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**CHECO**  
SOUTHEAST ASIA  
**REPORT**

**INTERDICTION AT BAN BAK**  
**19 DEC 70 5 JAN 71**

**SPECIAL REPORT**

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**PROJECT**  
**C**ontemporary  
**H**istorical  
**E**xamination of  
**C**urrent  
**O**perations  
**REPORT**

**INTERDICTION AT BAN BAK**  
**19 DEC 70 TO 5 JAN 71**

**26 JANUARY 1971**

**HQ PACAF**  
**Directorate of Operations Analysis**  
**CHECO/CORONA HARVEST DIVISON**

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**Prepared by:**

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**Project CHECO 7th AF, DOAC**

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14. ABSTRACT Project CHECO was established in 1962 to document and analyze air operations in Southeast Asia. Over the years the meaning of the acronym changed several times to reflect the escalation of operations: Current Historical Evaluation of Counterinsurgency Operations, Contemporary Historical Evaluation of Combat Operations and Contemporary Historical Examination of Current Operations. Project CHECO and other U. S. Air Force Historical study programs provided the Air Force with timely and lasting corporate insights into operational, conceptual and doctrinal lessons from the war in SEA.					
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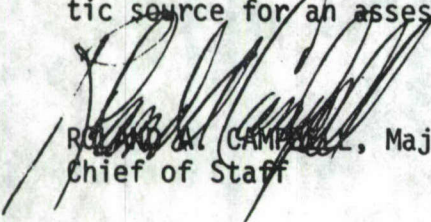
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The counterinsurgency and unconventional warfare environment of Southeast Asia has resulted in the employment of USAF airpower to meet a multitude of requirements. The varied applications of airpower have involved the full spectrum of USAF aerospace vehicles, support equipment, and manpower. As a result, there has been an accumulation of operational data and experiences that, as a priority, must be collected, documented, and analyzed as to current and future impact upon USAF policies, concepts, and doctrine.

Fortunately, the value of collecting and documenting our SEA experiences was recognized at an early date. In 1962, Hq USAF directed CINCPACAF to establish an activity that would be primarily responsive to Air Staff requirements and direction, and would provide timely and analytical studies of USAF combat operations in SEA.

Project CHECO, an acronym for Contemporary Historical Examination of Current Operations, was established to meet this Air Staff requirement. Managed by Hq PACAF, with elements at Hq 7AF and 7AF/13AF, Project CHECO provides a scholarly, "on-going" historical examination, documentation, and reporting on USAF policies, concepts, and doctrine in PACOM. This CHECO report is part of the overall documentation and examination which is being accomplished. Along with the other CHECO publications, this is an authentic source for an assessment of the effectiveness of USAF airpower in PACOM.

  
RONALD A. CAMPBELL, Major General, USAF  
Chief of Staff

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*Maurice L. Griffith*  
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  - (d) DREA. . . . . 1
  - (e) IN. . . . . 1
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    - 1. DOO. . . . . 1
    - 2. IN. . . . . 1
  - (b) T9AF(IN). . . . . 1
  - (c) USAFSOF(DO) . . . . . 1
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  - (b) 23TFW(DOI) . . . . . 1
  - (c) 27TRW(DOI) . . . . . 1
  - (d) 33TFW(DOI) . . . . . 1
  - (e) 64TAW(DOI) . . . . . 1
  - (f) 67TRW(DOI) . . . . . 1
  - (g) 75TRW(DOI) . . . . . 1
  - (h) 316TAW(DOX) . . . . . 1
  - (i) 317TAW(DOI) . . . . . 1
  - (j) 363TRW(DOI) . . . . . 1
  - (k) 464TFW(DOI) . . . . . 1
  - (l) 474TFW(DOI) . . . . . 1
  - (m) 479TFW(DOI) . . . . . 1
  - (n) 516TAW(DOX) . . . . . 1
  - (o) 4403TFW(DOI) . . . . . 1
  - (p) 58TAC FTR TNG WG. . . . . 1
  - (q) 354TFW(DOI) . . . . . 1
  - (r) 60MAWg(DOOXI) . . . . . 1
- (4) TAC CENTERS, SCHOOLS
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  - (b) USAFTFWC(DRA) . . . . . 1
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  - (b) XPX . . . . . 1
  - (c) DM. . . . . 1
  - (d) IN. . . . . 1
  - (e) OA. . . . . 1
  - (f) HO. . . . . 1
- (2) AIR FORCES
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### c. MAC

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  - (b) DOO . . . . . 1
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  - (a) AWS(HO) . . . . . 1
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f. AFLC			
(1) HEADQUARTERS			
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g. AFSC			
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(b) XRLW.	1		
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(e) CSH	2		
(f) DLXP	1		
(g) ASD(ADJT)	1		
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(i) RADC(DOTL)	1		
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(1) HEADQUARTERS			
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i. AAC			
(1) HEADQUARTERS			
(a) ALDOC-A	1		
j. USAFSO			
(1) HEADQUARTERS			
(a) CSH.	1		
k. PACAF			
(1) HEADQUARTERS			
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(b) IN	1		
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(d) CSH.	1		
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1. CSH	1		
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(c) 7AF			
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2. IN	1		
3. XP	1		
4. DOCT.	1		
5. DOAC.	2		
(d) 13AF			
1. CSH	1		
2. XP	1		
(e) 7/13AF(CHECO)	1		
(3) AIR DIVISIONS			
(a) 313AD(DOI)	1		
(b) 314AD(XOP)	2		
(c) 327AD			
1. IN	1		
(d) 834AD(DO)	2		

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## (4) WINGS

(a) 8TFW(DOEA)	1
(b) 12TFW(DOIN)	1
(c) 35TFW(DOIN)	1
(d) 56SOW(WHD)	1
(e) 347TFW(DOOT)	1
(f) 366TFW(DO)	1
(g) 388TFW(DO)	1
(h) 405TFW(DOEA)	1
(i) 432TRW(DOI)	1
(j) 460TRW(DOI)	1
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(l) 1st Test Sq(A)	1

## (5) OTHER UNITS

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(b) 504TASG(DO)	1
(c) Air Force Advisory Gp.	1

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(b) DOLO	1
(c) DOO	1
(d) XDC	1

### (2) AIR FORCES

(a) 3AF(DO)	2
(b) 16AF(DO)	1
(c) 17AF(IN)	1

### (3) WINGS

(a) 36TFW(DCOID)	1
(b) 50TFW(DOA)	1
(c) 20TFW(DOI)	1
(d) 81TRW(DCOI)	1
(e) 401TFW(DCOI)	1
(f) 513TAW(DOI)	1

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## FOREWORD

On 19 December 1970, a truck park/storage area was discovered on the Ho Chi Minh trail in Laos that led to some of the most significant air strikes of the war in Southeast Asia. From 19 December 1970 to 5 January 1971, air strikes caused the largest number of secondary explosions from a single target complex in the history of air interdiction on the Ho Chi Minh trail. The loss of equipment and supplies adversely affected North Vietnam efforts to resupply their military forces in Southern Laos, Cambodia, and the Republic of Vietnam.

[REDACTED]

CHAPTER I

INTRODUCTION

On 10 October 1970, the United States Air Force (USAF) started its northeast monsoon (dry season) interdiction campaign called Commando Hunt V\*. The primary objectives of Commando Hunt V interdiction campaign are to reduce the flow of personnel and material into the Republic of Vietnam and Cambodia to the lowest possible level and to make the enemy pay an increasingly greater cost for his efforts to dominate Southeast Asia (Ref 7AF OPlan 715, 14 Sep 70, pg 6). Historically, the North Vietnamese intensify their resupply efforts during the northeast monsoon season, so that their combat units can operate with little or no material support from North Vietnam during the subsequent wet season when the enemy's logistic infiltration through Laos is severely affected by bad weather and muddy roads.<sup>1/</sup>

Intelligence sources estimated that the North Vietnamese would substantially increase--as compared to Commando Hunt I and Commando III efforts--their supply activities through Laos during the 1970-71 dry season. The enemy logistic system in Cambodia had been severely disrupted by the loss of the port of Sihanoukville early in 1970 and the RVNAF/US crossborder operations in May-June 1970. This required the enemy to increase his logistic resupply efforts on his one remaining

\* Commando Hunt I was the name for the dry season campaign of November 1968 through April 1969. Commando Hunt III covered the period November 1969 through April 1970.

[REDACTED]

infiltration route to Cambodia and Southern RVN, the Ho Chi Minh trail through Laos.<sup>2/</sup>

The Ho Chi Minh trail complex begins at four mountain passes along the North Vietnamese/Laotian border, Nape, Mu Gia, Ban Karai, and Ban Raving.<sup>3/</sup>

In October 1970, the North Vietnamese started to move supplies into Laos across the Mu Gia and Ban Karai passes,<sup>4/</sup> but traffic south of the passes remained light due to heavy rain and two tropical cyclones, Kate on 25 October and Louise on 28 October.<sup>5/</sup> As the enemy road maintenance crews repaired the road system and the rivers subsided, truck movements increased on the Ho Chi Minh trail. During November there was an average of 252 Igloo White sensor-detected truck movements per day but most of the traffic was in northern Steel Tiger. On 27 November, a high of 889 sensor-detected truck movements was counted. The total number of sensor-detected truck movements for November was 7564. During December 1970, the number of sensor-detected truck movements increased to an average of 665 per day. The highest daily total for the month of December was 1037 and the overall total for the month was 20,601.<sup>6/</sup>

When flooded the Xe Kong River acted as a barrier to the continued movement of the supplies down the Ho Chi Minh trail system. The Xe Kong had flooded in October and continued to carry an unusually high amount of water during November. Reliable reports indicated the North Vietnamese were storing large quantities of supplies to the north of the river,

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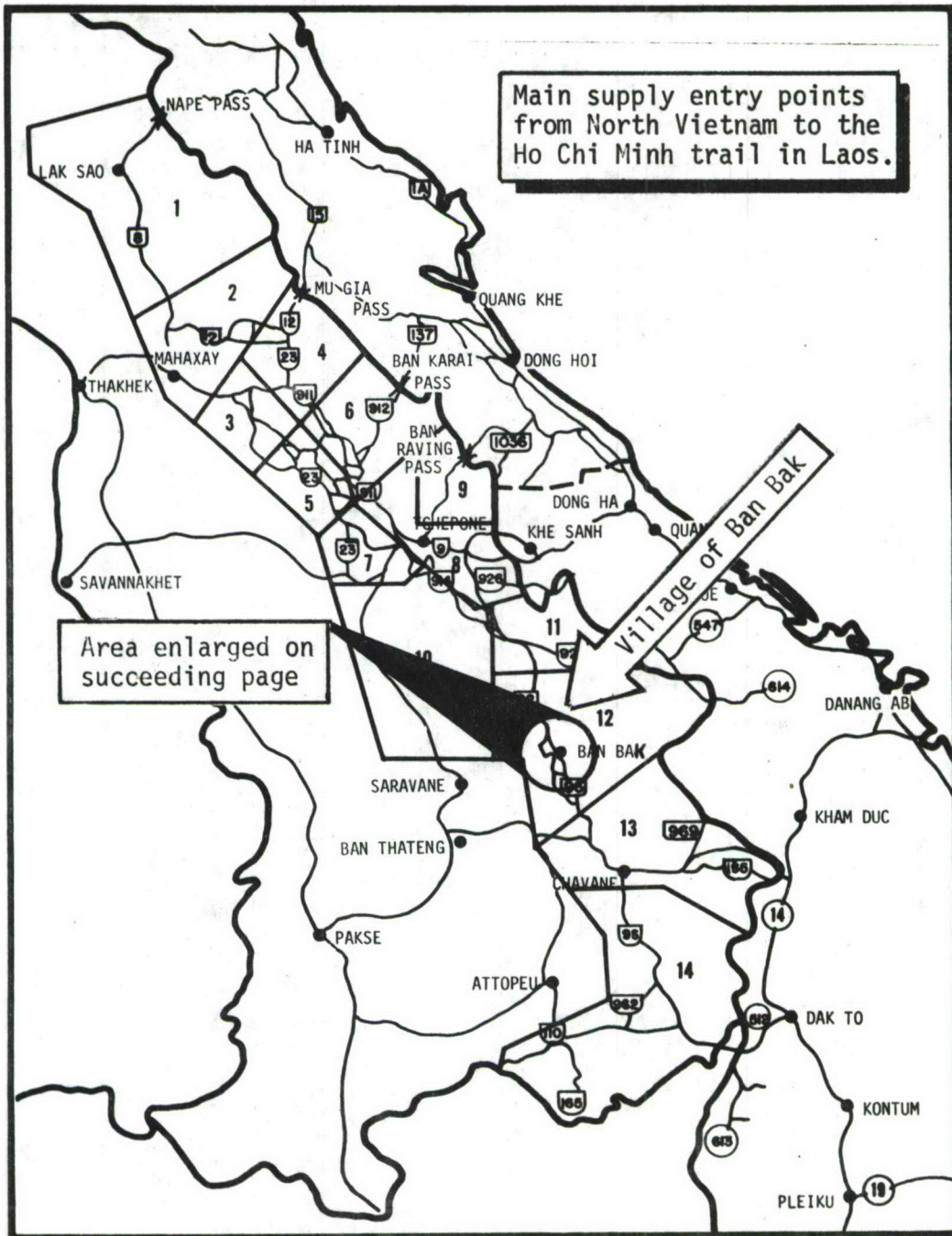
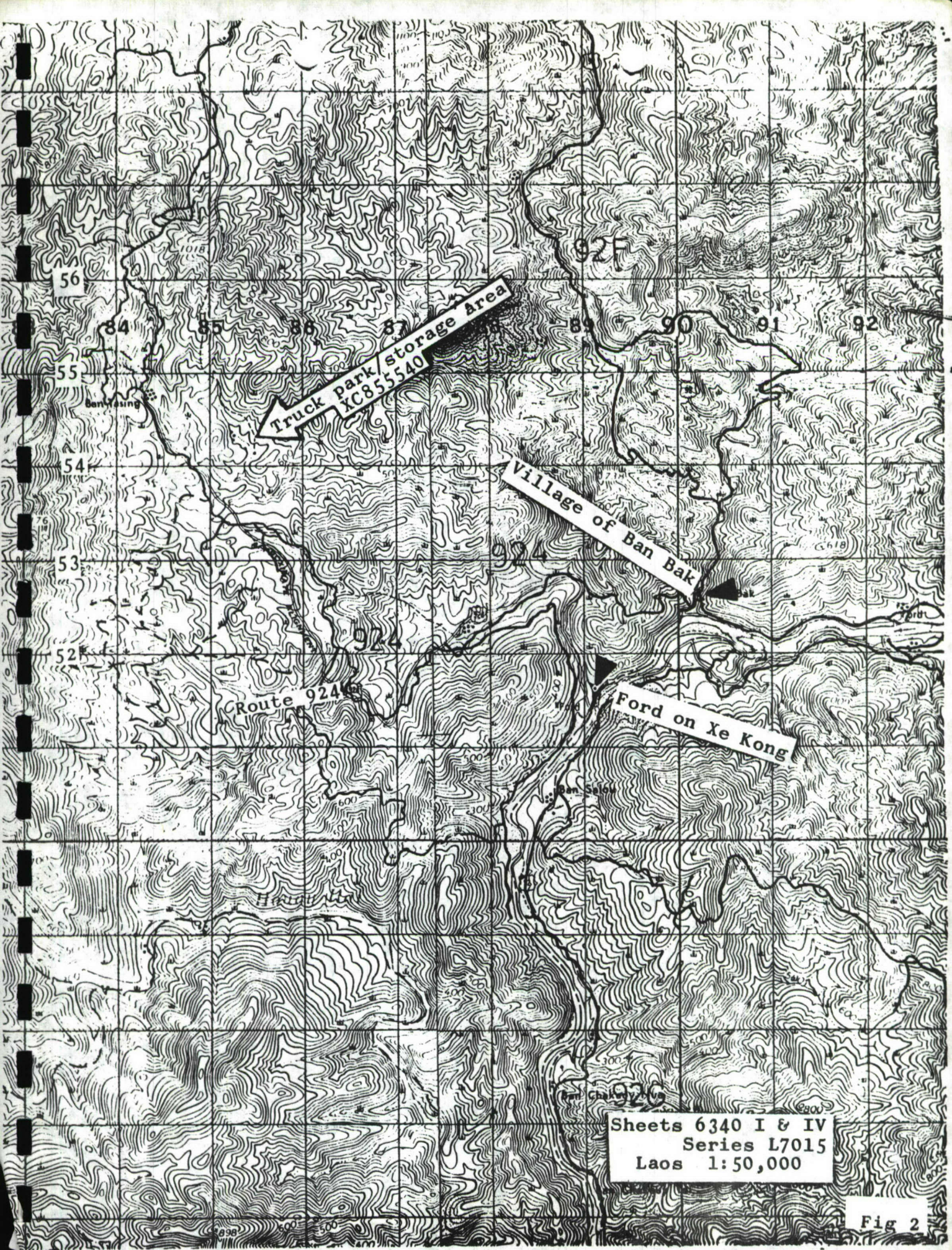


FIGURE 1

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Sheets 6340 I & IV  
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Laos 1:50,000

Fig 2

[REDACTED]

awaiting a time the Xe Kong could be forded. Studies of sensor-detected truck movement patterns, climatic conditions, and North Vietnamese supply procedures led 7th Air Force Intelligence to suspect that there was a major storage complex in the Ban Bak area. Similar indications had been noted during previous dry seasons. Between 1 September 1970 and 18 December 1970, 25 items of intelligence relating to targets in the Ban Bak area were received. Two pertained to points within one kilometer of the storage area eventually uncovered at Universal Transverse Mercator Map (See Figure 2) coordinates XC855540. One was a reconnaissance photo showing bunkers and a large open area containing supplies on 4 September 1970. The other was a 20 November 1970 report from a forward air controller of antiaircraft artillery fire and supplies on the side of the road. There were forward air controller (FAC) and photo reconnaissance reports of truck revetments, supplies, possible truck parks and storage areas located from one to seven kilometers away from the storage area with the majority being from two to five kilometers to the north. During November 1970, Igloo White sensors detected almost four times as many truck movements into the Ban Bak\* area from the north as departed it moving south.<sup>7/</sup> Intelligence signs indicated a major supply dump and storage area near Ban Bak and north of the Xe Kong River existed; the next task was to find it (See Figures 3 and 4).

\* The village of Ban Bak was 2.8 nautical miles east of the truck park/storage area and 85 nautical miles west of Da Nang Air Base, Republic of Vietnam.

~~SECRET~~

CHAPTER II

MORNING, 19 DECEMBER 1970

Shortly after midnight on 19 December 1970, an O-2 Covey\* Forward Air Controller (FAC) from the 20th Tactical Air Support Squadron (20TASS), Da Nang Air Base (AB), crossed the mountain range that paralleled the border separating Laos and South Vietnam. The pilot of the aircraft was First Lieutenant John R. Browning, who in a few days would complete his 100th FAC mission over Laos, and the navigator was Captain Norman J. Monnig. Both men were experienced in night FAC missions. Lieutenant Browning's call sign was Covey 281 and Captain Monnig, as navigator, was Covey Zulu.<sup>8/</sup> (See Figure 5)

At approximately 0100, the O-2 passed over the ford where Route 924 crossed the Xe Kong River. On the night before, Captain Monnig had sighted and directed a strike against a ferry operating near the ford. On the 19th, there was no activity in the ford.<sup>9/</sup>

The water level in the river had not dropped enough to allow trucks to cross by fording. The Covey FACs suspected that the river continued to act as a barrier complicating the movement of supplies further south by truck. Almost every night, Covey FACs counted 20 to 30 trucks moving south down the Ho Chi Minh trail through the "White Cliffs," a ridge area which served as an ideal land mark and interdiction point for air strikes.

\* The name Covey was given to the unit as a radio call sign and held no particular significance.



Reconnaissance photo shows secondary explosions and fires at Ban Bak truck park/storage area on 19 Dec 70. Notice triple canopy jungle. Road complex is Rte 924.

FIGURE 3

**CONFIDENTIAL**

0022

CONFIDENTIAL GP 4

CONFIDENTIAL GP-4

RTE 924

--- TRELLIS WORK

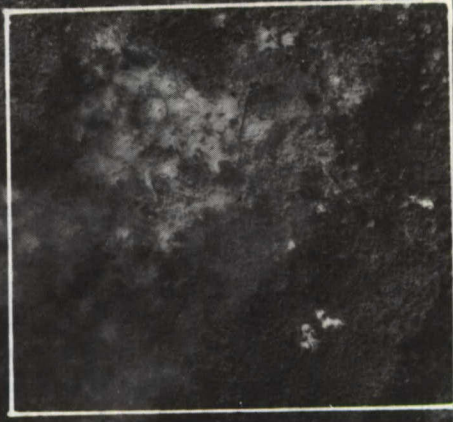


Photo depicts truck park/storage area near Ban Bak, Laos, Rte 924 is depicted center of page. Note run of trellis work from Rte 924 to truck park/storage area indicated by square.

"TAC RECCE" 14TRB  
19 DEC 70 TOT:1450H ALT:4.5M  
YE J3351 FRM:022LP (2X)  
BDA TRP/STOR AREA  
APRX 3MM NW BAN BAK  
155142N1064352E XC85365430  
I2RITS SIPIA 29098

FIGURE 4

UNCLAS

U.S. AIR  
A.F. SER  
SERVICE  
GRADE 115

1/Lt John R. Browning, left, and Capt Norman J. Monnig, both from 20TASS, DaNang AB, stand before O-2 FAC aircraft. Capt Monnig is discussing function of Uniscope.

FIGURE 5

**UNCLASSIFIED**

South of the White Cliffs the trucks seemed to disappear into a triple canopy jungle plateau. Between the triple canopy jungle and the Xe Kong River was a mile of road crossing a number of exposed ridge lines dropping from the plateau to the river. The number of trucks observed per night moving from the plateau to the river was 10 or less.<sup>10/</sup> Signs pointed toward a supply area and truck park between the White Cliffs and the Xe Kong River somewhere in the triple canopy jungle plateau.

After surveying the ford on the Xe Kong River, Lieutenant Browning and Captain Monnig moved north following Route 924. Route 924 was one of the main roads in the Ho Chi Minh trail complex. It was dirt, approximately 20 feet wide and in excellent condition. Trucks could be driven at estimated speeds up to 25 miles per hour along the route and the truck drivers according to the FACs, had become "brazen" regarding the observations of the FACs. Large labor crews maintained the road and road cuts were repaired in a day.<sup>11/</sup>

Captain Monnig sighted nothing between the Xe Kong River and the triple canopy jungle area. Upon leaving the triple canopy jungle area, Captain Monnig sighted nine to 12 trucks moving south down Route 924. It was difficult to determine the exact number of trucks because not all trucks had their lights on.<sup>12/</sup>

The night was clear with a bright moon at 30 degrees above the horizon. The moon helped the FACs to find the trucks moving along the trail, but the angle of the moon acted as a detriment. The truck drivers

~~CONFIDENTIAL~~

could drive with a minimum of artificial light using the brightness of the moon to illuminate the road. The low angle of the moon also lengthened the shadows made by the tall trees along the side of the road, making it more difficult to locate parked trucks.

Captain Monnig notified the Airborne Battlefield Command and Control Center (ABCCC), code name Moonbeam, that he had a target and requested a strike. Moonbeam reported a flight of F-4 aircraft in the vicinity.<sup>13/</sup>

Captain Monnig continued to track the trucks with a Model NVSF-040 Uniscope. The Uniscope had entered 20TASS supply about three weeks earlier supplementing the Starlight scope. The Starlight scope had the capability to amplify light 400,000 times. The new Uniscope amplified light about one million times.<sup>14/</sup>

The area where the Covey FACs worked was a high-threat area. On the plateau, the AAA fire was intense and the triangulation extremely accurate. Some hits were reported but there were no casualties and no downed aircraft.<sup>15/</sup>

But before the F-4 aircraft could arrive, the trucks entered the triple canopy jungle plateau area and pulled east off the road into some trees. Captain Monnig raised the amplification of the Uniscope to full volume and instructed Lieutenant Browning to hold the aircraft steady and to disregard any AAA fire. The trucks continued through the jungle and all

~~CONFIDENTIAL~~

[REDACTED]

that Captain Monnig could pick out in the Uniscope were flickers of light as the truck headlights reflected off the foliage. Then the trucks turned north moving to an area 700 meters east of Route 924. <sup>16/</sup>

Then the trucks stopped, doused their lights, turned them on again, then doused them again. About this time two F-4 aircraft, Wolfpack 93 from the 8th Tactical Fighter Wing, Ubon Airfield, Thailand, were in position. Covey fired a smoke rocket to mark the target. The fighters were armed with Mark 82 hard bombs and CBU 24 cluster bombs. <sup>17/</sup> On the first pass there were no secondaries. Captain Monnig moved the fighters 100 meters to the southeast. On the second pass, a 23 millimeter (mm) AAA gun started to fire. On the third pass, "the sky seemed to open up." A huge orange ball of fire with black smoke climbed a thousand feet into the sky. <sup>18/</sup>

Bomb damage assessment (BDA) for the strike was reported as four trucks destroyed and two probably destroyed. In addition, there were reported eight small, nine medium, and 11 large secondary explosions; four medium sustained fires (the trucks burning), and three extremely large sustained fires that were bright orange in color with flames rising 150 to 200 feet in the air accompanied by thick black smoke. One extremely large secondary explosion resulted from a fire and appeared to be petroleum, oil and lubricants (POL). The other explosions appeared to be ammunition and more POL storage. The secondary explosions continued for one hour while Lieutenant Browning and Captain Monnig orbited the target area. <sup>19/</sup>

[REDACTED]

As the secondary explosions and fires continued, Lieutenant Browning contacted ABCCC, "Moonbeam, you're not going to believe this but you have never seen anything like this before."<sup>20/</sup>

Moonbeam replied, "We believe you, Covey, and you are right. In fact we are directly above you right now watching the show."<sup>21/</sup>

Three extremely large sustained fires and the four trucks continued to burn when Covey 281 and Zulu left the area and passed visual reconnaissance of the target to Covey 237 and Juliette.<sup>22/</sup>

The area was hit again at 0400, but it was during the following day, after the bombs had removed the triple canopy jungle, that the majority of secondary explosions and fires started.<sup>23/</sup>

**CONFIDENTIAL**

CHAPTER III

19 DECEMBER 1970

The first Covey FAC into the area during daylight was Major Donald N. Conn (See Figure 6) flying alone in an OV-10, and using binoculars instead of a scope. One of his first tasks was to confirm the previous night truck toll, extent of the road cuts, and bomb damage assessment (BDA).<sup>24/</sup>

He confirmed two destroyed trucks and indicated that the long sought truck park, fuel, and ammunition storage area had been found.

"Everything seemed to fit," Major Conn said. "There was a stream for water, the topography was level enough so that trucks could navigate it with ease, and the triple canopy of vegetation hid activities." He also saw evidence of bamboo trellis work over the roads and trails. Where the trees had been knocked away by the previous night air strikes, he could see POL barrels and vehicular tracks. He noticed a ravine that ran off Route 924 into the truck park/storage area and saw evidence that the ravine must have been covered with a bamboo trellis in addition to the triple canopy of jungle. The triple canopy of jungle and the bamboo trellis apparently made the truck drivers confident that their movements would not be discernible to the FACs.<sup>25/</sup> (See Figure 7)

Another indication that the area was important to the North Vietnamese was the presence of intense AAA fire. From the time the AAA opened upon Wolfpack 93 until it stopped 36 hours later, the AAA batteries fired at

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any airborne target. Two 23mm AAA guns were on top of a hill at XC8556, two 23mm AAA guns were by the side of the road entering the "Bomb Dump,"\* one 37mm AAA gun was firing from the vicinity of the "Bomb Dump," and numerous small arms fired in and around the dump. Tracers were not used by the AAA gunners. <sup>26/</sup>

Major Conn could see trucks moving and ground activity indicating that the North Vietnamese were attempting to move supplies from the area. He notified the day ABCCC, Hillsboro, that the target continued to be lucrative and requested additional strikes. <sup>27/</sup>

Two F-4s, Wolfpack 21, answered Major Conn's request and struck his white phosphorus smoke mark. The aircraft were armed with Mark 82 fuze-extended bombs and CBU 24s. The first strike was a probe strike. In a probe strike, ordnance was placed off to one side of the target to explore the possibility of additional targets. By directing ordnance delivery in a probing pattern, a FAC could reconnoiter an area by observing the location of secondary fires and explosions emitted from supplies that might be otherwise covered from visual reconnaissance. In the "Bomb Dump," the area was continually expanded by the probing method until the size of it exceeded an area 1000 meters wide by 1500 meters long. <sup>28/</sup> (See Figures 8, 9, 10, 11.)

\* Name given to area by 20TASS.

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[REDACTED]

Additional strikes were called. Aircraft from the 8th Tactical Fighter Wing, Ubon AB, Thailand, 366th Tactical Fighter Wing, Da Nang AB, South Vietnam, 35th Tactical Fighter Wing, Phan Rang AB, South Vietnam, 388th Tactical Fighter Wing, Korat AB, Thailand, and Carrier Task Force #77 pounded the area.<sup>29/</sup>

After completing strikes on other targets aircraft would arrive at the "Bomb Dump" to fire the rest of their ordnance, usually 20mm, into the bunkers and exposed supplies. Then the aircraft would hold above the "Bomb Dump" to watch the secondary explosions and fires.<sup>30/</sup>

"I couldn't believe it", said First Lieutenant Robert Hansen, of the 421 Tactical Fighter Squadron, 366th Tactical Fighter Wing. "Every area we hit caused fires and explosions. The stuff would blow sky high. Then as we were hurting them the AAA gunners would open up. We had about three 23mm guns firing at us, but they weren't too accurate. So we concentrated on storage areas and hurting them that way, because if we got their ammo they wouldn't have anything to shoot at us."<sup>31/</sup>

Captain James H. Houck, Jr., of the same unit continued, "Everything we'd hit, the stuff would just blow up. The FAC told us that one went up about 3,000 feet -- just sky high -- blowing gasoline cans and boxes about 1500 to 2000 feet and then blowing up in the air."<sup>32/</sup>

The view resembled a large Fourth of July spectacular. Fire balls rose 2000 feet in the air. Ammunition rounds exploded at 9000 feet.

[REDACTED]

There were red, orange and white fires from ammunition, POL and hard ordnance, respectively. The ravine where the trucks left the road to move into the storage area became a river of fire for a time as burning POL ran down it. <sup>33/</sup>

There was so much debris flying in the air that the FACs worked in pairs; a practice called 'capping'. One FAC would hold near the target and direct strikes while the other FAC would stand off to the side and read AAA. To avoid the AAA fire, the pilot dipped, dove, climbed, and circled his aircraft. If a FAC suspected that he had been hit or flew through a heavy concentration of flak, the second FAC would make a visual survey of the aircraft for damage. <sup>34/</sup>

After 36 hours, the AAA began to lessen and then stopped all together. <sup>35/</sup>

The air strikes continued throughout the day. As one aircraft completed its strike and cleared the area, another aircraft was preparing to begin its strike. Fire and smoke could be seen 20 miles away. <sup>36/</sup> Bunkers exploded. One F-4 strike hit a bunker right in the entry way. A large fire ball erupted out of the bunker rising to an altitude of about 300 feet out of which came two 50 gallon POL barrels that exploded approximately 350 feet further in the air. <sup>37/</sup> On the ground, trucks were trying to move out of the area. A FAC fired a smoke rocket to mark a truck for a fighter, and hit the truck in the windshield destroying the truck before the fighter could complete the strike. <sup>38/</sup>

[REDACTED]

For 19 December, reconnaissance photos revealed 14 trucks destroyed. There were 1,277 secondary explosions and 64 secondary fires.<sup>39/</sup> A total of 41 sorties struck the target, 19 F-4s, 18 F-100s, 2 A-7s, and 2 B-57s.<sup>40/</sup> (See Figures 12 and 13).

[REDACTED]

CHAPTER IV

AFTERMATH

After 19 December 1970, the operation continued to be one of destroying the supplies and hampering enemy recovery efforts.<sup>41/</sup> On 20 December, secondary explosions and fires numbered 3,318 and 53, respectively.<sup>42/</sup> Twenty F-4 aircraft and four F-100 aircraft struck the target.<sup>43/</sup> On 21 December, 25 sorties were flown against the target,<sup>44/</sup> but the BDA dropped to 174 secondary explosions and 40 secondary fires.<sup>45/</sup>

Sorties were flown against the complex from 22 December to 25 December in a decreasing number each day,<sup>46/</sup> then on 26 December, another large number of secondary explosions and fires (2,520 and 33, respectively) was observed.<sup>47/</sup> On that date a new high in sorties was flown against the target: 27 F-4s, 6 F-100s, and 10 A-7s, for a total of 43.<sup>48/</sup> Twenty-eight sorties, including three B-52s, struck the target on 27 December, with 326 secondary explosions and 16 secondary fires.<sup>49/</sup> On 2 January 1971, 43 strike sorties were flown against the "Bomb Dump" resulting in 2273 secondary explosions, most of which were attributed to hitting a cache of artillery shells.<sup>50/</sup> (See Figures 12 and 13).

Even with all of the strikes, enemy truck drivers continued to use the truck park and storage area. By 5 January 1971, it was estimated that there had been 10,097 secondary explosions, 435 secondary fires, 43 trucks destroyed, and 11 damaged.<sup>51/</sup>

[REDACTED]

STRIKE SORTIES

<u>DATE</u>	<u>F-4</u>	<u>F-100</u>	<u>A-7</u>	<u>B-57</u>	<u>A-4</u>	<u>AC-130</u>	<u>B-52</u>	<u>TOTAL</u>
19 Dec 70	19	18	2	2	-	-	-	41
20	20	4	-	-	-	-	-	24
21	13	12	-	-	-	-	-	25
22	8	5	-	-	-	-	-	13
23	2	9	-	-	-	-	-	11
24	7	2	2	1	-	-	-	12
25	5	2	-	-	-	1	-	8
26	27	6	10	-	-	-	-	43
27	11	14	-	-	-	-	3	28
28	8	7	2	-	-	-	-	17
29	3	8	-	-	-	-	-	11
30	2	-	4	-	-	-	-	6
31	2	-	4	-	4	-	-	10
1 Jan 71	-	-	-	-	-	-	-	-
2	15	6	2	-	20	-	-	43
3	8	5	5	-	12	-	-	30
4	-	-	-	-	2	-	-	2
5	2	2	8	-	4	-	-	16
<b>TOTAL</b>	<b>152</b>	<b>100</b>	<b>39</b>	<b>3</b>	<b>42</b>	<b>1</b>	<b>3</b>	<b>340</b>

SOURCE: Computer Listing, 7AF Int, Mission Summary, 19 Dec 70 - 5 Jan 71, SECRET/NF

FIGURE 12

[REDACTED]

# SECRET

## SECONDARY EXPLOSIONS, FIRES, AND TRUCKS DESTROYED AND DAMAGED

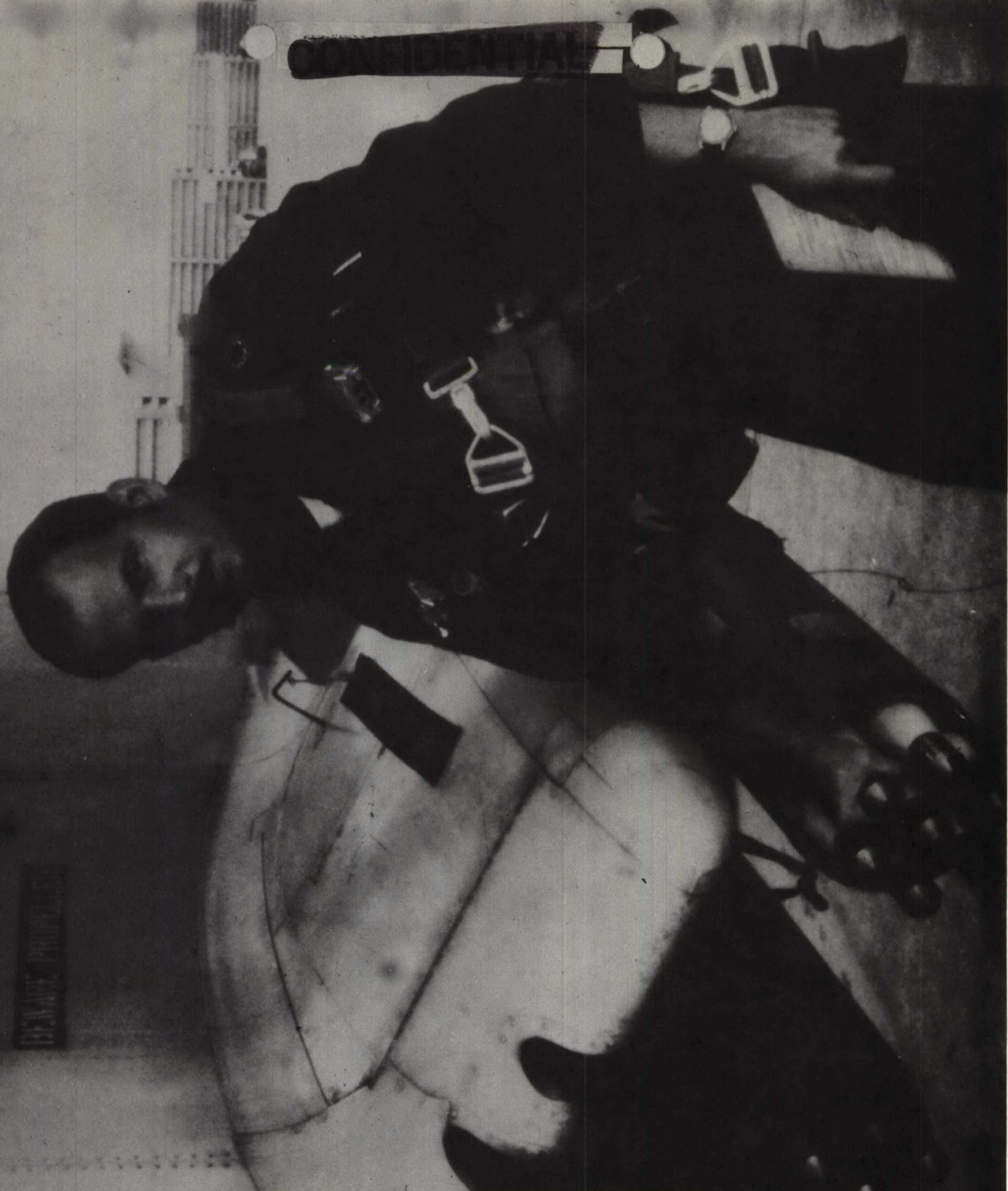
<u>DATE</u>	<u>Sec. Explosion</u>	<u>Sec. Fires</u>	<u>Trucks Destroyed</u>	<u>Trucks Damaged</u>
19 Dec 70	1,277	64	14	3
20	3,318	53	17	-
21	174	40	-	-
22	19	1	-	-
23	17	7	-	-
24	10	17	-	1
25	1	19	6	2
26	2,520	33	3	3
27	326	16	-	2
28	6	12	1	-
29	2	5	-	-
30	14	6	-	-
31	-	1	1	-
1 Jan 71	-	-	-	-
2	2,273	141	1	-
3	15	13	-	-
4	-	-	-	-
5	125	7	-	-
TOTAL	10,097	435	43	11

SOURCE: Special Computer Listing of BDA, 7AF Int, XC 8440, 19 Dec 70 to 5 Jan 71. SECRET/NF DOC 4.

FIGURE 13

# SECRET

CONFIDENTIAL



Maj Donald N. Conn, 20TASS Ops Officer, was first day FAC into Ban Bak truck park/storage area. Maj Conn shown beside an OV-10 as he prepares to fly FAC mission on 29 Dec 70.

FIGURE 6

0042

LLS 19 DEC

DMGD SUP

DEST TRKS

BURNING TRKS

DMGD SUP

DEST BNKR

TRELLIS COVD ROAD

"TAC RECCE" 14TRS

19 DEC 70 TOT: 1450H ALT: 4.5M

YE J3351 FRM: 42LLS (4x)  
BDA TRK PK/STOR AREA  
2.8NM WNW OF BAN BAK  
155138N1064346E XC85145410

12 RITS SIPIA 11857

Aerial photo of bomb dump, 19 Dec 70, depicts fires and damage to trucks and supplies. Notice thick triple canopy jungle to left of photo.

FIGURE 7

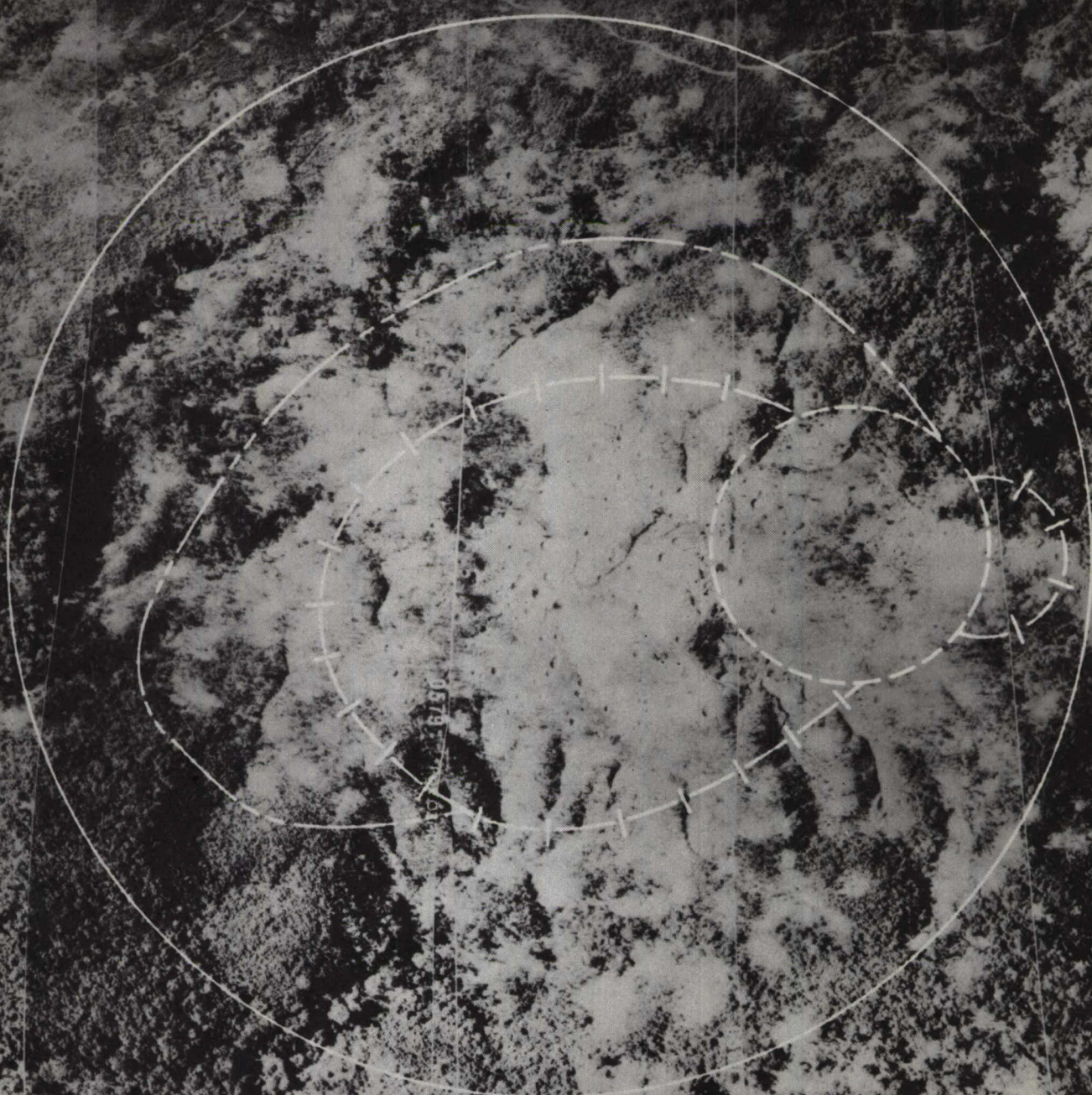
ROAD NETWORK AREA OF BAN BAK TRK PK



Road network area of Ban Bak truck park/  
storage area.

FIGURE 8

EXPANSION OF BOMBING BAN BAK TRK PK

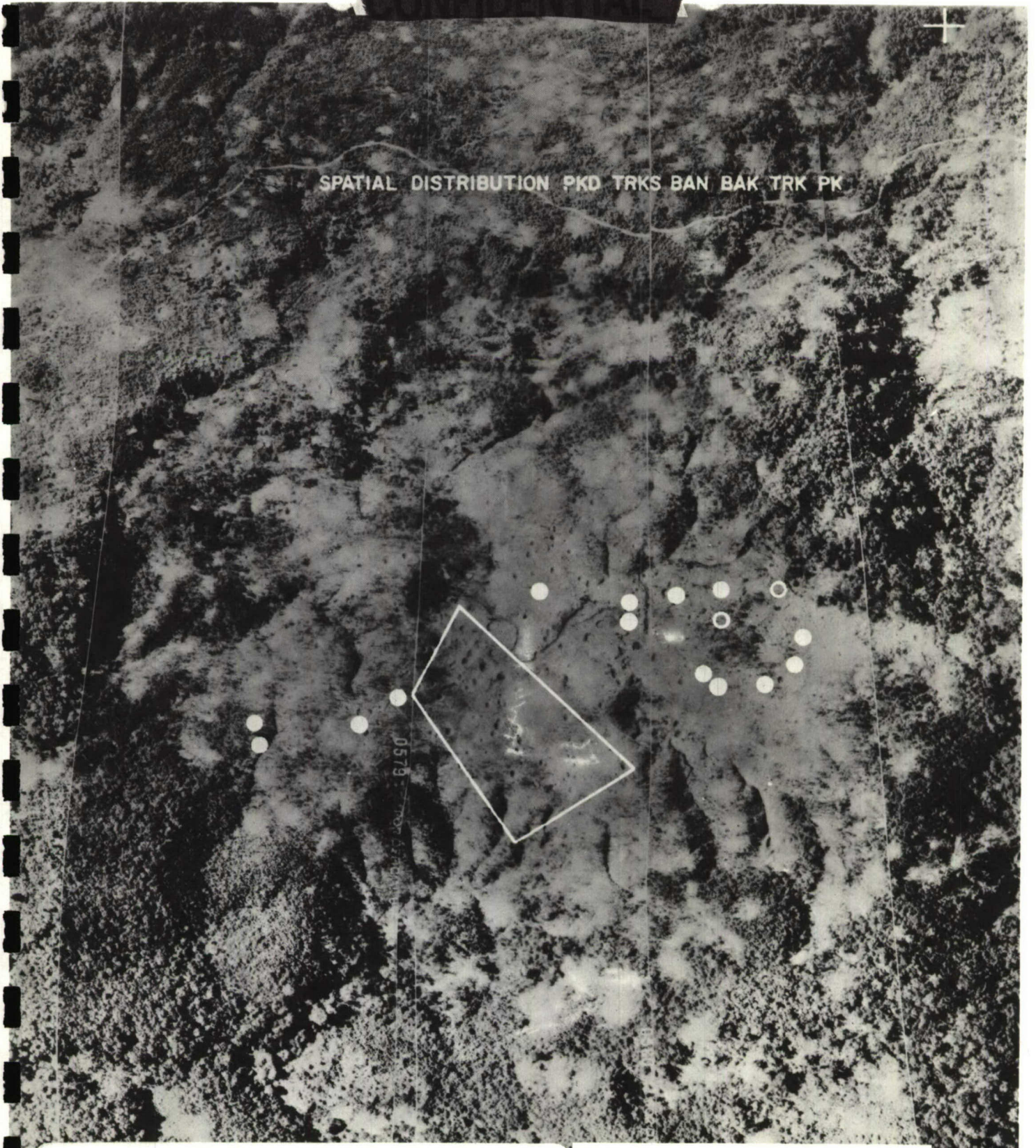


- 19 Dec 70 Recce
  - |-|- 21 Dec 70 Recce
  - 27 Dec 70 Recce
  - 29 Dec 70 Recce
- Scale 1:7,000 feet

Expansion of bombing area at Ban Bak truck park/storage area.

FIGURE 9

SPATIAL DISTRIBUTION PKD TRKS BAN BAK TRK PK

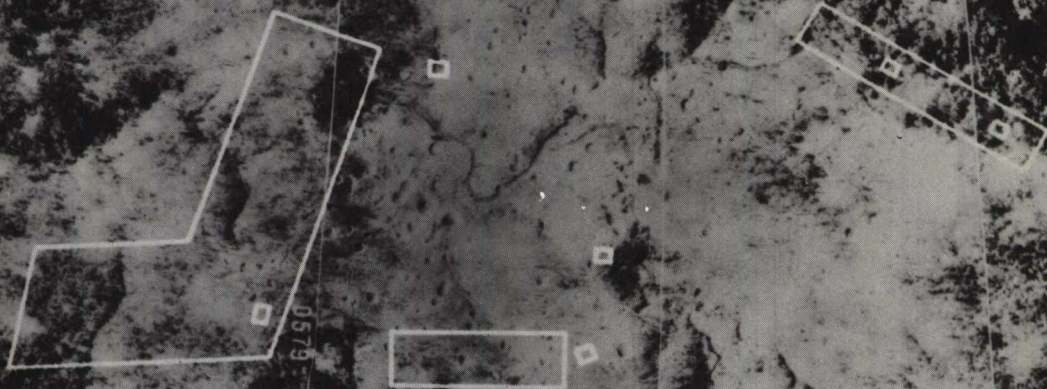


Spatial distribution of parked trucks in the Ban Bak complex.

- Area Majority Trks Pkd (Trks Pkd Along Road 25.)
- Conf Trucks
- Poss Trucks

FIGURE 10

STORAGE BAN BAK TRK PK

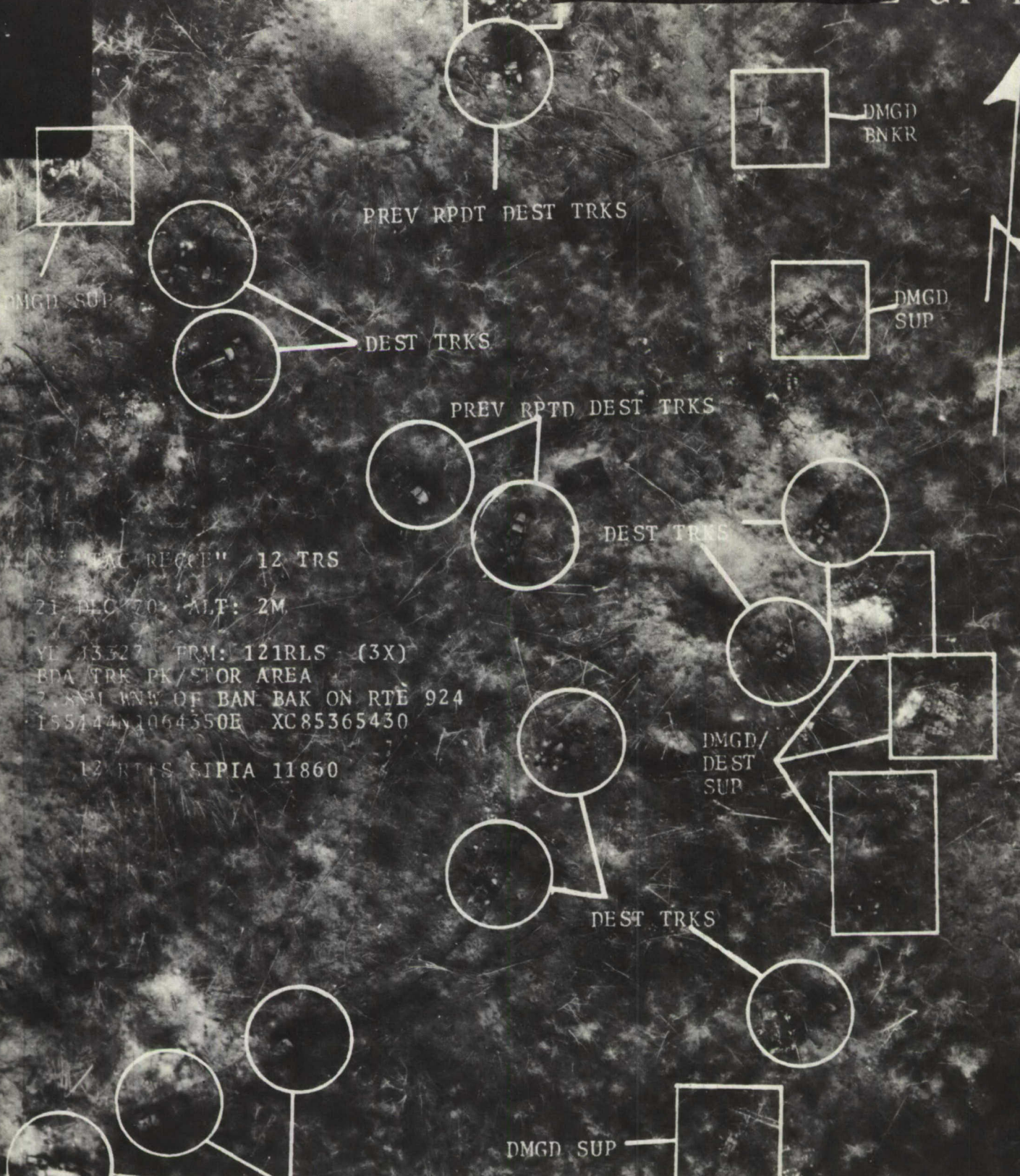


Open Storage  
Bunker Being Utilized

Storage area in the Ban Bak complex.

FIGURE 11

Fig 11



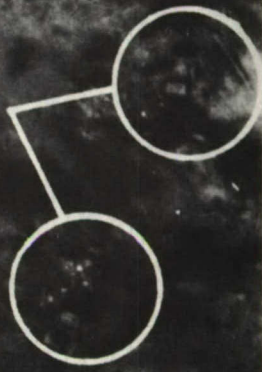
IN "AC RECCE" 12 TRS  
 21 DEC 70 ALT: 2M  
 YL 33327 FRM: 121RLS (3X)  
 EDA TRK PK/STOR AREA  
 2 KM NNW OF BAN BAK ON RTE 924  
 155744N 1064350E XC85365430  
 12 RTIS SIPIA 11860

Photo depicts destroyed/damaged trucks and supplies in the Ban Bak complex. Lower left corner of figure 14 extends and connects with upper right hand corner of figure 15.

FIGURE 14



DEST TRKS

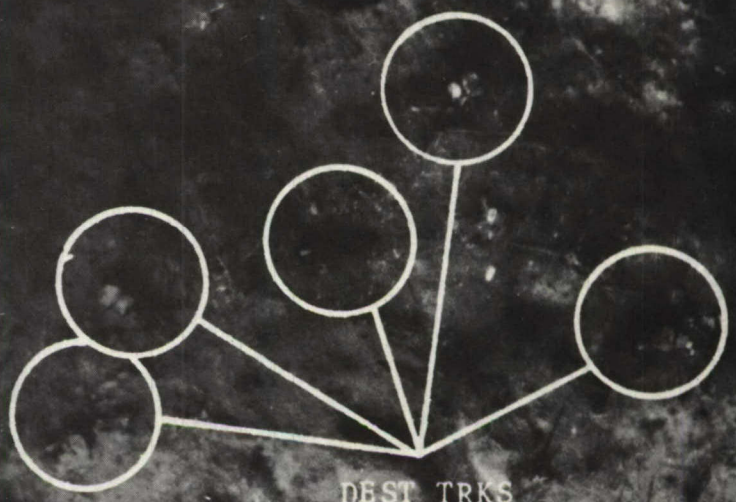


"TAC RECCE" 12 TRS

21 DEC 70 ALT: 2M

YE J3327 FRM: 120LLS (4X)  
BDA OF TRK PK/STOR AREA  
2.8NM WNW OF BAN BAK ON RTE 924  
155144N1064350E XC85365430

12 RITS SIPIA 11859



DEST TRKS



DEST TRK

Continuation of previous photograph showing destroyed trucks in the Ban Bak complex.

FIGURE 15



GP-4

DEST TRK

DMGD SUP  
& BUNKER

DMGD/DEST SUPPLIES

DEST TRK

"TAG RECCE" 12 TRS

21 DEC 70 ALT: 2M

YE J3327 FRM: 119RIS (4X)  
BDA OF TRK PK/STOP AREA  
2.8NM NNW OF BAN BAK ON RTE 928  
155144N1063550E XC0536S430

11862

DEST SUPPLIES

DEST/DMGD POL

OFFICIAL USE ONLY

Photograph of the Ban Bak bomb dump taken on 21 Dec 70 showing destroyed trucks and supplies

FIGURE 16

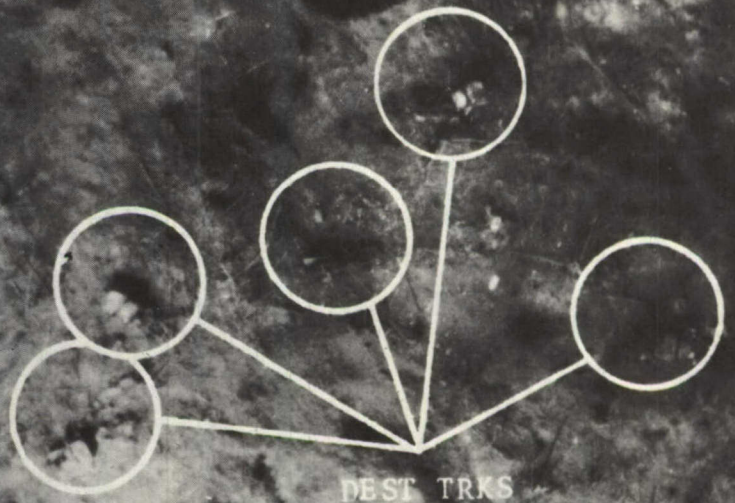
GP



DEST TRKS



"TAC RECCE" 12 TRS  
21 DEC 70 ALT: 2M  
YE J3327 FRM: 120LLS (4X)  
BDA OF TRK PX/STOR AREA  
2.8NM NNW OF BAN BAK ON RTE 924  
155144N1064330E XC85365430  
12 RITS SIPIA 11859



DEST TRKS



DEST TRK

Photograph of Ban Bak complex taken on 21 Dec 70 showing destroyed trucks and cratered earth devoid of the triple canopy jungle.

FIGURE 17

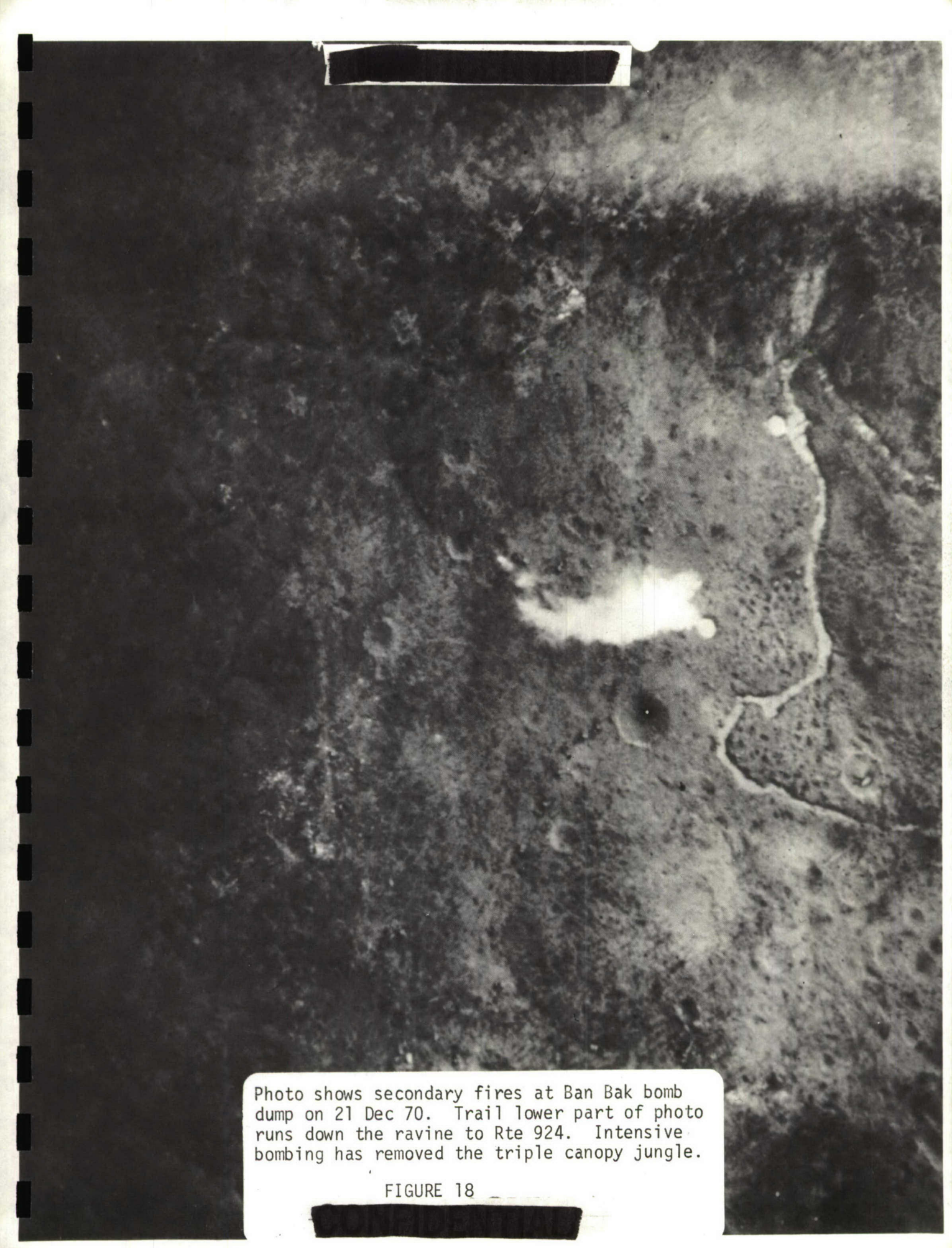
An aerial photograph showing a large, irregularly shaped area of land. The terrain is dark and textured, suggesting dense vegetation or a forest. A prominent, bright, horizontal feature in the center-right of the image appears to be a trail or a road, possibly a ravine. The surrounding area is dark and shows signs of destruction, consistent with the caption's description of a bomb dump and secondary fires. The photograph is framed by a black border on the left and top, and a white border on the bottom. There are some black rectangular marks at the top and bottom of the white border.

Photo shows secondary fires at Ban Bak bomb dump on 21 Dec 70. Trail lower part of photo runs down the ravine to Rte 924. Intensive bombing has removed the triple canopy jungle.

FIGURE 18

"FAC RECCE" 12718

22 DEC 70

YT J3362 ERM: ZOKA 1 (2X)  
TRK PK/STOR AREA PDA  
2.8NM NW OF BAN BAK  
155140N 1064360E XC85365430

VE RITS N111A 11873

TRELLIS COVERD RD

SPDR RDS

Photo of Ban Bak complex taken on 22 Dec 70 shows trellis covered road leaving Rte 924 for the bomb' dump and storage areas.

FIGURE 19

GP 1

"TAC. REUCE" 12 TRS

27 DEC 70 TOT: 1220H ALT

YT J3109 FRM: 08 KA 82

BDA TRC PK/SUPPLIES

2.8NM NW OF BAN BAK

155144N 1064350E XC85

12 RITS SIPIA 11916

NEWLY RPTD  
ST TRK

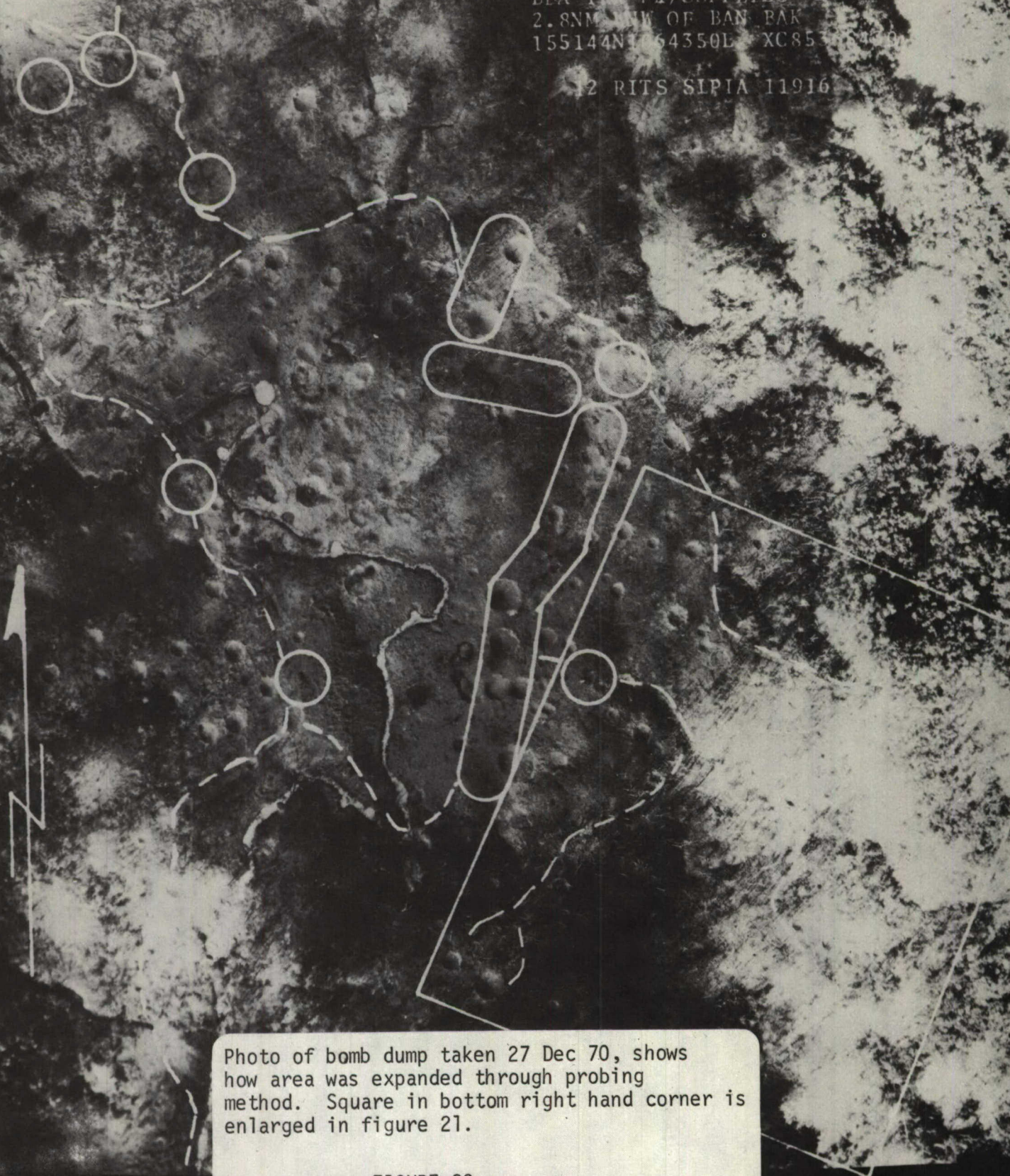


Photo of bomb dump taken 27 Dec 70, shows how area was expanded through probing method. Square in bottom right hand corner is enlarged in figure 21.

FIGURE 20



DMGD/DEST  
SUPPLIES

PREV RPTD  
DEST TRK

DEST TRK

DEST SUPPLIES

DEST SUPPLIES

DEST SOC

"TAC RECCE" 12  
27 DEC 70 TGT: 1220H  
YT J3109 FOM: 07 KA-82  
BDA TRK PK/SUPPLIES  
2.8NM WNW OF BAN PAK  
155144N1064350E XC85365430

12 RITS SIDIA 11917

Enlargement of figure 20 showing destroyed trucks and supplies.

FIGURE 21

[REDACTED]

Even using established standards for measuring BDA, the actual amount of supplies destroyed in the dump was difficult to determine. Estimates were obtained by counting the number of secondary explosions, fires, destroyed and damaged trucks and POL barrels. When a large number of secondary explosions occurred, the aircrews estimated the number of explosions per minute and multiplied by the number of minutes the explosions continued. FACs and fighter pilots timed the explosions on their wrist-watches. To correct for duplication, Headquarters Seventh Air Force compared times and coordinates submitted by the units and adjusted final BDA estimates. Secondary fires varied in size very large, large, medium, and small; but for evaluation purposes all fires, size notwithstanding, were grouped together. The method used to estimate supplies destroyed in secondary explosions was to multiply the number of explosions times 1,000 pounds for the total number of pounds of supplies destroyed. To arrive at the total weight of supplies destroyed by fire, the number of secondary fires was multiplied by 400 pounds.

A destroyed truck was calculated as 1.65 tons of supplies destroyed. Seventh Air Force determined that 55 per cent of the trucks traveling in the Ho Chi Minh supply system were southbound. For the purposes of BDA calculation, Seventh Air Force assumed that the southbound trucks were loaded with supplies and that the northbound ones were not. The average load of an enemy truck was four tons. Since there was evidence that the enemy could recover some supplies from a destroyed truck, BDA calculation

[REDACTED]

took credit for 75 per cent or three tons of the truckload. The equation, therefore, determined as follows: 55 per cent of the trucks were loaded with four tons of cargo, however, the enemy could recover 25 per cent of the cargo; therefore BDA equalled 55 per cent times 3 or 1.65 tons destroyed per truck.<sup>52/</sup> As for a damaged truck, Seventh Air Force determined that the enemy could salvage three tons of the truckload. Using the above equation, 55 per cent times one equalled .55 tons of supplies destroyed per damaged truck.<sup>53/</sup>

In the series of attacks on the Ban Bak truck park/storage area, the usual method for determining BDA was modified to conform more realistically to the unusual concentration of trucks and supplies. This concentration was considered contrary to the stockpile supply doctrine of the enemy. The usual method for determining BDA would give the following:<sup>54/</sup>

Secondary Explosions	10,097	x	.5	=	5048.5 Tons
Secondary Fires	435	x	.2	=	87.0 Tons
Destroyed Trucks	43	x	1.65	=	71.0 Tons
Damaged Trucks	11	x	.55	=	6.1 Tons
					<u>5212.6 Tons</u>
			TOTAL		

For logistics computations, Seventh Air Force Intelligence reduced the BDA roughly one half (2,111 Tons).<sup>55/</sup>

Nevertheless, the amount of supplies destroyed was significant. The truck park/storage area was apparently an established staging area, exemplified by the Seventh Air Force Intelligence reports and studies, the trellis work over the ravine and trails, and the bunker system.<sup>56/</sup>

[REDACTED]

There were other benefits. The fighter pilots and FACs received a tremendous uplift in morale and incentive.<sup>57/</sup> The impact on friendly ground forces used to reconnoiter the enemy's activities on the Ho Chi Minh trail was reflected in 7/13th Air Force's statement to Seventh Air Force:<sup>58/</sup>

*The destruction of the bomb dump yielded the most spectacular BDA in recent history of the Laotian interdiction campaign and incidentally may have given a new lease on life to launch bases for ground interdiction efforts on the Bolovens .... Four days of continuous BDA from a storage point 80 kilometers due north of PS-22 via routes 92 and 16 will certainly affect enemy plans for a sustained offensive on the Bolovens.*

The overall significance of the strikes on the Ban Bak complex was that they had the largest number of secondary explosions (10,097) from a single target area on the Ho Chi Minh trail complex<sup>59/</sup> almost equaling the 12,698 secondary explosions and fires developed by tactical air strikes in Commando Hunt III.<sup>60/</sup> The loss would certainly complicate the enemy's resupply problem and degrade the enemy's plans for a sustained offensive in Cambodia and South Vietnam.<sup>61/</sup>

On 26 January 1971, the interdiction at Ban Bak was summarized in a message from General Lucius D. Clay, Commander 7AF, to the 504th TASG in which he quoted General William C. Westmoreland, Acting Chairman of the Joint Chiefs of Staff, as saying:<sup>62/</sup>

[REDACTED]

1. The effectiveness of U.S. air operations in Steel Tiger operations was most clearly demonstrated by the outstanding success achieved by the TACAIR sorties directed against the truck park and storage complex in the vicinity of Ban Bak. We may never know precisely the degree to which the destruction of this storage complex affected the enemy's logistic capability, however, I am convinced that his capability to support combat operations has been seriously degraded and the damage to the enemy represents one of the most outstanding achievements by TACAIR in Commando Hunt operations. 2. The success of this strike effort is due not only to the skill of the TACAIR crews and supporting personnel but also to the determination of the Covey FACs in their surveillance of the suspected area. 3. The Joint Chiefs of Staff congratulate all officers and men involved in this most productive strike effort. Please pass to all concerned.

POL

<u>DATE</u>	<u>Barrels Destroyed</u>	<u>Secondary Explosions</u>	<u>Sec. Fires</u>
19 Dec 70	-	50	4
20	-	206	7
21	-	2	2
22	100	6	-
23	-	-	-
24	-	-	-
25	-	-	-
26	50	-	-
27	-	-	-
28	-	-	-
29	-	-	-
30	-	-	-
31	-	-	-
1 Jan 71	-	-	-
2	-	60	2
3	-	11	-
4	-	-	-
5	-	-	-

FIGURE 22

[REDACTED]

AMMUNITION

<u>DATE</u>	<u>Secondary Explosions</u>	<u>Secondary Fires</u>
19 Dec 70	830	1
20	1001	-
21	-	-
22	-	-
23	-	-
24	-	-
25	-	-
26	433	5
27	-	-
28	-	-
29	-	-
30	-	-
31	-	-
1 Jan 71	-	-
2	1923	-
3	-	-
4	-	-
5	-	-

FIGURE 23

[REDACTED]

# UNCLASSIFIED

## FOOTNOTES

1. (S) Interview with Lt Col James G. Ling, 7AF DOAO, 14 Jan 71.  
(S) PACAF IN Ltr, 30 Mar 71
2. (S) Ibid.
3. (S) Interview with Maj G. O. Dysart, 7AF INT SM, 3 Feb 71.
4. (S) Ibid.
5. (U) Interview with Maj D. H. Kampwerth, Southeast Asia Weather  
Center, 14 Jan 71.  
(S) PACAF IN Ltr, 30 Mar 71.
6. (S) Interview with Maj G. O. Dysart, 7AF, INT SM, 3 Feb 71.  
(S) PACAF IN Ltr, 30 Mar 71.
7. (S) Ltr, 7AF INTT to 7AF DOAC CHECO, Subj: Ban Bak Target Area,  
9 Feb 71, Doc. 1.  
(S) PACAF IN Ltr, 30 Mar 71.  
(S) PACAF XP Ltr, 23 Mar 71.
8. (C) Interview with 1st Lt John R. Browning, 20TASS FAC, 28 Dec 70.  
(Hereafter cited: Browning Interview.)
9. (C) Interview with Captain Norman J. Monnig, 20TASS Navigator  
and Taped interview of Captain Norman J. Monnig, 28 Dec 70.  
(Hereafter cited: Monnig Interview.)
10. (C) Interview with Maj Donald N. Conn, 20TASS Operations Officer,  
28 Dec 70. (Hereafter cited: Conn Interview.)  
(S) PACAF XP Ltr, 23 Mar 71.
11. (C) Conn Interview.  
(S) PACAF XP Ltr, 23 Mar 71.
12. (C) Monnig Interview.  
(S) PACAF XP Ltr, 23 Mar 71.
13. (C) Ibid.
14. (C) Conn and Monnig Interviews.  
(S) PACAF IN Ltr, 30 Mar 71.
15. (C) Conn Interview.  
(S) PACAF XP Ltr, 23 Mar 71.

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16. (C) Browning Interview.
17. (C) Browning Interview.  
(S) PACAF D00 Ltr, 20 Mar 71.
18. (C) Browning Interview.
19. (C/NF) Msg 190130Z Dec 70, 20TASS to 7AF, Steel Tiger South Disum, 19 Dec 70. Doc 2.
20. (C) Browning Interview.
21. (C) Ibid.
22. (C) Interview with Capt M. J. Dreiling, 20TASS Navigator, 28 Dec 70. (Hereafter cited: Dreiling Interview.)
23. (C) Conn Interview.  
(S) PACAF XP Ltr, 23 Mar 71.
24. (C) Ibid.
25. (C) Ibid.
26. (C) Conn Interview.  
(S) PACAF IN Ltr, 30 Mar 71.
27. (C) Ibid.
28. (C) Conn Interview.
29. (S/NF) Summary, Weekly Air Intelligence Summary, 7AF DIP, #70-52, 26 Dec 70, SECRET/No Foreign Dissem, Gp 1, pp 14-15.
30. (C) Conn Interview.  
(S) PACAF IN Ltr, 30 Mar 71.
31. (U) Taped interview with 1st Lt Robert P. Hansen, 366TFW, 23 Dec 70.
32. (U) Taped interview with Capt James H. Houck, Jr., 366TFW, 23 Dec 70.
33. (U) Conn Interview.  
(S) PACAF XP Ltr, 23 Mar 71.
34. (U) Ibid.

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35. (U) Ibid.
36. (U) Conn Interview.
37. (U) Interview with Capt Eldon R. Haynes, 20TASS, 28 Dec 70.  
(S) PACAF XP Ltr, 23 Mar 71.
38. (U) Interview with Capt Larry A. Thomas, 20TASS, 23 Dec 70.
39. (S/NF) Computer listing, 7AF Int, Special Computer Listing of BDA, XC 8440, 19 Dec 70 to 5 Jan 71, SECRET/NF. Doc 4. (Hereafter cited: Computer Listing BDA.)
40. (S/NF) Computer listing, 7AF Int, Mission Summary, area XC 8440, 19 Dec 70 to 5 Jan 71, SECRET/NF. (Hereafter cited: Computer listing MISU.)  
(S) PACAF D00 Ltr, 20 Mar 71.
41. (U) Conn Interview.  
(S) PACAF IN Ltr, 30 Mar 71.
42. (S/NF) Computer listing BDA.
43. (S/NF) Computer listing MISU.
44. (S/NF) Ibid.
45. (S/NF) Computer listing BDA.
46. (S/NF) Computer listing MISU.  
(S) PACAF XP Ltr, 23 Mar 71.
47. (S/NF) Computer listing BDA.  
(S) PACAF XP Ltr, 23 Mar 71.
48. (S/NF) Computer listing MISU.
49. (S/NF) Computer listing BDA.  
(S) PACAF IN Ltr, 30 Mar 71.
50. (S/NF) Conn Interview and Computer Listing BDA.  
(S) PACAF IN Ltr, 30 Mar 71.
51. (S/NF) Computer Listing BDA.  
(S) PACAF XP Ltr, 23 Mar 71.
52. (S/NF) Interview with Maj G. D. Dysart, 7AF Int SM, 7 Jan 71.  
(S) PACAF XP Ltr, 23 Mar 71.

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53. (S/NF) Ibid.
54. (S/NF) Ibid and BDA Work Sheet, undated, Doc 5.  
(S) PACAF XP Ltr, 23 Mar 71.
55. (S/NF) Ibid.
56. (S/NF) Conn Interview.  
(S) PACAF IN Ltr, 30 Mar 71.
57. (S) Ibid.
58. (S/NF) Msg, 7/13 AF Udorn to 7AF, TSN, Weekly Laotian Sitrep,  
22 Dec 70.
59. (S/NF) Computer Listing BDA.  
(S) PACAF XP Ltr, 23 Mar 71.
60. (S/NF) Report, Commando Hunt III, 7AF DOA, May 70, p 101, SECRET/NF,  
Gp 1.  
(S) PACAF XP Ltr, 23 Mar 71.
61. (C) Conn Interview.  
(S) PACAF XP Ltr, 23 Mar 71.
62. (C) Ltr L. D. Clay, Jr., General, Cmdr, 7AF to 504 TASG (CC),  
Letter of Appreciation, 26 Jan 1971, Confidential, Gp 4.  
Doc 7.

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## GLOSSARY

AAA	Antiaircraft Artillery
AB	Air Base
ABCCC	Airborne Battlefield Command and Control Center
BDA	Bomb Damage Assessment
CBU	Cluster Bomb Units
FAC	Forward Air Controller
mm	Millimeter
POL	Petroleum, Oil, and Lubricants
RVN	Republic of Vietnam
TASS	Tactical Air Support Squadron
USAF	United States Air Force
UTM	Universal Traverse Mercator