approximately 1,815 strike sorties. As a result, train and truck traffic from China to the Hanoi-Haiphong area and between Haiphong and Hanoi would be disrupted and harassed. Import of material would be substantially reduced, as would export of items to China. North Vietnam would be compelled to divert an ever-increasing weight of effort to repair and maintain a serviceable LOC system. Movement of critically required supplies and support would be slowed, causing Hanoi an increasing internal management problem, which would eventually detract from its ability to support external aggression.

The destruction or denial of the NVN war-supporting capability required the attack against POL systems, power plants and the remaining military facilities.

The conferees believed that the initial priority of effort on NVN's war-supporting capability should be directed against major POL facilities and power plants. The nine major POL facilities would require an average of 45 strike sorties per target, or 405 total strikes. There were approximately 10 additional known dispersed POL storage areas which could be pre-briefed priority targets for armed recce. The destruction of POL supplies could be achieved with a relatively low sortie rate, which it was believed would have a greater impact on NVN ability to move men and materials than any other effort. All elements of the NVN transportation system which required fuel and lubricants would be immediately affected (and restricted.)
It was estimated that the six major thermal power plants would require an average of 16 sorties per target, or 96 total strike sorties. The destruction of all the power facilities would have an immediate impact on the entire NVN military, transportation, and industrial base, and would further disrupt and harass the enemy's support capabilities.

The aim of the armed reconnaissance program in the southern area of NVN was to impede, disrupt and harass the movement of personnel and logistics supporting the insurgency effort. This required the highest expenditure of combat strike sorties. However, the effort produced less lucrative results in terms of destruction of war-making resources. It was felt, however, that it was a vital task which had to be performed as an integral part of the air campaign. The extensive land and water LOC's required a discriminate and continuing analysis of movement capabilities and patterns. The dynamic and fluid pattern of movement was difficult to determine; as one route became difficult to traverse, alternate routes and trails would be used by the enemy. As one means of transport became difficult to use, another would be substituted. There had been a persistent and increasing effort expended by NVN to repair the LOC's and to improvise means of continuing the flow of materials. Armed reconnaissance could not stop the flow but, if properly applied, it would make it costly and difficult to effect the movement of personnel and material. The weight of effort expended and the targets selected for destruction would determine the degree of effectiveness to be achieved. There was, however, a point of diminishing returns. The weight of effort, therefore, had to be carefully balanced.
against other facets of the campaign. To ensure this proper balance of effort, an analysis of the LOC system had to be made and areas had to be selected for concentrated interdiction.

The 7AF prepared an analysis of the air interdiction of LOC's from North Vietnam for COMUSMACV. Under the circumstances, COMUSMACV believed that there was no choice but to use air power exclusively to block infiltration and he felt that the 7AF plan should make more effective use of air strikes in disrupting the LOC's. The best we could expect, he pointed out, was to harass and disrupt the enemy to a degree but we could never hope to block the routes for long. What he needed — and had asked for — was some type of munition that would serve to deny an area to the enemy for a period of time. He concluded that this was a difficult problem, with little prospect of appropriate munitions being developed short of a year or more.

Defense of the "Rolling Thunder" Program

While military leaders at CINCPAC were mapping out a concept for 1966 ROLLING THUNDER operations, Defense Secretary Robert S. McNamara was defending current U.S. strategy in Vietnam before the Senate Armed Services Committee. During the January 1966 hearings, he stated that bombing operations in North Vietnam were fulfilling three primary objectives: (1) Strengthening South Vietnamese morale by showing our determination and continuing support; (2) reducing the flow of men and equipment from the North to the South and/or increasing the cost of that flow to the North Vietnamese by
bombing infiltration routes and the military sources of supply; and
(3) putting political pressure on North Vietnam to halt their subversion
campaign in the South. According to the Defense Secretary, it was never
intended that the bombing would break the will of the North. The primary
factors affecting the will of the North would be their appraisal of the
chances for success in the South. Therefore, the Defense Secretary stated,
"the foundation of our strategy must be to prove to them that they could not
win in the South, while accompanying that proof with bombing in the North
so as to raise the political price of carrying on the campaign in the South."

The targets influencing operations in the South, the Defense Secretary
submitted, were not the power, the oil, the harbors nor the dams; rather
they were the roads and the war material provided to them by other com-
munist countries. They could literally carry the equipment and supplies on
their backs and could use bicycles as the Chinese and North Koreans had in
the Korea war. There was every likelihood, the Secretary said, that we
could take out all of their power system, all of their oil, all of their
harbors, destroy their dams, and they could still carry on the infiltration
of the men and equipment necessary to support some level of operations in
the South. This did not mean that they would not be hurt if we were to
destroy those assets but, rather, that they were not military targets
essential to the conduct of their operations in South Vietnam.

Admiral U. S. G. Sharp, the U.S. Commander in the Pacific, agreed with
the Defense Secretary about the possible use of human portage. In answer
to the question as to whether he agreed with some Defense officials that
the bombings in the North could be quadrupled without any decisive effect on the ground war in the South, he stated that "if we could get to the point where the Viet Cong couldn't get enough materials through then, of course, more bombings would have a decisive effect. But, as long as they find their food in South Vietnam, and their ammunitions requirements are not too high because of the character of the war they are fighting, then they would almost carry everything they need down on their backs, if they had to. That's what they did, of course, in Korea." He went on to state that the Communists got practically all of their rice in South Vietnam. "What we're trying to do now is to squeeze this down. We've captured a lot of rice. Their weapons -- most of the weapons and ammunition have to come from North Vietnam." 14/

On 4 January, JCS requested that CINCPAC furnish him with his assessment of the impact of the stand-down of air operations against North Vietnam. He was interested in CINCPAC's opinion of how the stand-down affected the negotiation posture of the U.S. and the GVN. He also desired evidence that would indicate any increase of Viet Cong/NVN capabilities in either South Vietnam or Laos. 15/

On 23 January, COMUSMACV pointed out the dangers confronting the U.S. forces as a result of the build-up by both the PAVN and Viet Cong forces during the bombing pause. CINCPAC concurred with COMUSMACV's stand and noted that the risk to the U.S. forces was particularly great in the I CTZ. CINCPAC stated there was clear evidence, as revealed by the BLUE TREE reconnaissance effort, that the enemy was moving traffic along all of the
LOC's. In addition, BLUE TREE reconnaissance had uncovered many lucrative and perishable targets. For this reason CINCPAC supported COMUSMACV's recommendation that the ROLLING THUNDER program be resumed immediately. He noted that if full resumption should be prevented because of political reasons, then he wanted, at the minimum, strikes at targets in the southern area of NVN.

Resumption of Bombing Operations

A new phase of the Vietnam war began with President Johnson's order to resume bombing of North Vietnam. The President justified his order to end the 27-day truce as necessary to limit the cost in lives in Vietnam. He blamed the Communists for failing to accept his offers to negotiate a peaceful settlement of the conflict, but stated that U.S. efforts in this direction would continue despite the resumption of bombing.

On 30 January, CINCPAC informed his subordinate commands that the ROLLING THUNDER operations would be resumed at daylight on 31 January, regardless of weather conditions. The emphasis during the first 24 hours was to be on moving targets while truck parks, transshipment areas, pontoon bridges, and dispersed storage areas would be secondary targets. Primary emphasis was to be placed on key infiltration routes into Laos and on the principal north/south rail, water, and highway LOC's. Follow-on armed reconnaissance was to be made of logistic centers, LOC hubs, and rail and highway bridges. He also authorized striking JCS targets within the armed reconnaissance area which had been previously struck. CINCPAC instructed
that the VNAF would not be utilized during the first day of operations.

The program was plagued by bad weather and although there were a few strikes on 31 January, they did very little damage because no surprise was achieved. COMUSMACV had previously recommended by cable that ROLLING THUNDER be allowed to start on a good-weather day so that reconnaissance planes could pick up targets of opportunity and bring in surprise attacks. COMUSMACV said, regrettably, that because of the centralized control of this program surprise was not achieved and little damage inflicted. He suspected that the decision authorities were anxious to start the campaign on a low key and the fact that the weather militated against good results was of no particular concern to them.

Radar Bombing Techniques

The resumption of air strikes in February saw the introduction of another method of synchronous bombing to increase all-weather capabilities. The B-66 pathfinder aircraft, using synchronous radar bombing procedures, led the fighters on their bomb runs. In areas where weather made it impossible for visual attacks, the radar pathfinder "Buddy-Bombing" technique was used. A total of 82 radar strikes were flown in February, dropping approximately 95 percent of all bombs delivered on North Vietnam by the Air Force during the month. Weather restricted photo reconnaissance of many of the targets struck but BDA photos, obtained on several of the areas, showed some heavy damage. Radar bombing was also expected to deny unrestricted movement of vehicles and equipment during bad weather periods. In addition to the bombing mission, valuable radar coverage of North Vietnam was obtained.
which was forwarded to Hq USAF and Hq SAC for their radar film libraries. Since
the SEA area was relatively unphotographed by radar, this coverage was of vital importance. Expected to be very important throughout North Vietnam until the heavy weather moved out, radar bombing would then be used in more isolated areas where bad weather restricted visual bombing throughout the year.

On 25 February, three officers were sent for a 45-day TDY from SAC to assist 7th Air Force in developing procedures, techniques and additional radar targets. All the officers were experts in the radar bombing field and were expected to provide assistance in further refining the Radar Pathfinder - Buddy Bombing technique.

This technique continued to be the mainstay of USAF efforts in North Vietnam during March. Bad weather, limiting visual strikes in many areas, placed heavy requirements on the all-weather capability of the radar pathfinder aircraft. During the month, 80 percent of all bombing operations in North Vietnam utilized this technique. Daily strikes against the mountain passes on the NVN-Laos border (Barthelmy on Route 7 and Mu Gia on Route 15) appeared to have had a restricting effect on the movement of vital supplies and ammunition. For the first time in many weeks, truck convoys were sighted during daylight hours moving slowly through Mu Gia Pass. On two consecutive days fighter aircraft were able to get below the weather and destroy or damage many of the trucks. Normally the traffic went through at night only, but the Pass had been bombed so heavily that night movement may have become less desirable due to road conditions.
In addition to leading fighters to their primary targets and giving them the signal to release, pathfinder aircraft provided an all-weather alternate delivery capability for sorties unable to strike visual targets.

With the addition of the B-57 to the bomb delivery role, as a pathfinder aircraft, air operations became more versatile. A variety of ordnance was added and the role of the pathfinder was expanded to strike all types of targets. Heavier seeding of the passes and lines of communications with 2,500 time-delay bombs was being accomplished with more effective time spreads between detonations. Pathfinder-led strikes continued to improve in accuracy and bombing reliability. An excellent target study facility was added at Takhli. The B-66E radar navigators from the 41st TRS now studied radar photography of their target prior to the flight. New bomb run procedures, radar tuning techniques and overall crew experience contributed greatly to the increased/overall accuracy of radar bombing.

An interdiction program for the main routes above 17 degrees north was developed during the January bombing stand-down and implemented during February. The purpose of this program was to deny the enemy forces access into South Vietnam. The targets selected included Primary and Selected Interdiction Points (PIP's and SIP's) on the major lines of communications and selected Dispersed and Isolated Targets (DIT's) to include POL, storage, barracks, and other fixed and lucrative targets.

The Dien Bien Phu Airfield was one of the lucrative targets struck during February. Acting on a recommendation from the American Embassy, Vientiane, for an early strike against the airfield, the JCS on 3 February
authorized a strike as soon as the weather permitted. The JCS said that the weight of the effort should be of a magnitude sufficient to neutralize military activity. The strike was successfully conducted on 6 February by 31 aircraft. The aircraft runway was severely cratered and rendered unserviceable. Twenty buildings were destroyed and eight damaged. Some 60 percent of the entire complex was reported destroyed or damaged. Subsequent re-strikes during the month resulted in additional damage.

In addition to the physical damage inflicted on this target, the strike had important psychological overtones. Dien Bien Phu had become a symbol of the collapse of French power in 1954 and was held in high esteem by North Vietnam. The February attacks showed its vulnerability to U.S. air-power and may well have served as a reminder to Hanoi that they were facing a different and formidable opponent.

Rules of Engagement

Certain restrictions were imposed on ROLLING THUNDER 49 air strikes which began on 1 March. Locks and dams and that portion of JCS Target 52 which had been formerly designated JCS Target 38, were excluded as authorized targets. Coastal armed reconnaissance south of 20° 31'N was authorized to destroy recognized NVN naval craft and craft which fired upon U.S. aircraft along the North Vietnam coast, in the vicinity of coastal islands, in mooring areas and in estuaries. Such armed reconnaissance was also authorized north of latitude 20° 31'N, along the NVN coast and the off-shore islands within 3nm of NVN territory. These attacks, however,
could not be made closer than 25nm from the Chicom border. In addition, they were to avoid a 10nm circle from the center of Haiphong. They were not authorized to attack naval craft, unless first fired upon, north of 20° 31'N and outside of the 3nm limit of the NVN coast and the off-shore islands. Armed reconnaissance could be conducted in NVN, south and west of the line running due west from the coast at latitude 20° 31'N to longitude 105° 20'E, then due north to a point 30nm from the Communist Chinese border, then southwesterly to the Laos Border. Craft would remain 30nm from the Communist China border. Coastal armed reconnaissance was authorized in the area 20° 31'N to a point not closer than 25nm from the Chicom border.

JCS authorized 8,100 attack sorties per calendar month; approximately 3,000 attack sorties were to be executed in Laos and 5,100 in NVN. Daily allocations were permitted to be varied between the two countries depending on operational factors and weather conditions. The JCS did not impose restrictions on the maximum number of sorties that could be flown on any one day. However, if the sortie rate during any month was lower than the 8,100 sorties authorized, no carry-over into the next calendar month would be permitted.

Destruction of units or craft which fired upon U.S. aircraft en route to or from missions was authorized. Unexpended ordnance could be utilized on authorized ROLLING THUNDER objectives by these aircraft, including STEEL TIGER and BARREL ROLL aircraft. Moreover, RLAF targeted road segments in Laos were authorized attack by returning aircraft.
Reconnaissance was authorized prior, during, and after strikes. Populated areas were to be avoided. As required to protect the strike forces, MIGCAP, screen aircraft and other appropriate force elements could be used in combat. Attacks on NVN air bases from which attacking aircraft might be operating were not authorized. During this mission, IRON HAND operation would be limited to the armed reconnaissance area authorized for RT-49C. Assignment of BARREL ROLL and STEEL TIGER missions was authorized in the ROLLING THUNDER area, as appropriate.

The JCS had told CINCPAC and COMUSMACV in February that RT-49 was considered to be a step in the right direction toward mounting an effective and flexible air campaign against North Vietnam and the infiltration corridors through Laos. However, defects were noted - such as the withholding of authority to execute IRON HAND in the northeast quadrant and in maintaining this quadrant as a sanctuary. The JCS stated the intent to push ahead in these areas and had asked CINCPAC and COMUSMACV to submit their comments by mid-March. At that time, the 7AF recommended that the NE Quadrant (Route Package VI) be opened to armed reconnaissance. This would permit constant interdiction of the vital NE rail line between Hanoi and Lang Son, and the rail line between Hanoi and Haiphong. The Commander, 7AF, wanted the same rules of engagement to be used that were in effect for RP I through V. He supported his recommendation by noting that the armed reconnaissance strikes against RP V interdicted the LOC of the NW rail line (Hanoi/Lao Kay) through the photo-confirmed destruction of two bridges and numerous rail cuts. The NE quadrant was subsequently reopened to strike operations on 20 March and
CINCPAC notified COMUSMACV accordingly.

The 7AF Commander also recommended that B-52 aircraft be assigned to the job of interdicting targets in the Mu Gia, Nape and Barthelemy Passes on a continuous basis. He felt that this would free the tactical aircraft so they could carry out armed reconnaissance against other targets. All POL storage facilities as well as selected power plants in NVN also should be considered as prime continuing targets for the armed reconnaissance program. Further, the Commander, 7AF felt that it was necessary to remove the restrictions which applied to dams and LOC's in order to permit interdiction of waterway LOC's by lowering the navigable water levels. Such interdiction would also negate trafficability of portions of the inland waterways.

Coordinating Air Operations

On 22 March, COMUSMACV presented CINCPAC with a proposed plan, patterned after TIGER HOUND, for the conduct of air operations in RP I and II. RP I would be assigned to 7AF and RP II to CTF 77; existing control procedures would be employed. Air operations in these packages would be augmented from in-country assets at Da Nang, Cam Ranh Bay, and Phan Rang as required. Part of TIGER HOUND would be shifted to Packages I and II, as the weather in Southern Laos deteriorated. In this connection, airborne FAC's in A-1E's would be used at Hue/Phu Bai to provide continuous visual reconnaissance and forward air control. Flak suppression measures would be taken. ABCCC aircraft would permit communication with aircraft over RP's I and II and Southern Laos and divert strikes to lucrative targets. COMUSMACV said ha
believed that success comparable to TIGER HOUND could be achieved. Tactical intelligence would be exploited on an immediate basis, using the same intelligence assets as used in TIGER HOUND. In addition, the 7AF/TF77 Joint Armed Reconnaissance Coordinating Committee would continue to agree on levels of effort, exchange of intelligence and BDA.

COMUSMACV noted that he would have mission responsibility and full control of these operations, but would delegate operations to the Air Force Component Commander (AFCC). However, he would review the progress and would give guidance on a day-to-day basis in accordance with good management procedures. All resources appropriate and available would be focused on this mission in accordance with COMUSMACV's tactical judgment. He said that the 7AF commander concurred. He, therefore, requested authority to implement this proposal as a matter of operational urgency. This would give him the authority to bring military power to bear most effectively on enemy approaches to the battlefield for which COMUSMACV was responsible. He visualized that current arrangements for other route packages in NVN would continue.

On 31 March, the 7AF briefed COMUSMACV on the subject of new designations of areas and programs for the air war. As a result of this conference, COMUSMACV made the decision to redesignate the areas for planning teams Alpha, Bravo, Charlie, and Delta to correspond with the 7AF planning teams which were in existence as of that date. Bravo area covered RP I and STEEL TIGER area (as redefined). Charlie area covered South Vietnam, and Delta covered the TIGER HOUND area (expanded). (This was to be effective, as of
that time, "in house"; however, implementation external to MACV had to await approval of higher headquarters.) The requirement existed to set up a system of continued monitorship and analysis of the routes and choke points in the delineated areas of the air war. It was felt this requirement should be the subject of daily briefings for which 7AF would assume responsibility.

On 1 April, CINCPAC issued the basic operations order covering ROLLING THUNDER and related support programs. PACOM and VNAF forces were given the mission of conducting coordinated air strikes, as well as photo reconnaissance and armed reconnaissance against selected targets and LOC's in North Vietnam. To preclude any mutual interference of forces during the air operations, CINCPACAF was given the responsibility as the coordinating authority for ROLLING THUNDER, IRON HAND, and BLUE TREE operations. COMUSMACV was authorized to utilize VNAF forces in Route Package I.

Areas of primary responsibility were assigned for intelligence analysis, photo reconnaissance and armed reconnaissance as follows:

COMUSMACV: Route Package I. The package included the area north of the DMZ and south of a line starting on the coast at 17°52'N, 106°27'E, along and including Route 108 to its junction with Route 109, direct to the junction of Routes 195 and 15, due west to the NVN/Laos border. Primary responsibility for Nape Pass along Route 8 to the junction of Route 81 in NVN, and Barthelemy Pass along Route 7 to the junction of Route 75 in SVN.

CINCPACFLT: Area included Route Packages II, III, IV and VIB. The area was given as south and east of a line starting on the NVN/Laos border at 20°31'N, east to 20°31'N, 105°20'E, northeast parallel to but not including the NE rail line and Route 1A to the CHICOM border, and north of the line defined for Route Package I.
CINCPACAF: Area included Route Packages V and VIA. The area was north and west of the line defined for CINCPACFLT, including the NE rail line and Route 1A northeast of Hanoi.

COMUSMACV was authorized to adjust his weight of effort between the STEEL TIGER and BARREL ROLL areas and the Route Package I area.

When dictated by weather conditions, or when both commanders deemed it operationally advisable, both CINCPACAF and CINCPACFLT would direct sorties into each other's primary area of responsibility. Responsibility for Route 1A northeast of Hanoi and the rail line paralleling Route 1A was assigned to both CINCPACAF and CINCPACFLT. This responsibility included the coordination of effort and status analysis. The responsibility for intelligence analysis and status of targets in Route Package I was assigned to both COMUSMACV and CINCPACAF.

CINCPAC stated that Alpha targets would be assigned by CINCPAC execute messages. These targets would not necessarily be by assigned areas. He stated that the areas given by him above excluded the restricted areas such as the Haiphong and Hanoi circles and the Chicom buffer zone.

Air Force aircraft in SEA and USN carrier-based forces in the South China Sea were authorized for ROLLING THUNDER, IRON HAND, and BLUE TREE operations. VNAF forces were authorized for ROLLING THUNDER operations only. Use of Thai-based aircraft required the coordination with the American Ambassador, Bangkok.

As required, all missions were authorized the following: CAP, SAR, FAC, weather reconnaissance, flak and SAM suppression, flare support, ECM/ELINT.
support, and prestrike, concurrent and post-strike reconnaissance. To reduce the risk to forces involved, photo reconnaissance missions for BDA would be scheduled on a random basis after strike against sensitive targets. Surface picket stations and airborne early warning capability would be utilized to maximum extent feasible. Also, as required to protect allied forces, RESCAP, MIGCAP, BARCAP, and other appropriate elements would engage in combat, including SAM suppression. Except for Thai-based aircraft, missions could be diverted to SVN from NVN. When missions were diverted, however, they would comply with the rules of engagements applicable to the area to which diverted. The OPREP-1, when feasible, would include alternate weather targets. In order to avoid mutual interference, coordination would be accomplished.

The following instructions applied for ROLLING THUNDER operations:

1. Optimum unclassified conventional ordnance for target to be attacked would be carried by the aircraft.

2. Safety of forces and the reduction of risk factors in attacking targets in heavily defended areas required special considerations. Unless otherwise directed, these attacks could be executed with relatively small elements in a series of attacks spread over the specified strike days. This would permit ultimate achievement of desired damage level. Heavy strikes could be launched in such areas when tactical considerations warranted such attacks.

3. Maximum feasible damage: This was defined, for specific targets, as that amount of damage which neutralized or rendered a target ineffective and/or unable to perform its basic function. The best available intelligence would have to be used in this assessment, as this was a judgement factor which was necessary to permit the commander to weigh the risks against the gains that were involved in committing additional forces.

4. Destruction was authorized for recognized military targets of opportunity in the immediate vicinity of the target areas and along the armed reconnaissance routes and craft or units which fire upon friendly aircraft,
en route to or from missions.

5. JCS numbered targets which were previously struck were authorized for attack by aircraft returning from strike and armed reconnaissance missions, provided that they were in the authorized armed reconnaissance area. The objective was to maintain these targets non-operational.

6. Within the approved BARREL ROLL/STEEL TIGER armed reconnaissance area, aircraft normally overflying Laos in returning to Thai bases were authorized to attack LOC's in Laos under visual conditions. Such attacks, however, could not be carried out in inhabited areas.

7. Coastal armed reconnaissance would include coastal inland, estuaries and NVN naval craft mooring areas. The area in which U.S. armed reconnaissance could be conducted was from the DMZ north to the limits designated above. Objectives, in order of priority, for these armed reconnaissance flights included:

- Resources in NVN that contributed to the support of aggression would be destroyed. POL facilities were accorded the highest priority in the targeting consideration.

- Military support facilities and military forces would be destroyed. Emphasis for destruction would be against activities and facilities contributing directly to the movement of men and material into SVN and Laos. This destruction would include logistic hubs, military support facilities, targets within logistic centers, and targets along segment objectives.

- Armed reconnaissance would destroy vehicles, rolling stock as well as watercraft and LOC support facilities. Such support facilities would include parks, rest and refuel points, transshipment areas, and maintenance and repair facilities.

- Interdiction of movement on selected LOC's by a concentration of armed reconnaissance on a night and day basis against designated logistic centers, LOC hubs, and segment objectives.

- Movement along certain LOC's would be harassed, disrupted and hindered by striking carefully selected interdiction points, (SIP's). Selected interdiction points could include the destruction of a crossing area or a key bridge where it would be extremely difficult to bypass. It could block a vulnerable highway segment. Road cratering, however, would be held to the minimum and would only be conducted in those areas where the terrain features would make bypass difficult.
The following instructions applied for IRON HAND:

1. The specific objective of IRON HAND flights was to locate and destroy occupied SAM sites or SAM support facilities.

2. The instructions given above for ROLLING THUNDER also applied to IRON HAND.

3. IRON HAND missions could be flown in conjunction with ROLLING THUNDER armed reconnaissance. During such a time IRON HAND could use ROLLING THUNDER targets as alternates.

BLUE TREE had as its specific objective the acquirement of intelligence to support the ROLLING THUNDER and other SEA objectives. The following instructions applied:

1. Control of BLUE TREE photo reconnaissance would be by CINCPAC who would establish objectives, maintain and update requirements program for the collection of maximum intelligence.

2. BLUE TREE area of operations would include all of NVN with the exception of restricted areas.

3. Whenever there were unforeseen or urgent requirements of a critical nature, these could be included as modifications to approve missions. This would be done by including these requirements in the daily intent reports. Such action would constitute approval unless CINCPAC directed otherwise.

4. When feasible, IRON HAND and BLUE TREE photo mission would be combined.

The following restrictions were applicable to BLUE TREE, IRON HAND and ROLLING THUNDER:

1. Attacks would avoid populated areas. Utmost caution would be exercised in the attacks to keep collateral damage to the minimum consistent with the desired objective.

2. Certain types of targets would not be attacked. These included hydro-power plants, locks and dams, fishing boats, sampans or
houseboats in populated areas which appear to be water homes; Yen Phu Army Barracks, and the Vinh Army Barracks Central NE. Attacks could be made on these targets only when specifically designated by CINCPAC directive.

3. Certain areas were designated as restricted areas. No attacks of any type were authorized in those areas, except as approved. Approval would be on a case-by-case basis or specifically authorized in the execution message. Specific CINCPAC direction would be required for entry of BLUE TREE resources into these restricted areas. The restricted areas included:

No closer than 30nm from the center of Hanoi.

No closer than 10nm from the center of Haiphong.

A zone along the Chicom border 30nm wide from the Laotian border east to 106 degrees and 25nm wide from there to the Gulf of Tonkin.

4. The Chinese border would be avoided. Flight paths to and from target areas had to be planned so that they would not come any closer than 20nm to the Chicom border. For armed reconnaissance attacks, such attacks had to be within the approved armed reconnaissance area.

5. IRON HAND operations were restricted to the authorized ROLLING THUNDER armed reconnaissance. This restriction remained unless CINCPAC directed otherwise.

6. Aircraft could enter into the restricted areas when engaged in immediate pursuit. However, even during such pursuit, these aircraft were prohibited from getting any closer to the Chicom border than 12nm. While in pursuit these aircraft could not attack SAM sites which were located within 30nm of Hanoi. Moreover, they could not strike the NVN bases from which the attacking aircraft were operating.

7. Care would be taken in the employment of ECM. Employment on a carefully planned basis was considered essential in order to minimize degradation of U.S. capability by overexposure. It was felt that the enemy forces could be provided major benefits through the indiscriminate use of ECM. Indiscriminate use could degrade SIOP capability.

8. Caution would be used at all times to avoid any inadvertent release of weapons in the DMZ. When flying during the night or when
under conditions of limited visibility, any strike within 20nm of the DMZ would be conducted only with FAC confirmation of position or radar confirmation of position. Command signals would be dual flagged as appropriate, i.e., UE/IH. This could be done since the ROLLING THUNDER, BLUE TREE and IRON HAND programs were closely related and since they mutually supported each other.

Counteractions to Enemy Buildup

On 4 April, the JCS summarized the status of action taken to intensify air operations to counter the accelerated enemy build-up. They concurred with the objective of COMUSMACV to attain, during the remainder of the good weather period, the maximum damage and disruption of the lines of communication in North Vietnam and Laos supporting the communist forces in South Vietnam. This was being supported by assignment of considerable weight of effort in the STEEL TIGER and the ROLLING THUNDER program directed toward interdicting these LOC's.

The JCS had a study group review the ROLLING THUNDER effort and USIB analysis on infiltration. Intensive studies were also being conducted in Honolulu on the vulnerability of the enemy's LOC's and transportation systems. The JCS noted the desirability of having intelligence agencies at national level concentrate on the study of this specific vulnerability.

The area north of Vinh was considered the "strategic rear"; the desired accent in this area was on the war-supporting activities and fixed targets. Armed reconnaissance was also considered important. The weight of effort required for this area was authorized with interdiction to be applied through the maximum depth. In the area south of Vinh, the emphasis on air
efforts would be placed on armed reconnaissance. As was recommended, sufficient weight of delivery was authorized to meet the requirements for the ROLLING THUNDER/STEEL TIGER armed reconnaissance effort in Laos and NVN south of Vinh. Responsibility for armed reconnaissance in the southern-most areas of NVN had been assigned to MACV.

COMUSMACV had recommended striking POL and other facilities. These included selected power plants, dams and locks affecting inland waterway traffic, jet airfields, the Kep EW/GCI complex, selected ports (including Haiphong), and key rail, inland waterway and road chokepoints. The JCS said there was general concurrence with this concept, however, there were certain shifts in priority. They noted that ROLLING THUNDER 50 extended attacks to certain of these targets. It also provided that plans would be made for strikes on POL, a thermal power plant and a cement plant. Execution of the plan would not be made until directed. It was also noted that certain tactical restrictions, which established time limits and required single strikes, had been removed.

On 4 April, CINCPAC stated that there was considerable coastal traffic along the northeast coast and that it was particularly heavy in the vicinity of the islands off the Red River estuaries. Third-country ships were being off-loaded by lighters a considerable distance away from Haiphong. CINCPAC felt that attacks against these lighters, when they were well away from the third-country ships, would be very effective in causing the shipping interests to cease their visits to the Haiphong area. Water traffic from Haiphong and in the areas adjacent to the south of Haiphong was becoming
increasingly important. CINCPAC pointed out that it would be more effective to strike this traffic in the concentrated areas around Haiphong rather than trying to seek out such traffic after it had been dispersed along the coast.

He backed up his recommendation by pointing out that strikes in the vicinity of Cam Pha had had a most salutary effect. This was a case where some third-country shipping had been diverted without actual strikes on the port facilities. He considered that selective strikes against fringe areas of Haiphong, therefore, would cause a similar or greater reaction. CINCPAC also believed that authority for increased coastal reconnaissance could result in the withdrawal of third-country shipping.

The value of an intensive 24-hour strike/recce effort around a choke point on a heavily-travelled LOC was dramatically illustrated on 25-26 April. During that period 7AF forces destroyed or damaged 28 heavily camouflaged trucks north of the Ron Ferry on Route 1A. A high level of night truck traffic along the route had been suspected for some time and periodically confirmed by photo reconnaissance. During the day it was difficult to find the trucks in their heavily camouflaged, pre-planned parks and it was equally difficult at night as they quickly dispersed when flares were dropped. Increasing enemy defenses below 18 degrees indicated a need to destroy the trucks before they reached the protection of their parks. To insure a minimum time lapse between photo readout and strike launch, both strike and recce forces were concentrated in the area to insure 24-hour coverage.

The Ron Ferry and the nearby Quang Khe Ferry were struck on the morning
of the 25th; their approaches and bypasses were interdicted and extensively seeded with time-delay fused bombs. One ferry, caught in the open at Quang Khe, was also sunk. Recce flights early in the evening of the 25th disclosed 35 trucks backed up on both sides of the Ron Ferry awaiting to cross. Ferry boat activity at both locations was in full swing in spite of the VTD bombs. Four F4C's from the 8th TFW dropped flares and found two groups of trucks; they reported at least two trucks destroyed with others damaged. Additional strikes were carried out until 18 trucks had been destroyed and ten damaged. There were no U.S. losses although the area was defended by 57mm radar-controlled AAA. In view of the success at the Ron Ferry, future "full court press" tactics would be employed at selected choke points to back up large numbers of vehicles and destroy them before the enemy could disperse.

Initiation of B-52 Attacks

In accordance with the 7AF recommendation, made in March, the first use of B-52's in North Vietnam took place on 11 April against the Mu Gia Pass. Thirty Guam-based B-52's dropped 695/750 lb. and 694/1,000 lb. bombs on a road segment of Mu Gia Pass, from an altitude above 30,000 feet. Photography revealed that 26½ hours after the strike, all craters were filled in and there were tracks across them. The speed with which the road was made serviceable is an indication of the strategic value of this pass to the enemy.
"Gate Guard"

A concept had been developed in late April which addressed itself to the problem of impeding the flow of supplies into Laos and South Vietnam by concentrating greater effort within RP I. A group of interdiction points located on the major LOC's was selected for concentrated daylight strike. These targets formed a series of systems, or belts, oriented east-west across Route Package I. A total of three systems were developed. Due to the limited number of available sorties, only one system was initially attacked. The objective was to interdict the routes by day and then apply night armed reconnaissance to destroy fleeting targets trapped north of the interdiction points. The program was designated operation GATE GUARD and initial strikes under the concept were begun on 10 May 1966. Poor weather during most of May prevented full application of the concept. However, during June, improved weather and the use of newly-installed radar bombing sites (MSQ-77) permitted full implementation.

Operation GATE GUARD continued through July, forcing the enemy to exert considerable effort to keep his supply lines open through this vital area. Photography and visual sightings indicated an increased use of water-craft to move supplies. The MACV "Order of Battle Summaries" noted that enemy infiltration reported for June and July was reduced to almost half of that for the months of January through May. (Interdiction of LOC's in RP I was a rotating AF and Navy operation until the rotation system was dropped in April and RP I became a full-time AF responsibility.)
Deterrent and Retaliatory Strikes

On 9 May 1966, COMUSMACV recommended to CINCPAC that the Thai Nguyen Iron and Steel Complex be struck by air. He believed that striking the steel plant would serve as a deterrent to further attacks on South Vietnamese industries by the Viet Cong. On 23 April, a cement roofing plant had been attacked by the Viet Cong resulting in six South Vietnamese killed and six wounded. An estimated force of three Viet Cong platoons attacked three textile factories on 24 April. These textile factories, which produced nets, mosquito netting, and bulk cloth, received extensive damage and production had ceased. COMUSMACV noted that these incidents represented the first reported attacks against privately owned industrial property within the Capital Military Region. They were proof of the Viet Cong determination to disrupt the local economy and to hamper industrial development.

COMUSMACV believed it should be made clear to the Viet Cong that attacks of this nature would be prohibitively costly to the NVN. In his opinion, it would not be profitable to destroy a portion of NVN's textile capacity as a deterrent to further Viet Cong attacks on SVN industries. He believed it would be more appropriate to attack an industrial target which had considerable military significance, such as the Thai Nguyen Iron and Steel Plant (JCS Target 76). This target was considered to be an economic asset of appropriate importance to North Vietnam. He pointed out that this was the first large steel plant to be built in NVN. It had a designed capacity of 300,000 metric tons of pig iron and 200,000 metric tons of crude steel yearly. According to Hanoi, this plant was capable of providing 20 percent...
of NVN's domestic iron and steel requirements when at full production. COMUSMACV, therefore, asked that this steel plant be struck as a deterrent to further destruction of SVN industry by the Viet Cong.

In response to COMUSMACV's recommendation, CINCPAC told JCS he concurred with COMUSMACV's basic intent but that he did not concur with the idea of striking the Nguyen Iron and Steel Complex. In his opinion, the Viet Cong attacks on the four South Vietnamese factories constituted further justification to strike the POL industry. He believed that destruction of the POL system would be more meaningful and would further deny NVN essential war-making resources. CINCPAC, therefore, recommended to the JCS that approval be given for the destruction of NVN POL system, beginning with the Haiphong POL.

In response to COMUSMACV's "suggested targets for retaliatory air strikes in the event like targets were attacked in SVN," CINCPAC responded on 25 May that he believed the criterion for a retaliatory strike should be to provide the maximum military return for the strike effort. For this reason, CINCPAC could not concur in the concept that retaliation should necessarily be against targets of like category. Furthermore, if the enemy anticipated retaliation in kind, he would be alerted for our counter attack.

CINCPAC stated that CINCPACFLT, CINCPACAF, and CINCSAC had effective plans ready for implementation for nine JCS targets for reprisal attack should like targets be attacked in SVN. These were: Hanoi POL, Kep Airfield, Haiphong POL, Phue Yen Airfield, Hanoi Defense Ministry, Thai Nguyen Thermal Power Plant, Uong Bi Thermal Power Plant, and the Thai Nguyen Steel
Plant. Furthermore, plans existed for attack against all airfields in the Hanoi/Haiphong complex should JCS so direct.

On 24 May, the JCS stated they were loath to place targets in a reserve category for retaliatory purposes and CINCPAC concurred with this thinking. In a message to the JCS on 27 May, CINCPAC noted, with regard to POL targets, he saw more and more evidence of dispersal into continually smaller increments, much of it underground. It would become increasingly difficult to locate and strike POL targets and thus returns for the effort expended would be limited.

CINCPAC said that his recommendations, by priority, for a revision of the ROLLING THUNDER ground rules, starting 1 June, were as follows:

1. The ten targets, particularly the seven POL targets listed in the 1 April ROLLING THUNDER execute order. Authorization to strike POL targets anywhere in Route Packages 6A and 6B. He noted that as of that time he was pretty much restricted to particular LOC's.

2. Authorization to strike selected targets in the Hon Gay and Cam Pha complexes. Hon Gay areas B and C contain general cargo storage buildings and RR shops which could be struck with little danger of damage to the piers or any foreign ship present. Such a strike would be most effective in deterring future visits by foreign ships.

3. Relaxation of the rules for coastal armed reconnaissance north of 20-32 N including the authority to strike any clearly identified NVN cargo type vessel.

4. Reduction in the size of the Hanoi-Haiphong restricted area, or authorized targets within the areas on a case by case basis. He noted that the ten targets listed in the 1 April execute order were an example, as eight of these targets were located in the circles for specific type targets only, such as POL.

5. Relaxation of the armed reconnaissance coverage to allow strikes against other known lucrative targets in the NE quadrant,
even though not in the immediate vicinity of assigned LOC's.

With respect to JCS target planning, the Deputy Commander, 7AF/13AF Udorn expressed concern over the stereotyped tactics employed in our attacks against North Vietnamese targets. Pilots involved in these strikes were unanimous in their views concerning the loss of tactical surprise as a consequence of our repetitious and uniform procedures day after day against these targets.

The Deputy Commander said that his visits to Takhli, Korat and Ubon had heightened this concern. During these visits, he had personally briefed pilots, at length, on the problems which plagued 7AF in carrying out such complex missions. However, the pilots had, in turn, convinced him that there must be ways and means not yet exploited to provide more flexible but less vulnerable tactics. Based on recent and extensive discussion, he outlined a proposed procedure which he recommended be pursued with higher headquarters. His proposal assumed that those headquarters would agree to designate JCS targets for the next cycle well in advance - several days or even a week. The information would then be immediately passed on to the tactical fighter wings specifically involved. These fighter wings would then recommend for 7AF consideration their entire attack plan, including tactics, routing, timing, ordnance loads, etc. The Deputy Commander believed that, if 7AF were successful in obtaining such pre-notification from higher headquarters, many original and useful suggestions would be generated from the fighter wings. The Deputy Commander had been told that during the latter part of 1965 this procedure had been followed.
He admitted, as did all the pilots, that strengthened enemy ground defenses and recent high loss rates were a primary reason for the concern. He added that this was all the more reason for exploring all avenues for possible improvement. If the above procedure were permitted, he felt that a greater degree of operational effectiveness would result from increased initiative and enthusiasm on the part of pilots.

POL Strikes

The attacks against POL facilities in the Hanoi/Haiphong area during June initiated a dramatic new phase of air power application in the Vietnam conflict. In some parts of the world, and also among certain sectors of the U.S. public, it was viewed with alarm as being yet another escalation toward total war. But, after months of limited harassment of North Vietnam's supply routes, it was inevitable that consideration be given to striking the enemy's sources of supply. Until June, "safe areas" had been permitted within a 30-mile radius around Hanoi and a 10-mile radius about Haiphong port and these had only occasionally been breached. The limitations against bombing the Hanoi/Haiphong POL Complex had allegedly been based on two factors: (1) The strikes would imperil the civilian population in the vicinity of the facilities and (2) it would subject South Vietnam to possible retaliatory attacks. Actually, the NVN zonal restrictions were based on broad matters of national policy rather than fear of retaliation on RVN sites. Heavy damage could be inflicted by air attacks on NVN POL sites, while the enemy could only reciprocate with limited damage in RVN. For example, an attack on Nha Be POL facilities, near Saigon, would have a
damaging effect on overall FWMAF efforts and, particularly, the civil economy in the Saigon area. It would not, however, have the profound impact of a concerted effort against NVN POL areas. Also, by January 1966, security of Nha Be had been improved to such an extent that estimates allowed no more than 50 percent destruction by major attack. Military forces in the RVN were no longer dependent upon Nha Be as a single source of supply -- floating storage facilities were provided and increased the capacity at many locations, and tankers and barges had improved POL transport assets.

For months before final receipt of authorization to strike the Hanoi/Haiphong POL complex, CINCPAC and COMUSMACV had been recommending its inclusion on the target list on a priority basis. In a personal assessment to CINCPAC, on 5 June 1966, COMUSMACV observed that the improving South Vietnamese political situation had undoubtedly generated acute disappointment, possibly even dismay in Hanoi and thus must be credited with producing important psychological gains for the U.S. Along with this development was the strong likelihood that the air campaign against enemy LOC's and associated logistics systems, in the Laos Panhandle and southern portions of North Vietnam, had taken a heavy toll in war-sustaining resources. Again, the U.S. had made significant psychological and material gains into what could become truly important dividends by compounding the enemy logistics problems and further eroding his morale by inflicting a telling blow against a critical national resource -- POL. POL was selected by virtue of the far-reaching effect its reduced availability would exert on enemy
conduct of logistics operations. The choice of targets was further influenced by recognition that added delay in the conduct of decisive strikes against major enemy POL storage areas would make later efforts less effective in the light of Hanoi's on-coming program of POL dispersion. Against this background and rationale, and with cognizance of improving weather in NVN, COMUSMACV urged earliest possible engagement of JCS targets as follows: POL storage in Haiphong, Hanoi, Nguyen Khe, Phuc Yen, all POL storage targets included in the JCS list held in abeyance with the ROLLING THUNDER 50 program.

On 6 June, CINCPAC again recommended to JCS that strikes against key POL facilities in NVN be given highest priority and reiterated the advantages to be gained from such strikes. He recommended inclusion of Phuc Yen POL Storage (14,000 metric ton capacity) as an additional target. CINCPAC concurred with COMUSMACV that prompt strikes against these targets would indicate to South Vietnam the U.S. intention to increase pressure against NVN aggression. They would also serve to enhance the RVN political situation by underscoring the U.S. resolve to continue support of the RVN government. Destruction of major storage areas would greatly complicate bulk off-loading at ports and necessitate new methods of off-loading and transshipment, causing at least a temporary halt in the flow of POL to dispersed areas. Since POL imports were not sufficient for the existing fleet of trucks, destruction of POL storage would further limit use of trucks and motorized watercraft. These strikes could have a critical impact on Hanoi planning at a time when they may have been hopeful of seasonal success in
mounting operations from Laos and Cambodia. CINCPAC considered North Vietnam's POL system a most lucrative target from the standpoint of impairing the enemy's military logistics capability. He recommended immediate action to exploit those advantages which were particularly timely and significant.

Authorization was granted on 16 June 1966 to conduct armed reconnaissance strikes on dispersed POL sites in NVN as contained in the ROLLING THUNDER 50 target lists. Sites to be excluded were those located within 30 nautical miles of the center of Hanoi, ten nautical miles of the center of Haiphong or in the buffer zone, 25 nautical miles from the Chicom border east of 105° 20'E and 30 nautical miles west of 105° 20'E.

On 22 June, JCS further directed that, effective at daylight on 24 June, air strikes were to be conducted against the following targets in North Vietnam for which prior planning had been accomplished:

<table>
<thead>
<tr>
<th>JCS Tgt. No.</th>
<th>Name</th>
<th>BE Number</th>
</tr>
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<tbody>
<tr>
<td>48.</td>
<td>Haiphong POL Storage</td>
<td>616-0005</td>
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<tr>
<td>49.</td>
<td>Hanoi POL Storage</td>
<td>616-0116</td>
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<td>51.</td>
<td>Nguyen Khe POL Storage</td>
<td>616-0630</td>
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<tr>
<td>51.11</td>
<td>Bac Giang POL Storage</td>
<td>616-0234</td>
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<tr>
<td>51.31</td>
<td>Do Son POL Storage</td>
<td>616-0081</td>
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<td>51.14</td>
<td>Viet Tri POL Storage</td>
<td>616-0319</td>
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<tr>
<td>51.17</td>
<td>Duong Nam POL Storage</td>
<td>616-1176</td>
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<tr>
<td></td>
<td>Kep EW/GCI Radar</td>
<td>616-7235</td>
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Strikes against these ROLLING THUNDER 50-Alpha targets were to commence with initial attacks against JCS Targets 48 and 49, on the same day, if operationally feasible. Every effort was to be made to achieve operational surprise. Therefore, the initiating attacks were not to be conducted under marginal weather condition but rescheduled when weather would assure success. Follow-on attacks against ROLLING THUNDER 50-Alpha targets were to be executed as operational and weather factors dictated. In conducting attacks on the Haiphong target, damage to merchant shipping was to be avoided. No attacks were authorized on any craft in the Haiphong area unless they fired upon us first and were clearly of North Vietnamese registry. In addition, the piers serving JCS Target 48, Haiphong POL Storage, were not to be attacked if a tanker was berthed off the end of the pier.

It was learned that the Soviet tanker "Komsomol" was at the Haiphong port, presumably anchored off the pier at the POL facility and discharging its cargo. CINCPAC made it clear that strikes of the Haiphong POL storage area were authorized despite the presence of the tanker. However, no strikes of the servicing pier were to be made if the tanker was anchored and offloading its cargo.

In view of the weather forecast for June 24, 7th AF informed PACAF that it did not consider it feasible to strike JCS Target 48 on that date. However, in order to be prepared in case the forecast was wrong, 7th AF issued instructions to strike units to enable them to make necessary preparations. The 7th AF recommended weather minimums of 10,000 feet and five miles, vice 8,000 and five miles. It also requested PACAF concurrence for
7AF giving the final "go-no-go" for the TF-77 and 7AF as had been the practice in the past.

CINCPACAF and CINCPACFLT were requested to provide two daily weather forecasts for the following day's target area. The forecast would conclude with a tentative "go" or "no-go" for specific targets. It would be a coordinated 7th Fleet - 7th Air Force report and would be submitted via telecon by 7th Air Force, action NMCC and CINCPAC, with information copy to CINCPACAF and CINCPACFLT. If any significant weather changes occurred between the reporting times that indicated a change in the tentative "go-no-go," a special weather forecast was required.

CINCPACAF advised 7AF that he imposed no objections to striking all three targets at once, provided effort on JCS 49 was not diluted. It was suggested that weight of effort on initial strikes be maximum possible, within the limits imposed by possible losses and sound mission tactics. PACAF authorized 7AF to plan restrikes on all targets, as required, and also recommended that the Navy's request for nearly simultaneous TOT's be honored, if practicable, although identical TOT's were not required. PACAF agreed it would be desirable for 7AF to have "go-no-go" for the initial strike to avoid last minute confusion. Since the Navy had asked for a delay until 25 June, there would be additional time to thoroughly plan the mission. The JCS had advised that extraordinary demands for information on the strike program could be anticipated and 7AF was requested to insure that all strike plans, including frag orders, post strike reports and strike evaluations, be furnished PACAF without delay. The JCS had also
requested that every means be taken to secure good, prompt BDA of targets struck. Efforts would be made to provide jet aircraft pick-up immediately following film processing in order to expedite dispatch to Washington. Maximum effort was to be made to get full film coverage of actual strike by utilizing Type-4 pods on strike and photo-chase aircraft.

CINCPACAF pointed out that it was imperative for 7AF to make a superior showing since these targets represented a new order of magnitude in both the political and military realm. The results of this mission could dictate whether authorization would be granted to hit other worthwhile targets in the Hanoi area. It was recommended that 7AF employ successive flights, if necessary, to achieve high levels of destruction on Target 49 which would be the focus of attention in Washington. PACAF advised adoption of a concept similar to that employed in the Yen Bay attack which had been superb. It recommended taking a position with the Navy that marginal weather conditions should be ruled out and only a high-confidence forecast be used as the basis for attack.

The decision to carry out strikes against POL targets in the Hanoi/Haiphong area was made after the SecDef and the JCS had given assurances to higher authority that every feasible step would be taken to minimize civilian casualties associated with the strikes. CINCPAC was advised not to initiate the program if the missions could not be executed to accomplish this objective while destroying the targets and protecting U.S. crews. Measures to be taken to minimize civilian casualties were to include: (1) Maximum use of individuals most experienced in conducting ROLLING THUNDER
operations in the Hanoi/Haiphong area; (2) detailed briefing of pilots stressing the need to avoid civilian population; (3) the striking of targets only when weather permitted visual identification of the target and provided for improved strike accuracy; (4) selection of the best axis of attack to avoid populated areas to a maximum extent feasible; (5) maximum use of ECM support to hamper SAM and AAA fire control which would limit pilot destruction, in order to improve delivery accuracy; (6) maximum use of weapons with characteristics providing highest precision of delivery consistent with mission objectives; and (7) limitation of SAM and AAA suppression to strikes against sites located outside of populated areas. Special precaution was requested to insure security of information pertaining to these operations.

Extremely tight communications channels were established and specified in an operations order and other preliminary and planning message traffic related to the Hanoi/Haiphong POL strikes. Messages were dispatched by special category exclusively for SecDef and JCS. Separate operations orders were sent with standard security classification to the usual addressees.

Poor weather and holds in the execution by JCS prevented the strikes from taking place for several days. Finally, in a flash message dated 28 June 1966 (Saigon time), CINCPAC authorized POL strikes in the Hanoi/Haiphong areas against Targets 48 and 49, if operationally feasible. Striking one of these targets would not be delayed should it be necessary to cancel the other. Timing for follow-on strikes against other targets of ROLLING THUNDER 50-A would be at the component commander's discretion. All preliminary and planning message traffic, including Operation 1 and 2 Reports
related to these strikes, would be classified TOP SECRET, special category. Addressees would be limited to CINCPAC, JCS and CINCPACAF. There would be no traffic other than in military channels.

The USAF and Navy, in a coordinated ROLLING THUNDER 50-Alpha mission, struck at the Hanoi petroleum storage area on June 29. The USAF attacking force consisted of 24 F-105's, supported by eight F-105 IRON HAND, 24 F4C and two F-104 MIGCAP and Escort, and four EB-66 ECM aircraft. One F-105 was lost leaving the target area, and one MIG-17 was shot down by an IRON HAND F-105 as it departed from the target run. U.S. forces expended 188 750-pound bombs on the target. Of 32 tanks in the facility, only two remained standing and two were lightly damaged. It appeared, however, that all tanks had burned out. Bombing accuracy on this facility was exceptional and only 20 (possibly 22) bombs were out of the target area. All the bombs out of area fell in open rice fields except for the destruction of five civilian huts which were within 300 feet of the targets. Five or six bombs which fell in the southwest corner of the Hanoi Army Barracks and Supply Depot destroyed or damaged approximately four buildings.

As a result of the 29-30 June strikes against the Hanoi and Haiphong POL facilities which had an estimated capacity of 179,000 MT, 101,700 MT (56.8 percent) was destroyed. Including the USN strikes of 1 July, it was estimated that about two-thirds of the total NVN POL storage capacity was destroyed in the three-day period.

The U.S. government had anticipated the world-wide interest which the
POL strike would generate and was prepared to explain its stand, both in Washington and Saigon. The Secretary of Defense declared that the long-immune petroleum centers at Hanoi and Haiphong had been bombed on 29 June because NVN had begun dispersing vital fuel supplies of growing importance to the war. He said that "the strikes against these petroleum facilities were initiated to counter a mounting reliance by North Vietnam on the use of trucks and powered junks to facilitate the infiltration of men and equipment from North Vietnam to South Vietnam." 

In conjunction with the strikes on POL facilities, CINCPACAF requested authority to conduct operations against additional targets which would insure optimum planning flexibility in carrying out RT 51 objectives. He recommended strikes against the Thai Nguyen Iron and Steel Combine, and its iron ore processing plant, in order to impede production of POL tanks, bridge sections and other LOC-associated repair equipment. He noted that the Hanoi Transformer Station was one of the key elements in the NVN power grid system. The destruction of the enemy's largest transfer and switching station would deny Hanoi significant power transformer and transmission capability and the ability to shunt electricity to critical consumers. He also recommended the following targets: Yen Vien and Kinh No Railroad Classification Yards; Haiphong West Railroad Yard; Hanoi Railroad Car Repair Ships; the Van Dien Vehicle Depot; Hanoi Motor Vehicle Repair and Kinh No Vehicle Maintenance Area. CINCPACAF stated that attacks against these targets would impede transfer of POL assets and further disrupt the LOC system. They would also increasingly isolate Hanoi and Haiphong and disrupt the flow of military equipment through these cities and their
Although the Hanoi-Haiphong POL strikes dominated the headlines, other aspects of ROLLING THUNDER were not neglected. On 25 June, COMUSMACV stated a need for additional surveillance and interdiction efforts in Route Package II. Based on recent intelligence reports that significant NVN forces and weapons had entered Laos via the Nape Pass, he recommended to CINCPAC an interim program of intensified interdiction of the pass. CINCPACFLT said that, in weighing the implications of this intelligence, he believed that several points had to be taken into consideration. He did not consider Route 8, south of Lak Sao, as being currently truckable, nor had it been truckable for several years. This fact had been confirmed by recent PACAF intelligence. CINCPACFLT noted that COMUSMACV's request for additional surveillance and interdiction was based on intelligence of questionable reliability. He stated that his forces were reconnoitering and seeding Nape Pass on a daily basis, as weather permitted. No vehicular or personnel sightings had been reported during June, although the route did show evidence of usage. Priorities assigned to Navy efforts against the NVN LOC network and other target systems were carefully weighed and constantly re-examined to insure that they remained in consonance with overall CINCPAC concept and that they were responsive to all available hard intelligence. Therefore, he felt that a better return for ordnance expended would be provided by placement of the primary effort on those areas directly related to known enemy movements southward. CINCPACFLT did not concur with COMUSMACV's
request for additional surveillance or interdiction nor did he feel he could do so until further and more meaningful intelligence indicated substantial movement was possible from Lak Sao southward on Route 8. He stated that routine reconnaissance and seeding of Nape Pass would be continued and strikes made against appropriate targets along Route 8.

Summary

As 1966 reached its mid-point, military authorities reviewed and analyzed the progress achieved by ROLLING THUNDER. At the Honolulu Requirements Planning Conference, held in June 1966, CINCPAC concluded that North Vietnam was increasing its support of the war in South Vietnam. He noted that the air campaign against the North had made it more difficult for the enemy to infiltrate men and materials into South Vietnam but it had not sufficiently reduced NVN's capability to do so. Since mid-year 1965, the enemy had dispersed and concealed many of its high value war-support resources. This made them difficult to find and even harder to destroy. During this time, the enemy had built up stockpiles in North and South Vietnam. In addition, he had vastly increased his air defenses and had refined his support organization. Moreover, the enemy had increased his ability to effectively direct, control and coordinate ground force tactics in South Vietnam at the division and higher levels. It was very significant that the enemy, by mid-year 1966, had attained the capability of fielding and supporting more maneuver battalions in the South than had been heretofore estimated by CINCPAC. Therefore, he said, intensified air efforts were necessary to reduce North Vietnam's capability to direct and
support the war in South Vietnam. Such an intensified air campaign should be directed toward proper objectives. Ground forces would have to be augmented beyond current requirements if the enemy’s capability to field and support combat units in South Vietnam was not sufficiently reduced.

CINCPAC pointed out that, during the first half of the year, only a limited portion of the concept for an effective air campaign, promulgated in January 1966, had been carried out. This was armed reconnaissance in southern and northwestern North Vietnam and in Laos, along with very selective route interdiction in the northeast area. He emphasized the most important elements of the concept had not been authorized, as of mid-year 1966. These were the denial of external assistance through closure of the major ports and heavy interdiction of LOC's leading from China, coupled with the destruction in depth of those resources which supported aggression, particularly POL.

During the first half of the year, some 20,000 sorties had been conducted against proposed targets in the southern and northwestern areas of North Vietnam. He said that over 99 percent of the operations had been armed reconnaissance missions concentrated primarily on dispersed enemy facilities and LOC's involved in moving supplies and people to South Vietnam. While the air concept outlined in January 1966 remained basically the same, the requirements for sorties in North Vietnam had increased to 11,200 per month. The plan was still to apply a relatively constant number of strike sorties against carefully selected and sensitive target systems. At this juncture, CINCPAC said that the successful pursuit of military objectives
required that the ROLLING THUNDER operations be oriented toward the achievement of three basic tasks:

1. Reduce/restrict North Vietnamese assistance from external sources.

2. Destroy in depth those resources that contributed most to support aggression.


In looking towards the second half of 1966, CINCPAC said that the weight of effort to be applied to the basic tasks for ROLLING THUNDER had to be carefully balanced to achieve the most effective results from the sorties expended. The three tasks given for the ROLLING THUNDER operations were interrelated and had to be accomplished simultaneously for maximum effective results. He noted that, while certain operations would be more productive than others, concentration on one at the expense of the other would reduce the overall effectiveness of air operations. The greatest impact on North Vietnam would be the reduction of support from external sources and the destruction of in-country high value resources. Armed reconnaissance would be less productive of meaningful destruction, but it would help keep the lines of supply disrupted and would impede movement. He added that, by concentrating available armed reconnaissance against selected elements of the enemy LOC system and his dispersed and hidden support facilities, increasingly effective results could be expected.

CINCPAC further stated that the reduction of external support would require interdiction of water and land LOC's, which were being used to
receive, distribute and transport war-making material from external resources.
The interdiction effort would be a combination of attacks against the major
port facilities and key bridges on the northern LOC's. Moreover, armed
reconnaissance along these LOC's would emphasize the destruction of dispersed
and hidden support facilities, such as POL and military supplies.
CHAPTER III - OPERATIONS, JULY-DECEMBER 1966

Air Action Intensified

During July, tactical air strike activity reached its highest level since the start of the conflict. There was also a marked shift in emphasis from Laos operations to North Vietnam, particularly in RP I. Operation TALLY HO was initiated in the southern part of RP I, as extension of the TIGER HOUND operation in Laos, to combat infiltration through the DMZ. The authority to strike military targets in the demilitarized zone, plus continued emphasis on POL strikes, indicated U.S. willingness to expand the use of airpower. The Joint Chiefs of Staff increased the overall interdiction program by about 25 percent to 10,100 sorties, effective 9 July. They authorized Alpha strikes against four new highway/railroad bridges and at the same time reverted ROLLING THUNDER 50-Alpha targets, with the exception of the Hanoi and Haiphong POL storage area, to armed reconnaissance interdiction. Hanoi/Haiphong POL could be struck only when the strike plan was cleared through the JCS. Although there was some weather improvement in North Vietnam, the more lucrative areas of RP's V and VI remained under poor weather conditions. Adverse weather and increasingly intensive defensive fire in these areas made effective armed reconnaissance on the northeast and northwest rail lines out of Hanoi extremely hazardous.

Evaluation

During a conference at CINCPAC, on 1 July, attended by the Secretary of Defense, an evaluation was made on the progress achieved by mid-year in
meeting the goals established at the Honolulu Conference at the beginning of 1966. The six goals pertained to enemy attrition, denial of base areas to Viet Cong, maintaining critical roads and railroads open, increasing the population in safe areas, pacification of new areas, and the defense of all military bases. With respect to enemy forces, the goal was to weaken NVA/Viet Cong forces by the end of 1966. This attrition was to be at a rate which would be as high as the capability of the Viet Cong/NVA to put men into the field. By mid-1966, CINCPAC felt this goal was unlikely to be achieved. This was because the enemy had demonstrated the ability to increase its forces despite the losses sustained. The Defense Secretary asked why CINCPAC did not include the wounded in the confirmed average enemy monthly losses of 6,100. The accepted monthly average infiltration figure was 6,900, plus the 3,500 recruited in-country monthly. The validity of the figure of 6,900 was questioned by the Defense Secretary, who cautioned against reliance on such statistics. However, he agreed that the Viet Cong/NVA were probably increasing their forces.

By mid-year, predictions of aircraft losses were found to be in need of re-analysis. Actual losses were not following the projected losses; USN losses were higher and USAF losses were lower than estimated. The Secretary of Defense felt this difference in loss rate could be attributed, in part, to the differences in target area assignments. He believed that CINCPAC could influence loss rates by reassignment of target areas. The Defense Secretary pointed out that problems could arise due to the long lead times involved. It was concluded that the selective rearranging of targets, to
regulate attrition, might not be practicable.

The Defense Secretary queried CINCPAC as to the steps being taken to strangle the NVN POL supply. CINCPAC informed him that several measures were under consideration. Operations would be intensified on all elements of the rail line leading south of Hanoi. Coastal reconnaissance also would be intensified for the purpose of destroying the lighters and water vehicles that might be used for POL transportation. All known dispersed POL facilities would be attacked on a systematic basis and priority would be given to POL associated transshipment points and truck parks. Furthermore, a plan for halting traffic on the northeast rail line was being developed. Through these measures, he felt that a reduction could be made in the import and distribution of POL to a level below that required by the enemy. However, CINCPAC stated that authority was needed to attack the military installations in the northeast area. He believed their destruction would disrupt the training, recruiting and equipping of troops in South Vietnam, and would disperse and confuse the air defense in the area. In his opinion, this would make other operations in the northeast less costly.

Strike Planning

During July, CINCPAC implemented a plan to accomplish maximum feasible destruction of POL while, at the same time, assuring a balanced effort against other facets of the North Vietnamese military capability to support the Viet Cong. Accomplishment of this objective involved four basic and interrelated requirements: (1) Destruction of the means by which POL was
imported into NVN; (2) destruction of known fixed POL installations;
(3) destruction of transitory targets; and (4) a reconnaissance program to
develop information on the overall POL system.

POL was being imported into North Vietnam primarily by means of
ocean-going tankers through major port facilities and by off-shore lighter-
age. CINCPAC specified the major storage facilities at key off-loading
points, particularly in the Haiphong POL complex, as key targets for destruc-
tion. It was reported that ocean-going tankers had not returned to this
complex since the initial June 29th strike. Restrikes would include
destruction of the bunkering pier facilities. Strikes in the vicinity of
Hon Gay and Cam Pha, close to offloading piers, would discourage tankers
from using these ports as transshipment points. Caution was to be exercised
to insure that foreign tankers were not in any way endangered by those
strikes.

Information was lacking on the amount of POL imported along the
coastal reefs of RP VIE and across the Tonkin Gulf direct to NVN ports.
Armed reconnaissance would be conducted along these routes with strikes against
cargo craft authorized in the three nautical mile limit. Surveillance
would be conducted to determine if POL was being brought in directly from
the Hainan/Leichow Peninsula area.

While there was little evidence that POL had been imported via the
northeast and northwest rail/road routes, the capability existed. The use
of the northeast rail line, in particular, might increase as a result of