD 8716 as shown on the map on page 12. ^{21/}

Colonel John F. Groom, USAF, was made TIGER HOUND Task Force Commander. Under him were his Deputy for Operations, Colonel Edwin Harper and Deputy for Intelligence, Lt Colonel Wendell W. Wichman, USA. With the Task Force headquarters at Tan Son Nhut Airport, Saigon, Colonel Groom placed his forward operating base at Da Nang, and named four forward strips as operating bases for the O-1 aircraft. These were Dong Ha, an Air Force base north of Da Nang, Khe Sanh, Kham Duc, and Kontum, all Special Forces strips close to the Laotian border. Lt Colonel Rex L. Poutre, USAF, was commander for the Da Nang operation;

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Captain Jerome H. Holmlund was detachment commander at Dong Ha, Captain David A. Farrow commanded the detachment at Khe Sanh, with Captain Dan O. Howe at Kham Duc and Major Earl L. Seagrave at Kontum in charge of the respective operations at those detachments. The operation was scheduled to start on 5 December 1965.

On 4 December 1965, in a message COMUSMACV delegated complete responsibility for the planning, scheduling and conduct of STEEL TIGER and TIGER HOUND operations to 2AD, including the coordination with the U.S. Embassies regarding rules of engagement. The above responsibilities were to include submission of OPREP reports and briefing to COMUSMACV as required. ^{22/} COMUSMACV retained the responsibility for the YANKEE TEAM reconnaissance program and for any policy matters relating to Vientiane and the Royal Laotian Government.

CINCPAC requested a clarification of the December 4th message, and ^{23/} to this COMUSMACV submitted the following comments:

1. Of necessity, we are embarked on a major air campaign in Laos. We feel that such a campaign should be executed by the Commander 2AD on behalf of COMUSMACV because he has the staff, the knowledge and the wherewithal. The success of this campaign will weigh heavily in the outcome of the war in Vietnam.
2. It is understood that Commander 2AD will operate within existing directives. Changes as may be necessary, will be recommended by him to COMUSMACV and thence, after review, if approved, to CINCPAC.
3. There is a requirement for operational coordination with Vientiane and Royal Laotian Air Force and for the establishment of better communications and a closer operational relationship. These matters will

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be the responsibility of the Commander 2AD on behalf of COMUSMACV. Policy matters relating to Vientiane and the RLG will be handled through MACV channels.

4. Coordination with PACFLT will be executed by Commander 2AD in accordance with operating procedures which are now well established.

5. In addition to TIGER HOUND, Commander 2AD has been delegated the responsibility for STEEL TIGER and BARREL ROLL. However, YANKEE TEAM is retained as a MACV responsibility. At the same time, local arrangement will make it possible for the Commander 2AD to support his campaign in the Laotian Panhandle and in the BARREL ROLL area in northern Laos.

6. COMUSMACV is surrendering neither his responsibility nor his authority over these programs. However, he is delegating to a component commander a function and an operation which can best be executed at that level. If this delegation of responsibility and authority requires the amendment of any existing directives, this message may be considered a request to do so.

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CHAPTER II

OPERATIONS - 6 December 1965 through 30 April 1966

TIGER HOUND started operations on 6 December 1965. The overall plan of execution put into the TIGER HOUND area a large spectrum of tactical air capability, equipment, and expertise - defoliation of infiltration routes by RANCH HAND UC - 123's (309th Air Commando Squadron's Special Aerial Spray Flight), strikes at key area targets by Arc Light forces (B-52's from Andersen AFB, Guam), positive strike control by forward air controllers in O-1's and A-1E's during the day-light hours and in AC-47's at night, positive traffic control by ABCCC's in conjunction with CRP's "Invert" control at Nakhon Phanom in Thailand and "Peacock" and "Panama" controls in South Vietnam. At the opening of air operations the special zone contained 29 priority "Alpha" RLAF targets. More were added immediately, until the figure reached 69 valid targets by 12 January, 1966, of which 52 had been struck. During December, approximately 800 missions were flown and, as of 12 January 1966, the total sorties had reached 1566 strike, 33 airborne command post, 137 FAC and VR, and 117 AC-47 FAC and armed recce sorties. ^{24/} On 6 December 1965, two RANCH HAND UC-123's were deployed from Tan Son Nhut to Da Nang to conduct defoliation operations in support of TIGER HOUND. In December, a total of 56 sorties were flown, expending 42,375 gallons of "purple" - the defoliant. All targets had to be validated by Amemb Vientiane and, because of the shortage

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of validated targets in the early stages (no secondary targets in the event of weather at the primary), 27 sorties were lost during the period. Later in the month, more targets became available and the defoliation aircraft could fly up to two missions per day. Approximately ^{25/} 565 linear kilometers (310 nm) were sprayed.

The rules of engagement and the restrictions on targets in the TIGER HOUND, STEEL TIGER, and BARREL ROLL programs were slowly being moderated, as indicated by a JCS message of 3 Dec 1965 in which the Joint Chiefs stated that Washington approval was no longer required ^{26/} for preplanned missions. As things stood at the beginning of the program, however, all planned targets had to be coordinated and validated by Amemb/USAIRA Vientiane and placed in one of three categories; Priority Alpha - all targets having some residual value that may be attacked without further Vientiane coordination except inclusion in the daily OPREP 1; Priority Bravo - inactive status, those targets that have already been destroyed, abandoned or having very low residual value; Priority Charlie - Hold status, those targets that may not be struck for political or military reasons.

Although TIGER HOUND aircraft were allowed to perform unlimited armed reconnaissance along the roads and motorable trails within the TAOR, they could not hit villages or built-up areas, regardless of military value, without having that target validated by Vientiane or the RLAF. Even with the elaborate communications equipment aboard the ABCCC, including the single side-band radio, target validation

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required considerable time. In early December, it was proposed that the system be streamlined. Authority was obtained to have two RLAF officers attached to the TIGER HOUND task force, to ride in the C-130 ABCCC and act as observers, with on-the-spot approval authority for any targets detected. ^{27/} Colonel Groom said: ^{28/}

"...This has worked out very successfully to date - much better than we thought at first. If the Lao observer is in doubt whether to strike the target or not, he has single side-band radio capability and can call the Laotian Air Force headquarters and have them make the decision. When we first started the program this happened many times, but since we have been working some months in the area and the people have become more acquainted with the area we have received approvals almost immediately...."

On 28 December 1965, COMUSMACV informed the Ambassador to Laos that the TIGER HOUND project was then well underway, with sortie rates averaging about 100 daily. He stated that a majority of these missions "have been FAC controlled against validated RLAF targets using South Vietnam based aircraft and CVA (carrier) resources in nearly equal numbers." He believed that against selected, validated RLAF targets, or those targets detected and evaluated by FAC's, the discriminate, controlled employment of napalm would result in greater target destruction per sortie and would subsequently improve overall sortie utilization. This would also permit diversion of airborne or ground alert missions from in-country targets to lucrative fleeting targets in Laos, using all available munitions. He felt that the criticality of some munitions required the most efficient use of all available ordnance for effective target destruction. With this as a

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basis he requested that Royal Laotian Government concurrence be obtained for the use of napalm against validated RLAF targets, and targets approved for FAC directed TIGER HOUND strikes. ^{29/} This was a continuing request by MACV and 2AD for the next few months.

The initial days of TIGER HOUND operation could not be called an unqualified success. During the first 20 days of strikes, 11 storage and bivouac areas were totally destroyed and 15 others extensively damaged, with 18 secondary explosions. ^{30/} During the period of 6 through 31 Dec 1965, 809 strike sorties were flown (333 day and 51 night strikes by USAF fighters, 325 by USMC aircraft and 100 by the Navy). ^{31/} Colonel Groom commented on these strikes: ^{32/}

"...During this month of December and part of January, we concentrated most of our efforts on these fixed RLAF targets. Frankly, we weren't getting a lot out of them - 23 were getting many secondary explosions, indicating that we were getting supplies and ammo. However, we didn't see much truck traffic or evidence that the Viet Cong were using the Ho Chi Minh Trail for this purpose. However, the FAC's were discovering, during the day, evidence of this traffic. That is, tire prints along the roads, dust had accumulated on the trees, but we did not see any traffic at all. If you look at the statistics you'll find out that, probably in December, we saw or hit something like a dozen trucks.

It became readily apparent to us that the enemy was moving everything at night, so we started a night program, with fighter aircraft using their own flares. However, the fighters are limited to the number of flares they can carry, the time they could stay on target, and we admitted that this program at night was more a harassment type thing, rather than trying to find good targets and hit them. Simultaneously, over the well-travelled routes such as Route 9, from Tchepone down south along Route 91, we put on a great deal of night reconnaissance, and the RF-101's going over the area, and the RF-4C's, dropping flares at random over

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seven-mile stretches, did pick up actual trucks in the area. This convinced all of us that we had to improve our night effort. So the first thing we did was get C-130 aircraft, equipped with flares, on the routes during the nighttime. We would have done this earlier but we were severely limited on flares at this time, and the in-country war came first. ...We would have the F-4C's, for example, with CBU's, make straight and level runs along roads that we knew were open and were being travelled. And we would drop flares, have them drop (delivery ordnance) in the area, and we got many many secondary explosions. ...We still weren't satisfied with this kind of a program. We refined it further by adding the Mohawk - OV-1B aircraft - which is a SLAR equipped aircraft. It has the immediate readout capability for moving targets. So at the present time, we have a team, consisting of the C-130 with flares, the OV-1B with a moving target capability, and strike aircraft operating as a package. The SLAR aircraft will move up and down the roads, and if he gets a moving target indication, he will mark the target with a flare. In turn, the C-130 will pick up this particular coordinate, light up the area and call in the strike aircraft to hit the targets...."

ARMY

For 12-29-66, Although the original concept for TIGER HOUND had included the use of OV-1 assets, little was officially done until January 1966. SLAR+IR new

COMUSMACV, in a 3 Jan 1966 message to CINCPAC, ^{33/} mentioned that OV-1 sorties would be furnished to 2AD for Project TIGER HOUND from assets of the 20th ASTA Detachment. TIGER HOUND would have priority of daily available sorties. It was planned to allocate three sorties per day for TIGER HOUND initially, increasing this number as additional OV-1 assets became available. When did sorties begin?

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January showed improvement over the unimpressive December statistics as FAC's began to learn their VR areas, defoliation started to take effect and the operation generally began to achieve maturity. Still,

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the results were less than spectacular. From a total of 3476 strike sorties, expending 3286 tons of ordnance, the operation destroyed 15 trucks and damaged another eight; destroyed 41 bridges, with 36 damaged; put 22 AW/AAA positions out of action and damaged another 15; 261 structures were destroyed, while 202 were damaged; and there were a total of 133 secondary explosions. In addition to the sorties and ordnance expended, there were five aircraft lost during the month. An O-1 was destroyed on the ground during a Viet Cong mortar attack on the strip at Khe Sanh on 5 January. An OV-1B and an A-4C were lost to enemy defenses on 14 January, and two days later a F-4C was knocked down by small arms fire. An A-1E crash landed at Saravane on 31 January. The crew was recovered safely. ^{34/} All in all, gains did not appear to balance expenditures, but there were heartening signs. The 133 secondary explosions meant that a substantial amount of fuel and ammunition was denied to the enemy in South Vietnam. The lack of results in vehicles appeared to be the weakest spot.

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The Ambassador at Vientiane reviewed the operating figures for TIGER HOUND from its inception until February, and informed COMUSMACV ^{35/} that he was concerned with a marked disparity in results reported. He gave the following example:

"...TIGER HOUND had flown 4283 sorties from its inception until Feb 3. During this period, these sorties have resulted in 16 vehicles destroyed and 10 damaged. Similarly disproportionate figures abound in other categories such as troops, depots, etc...."

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He compared TIGER HOUND operations to Operation CRICKET, stating that CRICKET was much more productive per sortie than TIGER HOUND. He continued that there could be many explanations for the striking differences between the two: One obvious reason to him was that CRICKET strike aircraft remained grounded on ready alert (BANGO/WHIPLASH alert aircraft at Udorn and Korat, Thailand) until they were called in by airborne FAC, while TIGER HOUND appeared to be slipping more and more into a purely STEEL TIGER type operation, with far less accent on FAC control than he had originally anticipated. He stated that he knew the O-1 aircraft had been having trouble with the weather in the areas originally assigned them and "perhaps we have not been able to achieve our first objectives of developing O-1 pilots with eyeball sensitivity to changes in their assigned areas." He concluded that it seemed to him that with the resumption of ROLLING THUNDER and the consequent diminution of strike assets available for Laos, COMUSMACV should examine the possibility of reallocating assets so that TIGER HOUND could use them in a more closely controlled and economical manner.

It is not certain where the figures used by Mr. Sullivan came from, nor to what CRICKET statistics he compared them. (CRICKET was the code title of a similar FAC controlled operation in the north STEEL TIGER/south BARREL ROLL areas.) It did illuminate, however, the statistics-gathering and verifying problems involved in a jungle

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environment where ground exploitation and BDA are difficult if not impossible. Colonel Groom said: 36/

"...One of the things which we have been particularly careful about in TIGER HOUND has been the validity of our claims, particularly trucks. As we know, in the past the Air Force has been guilty, perhaps, in stating claims more or less on a hit or miss basis. From the very beginning of this program we always demanded confirmation of these trucks, either destroyed or damaged. We do not report any trucks destroyed or damaged unless a FAC visually sees the truck, and in most cases gives us a picture of it. I'm sure that if anyone would like to examine our records, they would come up with the conclusion that, if anything, we have understated our truck claims. I know that the Ops 4 system, which reports from the pilot what he did, can be in error because it is very possible for succeeding flights of aircraft to hit the same group of trucks; each one claims that these are damaged. However, we are taking steps to rectify this, but for the sake of historical records, I'm sure that the TIGER HOUND count, as we have it here, is accurate...."

The system of checks and balances existing in the intelligence section of TIGER HOUND, which analyzed and collated the BDA, was impressive. As Colonel Groom stated, the OPREP 4 is not considered sufficient to establish a "destroyed" claim. Reports from the FAC's, debriefings, the log of the ABCCC, were all used to determine the validity of claims. The grid coordinates of a damaged vehicle were plotted and kept track of, through successive strikes. If the vehicle suffered further damage, it was still carried as one damaged truck until it was removed or completely destroyed. If destroyed, that was recorded and one "damaged" was dropped from the statistics. Whenever possible, photographs were taken by the FAC's to further verify claims.

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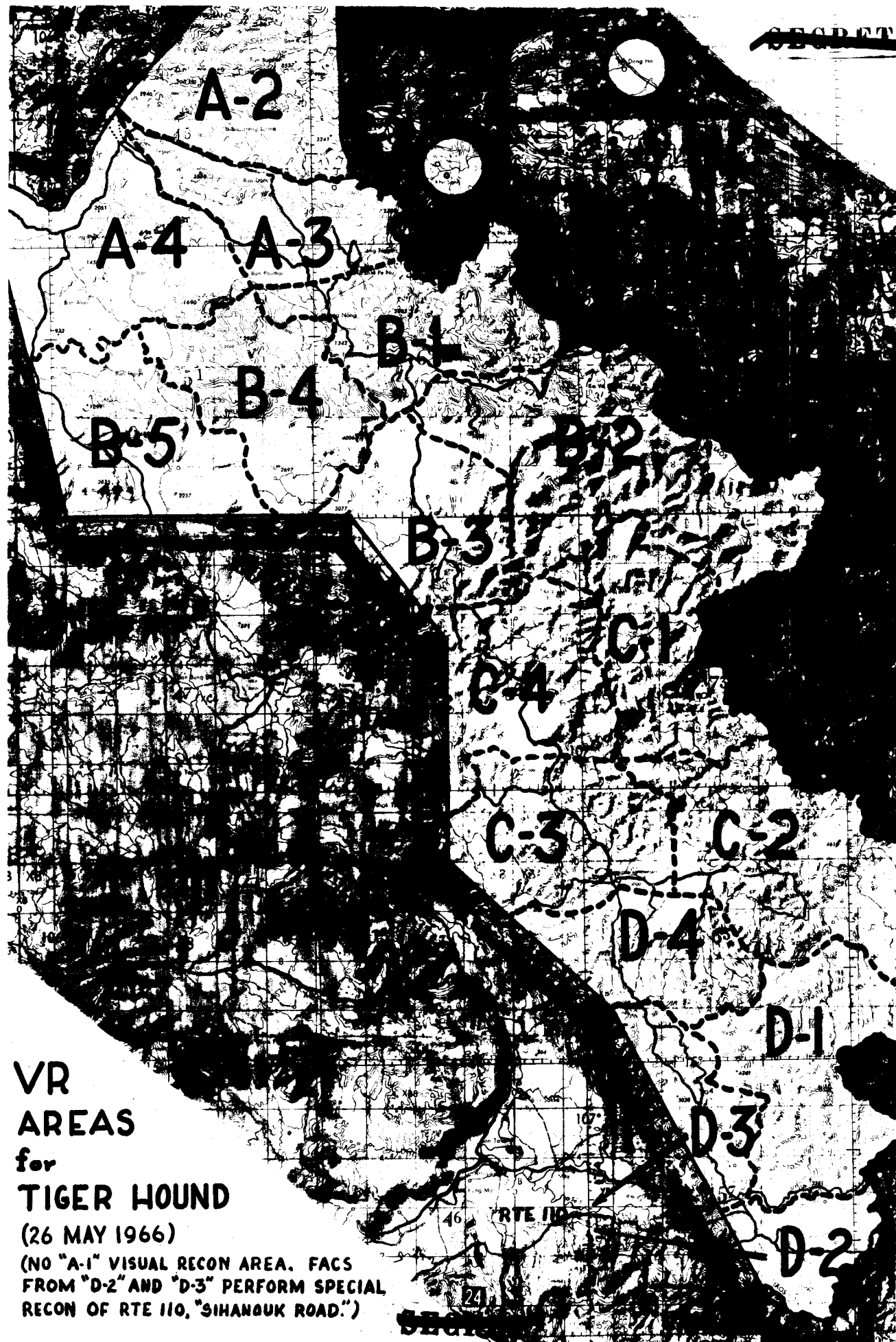
The credibility of claims established through the validation procedures, developed early in the program, bore fruit when in February all elements of the program began to fall in place. The FAC's had become far more familiar with their respective VR areas. (See map on page 24.) Increased emphasis on night operations and target acquisition through the Mohawks' IR and SLAR capabilities, along with roadwatch reports from CAS and SHINING BRASS teams, began to pinpoint lucrative targets. The Laotian observer aboard Hillsboro (ABCCC) with his "immediate validation" authority allowed strikes to be put onto road segments where moving traffic had been seen. By this time, long stretches of motorable routes were visible through the defoliated jungle canopy, making detection far easier. Results such as the following, viewed as "fantastic" at first, became nearly commonplace in the TIGER HOUND area: ^{37/}

During this period (8-14 Feb 66) Navy and Marine aircraft flew a combined average of 100 sorties per day. Cumulative results were as follows:

1. Twenty-five secondary explosions; 20 of them resulted from attacks against trucks. The remaining were the result of attacks against supply areas.
2. Fifteen bridges were rendered unserviceable and 11 landslides covering roadways were caused.
3. Eighty-five trucks were destroyed or damaged. FAC's reported 58 destroyed and 27 damaged. The majority of trucks were struck on Routes 9, 96, and 964. Twenty-four trucks were struck at night and 41 during daytime. The large number destroyed is due to an increased around-the-clock effort in the TIGER HOUND area and FAC's

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**VR
AREAS
for
TIGER HOUND**

(26 MAY 1966)

(NO "A-1" VISUAL RECON AREA. FACS
FROM "D-2" AND "D-3" PERFORM SPECIAL
RECON OF RTE 110, "SIHANOUK ROAD.")

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becoming more familiar with the area enabling them to pick out camouflage attempts and truck parks under dense foliage.

An unprecedented defensive buildup along Routes 96 and 964 (from 1520N to 1550N) has been noted since 10 January 1966. Along this road network and general area 60 trucks (of the 85 reported above) were destroyed or damaged.

Thus, in a one week period, TIGER HOUND pilots accounted for more trucks than they had gotten in the previous two months. It was not merely luck. The following week (15-21 February 66) 17 more trucks were destroyed or damaged; there were 27 secondary explosions and 145 structures destroyed or damaged. Of the 27 secondary explosions, 22 were in targets of opportunity selected by the FAC's and approved through the Airborne Command Post system. Suspected truck parks were attacked and resulted in 14 of the secondary explosions. ^{38/}

The total strike results for February far outweighed all previous figures. TIGER HOUND Task Force statistics showed 125 trucks destroyed, 58 damaged; 272 road segments cut, with 46 landslides; 35 bridges destroyed, 45 damaged; 39 AW/AAA positions knocked out, with another 10 damaged; 378 structures destroyed/damaged and 135 secondary explosions. ^{39/} The Air Force again led in total strike sorties with 1660. The Marines contributed 1002 sorties while the Navy flew 424 sorties. Five aircraft were lost during February, the majority to AW/AAA. On 4 February, an OV-1A was hit in the left engine by small arms fire at XC 835987, near the junction of Routes 92 and 922. The engine caught

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fire and the crew was forced to eject, but were recovered safely. A B-57 was lost to AAA near XD 162650 on 10 February and an A-1E crashed at YC 160090 from unknown causes. Two aircraft, an F-4B and an A-1E were lost on 24 February near Tchepone, both from automatic weapons fire. 40/

The toll in aircraft was not entirely unexpected (although five aircraft lost out of a total of 3086 sorties is considered "acceptable") because of the buildup of AW/AAA sites in southern Laos. "Fresh-breeze" (roadwatch) reports, photographic reconnaissance and other intelligence sources pointed out that there was a definite North Vietnamese weapons shift into the TIGER HOUND area. The area around Tchepone had been "hot" since TIGER HOUND began, but now the reports mentioned: 41/

In southern Laos, a ground fire buildup seems to be taking place in an approximate 30 nm area from 1520N to 1550N and 8 nm either side of 10700E (covering Route 96 in the Chavane area) latitude.

On 10 January 1966, an AW site with 17 gun emplacements was added at 1527N/10658E. On 26 January 1966, two AW and two 37/57mm sites were added at 1542N/10652E, and another AW site at 1550N/1064730E.

During the month of February, on the 7th, another AW site noted at 1526N/10651E. On 12 February, three additional AW sites were noted with 1, 6, and 4 gun positions respectively.

That these buildups took place during a period when the enemy had more than 190 AW/AAA positions destroyed and damaged, showed the NVA and Viet Cong determination to protect their infiltration

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routes from tactical air strikes. Major areas of enemy activity to keep these routes open, both in terms of their defensive reaction and of their repair and rebuild activity, centered around and along Route 9, from Tchepone to the junction of Route 92, down along 92 to Route 96 and down 96 past Route 165 and Chavane. It was along this general path that the weight of the interdiction effort was placed and where the majority of truck kills were reported.^{42/} It was along the same route system that most aircraft were lost to defensive ground fire.

Enemy forces were employing large road repair crews along these routes, as evidenced by the large number and extent of bypass roads they built around destroyed bridges, landslides and road cuts. There was evidence of heavy road construction equipment along Routes 96 and 964.

If February 1966 was successful in comparison to the previous months of the program, the first week of March was successful by any standards. One hundred twenty-five vehicles were recorded as destroyed or damaged - 82 of them destroyed. There were 108 secondary explosions, 24 of these during night operations. FAC's counted four bridges destroyed, six landslides across roads, 104 road segments cut or cratered and 197 enemy structures destroyed or damaged.^{43/} Highlights of the week occurred on the first day of the month. 13th TRS photo interpreters noticed suspicious returns on "first light" infra-red pictures along Route 9, approximately 2½ nautical miles east of the Tchepone crossing of the Se Pone. Seven returns were in a line which was thought to

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indicate a convoy. This was reported as a "hot item" and reached the FAC in the Tchepone area. Instead of leaving the search area at his regular time, the FAC decided to stay around a little longer to see if he could find something to back up the report. About thirty minutes later, he saw vehicles beginning to leave hiding places among the trees and apparently preparing to move out. Strike aircraft were called in to hit the area where the trucks were seen, and as a result, 39 vehicles were destroyed or damaged. Several secondaries were noted during the strike. Although the IR did not pinpoint the truck park, it did point to a general area in which they might be found. This coupled with the perseverance of the FAC and an excellent strike, made it possible for TIGER HOUND forces to run up their biggest score to that date. ^{44/} (See photo on page 29.)

With strike sorties averaging 130 per day through the second week of March, and the weather remaining good, the results continued to climb. TIGER HOUND strikes accounted for 32 trucks destroyed and 19 damaged, 124 road segments and 16 landslides, five bridges dropped, six automatic weapons positions destroyed, 202 enemy structures destroyed or damaged and 60 secondary explosions. ^{45/} The location of the trucks again was centered along Routes 9, 92, and 96, with 16 of the trucks being destroyed during night attacks. There was little evidence that the enemy was removing or attempting to repair heavily damaged trucks; however, it was assumed that the vehicles were being stripped for usable spare parts.

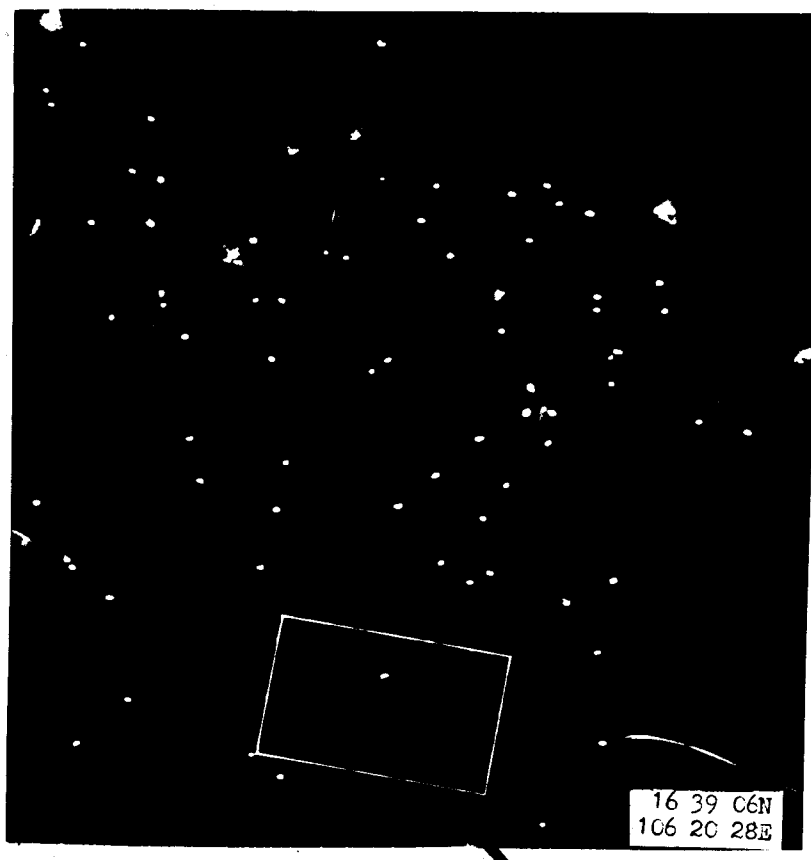
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PROBABLE CONVOY

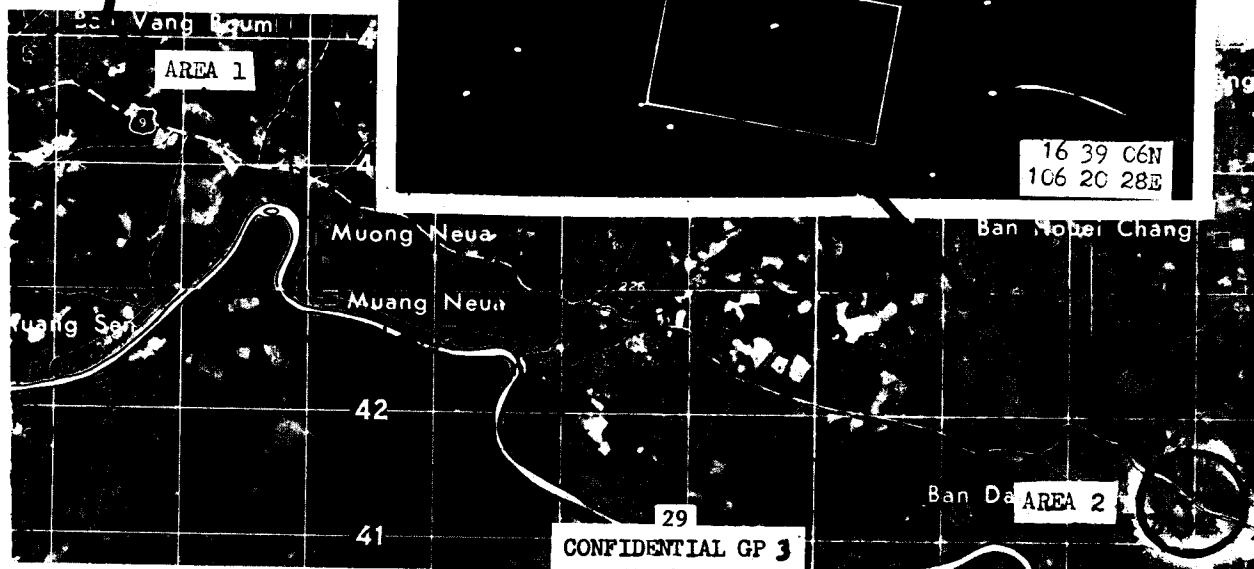
CONFIDENTIAL GP 3

TCHEPONE AREA

16 41 05N
106 15 53E



16 39 06N
106 20 28E



CONFIDENTIAL GP 3

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It had been concluded earlier, from a substantial quantity of evidence, that fire control radar had been introduced into Laos by the enemy. Precise locations were unknown because refined Elint had not been collected, but by correlation of line bearings, lock-ons by ALO-51 and APS-54 equipment, OPREP 4 reports of AAA firing (particularly night firing) and known gun concentrations, two general areas of suspicion were established. One was at Ban Ban in northern Laos in the BARREL ROLL area, and the other near Tchepone in the TIGER HOUND area. ^{49/} The location at Tchepone coincided with, perhaps, the heaviest known concentration of enemy airburst weaponry in TIGER HOUND. It was suspected that the combination of radar fire control and 37/57 mm AAA may have been responsible for the loss of an AC-47 on the night of 13 March. The aircraft simply disappeared. Since the AC-47, in the night armed-reconnaissance role, normally flew blacked out and above the AW and small-arms range, it would appear that the only weapon capable of knocking it down in the darkness would be radar directed 37 or 57 mm. A two day search effort was mounted for the AC-47, but was terminated at the end of the second day with no sightings. ^{47/}

The following week (15-21 Mar 66) continued in much the same pattern, interdiction of the motorable routes, attempting to isolate convoys within choke points, and striking the immobilized vehicles. On 23 March, however, another bonanza in the form of truck park was discovered by a "Hound Dog" FAC. Late in the afternoon, the O-1 pilot detected what he thought was the tail end of a truck, camouflaged, off

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Route 92 about 40 miles southeast of Tchepone. Closer observation revealed several others, and the call was immediately made for strike aircraft. Fighters were immediately diverted into the area by Hillsboro, and the airstrike, in addition to destroying and damaging many of the trucks, blew the camouflage off several more. Additional fighters were called in, with the cycle repeating itself; more fighters uncovered more trucks. Secondary explosions created chain reactions and were described as "too numerous to count" by the FAC. ^{48/} The operation continued throughout the night under a C-130 flareship and all the next day, until about 1600H that afternoon, and then again during the early morning hours of the 25th of March. By the time it was over, the strike had pulled in 215 sorties - largest since TIGER HOUND began - and had destroyed 47 trucks and damaged 28. Secondary explosions were counted until they reached 70, then counting became impossible. Selected comments by FAC's and strike crews are quoted as they appeared in the 2AD Weekly Intelligence Summary for that ^{49/} period:

- a. The target area (approximately one kilometer radius) could hold 60 trucks. The trucks were so well camouflaged that they could not be positively identified until the camouflage was blown away.
- b. Many double axled trucks and POL tankers were destroyed. Huge fireballs rose from the secondary explosions.
- c. On the first three night strikes, 70 secondary explosions were counted. From there on in, after each strike, a chain of secondary explosions appeared every six seconds. After two hours of bombing, a portion of the area, 50-75 yards in diameter, was like a volcano. Every 6-20 seconds it would erupt with another explosion..

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d. In one instance 48 fuel barrels blew up; in another case a truck loaded with mortar shells exploded sending rounds in all directions, one of which hit a nearby truck setting it on fire and causing it to explode. After the strike the area was littered with crates, barrels, burning trucks, parts of trucks, and general debris.

e. The finale came when one truck tried to escape on the morning of 25 March. It sped on Route 92 but alert A-1E pilots spotted it, struck, and one more explosion was added to the list.

COMUSMACV, General Westmoreland, sent his congratulations to all concerned for the success of the strike. Not the least significant aspect of the finding and destruction of the truck park, was the large amount of enemy POL and ammunition destroyed, in addition to the large number of trucks. (See photos on pages 33, 35.)

Overall, March's statistics came close to doubling those of February and did in many categories. There were 221 trucks destroyed; 123 damaged. The road interdiction results showed 423 road segments cut, cratered or seeded, and 44 landslides; 20 bridges were destroyed with another 22 partially dropped. Eighty AW/AAA positions were put completely out of action, 960 enemy structures were destroyed, and the secondary explosion count reached 475. ^{50/}

The Air Force again provided the bulk of the effort, flying 2144 sorties. Navy figures for March were 424 and the Marines showed 1655 sorties. Four aircraft, including the AC-47, were lost to enemy defenses, all within a three-day period (13-15 March).

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A Marine F-4B went down on 14 March southeast of Tchepone; the crew was rescued. On 15 March, an O-1 and an OV-1B were hit by automatic weapons fire at XD 236552 and both aircraft crashed. Neither crew was recovered. Arc Light forces made five strikes in TIGER HOUND during March, one on Rte. 922 in the northeastern sector of the area, and the other four in the southeastern portion of TIGER HOUND, very close to the South Vietnamese border.

Apr 66 was the biggest month of all during the first five and one half months of program. Truck kills once again showed substantial gains, with 325 destroyed and 205 damaged. Secondary explosions reached 442. The truck score was posted in the face of determined enemy efforts to defend and in many areas revet the trucks during their daytime stopovers. TIGER HOUND FAC's observed truck revetments and bunkers built into the sides of mountains in a definite move to protect these vehicles from air attack. Drive-in revetments, approximately 10 feet deep, dug out by bulldozers, were observed in the upper Route 92 area. Stone and earthen truck bunkers were seen along Route 96. These defensive measures were not completely successful, as evidenced by a two-day record total of 57 destroyed/20 damaged trucks tallied by strike pilots in TIGER HOUND. On 20 April, 40 trucks were destroyed and fourteen damaged in strikes at four different locations, XD 805805, XC 807797, XC 903517 and XD 701028. ^{51/} At the last location the FAC sighted at least 21 trucks and requested diversion of all available sorties. Fourteen USAF, two Navy and 19 Marine aircraft

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responded. Bomb damage assessment that day and the next determined that 25 trucks had been destroyed in this one area, with 24 secondary explosions observed. The 21st of April saw strikes at five locations accounting for the destruction of another 17 trucks and damage to six, with 13 secondary explosions.^{52/} These two days were the high points of a two-week period (15-28 Apr '66) in which TIGER HOUND tac air accounted for a total of 333 destroyed or damaged trucks.^{53/}

Balance
PAGE 504-44 22 - 1 2 13
REMARKS: 25 TRUCKS DESTROYED
24 SECONDARY EXPLOSIONS
17 TRUCKS DESTROYED
6 TRUCKS DAMAGED
13 SECONDARY EXPLOSIONS

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CHAPTER III

ARC LIGHT STRIKES

The first ARC LIGHT strike in Laos came on 11 December 1965 when 24 B-52's under the code name "Duck Flight" bombed a suspected troop concentration just inside the Laotian border at UB 8393, about 15 kilometers southwest of Kham Duc. The strike became the center of a great deal of controversy when newsmen obtained this classified information and it was published as a UPI release in Saigon on 20 December. ^{54/} The news release was basically accurate in its statement of most of the facts, but it caused major concern in both State and military circles. Although immediately and categorically denied, the leak of the information was in direct conflict with Premier Souvanna Phouma's terms of approval of U.S. air presence over Laos. Phouma's tenuous position demanded that he remain ostensibly neutral in the eyes of his own schism-marked government. Even the tacit admission that U.S. airpower was being used in Laos could bring pressures to bear upon him that might make it necessary for him to withdraw his approval. Likewise, North Vietnam could not admit its presence in Laos, for to do so would destroy the carefully nurtured myth that the Pathet Lao struggle in Laos, as well as the Viet Cong insurgency in South Vietnam, were both purely internal activities.

CINCPAC withheld approval of the next requested ARC LIGHT strike, ^{55/} "Quang Nam 10" in a message to COMUSMACV pending comments from the

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Ambassador in Vientiane. The recommendation was that this target, also on the Laotian border about 20 kilometers northwest of the first strike (YC 7108), be delayed until after 11 January 1966, and further, that the interim period be utilized to shore up our internal security system regarding no publicity on Laos operations. Mr. Sullivan, in Vientiane, messaged CINCPAC that same day, stating that his position on ARC LIGHT strikes in Laos remained the same as previously held. He said that he would concur in them provided there were assurances of no publicity. He felt that in view of his having been "burned on Duck Flight" he would have to consult Souvanna Phouma before he could give formal concurrence for future operations. He added that Phouma required an assurance of no publicity as a term of condition for every operation for which his approval was requested. ^{56/} Quang Nam 10 was flown on 14 January over the originally planned target box.

ARC LIGHT forces were active during April, with 22 missions hitting up and down the length of TIGER HOUND. "Jughead" 1 through 9, a series of strikes on 13-14 April 1966, marked the deepest penetration of the B-52's into Laos to that time. Intelligence justification for the strikes came from MACV and mentioned the following: ^{57/}

.....

2. The proposed targets are located in Laos near the junction of motorable Routes 92 and 922. The general area is considered to be the focal point for infiltration of personnel and supplies into the northern provinces of SVN. Route 922 is the northernmost motorable east-west route leading toward SVN. Route 922 turnoff provides the first opportunity to turn infiltration activity eastward

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after the long trip south through Laos. Routes 92 and 922 support a large daily volume of vehicular traffic despite continuing armed route recce strikes and strikes against validated RLAF targets in the area....

3. Moderate to heavy ground fire has been received continuously from the area during visual reconnaissance and strike missions. Four aircraft have been shot down while operating in the target area since 4 Feb 66. Three of the four were lost on 6 and 7 April, indicating a recent increase in intensity of groundfire.

4. Visual reconnaissance reports that damage from daylight strikes is repaired by on-site work crews during the night. Fresh tracks from night time vehicular convoys can be observed early the following morning, which clearly indicates the VC/NVA are making a major effort to maintain the flow of personnel and supplies through this vital area.

5. To further hinder the flow of men and supplies through this important LOC, supplementing TAC bombing of the area with B-52's is considered highly desirable during this period of peak infiltration. The B-52's can bomb it at night when the enemy is repairing the damages done by daylight bombing. However, the saturation capability of the B-52 bombing will be primarily directed at the men, supplies, truck parks, repair equipment, and defensive positions reported to the sides of the road in the target area.

58/

A later message of the same day contained further information:

All Arc Light strikes (for the Jughead series) will be scheduled for execution during hours of darkness. Ref C contains four requested Arc Light cover-harassment strikes located in Thua Thien Province (SVN). Two of these strikes are scheduled in the same time frame as the requested Laos strikes outlined in para two below. The remaining two.... will be scheduled when timing is provided for the additional Laos targets. The strikes announced to the press will only be those located in SVN.

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The Ambassador in Vientiane showed his continuing concern over possible leaks in the program with his message of concurrence: ^{59/}

1. Concur in MACV proposal mount Arc Light strikes against targets designated Jughead One through Ten, all of which are located within Laos. It is understood that these will be executed under cover of strikes to be mounted simultaneously in Thua Thien Province and that press guidance will reflect this cover arrangement.
2. It is further noted that all strikes will be carried out during hours of darkness. This is an essential element in this embassy's concurrence in this strike program.
3. It will be recognized that these strikes will represent the deepest Arc Light penetration in Lao territory thus far and that they will involve territory which falls within normal operating areas of RLAF. Therefore, there is a possibility that these strikes, which have not repeat not been cleared with Lao authorities, could come to attention of Lao officials unless maximum discretion is maintained by all concerned.
4. Provide information soonest on intended date for execution of Jughead Nine and Ten, which is not specified in reftel.

Jughead Nine flew on 14 April, covering the lower section of the "L" shaped road segment. The weaponeering request accompanying the Jughead strikes had asked for mixed 750 and 500 pound bombs with a minimum of ten each 36-hour delay-fuzed bombs on four of the aircraft. This LOC saturation technique and area denial ordnance apparently showed good results. In a later intelligence justification message asking for restrikes in the same area, MACV noted: ^{60/}

- A. The Jughead bombing uncovered numerous trenches and storage type bunkers in Thua Thien 33 (XD 758035). A FAC reported a number of the bunkers were destroyed

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but others seemed to be intact.

B. Thua Thien 26, 27, and 30 (Jughead 6, 7, and 4) are recommended for restrike because in these areas the Jughead bombing uncovered trenches, foxholes, and underground entrances indicating possible storage areas or personnel shelters.

C. The FAC's also reported that the heavy ground fire normally received in the (Route) 92/922 area, which resulted in the loss of three aircraft on 6 and 7 April, was not evident during TAC strikes conducted on 14, 15, 16, and 17 April. The reasons advanced are that the Jughead strikes...possibly caused the enemy gunners and road repair crews to evacuate the area during this period. This possibility is substantiated by the fact that the cratering of the road by tac in Thua Thien 26 on 17 April was not repaired until 19-20 April when the ground fire was again noted in the target area. Also on 20 April (tactical air) strikes destroyed 30 trucks and damaged 14 north and south of the target areas on Route 92, indicating the road had been closed and the trucks were forced to back up. The conclusion is that the B-52 bombing did cause some damage and evacuation of the area by the enemy. This permitted tac air strikes to be conducted unopposed resulting in road cratering that was not immediately repaired because the repair crew personnel and equipment were not available in the area. Restrike by B-52 aircraft in the 92/922 areas could possibly achieve the same results.

A total of 90 B-52's took part in the 22 missions involved in April 1966 ARC LIGHT strikes in TIGER HOUND. The one mission in December 1965 had 24 aircraft; the one in January had 24 also. Thirty-nine sorties were mounted in the four February strikes and 57 took part in five of the March missions. In May, 10 missions used 102 B-52's. Three missions in June took 33 B-52 sorties as of the time the ARC LIGHT data was gathered. ^{61/} (See Map on page 42.)

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CHAPTER IV

THE DEFOLIATION PROGRAM

The defoliation program, along with the FAC, the ABCCC and the Arc Light programs, was an integral part of the overall TIGER HOUND attack on enemy LOC's. Colonel Groom pointed out: ^{62/}

"...it was important that we overcome some other obstacles, such as the fact that the Ho Chi Minh Trail was chosen with great care to take advantage of the local weather, and the jungle canopy. In fact, since we've started the program there've been numerous trails and roads built, and in all cases they've taken advantage of heavy jungle. We have instituted a defoliation program through the entire area, and the FAC's have been unanimous in praising this program, and state that it is the one thing that has helped them open up the area, to see the truck traffic and to locate where these trucks are parked."

The UC-123's out of Da Nang were fragged daily in a systematic program to denude the thick jungle canopy over the major road and trail network through southern Laos. They were also given specific target areas near the Laotian-South Vietnam border where large base-camp areas were likely to be found or where intelligence indicated such enemy concentrations did exist. Fragging was done to cover the major LOC's thoroughly, but in a random enough pattern that the possibility of flak traps for the low-flying and vulnerable UC-123's was minimized. Both the flying techniques and the equipment for defoliation aircraft are specialized. Each Provider (UC-123) configured for defoliation usage is capable of laying a swath 14 kilometers in length and 80 meters in width. These dimensions produce a deposition rate of

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approximately three gallons of defoliant per acre of ground covered. To achieve a good "burn" these aircraft normally fly in a fairly tight formation, with spray patterns overlapping, at altitudes seldom much higher than treetop level. Regardless of terrain, it was necessary that this technique be followed if proper coverage was to be achieved. As an inevitable result of these altitudes and the low airspeed of 110 knots during spraying, the RANCH HAND aircraft took hits from groundfire on the majority of their missions. Several of the UC-123's have accumulated over one hundred hits. The pilots, specially trained at the defoliation school at Langley AFB, Virginia, continued after arrival in Vietnam to go through a lengthy break-in period, much of which involved emergency procedures. Single-engine operation, from both the left and right seats in the armored cockpit, was practiced until it became a split-second series of conditioned reflexes, geared to save the aircraft in the event an engine was lost at spraying altitude. The pilots, both fully qualified aircraft commanders, flew with their hands on the yoke during the runs, in case one or the other was hit. This intensive additional training unquestionably saved several aircraft and crews, for many had engines shot out while flying eight to ten feet above the treetops.

Most RANCH HAND missions departed Da Nang at first light to take advantage of the best possible climactic conditions; light breezes not exceeding seven to eight kilometers per hour, low temperatures below 80 degrees Fahrenheit, and stable air. Given these conditions,

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the first signs of kill could be seen after 24 to 48 hours. A definite color change could be expected after the first week, and within six to eight weeks the sprayed area would appear barren and the vertical visibility would have improved 40 to 70 percent. With near perfect conditions the defoliation flights in the TIGER HOUND area average approximately 60 sorties per month and, by 31 May 1966, over 250 sorties had been flown, covering the areas depicted on the map on page 46.

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**DEFOLIATION
of
LOC's
in
TIGER HOUND
(6 DEC '65 - 26 MAY '66)**

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CHAPTER V

THE PROGRAM IN REVIEW

In April 1966, IR and SLAR returns began to show in an area to the west of the very southern tip of TIGER HOUND. Specially requested FAC follow-up showed that traffic was moving up from Cambodia along Route 110, the "Sihanouk Road." Although this was outside the TIGER HOUND TAOR it impinged directly upon the southern LOC's and special permission was granted for VR by the FAC's and defoliation by the RANCH HAND crews to take place.

The tactical air strikes winding up the month of May 1966, and coincident with the onset of the rainy season, showed a shift in pattern. Visual reconnaissance showed less moving traffic, and flights began to concentrate on storage areas. The heavy rains began to create landslides, especially where bombing had previously loosened earth and rock on hillsides. Route 914 was blocked for approximately ten days by a washout and five destroyed vehicles on the road in the vicinity of XD 290375. Route 92 was closed from 13 May through 25 May and Route 92 was closed for varying periods of time at several locations from landslides and washouts. ^{64/} Relatively few trucks were sighted in any one location and it was believed that the overall truck flow was reduced to short haul shuttles between route interdictions. ^{65/}

There was, however, evidence of foot and animal tracks along these routes and around the untruckable locations, and it was

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assumed that the flow of personnel and some light supplies were still
traversing the TIGER HOUND area. ^{66/}

May results, going into the final days of the month, showed 163
trucks destroyed, with another 144 damaged, a drop of half from the
peak month of April, and an indication to many that the program had
borne fruit - the interdictable traffic had indeed been slowed to a
relative trickle. Statistics alone for the period from 5 December 1965
through 26 May 1966 were impressive. ^{67/}

TRUCKS DEST/DMGD	ROADS CUT/LANDSLIDES	BRIDGES DEST/DMGD	AW/AAA PSNS DEST/DMGD	STRUCTS DEST/DMGD	SECONDARY EXPLOSIONS
854/538	1430/ 157	122/ 143	171 / 60	2269/830	1336

Commenting on these results, Colonel Groom said: ^{68/}

"...A year ago at this time the propaganda was
openly published that they (the Viet Cong and NVA
forces) were going to set up at least a city or a
province or a government within South Vietnam, and
they would probably takeover IV Corps and maybe I
Corps. They did try last year on numerous occasions
to initiate battles and takeover Special Forces
camps, but this year you don't hear any of this.
There is very little evidence that the Viet Cong is
as confident today as he was a year ago, and I think,
of course, a lot of this can be attributed to the
interdiction programs that we have throughout Southeast
Asia - not only TIGER HOUND, but the work that we're
doing north of the DMZ, and the work that the Naval
forces are doing, cutting off approaches from the sea."

Colonel Groom spoke highly of all facets in the working of the
TIGER HOUND program: ^{69/}

"...I've been asked many times what part of the
program is most important. I hesitate to answer it,
because I feel that it has been a combination of the
24 hour operation - seven days a week, day and night -
controlled situation, with the airborne command post,
the C-130's at night, defoliation program, and most

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of all, of course, the courage and hard work put out by our FAC's in going out and doing visual reconnaissance and getting down on the deck, where possible, to find these truck parks and supplies, which are always camouflaged and hidden deep in the jungle. If I were to pick out any one group of people who have contributed to the program, it would be the O-1 pilots and of course the AC-47 pilots who have been flying also in this dual role at night."

Twenty-two aircraft were lost in TIGER HOUND through May 1966, including the one O-1 on the ground during the Viet Cong mortaring of Khe Sanh in January. Two AC-47's were lost, five OV-1A's and B's, three A-1E's, two B-57's, five F-4B's and C's, two A-4's and 3 O-1's shot down. (See chart on page 50.)

Colonel Groom, commenting upon the aircraft losses, said: ^{70/}

"...We haven't had anything beyond 37/57 millimeter (AAA) in the area, and machine gun fire and small arms. In most cases, it has been small arms that have knocked down most of our airplanes. We've lost about 25 people and this includes two crews of two AC-47's. The cause of these losses are not known. We never did recover either aircraft - in each case they merely disappeared. In most cases, we have been successful in extracting our pilots through the SAR effort; however, when you compare the loss of 25 personnel and perhaps 20 aircraft with the amount of damage we have done in the area, I think it would be safe to assume that we've saved a lot of American lives in South Vietnam, because there have been very few instances where the Viet Cong have initiated any large scale attacks."

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AIRCRAFT LOSSES

TIGER HOUND

Acft (6 Dec 65 - 26 May 66)

Date	Type	Location	Hit By	Remarks
24 Dec	AC47	WD670090	Unk	Acft dest on ground
5 Jan	O-1	XD875390	120mm	Mort atk Khe Sanh
14 Jan	OV1B	XD630675	.50 cal	
14 Jan	A4C	XC125895	Unk	Acft ditched. Crew OK
16 Jan	F4C	XC800790	SA	Hit in ammo box
31 Jan	A1E	YC126093	Unk	Crash land Saravane - crew recovered
4 Feb	OV1A	XC835987	SA	Crew ejected - recvd
10 Feb	B-57	XD162650	AAA	
14 Feb	A1E	YC160090	Unk	Crashed - no pickup
24 Feb	F4B	XD239450	SA/AAA	Crew ejected - recvd
24 Feb	A1E	XD239450	SA/AAA	Sandy - crashed
13 Mar	AC47	Unk	Unk	No information
14 Mar	F4B	XD530303	Unk	Crew rescued
15 Mar	OV1A	XD236552	SA/AW	Crashed - no rescue
15 Mar	O-1E	XD236552	AW	Crashed - no rescue
6 Apr	OV1A	XD790033	AW	Crew seen - no recovery
6 Apr	OV1A	XD802009	AW	Crashed - rescued OK
7 Apr	B-57	XD739028	SA/AW	Low pullout - no ejct
21 Apr	F4C	XC830740	SA	Ejected - crew recvd
22 Apr	F4B	XC830740	SA/AW	Crew rescued
11 May	A4C	YD051008	Mid-air	No chute - no beeper
13 May	O-1E	XD528394	SA	Crashed - body recvd

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TIGER HOUND

Footnotes

(References as noted provided in one copy to AFCHO and in DOPEC file copy.)

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- 2/ (C) CHECO Special Studies "Silver Bayonet" and "Siege of Plei Me".
- 3/ (TS) Msg, COMUSMACV to CINCPAC, MAC 5358, 27 Oct 65.
- 4/ (S) CINCPACAF INTEL SUMMARY, DIE 23772, dated 07/2211Z Oct 65.
- 5/ (S) CINCPACAF INTEL SUMMARY, DIE 23797, dated 26/0026Z Oct 65.
- 6/ (TS) Msg, CINCPAC to JCS, 20/2213Z Nov 65.
- 7/ (TS) Msg, CINCPAC to JCS, 20/2213Z Nov 65.
- 8/ (TS) Msg, CINCPAC to Amemb Vientiane, 07/2050Z Nov 65.
- 9/ Interview with Col. John F. Groom, Cmdr, TIGER HOUND Task Force, by Capt. Melvin F. Porter, CHECO, 28 May 66.
- 10/ (TS) Msg, Cmdr 2AD to Dep Cmdr 2AD Thai, dated 22/0652Z Nov 65.
- 11/ (TS) Msg, COMUSMACV to CINCPACFLT, #41571, dated 24/0315Z Nov 65.
- 12/ (TS) Msg, Amemb Vientiane to Washington D.C., dated 24/0859Z Nov 65.
- 13/ (TS) Msg, SECSTATE TO Amemb Vientiane and JCS: Info to COMUSMACV, Joint State/Def Msg, dated 25/0130Z Nov 65.
- 14/ (TS) Msg, 2AD to sub-units, 21/0910Z Nov 65.
- 15/ (TS) Msg, 2AD to CINCPACAF, 2DO #25687 dated 02/1052Z Dec 65.
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- 17/ Ibid.
- 18/ (TS) Briefing, COMUSMACV, 28 Nov 65.
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- 20/ (TS) Msg, USAIRA Vientiane to COMUSMACV, dated 25/1035Z Nov 65.

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- 23/ (TS) Msg, COMUSMACV to CINCPAC, #43263, dated 10/0345Z Dec 65.
- 24/ (S) Moneval Input, TACC-DD, #66-06150, 12 Jan 66 (Doc #1).
- 25/ Ibid.
- 26/ (TS) Msg, JCS to COMUSMACV, 7729, dated 03/0142Z Dec 65.
- 27/ (TS) Msg, COMUSMACV to CINCPAC, dated 13/1735Z Dec 65.
- 28/ (S) Interview with Col John F. Groom by CHECO personnel, 28 May 66 (Doc #2).
- 29/ (TS) Msg, COMUSMACV to AMEMB Vientiane, 28/0045Z Dec 65.
- 30/ (S) Moneval Input, CHECO to MACV J-3, 10 Jan 66.
- 31/ (S) TIGER HOUND Status Report, Period 6-31 Dec 65.
- 32/ (S) Interview with Col John F. Groom by CHECO personnel, 28 May 66 (Doc #2).
- 33/ (S) Msg, COMUSMACV to CINCPAC, #00214, dated 03/2127Z Jan 66.
- 34/ (S) TIGER HOUND Statistics, TACC TSN, 6 Dec 65/26 May 66.
- 35/ (TS) Msg, AMEMB Vientiane to COMUSMACV, dated 07/1131 Feb 66.
- 36/ (S) Interview with Col John F. Groom, Cmdr TIGER HOUND Task Force, by CHECO personnel, 28 May 66 (Doc #2).
- 37/ (S) Weekly Air Intelligence Summary, 2AD, Vol II, No. 7, 18 Feb 66, (Doc #5).
- 38/ (S) Weekly Air Intelligence Summary, 2AD, Vol II, No. 8, 25 Feb 66, (Doc #6).
- 39/ (S) TIGER HOUND Statistics as of 26 May 66.
- 40/ Ibid.
- 41/ (S) Weekly Air Intelligence Summary, Vol II, No. 7, 18 Feb 66, (Doc #5).
- 42/ (S) Weekly Air Intelligence Summary, Vol II, No. 8, 25 Feb 66, (Doc #6).

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- 43/ (S) TIGER HOUND Statistics as of 26 May 66.
- 44/ (S) Weekly Air Intelligence Summary, Vol II, No. 10, 11 Mar 66, (Doc #7).
- 45/ (S) TIGER HOUND Statistics as of 26 May 66.
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- 50/ (S) TIGER HOUND Statistics as of 26 May 66.
- 51/ (S) BOX SCORE Nr. 66, 7AF Daily Intel Brief, 7DIPS66-1226, 21 Apr 66.
- 52/ (S) BOX SCORE Nr. 67, 7AF Daily Intel Brief, 7DIPS66-1234, 22 Apr 66.
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- 55/ (TS) Msg, CINCPAC to COMUSMACV dated 23/2210 Dec 65.
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- 60/ (S) Msg, MACJ 236-1 to RUHLHQ/CINCPAC, #14062, dated 23/1107Z Apr 66, (Doc #11).
- 61/ (S) Arc Light Statistics as of 5 Jun 66, TSN RVN.
- 62/ (S) Interview with Col John F. Groom, Cmdr TIGER HOUND, 28 May 66, by CHECO personnel (Doc #2).

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- 63/ (S) 7AF Weekly Air Intelligence Summary, Vol II, No. 23,
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- 64/ (S) 7AF Weekly Air Intelligence Summary, Vol II, No. 21,
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- 65/ Ibid.
- 66/ (S) 7AF Weekly Air Intelligence Summary, Vol II, No. 23,
11 Jun 66 (Doc #12).
- 67/ (S) TIGER HOUND Statistics as of 26 May 66.
- 68/ (S) Interview with Col John F. Groom, Cmdr TIGER HOUND, 28 May 66,
by CHECO personnel, (Doc #2).
- 69/ (S) Interview with Col John F. Groom, Cmdr TIGER HOUND, 28 May 66,
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- 70/ Ibid.