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Contemporary
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REPORT

**LINEBACKER:
OVERVIEW OF THE FIRST
120 DAYS**

27 SEP 1973
HQ PACAF

**Directorate of Operations Analysis
CHECO / CORONA HARVEST DIVISION**

Prepared by:
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K717.414-42

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4. TITLE AND SUBTITLE				5a. CONTRACT NUMBER	
				5b. GRANT NUMBER	
				5c. PROGRAM ELEMENT NUMBER	
6. AUTHOR(S)				5d. PROJECT NUMBER	
				5e. TASK NUMBER	
				5f. WORK UNIT NUMBER	
7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES) Department of the Air Force Headquarters Pacific Air Forces, CHECO Division Hickam AFB, HI				8. PERFORMING ORGANIZATION REPORT NUMBER	
9. SPONSORING/MONITORING AGENCY NAME(S) AND ADDRESS(ES)				10. SPONSOR/MONITOR'S ACRONYM(S)	
				11. SPONSOR/MONITOR'S REPORT NUMBER(S)	
12. DISTRIBUTION/AVAILABILITY STATEMENT A -- Approved for Public Release					
13. SUPPLEMENTARY NOTES					
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.					
15. SUBJECT TERMS CHECO reports, Vietnam War, War in Southeast Asia, Vietnam War- Aerial Operations, American					
16. SECURITY CLASSIFICATION OF:			17. LIMITATION OF ABSTRACT	18. NUMBER OF PAGES	19a. NAME OF RESPONSIBLE PERSON
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PROJECT CHECO REPORTS

The counterinsurgency and unconventional warfare environment of Southeast Asia has resulted in USAF airpower being employed to meet a multitude of requirements. These varied applications have involved the full spectrum of USAF aerospace vehicles, support equipment, and manpower. As a result, operational data and experiences have accumulated which should be collected, documented, and analyzed for 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 which would provide timely and analytical studies of USAF combat operations in SEA and would be primarily responsive to Air Staff requirements and direction.

Project CHECO, an acronym for Contemporary Historical Examination of Current Operations, was established to meet the Air Staff directive. Based on the policy guidance of the Office of Air Force History and managed by Hq PACAF, with elements in Southeast Asia, 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. It is an authentic source for an assessment of the effectiveness of USAF airpower in PACOM when used in proper context. The reader must view the study in relation to the events and circumstances at the time of its preparation--recognizing that it was prepared on a contemporary basis which restricted perspective and that the author's research was limited to records available within his local headquarters area.

Robert E. Hiller

ROBERT E. HILLER
Director of Operations Analysis
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ABOUT THE AUTHOR

Mr. Melvin F. Porter has been a Historian with Project CHECO in Southeast Asia for eight years. A former USAF command pilot with 5,000 hours flying, he recorded over 300 combat and combat support sorties, flying fighters in WW II and C-123s in Viet Nam prior to leaving the service. He joined CHECO in October 1965 and has been associated with the Project since that time.

Mr. Porter has written the following CHECO Reports: Siege of Plei Me; Silver Bayonet (battle for the Ia Drang Valley); The Defense of Lima Site 36; Defense of Attopeu; Interdiction in SEA, 1965-66; Tiger Hound; Night Interdiction in SEA; Air Tactics Against NVN Air/Ground Defenses, 1965-66; The Second Defense of Lima Site 36; Short Rounds, 1964-June 1967; Operation Thor (joint-service operation against NVN artillery north of the DMZ); Air Traffic Control in SEA; Air Response to Immediate Air Requests in SVN; Short Rounds, 1967-68; Control of Air Strikes, 1967-68; Tactical Control Squadrons, 1962-68; Second Generation Weaponry in SEA; Commando Vault; The EC-47 in SEA, Apr 68-Jul 70; Waterways and Pipelines Interdiction - SEA; Evasion and Escape, SEA, 1964-1971; and Proud Deep Alpha.

In addition, Mr. Porter has collaborated with other members of the CHECO SEA team on a number of reports, including Attack Against Ton Son Nhut; The War in Vietnam, Jul-Dec 1967; The Air War in Northern Laos, Nov 70-Apr 71; and Local Base Defense in RVN, Jan 69-Jun 70, to enumerate only a few.

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FOREWORD

(U) Inevitably, comparisons will be drawn--and have been drawn-- between Rolling Thunder, the bombing and interdiction campaign over North Vietnam between 1965 and 1968, and Linebacker, the campaign launched over the North on 9 May 1972. This study addresses the similarities and differences between the two campaigns, the concepts and rationale behind each, and the degree of success-of-aims achieved in the two overall plans.

(U) Ample documentation of Rolling Thunder exists in previous histories, operational reports, and Project CHECO Reports,* as well as other sources, and these are drawn upon in this volume. Classified and unclassified statements by high-level officials of both periods are cited in an attempt to achieve the best possible perspective.

(U) This report documents the chronology of events, including the introduction of new tactics and technologies, their effect on the prosecution of the Linebacker campaign, and the concomitant reshaping of political constraints. It addresses the change in political climate, the significance of the GCI-ECM-MIG-SAM** envelope, and briefly, the effect of Linebacker upon the North Vietnamese invasion of the South.

*Project CHECO Reports

(TS/NF)	Rolling Thunder, Mar-Jun 65	(28 Mar 66)
(TS/NF)	Air Tactics Against NVN Air-Ground Defenses	(27 Feb 67)
(TS/NF)	Rolling Thunder, Jul 65-Dec 66	(15 Jul 67)
(TS/NF)	Interdiction in SEA, 1965-1966	(25 May 67)
(S)	Rolling Thunder, Jan 67-Nov 68	(1 Oct 69)

**Ground controlled intercept-electronic countermeasures-MIG-surface-to-air missile.

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(U) The differing politico-military considerations and the changes in the Rules of Engagement are also mentioned because they contributed sharply to the differences of effectiveness of Linebacker and Rolling Thunder. Weather cannot be ignored, because it influenced large differences in tactics and weaponry. This study, however, cannot be construed as the final, in-depth analysis of any Rolling Thunder-Linebacker comparison, since it must concern itself primarily with the actions taken and immediate effects of the first four months of the latter campaign.

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CHAPTER I
INTRODUCTION

Background

(U) To comprehend the impact, achievements, and outlook of Operation Linebacker in its first four months, one must have a "similar" operation with which to compare it. As during 1968 the siege of Khe Sanh* was compared with that of Dien Bien Phu, Linebacker has been compared with Operation Rolling Thunder. Just as the former comparison was invalid, so might be the latter, for there were, perhaps, more pertinent dissimilarities than similarities.

~~(S)~~ Both campaigns had essentially the same objective--to reduce to the greatest extent possible North Vietnam's (NVN) capability to support the war against South Vietnam (SVN). This was to be accomplished through three basic tasks: *destroy* war-related resources already in NVN; *reduce or restrict* NVN assistance from external sources; and, ultimately, *interdict or impede* the movement of men and materials into Laos and South Vietnam. ¹ Air power was to be the prime instrument for the achievement of these objectives in each campaign, with surface assistance, under different code names, by naval gunfire (NGF) against coastal defenses and lines of communication (LOCs). Although the objectives of both Rolling Thunder and Linebacker were similar, the concept and conduct of each were decidedly different.

*CHECO Report, Khe Sanh (Operation Niagara), 13 Sep 1968.

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(S) Under the shadow of world disapproval and the possibility of Communist Chinese intervention, Rolling Thunder was conducted under severe, often crippling, constraints. To avoid the risk of major escalation, the U.S. followed a policy of gradual escalation, which, although politically prudent, imposed restrictions upon operational commanders. The operations were controlled from the highest levels. Targets could be validated only by the Joint Chiefs of Staff (JCS) or higher authority; even when validated, they could not be struck until authorized, and such authorization often specified day, time, force structure, and weaponry. At the operational level, these restrictions hindered the achievement of the three stated aims. A 30 nautical mile (NM)-radius ring around Hanoi and a 10 NM-radius ring drawn around Haiphong delineated no-strike zones and so gave these areas of war resources sanctuary against strikes. A proscription against mining the harbors left the major ports--Haiphong, Hon Gay, and Cam Pha--open to foreign shipping, and through these ports came approximately 67 percent of NVN's external support.²

(S) Admiral Sharp, then Commander-in-Chief, Pacific Command (CINCPAC), stated in a November 1965 message to the JCS that unless restrictions against striking at the sources were lifted (and mining of the aforementioned ports allowed), "foreign shipping would continue to resupply the system, and the U.S. air effort could harass but not effectively deter infiltration."³

(S) The northwest and northeast rail lines, the two main railways supplying Hanoi from Communist China, carried the bulk of other supplies

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needed by North Vietnam. These too were largely in sanctuary, with a 30 NM buffer zone--off limits to strike sorties--south of the Chinese border extending from Laos to the Gulf of Tonkin. This not only made the railways difficult to interdict, but also gave the North Vietnamese another advantage: since they knew that air power would not penetrate that airspace, they could concentrate their air defenses in the most likely strike zones.⁴

~~(C)~~ In effect, these constraints provided the enemy an open-ended funnel at the top, into which they could pour the supplies necessary in their attempt to obtain what they needed at the bottom--South Vietnam--regardless of U.S. interdiction efforts against the LOCs in between. These were not the only constraints that hampered successful prosecution of the Rolling Thunder campaign. Before 29 June 1966, no major Petroleum-Oil-Lubricants (POL) storage facilities could be struck, or certain other lucrative targets, such as the Thai Nguyen Steel Plant.⁵

~~(C)~~ On occasion, some news media made Rolling Thunder a "whipping boy," citing its "failures" as evidence that air power could not attain the objectives given it, forgetting perhaps that the political constraints negated the likelihood of the achievement of these objectives.⁶ Quoting from a CHECO Report written in 1966:⁷

The buffer zones and sanctuaries were readily apparent to the enemy and the communists took full military advantage of [them]. The buffer zone alone, for instance, gave Hanoi thousands of square miles of territory they did not need to defend. This allowed them to concentrate AW [Automatic Weapons]/ AAA [Anti-aircraft Artillery] and SAM [Surface-to-Air Missile] in a far smaller area, increasing their

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ground fire base tremendously. At the same time, the buffer zone reduced U.S. strike pilots' flexibility by funneling ingress and egress routes into narrower, more predictable channels where the enemy could further concentrate his defense forces. Stereotyped operations, sanctuaries, and [bombing] pauses all accrued to the enemy's benefit. The U.S. concept of gradually increasing pressure allotted Hanoi one final valuable factor, time--time to fully integrate the North Vietnamese defense structure, with the SAM as the key.

The Buildups--Air Defense and Logistics

~~(b)~~ When Rolling Thunder began, North Vietnam's air defense posture was very weak--a few MIG-15s, no SAMs, very little sophisticated radar, and perhaps a few thousand AAA guns (built up from only 500 plus in July 1964). This was only a fraction of what would have been needed to stop the combined air power available from the United States Air Force (USAF), the United States Navy (USN), and the United States Marine Corps (USMC) resources, had that power been used.⁸

~~(b)~~ In March 1965, the month Rolling Thunder was instituted, North Vietnam was supplied with sophisticated GCI and Height Finder radars. In April, the first MIG-17 employment was recorded, and SAM site construction was photographed--but authorization for strikes against this potential threat was withheld at the time.⁹ By July 1965, the first friendly aircraft had been lost to a SAM, and radar-directed 100 millimeter (mm) AAA had appeared. The MIG-21 was introduced in December 1965, and by March 1966 the Soviet Identification Friend or Foe (IFF) systems were providing very effective GCI control of enemy fighters. By August 1966 the North Vietnamese had an integrated air defense system consisting of 65 fighters,

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between 20 and 25 SAM battalions, more than 271 radars, and 4,000 AAA guns ranging from 37mm through 100mm.¹⁰

~~(S)~~ Thus, in the face of the graduated effort of Rolling Thunder, the NVN air defense system had undergone a startling change from the time of the Tonkin Gulf incident of August 1964 through August 1966. This was the basic view of practically all top military leaders in the Pacific area at the time. The Commander-in-Chief, Pacific Fleet (CINCPACFLT) noted in October 1966 that¹¹

Early in the air operations over NVN, the enemy's defenses were weak and limited. Now, after having given NVN the incentive, access to the required weapons and, most important, time to build the defenses, PACOM [Pacific Command] forces are confronted with a dense array of weapons and an integrated defense that is controlled centrally.

~~(S)~~ This was echoed by the Commander-in-Chief, Pacific Air Forces (CINCPACAF) during the same month when he noted:¹²

In the case of the SA-2 [SAM], restrictions, sanctuaries, and our U.S. concept of slow, steadily increasing pressure, allowed the enemy sufficient opportunity to build his defense without effective interference. He has been able to camouflage, and to disperse components to an extremely successful degree.

~~(S)~~ These same factors, coupled with the enemy's tenacity, and the U.S. and South Vietnamese bombing "pauses," allowed North Vietnamese and Viet Cong forces to build a formidable logistics base in Laos, Cambodia, and South Vietnam. The extent of this logistics base was not fully known until the 1968 Tet Offensive when it became clear that the enemy had stock-piled more than enough to launch that ambitious undertaking.

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(8) Largely through the effects of allied air power, that Tet Offensive turned out to be a near disaster for the enemy militarily since they suffered staggering losses. (The Viet Cong had not recovered by 1972, and the North Vietnamese required four full years to recoup to the point where they could again become a potent offensive factor.)¹³ The partial bombing halt of 1 April 1968, and the total halt of bombing over North Vietnam on 1 November 1968, signaled the end of Rolling Thunder. It had accomplished but one of its three basic military tasks. Because of the constraints, it could not reduce external military assistance, nor could it destroy in depth war materials. It did harass, disrupt, and impede movement of men and materials through southern North Vietnam and into Laos and South Vietnam. It made the NVN effort far more costly, time-consuming, and difficult, but it could not completely interdict the logistics flow.

(9) Two of the prime political aims for Rolling Thunder failed to materialize, i.e., reducing the will of the people to fight, and coercing the Hanoi government to agree to negotiations on terms acceptable to the United States.¹⁴ A December 1966 Rand Corporation study stated that

the bombing had imposed severe strains which were manifested most tangibly by the massive diversion of manpower to military and other war-related unproductive activities. The country's ability to feed itself in a long war had been seriously impaired and there was evidence of urban food shortage and increasing food imports. But there was no evidence of critical or progressive deterioration or disruption of economic activity.

As far as the effects of the bombing on public morale and government control, the study made a "cautious 'guess' that they had rebounded to the

[REDACTED]

regime's net benefit." There was "no evidence . . . that, economically and politically, Hanoi should not be able to withstand the long, hard war it professes to have in mind."¹⁵

~~(S)~~ The 1968 bombing halts permitted an intensification of enemy activities along LOCs. Relieved of the constant necessity of rebuilding bridges, repairing road and rail cuts, and the constant hazard of armed reconnaissance overhead, the NVN began funneling men and supplies to the south. SAM sites were moved down into Route Package I (southernmost operational area of North Vietnam), into the Demilitarized Zone (DMZ), and even into Laos. The continuing interdiction efforts against enemy LOCs in the Laotian panhandle did not stop the infiltration, for under cover of night, weather, and jungle canopy, the North Vietnamese constructed new roads, trails, bypasses, and truck parks. Aerial photography uncovered many traces of these roads, along with new pipeline sections, concentrations of heavy artillery guns, and transporters. Electronic intelligence (ELINT) traced the progress of Spoon Rest (acquisition radars associated with SAMs) and Fan Song (the tracking radar for the SA-2 system) radars down through the North Vietnamese passes into Laos and the DMZ.¹⁶ With the three and one-half year respite provided them after the cancellation of Rolling Thunder, the enemy had little difficulty in getting enough supplies through the LOCs to take care of not only their immediate combat needs, but also to provide a massive stockpile of equipment in caches in the south. With the exception of protective reaction strikes in response to attacks against U.S. photo reconnaissance aircraft over the North, and

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certain special reaction strikes authorized by the National Military Command Center and JCS when intelligence indicated a "clear and present danger" from the amount and types of war materials stockpiled there, North Vietnam had little to fear over its own territory. ¹⁷

(U) The reason for the continued stockpiling in southern NVN, the DMZ, Laos, and Cambodia (even in the face of a de-escalating war and the withdrawal of American troops) became abundantly clear on 30 March 1972. On that day, North Vietnam turned the low-key, "winding-down" conflict into a brand new war with a massive, three pronged attack supported by armor and artillery. The North Vietnamese Army (NVA) swept down through the DMZ and into Military Region (MR) I, out of Laos into MR II, and from Cambodia into MR III to menace the capital city of Saigon itself.

(U) For the first time in the long history of the war, North Vietnam scarcely tried to claim that this offensive was simply a "concerted uprising of 'South Vietnamese patriots' trying to 'regain' their own country from the American imperialists," inasmuch as up to 12 North Vietnamese uniformed divisions went into action into and across South Vietnamese borders.

(U) Initially, the North Vietnamese plan succeeded brilliantly. In MR I, nearly all of the forward Fire Support Bases fell within a matter of days. Within a month, Quang Tri city and most of Quang Tri Province had fallen, and the NVN forces threatened the ancient capital city of Hue. The inexperienced 3rd Infantry Division of the Army of the Republic of Vietnam (ARVN), the front line of defense in MR I, had dissolved in the face of the NVN artillery and tanks. The situation was viewed as critical. 18

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(S) The onslaught was nearly as successful in MR II, where the North Vietnamese quickly overwhelmed Dak To and severed road routes 19 (from the sea to Pleiku) and 14 (from Pleiku to Kontum), making overland resupply of the provincial capital of Kontum impossible. In MR III, the enemy rapidly besieged An Loc, north of Saigon, while simultaneously cutting Route 13, the land artery between the two cities. ¹⁹ (These campaigns are covered in detail in CHECO studies relating to each of the three Military Regions.)

(U) The enemy, however, may have made several errors of assumption in launching the invasion (it remains for future historians to fully count them and assess the degree of severity), and may have repeated a weakness displayed during the Tet 1968 offensive--that of continuing to commit forces long after the opportunity for victory had passed.

(S) It seemed apparent that the NVA underestimated the vulnerability of massed forces to air power, where tactical air is most efficient. It also seemed evident that they did not believe that air power, previously deployed out of the combat arena, could respond and redeploy back into the combat arena so rapidly. Enemy LOCs were stretched to the point where one must believe that the NVA predicated a major portion of their campaign on the assumption that their logistics flow would remain unbroken; therefore, we have to assume that they did not believe the U.S. would resume bombing over North Vietnam--much less mine the harbors. The enemy apparently overlooked the capabilities of the laser guided bomb against targets in the heartland of North Vietnam, and the impact that this would have on the rules of engagement.

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(U) The primary point in the crucial early days of the battle, when the NVN had great momentum, was perhaps best expressed by CINCPACAF, in an interview given to Air Force Magazine:²⁰

Initially, they overwhelmed the allied defenses. The great unsung story of this invasion is the speed with which tac air [tactical air] was able to respond. I don't think anybody can deny that the reason why the invasion was checked and the counter-offensive became possible is airpower, in the form of the B-52s, tac air, the gunships, and the guided bombs.

~~(TS)~~ The invasion was checked, but the war was still going on, and with their stockpiles and an unbroken logistics system, the North Vietnamese might have carried it on for an extended period. Strong response was needed, not only to stem the immediate threat but also to allow Vietnamization to proceed unhampered. The beginning of that response was Operation Freedom Train, begun almost immediately following the invasion. It opened the southern portion of North Vietnam to allied air strikes against LOCs, POL storage, truck parks, military storage areas, artillery installations, and SAM-AAA concentrations from the DMZ to 20° north latitude and from the NVN coastline to the Laotian border. While attacks were authorized, they were not unrestricted. As directed by the JCS:²¹

Attacks will be conducted so as to minimize danger to the civilian populace to extent feasible without compromising effectiveness. It is essential that strike forces are completely familiar with current restrictions, and exercise care in weapons employment to minimize civilian casualties and to avoid known or suspect hospitals, religious shrines, POW [Prisoner of War] camps, and third country shipping.

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(U) As more U.S. Navy attack carriers (CVAs) joined the line, more B-52s deployed to SEA, and more fighter aircraft arrived in Thailand to supplement tac air, the stage was set for policy and decision makers to order the mining of NVN harbors and the total interdiction of the northwest and northeast railroads of North Vietnam.

(U) The Presidential announcement of the U.S. mining was intended to permit foreign shipping to leave NVN harbors before the mines were armed, and served as a warning to ships on their way to NVN to alter their course. At 090247Z May 1972, the Executive Message was transmitted ordering the beginning of Linebacker.²²

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CHAPTER II

PREPARATION AND EXECUTION OF LINEBACKER

(TS) The invasion of South Vietnam did not come as a surprise, but its initial intensity did. As early as February 1972, plans had been drawn up at JCS, PACAF, and Military Assistance Command, Vietnam (MACV) in anticipation that it would occur. ²³ The message outlining these plans ²⁴ noted:

. . . The U.S. military actions to be taken in the event of a major enemy assault across the DMZ will consist primarily of maximum support for RVNAF [Republic of Vietnam Armed Forces] with tac air, Arc Light, Naval Gunfire, and troop lift. . . . The B-52 sortie rate should be surged to 1,200 sorties per month. . . . CVA (Attack Carriers) augmentation to the maximum capability should be available on call, troop lift augmentation by C-130 and C-141 would be required for rapid redeployment of JGS [Joint General Staff] reserve, if the enemy attack enjoyed a major initial success, consideration would be given to a suspension of standdown/drawdowns of U.S. units.

(TS) This message was a consolidation of several messages exchanged after the termination of Proud Deep Alpha,* and reflected current military assessments of NVA intentions. For example, COMUSMACV predicted in a 20 ²⁵ January message that:

The enemy will use MIGs, SAMs, AAA to complicate our operations. We expect his recently intensified MIG activity to continue and to be directed against our air operations. He is expected to position SAMs and AAA just north of the DMZ, and has already moved these weapons into the Laotian panhandle to counter

*Proud Deep Alpha was a preemptive strike conducted in late December 1971, when photo and other intelligence sources showed a large buildup of war-related supplies in the lower portions of North Vietnam.

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our operations in these areas. These measures will accompany intensive armor and artillery-supported ground operations against which we must be able to concentrate U.S. and VNAF [Vietnamese Air Force] air power regardless of the hostile air environment.

Following the 30 March invasion, the President recommitted F-4 squadrons which had already left Southeast Asia; he augmented the B-52 force at Guam and U-Tapao, Thailand, and redirected U.S. Navy carriers which were returning to the United States. By 6 April the total force was sufficient to initiate Operation Freedom Train, and for the first time since November 1968, sustained bombing was reinstated over North Vietnam. Although the basic authorities for Freedom Train restricted targets to those south of 20° North, several key strikes were made north of 20°, including one highly significant coordinated strike against targets in the Hanoi/Haiphong area on 16 April. Code named Freedom Porch Bravo, the strike force included B-52s, USAF and USN tac air, plus a large support package of chaff, ECM, and Wild Weasel/Iron Hand SAM killers. The targets included Petroleum Products Storage (PPS) complexes, vehicle storage areas, warehouses, naval yards and shipyards, and the Cat Bi and Kien An airfields.²⁶

As an example of the success of the mission, 17 B-52s struck the Haiphong PPS area with the following photographed bomb damage assessment (BDA):²⁷

Complex 35 percent destroyed.

30 21-metric-ton tanks damaged.

Six large vertical tanks destroyed (POL burned).

[REDACTED]

50 percent POL drum storage destroyed.

One 92-foot vertical tank heavily damaged.

One 70-foot vertical tank heavily damaged.

Eighteen POL railroad cars destroyed

Four POL railroad cars damaged

Seven rail cuts

This was but one of 10 targets struck, but it augured the effectiveness of future missions to be conducted over North Vietnam.

(U) This, and the subsequent tac air strikes that day, destroyed half of the known POL storage in the Hanoi/Haiphong area, and certainly gave notice to the North Vietnamese that the air campaign this time was not to be a "slowly graduated escalation."²⁸

Linebacker Begins

~~(S)~~ Linebacker "began" long before it was initiated. Contingency plans for such an operation had existed for years. These plans had been continuously updated to reflect the changing political climate, tenor of the war, weapons technology, and the action or reaction of the enemy.

~~(TS)~~ Once the NVN invasion started and the enemy's intent became clear, the President, his National Security Council, and the JCS prepared for an all-out effort to suppress the North Vietnamese assault and to set the stage for meaningful peace negotiations. A 4 April 1972 message from the JCS cited "a new set of rules in respect to the conflict in Vietnam," and solicited "recommendations to make maximum impact upon the enemy through²⁹ imaginative application of new initiatives."

[REDACTED]

(T) After an exchange of such messages between CINCPAC, JCS, and subordinate units, CINCPAC consolidated the proposals into a message to the Chairman of the Joint Chiefs of Staff. These proposals, forwarded on 7 April, included mining of the harbors, naval gunfire support along the coasts of both North Vietnam and northern South Vietnam, and more aggressive action against MIGs, both in the air and on the ground. CINCPAC concluded the message with a remark that reflected a highly significant change between Rolling Thunder and Freedom Train/Linebacker:³⁰

The authorities and added resources recently provided to field commanders are most welcome. They are essential to blunting the momentum of the enemy's offensive and will be exploited to the maximum that the tactical situation and resources permit.

This one relaxation alone had a far-reaching effect on the prosecution of Linebacker. The overall tone of the entire message traffic left little doubt that an integrated plan for a "hard" war was being implemented in Washington.

D-Day and the President's Message

(U) The Linebacker "Execute" message coincided with President Nixon's message to the world of the action that would be taken. As taken from Associated Press wires:³¹

President Nixon announced Monday night he has ordered entrances to North Vietnamese ports mined to keep weapons and supplies from what he called "the international outlaws." Nixon said U.S. forces have been directed to take appropriate measures to interdict supplies by sea. He said rail and other lines of supply will be cut off, while air and naval strikes continue.

The President was further quoted as having said:

. . . nations shipping supplies to North Vietnam have been notified they have three days to get their ships out, presumably from the port of Haiphong. He said any ships entering North Vietnamese waters after that will do so at their own risk.

The same article stated that the U.S. notification said:

The entrances to the ports of North Vietnam are being mined, commencing 0900 Saigon time May 9, and the mines are set to activate automatically beginning 1800 hours Saigon time May 11.

(U) Communist Bloc reaction to the announcement and to the beginning of the 10 May attacks over the North was surprisingly low key. The Soviet news agency TASS naturally accused the United States of "naked aggression," as did most other Communist countries; however, there was no immediate response from the Kremlin or Peking. The North Vietnamese and the Viet Cong, in a statement issued to the press, assailed the move--as would be expected--while most Southeast Asian nations praised it.

(U) According to a Pentagon release, five ships steamed out of Haiphong harbor before the deadline, leaving 31 ships trapped. Defense Secretary Melvin Laird stated at a news conference:

. . . [the ships remaining] made a conscious decision to remain . . . and unload their cargoes. The mines are not going to go out and seek the ships--but if the ships seek out the mines, there will be an explosion.

From the time of the mining through September 10, no ships-- Communist or other third country shipping--were known to have attempted to enter or leave the mined harbors. There was a very limited amount of lighterage, that is, offloading outside the 12-mile international limit

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onto shallow draft boats or barges. General John W. Vogt, Jr., Deputy Commander, U.S. Military Assistance Command, Vietnam (DEPCOMUSMACV) for Air and also 7th Air Force Commander, was asked "What degree of success did the mining of the harbors have?" His answer:

I would say almost a hundred percent. They were reduced to offloading, as you know, from Chinese vessels. These were relatively small coastal steamers which didn't have too much tonnage aboard to begin with. The lighterage activity was a long and laborious thing. They could do it only at night; they had to do it when there was no Navy air around harassing them; they had to run through mine fields with their lighters because we had a lot of MK-36s [magnetic influence and anti-disturbance fuze mines] dropped in there. It took in excess of a month to unload a five or six thousand ton vessel. So, only a dribble was coming in through that area.

(U) Haiphong was not the only port mined. Simultaneously, the U.S. Navy also seeded the waters off Cam Pha, Hon Gai, Vinh, and Thanh Hoa, along with several smaller inlets harboring NVN torpedo boats. The Rules of Engagement, as promulgated by CINCPAC, were emphatic and clear: do not endanger third-country shipping on the open sea. A "Notification Line" was established outside the 12-mile limit, with these instructions:

Ships on Notification Line will use all appropriate means, including radio transmissions, signal flags, flashing light, loud hailers, and semaphors to ensure that all shipping in this area is notified of the above noted measures. In making notification, language difficulties should be taken into account and every effort will be made to ensure that every ship master understands the content of the notification.

(U) The same message contained other provisions designed to protect third country shipping and personnel, while precluding lighterage of supplies to the shore. Among these were:

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Vessels offloading onto lighters outside NVN claimed territorial sea, take lighters under attack when they enter the 12 mile limit. No action against offloading vessel is authorized without approval of the JCS. For vessels offloading cargo inside NVN claimed territorial sea:

A. . . . Attack lighters when they clear off-loading vessel. No attack against vessel without specific JCS approval.

B. Take action to minimize personnel casualties and render all possible assistance to personnel in distress.

(U) With one decision, the President cleared the way for the military to seal off one important portion of the "open ended funnel." There remained the northeast and northwest rail lines to complete one basic phase of the three primary objectives of Linebacker--"reduce or restrict NVN assistance from external sources." The campaign to interdict the rail lines and so to stop supplies from entering North Vietnam had a singularly important facet--the guided bomb.

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CHAPTER III

GUIDED BOMBS: THEIR HISTORY AND IMPORTANCE

History of the Guided Bomb

(S) The first of the new guided bombs to be employed in Southeast Asia (SEA) was the AGM-62, or Walleye, developed at the China Lake Naval Ordnance Test Center in California. It was first employed by the USAF in 1967 as it underwent combat evaluation under the code name Combat Eagle. The Walleye was a TV guided [Electro-optically Guided Bomb (EOGB)] glide bomb with a slant range up to 40,000 feet, and was notably suited for high-contrast, hard targets. The need for high contrast stemmed from the fact that it was a "launch-and-leave" weapon, requiring a high contrast aiming point to remain firmly locked on target. Its efficacy against hard targets (concrete bridges, power plants, etc.) stemmed from the shape and composition of its warhead--a shaped-charge type with a jet cutting action which could punch a hole through 18 inches of steel-reinforced concrete. Its principal deficiency was that it could be diverted by low-contrast, camouflage, or even a cloud drifting between it and the selected targets. Nonetheless, it was a valuable addition to both USAF and Navy ordnance inventories, and provided a worthwhile system as long as satisfactory targets and suitable weather conditions allowed its use. Unfortunately, it did not come into full operational use until just before the 1 April 1968 bombing halt, which denied to this weapon its most lucrative targets.

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Paveway

~~(S)~~ Much of the same could be said of Paveway I, the first of the laser guided bombs (LGBs). By the time the Paveway I finished its combat evaluation period on 8 August, its use was restricted to targets south of 19° North. The total bombing halt over NVN a few months later restricted its use to relatively poor targets in Laos and SVN.⁴³

~~(S)~~ The LGB consisted of three standard inventory items "mated" into one system--the "iron" bomb (usually the MK-84, 2,000 pound general purpose), the AGM-45 Shrike control activator, and the KMU-351/B laser seeker. In operation, initially, one aircraft designated a target with a laser beam which, reflected from the target, created a "cone" or "basket" in the sky. The striking aircraft simply dropped the bomb into the cone; the seeker and guidance systems homed on the designated spot. In evaluation, the entire LGB system achieved an accuracy of eight feet Circular Error Average (CEA) and a Circular Error Probable (CEP*) of zero feet.⁴⁴

~~(S)~~ Paveway I had gone through several modifications and had been configured to several aircraft. Perhaps the most important modification was called Pave Knife, in which the designator pod was gimbal-mounted on one aircraft, so that the leader could illuminate a target for himself and the rest of the flight simultaneously. Prior to the Pave Knife modification, the flight leader had been required to fly precision circles around the target while the flight dropped their bombs one by one. This procedure had two disadvantages: (1) exposure to air-and-ground defenses

*CEP = Radial area in which 50 percent or more of the ordnance impacted.

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was increased because of added time over the target, and (2) the total strike effectiveness was reduced since, with the rigid designator, the leader could not drop bombs himself. From the beginning of Linebacker in the high threat areas, the USAF used Pave Knife with great effectiveness. As the leader rolled in on his target, the remainder of the flight timed their roll-ins so that all could drop their LGBs into the basket at the same time. The flight then egressed immediately, thus reducing exposure time.

(5) Certainly the LGB had its inherent operational deficiencies--haze, smoke, dust, or weather could degrade it--but its value against certain types of targets far outweighed these deficiencies. Its accuracy even led to the changing of the Rules of Engagement and the relaxing of operational restrictions upon field commanders, who preferred it to the Walleye. As a rule, the LGB was more accurate, it was far less expensive, and it was simpler and more available. It did not have the stand-off range of the Walleye, but it could be used at night. The LGB did not contain the jet shaped-charge of the AGM-62, but it had approximately double the explosive warhead weight (946 pounds for the MK-84) and in medium soil could blast out a 41-foot wide, 13-foot deep crater.

The Bridges

(6) Many of the more important bridges along both the northeast and northwest railroads were within the Buffer Zones adjacent to the People's Republic of China (PRC), and although validated, required authorization from JCS for strike. During Operation Rolling Thunder, the authorizations

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were not forthcoming because the relative inaccuracy of conventional bombing posed too great a political risk during the 1965-1968 period. This was one instance in which the LGBs and EOGBs were instrumental in changing the previous Rules of Engagement. With the demonstrated accuracy of the guided bombs, these bridges could be pinpointed without risk of collateral damage or injury to civilians.

~~(S)~~ Although BDA was not immediately available because of smoke, dust, and evasive maneuvers, CINCPAC photo confirmation of BDA on six bridges⁴⁸ struck in the Hanoi/Haiphong area on 10 and 12 May showed the following:

Hanoi RR & Hwy Br (Paul Doumer Bridge)
BDA: 3rd span damaged, 4th span dropped from eastern abutment.

Hai Duong RR and Hwy Bridge
BDA: 1 span dropped, 4 spans damaged

Hai Duong RR and Hwy Bridge East
BDA: Heavy damage, 1 span down, approach damaged

Kien An Hwy Bridge
BDA: 1 span dropped, 1 span damaged, north approach damaged

Cao Nunh RR Bridge
BDA: Center span destroyed, 2 southern spans dropped

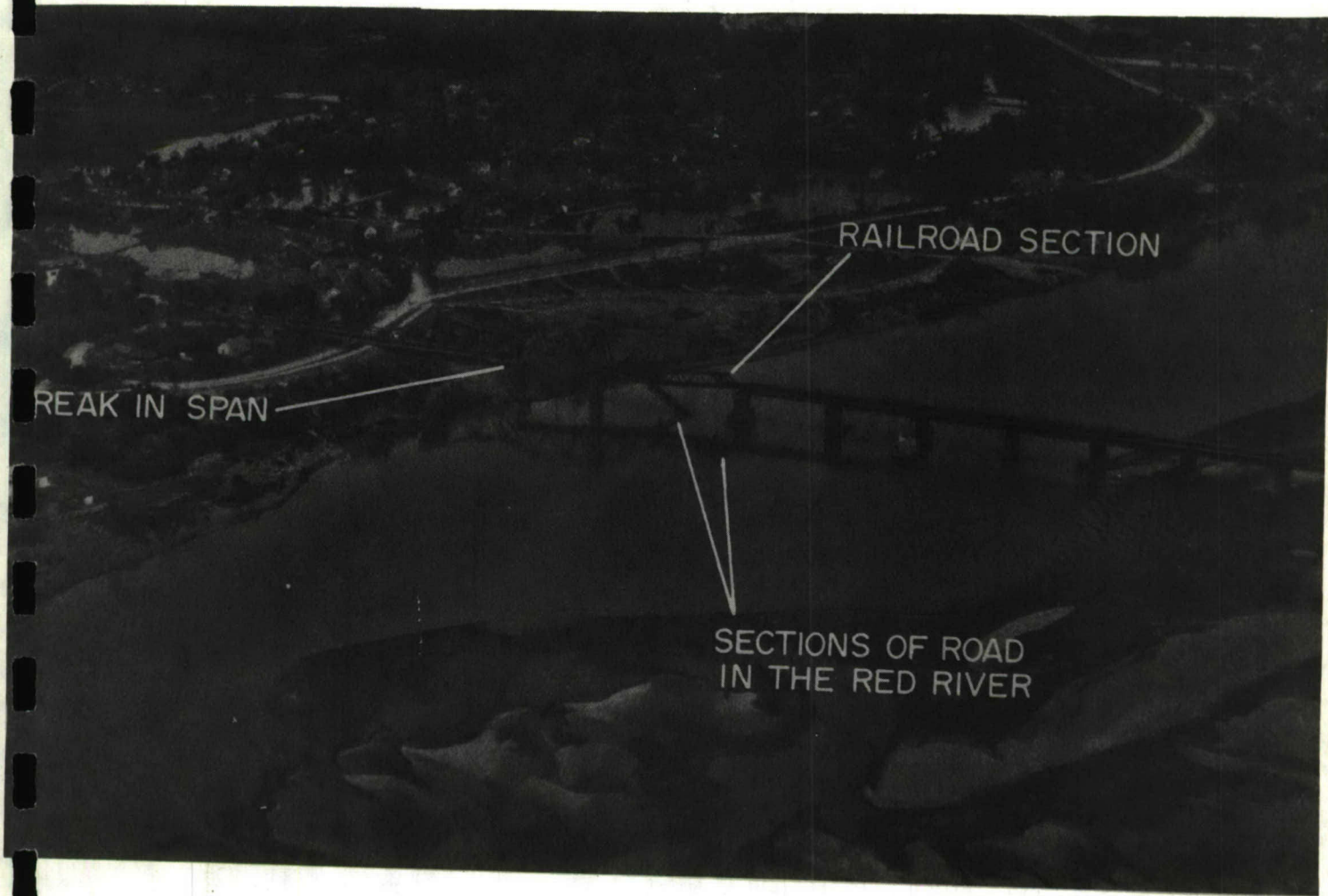
Lang Bun RR Bridge (Northwest Railroad)
BDA: South bridge destroyed and down

(The damage to Hanoi's Paul Doumer Bridge is clearly visible in Figure 1.)

The Thanh Hoa Bridge

~~(S)~~ The bridge which, it was said, "would never go down" went down with a splash 13 May 1972 under the impact of laser guided bombs. It was first attacked during Rolling Thunder on 3 April 1965. Subsequently, it

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Paul Doumer Bridge

FIGURE 1

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withstood three years of severe pounding by the USN and USAF, and remained serviceable. The bridge had highly emotional as well as military significance. Militarily it was a key link in the Route I Highway and Railroad component of North Vietnam's supply complex leading down the NVN panhandle. Emotionally, pilots found it totally frustrating to put so much ordnance on one bridge without dropping it.

~~(TS)~~ This 56-foot wide, 540-foot long bridge, built by the French during the colonial period, was of steel through-truss construction with two spans, a massive center concrete pier, and concrete abutments. Fore-shadowing the difficulties in destroying such targets with conventional iron bombs, on the first Rolling Thunder strike against the Thanh Hoa bridge, 79 F-105s dropped 638 750-pound bombs, fired 32 AGM-12B Bullpups, and 266 2.75 rockets. Although the bridge was hit several times, it failed to drop. In the attempt, the USAF lost an F-100 flak suppression aircraft, an RF-101 reconnaissance plane, and three F-105s. Of the F-105s, one was lost to ground fire and two to MIG-17s, the first aircraft to be lost to
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Communist jets in the war.

~~(S)~~ Contrasting this and the many subsequent attempts to destroy the Thanh Hoa Bridge with the 13 May 1972 strikes points up the dramatic advances in weaponry. In the Linebacker effort, three flights of F-4s carrying LGBs and one flight armed with conventional 500-pound bombs struck the bridge and left it unusable. In one day, 15 guided MK-84s, nine laser guided M-118s (3,000 pound demolition bomb), and 48 MK-82 500-pound bombs accomplished what could not be done in three previous years. No aircraft
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were lost on the mission.

(U) Results were not immediately confirmed because of heavy smoke in the target area, but the 8th Tactical Fighter Wing commander sent a Flash message to the Chairman of the Joint Chiefs of Staff of the possibility that the western span might be interdicted. Photography proved it. (See Figure 2.)

~~(S)~~ Commenting on this effectiveness of the laser guided bombs versus conventional ordnance, General Vogt said:

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It was this sort of precise tactic that enabled us to achieve the success we had against the railroad bridges in those high threat areas, as you can see from the many reconnaissance photographs we have of those bridges.

We discovered, for example, that the effectiveness of the laser guided bomb was [much greater than] that of the conventional bombs. One day, for example, we went up and knocked out five bridges on the Northwest Rail Line with a laser strike, and when PACAF ran that through the computers, they determined that where we used 24 total bombs, it would have taken 2,400 bombs to do that by the old conventional method. So there was a tremendous breakthrough in technology and applied tactics. . . .

(U) Both the Northeast and Northwest rail lines were interdicted within a few days, cutting to a trickle the amount of supplies coming from Communist China. As General Vogt continued, ". . . thorough interdiction of those rail lines--we had 15 bridges out on each railroad at any given time--as fast as they would build them, we would knock them out again."

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(U) One of the bridges the General was speaking of was the Lang Giai Railroad Bridge on the Northeast Rail Line, one which required special

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Thanh Hoa Bridge

FIGURE 2

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authorization from the JCS since it was well within the PRC Buffer Zone, about 20 miles from the PRC.

(U) The bridge was 1,500 feet long, supported by 10 reinforced concrete piers up to 100 feet high, with heavy concrete abutments at each end.⁵³ The bridge was a crucial one in terms of interdicting the line, because of the difficulties of reconstructing it.

(S) Even though cloud cover hampered operations (up to 7/8th cloud cover for some of the strikes), 20 F-4s loaded with LGBs and EOGBs took out six of 11 spans of the bridge. The following is an extract from the summary of operations for the mission:⁵⁴ (May)

Flight 1. EOGB MK-84: Due to poor weather, only two weapons [dropped] by one aircraft. One weapon fell short and did not detonate, one weapon was a direct hit and destroyed one span of the bridge.

Flight 2. Four F-4s. LGB MK-84. Six weapons dropped. Two fell 1,200 feet long; other four not observed due to weather. Target obscured by 7/8 cloud coverage of target, making it impossible to effectively utilize this system.

Flight 3. Four F-4s. LGB MK-84. Four bombs missed target by 600 feet, four appeared to hit, but no BDA due to smoke and dust.

Flight 4. Four F-4s. LGB MK-84. All eight bombs were direct hits. Two bridge spans were destroyed.

Flight 5. Four F-4s. LGB MK-84. Weapon and system performance were excellent. Seven bombs were direct hits, one bomb released ballistically. Two bridge spans were destroyed.

(U) Figure 3 graphically illustrates the capabilities of the LGB, even though weather conditions were not favorable for the strike. Both rail lines were kept interdicted in this manner throughout the period of this report.

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Rail Line Cuts

(U) Even though cutting the lines themselves was not as effective an interdiction method as destroying the bridges, rail lines were cut by guided bombs on many occasions when priorities demanded it, or when weather or other factors kept strike aircraft from the bridges. Sidings and rail yards were equally profitable targets for guided bombs, especially when populated areas, dikes, or other off-limits areas required LGB accuracy. For example, two guided bombs dropped by two F-4s on 2 June interdicted a railroad siding on the Bac Le portion of the Northeast rail line, about 60 miles north of Hanoi. In addition, they destroyed or damaged several boxcars and POL tankers. Figure 4 shows their accuracy; in contrast, the water-filled craters in the photograph were caused by conventional bombs dropped in 1968.⁵⁵

(U) The interdiction of the railroads coming from mainland China, along with the mining of the North Vietnamese harbors, accomplished one of its three basic tasks--reducing or restricting to the greatest extent possible NVN assistance from external sources.⁵⁶

The Road Network and Truck Transportation Facilities

~~(S)~~ The NVN and Communist China switched to roads in an effort to get supplies into North Vietnam, but since 67 percent of incoming supplies had been shipped into the harbors, and much of the rest over the rail lines, these were the principal targets.

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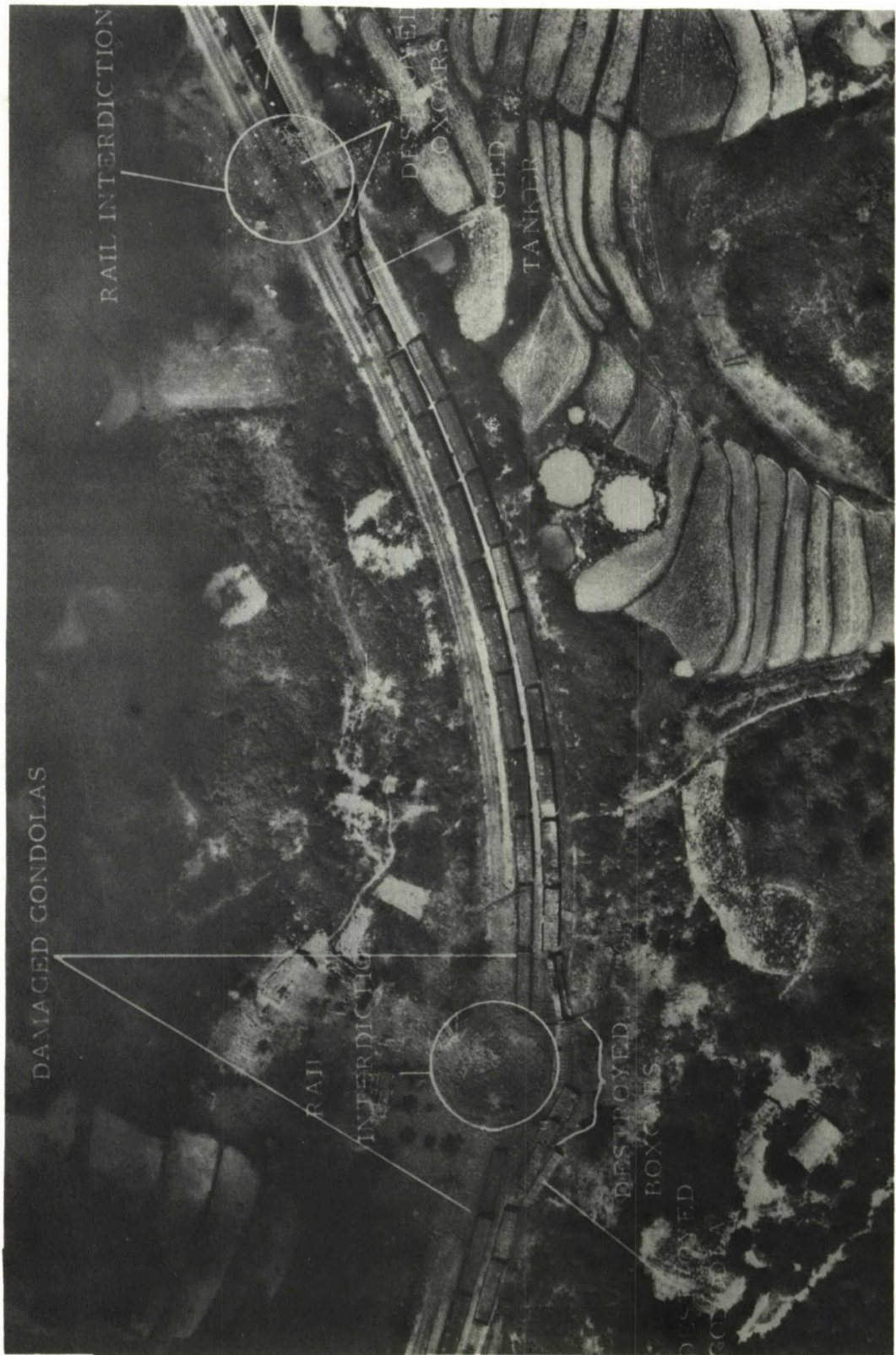


Lang Gai Bridge

FIGURE 3

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Bac Le Railroad Siding

FIGURE 4

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~~(TS)~~ The road network and truck transportation facilities were not neglected in this interdiction effort, but after the initial heavy strikes on the railroads and the mining of the harbors, the road and truck portion of the campaign was further intensified. General Vogt daily advised General Ryan, Chief of Staff of the Air Force, of the results and intentions of Linebacker. In his message of 11 June 1972, he said:

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I note CINCPAC's 110355Z [message], which requests that we take all feasible actions to interdict enemy truck traffic being used to overcome railroad and port interdiction. As you know from my recent messages, we devoted one whole day's strike effort to destroying along Route 1A leading from the China border and making road cuts at natural interdiction points on this main artery. I think we must all realize it cannot be completely stopped. Far more effective in limiting truck use would be to destroy concentrations of them such as that which exists just south of the Chinese border, and we have requested authority to hit and destroy the motor vehicle storage and repair facilities in the Hanoi area which are needed to keep the truck fleet operating. We concentrated on these facilities during this last week, and have made a severe dent in their maintenance capability. We should, however, take out the remaining known motor vehicle repair facilities and this will receive our priority attention.

~~(TS)~~ On 3 July 1972, USAF tac air struck three more vehicular repair facilities in the Hanoi vicinity--the Hanoi Vehicle Repair Area, the Hanoi Military Vehicle Depot, and the Hanoi Storage Area, all grouped together on the southern outskirts of the city. The Hanoi Motor Vehicle Repair plant was again successfully struck on 7 July.

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~~(TS)~~ Attempting to destroy key highway bridges, a concerted operation was conducted against the Northeast Highway segment on 11 July.

One flight aborted for mechanical reasons, the second claimed destruction of the Lang Luong highway bridge on Route 1B north of Thai Nguyen, and the third flight missed the Lang Met highway bridge on Route 1A, but the crew claimed they cratered the road just south of the bridge.⁶⁰

(S) These efforts continued throughout the period of the report. In addition, albeit with marginal results, flights struck roads and bridges when weather forced them to divert from other targets. It was admittedly difficult to stop all truck traffic, because the enemy used by-pass routes and shuttling in their attempts to keep a supply flow. At night the enemy repaired bridges and filled road craters, and many key bridges had to be restruck several times.⁶¹

(S) The continued interdiction of the rail lines and the mining of the harbors, however, forced the enemy to rely essentially on his internal supplies and, as stated by the Commander of 7th Air Force, ". . . He was beginning to dry up."⁶²

(U) Every military commander interviewed was emphatic about the effectiveness of Linebacker in achieving its three stated objectives. Admiral John Seth McCain, Jr., then CINCPAC, was interviewed by Air Force Magazine's Executive Editor John L. Frisbee and Senior Editor Edgar Ulsamer. They asked the question, "How effective is Operation Linebacker?" Admiral McCain replied:⁶³

Operation Linebacker has been very effective in striking military targets in North Vietnam and interdicting supply routes within the northern area of that country. Sophisticated weapons have knocked out numerous key rail and highway bridges, destroyed essential POL storage areas and war-making

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industries, and have seriously disrupted the transportation network throughout North Vietnam. This network is essential for the enemy to move supplies and equipment to the battle-fields in the South. This, in conjunction with the closure of North Vietnam's harbors and the enemy consumption of supplies in South Vietnam makes the operation even more effective. The true impact, however, may be just now being felt by the North Vietnamese Army. As their stockpiles and caches and the communication lines are disrupted, they are finding it much more difficult to effect an adequate resupply from the Hanoi/Haiphong areas to their deployed divisions in South Vietnam. As time goes by, the overall effectiveness of Linebacker will be even more important.

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CHAPTER IV

DESTRUCTION OF INTERNAL SUPPLIES

~~(TS)~~ It was apparent from the first day's strikes that destruction of the enemy's internal supplies, caches, and production facilities began from the first day of the campaign, even though CINCPAC said in a message to COMUSMACV: ⁶⁴ 13 May

While I fully appreciate the many competing demands upon air and NGFs (Naval Gunfire) assets at this critical juncture of the land battle, we must nevertheless maintain pressure by an appropriately balanced allocation of effort. Therefore, I request . . . you carefully review the direction of your day to day effort in support of Linebacker operations. It is essential to keep in mind that among many desirable goals, one of the most important is to strike enemy transportation and supply systems into and out of the Hanoi/Haiphong complex up to the PRC buffer zone.

~~(S)~~ Obviously CINCPAC emphasized interdiction; however, the destruction of internal supplies was not overlooked. In addition to the purely interdiction targets, the 7th Air Force preliminary BDA report for the 10 May 1972 strikes included port facilities, PPS areas, SAM sites, truck parks, and military storage areas. ⁶⁵

~~(S)~~ The results were impressive. USAF and Navy tac air recorded through their OP-4 reports 12 secondary explosions, 14 secondary fires, five trucks destroyed and one damaged, and at least two military structures (warehouses) destroyed. Other OP-4s for the day mentioned "numerous" ⁶⁶ secondary explosions, secondary fires, and POL tanks destroyed. That same day, USAF and USN fighters shot down 11 MIGs.

(S) Similar strikes continued throughout the Linebacker campaign through the length and breadth of North Vietnam, wherever priority targets existed, with B-52s, USAF and USN tac air participating. These targets came from a long list of validated hard targets including power generating plants, petroleum storage areas, repair and storage facilities, military camps, supply depots, assembly areas, and military headquarters buildings. ⁶⁷

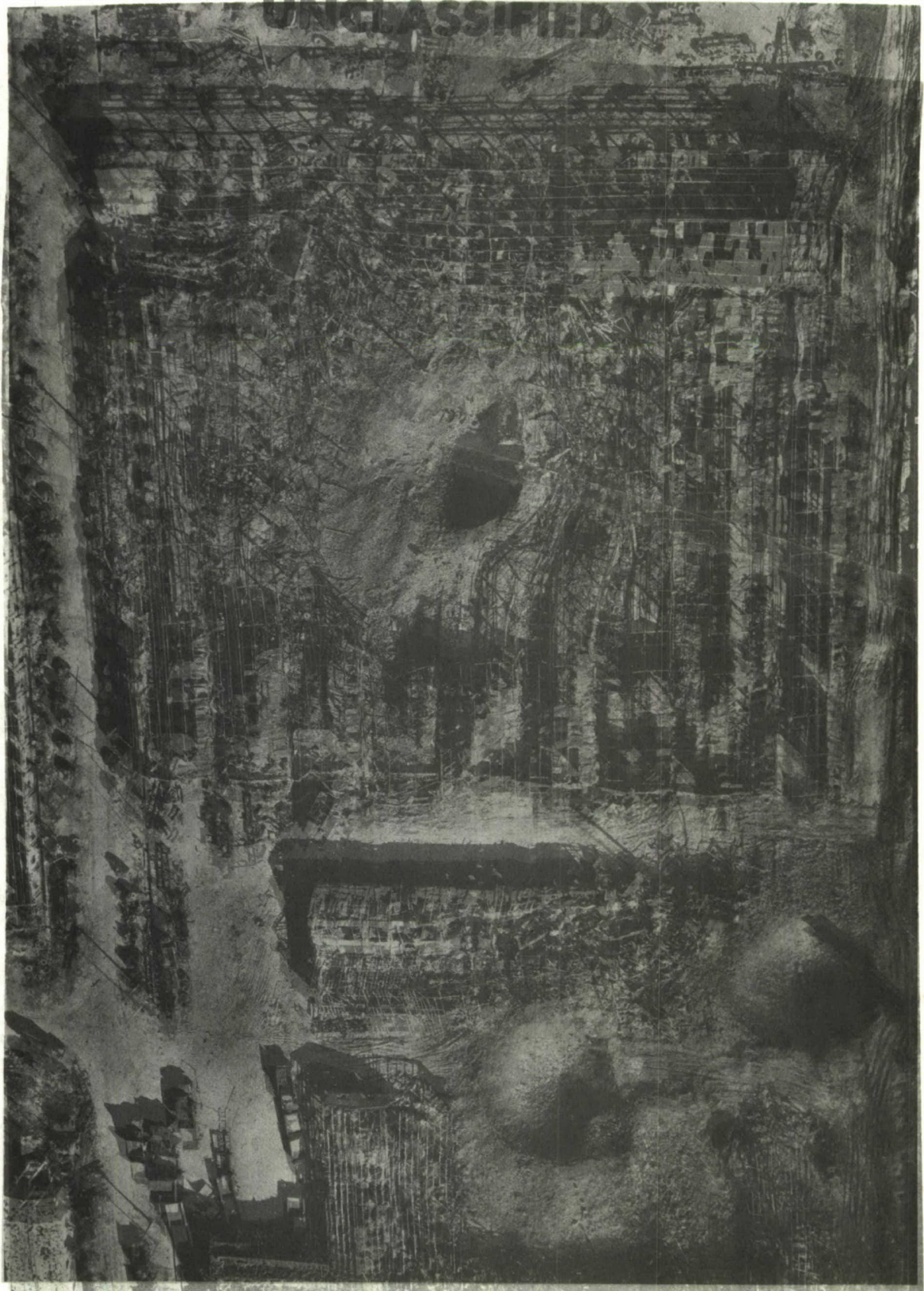
(U) With the rail lines interdicted, Linebacker forces turned to destroying facilities within North Vietnam. On 18 May, USAF fighter-bombers hit a large POL storage area only three and one-half miles north-east of Hanoi. Using LGBs, the strike force destroyed "more than 5.5 million gallons of fuel" according to military spokesmen. ⁶⁸

(U) Commenting upon these operations, Pentagon spokesman Jerry W. Friedheim said that U.S. air power would begin striking "other types of targets" than those directly involved in the NVN military effort. He announced that our aircraft would "be hitting some of the other targets such as the power plants and some of the industrial facilities which supported the military effort of the North." His announcement came somewhat after the fact: several days earlier, on 20 May--again using laser guided bombs--U.S. fighters had knocked out the Hanoi electric transformer station eight miles northwest of the NVN capital, leaving the site in flames and causing five large secondary explosions. ⁶⁹

(U) In a superb display of accuracy, LGBs destroyed the Son Tay warehouse and storage area on 26 May. As shown in Figure 5, the large center warehouse was 300 by 260 feet, the "E" shaped building on the left

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Son Tay Warehouse
Son Tay Warehouse

FIGURE 5
FIGURE 5

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was 260 by 145 feet, and the storage building between them was 210 by 65 feet. The craters give ample proof of the accuracy achieved. ⁷⁰ *and May*

(U) On the nights of 1 June and 5 June, F-4s struck the Bac Giang electric power plant 25 miles northeast of Hanoi, damaging it heavily with 2,000 pound MK-84 LGBs. This thermal power plant was a major producer of electrical power and, as indicated by the lack of smoke from the main smokestack (see Figure 6), the plant was still out of operation when post-strike photography was taken a week later. ⁷¹

(U) Pilots from the carrier Kitty Hawk struck the Haiphong PPS and pumping station on 3 June, destroying three huge storage tanks, igniting several sustained fires, and sending heavy black smoke thousands of feet into the air. ⁷²

(U) On 9 June, Linebacker tac air fighter bombers roamed North Vietnam from the DMZ to Haiphong, striking fuel depots, storage areas, troop locations, and other military complexes. Arc Light B-52 strikes bracketed Dong Hoi, hitting two supply depots, one on each side of the city. ⁷³

(U) The next day, 10 June, the Lang Chi hydroelectric power plant in the Red River Valley was the prime target. This facility, the largest known power producing plant in North Vietnam, was 63 miles up the Red River Valley from Hanoi, and was considered capable of supplying 75 percent of the electricity for North Vietnam's industrial needs. The target was a difficult one, inasmuch as the dam associated with it was off-limits. Pilots reported direct hits in the transformer yard and to turbines and

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generators in the main building, while the dam itself and the spillway⁷⁴ were not breached. Post-strike photography confirmed this. (See Figure 7.)

(U) U.S. Navy pilots, with three CVAs in the Tonkin Gulf, were striking hard against storage and industrial targets in their areas of responsibility (Route Packs II, III, IV, and VIB). Using guided glide bombs and conventional bombs, pilots from the three carriers rendered three bridges unusable, destroyed 13 supply buildings, and leveled three warehouses on 13 July in the Hanoi/Haiphong areas.⁷⁵ (See Figure 8 for depiction of USAF/USN operating areas of North Vietnam.)

(U) The concentrated attacks against NVN internal supplies and facilities did not slacken; rather, they intensified. From a MACV news briefing,⁷⁶ an AP-UPI story said the following:

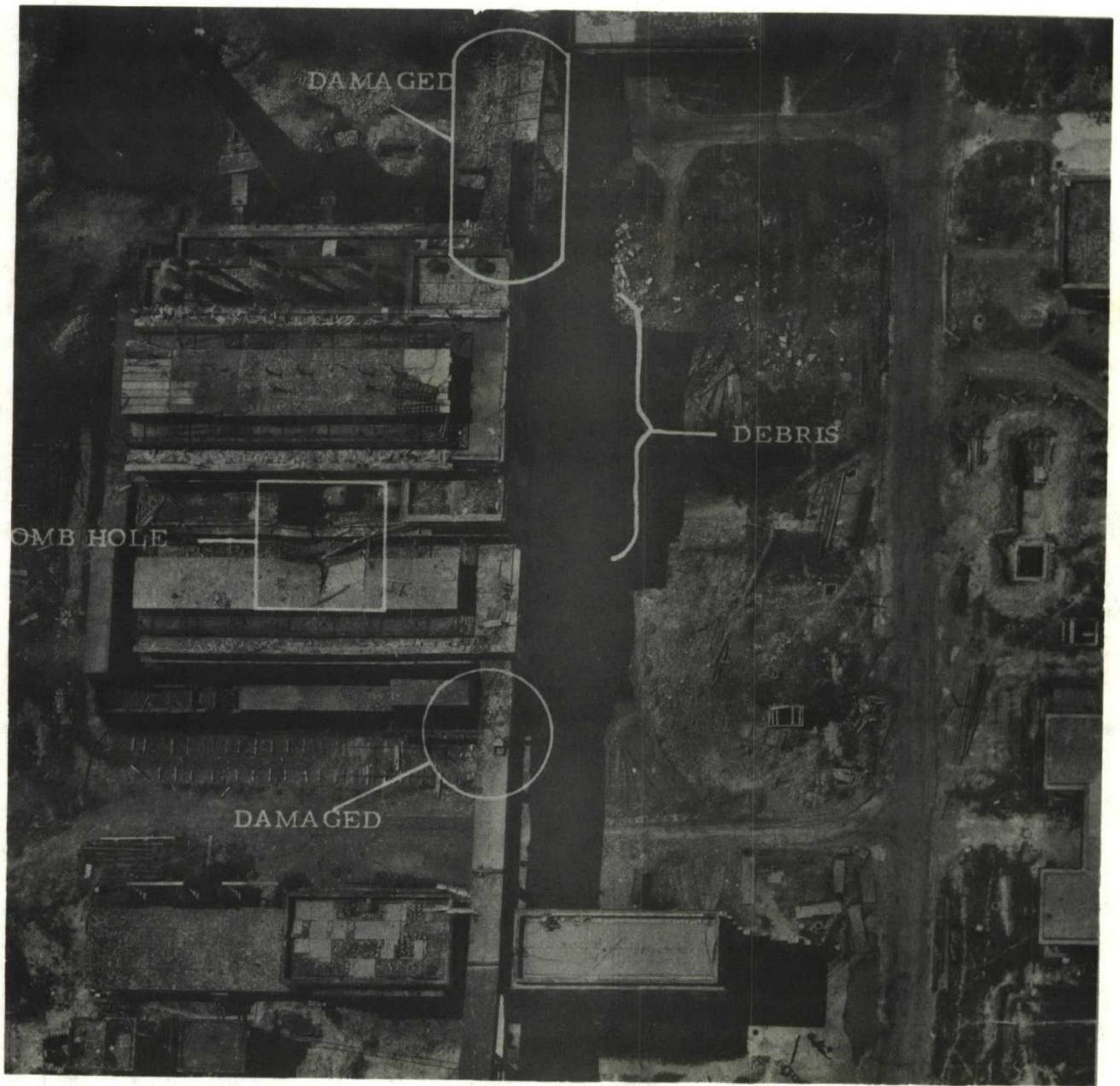
In other air action more than 320 Air Force, Navy, and Marine fighter-bombers swept across North Vietnam Tuesday [18 Jul 1972], wrecking warehouses, cutting runways at MIG air bases, dropping bridges, and leaving fuel depots in flames, with fireballs shooting 4,000 feet into the air, spokesmen said.

The biggest strike of the day was the raid, the first of the war, against the Nguyen Khe Military Complex, a sprawling area of more than 2.5 million square feet nine miles north of Hanoi.

Air Force F-4 fighter-bombers from two wings in Thailand dropped laser-guided and regular bombs into the complex's vehicle repair facility buildings, transit sheds, fuel storage area that contained both underground and above-ground tanks, and rail lines, spokesmen said.

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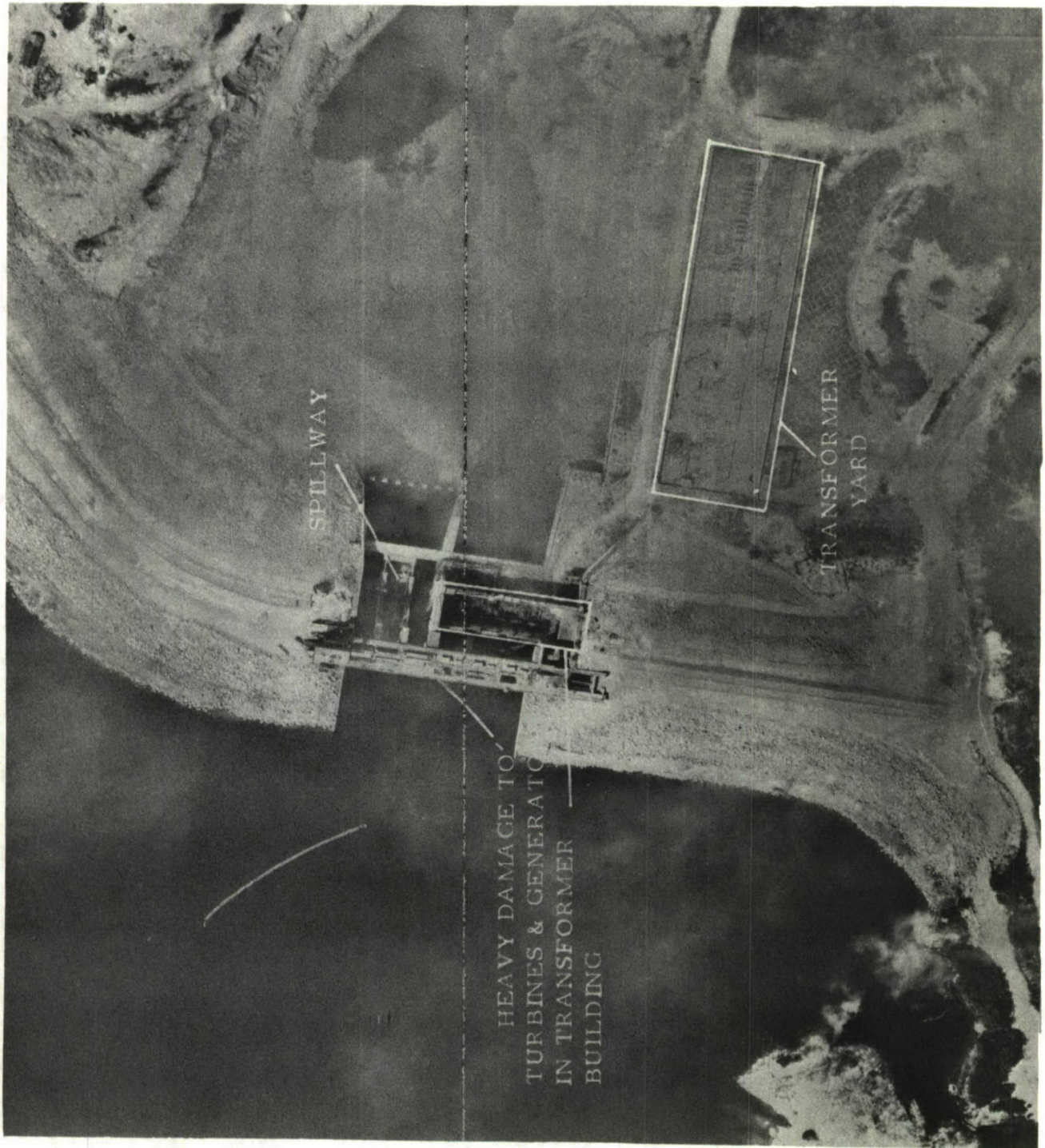


Bac Giang Thermal Power Plant

FIGURE 6

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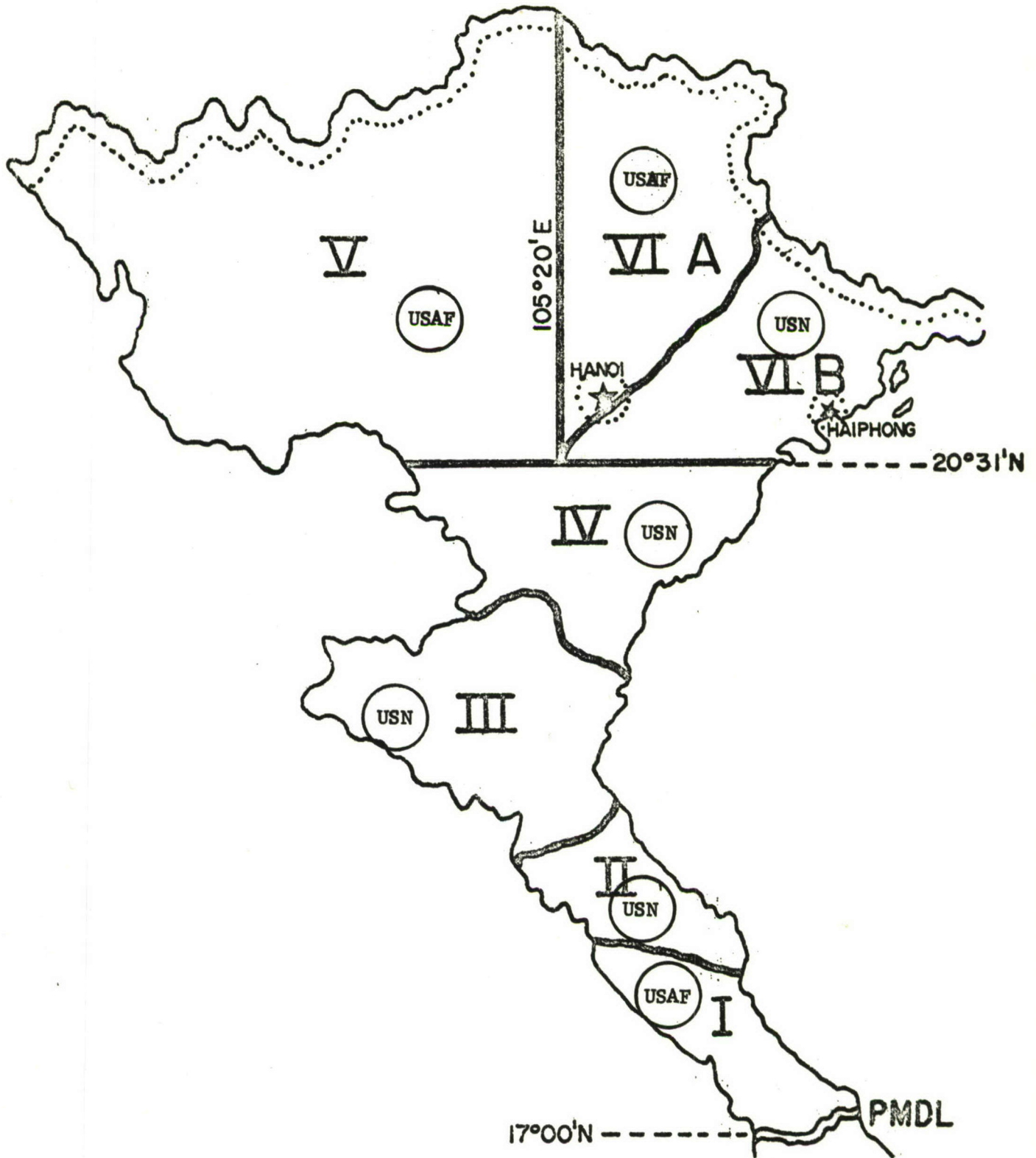


Lang Chi Hydroelectric Power Plant

FIGURE 7

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Operational Areas of Responsibility, North Vietnam

FIGURE 8

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They estimated the complex had about three million gallons of fuel and most of it was set on fire. Spokesmen said reconnaissance photographs taken after the strike showed fires still burning.

Five big buildings were reported destroyed and stacks of supplies scattered, Air Force spokesmen said. The complex--a major transshipment point for war materials--is located at the junction of North Vietnam's two major rail networks, the north-east and northwest lines that run to the border. Several railroad spurs were cut, making the transshipment of supplies more difficult, the spokesmen said.

~~(S)~~ The strikes continued through this reporting period, with effective results. Most of the foregoing was taken from unclassified sources, but the effectiveness of the strikes was confirmed by official message traffic and by interviews with senior military officers. DEPCOMUSMACV for Air, General Vogt, said that

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He [the enemy] was beginning to dry up--no question about that. Enemy attacks by fire (ABF) began to go down. You know, at places like An Loc he was firing five, six thousand rounds a night. Pouring it in! . . .

[This was drastically reduced as the fighting went on,] . . . which leads me to believe that we got a real valuable effectiveness in there on the essential items. . . . I'd say as a safe figure he was reduced to about 20% of his previous supply, and it did show up in the battle areas, in the forward areas. He was beginning to hurt with many, many critical items; he was short of POL supplies, short of food, short of ammo, short of all the basic essentials.

* * * * *

. . . We have a great many POW statements. They hadn't eaten in three days; they were down to one clip each for their AK-47s [Soviet/PRC Automatic Rifles]. We captured a young lieutenant at Quang Tri. He had come down from the North and was briefed on the situation

[REDACTED]

in Quang Tri City. He was told he would be issued his sidearms and other weapons when he got into the city. There weren't any available. And when he got there, he discovered that the issue consisted of finding a weapon from a dead body. . . .

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The General had noted earlier in the interview that

We were not constrained. In some of the sensitive areas, for example, I was allowed to take out all power [major electric power plants] in a very short time, with the exception of one power plant and that was the thermal power plant in Hanoi itself. But all the others we took out. The Navy came in. We sat down here with Admiral Cooper and planned the campaign. He took out those in his area and I took out those in mine, and we set a date by which we wanted to accomplish this. Then we went to work and destroyed them. The cumulative impact was crushing. Lights started failing, they started cutting off the fans and airconditioners up there, and the Embassies were getting power one day a week. Many parts of the city [Hanoi] had none at all. This in turn impacted on the repair shops and the engine rebuild facilities all around the city. The effect of it was dramatic. . . .

[REDACTED]

CHAPTER V

THE AIR SUPERIORITY ASPECT

The NVN Air Defense System

(S) The North Vietnamese had what was generally conceded to be, if not the best, then at least one of the best, air defense systems in the world. It should have been: it had been battle tested for twice as long as any such system in history. Among its strongest features were excellent radar integration, the Soviet-built SA-2 missile (SAM), and the MIG-21. This defense system also operated over its own homeland--a near indefinable advantage.

(S) The NVN air defense system had an impressive array of firepower from ground level (automatic weapons and AAA) up to 19 miles in the air (the SA-2's effective range). It had the light and highly maneuverable MIG "spring-loaded" on the ends of its runways, ready to be vectored with split second timing to U.S. strike and support forces by radar.

(S) It was no secret that the enemy could ascertain the strike force structure soon after the U.S. left the ground, and then assess their intent soon after ingress over NVN. For example, if a chaff flight was involved, it meant to them that it was to be a major Linebacker mission. The chaff flight was easily identifiable to their search and height-finding radar, since it was restricted (aerodynamically by the chaff pods) to approximately 480 knots, and generally flew in a straight line toward its (first) target. The chaff escort flight was then also easily identified through its faster airspeed and weaving pattern, designed to enable it to

[REDACTED]

stay with the slower chaff flight. Since the chaff had to have time to disperse if it were to be effective, the enemy could count upon 15 to 20 minutes before the strike force came through. By this time, the chaff itself had outlined a perfect corridor of the ingress, probable target(s), and egress route of the strike force.

~~(S)~~ To the friendlies' advantage, the chaff did degrade the effectiveness of the enemy's SAM and AAA gunlaying radars. This degradation was further supplemented by EB-66E electronic jamming, U.S. Navy jamming, and jamming pods on the strike aircraft themselves. The Navy had the early warning radar ship, "Red Crown," in the Gulf of Tonkin, while the Air Force had an airborne counterpart, "Disco," to give MIG warnings to friendly strike forces. Red Crown was highly effective along the coastal areas of North Vietnam but less so further inland because of the added distance. Disco was, at times, only marginally efficient, either because of communications or radar limitations. Consequently, and especially during the early stages of the campaign, often the first warning U.S. forces had that a pair of MIGs were about to engage them was when U.S. pilots visually acquired the enemy at the six o'clock position. Coming in at Mach 1.2, the MIGs placed U.S. pilots in a most unenviable situation.

~~(S)~~ The USAF had the Wild Weasel/Iron Hand hunter/killer F-105s configured with AGM-45s to seek out and suppress the SAM and AAA threat, and this worked to the U.S. advantage. However, the MIG threat remained at a high level. As put by General Vogt:

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[REDACTED]

The last eight months of Rolling Thunder, the enemy command and control system had been so refined and so perfected, with Soviet technical help, that we were barely breaking even in our loss-to-victory ratios. . . . The operation cost us an airplane almost every time we went up there. The enemy had adopted high speed [one pass] tactics using the MIG-21, good vectoring, and good control by his radars. We had nothing to compare with it in those days. . . .

When Linebacker started, we did quite well for the first few months. In May and June, we were doing better than one-to-one. In the latter part of June and the month of July, they really started getting to us. We were losing more airplanes than we were shooting down. In August we reversed this very dramatically, and we have sustained a four-to-one ratio ever since. This is the most effective show we've had during the entire war with the battle against MIGs, over a sustained period.

The answer was that we went into a much more sophisticated system for providing warning for the defending pilots--our guys. . . .

Teaball

(S) The first week of August, the sophisticated warning system General Vogt mentioned came into operation, with the nickname Teaball. In simple terms, Teaball introduced a long range, integrated GCI system wherein real-time information could be given our pilots over North Vietnam, to give U.S. fighters parity with the NVN control system.

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(S) The General went on to explain:

The Teaball facility came into operation in early August when we had a loss-ratio of something like 0.47-to-one--we were losing almost twice as many as the MIGs to us. Then, with the first week's operation of Teaball, we jumped to a four-to-one ratio for the month of August, a four-to-one in September. . . . This proved one thing--if you can show the

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American fighter pilot where [the enemy] is in sufficient time, he'll shoot him down. Overall, and especially following the commencement of Teaball, American pilots enjoyed definite air superiority over North Vietnam. It was necessary if Linebacker was to continue to be productive.

The MIG Killers--First Aces

(U) Linebacker produced the first Aces of the Southeast Asia War. Then-Colonel Robin Olds had gotten four MIGs prior to his 1968 reassignment to the USAF Academy, but none had gotten the elusive fifth.

~~(S)~~ However, the resumption of large-scale air operations over the North quickly changed that. On 10 May, Navy Lieutenant Randall Cunningham (pilot) and his radar intercept officer, Lieutenant J. G. William Driscoll, were credited with becoming the first Aces of the war. Flying an F-4J off the carrier Constellation on a flak suppression mission over Haiphong, Cunningham's flight engaged a flight of MIG-17s. Pulling up into a vertical scissoring maneuver, Cunningham and Driscoll picked off three MIGs, two of which were "on my buddies' tails."⁸¹

(U) According to his own account, Cunningham used vertical maneuverability to overcome the horizontal advantage of the lighter MIG. The air was filled with planes, and as Lt Cunningham explained it, "It was like a World War I 'lufbery.' Every time I came down, I found one of them on somebody's tail. So I picked him off and went back up."⁸²

(U) With fuel "bingo" (merely enough to get them back to their base, tanker, or the carrier), Cunningham and Driscoll had to break off and egress. On their way to the coastline, they were struck by an SA-2 missile

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and were forced to eject over the Gulf of Tonkin, where they were safely recovered by a SAR helicopter.⁸³

(U) This was the first conflict since World War II in which both the front and back seater received Ace credit: in an aircraft as complicated as the F-4, the radar operator is absolutely essential in acquiring and vectoring the pilot into the "kill" position.

(U) The next MIG Ace was USAF Captain Richard "Steve" Ritchie, of the 432nd Tactical Reconnaissance Wing (TRW) at Udorn, Thailand. Ritchie, and his "Guy-in-Back" (GIB) picked off their first MIG-21 on the same day that Randy Cunningham and Bill Driscoll achieved Ace status, 10 May. Ritchie's weapons systems operator, Captain Charles D. Debellevue, was on leave during Ritchie's second MIG-21 kill, 31 May, so could not yet share "Ace" honor with Steve when the pilot finished off his fifth MIG-21 on 28 August. Debellevue was with him, however, when the team got numbers three and four on 8 July.⁸⁴

(U) Captain Debellevue did achieve a singular honor by the 10 September closing date of this report. On 9 September, flying with Captain John M. Madden, Jr., also of the 432nd TRW, the pair fired a heat seeking Sidewinder missile to knock down a MIG-19 and give Debellevue his Ace status. The pair engaged another MIG during the same flight. However, it was not until a week later, following photo analysis and debriefings of fellow crewmembers engaged in the same dogfight, that Debellevue was officially credited with his sixth MIG kill, making him the leader in that status.⁸⁵ (See Appendix B, MIG kills 10 May-10 Sep, and Appendix C, friendly aircraft losses 10 May-10 Sep 72.)

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CHAPTER VI

EFFECT OF WEATHER ON LINEBACKER PLANNING

(U) The question was asked of several high ranking USAF officers, "What effect did forecast weather have on Linebacker planning?" Without exception their opinion was that it was crucial. General Vogt said, in response to the question, "It was a vital part of the operation!"⁸⁶

~~(S)~~ The full impact of weather, both in short and long term planning, was not fully ascertained by planners until some weeks after the beginning of the operation. This was understandable in light of the fact the Linebacker went into action almost simultaneously with the onset of the southwest monsoon season, when weather over most of the primary target areas would usually be suitable for LGB operations. In an analysis submitted by the 10th Weather Squadron it was brought out that:⁸⁷*

. . . Prior to mid July, the Linebacker fraggers and decision-makers did show an interest in the next day's forecast as represented by the WSU [Weather Support Unit] 1700H outlook. While they would at times adjust the TOT [Time Over Target] because of an UNFAVORABLE morning forecast over the targets or refueling areas, they seldom would change the targets themselves, once the frag was issued. If a day or two went by, however, with no mission being executed because of weather, additional missions were fragged (two or three) for the following day on the chance that one would have favorable over-the-target weather.

~~(S)~~ At that time it appeared that targets were chosen primarily on the basis of target priority, with the weather forecast being a secondary

*Full text contained in Appendix D.

[REDACTED]

consideration. As the campaign progressed, however, it became increasingly apparent that weather deserved a more prominent place in the planning phase. Even in the best of periods over North Vietnam, weather was not a respecter of target priority, and the planning staff realized this. The same analysis further said:

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. . . Since mid-July, the current staff have been much more friendly toward weather [forecasters] and they pump us for all the information we can give them. The Blue Chip briefers have recently remarked how receptive the staff has become in the past weeks. With a customer who listens and acts on your advice, you try harder. As a result, our products are being increasingly used for planning purposes. . . . So while it is still true that targets are chosen on the basis of priority, our forecasts are now influencing the area of choice.

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General Vogt emphasized the point when he said:


. . . The first thing I did when I got in here in the morning was to meet with my weather man. He'd have all the material here in front of me. So before we even began the formal briefings, I'd have a good feel for what the weather was. Then we would go into the target selections for the next 24 hours, based on the weather forecast. If the man was certain that the Northeast Rail Line was going to be unworkable, we would do our planning for the Northwest or elsewhere. . . . [The weather forecasters] very definitely provided good guidance for the next 24 hours--good concrete guidance. Very vital.

~~(S)~~ With forecast weather indicating marginal conditions (4/8 to 5/8 cloud coverage), which greatly degraded LGB or E0GB accuracy, an alternate target would be selected unless the initial target was extremely

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important. Early-morning weather reconnaissance had a strong role in the decision making factor. Based upon recon, one of four decisions would be made:

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- . The mission would be launched as fraged.
 - . The launch would be delayed because of adverse weather and a new TOT assigned.
 - . The mission would be diverted to weather alternate targets found to be favorable by the recce.
 - . The mission would be cancelled because all targets were unfavorable and forecast to remain so.

(U) All in all, weather had a critical effect on the planning and decision making processes in Linebacker.

Refinement of LORAN Time Delays

~~(S)~~ With the onset of the northeast monsoon, much of North Vietnam would be covered for days, and possibly weeks at a time, with solid overcast. This would virtually rule out any extensive use of guided bombs, and gains achieved during the dry season could be lost. It was realized that, if Linebacker were to continue into September, October, or beyond, a reliable and accurate all-weather bombing system had to be developed. The potential existed in the LORAN/C, installed in certain F-4s. LORAN bombing had been employed before, notably in Operation Proud Deep Alpha, but with inconsistent results. The LORAN system was capable of positioning an aircraft in space with extreme accuracy through triangulation of the difference in time delays (TDs) of radio pulses sent out by master-and-slave transmitters on the ground. With known ballistic characteristics of the ordnance to be dropped and specific coordinates of the target plotted, bombing accuracy could be very good.

[REDACTED]

(S) However, over most of North Vietnam the specific target coordinates were not accurately plotted, so that the TD (upon which the pilot released his ordnance) for any given target might be in error. It was recognized at 7th Air Force that the system should be refined prior⁹³ to the upcoming poor weather season. As General Vogt explained:

. . . it was apparent to me that when the monsoon season came in in full force we had to come up with good precision [bombing] on those railyards, keep those lines interdicted, and certainly be able to hit those high-value targets. So we started a campaign to develop an all-weather capability. We started this when the weather was still good, and we scheduled the missions so that one flight--even on a good weather day--one flight was compelled to drop on LORAN each time. We loaded that flight with 1,000 pound bombs and delayed fuzes so the PIs [photo interpreters] could pick his bombs out from the 500 pounders, so that we could score the bombing on each one of these targets [and place a correction factor to refine the TDs]. . . .

(S) This program started on the Northwest Rail Line, working its way down into the high threat areas around Hanoi and up the Northeast⁹⁴ railroad, until 48 targets had refined Time Delays. Although the northeast monsoon had not begun during the period covered by this report, long range planning dictated by weather consideration had added a valuable operational tactic to the air war.

[REDACTED]

CHAPTER VII

CONCLUSIONS

(S) The question must arise: Was Linebacker successful? Based on the attainment of its stated military objectives during the first 120 days, the answer appears to be an obvious yes. But there were additional spinoffs-- political ones. According to General Vogt, when asked the question, "Was Linebacker instrumental in bringing about the present optimistic feeling about a ceasefire and settlement?"⁹⁵

I don't think there is any question about this. I think there were two [other] things at work here. One was the effectiveness of air in-country, and, finally the stiffening of resolve of friendlies. . . .^{(1) (2)} The defeat of the enemy campaign in-country, the frustrating of all his objectives, the fact that he wasn't able to pull off what he had hoped--which was the demoralization of the defending armies and the start of a popular uprising in his favor--was the main achievement.

* * * * *

I think the President's virtuosity in this thing has been great. He's been playing on all the strings of the fiddle. While putting on the heat out here militarily, he has also been reducing the support to the North Vietnamese through diplomatic maneuvers very effectively. The North Vietnamese, I think, were told that their allies were tired of just pouring money down a rathole.

(U) The Commander of the U.S. Military Assistance Command, Vietnam, Army General Fredrick C. Weyand, summed up the first four months of the invasion in an interview with editors of Air Force Magazine when he said:⁹⁶

[General] Giap [NVA commander] failed . . . because of the magnificent job done by our airpower. . . . [Enemy losses have] robbed him of the capability to launch a decisive, major assault comparable in intensity to the March invasion.

(U) Major General Robert N. Ginsburgh, Hq USAF Director of Information, said that the North Vietnamese invasion of South Vietnam "failed on all fronts," largely because Allied air power slowed the Communist attack long enough for Saigon to marshal its defense. He went on to say:

The current "Linebacker" (bombing and mining effort) has had much greater impact in four months than Rolling Thunder had on North Vietnam in three and a half years.

(S) Summed up, Linebacker apparently was viewed as a success by virtually all viewers. The primary elements of this success were:

- . The President's decisive action when the invasion began.
- . The immediate response of air power.
- . The President's decision to allow the military to make all target decisions once general guidelines and Rules of Engagement were established.
- . The giant step forward in technology, as exemplified by the guided bombs and their pinpoint accuracy.

(S) This report would not be complete, however, if credit were not given to the total package that supported the strike effort. The role of the tankers, both SAC and USN, was vital. Also deserving high praise was the flexibility and competence of radar controllers in effecting tanker-fighter rendezvous when tankers were forced out of the regular orbits because of weather. Additionally, without the jamming support given by

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EB-66s and EA-3s, and the SAM suppression effort supplied by Wild Weasel/
Iron Hand, the mission might not have been completed, or the cost in terms
of aircraft lost could well have been prohibitive.

(S) When the late fragmentary order changes dictated a different
weaponry configuration, ordnance crews responded admirably; the same applied
to avionics and maintenance crews. Credit was due across the board, and in
spite of being thrust from the de-escalating war back into an all-out effort,
morale remained high.

(U) The thrust of "Linebacker: An Overview of the First 120 Days" has been
concentrated on air operations over the far north, but in actuality, the effort
extended all the way down to the DMZ. In the lower Route Packages, visual and
armed reconnaissance was conducted, and day and night F-4 FACs directed strikes
to make Linebacker the first truly integrated interdiction campaign.

(S) Total BDA achieved in the operation could not be assessed at
this level for several reasons: smoke and dust often precluded visual
observation by the pilots and aircrews; evasive action did the same thing;
photo confirmation many times could not be obtained until after repairs
had been made, and so on. However, from the examples cited, photographs
available (and there were far more than shown in this report), and the
"drying up" of supplies to the south, it could only be assumed that the enemy's
war-making capabilities had been drastically reduced.

[REDACTED]

APPENDIX A

LINEBACKER

QUESTIONS AND AREAS OF INTEREST

The following questions were submitted to General Vogt prior to the CHECO interview:

1. (CLASSIFICATION) Could Rolling Thunder (under its particular ground rules and constraints) have ever achieved its objectives? Do you feel that Linebacker did, and thus was instrumental in bringing about the present optimistic feeling about cease fire and settlement?
2. (CLASSIFICATION) (If germane and within your venue to answer) Do you feel that the President's visits to Moscow and Peking were substantive in reducing Communist and world reaction to Linebacker?
3. (CLASSIFICATION) Comment upon the effect on ROE with the introduction on LGBs and EOGBs to the heartland of North Vietnam, e.g., reduction of restricted areas, buffer zones, and allowable distances from third country shipping, shrines, etc.?
4. (CLASSIFICATION) Possibility of long range effect on other countries when we showed that we could put B-52s into one of the most highly defended areas in the world with relative impunity.
5. (CLASSIFICATION) Your feelings upon what would have been the result had we instituted Linebacker type operations in March/April 1965.
6. (CLASSIFICATION) What percentage of logistics flow do you feel would have reached NVN invasion forces had we not sealed off the harbors and the two primary railines? Would this percentage have--let me rephrase that--with the percentage of supplies denied Giap, could he have sustained the invasion with any degree of success.
7. (CLASSIFICATION) What degree of success did the mining of the harbors have?
8. (CLASSIFICATION) What effect did forecast weather have on Linebacker planning?
9. (CLASSIFICATION) Effect of relaxation on command authority at lower echelons than in previous operations over the North.

[REDACTED]

EXTRACT FROM
PROJECT CHECO INTERVIEW WITH GENERAL JOHN W. VOGT, JR.
DEPCOMUSMACV/AIR--CDR 7TH AF
12 NOV 1972

LINEBACKER OPERATIONS

Q. Could Rolling Thunder, under its particular ground rules and constraints, have ever achieved its objectives as Linebacker did in bringing about the present optimistic outlook about a cease fire in the South?

VOGT: I think the answer to the first question is clearly "no," it couldn't do it, for a lot of reasons--you've touched on a lot of them there--touched on them very well, as a matter of fact (referring to Foreword and Introduction, already written, and read by the General). The way the Rolling Thunder campaign was run was basically unsound, from the military standpoint. The targets were selected in Washington, at the very highest level. As a matter of fact, the Secretary of Defense got his targets from the Joint Staff who in turn were getting recommendations from the Theater Commander. Then he'd go through it and eliminate those that he thought had political overtones, and then he would go across the river to the Secretary of State. He would convene with the Secretary of State, and then the two of them would walk into the White House and talk to the President. Then they would determine what the selection would be for the coming week; the coming two weeks. The problem with that was that the targets they selected for that two week period might have been targets in the area where the weather was going to be bad for that two weeks. They never bothered about the weather--that was an operational detail--so we would be kept out of target areas where we could have been working, where we should have been working, and we would be sitting on the ground waiting for the weather to improve in those [selected] areas.

This problem was created by two things: one, the way they handled the targeting and, two, the fact that the United States Air Force did not have an all-weather bombing capability back in those days. This was a nemesis in the Rolling Thunder campaign. When the weather came in with the north-east monsoon shift in November and lasted through March, the enemy had almost a sanctuary. There would be periods of three weeks at a time when not a single strike could be mounted anywhere in the North. This gave them periods to recuperate, rebuild bridges, put power plants back into operations, move the supplies again, and undo all the damage that had been done in the previous strikes. One of the things that I was very much concerned about when I was DO at PACAF at the time was to push for an all-weather bombing capability--not only for a few selected airplanes, but in the general fighter force. You may recall, we knocked ourselves out trying to get the LORAN system installed back in those days, and we actually got the United States Coast Guard to put those stations in. They were operational

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out here for a full year before there was any equipment of any kind here to use them, because of the delays of getting the LORAN system into the program. Nevertheless, there was a great deficiency in our bombing capability--inability to strike under bad weather conditions--and it just so happens that there was extremely bad weather for six months of the year up in the North. So the enemy was, in fact, in a sanctuary area for six months of the year.

Even in the good weather periods, more than fifty percent of the time the weather was unsuitable for the targets. What it boiled down to was that less than fifty percent of the time in one half of the year could we go to work up in the North. The rest of the time we were out of business.

But even then we were constrained from hitting whatever targets had heavy political overtones, and other available targets. And with the long periods of stand-downs (there'd be a discussion by somebody, or someone would be making a visit to Hanoi so all the bombing would cease while he was up there), we'd be held out of the area. So, the cumulative effects of all this was to make the whole thing into a totally ineffective campaign. And as you pointed out in your report, this was heralded by many "smart guys" as complete proof that the Air Force can't do the job. The whole mess was blamed on Air Power.

Well, the great difference came, of course, when the President made the decision to go back up there and resume the bombing--Linebacker--and as you know, the Air Force was given the responsibility for interdicting the two rail lines leading from China. This goes up into the Route Pack V and VI-A areas, which had been our areas of responsibility in Rolling Thunder. They re-invoked the demarcation lines--the Route Package lines. The Navy was given the responsibility in Route Packs II, III, and IV, and in VI-B, and we were given the responsibility in RP I, V, and VI-A.

So the President said, "I want those rail lines interdicted from China because I'm going to close the ports, and I don't want that tonnage to come down the railroad." The job fell to the Air Force.

The problem, from my standpoint was that unlike other periods out here when we had been conducting Rolling Thunder campaigns, and other campaigns in the North, and when there had been virtually no activity in-country to speak of (the war had been on a guerrilla basis), the air role had been sort of going out and bombing hooches on a routine basis. Unlike that, today we are involved in a major invasion with a heavy commitment of U.S. TACAIR all over South Vietnam at Quang Tri, An Loc, Kontum, and all the border camps that were under attack, and with increased enemy pressure down in IV Corps. Simultaneously with major assaults by enemy forces--an invasion--a major campaign in-country, we were asked to go back and begin a Rolling Thunder campaign all over again.

[REDACTED]

It became apparent to me we couldn't run it the way we had run it the last time. In the first place, I remembered vividly that to knock out a railroad bridge 60 feet long and eight feet wide just took too many sorties to keep it knocked out. So, we worked very hard to develop the guided bomb capability--the LGB--to do that job. Now, the problem with the laser-guided bomb has always been, at least prior to this time, that the man who was doing the lasing was extremely vulnerable. He would have to fly in a circle, at a fixed altitude and a fixed angle of bank and take no evasive maneuvers while the other bombers came in and dropped their laser-guided bombs "into the basket." The bombs would go down the chute and into the target. Many people have rejected the use of the LGB in the high threat areas because of this. Now, there were in-theater five "pods," called Pave Knife pods, which eliminated this problem to some extent because the aircraft that was doing the lasing was also carrying the weapon. These were gimbal-mounted pods so that the aircraft carrying them could continue to designate the target through a certain amount of evasive maneuvering. This led to the tactic where he would make about a 180° turn while the rest of the bombing formation, through precision maneuvers themselves, could drop their bombs into his illuminated area. By the time he completed his turn, all the bombs were into the target while he was still lasing. It was this sort of precise tactic that enabled us to achieve the success we had against the railroad bridges in those high threat areas, as you can see from the many reconnaissance photographs we have of those bridges.

We discovered, for example, that the effectiveness of the laser-guided bomb was [much greater than] that of the conventional bombs. One day, for example, we went up and knocked out five bridges on the Northwest Rail Line with a laser strike, and when PACAF ran that through the computers, they determined that where we used 24 total bombs, it would have taken 2,400 bombs to do that by the old conventional method. So there was a tremendous breakthrough in technology and applied tactics. The laser wasn't a new weapon. We've had it since 1968, and we've had the EOGB--the Electro-Optical system--but we've never really used it to its best effectiveness because of its many limitations [weather degrades it] and the high vulnerability in the areas where it could strike really profitable targets.

Q. Well, it completed its evaluation, I believe, in August of 1968, and by that time the bombing halt north of the 19th parallel was in effect, so it really had no really valid targets to speak of.

VOGT: That's true. That's true.

Q. Question two?

VOGT: Was that all question one? I never did answer the second part of that--"Was Linebacker instrumental in bringing about the present optimistic feeling about a ceasefire and settlement?" I don't think there's any question

[REDACTED]

about this. I think there were two [other] things at work here. One was the effectiveness of air in-country and, finally, the stiffening of resolve of friendlies who now for the first time, held ground and, in holding ground, forced the enemy to mass. When they massed, we could get at them with air. We had, for the first time, good targets presented for air in-country. Instead of trying to find guerrillas dispersed in hamlets and spread around the countryside, we were now getting mechanized units in mass and in great strength. They presented ideal targets for the Air Force to go to work on. The defeat of the enemy campaign in-country, the frustrating of all his objectives, the fact that he wasn't able to pull off what he had hoped-- which was the demoralization of the defending armies and the start of a popular uprising in his favor--was the main achievement.

He had initial successes! It looked like it was going to work for awhile. I sat here thinking about that back in the early days, back in April and May. There were many debacles at first. The 22nd ARVN Division broke and ran. Their 3rd Division above Quang Tri did the same in the face of heavy artillery and tanks. Often times the friendly forces fled in the face of no opposition--simply because they thought they had opposition. And I was asked many times by newsmen, several times after that, "Why did air fail to prevent the rout?" I found out later, after analyzing the whole thing, that this [the enemy's] was a badly used tank force. It wasn't accompanied by infantry, which it should have been. The force should have been wiped out by the friendlies. The enemy should have been extremely vulnerable to all anti-tank weapons in the hands of infantry because the supporting infantry wasn't there to protect the tanks and use the tanks for mutual cover. But it was just sheer panic, and a rout!

Well, that's a digression. But to get back to the point we were making, "Was Linebacker instrumental?", it was instrumental along with the major defeat of the enemy forces in-country, in bringing about the present climate, the willingness, say even an urgent desire, to call the war off at this time. The two of them together--the failure of the invasion with the very heavy loss of, I estimate, 140,000 dead, 140,000 killed to achieve nothing in a couple of square miles north of Quang Tri City, accompanied by the thorough interdiction of those rail lines became, I think, a very compelling force to get these guys to see the light. We had 15 bridges out on each railroad at any given time. As fast as they would build them we would knock them out again.

Now, the targeting, unlike that which was done in Rolling Thunder, was on a far more sensible basis. The target list was approved at the national level and sent down by JCS--a validated list. This list was added to as we found new targets. And from this validated list, we here were permitted, in the field, to hit those targets. I, as Commander, 7th Air Force, was permitted to select these targets, and I selected them from this vast list of validated targets. The advantages were apparent. It permitted us to play the enemy defenses. If we banged away here for awhile, and they shifted

[REDACTED]

over there with their SAMs and their anti-aircraft, then we hit them over here. And we watched the weather--when it was stinking over the northeast rail line, then we hit them over the northwest.

We were not constrained. In some of the sensitive areas, for example, I was allowed to take out all power [major electric power plants] in a very short time, with the exception of one power plant and that was the thermal power plant in Hanoi itself. But all the others we took out. The Navy came in. We sat down here with Admiral Cooper and planned the campaign. He took out those in his area and I took out those in mine, and we set a date by which we wanted to accomplish this. Then we went to work and destroyed them. The cumulative impact was crushing. Lights started failing, they started cutting off the fans and airconditioners up there, and the Embassies were getting power one day a week. Many parts of the city [Hanoi] had none at all. This in turn impacted on the repair shops and the engine rebuild facilities all around the city. The effect of it was dramatic. This was something we were never able to do in Rolling Thunder because back in the McNamara days we were supposed to hit this power plant during this particular week, and then we wouldn't get another power plant for maybe six more weeks. By the time we'd get one over here, they had rebuilt this one.]

Q. Well, we also had COMSEC and operational problems in those days because of the length of time between nomination, validation, and authority.

VOGT: That's right. And these authorities were for limited periods. We had two weeks in which to do this, and if we didn't do it within two weeks, or the weather crumped, they withdrew the authorities. This has never been a problem in Linebacker. Realistic programming from Washington gave us the responsibility to pick the targets and run the campaign.

But, the thing that really made the difference during the early months of Linebacker was the precision of our weapons. Now they were anxious, of course, not to hit cities, and for that reason I never used anything but laser guided bombs in and around populated areas. We stuck to those rules throughout the entirety of the Linebacker operation. If we were going to be anywhere near a city or a populated area, always laser guided ordnance. If we were going out into the "boonies" for a POL facility, or a military camp, or something like that, then it was conventional ordnance. But always we used great restraint so that we had no problem with collateral damage. I think the enemy really tried to outdo themselves on that dikes and dams business. I have photographs blown up to approximately this size (about 20 by 30 inches) of virtually every strike we made, and the PIs (photo interpreters) circled every crater around every target. I know where virtually every single bomb went. I think I can tell you when we missed the target--and that was rarely--and how many bombs fell outside the target area, which was not very much. The precision of the bombing was just magnificent. In all that period I had two pictures of two slight nicks in two dikes. These were "no-guides" of guided bombs, which fell ballistically

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and nicked the dikes; didn't breach them, no flooding or anything like that, just nicked them. I think I can assure you that there was no mass destruction of civilian areas. These were all legitimate target areas, and the bombing was superb.

Question 2--Do you feel that the President's visit to Moscow and Peking were substantive in reducing Communist bloc and world reaction to Linebacker? Well, this question is pretty much out of my area, but I think the President's virtuosity in this thing has been great. He's been playing on all the strings of the fiddle. While putting on the heat out here militarily, he's also been reducing the support to the North Vietnamese through diplomatic maneuvers very effectively. The North Vietnamese, I think, were told that their allies were tired of just pouring money down a rathole. It must have cost the Russians a tremendous amount of money to supply all that equipment, for example, all those T-54 tanks. They started that campaign in the South with over 750 T-54 tanks, and we've destroyed over 650 of them--virtually wiped out the bulk of their tank force. I think the Russians found themselves in the same position as they had been in out in the Middle East when they supplied the Egyptians all this material and the Israelies destroyed it all in the Seven Day War. * * *

Let's see, Question 3. "Comment upon the effect on Rules of Engagement with the introduction of LGBs and EOGBs to the heartland of North Vietnam, e.g., reduction of restricted areas, buffer zones, and allowable distances from third country shipping, shrines, etc."

VOGT: Well, we still had the buffer zone restrictions that we had in the old Rolling Thunder days, but we were allowed exceptions, authorized up into the buffer zone on several occasions. We were permitted to take out some bridges in the so-called Chinese buffer zone in certain cases, such as the Lang Gai Bridges.

They did put restrictions in and around Hanoi periodically. For a long time, there were no distance restrictions with regard to bombing in the Hanoi area. The only restrictions were on the targets themselves. The targets had to be approved targets on this general Linebacker list, and certain targets were not on that list. The Railroad Station in downtown Hanoi was one of them, and the power plant in town was another.

I'll give you a little aside on this, and this is very interesting. At one point in time, they lifted the restrictions on that power plant, and on the railroad station in the heart of Hanoi. I had a mission planned for this certain day, to hit four targets; the Paul Doumer Bridge, the power plant in town, the Hanoi railroad yards in downtown Hanoi, and the Hanoi Command and Control Center, Bac Mai. A few hours before the mission was to go, we got a hurried message from Washington saying, "Delete two of those targets." The two targets we deleted were the power plant and the railroad yard. That left us the Paul Doumer Bridge and Bac Mai--Bac Mai

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is the enemy's "Blue Chip" [7th AF Command and Control Center] up there, strictly underground bunkers. We had pictures of the early development of this thing. It is their major Command and Control Center in the North. From there they control their MIG force and, I think, their SAM and anti-aircraft up there. All integrated in there, and I believe with Russian advisors. We mounted a campaign to destroy this thing. It was an extremely difficult target to hit, even with the laser guided bomb primarily because it was so hard for the guys to spot the precise location. Finally we ran a mission--I think we ran in there four times--and on the fourth mission, this back-seater using the Pave Knife pod put that 2,000 pound bomb right in there dead center, with a delayed-action fuze. It exploded deep underground. Dead-center into the heart of the command center! They saw a general sinking of the ground, and then water bubbled out of the top, indicating they had destroyed the water lines and the whole thing had flooded. That's accurate bombing!

Question 4: "Possibility of long range effect on other countries when we showed that we could put B-52s into one of the most highly defended areas in the world with relative impunity."

VOGT: Well, this is one we are going to have to deal with very gingerly, because . . . because we put the B-52s into the North, into the heavily defended SAM areas, not without considerable preparation. When the B-52s go up into those heavily defended areas, they are heavily dependent upon tacair to get in and out. In the first place, we lay a chaff corridor all the way in and all the way out of the target area. These are F-4s with chaff dispensing pods. We drive in, put that chaff out all the way in and back out so the B-52s can fly through and, we hope, get immunity from the SAMs. If we didn't do that, in my judgment, we would have a serious problem with the SAMs, because they have come very close. The other night we had one come up and explode just 30 feet off the wing of one of the B-52s--that's a 30-foot miss, which is too close. Put a big hole in the wing. Now, they won't go in without protection of that chaff corridor. In fact, SAC has had a rule in effect for quite some time now, that when they are going in on a target over the North, unless there was full chaff protection, full EB-66 protection, full Wild Weasel F-105 protection when they went in--or if they got a signal that a SAM was painting them--they would turn around and abort. Fact is, it got very frustrating just last week when we had about eight or nine boxes up there, and less than half of the missions were going in over the target. They would start in and a SAM signal would come up, or a SAM fired, and out they'd come. So, you've got to be careful how you use this information. You can't send a B-52 into a heavily defended SAM area unless tacair is going to accompany it, and can do the job that I just described--Wild Weasel, EB-66 jamming, and the chaff corridor to get them in and out.

Q. I imagine those same restrictions would apply anywhere the enemy has a Suspected Operating Area, Confirmed Operating Area, or a known SAM ring--even extending down into Military Region I.

[REDACTED]

VOGT: Now, they have what they call "press-on" missions if the whole package is there. So, last night we started giving them full package in Route Packs II, III, and IV for all targets being hit by B-52s. And every night now, we're driving the chaff corridor through. We've got the Wild Weasels with them, we've got fighters alongside them to protect them from the MIGs should they come down, and we've got EB-66s off there [over the Gulf of Tonkin] jamming with ECM, and SAC has agreed to press on.

Okay, Number Five: Your feelings upon what would have been the result had we instituted Linebacker type operations in March/April of 1965?

VOGT: Well we still would have had the limitations of the inaccurate weapons systems--we didn't have the laser guided bomb in 1965. I think that if they had lifted the restrictions, and we had had the type of bomb we have now, certainly the campaign would have been far more effective. But I honestly don't believe we could have kept those railroads interdicted, with the force we had available, and using conventional bombs--I just don't think it could be done. One other thing--that all-weather capability, which is vitally important--didn't exist. Now, as the weather started crumping, as it did in August and September, we had to come up with an all-weather capability. We had never used the LORAN up in the North. We called all the experts in from the Mapping and Charting Service, and the LORAN experts from the Coast Guard. We got them all in here, and I was assured that it was not possible to develop the accuracies needed, at that distance from the ground stations. But I wouldn't take no for an answer, and said, "Dammit, we're going to do it!" The Wings had problems with LORAN lock-on that far north--they wouldn't hold "lock," and everybody wanted to throw up his hands, but it was apparent to me that when the monsoon season came in in full force we had to come up with good precision [bombing] on those railyards, keep those lines interdicted, and certainly to be able to hit those high-value targets. So we started a campaign to develop an all-weather capability. We started this when the weather was still good, and we scheduled the missions so that one flight--even on a good weather day--one flight was compelled to bomb on LORAN each time. We loaded that flight with 1,000 pound bombs and delayed fuzes so that the PIs could pick his bombs out from the 500 pounders, so that we could score the bombing on each one of these targets. We found that while it was good to have Combat Thunder photography, which added to our data bank (Combat Thunder was a LORAN Grid Annotated photograph program instituted in January 1972 in North Vietnam), and all the other things we were using to refine the TDs (LORAN Time Delay), there was nothing like actually dropping the bombs after putting the correction factor in, seeing where they fell, and then correcting it. That's what we started doing, and we went through 48 different targets that way. Seven of the eight flights would do conventional bombing, and the one guy would fly on straight and level, get his TD lock-on, and drop. We started out on the northwest rail line first, out of the high threat areas, then worked our way down into the high threat. Of course, there are some problems flying straight and level with a gaggle of airplanes, flying precision formation, not varying

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altitude or heading, but your last thirty seconds had to be a pretty straight run-in. It meant that they had to have great confidence in the ECM capability, but we gave them good protection with chaff and Wild Weasel/Iron Hand. I was able to demonstrate, before the bombing (north of the 20th parallel) stopped, that we could bomb the northern-most railyard--which was the Vu Chua railyard--and the northeast rail line with great precision. In fact, the last time we did it, the LORAN bombing flight dropped their bombs right smack on a railroad train and blew it all to hell--right in the middle of the railroad yard, way up on the extreme end of the northeast rail line. So, I know we can do this through the entire northeast monsoon season. If the weather stays bad, as it has the last few months, and we have to go back up there, we can interdict those railroad and destroy the tracks. We can get, I think, 200 meter accuracy, probably, with consistency now--two hundred meter accuracy and, I think, even better in the Hanoi area because we really have the Hanoi area bracketed. I would have no qualms about mounting a raid on virtually any good target, even within two miles of the center of Hanoi, with this system.

Also, we're going to do something with the F-111. The 111 enables us to get up there under all weather conditions. These are weapons systems that were not available during the Rolling Thunder days, which are vital to us.

Six: "What percent of logistics flow do you feel we have denied Giap under the Linebacker operations, by sealing off the harbors and the two primary rail lines?"

VOGT: Let me rephrase that--with the percentage of supplies denied Giap, could he have sustained the operation, the invasion, with any degree of success? I think, from my best estimate, that they were getting through about 20% of the pre-bombing effort. *- when?*

CHECO: Would this have allowed him to keep up the invasion?

VOGT: He was beginning to dry up--no question about that. Enemy attacks by fire (ABF) began to go down. You know, at places like An Loc he was firing five, six thousand rounds a night. Pouring it in! I think the total number was seventy or eighty thousand rounds. All of this (the logistics) had to come down his LOCs. Most of it came in through the ports and had been prepositioned for more than a year. And, he was resupplying while all this had been going on.

Nevertheless, the weight of effort was far more than almost anybody had anticipated, which leads me to believe that we got a real valuable effectiveness in there on the essential items. By any means, this guy (Giap) mounted a far greater campaign than anybody thought he could have. But to answer your question, I'd say as a safe figure he was reduced to about 20% of his previous supply, and it did show up in the battle areas, in the forward areas. He was beginning to hurt with many, many critical items; he was

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short of POL supplies, short of food, short of ammo, short of all the basic essentials.

CHECO: Categories I and IV are the ones I was thinking of.

VOGT: This was true in Quang Tri. We have a great many POW statements. They hadn't eaten in three days; they were down to one clip each for their AK-47s (Soviet/PRC Automatic Rifles). We captured a young lieutenant at Quang Tri. He had come down from the North and was briefed on the situation in Quang Tri city. He was told he would be issued his sidearms and other weapons when he got into the city. There weren't any available. And when he got there, he discovered that the issue consisted of finding a weapon from a dead body. He reported this to the Marines (Vietnamese) when he was captured. Many others, taken prisoner up there, reported three, four, and sometimes six days of activity with no rice.

Some of this was a local distribution problem but, generally, we had gotten into his forward supply depots. He had limited supplies coming in initially so he was beginning to hurt. We had very effective anti-logistics campaigns up in the Route Packs with the B-52s. Based upon good photography we found pre-fab buildings which the enemy had constructed all over the area, and in which he was putting his forward stocks. These were identified and found in large numbers in several areas. We put large numbers of B-52 strikes in there and the impact was dramatic. We watched the enemy reaction. Believe me, he was really hurting. That's still going on right now. They are still putting up typical pre-fab buildings and we're getting many secondary explosions, all the way up to the 20th parallel. So I don't think they could sustain the invasion, under that pounding, for very long. *

Question 7: "What degree of success did the mining of the harbors have?"

VOGT: I would say almost a hundred percent. They were reduced to off-loading, as you know, from Chinese vessels. These were relatively small coastal steamers which didn't have too much tonnage aboard to begin with. The lighterage activity was a long and laborious thing. They could do it only at night; they had to do it when there was no Navy air around harassing them; they had to run through mine fields with their lighters because we had a lot of MK-36s dropped in there. It took in excess of a month to unload a five or six thousand ton vessel. So, only a dribble was coming in through that area.

CHECO: I understand they were trying to float supplies ashore in plastic bags.

VOGT: Right. Trying to float them in. And most of that was rice, once again indicating how serious the food shortage had become down there.

Question 8: "What effect did forecast weather have on Linebacker planning?"

VOGT: It was a vital part of the operation! The first thing I did when I got here in the morning was to meet with my weather man. He'd have all the material here in front of me. So, before we even began the formal briefings, I'd have a good feel for what the weather was. Then we would go into the target selections for the next 24 hours, based on the weather forecast. If the man was certain that the Northeast Rail Line was going to be unworkable, we would do our planning for the Northwest or elsewhere where he said he thought we were going to be able to bomb. When he thought the weather was going to be suitable only for LORAN, we configured the aircraft accordingly, and constructed the frags (fragmentary orders) that way. We tried to build the frags three or four days in advance so we had to use some long-range forecasts too. That wasn't all that helpful because the weather was so changeable, but they very definitely provided good guidance for the next 24 hours--good concrete guidance. Very vital.

CHECO: I noticed that you also had secondary targets provided for areas in which the weather was forecast definitely to be good.

VOGT: Oh yes, right. We diverted, if necessary, into other areas. But then, when we got the LORAN TDs refined up there, in the last months of operation, we went to a program where we dropped LORAN if we had to; drop visually if you don't. If there was any chance of the weather having holes in it where it was suitable for laser operation, we'd have a laser flight along. They'd go right into the target with the LORAN birds--we'd have LORAN leads--so they could drop LORAN if they had to, go visual if they could, and then this laser guy was there to take out some bridges at the same time, weather permitting.

We've already discussed the ninth question, "the effect of relaxation on command authority." The one that hasn't been discussed was the effect of the MIGs, and this was a very dramatic thing. The last eight months of Rolling Thunder, the enemy command and control system had been so refined and so perfected, with Soviet technical help, that we were barely breaking even in our loss-to-victory ratios. I think they were running just barely one to one. The operation cost us an airplane almost every time we went up there. The enemy had adopted high-speed [one pass] tactics using the MIG-21, good vectoring, and good control by his radars. We had nothing to compare with it in those days. We were trying to get some help from the Fleet but their radars were not that good [as deeply in North Vietnam as our aircraft were committed] so, in effect, our guys were blind. So, the enemy--with all their GCI help, their position and timing could come through with a Mach 1.2 pass. It was very hard for anybody to stop them.

When Linebacker started, we did quite well for the first few months. In May and June, we were doing better than one-to-one. In the latter part of June and the month of July, they really started getting to us. We were

[REDACTED]

losing more airplanes than we were shooting down. In August we reversed this very dramatically, and we have sustained a four-to-one ratio ever since. This is the most effective show we've had during the entire war with the battle against MIGs, over a sustained period.

The answer was that we went into a much more sophisticated system for providing warning for the defending pilots--our guys.

CHECO: Teaball?

VOGT: Teaball. The Teaball facility came into operation in early August when we had a loss ratio of something like 0.47 to one--we were losing almost twice as many as the MIGs to us. Then, with the first week's operation of Teaball, we jumped to a four-to-one ratio for the month of August, a four-to-one in September, and we were running about 3.5 to 4.5 to one for the month of October. This proved one thing--if you can show an American fighter pilot where the enemy is in sufficient time, he'll shoot him down. Overall, and especially following the commencement of Teaball, American pilots enjoyed definite air superiority over North Vietnam. It was necessary if Linebacker was to continue to be productive.

CHECO: What about tactics, Fluid Four and others?

VOGT: Well, we, of course, improved our tactics too. But believe me, tactics had very little to do with this. You can talk to our fighter pilots and they'll tell you how they tightened up on their air discipline. They cut down on their air chatter. They went from Fluid Four to something else, but every Wing had their own tactics. They were all different. They all didn't work before Teaball, and they all worked after Teaball. And when Teaball would break down on any given day--as it did on two very definite occasions--the communications--we lost airplanes. We lost airplanes. One very dramatic illustration: we had a Marine aircraft up there being used on Ingress CAP (Combat Air Patrol). That Marine was shot down at precisely the five minute period when Teaball was off the air!

CHECO: Well, of course we are at every disadvantage up there. They have that beautifully integrated GCI system, and they paint our force structure, chaff flight, chaff escort, ingress route, points where we will have to make our turns, and they vector that MIG onto our six o'clock position just when we are most vulnerable.

VOGT: Well, he was until August, and then he never got into position any more. He got his tail shot off before he ever got near them! That made the difference.

CHECO: I have to find out exactly when Teaball came into operation.

VOGT: The first week of August. And if you look at the charts from the first week of August on, you will see what I'm talking about. Unfortunately, it's one of those things that you won't be able to talk too much about because it is highly classified. But, I knew we had to do something, so I called the guys in and told them what we needed. They wailed and moaned and threw up their hands but we finally did it. Dramatic difference. Dramatic.

[Explanation: The operation previously discussed by General Vogt was, in simple terms, an integrated GCI control system wherein real-time information could be given our pilots over North Vietnam, to give us parity with the NVN control system.]

*** VOGT: It was by far the most effective instrument in the battle of the MIGs. In this entire war! No question about it. It was a fantastic reversal from one month to the next.

APPENDIX B

MIG KILLS

<u>USAF</u>	<u>USN</u>	<u>USMC</u>	<u>Date</u>	<u>AIM 4/9</u>	<u>AIM 7</u>	<u>Guns</u>
	X		10 May	X		
X			10 May		X	
X			10 May		X	
X			10 May		X	
	X		10 May	X		
	X		10 May	X		
	X		10 May	X		
	X		10 May	X		
	X		10 May	X		
	X		10 May	X		
X			10 May	X		
	X		12 May		X	
	X		18 May	X		
	X		18 May	X		
X			23 May		X	
X			23 May			X
	X		23 May	X		
	X		23 May	X		
X			31 May	X		
X			31 May		X	
X			2 Jun			X
	X		11 Jun	X		
	X		11 Jun	X		
	X		21 Jun	X		
	X		21 Jun	X		
X			8 Jul		X	
X			8 Jul		X	
X			8 Jul		X	
X			18 Jul	X		
X			29 Jul		X	
X			29 Jul		X	
	X		10 Aug		X	
		X	12 Aug		X	
X			15 Aug		X	
X			19 Aug		X	
X			28 Aug		X	
X			2 Sep		X	
X			9 Sep	X		
X			9 Sep	X		
X			9 Sep		X	

(Supplied by COMUSMACV, MACDI-21, Nov 72)

APPENDIX C
FRIENDLY AIRCRAFT LOSSES

<u>USAF</u>	<u>USN</u>	<u>USMC</u>	<u>TYPE ACFT</u>	<u>DATE</u>	<u>LOST TO</u>		
					<u>MIG</u>	<u>SAM</u>	<u>AAA</u>
	X		F-4	10 May	X		
X			F-4	10 May	X		
X			F-4	10 May	X		
	X		F-4	10 May		X	
X			F-105	11 May	X		
X			F-4	11 May	X		
	X		A-7	17 May			X
X			F-4	18 May	X		
	X		A-7	19 May			X
X			F-4	20 May	X		
X			F-4	23 May			X
	X		A-7	23 May	X		
	X		F-8	24 May			X
	X		A-7	24 May		X	
	X		A-4	25 May			X
	X		A-4	27 May			X
	X		A-6	29 May			X
X			F-4	1 Jun		X	
X			F-4	6 Jun		X	
	X		RA-5	7 Jun		X	
X			F-4	8 Jun			X
	X		A-6	11 Jun			X
X			F-4	13 Jun	X		
	X		RF-8	16 Jun			X
	X		A-7	17 Jun		X	
	X		F-4	19 Jun			X
X			F-4	21 Jun	X		
X			F-4	24 Jun	X		
X			F-4	24 Jun	X		
X			F-4	27 Jun	X		
X			F-4	27 Jun	X		
X			F-4	27 Jun	X		
X			F-4	27 Jun		X	
X			F-4	1 Jul		X	
X			F-4	3 Jul			X
X			F-4	5 Jul	X		
X			F-4	5 Jul	X		
X			F-4	5 Jul		X	
X			F-4	8 Jul	X		

APPENDIX C (Continued)

USAF	USN	USMC	TYPE ACFT	DATE	LOST TO		
					MIG	SAM	AAA
	X		F-4	10 Jul	X		
	X		A-4	11 Jul		X	
X			F-4	20 Jul			X
	X		F-8	22 Jul			X
	X		A-7	23 Jul			X
	X		A-7	23 Jul			X
X			F-4	24 Jul	X		
X			F-4	29 Jul	X		
X			F-4	30 Jul		X	
	X		A-7	6 Aug		X	
	X		A-7	6 Aug		X	
X			F-4	13 Aug			X
	X		F-4	16 Aug		X	
	X		A-7	17 Aug		X	
X			F-4	19 Aug		X	
	X		F-4	25 Aug		X	
X			F-4	25 Aug			X
		X*	F-4	26 Aug	X		
	X		F-4	27 Aug		X	
	X		A-6	6 Sep		X	
	X		A-4	6 Sep			X
	X		F-4	8 Sep			X
X			F-4	9 Sep			X
	X		A-7	10 Sep		X	

*Downed while flying an Air Force mission.

APPENDIX D

Det 1, 10th Wea Sq (SWOAT)

11 Sep 72

Linebacker MIF Data

1 WWg

1. As requested in your 25 August message, we have compiled Linebacker strike data for August and July 1972 (Attachments 1 and 2). May and June are currently being compiled and will follow shortly. The data was extracted from the 7th Air Force Frags and forecasts furnished by the WSU. A new data sheet (Attachment 3), following the format of your message (items A-8) was initiated on 27 August and will be forwarded to you on a weekly basis.

2. The answer to "what extent the weather forecast is used in planning and fragging a mission?" is difficult to quantify. Prior to mid July, the Linebacker fraggers and decision-makers did show an interest in the next days forecast as represented by the WSU 1700H outlook. While they would at times adjust the TOT because of an UNFAVORABLE morning forecast over the targets or refueling areas, they seldom would change the targets themselves, once the frag was issued. If a day or two went by however, with no mission being executed because of weather, additional missions were fragged (two or three) for the following day on the chance that one would have favorable over-the-target weather. In general, the decision process went something like this:

a. The targets are chosen on the basis of priority.

b. The TOT was routinely set for about 1100H (0300Z) because of the Navy's Alpha strikes which normally take place after 1200H. The Air Force uses Red Crown (Navy) radar when making strikes and the Navy has first priority. The Air Force must frag around the Navy strikes. Also, there must be one hour separation between the Air Force and Navy strikes.

c. F-4 weather recce flights are fragged for TOT minus 4 plus 30 for the TOT minus 2 hours to assess the weather over the targets and refueling areas.

d. If the weather recce reports that the targets and refueling areas are favorable and the early morning Block V picture looks good, the mission is executed. "Favorable" weather over the target is 3/8 or less clouds below 18,000 feet (and visibility greater than 3 miles). The vast majority of strikes over the North during Linebacker have involved Laser Guided Bombs (LGB's). These weapons should be launched from 12,000 to 14,000 feet AGL

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to have the optimum chance of hitting the target, and 4/8 or more cloudiness below the aircraft greatly reduces their chances of success. 4/8 or 5/8 is considered marginal and the mission normally won't go unless the forecast or weather recce calls for improvement or the target is very important and must be hit ASAP. While a broken to overcast middle cloud deck (10,000 to 14,000 feet) would allow the F-4's to work beneath the clouds, the pilots will usually avoid such tactics for two reasons. NVN triple A is much less effective above 10,000 feet so the pilots like to stay at 12 to 14 thousand. However, flying at that altitude above an undercast is hazardous since the SAM's suddenly appear through the clouds and the F-4 has little chance for evasive action. The Block V's biggest impact occurs when the forecast or recce calls for Marginal or Unfavorable. The satellite picture has swung the balance one way or the other on numerous occasions, especially when there was doubt about the validity of the recce report. Overall, however, a valid weather recce assessment will most often be the deciding factor in the decision to cancel or execute.

e. In general, four situations can develop:

- (1) The mission will be launched as fragged
- (2) The launch will be delayed due to adverse weather (recce, BK V) and a new TOT assigned.
- (3) The mission will be diverted to weather alternate targets found to be favorable by the recce.
- (4) The mission will be cancelled because all targets are unfavorable (recce and BK V) and forecast to remain so.

f. The weather recce assessments are relayed via Red Crown to Motel (Da Nang) or at times via HF to Udorn by Hillsboro (ABCCC) or Cricket (ABCCC). The best recce reports come via Udorn since they have direct HF contact with the recce aircraft and can request clarification. In the past, these reports often arrived at Blue Chip garbled and non-weather oriented personnel who received them would interpret them erroneously. This situation has improved considerably in the last few weeks as our Blue Chip weathermen now intercept and interpret almost all incoming recce reports. We have also had an opportunity to discuss the entire weather recce data gathering, relay and use with one of the Linebacker weather recce pilots at Udorn. He in turn has worked with the other recce crews to improve their understanding of how their reports fit into the decision making process. This has paid off handsomely in the past few weeks, in more meaningful and useful recce reports.

3. As you can see from the above it is difficult if not impossible to separate the effect of the weather forecasts (1700H and 0700H) from the effect of the recce reports and Block V on the decision making process. As Generals

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come and go, each weighs the various elements differently. Since mid-July, the current staff (Generals Vogt, Talbott and Cross) have been much more friendly toward weather and they pump us for all the information we can give them. The Blue Chip briefers have recently remarked how receptive the staff has become in the past weeks. With a customer who listens and acts on your advice, you try harder. As a result, our products are being increasingly used for planning purposes and our handholding (recce reports and Block V interpretation) has improved. Our credibility was considerably enhanced recently as a result of our forecasts for clearing ahead of Typhoons Cora and Elsie. Generals Vogt and Talbott have begun to ask for the most probable clear areas and then have their fraggers choose targets in those areas (e.g. a few weeks ago when WSU forecast the clearing of areas over the NE mountains ahead of Cora, General Vogt told BGen Cross he wanted every bridge on the NE railroad fragged and struck). So, while it is still true that targets are chosen on the basis of priority, our forecasts are now influencing the area of choice.

4. The following comments pertain to the data in Attachments 1 and 2.

a. The number of strike aircraft shown are the number designated on the frag as STRIKE.

b. The number of support aircraft includes the total of strike support, chaff support, iron hand, tanker cap, MIG cap, weather escort, egress cap, photo recce, chaff, king SAR, jolly green, sandy SAR, bar cap, and E/W aircraft listed in the frag. The number of tankers, and the 2 to 4 weather recce are not included.

c. Each frag usually includes 7 SAR aircraft and one F-4 alert aircraft. These may or may not have taken part in the mission. There is no way of telling from the frag or associated papers and messages.

d. As you can see, if a frag is cancelled for weather it is fragged again and again until the people in 7th Air Force feel that the mission has probably been compromised. Alpha IV was fragged on several occasions during the first two weeks in August. It finally flew as Lima IV on the 15th. The usual alphabetical designator for Linebacker frags was dropped on 20 August and the name Prime Choke was used. This mission was an excellent example of how, as a high priority mission is cancelled day after day for weather, the pressures on everyone build and the decision process becomes more frantic. After the mission was cancelled on the 20th, 21st, 22nd, and 23rd due to weather, the temptation to go on the 24th was great even though the weather was marginal. A mini Linebacker mission was finally launched at another target, only to have to return because of adverse target weather. Finally on the 25th, the weather broke and the mission was completed as fragged. Throughout this whole period WSU performed well and was right on top of the situation.

BERRY W. ROWE, Colonel, USAF
Commander, 10th Wea Sq

3 Atch
1. July 72 data
2. Aug 72 data
3. New data sheet

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FOOTNOTES

1. (TS) Pub, Hq PACAF, Summary of Air Operations in SEA, 1-8 Jul 65. Also, (TS) Msg, JCS to CINCPAC et al, 092356Z May 72, Subj; NVN Interdiction Plan. Also, (U) News briefing by Lt Gen G. J. Eade, 8 Jun 72, at Pentagon.
2. (TS) Report, Honolulu Conference CY 66, Capabilities Program, Volume I. Also, (TS) Report, Hq PACAF Directorate of Operations, Jun 1972, Subj; Rolling Thunder - Linebacker, A Preliminary Comparative Analysis. Published by the Directorate of Operations, Operations Review Group, with inputs by AF/IN, X00CAB, X00XOX, X00COE, X00XW, X00SR, X00SL, X00SS, X00CAC. (Hereafter cited as PACAF RT/LB Comparative Analysis.)
3. (TS) Msg, CINCPAC to JCS, 202213Z Nov 65. Also, (TS) Project CHECO Report, "Interdiction in SEA, 1965-1966," pp. 41-42.
4. (TS) Project CHECO Report, "Air Tactics Against NVN Air-Ground Defenses," p. 42.
5. (TS) Ibid.
6. (TS) Ibid. Also, (S) Interview with General John W. Vogt, Jr., 7AF Commander at Tan Son Nhut AB, RVN, 12 Nov 72, by Mr. Mel Porter. (Hereafter cited as Interview with General Vogt.)
7. (TS) Ibid.
8. (TS) Ibid.
9. (S) Study, "Factors Affecting A/C Losses in SEA," JCS 66672, by Col H. W. Hise, USMC, 26 Sep 66. Also, (S) Rpt, "Effects of Air Operations in SEA," PACAF DI, 12 May 1965.
10. (S) Study, "Factors Affecting A/C Losses in SEA," 26 Sep 1966.
11. (TS) Msg, CINCPACFLT to CINCPAC, 140331Z Oct 66.
12. (TS) Msg, CINCPACAF to CINCPAC, DO 30442, 152045Z Oct 66.
13. (U) Author's observations from 1968 through 1972.
14. (C) Memo, Rand Corp, RM-5213-ISA, Dec 1966, Subj; "Bombing NVN--An Appraisal of Economic and Political Effects."
15. (C) Ibid.

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16. (S) A study of numerous 42nd Tactical Electronic Warfare Sqdn, Korat RTAFB, Thailand, reports by the writer, Apr 1972. (To be elucidated in a proposed Project CHECO Report, "The SAM Threat in Laos.")
17. (TS) CHECO Report, "Proud Deep Alpha," 27 Jul 72.
18. (S) Pubs, MACV May 72 PERINTREPS.
19. (S) Ibid.
20. (TS) (U) Interview, Senior Editor Edgar Ulsamer of Air Force Magazine, with General Lucius D. Clay, Jr., CINCPACAF, undtd. Published Sep 72. Also, (TS) PACAF RT/LB Comparative Analysis.
21. (TS) Msg, JCS to CINCPAC et al, 090247Z May 72, Subj; NVN Interdiction Plan. Execute Message.
22. (TS) Ibid.
23. (TS) Msg, COMUSMACV to CINCPAC, Subj; Operational Plans, 050055Z Feb 72.
24. (TS) Ibid.
25. (TS) COMUSMACV to CINCPAC and Addees, 200945Z Jan 72, Subj; Assessment of Enemy Intent and Capabilities.
26. (S) Pub, PACAF Summary of Air Operations, May 1972. Also, (U) News Briefings by Lt Gen G. J. Eade at Pentagon, 8 Jun 1972.
27. (S) Ibid.
28. (U) Interview, Lt Gen George J. Eade, at Pentagon Press Conference, 8 Jun 72.
29. (TS) Msg, JCS 7951, Subj; SEAsia Operating Authorities, to CINCPAC, 042355Z Apr 72.
30. (TS) Msg, CINCPAC to CJCS, Subj; SEAsia Operating Authorities, 072310Z Apr 72.
31. (U) (AP) Pacific Stars and Stripes, 10 May 72.
32. (U) Ibid.
33. (U) Ibid.

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34. (U) Ibid., 11 May 72.
35. (U) Ibid., 13 May 72.
36. (U) Ibid.
37. (S) Interview with General Vogt.
38. (U) News Briefing, Maj Gen George J. Eade, Pentagon, 8 Jun 72.
39. (TS) Msg, Rules of Engagement, CINCPAC to COMUSMACV, CJCS, and Fleet Elements, 090444Z May 72.
40. (TS) Ibid.
41. (S) Project CHECO Report "Second Generation Weaponry," 10 Sep 70. Also, (S) Working Paper, Hq 7/13AF, DI, "AGM-62 Usage," undtd.
42. (S) Project CHECO Report "Second Generation Weaponry."
43. (S) Ibid. Also, (S) Report, Hq PACAF, DOTE, Subj; Combat Accuracy, Paveway I, 27 Aug 69.
44. (S) Ibid.
45. (S) Interview with General Vogt.
46. (U) Air Force Magazine Article, Interview by Edgar Ulsamer, undtd, published Sep 72.
47. (S) Project CHECO Report, "Second Generation Weaponry."
48. (S) Msg, CINCPAC to Alcon, Subj; CINCPAC Linebacker Master Target List BDA Summary Nbr 1, 200234Z May 72.
49. (TS) Hq USAF Rpt, "Analysis of Air Ops, SEA, Vol 1, 6 Apr 65.
50. (S) Hq 7AF SEADAB, 0601H 14 May to 0600H 15 May 72. Also, (S) OPREP-3, 8th TFW, Thailand, to CJCS and Address, 130715Z May 72. Also, (S) OPREP-4, 8th TFW to CJCS and Addees.
51. (S) Interview with General Vogt.
52. (S) Ibid.
53. (U) Hq 7AF News Release No. 16086. Also, (U) (AP/UPI) Pacific Stars and Strikes article, 29 May 72.

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55. (U) Hq 7AF News Release, 12 Jun 72.
56. (S) Interview with General Vogt.
57. (TS) Msg, General Vogt to General Ryan, 111009Z Jun 72, Subj; Truck Transportation Destruction.
58. (TS) Msg, General Vogt to General Ryan, 041010Z Jul 72, Subj; Motor Vehicle Repair Facilities Struck.
59. (TS) Msg, General Vogt to General Ryan, 081045Z Jul 72, Subj; Motor Vehicle Repair Plant Struck.
60. (TS) Msg, General Vogt to General Ryan, 111130Z Jul 72, Subj; Highway Bridges.
61. (TS) Several Daily Msgs, Vogt to Ryan Log Book, Linebacker, 1972.
62. (S) Interview with General Vogt.
63. (U) Air Force Magazine, Sep 72.
64. (TS) Msg, CINCPAC to COMUSMACV, Subj; NVN Interdiction Campaign, 132301Z May 72.
65. (S) Msg, Hq 7AF to Alcon, Subj; Linebacker Air Ops for 10 May 72.
66. (S) Ibid.
67. (TS) Validated Targets Lists; JCS 161625Z May 72; CINCPAC 100427Z May 72; CINCPAC 270353Z May 72.
68. (TS) (U) (UPI-AP) Pacific Stars and Stripes, 22 May 72. Also, (TS) PACAF RT/LB Comparative Analysis.
69. (TS) (U) (AP) Pacific Stars and Stripes, 25 May 72. Also, (TS) PACAF RT/LB Comparative Analysis.
70. (TS) (U) USMACV News Release, 3 Jun 72. Also, (TS) PACAF RT/LB Comparative Analysis.
71. (U) (AP-UPI) Pacific Stars and Stripes, 4 Jun 72. Also, (U) USMACV News Release, 13 Jun 72.

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74. (U) Ibid., 13 Jun 72
75. (U) (AP) Pacific Stars and Stripes, 16 Jul 72.
76. (U) Ibid., 21 Jul 72.
77. (S) Interview with General Vogt.
78. (S) Ibid.
79. (S) Interview with General Vogt.
80. (S) Ibid.
81. (S) Msg, OPREP-3, CTG 77.4 to CJCS and Addees, Subj; SEA Airops for 10 May 72, 100816Z May 72. Also, (U) Interview by Mr. Mel Porter with Lts Cunningham and Driscoll, 12 May 72. Also, (U) (UPI) Pacific Stars and Stripes, 13 May 72.
82. (U) Interview with Cunningham and Driscoll.
83. (U) Ibid. Also, (S) OPREP-3, CTG 77.4 to CJCS and Addees, 100816Z May 72.
84. (U) (UPI-AP) Pacific Stars and Stripes, 12 Sep 72.
85. (U) Ibid.
86. (S) Interview with General Vogt.
87. (S) Report, Det 1, 10th Weather Squadron (SWOAT) Subj; Linebacker MIF (Most Important Forecast) Data, 11 Sep 72. Hereafter cited as "Report, 10th Weather Squadron."
88. (S) Ibid.
89. (S) Interview with General Vogt.
90. (S) Discussion with Colonel Berry W. Rowe, Commander, 10th Weather Squadron, 15 Sep 72.
91. (S) Report, 10th Weather Squadron.

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92. (TS) Project CHECO Report, "Proud Deep Alpha," 20 Jul 72.
93. (S) Interview with General Vogt.
94. (U) Ibid.
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96. (U) Air Force Magazine, Sep 72.
97. (U) (UPI) Pacific Stars and Stripes, 21 Aug 72.

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GLOSSARY

AAA	Anti-aircraft Artillery
ABF	Attack(s) by Fire (artillery, mortar, etc.)
AGM	Air-to-Ground Missile
AIM	Air Intercept Missile
ARVN	Army of the Republic of Vietnam
AW	Automatic Weapons
BDA	Bomb (or Battle) Damage Assessment
CEA	Circular Error Average
CEP	Circular Error Probable
Chaff	Thin metallic strips dropped as radar-reflecting ECM
CINCPAC	Commander in Chief, Pacific Command
CINCPACAF	Commander in Chief, Pacific Air Forces
CINCPACFLT	Commander in Chief, Pacific Fleet
COMUSMACV	Commander, U.S. Military Assistance Command, Vietnam
CVAs	U.S. Navy attack carriers
DEPCOMUSMACV	Deputy Commander, U.S. Military Assistance Command, Vietnam
DMZ	Demilitarized Zone
ECM	Electronic Countermeasures
ELINT	Electronic intelligence
EOGB	Electro-optically Guided Bomb
GCI	Ground Controlled Intercept
GIB	"Guy-in-Back"
IFF	Identification Friend or Foe
JCS	Joint Chiefs of Staff
JGS	Joint General Staff
LGB	Laser Guided Bomb
LOC	Lines of Communication (roads, rails, waterways, etc.)
LORAN	Long Range Navigation
MIF	Most Important Forecast
mm	millimeter
MR	Military Region

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NGF	Naval Gunfire
NM	Nautical Mile
NVA	North Vietnamese Army
NVN	North Vietnam
PACOM	Pacific Command
PI	Photo Interpreters
POL	Petroleum-Oils-Lubricants
POW	Prisoner of War
PPS	Petroleum Products Storage
PRC	People's Republic of China (Communist China)
RVNAF	Republic of Vietnam Armed Forces
SAM	Surface-to-Air Missile (primarily SA-2 "Guideline.")
SAR	Search and Rescue
SEA	Southeast Asia
SVN	South Vietnam
tac air	tactical air
TDs	Time Delays (to "fix" by LORAN a point in space.)
TOT	Time Over Target
TRW	Tactical Reconnaissance Wing
VNAF	Vietnamese Air Force
WSU	Weather Support Unit

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