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early in March. Basically, the concept of armed recon areas D, E, F, and G were changed. South Laos was divided, in effect, into four north-south zones, with increasing Rules of Engagement restrictions as they were arranged toward the west; i.e., toward friendly-held territory. (See Fig. 8.)

The easternmost region, called Zone I, was similar to the previous special operating area. It remained a "free fire area" in which all enemy activity could be attacked without FAC control; however, confirmation of aircraft position was stressed.^{43/}

Zone II had Rules of Engagement like the earlier armed recon areas (D, E, F, and G). Zone III was made a FAC control area. No strikes could be made in this area without positive FAC control (later, clarifications were made to include MSQ-77 direction as permissible, too). Zone IV, which extended westward from the other zones, and included most of south Laos, could not be struck without specific permission from AIRA, Vientiane.^{44/}

These alterations, while reorganizing areas, in essence, changed little. A message from the AIRA to 7AF summed up the substance:^{45/}

"The new feature...is essentially Zone III which places sensitive area of STEEL TIGER in special category similar to that practiced in CRICKET, but slightly less rigid than practiced in South Vietnam."

Easing of Short Rounds - Channel 77

Unfortunately, the rash of short round incidents did not materially decrease through March, even though Rules of Engagement were revised. Even

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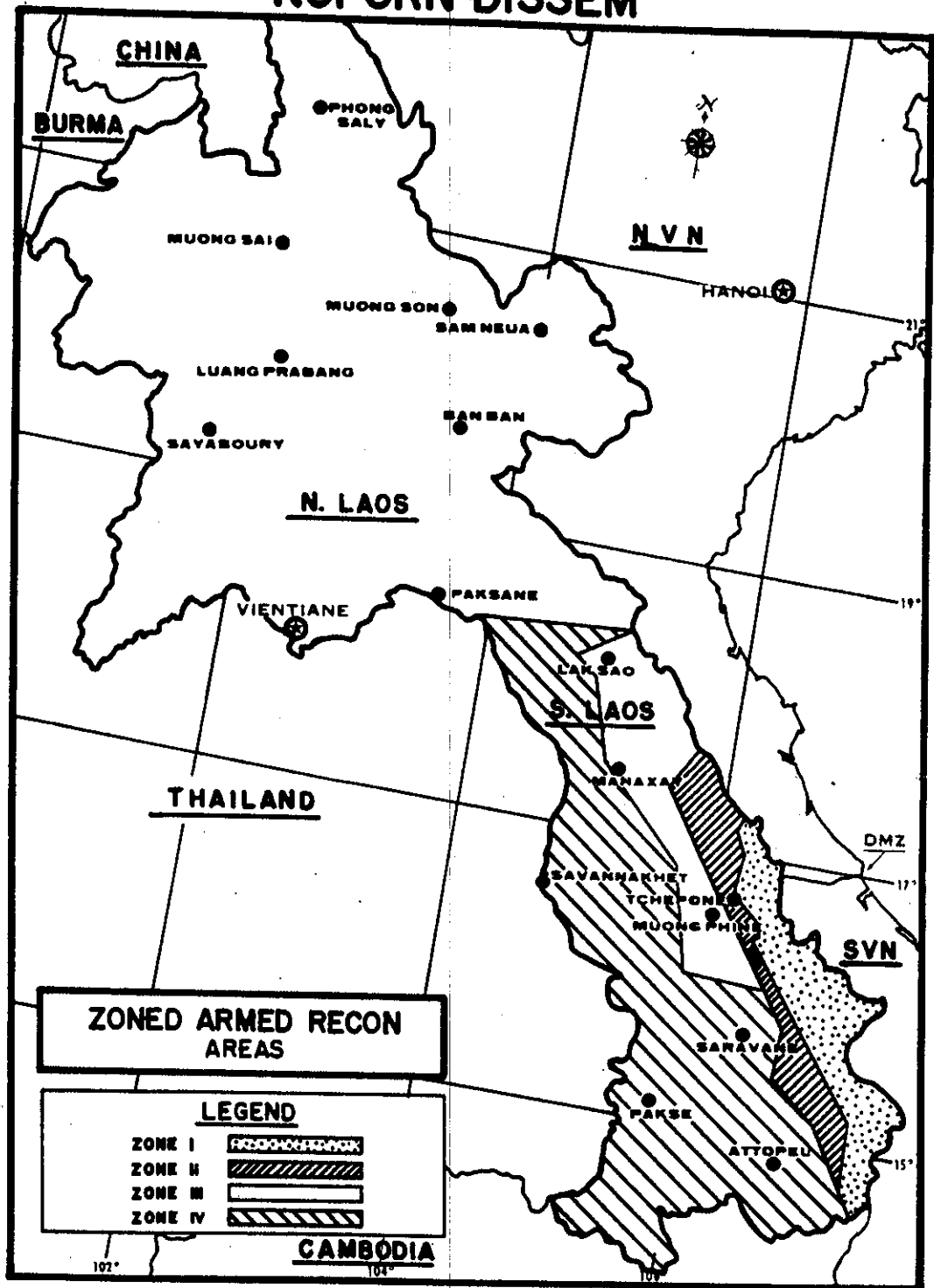


FIGURE 8

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Muong Phalane was not immune. Ever increasing emphasis on professionalism and the fact that pilots were not to expend unless absolutely sure of their targets was not decreasing the frequency of mishaps.^{46/} The Commander, 7AF, acting on his prerogative to establish operating rules (not to be confused with Rules of Engagement), directed that all strikes in Laos had to be FAC- or MSQ-directed.^{47/} In the ensuing coordination, it was agreed that A-26, A-1, and T-28 aircraft equipped with compatible ground-to-air radios could serve as FACs.^{48/}

Two other factors had helped increase the number of inadvertent strikes. They were bad weather and a lack of navigational aids. Pilots sometimes arrived over their assigned target areas only to find them weathered in. In searching for a "hole", they sometimes got lost. If they did find a "hole" and descended, it was difficult to reestablish their positions positively, because of the inadequacies of the navigational aids at low levels. In fact, a number of inadvertent strikes in Laos were made at the end of March and in early April without the use of FACs. Although violating the directive issued by the 7AF Commander, the cause was that pilots had believed they were actually over NVN, which could be struck without FACs.^{49/}

The problem of inadequate navigational aids for central Laos had been realized. Not only was this affecting positioning, it was also hurting effectiveness. On 9 February, the 634th Tactical Unit Operations Center (TUOC) at Nakhon Phanom reported to 7/13AF:^{50/}

"TACAN reception from Channel 89 (Nakhon Phanom), Channel 109 (Dong Ha, SVN), and Channel 72 (Saravane) is not adequate to insure pinpoint location of the LOC in STEEL TIGER area. During night operations

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TACAN radial/distance is the only feasible method for armed recon aircraft to locate prebriefed or UTM coord. targets. To acquire a lock-on the aircraft must climb to altitudes which will guarantee line of sight reception. Climbing to sufficient altitudes which will guarantee line of sight reception results in loss of the element of surprise, excess fuel consumption, ineffective flare drops, and less than optimum positioning of attacking aircraft for quick strike under first flare...Request action be taken to locate a TACAN station at Lima Site 61, Muong Phalane, Laos."

Similar recommendations were put forward by various organizations and commands. It was seen that placing a TACAN at Site 61 would serve to improve the navigational situation in the area, cut down on short rounds, and demonstrate again USAF concern to give more protection to that village against inadvertent strikes. ^{51/}

A TACAN, Channel 77, was established at Lima Site 61 in early April 1967. Seventh Air Force commented on 5 April on procedures: ^{52/}

"Subject TACAN was installed as an additional means of precluding further inadvertent bombing incidents in Laos.

"Aircrews operating in SL (STEEL TIGER) sectors Delta and Echo will crosscheck position with Channel 77 and one other TACAN before releasing ordnance.

"Aircrews operating in sectors Foxtrot and Golf will do the same or use a combination of two other TACAN channels.

"Above policy does not negate requirement to fully utilize all nav aids in determining position prior to ordnance release."

Channel 77 at Site 61 functioned until Christmas night 1967, when a combined PL/NVA force overran the site, destroyed the equipment, and killed two of the operators. To fill the gap created by this loss, a portable TACAN, Channel 99, was installed at Mukdahan, Thailand, just across the Mekong River from

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By 3 May, it was settled that, in effect, all LOC portions of A, B, and C sectors could be hit as part of the enemy logistics system (excluding the town center of Sam Neua) up to 10 NM of the NVN border. COLLEGE EYE and FAC control applied.^{59/}

As the situation around Site 36 intensified, the Ambassador was mistakenly led to believe that COLLEGE EYE aircraft controlled USAF strikes in all of BARREL ROLL, and strikes could not be carried out without COLLEGE EYE. Since COLLEGE EYE was airborne only 19 hours each day (21 if alerted soon enough), he was concerned that no strikes could be carried out when COLLEGE EYE was not on station. In such a condition, an attack against Site 36 might have had to be handled without air support.^{60/} The fact was explained, however, that COLLEGE EYE controlled only A, B, and C armed recon sector strikes, and, since Site 36 was outside these sectors, COLLEGE EYE presence or absence was no factor.^{61/}

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B-52 SORTIES IN LAOS

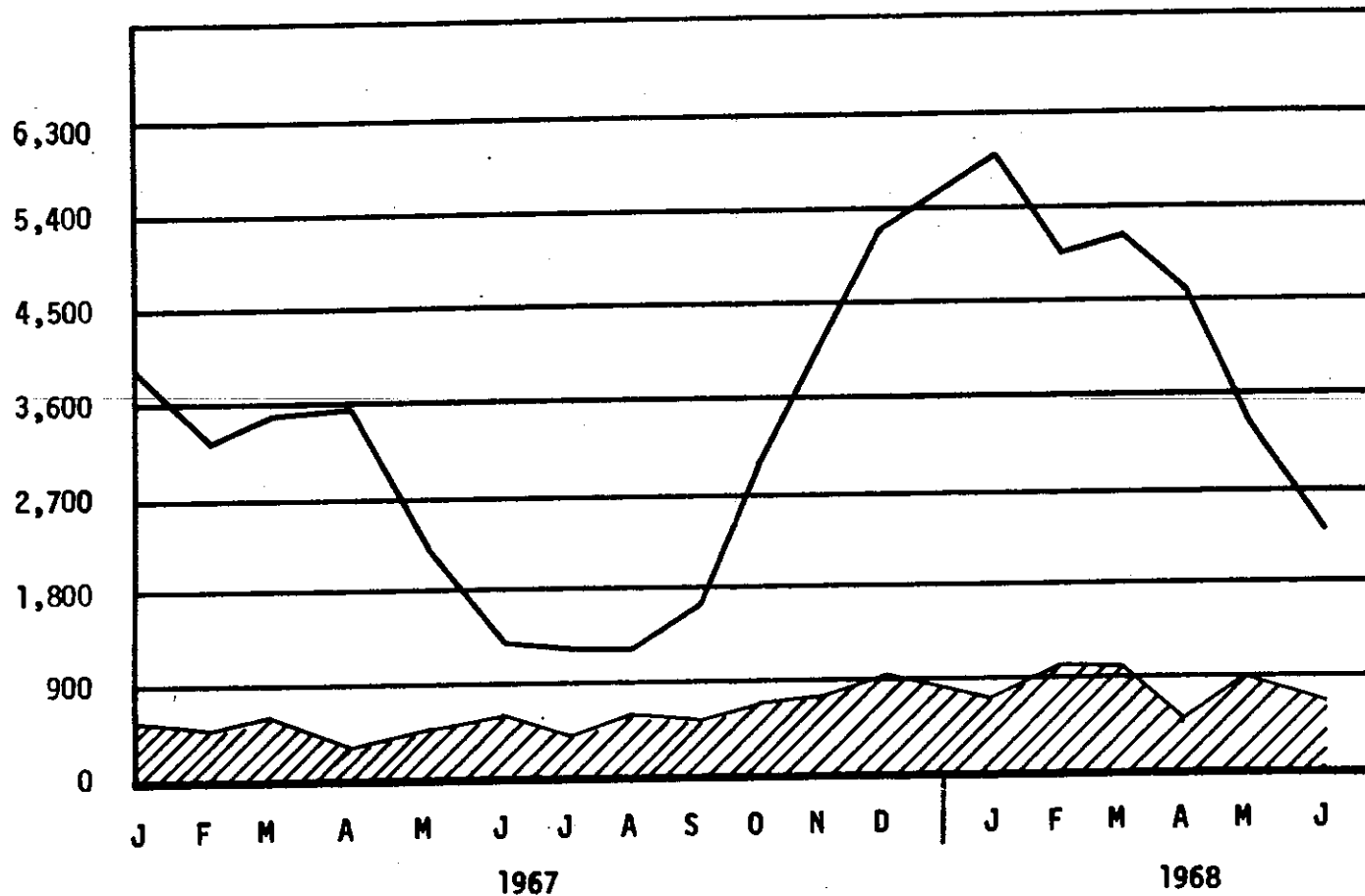


FIGURE 10

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USAF STRIKE SORTIES IN LAOS* (Excludes B-52's)



* Shaded portion emphasizes BARREL ROLL.

FIGURE 9

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CHAPTER IV
CONDUCT OF USAF OPERATIONS AND DEVELOPMENTS

The following data represent the total U.S. strike effort directed in Laos from 1 January 1967 to 30 June 1968:

	<u>1967</u>	<u>1968</u>
U.S. Navy	7,452	7,090
U.S. Marine Corps	2,614	1,019 (through May)
USAF Tac Air	34,333	26,073
B-52	1,708	1,481

A detailed breakdown of Tac Air strikes is given in Appendix I to this study. Figure 9 offers a graphic presentation of the monthly breakdown of Tac Air strikes, and Figure 10 covers B-52 strikes. A few parameters of the effectiveness of USAF attacks are provided in Appendix II.^{1/} Charts in Appendix II point out three important characteristics of the war in Laos. First, the erratic movement shown by the lines demonstrates the shifting of strike emphasis in Laos (and indirectly within the theater). This becomes especially obvious in the composite illustration, when, for example, in the spring of 1967, the emphasis on trucks, bridges, and road cuts waned, while interest in enemy structures was on the rise.

Secondly, the charts in Appendix II emphasize the seasonal character of the war. As the wet season developed during the summer months, enemy activity proportionally contracted. Similarly, USAF activity declined. As the enemy shifted emphasis elsewhere, USAF airpower followed.

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and May. A major air campaign, nicknamed TURNPIKE, was launched in April, against enemy stocks and supplies on the infiltration routes of Laos and Route Package I. To assist in this operation, COMUSMACV delegated the operational control of 30 B-52 sorties per day to the Commander, 7AF, in April.^{20/} This campaign lasted until the rainy season virtually stopped enemy activity in the area.

Developments

In the January 1967 issue of the PACAF Publication, "Southeast Asia Air Operations", the following observation was made:^{21/}

"Results of strikes that have taken place in the STEEL TIGER area have not been as gratifying as desired, though the number of sorties has increased. This area has, of a necessity, often absorbed the preponderance of the weather-forced diversions from ROLLING THUNDER targets. Continued harassment of the LOCs has been achieved along with a high level of air presence. However, attendant unavoidable contributing factors such as saturation of FACs, low fuel states after diversions, fewer validated targets, limited interdiction points, and weather have not permitted the accrual of a level of damage normally expected and desired from the sorties available."

The article continued by recommending that more validated targets were necessary in the Special Operating Area of STEEL TIGER, which at that time could be struck without FACs. This, of course, was negated by the operating rule change of March 1967, which required FAC/MSQ direction of all strikes in Laos.

Also in January, a conference was held at Udorn to discover methods of "improving capability for combating infiltration through the Laos Panhandle. Considerable attention was focused on coordinated air action against enemy

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truck movements and expanded road watch/ground reconnaissance effort".^{22/}

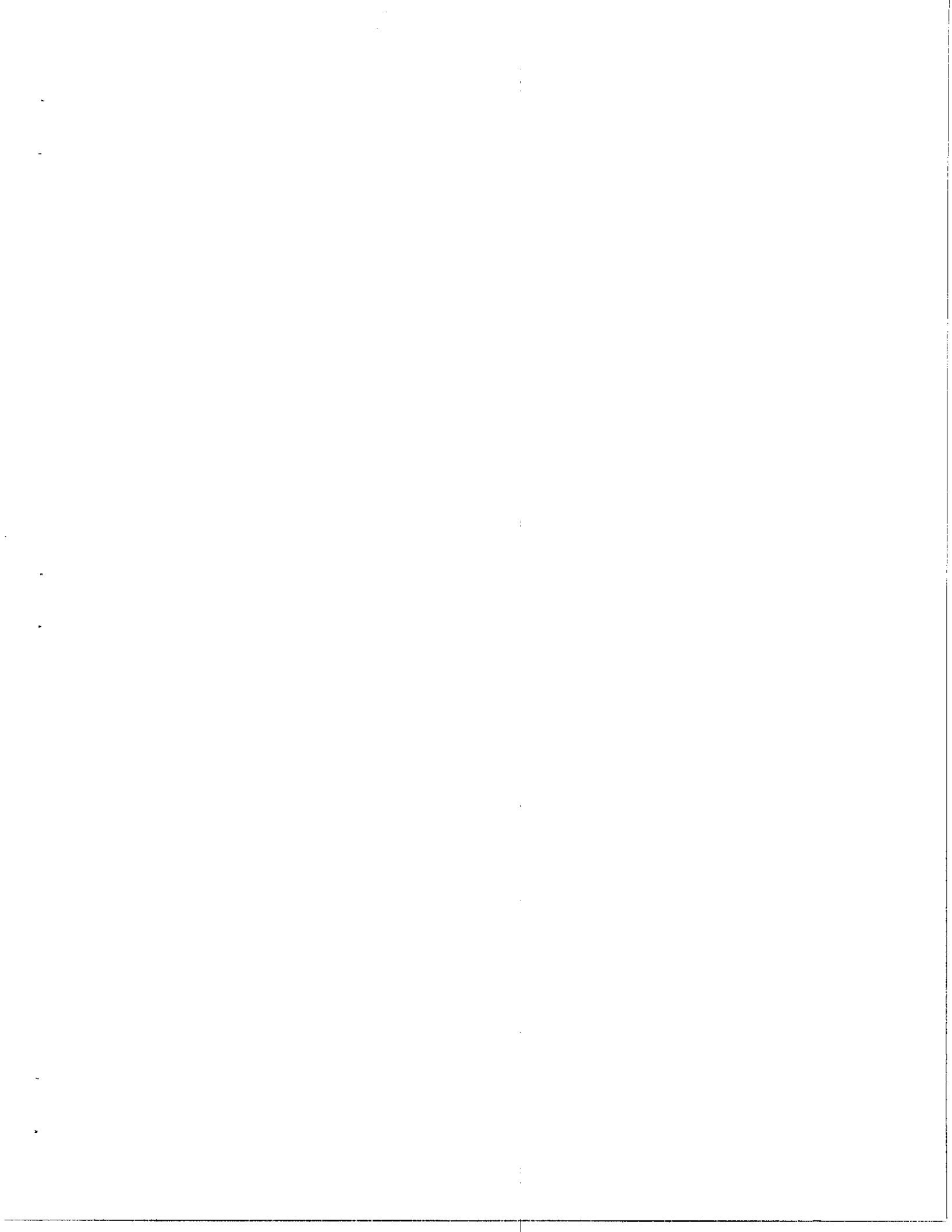
It has already been shown that enemy traffic moved along the LOCs primarily at night. Data from Appendix I indicated that, in 1967, 33 percent of the strikes in Laos were conducted at night. In the first half of 1968, 29 percent of the attacks occurred during darkness. A number of factors, however, bore upon what might seem an apparent incongruity. First, not all the Laotian effort was directed against truck traffic. Bridges, road cuts, structures, and storage areas were other targets.

Secondly, to use the maximum capability of airpower available in-theater, it was important to be able to shift strikes from one area to another. The campaign against the upper Route Packages of NVN was almost wholly a daytime effort. When NVN had bad weather, generally from October through April, there was a great advantage to be gained through the shift of these strikes to Laos, rather than have them return to their bases unexpended. In January 1967, USAF diversions from ROLLING THUNDER to STEEL TIGER amounted to about 30 percent of the total sorties for that month.^{23/}

Finally, while considerable effort was exerted to strike targets moving at night, it was patently evident that attacks against them might be more lucrative if they could be caught during daylight, immobile in their parks.

Therefore, the matter of increasing the effectiveness was, in essence, a two-fold problem. The first involved methods of employment. Techniques in applying the limited amount of air available could be revised, reinterpreted, or applied in altogether new ways. The SLAM operation was an example

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of the last method. This represented the tendency to try to weld all available assets together for heightened effectiveness. B-52s, Tac Air, FACs, ABCCC, psychological warfare, and ground teams were combined in the strike phase.

Another example occurred in March 1967. Termed the "Hub and Wheel Concept", B-52s conducted night attacks against likely choke point areas, at or near vital road intersections; this was the "Hub". Subsequently, VR/FAC aircraft worked on the "Spokes" of the wheel--those routes proceeding into or from the choke point. Hoping to find lucrative targets blocked by the strikes at the "Hub", FACs would call in Tac Air which was airborne nearby. To supplement the B-52s, C-130 or C-123 flareships were used in conjunction with A-26s and USAF T-28s to hit at night.^{24/} This was a version of the hunter-killer team concept.

But although available resources were and could be used in new forms, the key to increased effectiveness in the interdiction campaign rested in target acquisition. If targets could be found in the Laotian environment of twisting roads, bad weather, obscuring vegetation, and nighttime movement, airpower could more effectively attack them.

Target Acquisition

The three main areas of emphasis in acquisition involved FACs, RWT, and the establishment of the STEEL TIGER Task Force (SLTF), which evolved into Task Force Alpha with the MUSCLE SHOALS/IGLOO WHITE system.

In a message to COMSEVENTHFLT in February, CINCPACFLT remarked on strikes in Laos which were guided by USAF FACs:^{25/}

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"It is realized that airborne FACs provide the most effective means of coordinating interdiction against the flow of enemy war materials into SVN. Accordingly, all diverts into Laos should continue utilizing FAC control as a primary source of tgt (target) acquisition."

FACs, generally in low and slow liaison aircraft, O-1s and then O-2s, were the heart and soul of the USAF interdiction program. After visually acquiring targets and contacting the orbiting ABCCC to call in aircraft, the FACs directed the strikes. It was a rarity, however, to see trucks moving in Laos in daylight; ^{26/} they moved at night. The rugged terrain, enemy air defenses and tactics, heavy vegetation, weather, and darkness aided the enemy and were detrimental to the FAC program.

Artificial illumination was one method of assisting night target acquisition. C-130 and C-123 flare/FAC aircraft were among those used at night to find traffic and direct strikes. ^{27/} However, as soon as truck convoys became aware of the flares or aircraft presence, they stopped or even pulled off the road. ^{28/} Furthermore, as the 7AF Improvement Plan of 23 April 1968 noted: ^{29/}

"...the enemy is effectively using saturation tactics by running large convoys with trucks spaced far enough apart so that only one truck can be attacked at a time. Because of airspace required for a night strike, only one or perhaps two strikes can be conducted at a time on the convoy. Meanwhile, the other trucks evade and are lost by the FAC or strike/attack pilot."

Some improvement in the night VR program in Laos was gained by the introduction in February 1967 of the Starlight Scope. ^{30/} This aid permitted visual acquisition on bright, moonlit nights or when trucks used low headlights. After spotting the target and calling the ABCCC for aircraft, the target area was

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flared and the scope was used to direct strikes.^{31/} Fuller effectiveness of this method was hindered by the short supply of the scopes, so it was not until the 1967-68 dry season that results increased. The increase can be illustrated by comparing night data for 30 Nov - 2 Dec 1966 with the same period in 1967:^{32/}

<u>Trucks Sighted</u>	<u>30 Nov - 2 Dec 66</u>	<u>30 Nov - 2 Dec 67</u>
Visually	20	30
Starlight Scope	-	597
Destroyed	8	83

Night VR activities by an O-2 in southern TIGER HOUND were described in a 7AF Intelligence publication in June 1968 as follows:^{33/}

"Because of the mountainous terrain and the lack of TACAN equipment, visual reconnaissance altitudes along Route 110 (in the southern area of TIGER HOUND) are 6,500 feet MSL; along Route 96 (in the north) altitude for VR is 7,500 feet MSL. When the FACs are able to fix their position over a particularly lucrative choke point, virtually all visual reconnaissance and strikes are conducted between 3,000 and 5,000 feet AGL because of the many active ZPU (heavy machine-gun) and 37mm anti-aircraft guns usually present near these targets. At night with one pilot flying and the other using the Starlight Scope (light-intensifying viewing device), VR is conducted by using dead reckoning navigation to a known starting point and circling until the man with the scope picks up the road. Visual recce is then conducted by flying along the left side of the road and circling when promising areas are spotted...Flares are not normally used for VR."

FACs could then control attacks in darkness by verbally guiding strike aircraft, while viewing the target through the scope. Sometimes, they flew over the target and turned on their navigation lights to indicate the target. Either C-130 or other flareships could be used to light up the target area,

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while a FAC marked it for strike aircraft.^{34/}

The operating rule of March 1967, which necessitated FAC/MSQ control of all strikes, did not substantially hurt night VR capability; however, it was detrimental to daytime VR. Most night strikes had already been FAC-directed.^{35/} However, in the day, FACs were too busy controlling strikes for extensive VR. More FACs was the answer. Other airborne systems which were used were Side Looking Airborne Radar (SLAR) in Army recon aircraft, Infrared, and a Low-Light Television (LLTV). The latter was installed in two A-1s and two B-57s and test programs in Laos were carried out under the nickname, Tropic Moon, in 1968. Bad weather during these tests made the results inconclusive.

RWTs were another source of target acquisition; however, they did not operate as FACs. Their function was to report on truck traffic. Developments in this task were directed to improve their observations by moving them to more lucrative areas, and improving communications to enhance the timeliness of the intelligence which was forwarded. The reports were known as Peacock Reports.

Concern was generated in early 1967 about the overall value of the RWT concept, and steps were begun to make the reports and subsequent reactions faster. Until July, Peacock Reports were forwarded to the SLTF, an extension of the 7AF Command and Control organization which was located at Nakhon Phanom RTAFB. The SLTF offered an opinion of the RWT operation at the end of March:^{36/}

"Peacock Reporting should be continued. We are definitely interested in any information, data collection, or system which contributes to improved truck kill rate. Discussion with CAS

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at 7/13th meeting 25 March appeared to contribute to mutual understanding of operational limitations in responding effectively to reports. CAS representative has obtained data regarding best operational areas for Starlight Scope and attacks. Believe CAS is in process of determining possibility of relocating teams to best exploit those areas. If this action jells we should realize improved results."

Reports initiated by RWT were evaluated at Nakhon Phanom for timeliness. Those received within one hour of submission time were forwarded to the night ABCCC, Alley Cat, along with a suggested intercept point for the truck targets. If the intercept point was in an area not permissive to strike on flare operations, consideration was given to establishing a COMBAT SKYSPOT (MSQ) target in advance of the traffic, based on an average 10-km-per-hour speed of the convoys. Reports over one hour old were also evaluated and passed to the ABCCC, if they contained significant data. ^{37/}

At this time, April 1967, the Alley Cat mission was being flown by RC-47s based at Udorn. An additional radio was placed on the aircraft to facilitate direct communications with the RWT, and speed up the reports. CAS began a program to inspect and repair the RWT field radios and RWTs were positioned on the north-south axis of Delta and Echo sectors of STEEL TIGER. However, because the RC-47 could not contact all RWTs at once, an elliptical orbit was established with scheduled contact times for each team. ^{38/}

To eliminate the delays in reporting associated with the large, slow orbit of the RC-47, CAS in June 1967 proposes sending RWT reports to AIRA at Pakse or Savannakhet, and thence via relay through the 7/13th TACC at Udorn to Alley Cat. ^{39/} This was to be an interim measure, because plans were already

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being made to replace the ABCCC RC-47s with EC-130s in July. It was suggested that the RC-47s be maintained in a night mission of radio relay aircraft (RRA) between RWT and the EC-130 ABCCC, after the EC-130s replaced them. This was done in July 1967.^{40/} The language barrier was another obstacle which had to be overcome. Many of the RWT were comprised of foreign nationals. There were no Americans available with a speaking knowledge of the Laotian language. This problem was eliminated eventually by equipping the RWT with special transmitting equipment (Hark I). With this innovation, the activity observed by the RWT could be relayed electronically to the orbiting RC-47 without the need for verbal transmissions. This information was then relayed to the ABCCC. Later, a Lao-speaking Thai was placed on the EC-130 to orally interrogate the RWT about supplies and team needs.^{41/}

Additionally, coordination between 7AF and the U.S. Ambassador was maintained to more effectively position RWTs in Laos according to suspected lucrative areas and to accommodate the shifting airstrike resources.^{42/}

One of the most significant innovations which occurred in the development of U.S. airpower in Laos from 1 January 1967 to 30 June 1968 was the evolution of the MUSCLE SHOALS system, known as IGL00 WHITE after May 1968. This system was designed to use specialized aircraft, munitions, sensing devices, and related equipment to suppress and impede the enemy flow of men and supplies through Laos.^{43/}

On 6 March 1967, in response to the increasing enemy activity and to allow for the programmed increase of USAF operations in STEEL TIGER (among

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them MUSCLE SHOALS), a command and control element of 7AF was set up at Nakhon Phanom RTAFB. This element was called the STEEL TIGER Task Force, and its mission was to provide an on-the-scene agency responsible to the Directorate of Combat Operations at 7AF for decisions in the STEEL TIGER North area.^{44/}

The SLTF Commander was to "effect" operational control and supervision of 7AF forces made available for strikes in STEEL TIGER. Overall direction and control of these offensive forces remained at 7AF at Tan Son Nhut AB, RVN.^{45/} In carrying out its duties, the SLTF functioned less as an operational control agency than it did as a coordinating and analyzing extension of 7AF.

The Task Force was collocated in the 56th Air Commando Wing (ACW) TUOCC at Nakhon Phanom (NKP). It provided changes in tactics and operational guidance to forces operating from NKP. In particular, a number of directives were issued to help tactical units at NKP adjust to the increased effectiveness of the enemy air defenses in STEEL TIGER North in April 1967.^{46/} A major task which the SLTF performed was supplying 7AF with advice and near-real-time intelligence on which decisions could be based.^{47/}

In the fall of 1967, as enemy traffic began picking up once more through STEEL TIGER, the SLTF was absorbed into a new organization, Task Force Alpha (TFA). The operations order describing TFA functions stated:^{48/}

"Task Force Alpha...at Nakhon Phanom AB, Thailand is responsible to 7AF for strikes and situational analysis in the STEEL TIGER area and for special operations as directed by the Commander, 7AF. Certain daily strike, support and photo recce sorties

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will be fraged for use by the 7th Air Force Task Force Commander. The 7AF DOCC (DCS Operations Command and Control) and ABCCC will insure close coordination with the 7AFTF (TFA) prior to diverting any of those sorties from the STEEL TIGER area."

Task Force Alpha also managed the MUSCLE SHOALS, later IGLOO WHITE, system from two facilities at NKP. These were the Infiltration Surveillance Center (ISC), which housed an automated data processing system, and the Task Force Operations Center. MUSCLE SHOALS was designed to augment the overall interdiction effort in STEEL TIGER. It consisted of an air-supported anti-personnel subsystem termed Dump Truck and an air-supported antivehicular subsystem called Mud River. As one PACAF publication outlined:^{49/}

"The concept of operations includes use of air dispensed mechanical and electrical sensors emitting signals or sounds (including voice pickup) to continuously airborne EC-121 aircraft for relay to an Infiltration Surveillance Center (ISC)...The signals are relayed to the ISC both manually and automatically. When received, the Alpha Team will analyze the sensor information and request strikes from the on-station C-130 Airborne Command Control Communications Center (ABCCC) or the 7AF TACC."

If there were a FAC available, the ABCCC followed up the report (Spotlight Report) by sending a FAC to confirm the target; and, if he could confirm the target and strike aircraft were also on hand, the FAC directed the strike.

The 7AF COA Report 68-1 of 1 July 1968, on "Air Interdiction in Laos (IGLOO WHITE Final Evaluation Report)" included data through 1 May 1968. This evaluation proposed various parameters against which the system was measured, as stated in the following section extracted from the report:^{50/}

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"IGLOO WHITE Effectiveness

"The information output of the IGLOO WHITE System in the Anti-vehicular area (Mud River) produced a general picture of truck movement that was accepted and acted upon by the Intelligence Surveillance Center (ISC) personnel who recommended strikes against specific moving truck targets and truck park areas.

"A comparison of the ISC output with visual observation from FAC aircraft has been used as a basis for judgments on the quality of this ISC output. Specifically:

"1. The general levels and distributions of truck traffic in Mud River as derived from the ISC output compares favorably with visual sightings results.

"2. The validation of the individual target recommendations by a FAC aircraft gave an average 35% confirmation rate. Actually 44 percent of the 'spotlights' passed were investigated; of these 35 percent were confirmed. There remain difficulties in relating this figure to system reliability. The validity of secondary information such as direction of movement, speed, and numbers of trucks per convoy are less well founded.

"IGLOO WHITE information was used by 7AF to (a) augment other intelligence means to develop trends and traffic patterns; (b) to aid in the identification of active truck parks; and (c) to provide immediate target information for strikes on moving trucks. Findings relative to these uses are:

"1. The general intelligence contribution of IGLOO WHITE is felt to have been valuable although this is difficult to quantify. Several examples where IW information played an identifiable and unique role can be cited.

"2. The use of IW in developing truck park targets improved throughout the season. Intensive efforts in April and May to develop truck park areas based on traffic patterns and specially implanted sensors in park areas became the basis for B-52 targeting of the parks.

"3. A detailed analysis of the use of IGLOO WHITE in directing immediate strikes yielded the following results:

"(a) The simple approach of forwarding every detection as a 'spotlight' report and attempting to place ordinance on the indicated target DID NOT improve the truck kills.

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"(b) There was room for improving the efficiency of strike aircraft utilization. The ISC output can be used more selectively to define the more lucrative targets for air strikes; simulation results tend to show this could provide an improvement in results. Steps to use IGLOO WHITE in a fuller 'Battle Management' role started in April."

It was apparent that the transmission to the ABCCC of every Spotlight Report was not improving the reliability of the system. The system, as others, was suffering from the enemy tactics of saturation. Commenting on this overall problem and relating it to the limited airpower available, the 7AF Force Improvement Plan stated that "the frequency of sightings is increasing beyond the resources available to 7AF to strike them"^{51/}. Furthermore, as noted earlier, 44 percent of the potential targets spotted and passed by MUSCLE SHOALS/IGLOO WHITE were sought by FACs; of these 35 percent were confirmed. This amounted to about 15 percent of the total being confirmed (35 percent of 44 percent). This result did not enhance the "credibility" of the system, when it was also demonstrated that FACs could develop as many targets by themselves as were found and confirmed via the sensor system.^{52/} Therefore, beginning in April 1968, the operators of the system practiced more selectivity and, instead of passing individual sightings, passed those determined by an aggregate of indications--for example, a convoy, not a truck.

This change, as well as others which were proposed, was incorporated in the enlarged "Battle Management" concept, mentioned previously. Begun on a trial basis, this idea consisted of:^{53/}

- Rescheduling aircraft to better match expected traffic.

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- Establishing a partial ground alert on a trial basis.
(This was three A-26s on alert during the early evening.)
- Initiating an extensive road cutting program.
- Modifying procedures in TFA to better exercise the ISC output in a broader role.

While previous methods of interdiction had resulted in an estimated 10 percent kill rate of the trucks which transitted the area, it was hoped these improvements would boost the rate to 13 - 15 percent. ^{54/}

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CHAPTER V

AIRPOWER RATIONALE AND RECOMMENDATIONS

This chapter concerns three issues which provide excellent examples of the rationale revealing the manner in which the air war in Laos was waged.

These are:

- Use of propeller aircraft as opposed to jets.
- Desires of the U.S. Ambassador to Laos and Seventh Air Force responses.
- Task Force Alpha as a command and control element.

These issues offer three views of what is essentially the question of how airpower should be applied. They also demonstrate high level concern that the airpower which was available was used in the most effective manner.

Props vs Jets

On 19 December 1967, a study was sent to the JCS by the Secretary of Defense which affirmed that propeller aircraft were nine times more effective per sortie in destroying trucks and water craft. Drawn from data taken from the first nine months of 1967, the study pointed out that in that period jets destroyed or damaged 366 moving vehicles, at a rate of 1.5 per 100 sorties. The cost was established as averaging \$700,000^{1/} for each truck and water vessel damaged or destroyed.

By contrast, prop aircraft had destroyed and damaged 996 vehicles, or demonstrated a rate of 12.8 destroyed or damaged vehicles per 100 sorties. Hence, the cost, in the case of the prop, was \$55,000 per vehicle. It was

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recognized, however, that the prop aircraft loss rate was four times higher than the jet.

It was deduced, therefore, that it would be possible to substitute two A-1 squadrons for two F-4 squadrons in Thailand "without reducing the jet sorties available for use in North Vietnam". The authors of the study estimated that this change could result in the damage or destruction of an additional 1,200 moving vehicles in Laos over a 12-month period. Proponents of this plan estimated that it could save \$28 million per year. But it was also admitted that probably an additional 18 planes and eight pilots would be lost as a result of the proposed plan.^{3/}

JCS was required to reply to the proposal by 29 December, and the question was passed for comment down the chain of command with correspondingly shortened suspense dates.^{4/} The COMUSMACV, 7AF, and PACAF replies were based on a December study by the analysis section of 7AF (DOA) contrasting the value of props as compared to jets.^{5/}

The findings were best summarized in a message from CINCPACAF to CINCPAC on 23 December 1967:^{6/}

"...from an operational standpoint, consider such a tradeoff undesirable primarily because of the reduced flexibility that this force would provide.

"...Primary effectiveness in air operations to reduce the flow of materials to SVN is achieved by striking as close to the source as possible. It is of course essential to keep the rolling stock and material that has infiltrated throughout the system under attack but whenever we have the choice, our primary emphasis must be to stop or destroy this equipment before it is

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dispersed throughout the maze and mesh of highways, roads, and trails in NVN and Laos.

"...To attack at the source requires a force that can operate in the highly defended areas of Hanoi and Haiphong at maximum strength whenever the weather permits such activity.

"...In view of the necessity to have maximum forces available to exploit all breaks in the weather, we cannot afford the luxury of highly specialized squadrons which are capable of only killing trucks in relatively undefended areas. The commander should have the flexibility inherent in his forces to employ them where they are most needed in each particular situation. The only aircraft that provides a capability of this type in NVN/Laos is the jet fighter aircraft.

"...In order to take advantage of the marginal weather which prevails over the northern areas for extensive periods, we are forced to schedule maximum efforts into these areas, realizing in advance that it is highly probable that they will divert. These diversions are planned to make up a portion of the attack forces in RP I and Laos. However, because these aircraft are weaponeered for maximum effectiveness against hard targets and because they normally can only stay in Laos for short periods (15 minutes), their effectiveness against trucks is reduced. This accounts for some of the relatively poor results when these attacks are compared with the A-1 which is weaponeered and scheduled for this one purpose. We accept this poor truck killing configuration in order to retain the most effective effort against the primary targets in the north and to maintain maximum presence over the LOCs in Laos. If we were willing to assign the F-4s to a truck killing role only, relative effectiveness would improve. However, with the limited jet forces available, we cannot afford this luxury.

"...There is no argument that the A-1 has been relatively more efficient in the truck killing role in Laos. However, it should be pointed out that the operations are (confined) to one small part of the overall problem. They cannot attack at the source of the supplies and cannot contribute to the second essential requirement of attacking throughout the length of the LOCs from Hanoi/Haiphong through NVN into Laos. The A-1 cannot operate even in RP I. Therefore, this secondary requirement also requires a large force of jet-propelled aircraft because of the heavy defenses in this area.

"...If we view the problem only (in) Laos, we are confronted with

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to you, as diversions from other targets, or as aborts from Vietnam strikes. Nor would it, we would expect, dispose you in any fashion against rapid response with other resources to immediate emergencies or the need for 'package strikes' when lucrative targets develop in Laos."

Particularly, the Ambassador stressed that: ^{20/}

"...it would not eliminate the need for special jet packages to be used against hard targets and troop concentrations which cannot be hit by prop driven aircraft."

Seventh Air Force opposed the "dedication" of the 56th ACW. In a number of messages in late February, the reasons for the opposition were detailed. They are summarized in the following message of 28 February from CINCPAC to JCS. CINCPAC concurred with 7AF opposition on the grounds that there were: ^{21/}

"...increased pressures from other military areas, and the limited Tac Air resources available precluded specific allocation of 'dedicated' attack sorties to Laos in the quantities desired..."

"The position...is sound and basic to the principle of effective use of air resources. The necessity for maintaining flexibility to meet the varying tasks in support of our objectives in SVN, NVN, and Laos precludes the dedication of any portion of Tac Air resources... (Flexibility was needed to permit the concentration of air)...in Laos or elsewhere when the need is critical."

"Target nominations in Laos are considered in conjunction with target nominations from other areas in the primary allocation of available strike sorties. Air attack sorties have been and will continue to be provided as necessary to meet situations in Laos."

"MUSCLE SHOALS operations require that a greater part of the sortie capability of the A-1 squadron at Nakhon Phanom be used at this time against MUSCLE SHOALS generated targets."

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Tactical air effort in addition to the A-1 assets in Laos has been provided by the increased use of the A-26s and other assets. Although additional A-1 assets will become available for use in SE Asia with the closure of an approved Program Five A-1 squadron at Pleiku in Mar 68, flexibility in the use of this squadron is necessary in order to realize the most effective employment of these assets.

"The requirement for Tac Air support in Laos is recognized and targets nominated will be given due priority. However, there are not sufficient assets available in SE Asia to permit the designation of a dedicated wing or squadron for exclusive use in Laos or elsewhere. Tac Air assets must remain flexible to ensure that they are available for use when and where most needed."

While the issue of the dedication of the 56th ACW was, in effect, closed, the problem of finding additional air support continued. The increasing deterioration of the Laotian ground situation, in particular the threats to Sites 85 and 36, continued to prompt the Ambassador to seek additional regularized air support. ^{22/}

Plans underway to increase the number of A-1s for Laotian operations and the cessation of bombing in NVN above 20° North, by Presidential order, created altered conditions for Laos. Significantly, the fact that USAF strikes were no longer sent to the northern parts of NVN eliminated a considerable number of divers which had, in the past, been sent to northern Laos.

Therefore, in May 1968, the Ambassador to Laos resumed his efforts to get more air. Now, he requested 35 strike and two flare sorties in northern Laos and 30 strike sorties in south Laos daily. He preferred propeller aircraft, but would accept jets, if they were the only kind available. At that time, 7AF provided from 35 to 39 strikes daily (not counting those associated with normal SVN infiltration strikes) to Laos. Additional sorties were sent

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to respond to Vientiane requests and emergencies. ^{23/}

In a 25 May message, 7AF commented on the Ambassador's request and the need for two additional A-1 squadrons. The contents of the message stressed that the projected increase was needed for many tasks, not only for the Ambassador: ^{24/}

"...The daily requirement of 65 sorties is considered excessive and more than can be efficiently utilized on a day-to-day basis, especially during the Southwest Monsoon. However, the requirement for support of RLG counterinsurgency operations are only part of current operations for which A-1s can be utilized and are needed. Validation of the requirement for the two additional A-1E squadrons is based on the total 7th Air Force mission requirement...."

"Current 7th Air Force support and capabilities as indicated... (35-39 sorties)...can be provided on a continuing basis as long as the bombing restriction above 20 degrees north remains in effect. If the restriction were to be lifted, adjustment would probably be required. However, some mixture of propeller and jet sorties could be provided with the mixture depending upon the availability of the additional A-1 squadrons and other factors such as enemy defenses."

On 28 May 1968, Secretary of State Dean Rusk supported the Ambassador's request for "assured" tactical air missions. It was significant to note that, while 7AF had been wary of committing additional air on a regularized basis in case bombing in the north might be resumed, the Secretary took an opposite view. ^{25/}
To the Ambassador he stated:

"...We also note your need for propeller driven act (aircraft) primarily in support of counterinsurgency operations and to be supplemented by high performance aircraft against targets for which latter are peculiarly more capable. Additional argument in favor of augmentation U.S. prop capability especially for missions in north Laos is that if there should be complete cessation of bombing of NVN, we anticipate jet assets will

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need concentrate on targets in HCM (Ho Chi Minh) Trail area. If we wish RLG to accept such concentration with its obvious political liabilities for Laos, U.S. should be prepared to satisfy RLG's own needs in northern Laos.

"Assume... (revalidation of justification for the two A-1 squadrons)... is proceeding smoothly and that recommendation will be to increase prop sorties for your needs. Please keep us informed so that we may lend appropriate support from this end as required."

On 1 June 1968, in a message to JCS, CINCPAC summarized the events which had transpired in the issue and affirmed: ^{26/}

"Forces requested... are considered adequate to fully support the stated counterinsurgency requirement. The two A-1 squadrons, four A-26 aircraft, and four C-123 aircraft would provide 7th AF with an increased capability in conjunction with jet aircraft (and) would provide the desired sortie mix to meet the requirements."

Through the remainder of the period of this report, the issue remained in abeyance. The projected increase had not been approved by the Office of the Secretary of Defense. As a result, the sortie rate for the Ambassador did not increase substantially.

TFA, Command and Control Element

As has been covered, one of the reasons the SLTF was established in March 1967, was to serve as a forerunner to TFA and the MUSCLE SHOALS operation. According to the operations order, the SLTF was to function as a command and control element which would operate with near-real-time intelligence. However, this task force did not exercise operational control over aircraft striking in STEEL TIGER. It was to "effect" operational control. While the SLTF Commander

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mention but a few of those competing for air support. Each individual or task has a responsible and well meaning sponsor, intelligently and forcefully driving for more air support in his particular area of responsibility.

"The dedication of strike forces to make MUSCLE SHOALS a self-contained operation was discussed at the outset and shelved... (the system and concept were new, with many attendant problems. A detailed analysis and evaluation followed every phase of its progression. While a final analysis was not complete)... the potential value of this system is encouraging as a supplement but certainly not as a substitute for the overall interdiction program. In my judgment, the time has not arrived to allocate strike assets to Task Force Alpha because of the need to retain centralized control of my limited air resources to meet the demands of the overall campaign and future contingencies like Khe Sanh, NEUTRALIZE, and the Tet offensive...."

This letter described plans that were well along in development to provide 7AF with automated subsystems which would offer a near-real-time command and control capability. The system would be completed before an adequate capability could be established at TFA. ^{34/}

The Commander, 7AF, also offered a clear summarization of his views: ^{35/}

"...It has long been my desire to centralize air resources, management tasking and decision-making at my Command Center. This will soon be a reality with the assistance of automated systems which will permit me and my staff to selectively monitor all air operations and the MUSCLE SHOALS activity. All necessary air, not just a dedicated force, can then be quickly switched via ABCCC to exploit lucrative targets developed by the Infiltration Center, FACs, or any other intelligence collection source. This centralized control and ability to quickly concentrate forces is not possible if the available strike force is fragmented, or if numerous control centers are used to direct operations in individual sectors of responsibility.

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