USAF OPERATIONS from
THAILAND
1 JANUARY 1967 TO 1 JULY 1968

HQ PACAF
Directorate Tactical Evaluation
CHECO DIVISION

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George W. Dalley, President of Dalley Book Service
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FOREWORD

Combat air operations in "USAF Operations from Thailand, 1 January 1967 - 1 July 1968" are discussed against a background of developments in the Laotian ground war. Because this report places the Laotian conflict within the context of the entire Southeast Asian struggle, the problems of command and control are major points which are examined. Other topics trace developments in enemy lines of communication, Rules of Engagement, and trends and developments in the application of airpower.
INTRODUCTION

Flexibility and Centralized Control

Of primary concern in this study are combat air operations over Laos--part of the immense effort that the U.S. Air Force carried out in Southeast Asia. Many of the same forces that waged the air campaigns in Laos were utilized in South Vietnam, as well as against North Vietnam. These forces were not unlimited; nor were they unhampered in application by restraints and restrictions--military and political.

Assignations of Air Force airpower, under operational control of the Commander, 7th Air Force, were made with a view of the totality of the Southeast Asian conflict in all its facets and demands. In this way, it was believed, the fullest capability of all airpower could be realized. This concept permitted the shifting of emphasis for various periods to one phase or another of the total air war. For example, during the Northeast Monsoon season, when enemy supply routes in Laos dried and were being heavily utilized, considerable emphasis could be directed to interdiction missions.

Similarly, flexibility and centralized control allowed the Air Force to better cope with daily problems. Aircraft could be diverted from targets hampered by bad weather to other areas. Strikes could be shifted to more lucrative targets. In addition, surprise enemy moves in rapidly changing tactical situations could be better countered.

Nevertheless, although it was viewed that overall needs could best be met by these concepts, not all the desires for airpower in Laos held priorities...
sufficiently high to be rapidly fulfilled.

Laos and Neutrality

Laos, a nation of 2,700,000 people living in an area of less than 92,000 square miles, bordered Communist China, Burma, North Vietnam (NVN), South Vietnam (SVN), Cambodia, and Thailand. Located in the middle of the Southeast Asian arena of conflict, the Royal Laotian Government (RLG) had great difficulty in maintaining its existence.

In 1962, supported by the Geneva Accords which guaranteed its "neutrality", a coalition government of contending pro-Communist, Neutralist, and pro-Western factions was formed. Ruled nominally from the Royal Capital at Luang Prabang by King Savang Vatthana, the administrative capital was located at Vientiane. The chief of state and premier was Souvanna Phouma, who maintained the support of the National Assembly.

However, the formation of a neutral coalition government did not end the conflict in Laos. By 1963, the pro-Communist military forces, the Pathet Lao (PL), once again assisted by North Vietnam, resumed the struggle. In May 1964, when the PL attacked Neutralist forces in the Plaine des Jarres, the Government of the United States demonstrated American support for the legal Laotian Government. In response to a Laotian request, the U.S. Air Force and Navy began a limited reconnaissance program (YANKEE TEAM) to help identify PL locations and prove North Vietnamese participation. Since 1964, the American air effort expanded considerably from the strict reconnaissance role. The U.S. Air Force alone, flew more than 57,000 combat and combat support sorties in 1966. In
1967, the number rose above 76,000. In only the first half of 1968, nearly
53,000 sorties were flown.

Since 1964, the continued aggression by the PL and North Vietnamese has
made the neutral stand of the Laotian Government more difficult to maintain.
For survival, the RLG has been forced to lean toward the American side in
the Southeast Asian struggle. During an October 1967 visit by Premier Souvanna
Phouma to Paris, this tendency was criticized by French President Charles
de Gaulle. An American Attache report from Vientiane related Souvanna's
response:

"...Souvanna stated rather sharply that it is the
intention of Laos to be neutral, but with 15 or 20
Laotians being killed each day by the North Viet-
namese, Laos had adopted a policy which might appear
to de Gaulle to be anti-NVN. Souvanna further added
that Laos is therefore as neutral as it is permitted
to be."

Dual Character of War

As the war in South Vietnam expanded, enemy supply lines through Communist-
controlled portions of Laos increased in scope and importance. As a result,
Laos became more significant. While refraining from committing ground forces
to Laos, the U.S. recognized that the Laotian Government had to be maintained.
Souvanna Phouma provided the best and most stable leadership for the many
factions in the nation. In addition, if American airpower was to continue to
enjoy the permission to strike enemy supply lines in Laos, as they stretched
to South Vietnam, support of Souvanna, his Government, and Laotian military
forces was necessary.
Hence, there were, in essence, two air campaigns being waged in Laos. One was directed against the North Vietnamese supply lines to SVN; the other had the objective of supporting the Laotian Government against the encroachments of PL and North Vietnamese Army (NVA) forces.

It was necessary to have in mind the dual character of the war in Laos, in order to better grasp the problems. The duality, however, did not mean exclusion, one from the other. The two wars were unique and yet intertwined. One connecting link was the U.S. Ambassador to Laos. He, perhaps, more than any other American official, was concerned with both wars. The Air Force was responsible for fulfilling his requirements within the context of the priority demands on airpower.

Therefore, it was necessary to have, at the minimum, a general view of the war inside Laos from January 1967 through June 1968, so as to gain some perspective in understanding the basis for the requirements which the Ambassador levied against the 7AF Commander, as well as the responses generated in return.

In essence, this time span was not a productive one for the Laotian Government. Its military position was reasonably good in January 1967 and remained so until the late fall of that year. Subsequently, it eroded considerably, and the pressures which were generated by this deterioration were transferred from the Laotian military to the RLG, from the RLG to the U.S. Ambassador, and finally from him to the 7AF Commander.
CHAPTER I
U.S. AIRPOWER

Command and Control

The Pathet Lao insurgency effort in Laos continued to receive aid from NVN in the form of men and supplies. In addition, the enemy used Laos as the major supply route to move men and supplies into SVN. To move against this two-pronged effort, the Commander-in-Chief Pacific (CINCPAC) had directed the Commander, United States Military Assistance Command-Vietnam (COMUSMACV), and the Commander-in-Chief Pacific Fleet (CINCPACFLT), to strike validated Royal Laotian Air Force (RLAF) targets and conduct armed reconnaissance in authorized areas to interdict enemy supply lines to SVN and Laos.

Already, by April 1965, two armed reconnaissance areas had been established in Laos, BARREL ROLL (BR) in northern Laos and STEEL TIGER (SL) in the south. To speed up the validation of targets, the southern portion of STEEL TIGER was designated TIGER HOUND in December 1965. Later, BARREL ROLL was divided into three sectors, A, B, and C. Similarly, the south was divided: D and E formed STEEL TIGER, F and G sectors made up TIGER HOUND. (See Fig. 1.)

COMUSMACV had responsibility for the U.S. air campaign over Laos and the passes from NVN into Laos, as well as the adjacent Route Package I (RPI), the southernmost area of NVN. These were in addition to COMUSMACV's primary obligation of South Vietnam.

The COMUSMACV objectives in Laos were:

"Apply military pressure to achieve maximum effectiveness"
FIGURE 1

SECRET
in disrupting Pathet Lao and NVN logistical support; to disrupt enemy logistic flow into SVN; and to cause NVN to cease supporting the insurgencies in SEA."

To accomplish these tasks, COMUSMACV relied primarily on the resources of 7AF, headquartered at Tan Son Nhut AB, RVN. Additional sorties were provided by the 1st Marine Air Wing at Da Nang AB, RVN, and the Commander, Seventh Fleet. Furthermore, CINCPAC guaranteed COMUSMACV a minimum of 2,500 USAF strike sorties from Thailand-based units. These Thai-based sorties could be utilized in either Laos or RP I, according to COMUSMACV's needs.

In turn, COMUSMACV delegated to the Commander, 7AF, the operations planning, scheduling, coordination, and execution of these tasks. As Air Component Commander for COMUSMACV, the Commander, 7AF, was appointed coordinating authority for U.S. operations within this area of responsibility. Direct liaison was authorized with appropriate American Embassies on matters pertaining to operational aspects in Laos, Thailand, and NVN. Outside the responsibilities derived from COMUSMACV, the Commander, 7AF, also maintained operational control of all USAF strike forces in Thailand. This was derived from the Commander-in-Chief, Pacific Air Forces (CINCPACAF).

Although U.S. Navy and Marine sorties were not under the operational control of the Commander, 7AF, for smoother operations, these military services were required to coordinate with 7AF on their intended strikes in Laos at least 48 hours before execution.

In the role of Air Component Commander under COMUSMACV, the 7AF Commander...
example of this flexibility. When the Special Forces Camp at Kham Duc in SVN was attacked in May 1968, Hillsboro was shifted from its normal orbit to provide on-the-spot ABCCC service to the operation. Hillsboro played a significant part in managing the air resources which permitted evacuation of the defenders.

**Forward Air Controllers**

To provide information and direction to attack aircraft, FACs were supplied from several sources:

- Ground FACs were associated with the Laotian Army (Forces Armee Royale, the FAR).
- Laos-based U.S. FACs operated under the auspices of the RLAF.
- Other FACs in BARREL ROLL and STEEL TIGER came from SVN or Thailand units.

FACs had to be familiar with the area they controlled, as well as the local enemy defenses and weather patterns. A full knowledge of the capabilities and munitions of strike aircraft, FAC procedures, and the serious consequences of misidentifying targets were vital to this phase of the operations.

Aircraft that could be used in the FAC role were the O-1, O-2, T-28, A-26, A-1E, A-37, F-100F, and, when performing as flareships, the C-130A and C-123. Pilots of T-28 or A-1E aircraft flying in pairs were permitted to FAC for each other; however, when these were flown singly, pilots were not allowed to FAC for themselves, unless two qualified crewmembers were on board to cross check and positively identify the target. The A-26, normally carrying two qualified crewmembers, had the capability for FACing its own strikes.
Politics

Elections held on 1 January 1967 gave Premier Souvanna Phouma's "United Front" about two-thirds of the seats in the National Assembly. The election had shown that Souvanna was better off politically than he had ever been before. Rightists had lost some strength, and neutralism, per se, had been so weak that no one had run under that label, although a few Neutralists had been elected. It was significant that the Forces Armee Royale (FAR) supported the "United Front", because the FAR was a very important factor behind the scenes.

One PACAF publication analyzed:

"In retrospect, the election campaign gave every appearance of the democratic tradition although there is little doubt that the rural vote was thoroughly manipulated by FAR Regional Commanders. The electorate, though largely illiterate, were not overtly crowded into voting for candidates that they did not personally approve or esteem. All in all, the democratic electoral process in Laos apparently succeeded as well as could be expected, thereby setting an example for the rest of SE Asia."

This degree of stability was to continue through 30 June 1968, but not without periodic fluctuations. Factionalism seemed endemic to Laos. Even fears of secession by certain portions of the nation occasionally cropped up. A deteriorating military situation in 1968 and grumblings in the FAR caused some anxiety, but no strike on the order of Neutralist General Kong Le's coup.
attempt of September 1966 or Air Force General Ma's try in October of the same year took place. Ma stayed out of reach in political asylum in Thailand.

Kong Le threatened to return as he bounced from Indonesia to Hong Kong and finally came to rest, to the chagrin of the Laotian Government, in Paris. 3/

American Air Attache

A vital link in the air operations in Laos was provided by the Office of the American Air Attache (AAIRA) in Vientiane.

By the Geneva Accords of 1962, the signatories agreed that no foreign advisors, other than the French, would be allowed in Laos. In line with this, the U.S. Military Assistance Group (MAG) left Laos and moved to Thailand, although supply and some advice continued to be given. The AIRA and the Army Attache (ARMA) assumed these tasks (the ARMA operated with a smaller staff than the AIRA, and their "extra-curricular" activities were primarily observation and reporting). 4/

To handle the air portion of MAAG duties (among them the RLAF), coordinate Air Force combat activities with 7AF and the Deputy Commander, 7/13AF, advise the Ambassador on air matters, and perform the normal attache, intelligence, and administrative functions, the AIRA functioned with a strength of only 100 personnel. This number was miniscule when compared to the nearly 50,000 NVA troops who were in Laos, and whose presence the North Vietnamese Government denied. 5/

The 100-man limitation on the AIRA office posed many problems. In some cases personnel assigned were faced with operational difficulties and were
called upon to give counsel on fast-changing and technical operational matters not normally associated with attache work, and hence, outside of their normal experience. This was an important function, since the Ambassador relied upon advice from this source in formulating his overall view of the air war, for which he was ultimately responsible.  

Normal attache functions, among them administration, had to be performed by a part of this group—and these duties were not minor. For example, more than 10,000 messages were processed by AIRA monthly. The maintenance of records was a formidable task.

To fill the advisory role to the RLAF, the AIRA operated three AOCs. One each was located at Vientiane, Luang Prabang, and Savannakhet. A fourth was to be established at Pakse later in 1968. While lending assistance and advice to the RLAF, the AIRA was prohibited from actually taking part in combat operations, with the exception of providing FACs. The AOC at Luang Prabang is used as an example of the USAF manning at an AOC in Laos:

1 AOC Commander (a T-28 Instructor Pilot)
1 FAC
1 Medic
1 Radio Operator/Repairman
1 Aircraft General Maintenance Specialist
1 Armament Specialist
1 Engine Specialist
1 Ordnance Specialist
not steady because weekly sortie totals fluctuated considerably. Jumps from about 60 sorties per week to more than 200, and then back to 60 were not uncommon; therefore, no trend in operations can be discerned. These fluctuations were generally due to a variety of problems. Among them were maintenance problems, demand, losses, and, most of all, bad weather.  

Bad weather was a continual hindrance to air operations over Laos. USAF strike sorties were inhibited greatly, but the Laotian T-28s, with generally lower performance and lacking the flexibility to switch to other areas for better operations, were severely hampered.

It may be roughly stated that two-thirds of the RLAF operations came from Vientiane and Luang Prabang. Luang Prabang was located in a small valley surrounded by mountains which rose to more than 5,000 feet. Aircraft flying north or northeast from Vientiane had to cross similar terrain; in one direction a mountain towered 9,000 feet. Monsoons, mountain weather, a shortage of navigational facilities and equipment, and low performance aircraft were not conducive to steady performance. In addition, worse conditions often existed in target areas.

The RLAF was completely subservient to the Forces Armee Royale (FAR). It was not represented in any of the higher echelons of command. This was one of the bones of contention in General Ma's coup attempt in late 1966 (another was the use of RLAF aircraft for personal gain by some officials). Hence, the primary mission of the RLAF strike capability was close air support.

The RLAF close air support was very unsophisticated. Communications,
air-to-ground, were usually poor if they existed at all. Subject to the orders of FAR commanders, airborne diversions were seldom possible. A handful of AIRA FACs was all that was available to direct strikes. Furthermore, instructions to FACs on targets were generally vague (some FAR ground commanders distrusted the idea of airstrikes and never called for them). One AIRA FAC related that it was not rare to have a two-three-mile square pointed out on a map as the target area. It was the apparent expectation that the RLAF could level such an area. The FAC had to reconnoiter the general area to find a target before calling in the strikes, providing, of course, that the T-28s had not arrived before the FAC and already expended.

Nevertheless, the RLAF T-28s played a considerable role in the total Laotian picture. Numerous FAR engagements may well have ended in defeat without their participation. The long, though eventually unsuccessful, defense of Nam Bac, described later in this study, would have been impossible without the RLAF. Royal Laotian Air Force operations were usually conducted in areas where USAF aircraft did not operate, and they were bound by much less stringent restrictions. The RLAF was also able to operate in the border areas of Laos, and strike targets which would have been impossible for the USAF under existing Rules of Engagement.

Ground War

As 1967 opened, military prospects in Laos looked better for the RLG. The previous August, friendly forces had succeeded in capturing and occupying the Nam Bac Valley in Luang Prabang Province. The valley, an area with high rice yields and good fruit production, had come under government control for the first
time since 1960. This region, just some 60 miles north of the Royal Capital at Luang Prabang, had historically provided the avenue of invasion from the direction of Dien Bien Phu in NVN.

Moreover, the ability of the RLG to take and hold Nam Bac was indicative of the receding Communist tide in northern Laos, where most of the population was located. Since 1964, when the battle had been resumed, Communist forces had been stubbornly and fitfully giving ground. There appeared little doubt that the PL was a spent force and would have "withered on the vine" if left to themselves. But they were propped by the infusion of nearly 14,000 first line NVA combat troops organized in formal units. This number beefed the enemy tactical forces to about 50,000 PL, NVA, and dissident Neutralists. It was estimated that another 25,000 NVA were in Laos, but they served as advisors, engineers, and transportation and communications personnel, more directly associated with the infiltration and supply routes than direct combat. These numbers did not take into account combat units moving south to the Vietnamese war.

Hence, although the friendly posture had been improving steadily, they were not in a position to make large scale military gains against the enemy as long as NVA units supported the PL.

The war exhibited ebb and flow characteristics. Almost traditionally, during the dry season from November to April, the enemy moved to the offensive and expanded his holdings. Pushing back the friendly forces, he tried to consolidate newly won regions. But, as the wet season came on, from May to September, the communists were forced to pull back.
By contrast, as enemy operations literally bogged down in most areas during the wet season, friendly forces became more aggressive. Numbering about 80,000 Royal Army, Neutralists, guerrillas (the Auto-Defense-de-Choc forces of Gen. Vang Pao), and paramilitary units (nearly half the total), friendly forces varied in combat effectiveness.

In the past, the Neutral Army Forces (FAN) had been the best led and equipped units, but they lacked experience and training in large scale operations. Furthermore, they were reluctant to place themselves under the command or at the disposal of FAR officers, whom they distrusted.

The most effective combat troops were the guerrillas, primarily the Mao tribesmen, who fought less for national ideals than their own way of life, institutions, and leaders. They naturally opposed the NVA as "outsiders". However, the guerrillas, the ADC, were not reliable beyond their indigenous locale and would fight only for certain leaders. The guerrillas were, in effect, mercenaries, fighting for U.S. supplied money, loot, and plunder. Such a force did not serve well in static positions.

The paramilitary forces were home guards, and were mainly interested in their own villages, valleys, and provinces. Generally, effective only in scouting, guerrilla, or village defense roles, their training was weak, logistical support irregular, and they had little experience with crew-served weapons.

The sole advantage held by friendly forces was airpower. Air supply and mobility considerably enhanced their capabilities. This was provided by the
SECRE r

FIGURE 3

SECRE r

ENEMY ATTACK AREAS
Early on the morning of 2 February, a small enemy force of between 12 and 30 men conducted a "disastrously successful" sneak attack with rockets and small arms against Luang Prabang airfield. Following the 15-minute onslaught, the attackers withdrew. Friendly losses were six T-28s and two H-34 helicopters destroyed. Three other T-28s and one H-34 were severely damaged. The AOC was partly destroyed. Five soldiers were killed and six wounded—there were apparently no enemy casualties.

Since Luang Prabang was the Royal Capital and had previously been immune to attack, the incident was unprecedented. Perhaps because it was the Royal Capital, the Communists seemed to deliberately avoid hitting the city or damaging the runway.

In the extreme south, PL/NVA activity indicated a potential buildup in the area of the Bolovens Plateau. Although no attack materialized, the area was closely watched, because, if the eastern end of the Plateau were lost, the town of Attopeu would have been surrounded and hence untenable by the FAR. USAF and RLAF airstrikes conducted in the area of the Bolovens on 5-6 February were judged instrumental in halting the potential enemy thrust.

Activity for the remainder of the dry season was generally minor. In the friendly-held Nam Bac area, seesaw engagements were fought as friendly forces launched forays and spoiling attacks to keep the Communists off balance; Communist forces countered by retaking lost positions.

Site 52, north of Sam Neua, the most northeasterly ADC stronghold, was taken by the enemy on 4 April. The enemy attacked from three sides and had
prepared an ambush to catch the retreating friendly troops in the fourth direction. The result was a demoralizing defeat for the defenders. However, aside from these smaller activities, no major enemy drive had materialized before the coming of the wet season.

**Wet Season 1967, Friendly Vacillation and Dissension**

Friendly activity in the first half of the 1967 wet season matched the enemy's previous performance—relatively little was accomplished. Minor skirmishes appeared to have been the order of the day. Spoiling actions now became the enemy's tactic. An abnormally dry period in June in northern Laos allowed the enemy to conduct some minor operations, no doubt calculated to forestall a friendly offensive. However, no offensive was planned. The FAR concentrated on strengthening the Nam Bac area.

On 16 July, an even more destructive attack than the one in February was launched against the Luang Prabang airfield. An estimated 12 infiltrators hand-placed charges on most of the T-28s located at the field. Of the 11 T-28s, nine were completely destroyed, with one other destroyed in all but name. A portion of the ammunition supply (containing fuzes and napalm) also was lost, although the main dump was not hit. Three friendly soldiers were killed and eight were wounded. No enemy was reported engaged.

The following data revealed the status of the RLAF T-28s:

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<td>Before the attack, assigned</td>
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<td>Destroyed</td>
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<td>Major damage</td>
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In early September, a short round incident on the southwestern side of the defenses around Nam Bac caused another delay. RLAF T-28s had inadvertently bombed their own troops, and these troops had fled the field leaving a gap in the perimeter. The defenses were unhinged, but, fortunately, the enemy did not attack at once. However, by mid-September that gap had not been reoccupied and, around the 20th, the position was taken by the enemy.

Rumbles of dissension were heard from the RLAF. Even though nonrepresentation in higher echelons of command had been a cause of the coup attempt by the RLAF Commander, General Ma, in 1966, nothing had been done to correct this problem. The RLAF helicopter operation, a vital part of the supply mechanism, suffered from ineffective maintenance management, poor leadership, and a lack of guidance. In south Laos, low morale and inefficiency fostered the collapse of RLAF discipline, resulting, on 5 September, in a refusal by RLAF personnel to load strike aircraft. RLAF officers were generally reported as weak and absent from duty for long periods of time. Low pay, inadequate quarters, no messing facilities, poor leadership, and poor equipment were other complaints.

In addition, commanders around the Thakhek area in central Laos expressed concern because of the shifts of troops from their area northward. Neutralists, whose integration with the FAR had not yet been achieved, were complaining of inadequate communications and dwindling rice supplies. To bridge the gap created by the disaffection of the RLAF, Thai-based T-28s were used more extensively. But the enemy was taking advantage of the lessening of airstrikes by increasing his probes around Nam Bac.
At the end of September, the offensive had still not begun. The position, which had been inadvertently struck and evacuated, and which subsequently was taken by the enemy, could not be recaptured. In early October, the piecemeal commitment of forces to counter enemy probes around Nam Bac was increasing friendly casualties. These forces were used outside of friendly artillery ranges and so had little support. Although reduced, this practice was not fully eliminated.

In mid-October, supply problems and enemy activity were the excuses offered by the increasingly conservative-minded General Staff. They had become very concerned that the offensive should not meet with disaster. Meanwhile, the enemy was reinforcing, and by skillfully shifting his mortars, was causing heavier casualties among the defenders--but, for the time being, the enemy was content not to launch a major attack. FAR morale was sagging and delay was piling on delay. It was becoming very late.

Dry Season, 1967-68--Initiative Lost

By November, the roads in Laos were practically open--in northern Laos, they were all in good shape. While the Nam Bac area was holding and airstrikes were helping, enemy activity was increasing at other places in Laos, which were still weakened due to transfers to Nam Bac.

Gen. Vang Pao began to move some of his forces westward in an effort to link up with Nam Bac's defenders and ease enemy pressure. He was relatively unopposed, but movement was slow. The friendly forces at Nam Bac did not push eastward to facilitate a join-up.

Finally, dissatisfied with the entire situation, 57 young colonels in the
all-weather operations against the upper Route Packages. One of the earlier solutions attempted was to have a Pathfinder (EB-66) aircraft lead in fighter-bombers. The Pathfinder was to provide a radar bombing capability.

Through June 1968 in the North

By February, the enemy had injected 3,000 new NVA troops into northern Laos. The loss of Nam Bac in January, and the fall of Site 85 in March, turned loose large numbers of the NVA/PL forces, which had been tied down, investing these friendly positions. They proceeded to press their offensive and a great number of friendly positions in Gen. Vang Pao's Military Region II fell like dominoes. In March, the U.S. Ambassador reported:

"Fall of Phi Thi (Site 85) in San Neua Province opens a new time of troubles for Vang Pao and the Meos of Military Region II. The size of the attacking forces and their heavy supporting weapons are greater than anything friendly troops can muster in the immediate vicinity. Therefore, there is no alternative but to evacuate friendly troop units and their dependents in order (to) maintain them intact for counterattack activity in rainy season...(Comments on refugee problem)....

"It should be borne in mind that North Vietnam mounted attack of this size and intensity because it wished (to) eliminate U.S. installation, which had become "attractive nuisance" for them. Consequently, this vast uprooting of human resources and abandonment of useful territory is direct result (of) U.S., rather than RLG, operational interests.

"Site 36, which is used as forward launch base for ARS helicopters, is another U.S.-dedicated activity which will doubtless also attract enemy attention. Although it is more heavily defended than Site 85, it is questionable whether it can withstand a determined assault by seven NVN battalions, the strength we feel enemy is probably able to deploy against it."
In an effort to match the obvious escalation of the Laotian war and inflict punishment on enemy supply areas long existing in virtual sanctuaries, steps were begun to increase USAF bombing in northeast Laos. The Ambassador stated:

"Most of the targets are in or lie close to towns and other centers of civilian population which Prime Minister has previously asked us to avoid. I went over list with Souvanna yesterday and we agreed to have U.S. photo-interpreters examine prospects for carefully controlled strikes against a number of Vang Pao's targets. We agreed to take a joint look at photography as soon as my people can get target folders assembled."

Plans were coordinated and forces were readied for strikes against the previously untouched targets, particularly in the areas around Sam Neua and Xieng Khouang. Unfortunately, no massive campaign was launched, largely due to a period of bad weather. A few sorties did strike these areas, but they served more to warn the enemy to make them less lucrative, than to devastate.

On 1 April 1968 (Laos time), the President of the United States ordered cessation of American bombing above the 20th parallel. In the next few weeks, all U.S. bombing of BARREL ROLL was curtailed considerably, although some strikes were continued in the Site 85 vicinity against enemy positions, and also against enemy concentrations in the Site 59 area.

Near the end of April, difficulties over interpretations of Rules of Engagement and a period of bad weather caused a decrease in some USAF air activities in northern Laos. While enemy activity in these areas had eased
considerably with the coming of the wet season, he inflicted one more large effort against Site 36. At the end of the month, about five enemy battalions concentrated about 30 miles south of Site 36.\[78/\]

Site 36

Enemy probes had increased in intensity around the site in the last week of April. Pressures came primarily from the east and, for the first few days of May, the USAF sent 50 strike sorties to assist the Meo defenders.\[79/\]

Seventeen A-1 sorties were especially effective on 5 May. Although the enemy had approximately eight battalions in the general vicinity, reports indicated he committed four to five against LS 36. Vang Pao's defenders numbered nearly the same amount, about 1,500 troops.\[80/\]

During the second week in May, the USAF devoted 215 of its total 239 sorties in BARREL ROLL to the site's defenders. The results were that an enemy push from the east was virtually destroyed. On the crucial day, 11 May, an additional 18 RLAF sorties were contributed.\[81/\]

After a week of relative quiet, the enemy returned to his task about 20 May. But it had already been estimated that a major enemy attack would come near that point in time, and plans had been made to defend it with a minimum of 60 USAF sorties per day during the period of 20-22 May. Twenty-four first priority targets and 23 second priority targets had already been selected and validated.\[82/\]

Seventh Air Force agreed to the plan, but cautioned: \[83/\]

"Request that these strikes be applied only to those..."
targets indicated in referenced message or more lucrative targets in the immediate area in defense of LS36 and not be diverted to other areas as allocation of this amount of air effort to the BARREL ROLL area draws down upon our ability to apply badly needed effort in other areas of 7AF responsibility."

A meeting was held between 7AF representatives and representatives of the Vientiane Embassy on 22 May, to determine future requirements for additional air support for Site 36.

The enemy thrust had been blunted and, in early June, Gen. Vang Pao opened a Meo drive back up the salient, toward Sam Neua, which had been lost. (See Fig. 4.) His tactics were to utilize small guerrilla units to find and fix the enemy; then, large units would move to destroy them. By 1 July 1968, he had made moderate headway.

South Laos

In south Laos, 1967 ended with the PL/NVA forces moving in their traditional early dry season roles of foraging and forcing the friendly units toward the cities, thereby opening the countryside to exploitation by the communists and allowing road repairs and construction to proceed. But, as in the north, three new NVA battalions were introduced in January, and the enemy began expanding operations westward. By the end of February, NVA increases in the south approximately matched those in the north of 3,000 men.

During March and April, enemy forces continued to be aggressive. They threatened, and, in some cases, virtually surrounded a number of cities among them Saravane, Attopeu, and Thakhek across the Mekong from Nakhon Phanom. Friendly forces were rendered relatively ineffective. Despite the fact that
SITUATION IN LAOS

LEGEND

COMMUNIST-CONTROLLED AREA (MARCH 1967)
LOST TO ENEMY OR CONTESTED BY JULY 1968

FIGURE 4
crushing defeats could have been administered to beleaguered defenders in a few of these cities, the enemy did not choose this course. For example, it was estimated that nearly 2,000 enemy troops surrounded Saravane at the end of February. They kept up pressure, but did not launch a final assault. It was unknown whether the enemy was intent on "nibbling tactics", as he had followed at Nam Bac or was afraid to concentrate for a final assault, making himself vulnerable to airstrikes. In the case of Saravane, he may have been swayed by Souvanna Phouma's threat to enlist outside assistance from the 1962 Geneva Accords signatories, if Saravane fell. Whatever the reason, friendly forces were effectively neutralized and boxed up.

The 1968 gains by the enemy put new strains on the Royal Laotian Government. There were fears of disorders in Vientiane and Luang Prabang, but nothing of magnitude developed. A reorganization did begin in the upper echelons of military command, however. The technical details were not so important as the fact that units were restructured, and the young colonels were given more power and a greater voice. A few of the older generals were booted upstairs to posts and positions which carried more prestige, but little power.

The FAR began a more concentrated effort to pinpoint targets for air-strikes. Meetings were held to decide what areas would be held and consolidated and what areas would be conceded to the enemy.

In the south, enemy pressures had eased sufficiently at the end of April for the FAR to resume moderately aggressive activities. A limited friendly effort around Houei-Mune, about 60 miles west-northwest of Saravane offered a good example.
This operation moved well against light opposition. The gain, however, was not as significant as the methods employed. For the first time, the RLAF was brought in on the planning of an operation at the beginning. Colonel Ly, the Army Commander, ran the operation forcefully, praising or chastising subordinates, and even personally briefing the RLAF pilots before their missions. Excellent coordination resulted, with exemplary air-to-ground communications. Some of the RLAF T-28s flew Combat Air Patrol (CAP) missions over the battlefield and were called in to assist the advance and hit enemy rear areas. The RLAF flew 99 sorties in support and was credited with a large part in the victory. It was hoped that this operation would serve as an example of what could be done with aggressive leadership, planning, and coordination.
CHAPTER III
ENEMY LOCs AND RULES OF ENGAGEMENT

Enemy LOCs and Tactics

In a Command Briefing at 7/13AF Headquarters on 11 May 1967, the 7/13AF Director of Intelligence stated:

"In central Laos we are fighting...an air war that has its primary, if not its sole purpose, the interdiction of lines of communication...we are primarily oriented against roads, little improved roads that snake across the countryside, down through the valleys, mostly under the trees, into the canyons where not only is it difficult to find a target, but it is difficult to find a road from time to time. These are the main roads of the Ho Chi Minh Trail, over which trucks travel at night to carry materiel from sources in North Vietnam on an end run through Central Laos into the supply areas and the base camps of both the Viet Cong and the North Vietnamese in South Vietnam."

The 7AF Operations Order, which outlined activities in Laos, stated that the primary mission in Laos was armed recce associated with the enemy lines of communication. Provisions were also made for giving air support for the military forces of the RLG, "on a recurring basis."

One PACAF publication in January 1967 pointed up the increasing importance of supply lines through Laos for enemy forces in SVN:

"The CINCPAC--estimated 50,000 man enemy in-country (South Vietnam) increase for 1966, coupled with expanded USN maritime programs has added to the requirement for overland resupply through Laos. Thus the truck traffic in Laos, or lack of it, should signal the enemy's intentions for the next six months even more clearly than before."

37
The Ho Chi Minh Trail was not the sole avenue of supply into Laos, but it was the main one. In the northeast, the Routes 6 and 7 complex sustained enemy units in the Plaine des Jarres region. Still further north, Route 19, which entered Laos from Dien Bien Phu, was the main artery. However, goods and troops transported along these northerly routes were not usually destined for SVN or southern Laos.

In the extreme south, another supply line stretched northward from Cambodia. This avenue, the Sihanouk Trail, primarily used routes associated with Highway 110. This system blended with the southern portions of the Ho Chi Minh Trail. In addition, during the wet season, or whenever possible, waterways were also used to transport men and materiel. These waterways offered primary or alternate supply lines and added depth to the entire system.

History of Ho Chi Minh Trail

A rough approximation of this LOC was in use as early as World War II, when guerrillas traversed this general area. After that war, Viet Minh bands trekked the jungle trails, until the French control of the seacoast weakened. When Vietnam became divided in 1954, NVN agents and Communist-indoctrinated returnees to SVN used the trail.

By 1964, the Ho Chi Minh Trail was developed into a dry-season truck route (See Fig. 5), which entered Laos via Routes 8 and 12 at the Nape and Mu Gia Passes, respectively. The motorable routes joined near Thakhek and, following Route 13, moved south to just east of Savannakhet, before coursing eastward again on Route 9. West of Tchepone, traffic could either continue eastward
toward the SVN border on Route 9, or turn south again on Route 23.  

Only a handful of jungle trails ran directly south from Mu Gia. In fact, even the route structure described above was open only during the dry season (approximately October through April). Furthermore, there was no capability for covert supply along this system, because Thakhek was held by RLG forces.

By 1965, the Trail had become a network of several hundred miles of motorable roads; the building and refining had not ceased since that time. Construction of numerous bypasses and multiple routes had compounded the problem of interdicting these LOCs. With a minimum effort, enemy ground tactics in the central and southern portions of Laos had aimed to isolate and neutralize friendly forces by boxing them in certain towns during the dry season.

**Operation of the Ho Chi Minh Trail**

One document, distributed in April 1967 by the 7/13AF Director of Intelligence, best described operations on the trail:

"The North Vietnamese have a considerable logistics system, manned by a relatively large number of personnel along the corridor routes to render assistance and to man way stations. It has proved an effective system despite our best efforts to disrupt it...."

"Generally vehicle shelters and supply storage areas are located at intervals varying from 10 to 30 kilometers, depending on the terrain. One type of vehicle shelter in common use consists of 30 to 50 individual hillside excavations with earth roofs, each large enough for a single truck. In the same general area as the truck parks, but 500 to 1,000 meters away are..."
an equal number of supply shelters. The facilities are usually located from 500 to 1,000 meters from the road.

"In addition to the supply shelters mentioned above, work camps, military structures, construction and repair equipment parking are all usually 500 meters or better from the main road. Though the enemy may not be directly familiar with the restrictions placed upon our armed recce aircraft, experience has taught him his chances for survival increase as he moves back from the road. Each shelter area is commanded by a North Vietnamese officer who controls truck convoy movements and provides assistance to disabled vehicles. Normally, convoys arrive at shelter areas prior to sunrise. After arrival, each truck's cargo is unloaded at one of the supply shelters and then the truck is parked in a vehicle shelter. Drivers sleep in hammocks located in the jungle nearby. After sunset, the trucks are reloaded and the journey continues.

"The North Vietnamese officer is also responsible for determining if a convoy can pass his area without being caught between shelter areas after sunrise, and for notifying the next shelter area of a convoy's approach. Every third to fifth shelter has a refueling capability. Telephone communication is maintained between the shelter areas...Each shelter has 30 to 60 North Vietnamese soldiers, the actual number depending on its size, its area of responsibility, and the frequency with which the road or shelter area is bombed. These soldiers are equipped with the necessary tools to make quick road repairs.

"Supplies are normally moved by the shuttle system in which groups stationed at one area moved supplies a definite distance, usually between three and seven shelter areas, and then return to their point of origin. This eliminates the need for a guide as each driver is familiar with his particular route. It has the added advantage of allowing the trucks to be serviced by mechanics familiar with the individual vehicles."

This system of using certain trucks for only a portion of the supply route dovetailed the practice of stockpiling supplies at various locations along the route. Under favorable circumstances (as during the 1967 TET truce from 8-12 February), periods of exceptionally good weather, or when simply
taking a risk, the enemy would move large convoys through generally constricted areas (for example, the Mu Gia Pass during 1967 TET). By operating with numerous stockpiles and by devoting a number of trucks to only specified segments of the route, the enemy created a degree of flexibility which allowed him to overcome a time of bad weather, or a time when road interdiction might hinder his supply moves.

Three shots generally signaled mechanical difficulties, but help was usually nearby. Repairable vehicles were towed to the next area for repairs; non-repairable trucks were stripped of parts and moved off the road. Generally, only minor maintenance—welding and parts replacement—was performed on the Trail.

Warning of approaching aircraft was conveyed by gunfire, a system of warning lights, if there were unobstructed visibility, lookouts, or movable road barriers. If an aircraft were heard or flares were seen, the trucks halted. If the plane stayed at altitude or at a distance, the trucks continued with shielded headlights. Should the aircraft be low and close, the vehicles stopped, lights were extinguished, and the drivers took cover in the numerous shelters and foxholes along the route.

The lead truck in a convoy used a low headlight; the others followed with a low red light. Another method was to use a small light underneath the truck chassis, which gave the driver a forward visibility of about five meters. The vehicles were more vulnerable at fords, for lights had to be raised to achieve the proper alignment for crossing. They were better targets in open or defoliated areas. It was probable that enemy patrols swept the route areas
periodically to allow convoys to move without being detected by Road Watch Teams.

Although there was some mechanized equipment, most road repairs were done manually, using hand tools such as hoes, picks, shovels, and axes. Dynamite was commonly used to clear obstructions or obtain fill material. The essential items used in road repairs were wood, bamboo, rock, and earth fill; these were all readily available. Corduroying with logs, limbs, or bamboo helped prolong road use in bad weather. Log bridges were built over small streams and depressions.

The enemy also has used underwater bridges to facilitate stream crossings, and in clear areas sometimes created an artificial canopy by building trellises and planting fast-growing vines. Fortunately, for the enemy at least, there were no major bridges on the Trail's Laotian routes.

The 7/13AF Director of Intelligence report concluded:

"...the enemy has been successful in keeping its major routes open. Road workers, both military and civilian, leave their foxholes to repair bomb damaged roads as soon as a strike is over. Often these workers can repair badly damaged roads within a few hours.

"The system owes its success to the vast numbers that are devoted to keeping the road open and the trucks moving. The trucks are backed up by bicycles, pack animals, and coolies capable of bypassing the most severe interdiction. As long as the vast pool of labor exists and continues to persist in its efforts to move men and supplies south, our task of countering these operations will be extremely difficult."
Defenses Along the Trail

To help protect vital route segments, the enemy relied to a great extent on antiaircraft weapons. Although their coverage was not so sophisticated or complete as that employed in the route packages of NVN, especially near Hanoi, they were effective, nonetheless. In addition to numerous small-arms weapons, it was estimated the enemy had 185 antiaircraft guns in Laos as early as February 1967. Forty-six of these were AA machine guns of 12.7 and 14.5-mm; 139 were light AAA guns of the 37- and 57-mm variety.

These guns were highly mobile and shifting their positions made them more effective, since it became more difficult to fix their location over long periods of time. In 1967, the enemy began using searchlights to assist in spotting targets.

In April 1967, the enemy introduced twin-mounted 23-mm AAA weapons, and there were indications that the enemy had developed a fairly reliable acoustical or radar tracking system to direct these guns.

Since a considerable part of the USAF interdiction effort was supplied by slower propeller aircraft, enemy antiaircraft fire was particularly dangerous. A message in mid-April 1967 from Nakhon Phanom RTAFB, Thailand, pointed up the enemy's effectiveness:

"The area of greatest concern to everyone associated with the night program here (interdiction) is the significant increase in ground fire reaction recently... it has been necessary that we make operational adjustments. The truck kill rate has dropped since the ground fire picked up and we have definitely lost some
effectiveness... (the new adjustment was bombing on a single pass) ... It will be a rare situation when it will be possible to stay in an area and dig for truck kills as has been done in the past. If the ground fire situation continues to intensify, it will be necessary to adjust the tactics again and possibly conduct an intensive counter-ground fire program... (Policy was)... that we will continue working the area and will work where the traffic is, but that consideration will be given to defenses and truck attacks will not be pressed into areas of extensive ground fire. Furthermore, as a general rule, prop aircraft will not attack gun positions unless the pilot can determine an approach which will avoid a direct confrontation with the site."

Figure 6 indicated the approximate percentage of USAF strike sorties, which drew enemy AA reactions in Laos, by month from January 1967 through June 1968, and USAF Aircraft Combat Losses are depicted in Figure 7. The data represented all of Laos, and included BARREL ROLL in north Laos. Since BARREL ROLL received fewer sorties than southern Laos, ground fire reaction figures were considerably lower. Therefore, if STEEL TIGER were viewed alone, the reaction figures would be slightly higher.

Figure 6 also pointed out two other important facts. First, during the summer months, when the wet season prevailed and truck traffic decreased, enemy ground fire fell off. The enemy moved many of his guns from Laos to RP I in NVN during this season. They were moved north: (1) To keep them from being stranded in the south due to impassable roads; and (2) To enhance the AA protection for newly-planned infiltration routes in RP I.  

In October, the guns began to be returned to STEEL TIGER—in even greater numbers. One report stated:
FIGURE 6

1968 1967

J F M A M J J A S O N D J F M A M J

0% 5% 10% 15% 20% 25% 30% 35%

USAF Sorties Which Drew Enemy FIRE

NOTES
"The mass influx and exodus of AAA in STEEL TIGER are proving to be yearly events. The dry Northeast Monsoon Season triggers a large scale flow of weapons into the area to protect stepped up infiltration. The majority of the same weapons are moved to Route Package I and TALLY HO (north of the DMZ) just prior to the Southwest Monsoon Season. This seesaw tactic is expected to continue with the number of guns involved increasing each season."

Figure 6 also showed quite clearly that the percentages of ground fire responses to sorties flown increased sharply in November. Data for 1968 were substantially higher than corresponding months of 1967. More areas were being termed "high threat areas", and, in some cases, were prohibited to slower prop aircraft.

Rules of Engagement

Rules of Engagement (ROE) were agreed upon by CINCPAC, COMUSMACV, and the American Embassy in Vientiane. They were directive in nature and compliance was required by all U.S. military forces carrying out activities in Laos. Supplementing these rules, and usually more restrictive, were operating rules and policies established by the Commander, 7AF. Rules of Engagement formally stated what was permitted or forbidden in air operations.

In January 1967, the seven sectors, A through G, delineated armed reconnaissance areas in BARREL ROLL and STEEL TIGER (North, and TIGER HOUND). (See Fig. 1.) In these areas, U.S. aircraft were allowed to conduct strikes outside of villages, against targets of opportunity. Any target of opportunity could be struck, day or night, provided it was located within 200 yards of a motorable trail or road.
USAF AIRCRAFT COMBAT LOSSES IN LAOS

FIGURE 7
"The mass influx and exodus of AAA in STEEL TIGER are proving to be yearly events. The dry Northeast Monsoon Season triggers a large scale flow of weapons into the area to protect stepped up infiltration. The majority of the same weapons are moved to Route Package I and TALLY HO (north of the DMZ) just prior to the Southwest Monsoon Season. This seesaw tactic is expected to continue with the number of guns involved increasing each season."

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Provisions were in force to strike other types of targets. Fixed targets, targets of opportunity outside the armed recon areas, or targets of opportunity within the armed recon area, but more than 200 yards from a motorable road or trail, could also be attacked. However, one of the following stipulations had to be met:

- The target had to be a validated RLAF "A" or "B" target.
- Approval had to be obtained from AIRA, Vientiane, AIRA, Savannakhet, or an AIRA, FAC.
- Gunfire had been received from the target.

Airborne and ground FACs, plus the MSQ-77, aided the strike aircraft. The MSQ-77 could be used to guide strikes against validated targets, day or night, and in all weather. FACs were required:

- On close air support missions.
- When called for by the American Embassy on certain specified targets.
- Within five kilometers of the Cambodian Border.
- On all night strikes against fixed targets, unless under MSQ direction.
- Against large traffic on streams and rivers, other than the main stream of the Song Ma River.

It was mandatory that aircraft, which carried out strikes without FAC or MSQ assistance, confirm their position by radar or TACAN beforehand. If any doubt existed concerning his position, the pilot was not to expend his ordnance.
Two zones had been established in the STEEL TIGER area of Laos which had slightly different rules. One was called CRICKET WEST (and FRINGE). The CRICKET area had originally been a particular region, near the Nape Pass, in which U.S. aircraft conducted concentrated interdiction. As enemy ground forces threatened friendly positions to the west of the interdiction area, U.S. aircraft lent support. This area was called CRICKET WEST. Further extensions of these operations were dubbed CRICKET FRINGE. All strikes in these latter operations had to be FAC-directed.

The other unique region was called the STEEL TIGER special operating area. Established in November 1966, it was a narrow strip of the eastern Pan-handle of Laos that stretched from just north of the DMZ, along the NVN and SVN borders, south to Cambodia. (See Fig. 1.) This area had been set aside to provide additional flexibility in operations. Armed recon without FACs was authorized in this strip against all enemy activity. This allowed the effective use of sorties diverted from ROLLING THUNDER which arrived over Laos, when there were no FACs available or when the strike aircraft had little fuel remaining.

U.S. aircraft were prohibited from flying over a number of Laotian cities. Luang Prabang and Vientiane had to be avoided by at least 25-NM; Attopeu, Pakse, Saravane, Savannakhet, and Thakhek were to be skirted by 10-NM and 15,000 feet. Later, Muong Phalane was added to the list. However, A-1 propeller-driven aircraft were authorized to penetrate within 10 miles of Attopeu when attacking targets along Route 110, a major enemy artery in the extreme south.
The Rules of Engagement were continually adjusted to allow for a changing ground situation or to avoid international complications. These adjustments were either permanent or temporary. For example, in January 1967, BARREL ROLL was expanded to cover a highway route being used by the enemy; in February, Russian complaints about strikes in the Khang Khay region temporarily halted strikes there; and, also in February, a proposed International Control Commission meeting at Xieng Khouang put that locale off limits. At the very end of February, a major revision in the Rules of Engagement was carried out.

Short Rounds

The increased tempo of air operations over Laos in 1966 had caused a correspondingly rising number of inadvertent strikes. The tragic trend continued into early 1967. This was an extremely sensitive issue to the Laotian Government, which was struggling against a stubborn enemy who was attempting to win adherents to his cause.

Each short round was damaging to the Royal Laotian Government, because it promoted fear and distrust among the people. The U.S. quickly followed up inadvertent strikes by sending teams into the attacked area, which provided and arranged medical care, settled claims, repaired structures, and removed undetonated explosives. However, all commanders were aware that some means had to be devised to reduce, if not eliminate, these tragic occurrences.

The inadvertent strikes were mostly concentrated in the STEEL TIGER area, which was the area of major U.S. air effort. In essence, the same factors which inhibited U.S. air operations, promoted short rounds. An elusive enemy, poor
"Nevertheless, experience has shown that we cannot repeat not give RLG iron-clad assurances that positive controls stipulated in Rules of Engagement are always observed or, even if they are observed, are foolproof against error....

"In order to resolve this dilemma, we are attempting (to) negotiate a compromise arrangement with RLG. This proposal would preserve the bulk of STEEL TIGER and TIGER HOUND areas under current Rules of Engagement, but would place westernmost reaches of these areas under positive FAC control."

Diplomatic pressure was not ended. At the end of February, the Ambassador reported to the Secretary of State:

"...Souvanna then asked that we undertake arrangements with the Lao Air Force to develop system which would prevent recurrence of such errors. He felt that it would probably require exclusion of all jet aircraft from the general region, leaving operations to propeller-driven planes which 'move slowly enough to know where they are.'"

Meanwhile, the USAF did not treat this incident lightly. After extensive study and examination, an element of pilot error was found to have been a contributing cause. The actions taken emphasized command concern. The Commander, 7AF, wrote:

"It is directed that the flight leader be relieved of his duty and given a verbal reprimand. The seriousness of this offense must be brought to the attention of all crews. War is cruel enough without exposing the innocent. All unit Commanders are expected to demand the highest degree of professional performance from their crews...."

Revised Rules of Engagement

Discussions between RLG officials and the American Ambassador moved to a conclusion and new Rules of Engagement for STEEL TIGER were put into effect