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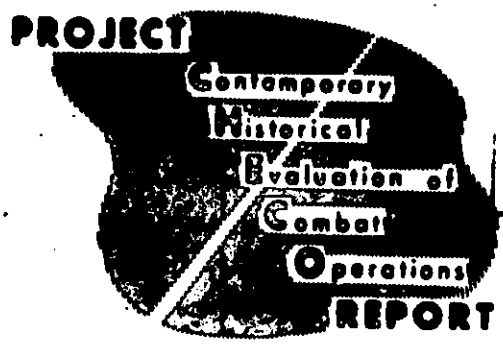

P.R.C.

USAF SEARCH AND RESCUE

IN SOUTHEAST ASIA (1961-66)

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I. THE PROBLEM

A. Detachment 3, Pacific Air Rescue Center (PARC)

The general increase in the level of American commitment in Vietnam in 1961 meant a considerable increase in the level of air activity. The JUNGLE JIM and FARM GATE programs brought USAF aircraft and pilots into the country to train the Vietnamese and to fly combat missions; the augmented U.S. Army advisory forces introduced more helicopters. These commitments were in recognition of the vital nature of air transport in a country divided militarily and geographically. Not only did the missions of the combined forces of the United States and the Republic of Vietnam dictate a more extensive use of aircraft, but the hostile environment, which included jungle and mountainous terrain as well as enemy activity, increased the hazards involved in these operations. As aircraft and crews were lost, search and rescue efforts had to be mounted to extract the survivors and the deceased, usually from remote and unfriendly areas. The need to coordinate these efforts resulted in the creation of Detachment 3 of the Pacific Air Rescue Center (PARC) on 1 April 1962.[1]

The mission of Detachment 3 was to control and coordinate search and rescue operations through the Search and Rescue Coordinating Center (SARCC) at Tan Son Nhut Air Base, Saigon. The SARCC was manned by trained rescue controllers; however, there were no search and rescue aircraft assigned. The SARCC had to rely entirely upon

resources drawn from the U.S. Army, U.S. Marines, ARVN and occasionally the VNAF and USAF. Communications and medical equipment at its immediate disposal were at a minimum. 2/

Successful recovery depends to a large extent upon the reaction time of the search and rescue force, which is especially true in combat zones. Before a professional SAR force with its own assets was stationed in SVN, most successful recoveries were made by ground troops, or fixed or rotary wing aircraft in the immediate area of the crash. In these cases, because of its limitations, the SARCC was precluded from participation in the mission. The SARCC would open its own mission when immediate rescue could not be effected, which meant that the crash site was usually in rugged and/or enemy-held terrain. It also indicated that the chances of recovering survivors was small. Nevertheless, it was imperative to locate and examine the downed aircraft to determine the status of the crew and the cause of the crash. During one period, the latter aspect became paramount when a series of B-26 crashes resulted in temporary grounding of the aircraft. The search and rescue forces were instrumental in determining the cause. 3/

Before the SARCC had its own resources and a significant ability to control missions centrally, it was forced to employ techniques radically different from those used today. The SARCC chief, or one of his controllers along with a radio operator, a photographer, and possibly an ordnance disposal team would proceed to the crash scene by Army or

Marine helicopter, USAF C-123, or any other means available, and assume duties as On-Scene-Commander (OSC). The average number of missions per month, until mid-1964, was approximately four; therefore, the five controllers assigned to the SARCC were adequate for field deployment (The number, by month, varied. In July 1963, there were no SAR missions, while in December 1963, there were eight. The numbers increased gradually but the monthly average for the first half of 1964 was roughly six.). 4/

Locating the scene of a crash, and then getting into it often proved to be extremely difficult. In the mountainous terrain and the tree-canopied jungle forests of Southeast Asia, an airplane can be swallowed up and leave no trace for searchers. When the plane was located, the reacue party would find or cut a clearing for a helicopter landing or work its way in on foot. Without pararescue personnel or a helicopter equipped with a hoist cable, it was usually impossible to make immediate entry into the crash area. Quite often the site was found to be insecure and ARVN troops had to be helicopter transported or marched in on foot. Sometimes as much as an infantry battalion had to be committed in order to make the area secure enough to probe the crash site. 5/

Thorough and exhaustive searches were made in all cases and Major Saunders, SARCC Commander, reported that of the 240 air crashes in Vietnam between January 1962 and June 1964, only two remained unlocated. 6/ If there were no survivors, the search party removed

the remains of the crew and portions of the aircraft which could be of value in determining the cause of the crash. They then destroyed anything in the wreckage that might be of use to the enemy.

When air and ground reconnaissance had failed to locate a crash site, or the pilot, leaflet drops were employed as a last ditch effort. One such effort was made in the spring of 1964 in a wild area of Thua Thien province, along the Laotian border southwest of Quang Tri. Two pilots crashed in an unknown location in a USAF TO-1D. Montagnards reported that they had seen a smoking airplane in a particular area, but a methodical and extensive air search, as well as a ground search by 150 U.S. Special Forces and ARVN troops, which lasted several days, failed to produce the slightest trace of plane or crew. The search was suspended, but 200,000 leaflets, printed in Vietnamese and French by USIS, were dropped in the search area. Since the Geneva Convention prohibits the offer of money for human beings, VN $35,000 was offered for information which could aid in the recovery of a "green American mono-plane," with the pilots alive. VN $17,500 was offered if the plane was found and the pilots were dead. Thus, the leaflet legally circumvented the ban and provided an incentive for keeping the pilots alive. The U.S. Special Forces spread the message by word of mouth. 1/

Several months later a Viet Cong defector disclosed that a light plane had been shot down in the same time period as the TO-1D, but in a different area. Another 100,000 leaflets were printed and dropped. The

leaflets in this case gave little promise since the area was rugged, sparsely populated, and the tribesmen were generally illiterate. 8/ Neither these leaflets, nor others that were dropped, have succeeded in leading to the recovery of a pilot or plane. 9/ The present capabilities of the SAR force have made leaflet drops unnecessary.

B. Vietnamese Army (ARVN) Support

These arrangements under which the SARCC conducted search and rescue operations left much to be desired. At times there were delays in getting SAR forces to the scene because of higher priority commitments. 10/ One special and persistent problem was coordination with the ARVN in obtaining ground forces for the SAR effort. Although MACV had left little doubt as to the emphasis which was to be placed on securing crash sites and recovering deceased personnel, the ARVN did not share this concern to the same extent, particularly when it concerned their own forces. In many cases considerable difficulty and numerous bureaucratic delays were incurred in obtaining ground forces to effect a timely resolution of the SAR effort. 11/

One mission, which illustrates several problems, occurred 8-10 March 1964. A senior USAF officer was shot down in a VNAF A-1H near Saigon. The SARCC Commander prepared and briefed a team to take with him to the site only to find that the assigned aircraft had departed with an officer from G-3, who had taken it upon himself to survey the crash. Night fell before another aircraft could be made available to the search party. Because of reported Viet Cong concentrations,

ARVN troops were to be put into the area the following morning. On the morning of the 9th, the search party flew to a secure area near the crash to await the troops. Although the troops did not arrive, several A-1H's did and proceeded to bomb the site. Originally, troops from Saigon were to be dispatched but it was decided to send troops from Bien Hoa instead. However the appropriate commander could not be found to grant permission. To complicate the situation, the ASOC closed down during the siesta, and matters were not resolved before nightfall. The ARVN had not wanted to commit a force smaller than a regiment but, on the 10th, a company secured the area with little trouble. 12/

Frustrations, concerning ground support and other difficulties, are summarized by the SARCC Chief, Major Alan Saunders, in the report of the mission of 8 March: 13/

> "The excessive delays encountered in obtaining ARVN support are not acceptable from a life-saving standpoint. It also gives the enemy a chance to infiltrate the area...."
>
> "The vertical pictures taken by reconnaissance the first day were unusable. They took new ones on the morning of the 9th. I tried unsuccessfully all afternoon to obtain prints of them. I requested prints for the following morning's briefing. When I went for them I was told that the camera was out of focus and they were no good...."
>
> "Everyone was trying to control the mission at once which resulted in part of the confusion...."
>
> "The striking of the crash site to 'Explode possible mines' and 'neutralize the area' before it is known if survivors exist, is idiotic...."

The commitment of large numbers of troops to SAR efforts in insecure territory, where the chance of recovering the crew alive is small can be questioned. Recovering the deceased and examining the aircraft might not be sufficient reason for further risk of lives. A related problem, at the time, was getting the ARVN to engage the Viet Cong. It can be rationalized that search and rescue efforts were as good a way as any of doing it.

The ground support issue persisted even after professional USAF SAR forces were introduced, to a limited extent, in the latter half of 1964, and prompted the Commander of the 2AD to address a request to MACV for greater ARVN support of SAR.[14] One such incident prompting the request, occurred in II Corps area in late 1964. A USN RA-5C crashed on 9 December and was located on 14 December. The SARCC requested II Corps to secure the area. After constant follow-up and coordination the area was finally secured on 21 and 22 January, at which time the remains were removed.[15]

Another incident occurred in late 1964 when two T-28's, with four aircrew members, crashed in I Corps area. The crash site was discovered on 2 January 1965 and the remains at one crash site were immediately removed. The investigation of the second site was delayed because of suspected surveillance of the site by Viet Cong. Although I Corps was requested to secure the area, the security operation failed to materialize. On 22 January, two USAF Air Rescue helicopters, supported by a fire team, flew into the area and removed the two remaining bodies.[16]

On 11 March 1965, a B-57 was observed to crash by a FAC, so the exact location was known. The body of one crew member was recovered on 12 March and III Corps was requested to search a small area for the missing crew member. A ground search operation planned for 14 March was repeatedly delayed until 9 April when a heliborne force of 100 troops landed for a fruitless three-hour search. 17/

The 2AD recognized the need for cautious and careful planning of security and search operations to preclude the unnecessary loss of life. However, it was felt that more positive reaction to requests for assistance was needed.

C. Inadequate Personnel and Equipment

While most of the successful rescues were made on an impromptu basis by aircraft in the vicinity of the crash, it became apparent that many lives were lost because personnel could not do the job without proper rescue and recovery training and without adequate equipment.

Several examples illustrate the shortcomings of the makeshift SAR forces in RVN. One occurred in late 1963 when an Army aircraft crashed in a rain forest on the side of a 6000 foot mountain in the II Corps area. The Marines dispatched an H-34 helicopter to make the pickup, but the effort ended in disaster. The H-34 did not have a cable long enough to reach the ground through the high forest. The helicopter descended too close to the jungle canopy and crashed. Both crew members were critically injured, but further rescue efforts

were impossible by air. There were no clearings for helicopter landings, there were no helicopters with a cable of sufficient length, and there were no pararescue personnel to put into the area. The rescue was then made on foot. The rescue party took two days to work its way in and when it arrived both crew members were dead. A total of three helicopters were destroyed in the operation. The rescue would have been routine with proper equipment. 18/

Another case involved an U.S. Army helicopter which crashed at night in the ocean near Nha Trang. The four crew members got out and started swimming but they faced an outgoing tide and progress was very difficult. Army helicopters were sent out for the rescue. The pilot of the first rescue helicopter flew into the water. As a result, other aircraft on the mission were withdrawn. The co-pilot of one of the downed helicopters made it to shore, although he had a broken arm and an injured back. The other crew members drowned. 19/

Another helicopter crash in the water, near the mouth of the Mekong River south of Saigon, resulted in a similar disaster. Four of the six-man crew got out of the aircraft before it sank. The Army rescue helicopter made a low-level approach to the scene which created a hazardous rotor wash. According to the co-pilot, this frontal wave drowned the pilot. (A normal overhead rescue approach would have smoothed the water rather than churned it up.) One of the rescue team had another victim, a British Wing Commander, by the hands when an aircraft called for them to clear the area so that Mae West vests could be

dropped. The crew member holding the victim's hands let go and he went under water. His body washed up on the beach the next day. Only two of the crew members were saved. 20/

D. VNAF Med-Evac

Battlefield medical evacuation is not normally a mission of search and rescue forces. The deplorable situation which existed in 1964 concerning medical evacuation is relevant to this study for two reasons. First, VNAF helicopters were charged with the mission, and their failures inevitably reflected in some measure on the USAF. Second, a significant role in the battlefield medical evacuation did befall USAF SAR forces when they were introduced.

Throughout 1964, U.S. Army and Air Force officers reported that two VNAF H-34 helicopter squadrons were not providing adequate medical evacuation service. Medical evacuation and aerial resupply were the main missions for these squadrons. Nearly every after-action report from the IV Corps area made some comment critical of VNAF performance. Either the helicopters were late or did not arrive; when they did arrive, they departed sometimes without carrying away the wounded. There were 189 requests from IV Corps area during the months of August, September, and October 1964 for med-evac, of which only 38 were honored. 21/ The number of requests would have been higher had it not been for the support of Army UH-1B's. The practice was for the Army helicopters to support the VNAF when needed; however, they took a large part of the VNAF responsibility.

The comments of several officers sum up the VNAF performance in this area:

> 'The ARVN appears to have a definite lack of confidence in the VNAF H-34 med-evac operation... (The U.S. Army UH-1B's) particularly make the VNAF look bad by making night med-evacs of ARVN in the battle zone...." [22]

> "...They can think of many reasons not to fly and appear to wait out the U.S. Army to do the work...they are a slovenly lot in appearance... in contrast to the ordinary ARVN troops in combat boots, the aircrews look terrible, many wearing blue suede low cut shoes...." [23]

> "Inadequate med-evac continued to be a serious problem that is pointed out in nearly every after-action report." [24]

The performance of U.S. Army helicopters was highly praised by both U.S. and Vietnamese officers. However, USAF rescue helicopters would have been of greater use in certain situations for which their equipment was specifically designed.

E. Communications Searches

The problem of overdue aircraft reached major proportions in 1963. When a control agency reported an aircraft overdue, the SARCC undertook an electronic search. During the first seven months of 1963, the SARCC conducted 154 communications searches. The principal source of the problem was the failure of pilots of light aircraft or helicopters to file or close a flight plan or the failure to notify control agencies of their intentions. This problem has continued to exist. [25]

F. Improvements

During the interim period, April 1962 to June 1964, before a professional SAR force was established in Southeast Asia, some limited improvements in personnel and equipment were made. Detachment 3 was successful in procuring its own communications equipment to dispatch to the crash site with the on-scene-commander. This gave greater control and coordination to the rescue effort. Other important items of rescue equipment such as litter baskets, medical kits, and SARAH (homing) equipment were obtained and put to use. 26/ The officers of Det 3 also conducted orientation courses in water survival and rescue techniques for the Army aircrews who had not had the training previously. An attempt to send Army pilots to the Air Force instrument school failed, however, because of already over-extended facilities. 27/ These measures, however, fell far short of those needed to correct a worsening situation.

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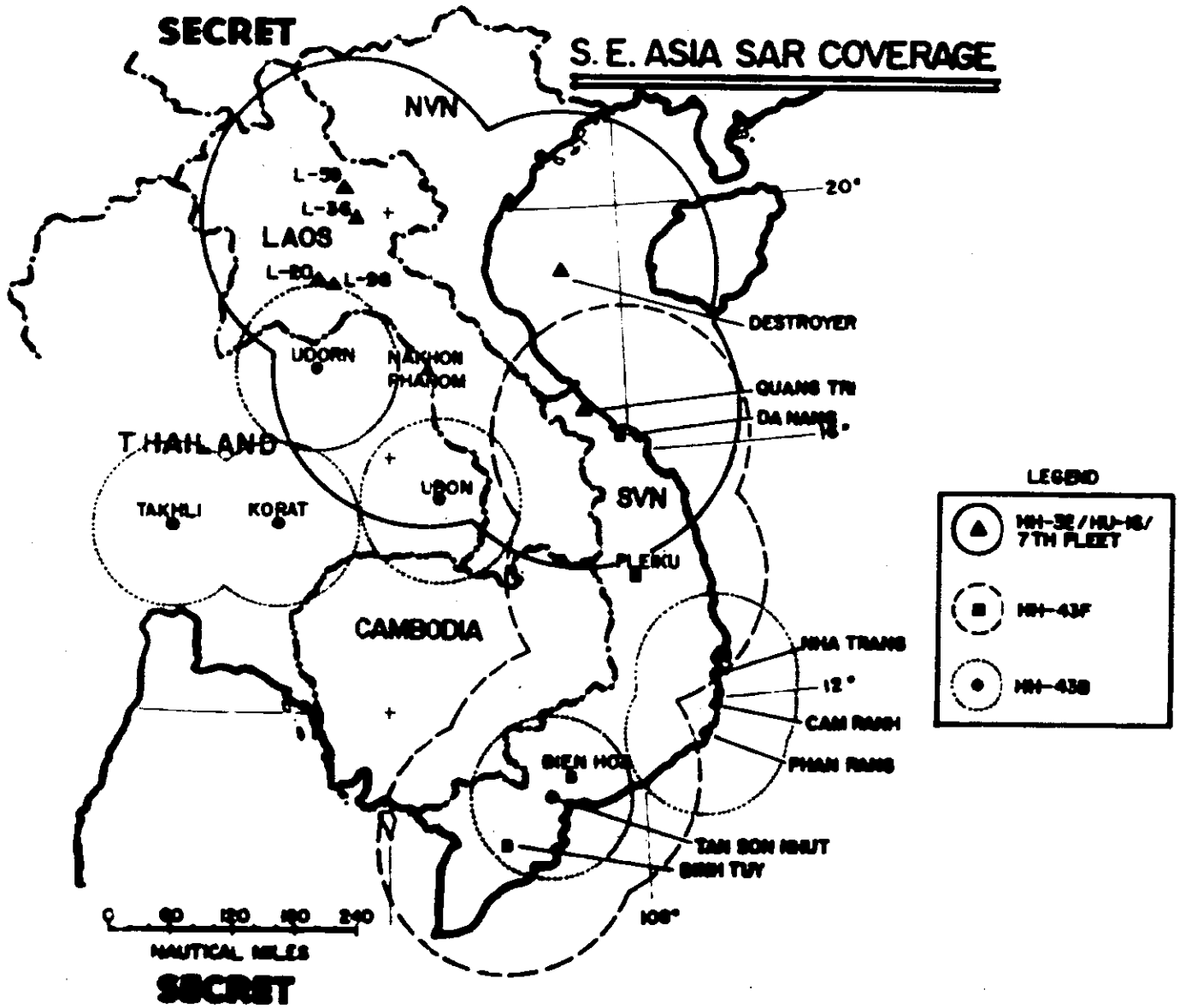

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II. THE INTRODUCTION OF SAR FORCES

As of 1 July 1964, there had been 143 fatalities resulting from crashes of U.S. aircraft in Vietnam.[28] In the meantime the Air Force had been criticized for not providing professional SAR capability other than a control element.

As early as the summer of 1962, Major E. J. Trexler, the Det 3 Commander at the time, had recommended that ARS personnel and equipment be stationed in Southeast Asia.[29] In the following year several other requests were made. The Deputy Director of the Air Operations Center summed up the situation, in August 1963, when he wrote, "The need for professional SAR forces in this area has been recognized for a long time and has been made a matter of record to 2AD and Pacific Air Rescue (PAR) Hq, on many occasions in the past."[30]

The Joint Vietnamese/U.S. Search and Rescue Agreements, dated 15 November 1962, made the Vietnamese responsible for Civil SAR and their own forces. They had an extremely limited capacity to perform either role.[31]

The first concrete step to remedy this situation was taken in September 1963 when Major Alan Saunders, the Det 3 Commander, prepared a comprehensive study of the needs and requirements in Vietnam from the point of view of the combined efforts of all military forces. Major Saunders pointed out that the increasing sortie rates; the adverse operating conditions; and the lack of personnel trained in pickup

procedures, aerial delivery, and conducting search patterns, made a professional force mandatory. In recognition of the necessity for quick response, the study recommended that Air Crew Recovery (ACR) detachments be deployed to Da Nang, Pleiku, Bien Hoa, and Can Tho.

The study also proposed that the standard HH-43 helicopter be refitted with a longer hoist cable, armor plating, self-sealing fuel tanks, and other special features which would enable it to operate effectively under combat conditions and over the 200-300 foot densely packed forests of Southeast Asia.

Although the SARCC was responsible for SAR in Cambodia, Laos, and Thailand, as well as in Vietnam, the study concluded that political restrictions and the lack of American activity in these other countries, made South Vietnam the only possible or logical place to station units. 32/

Major General Anthis gave full approval to the study and forwarded it to PACAF in November. 33/ During the following five months, the 2d Air Division study bounced back and forth between MACV and CINCPAC. In the meantime, PACAF and ARS began the planning necessary to establish an adequate SAR coverage in Vietnam. For the long term, PACAF felt that the deployment of six modified Sikorsky CH-3 helicopters, with their greater range and speed, would provide adequate coverage. ARS felt that possibly two sites could serve the whole country. Since the CH-3 would not be available immediately, the combat-modified version of the USAF Local Base Rescue (LBR) aircraft, the HH-43, would be a

minimum acceptable interim vehicle. By using the entire base structure in SVN, six HH-43's could provide satisfactory coverage. [34] As of the summer of 1966, the HH-43 was still being used for ACR/LRR in SVN, and has generally proved itself in its assigned missions.

In March 1964, USAF approved the transfer of three detachments to SVN with a planned deployment date of June 1964. Preliminary action was taken to modify six HH-43B's on a priority basis. [35] The contracts could not be let until approval was received to bring the helicopters into SVN. [36] The time required to modify the helicopter meant that the combat version would not actually arrive in the RVN until October 1964.

By April, however, the entire issue had yet to be resolved between CINCPAC and MACV. There were two principal reasons why the introduction of SAR was delayed. First, the U.S. involvement under the JUNGLE JIM and FARM GATE programs was semi-covert. SAR forces would emphasize U.S. participation. In this same connection, in order to keep the operation covert, very strict ceilings had been placed on manpower. As it was, when SAR forces were approved in May of 1964, the ceilings had to be raised by 86 men. [37] Second, there was the question of conceptual differences between the Army and the Air Force during the period. [38] The mission was eventually given to the USAF by JCS directive. [39]

In April, CINCPACAF, having funded and made the necessary plans for the introduction of SAR forces, made further efforts to have the issue resolved. 13th Air Force was requested to seek information

regarding MACV's intentions in the matter and CINCPAC was again reminded of the many valid reasons for an immediate deployment of the SAR forces. 40/

III. THE BUILDUP

A. The First Year

CINCPAC's approval for the introduction of USAF SAR forces was finally obtained in May of 1964. The Air Force Search and Rescue capability then began to expand rapidly from a detachment of PARC, with only a control function, to the 3d Aerospace Rescue and Recovery Group, with two operational squadrons and two additional detachments. During this period, the SAR forces proved that they were indispensable to combat air operations.

The initial deployment of rescue forces in Vietnam was to have been made to Da Nang, Bien Hoa, and Soc Trang. However, the demonstrated need for SAR forces to support YANKEE TEAM operations in Laos which began in May, altered this decision, and the first rescue helicopters to arrive in the theater were placed on the Laotian border at Nakhon Phanom, Thailand. On 19 June 1964, 36 personnel, with two HH-43B helicopters, arrived on TDY from Naha, Okinawa, to form Detachment 3 (Provisional) of PARC. [41/] The 33rd ARS at Naha was also ordered to send two HU-16 aircraft to Korat to perform airborne rescue control for Thailand and Laos. [42/] These and follow on units, along with Marine helicopters from Da Nang and Air America aircraft, provided coverage until USAF capabilities could be upgraded in the following year. In July, the 31st ARS at Clark AB sent HU-16 aircraft to Da Nang for rescue duties in the Gulf of Tonkin. [43/]

The Gulf of Tonkin incident in August 1964, further modified the planned buildup of SAR forces. The arrival of jet fighter and air refueling detachments in Thailand placed new demands on ARS. As an interim measure, the Local Base Rescue (LBR) at Takhli, Thailand, was assigned to Det 4 of the 36th ARS at Osan, Korea. [44] PARC, however, did not have the resources to match the sudden build-up, and CONUS LBR detachments on TDY were called upon to provide coverage in and around Bien Hoa, Da Nang, and Korat, Thailand.

One example illustrates how the ARS deployed units rapidly. On 6 August, Captain Philip Prince of the LBR detachment at Maxwell AFB, was notified that he was to have two helicopters loaded aboard two C-124 transports and be enroute to Korat within twenty-four hours. Captain Prince's crews worked through the night disassembling and loading the helicopters. Personnel and equipment were distributed so that a unit could become operational when the first transport arrived at Korat. The detachment reached Korat on 14 August, and shortly thereafter was performing LBR duties for USAF units, as well as the Royal Thai Air Force (RTAF) flying school. [45] The Maxwell unit was replaced in January 1965 by another TDY unit, but by October of that year operations of the Detachment 4 (Provisional) Hq PARC, had been taken over by Det 4 of the 38th ARS, on a PCS basis. [46]

The situation at Korat is also illustrative of the rapid personnel and organization changes taking place during the first year of operations. The CONUS TDY units which in August formed the

Detachment 1 (Provisional) at Bien Hoa, and Detachment 2 (Provisional) at Da Nang, were redeployed in November 1964, to Takhli and Nakhon Phanom, respectively. The PARC TDY units at these latter bases were returned to their parent units. Duties at Bien Hoa and Da Nang were assumed by Det 4 and Det 5 of PARC, which were created as PCS units. 47/ (See Organizational Summary, Appendix 2) These changes were more than organization, for the new units at Bien Hoa and Da Nang were equipped with the HH-43F combat-modified helicopter. Three were assigned to each unit.

By December of 1964, USAF had a greatly improved SAR capability in Southeast Asia. Brigadier General Adriel Williams, the Commander of the Air Rescue Service, made an inspection trip in December, and at its conclusion sent a message to General Estes which read: "ARS units in SEA outstanding in all respects. We can be very proud of them." 48/

B. The HH-43F

The shortcomings of the B model of the HH-43 for aircrew recovery in a combat zone soon became apparent to rescue personnel in Vietnam. Several suggestions were submitted to ARS for improvements from the field. These included a machine gun mounted on the aircraft to afford the crew some means of protection. This feature was not considered in the combat version of the HH-43 because it was not a suitable gun-platform due to its size. The openings and the crew compartment on the aircraft are not large enough to comfortably mount

a gun. Small arms are carried by the crew and fire is returned when there is a need or an opportunity.

Kaman Aircraft took the requirements from ARS and the field and produced the F model of the HH-43, which resulted in a more serviceable aircraft. A number of important new features are incorporated. Perhaps the most important is the 800 pounds of titanium armor-plate that is distributed in half-inch sheets around the pilots, along the sides and rear of the personnel compartment, and over the engine cowling. The new self-sealing fuel tanks also provide protection for the bottom of the personnel compartment. The titanium plate is adequate to withstand small arms fire encountered in flight. However, the crew and the engine are still considerably exposed during recovery operations, especially through the canopy area. Because of the increased weight and the necessity for operating under maximum load conditions, the engine was increased in size. The operating radius was extended to 120 nm by the installation of internal fuel tanks. The B model had been equipped with an UHF (Ultra High Frequency) radio set, whereas the F model, in order to successfully coordinate rescue activities, is also equipped with VHF (Very High Frequency) and FM (Frequency Modulation) sets. The final feature is the 217 foot hoist cable, with the forest penetrator attached, which especially equips the HH-43F for recovery in the rain forests of Southeast Asia. 49/

C. 38th Air Rescue Squadron

The continued buildup of the SAR forces during the first half of 1965 closely paralleled the general strengthening of U.S. forces in Southeast Asia. In April, Detachment 3 (Provisional) Hq PARC, was formed at Ubon Airfield in Thailand. This was followed by the creation of Det 5 (Prov) at Udorn, Thailand in May. [50/] Each unit was equipped with two HH-43B helicopters, which were quite suitable for operations outside of the combat zone.

By June of 1965, Detachment 3 of PARC at Tan Son Nhut, had operational control over seven helicopter detachments and two fixed wing detachments, all of which were detachments of the Pacific Air Rescue Center or parent rescue squadrons elsewhere in the Pacific. These command arrangements became increasingly unwieldy. In addition to the confused command lines, several chronic problems with TDY units were experienced during the first year of operations. From an operational standpoint, the crews and support personnel did an excellent job. However, from the standpoint of administration, future planning, and continuity of operations, the TDY units understandably fell short. [51/] Therefore, ARS and MATS decided to thoroughly reorganize the SAR forces in Southeast Asia. As of 1 July 1965, all helicopter units were organized as PCS detachments of the 38th Air Rescue Squadron, with headquarters at Tan Son Nhut. [52/] Lt Colonel Edward Krafka assumed command. The fixed wing aircraft remained on a TDY status until the 37th ARRS became operational in the summer of 1966.

Prior to U.S. involvement in Southeast Asia, the 38th ARS had been an active unit stationed at Misawa, Japan. The squadron was activated in November 1952, and its HU-16's performed a number of rescue missions during the Korean War. It was deactivated in September 1957.

D. Problems

Several other problems were encountered during the first year of operations which could almost be considered normal considering the rapid buildup of U.S. forces in the theater. The helicopter units experienced difficulty in establishing supply lines from the CONUS to SEA. Even if there had been no difficulties with transportation, there were difficulties in procuring things to transport. The spare parts back-up was geared to support LBR detachments in the CONUS and not ACR/LBR detachments operating in tropical conditions and sustaining combat damage.[53] One rather serious material problem developed with the HH-43 rotor blade. The temperature and the humidity required the replacement of an abnormal number of blades. The HH-43 rotor blade problem is a continuing one and, for a period, it was necessary to ground them during rain storms because of the resultant damage.[54]

Numerous helicopters were damaged or destroyed by enemy action, further complicating the in-commission problem. During the mortar attack at Bien Hoa on 31 October 1964, all of the three HH-43B and two HH-43F helicopters were damaged. One HH-43B received major structural damage and had to be returned to the depot. In March an

HH-43B was damaged in an accident at Takhli, and in May an HH-43F sustained major battle damage. Both helicopters required major structural repair. On 3 June 1965, an HH-43F was shot down during a recovery mission. The aircraft was totally destroyed but, fortunately, all of the crew members survived and were recovered. A week later another helicopter made an emergency landing and required depot maintenance. 55/

E. Accomplishments

Considering the limited resources, and the increasing demands on these resources as the tempo of the air war quickened, the SAR forces in Southeast Asia distinguished themselves during their first year of operations. Between 1 August 1964 and 31 July 1965, 8780 sorties were flown in support of combat missions resulting in saving 74 lives. 56/ The skill and aggressiveness of the crews is attested by the fact that there were over 250 individual decorations awarded during this period, including 16 Silver Stars and ten Purple Hearts. 57/

The rescue units were singled out for praise on numerous occasions. Ambassador Maxwell Taylor, in referring to a highly successful mission, wrote, "This is indeed an outstanding record and testifies to the gallantry of your people in exposing themselves to rescue downed comrades." 58/ In one of many communications, the Commander of the Seventh Fleet wrote, "The intensive search was controlled masterfully and its successful completion is a testimonial to the close

cooperation of the Navy and Air Force units involved." [59] After the successful recovery of one of his pilots, the Captain of the Midway wired, "Again outstanding professionalism has been demonstrated by your courageous search and rescue crews."

As a result of these outstanding efforts by the search and rescue forces during the period from 1 August 1964 to 31 July 1965, the 38th ARS was awarded the Distinguished Unit Citation. Lt Colonel Krafka received the award in Washington from President Johnson in January 1966. The Air Force Association bestowed an Honor Award upon the 38th ARS at its convention in Dallas in March 1966. [60]

F. The Second Year

Although the first year of operation had been a highly successful one in terms of rescuing downed aircrews and performing other missions, such as battlefield medical evacuations, the escalation of the war placed increasing demands on SAR forces. Total allied strike sorties per month increased from 9778 in June 1965 to 16,575 in December 1965. [61] The improved anti-aircraft capabilities of the North Vietnamese meant that future ACR missions would have to be undertaken in a more hazardous environment. This section briefly traces the organization buildup to the summer of 1966. The improved capability will be discussed at greater length in subsequent sections.

G. "Jolly Greens" (Aircrew Recovery)

In July of 1965, Det 1 of the 38th ARS at Nakhon Phanom, received two CH-3C's, on a TDY basis, from the Tactical Air Warfare Center at Eglin AFB.[62] These were facetiously dubbed the 'Jolly Green Giants' because of their size and color. These aircraft considerably improved the coverage in Laos and NVN, but were only interim vehicles pending the arrival of the combat version, the HH-3E.

Owing to the increasingly crowded conditions at Udorn, PACAF wished to locate the additional HH-3E's, which arrived in late November and early December, at Nakhon Phanom. The 2AD effectively argued that, operationally and logistically, this would be infeasible.[63] The issue persisted and it was later proposed that Nakhon Phanom be given over completely to rescue functions. The expense of transferring operations and the removal of rescue forces from the intelligence and control at Udorn made the plan undesirable.[64]

The crews for the HH-3E's assembled under the code name 'Limelight 36" at Stead AFB in August 1965. After a brief orientation and training period the unit, under the command of Major Baylor R. Haynes, arrived at Udorn in early October. The detachment was operational upon the arrival of the first helicopter in November.[65] Two more Jolly Greens were added to the unit in March 1966. Detachment 5 presently has 14 combat ready rescue crews. The detachment at Udorn assumed all duties of Detachment 1 at Nakhon Phanom and the latter was discontinued.[66]

H. "Pedros" ACR/LBR (Aircrew Recovery/Local Base Rescue)

The construction of new operating bases and the increase in traffic necessitated the formation of new HH-43 (Pedro) LBR/ACR units in South Vietnam. The justification for the LBR's was practically identical for each of the airfields. Terrain surrounding the bases was usually flat and marshy or mountainous, and hostile forces were present within the traffic pattern areas, presenting a threat to surface crash rescue operations. 67/

From August 1965 to July 1966, ACR/LBR units were activated as detachments of the 38th ARRS at the following bases: Tan Son Nhut, Pleiku, Cam Ranh Bay, Binh Thuy, Phan Rang and Nha Trang. These units are equipped with HH-43B/F helicopters, with the B models being used for ACR only in an emergency. 68/ (See Organizational Summary, Appendix 2)

I. 3d Aerospace Rescue & Recovery Group

In order to establish more effective command and control over the numerous helicopter detachments, the fixed wing detachments, the JSARCC, and its subordinate Rescue Coordinating Centers, the decision was made to reconstitute the SAR forces, with their wide area of responsibility in Southeast Asia, into the 3rd Aerospace Rescue and Recovery Group. On 8 January 1966, the Group was activated with Colonel Arthur W. Beall assuming command. The Rescue Coordinating Centers at Da Nang and Udorn became Detachment 1 and Detachment 2 of the 3rd ARRG respectively. The helicopters continued to operate under

the 38th ARRS, while the fixed-wing aircraft were organized into the 37th ARRS. The JSARCC is directly under the 3rd ARRG with Lt Colonel Donald F. Karschner as Chief. 69/

The 3rd ARRG had as an antecedent the 3rd Emergency Rescue Squadron, which was activated in 1944 and served in the Pacific until its deactivation in 1957.

J. "Crown" (Fixed-wing ACR & Control Aircraft)

A fixed-wing squadron to incorporate the HU-16's had been proposed but disapproved in late 1964. 70/ With the continued increase in air activity and the introduction into the SARTF of more up-to-date control aircraft (HC-130H), the issue was again brought up in 1965. It was felt that the likelihood of prolonged hostilities and the importance of the fixed-wing rescue aircraft warranted a squadron organization. A MAC command decision was made to organize a fixed-wing squadron at Da Nang. The 37th ARRS was activated on 8 January 1966. 71/

There were several arguments against establishing a fixed-wing squadron. First, the ramp space and the maintenance, and general support facilities at Da Nang were very limited and already overcrowded. PACAF was reluctant to station another squadron at that base. Second, the TDY HU-16 operation, unlike some other TDY phases of rescue operations, was highly successful and running very smoothly. Other units supplied airplanes and crews to the 38th ARRS, and personnel

and maintenance problems in Southeast Asia were at a minimum. Third, as the master ARRS plan developed, the HU-16's were to be phased out of the operation altogether by March 1967 and replaced by HH-3E's. This may not take place since there will probably continue to be a role for the HU-16's in the theater.[72/] Nonetheless, their number will be reduced, and this will probably call for an organizational realignment on other than rotary fixed-wing lines. Perhaps TDY operations could have provided a satisfactory solution until then.

To a certain extent a reorganization has already taken place at Da Nang and Udorn. For operations over Laos, it made sense to keep the control HC-130's at Udorn.

The problem of physical separation has been overcome on paper by establishing Detachment 1 of the 37th ARRS at Udorn, which will answer on most matters directly to the commander of the 3rd ARRG. At Da Nang. Lt Colonel Alan R. Vette, who assumed command of the 37th ARRS on 1 June, has done much to streamline rescue operations by consolidating the operations, administration and supply functions of Detachment 7, 38th ARRS (helicopter) and Detachment 1, 3rd ARRG (the Rescue Coordinating Center) under the 37th ARRS.[73/] The 37th ARRS was declared operational on 1 May 1966 and during the summer months the TDY HU-16 and HC-130E crews and planes were being phased out.

IV. SAR IN LAOS AND NVN

A. The First Year

When the coalition government established by the Geneva Conference of 1962, fell apart in May 1964, the communist forces resumed the attack against Souvanna Phouma's Neutralist forces. In short order, the Pathet Lao had overrun their positions on the Plaine des Jarres. The U.S. Government, anxious to bolster Neutralist forces and to demonstrate U.S. interest and determination in Laos, convinced Souvanna Phouma that aerial reconnaissance would prove to the world that the Pathet Lao was receiving help from China and North Vietnam. Although Souvanna Phouma was reluctant to compromise his position as a neutral leader by accepting U.S. help, the critical nature of the situation forced him to take some political risks. Thus, the YANKEE TEAM flights began on 18 May 1964. 74/

The U.S. commitment also created the need for a search and rescue-capability in Laos. Air America, a private airline which supports covert activities in Laos, had provided limited SAR support for Royal Laotian Air Force (RLAF) T-28's, and could be pressed into service in the event a YANKEE TEAM plane went down. The 2AD, however, felt that the Air America SAR forces would be inadequate, and on 29 May, General Moore, 2AD Commander, asked PACAF for authority to employ U.S. aircraft and crews. No reply had been received when the first reconnaissance plane was shot down. 75/

The ensuing SAR operation was a better coordinated effort among Air America, RLAF, and Bird and Son (A company similar to Air America, which has since been bought by Continental Air Service.) aircraft. Commander Lynn was located by his beeper, in spite of an error in the initial fix of 20 miles, and was picked up early on the morning of 8 June. 83/

Even though this SAR was successful, it again pointed out the limitations of the H-34 helicopter, which was and still is used extensively by Air America. Commander Lynn had worked himself onto a wooded ridge at about 4800' elevation. At that altitude the hover power of the H-34 is limited and Mr. Estes, the Air America pilot, found himself in danger of settling into the trees. Rescue effort were further hampered because the cable was about 15' too short in the 120' high forest. 84/

The need for better coordination and communication highlighted during the attempted rescue of Klusmann, resulted in a meeting at Udorn on 15 June. Colonel Tyrell, the AIRA in Vientiane, partly attributed the success of the 8 June effort to the control of Air America rescue forces by a single agency. When his office and the Special Air Warfare personnel assumed responsibility for coordination and control the operation went very smoothly. Colonel Tyrell was emphatic that one single agency operating through an on-scene-commander should be designated for control. Mr. Ben Moore, representing Air America, indicated that while his company's five H-34's, numerous STOL

Shortly thereafter, these measures were countermanned by CINCPAC, who further ordered that all U.S. forces be withdrawn from the SAR effort. This left the continued rescue effort entirely up to Air America and the RLAF. 79/

Air America continued the search until noon on 8 June without any promising indications. Lt. Kluemann had in fact been captured by the Pathet Lao after the first helicopter had been driven off, some three hours after his bailout. 80/

Even though the rescue attempt had almost been successful, the emergency had thrown everyone into confusion. Important decisions had to be made quickly and it was uncertain as to who had authority to make them. Communications were poor. One of the Air America pilots commented that he never knew what type of aircraft had gone down and he assumed that he was looking for an RLAF T-28. The Air America helicopters were not equipped with UHF or radio homing equipment. 81/

As a result of the action on 6 June, the reconnaissance flights on 7 June were escorted by F-8B's. The fighters very quickly got an opportunity to carry out their mission. Commander D. W. Lynn was hit on his second strafing pass over gun positions and was forced to eject. This caused a considerable amount of consternation since the Pathet Lao were then provided with tangible evidence that the U.S. role in Laos was not merely one of passive reconnaissance. 82/

On 6 June 1964, two USN RF-8A's were reconnitering Route 7 near the Plaine des Jarres, when the weather forced them to fly lower in the valley than normal. The aircraft of Lt. Charles Klusmann was hit by ground fire and he ejected. His wingman immediately reported his location on guard frequency and the message was relayed to the SARCC through the Panama GCI station near Da Nang. The SARCC requested that Air American dispatch helicopters to Lt. Klusmann's rescue. Meanwhile, an Air America C-123 and Caribou intercepted the mayday, dumped their cargoes, and flew to the scene. They spotted Lt. Klusmann on the ground and guided the two H-34's to the area. As the first helicopter positioned itself, intense ground fire erupted, a crew member was wounded,and both helicopters were forced to withdraw. [76] At this point in time the rules of engagement did not permit RESCAP aircraft to be scrambled automatically. [77] In fact, the political situation in Laos was so sensitive that Ambassador Unger had suggested that, since the YANKEE TEAM flights had served the purpose of indicating U.S. resolve to the communists, they be curtailed. [78] However, the on-scene-commander in the Caribou requested fighter support and after some discussion T-28's were permitted to scramble from Vientiane. By the time they arrived, the weather precluded fixing the position of the enemy forces and their efforts were ineffective.

In the meantime, CINCPACAF approved the use of USAF aircraft in the RESCAP. Ambassador Unger concurred, and F-100's were scrambled from Takhli. The Navy also dispatched some fighters to the area.

aircraft, and three Caribou, gave them a considerable potential, they were not staffed or equipped to provide round-the-clock, all weather SAR capability. More specifically the Air America communications net needed upgrading if effective coordination was to be attained. 85/

During the next few months, interim measures were worked out using a 2AD plan as a basis. Air America was to provide coverage in the PDJ area during all YANKEE TEAM missions. The newly established Deputy Commander, 2AD, Thailand, was made responsible for all USAF operations in Laos, including search and rescue. However, he was to act only at the request of and within the constraints imposed by the American Ambassador in Vientiane. The Dep Cmdr, 2AD, Thailand, exercised his control through his ASOC at Udorn, which coordinated very closely with the American Embassy's air operations center at Vientiane. 86/

In addition to the coverage that Air American provided from its bases in the northern part of Laos, the USAF moved the two HH-43B's into Nakhon Phanom to give coverage within a 100 miles radius. The Marines began prepositioning H-34's at Khe Sanh in South Vietnam to provide additional coverage in the Laotian Panhandle. An HU-16 from Korat or Da Nang was to orbit during all high risk missions to act as an airborne communications relay and control ship for SAR. 87/

During the emergency, Air America pilots had flown support missions in RLAF T-28's. Since Air America was supposedly a private company, these operations could possibly have led to an embarrassing

incident for the U.S. Government. In August, the Ambassador withdrew authority for the use of Air America pilots in RESCAP after a sensitive situation developed involving two Thai pilots who bailed out over Laos.[88] Subsequently, the fighter support was to be furnished by Thai-based WATER PUMP/RLAF aircraft (USAF Special Warfare Detachment which trained and supported RLAF activities.) and Navy A-1H's on rotation. Although the general situation remained sensitive, by November USAF F-100's and F-105's were flying RESCAP missions and making strikes in Laos.[89] All of these forces could be scrambled by the SARCC at Tan Son Nhut in coordination with Udorn and Vientiane. The U.S. Ambassador in Laos continued to retain ultimate authority in the prosecution of the mission. SAR operations in North Vietnam were not at that time authorized or needed; however, MACV directed the 2AD to prepare a plan for such contingencies.[90]

Although the USAF rescue capability increased in 1964 and throughout 1965, Air America was the backbone of the humanitarian operation during the first year. Between June 1964 and June 1965, Air America made 21 successful recoveries of American pilots. In that same period, five rescues were made by USAF helicopters; four in March and one in April. Three pilots were reported captured, three were believed to be dead, and the status of three pilots was listed as unknown. Although Air America made most of the recoveries, they worked in close conjunction with U.S. RESCAP and control elements.[91]

B. ESCALATION OF THE WAR

Increased operations in Laos and strikes against North Vietnam placed new demands on SAR forces in the spring of 1965. Although Air America rescue operations in NVN were not specifically authorized, on several occasions Air America pilots crossed the border to make pick-ups.[92] It was agreed, however, that since Air America could not make a full time commitment of SAR forces, and there were political risks involved in using Air America aircraft to cross the border, USAF aircraft should be introduced and staged forward to positions from which they could reach into NVN.[93] The State Department, in an effort to keep official and visible American activity in Laos at a minimum, suggested that Air America continue to furnish the major SAR effort in Laos.[94] However, the additional helicopters, STOL aircraft, and communications equipment necessary for the company to do this were not forthcoming, and the Air Force was required to assume major coverage in Laos also.

The USAF capability to perform this mission was greatly improved in July 1965 with the arrival, from Eglin AFB, of the two TAC CH-3C helicopters. These were stationed at Nakhon Phanom. The HH-43's were moved to Udorn and increased to four in number.[95] From Udorn they were staged forward to Lima sites in Northern Laos to give limited coverage in the central part of NVN. Fuel cells were prepositioned at the Lima sites for their support.[96]

In August 1965, the 602nd Air Commando Squadron began rotating its A-1E aircraft from Bien Hoa to Udorn to provide RESCORT. In February 1966, the 602nd Air Commando Squadron moved all of its operations to Udorn, with SAR RESCORT as one of its primary missions. 97/

With this USAF buildup, direct SAR support from Air America in Laos was needed less. Air America continued to provide SAR for the RLAF, their own operations, and on an on-call basis for U.S. aircraft. At present Air American continues to furnish the USAF SAR forces with staging sites, weather information, and intelligence, all of which are indispensable to successful operations. 98/

The USAF SAR equipment and its disposition in the summer and fall of 1965, was still an interim proposition. The longer range and greater speed of the CH-3C were significant improvements, but their small number, and their lack of survivability in combat, limited their effectiveness. One of the two helicopters assigned was usually out of commission. Consequently, they could not be employed as a pair. This single mode of operation is avoided if at all possible. 99/ These two shortcomings were both tragically brought out during a rescue mission, 6-7 November 1965.

On 5 November, Oak Lead, an F-105, disappeared over NVN. There was some possibility that the pilot had survived, since his plane was last seen heading into a cloud, and an electronic search was initiated by two A-1E aircraft on the following day. Although the

pilots had plotted a course around known gun positions, one of the A-1E's was shot down by automatic weapons fire. A CH-3C was sent to the location where it was believed that the A-1E went down. As it arrived in the area, the helicopter was hit by ground fire and the crew bailed out. Since little ground fire was actually reported by the RESCORT, a second helicopter would probably have had a good chance of recovering the crew. The RCC at Udorn scrambled the two HH-43's at Lima Site 36, but the 2AD Command Post overruled this order and directed a recall of all SAR forces. 100/

The USN, however, had launched a helicopter to attempt a recovery of the CH-3C crew. The A-1E's, which had not withdrawn in spite of the order, were directed to meet this helicopter at the coast and escort it to the scene. On the way to the rendezvous the wingman reported ground fire, pulled into the clouds, and no further contact was ever made with him. The remaining A-1E and the helicopter searched the area until the helicopter had to refuel. Even though it was dark by that time the helicopter returned and made voice contact with one of the crew members. Fortunately, the crew member, SSgt Naugle, had a cigarette lighter which he used to signal the helicopter. A successful pick-up was made but Captain Warren Lilly and his other crew members could not be located. 101/

The next morning the Navy helicopter set out to try to recover the remaining crew members. Enroute a MIG alert was received and the helicopter descended to get between cloud layers. It was hit by

automatic weapons fire, the fuel lines were ruptured, and it made an emergency landing in North Vietnam. The two escort aircraft were also hit and one of them had to make a gear up landing at Da Nang. The second USAF CH-3C was on its way to the bailout site when it received word about the Navy helicopter in distress. It diverted and between the CH-3C and another Navy helicopter all of the crew members were recovered. Neither had enough fuel, however, to proceed to the other crash scenes. 102/

A first light search was conducted on 8 November for the unrecovered crew members. The A-1E's picked up a beeper signal but, as more aircraft entered the area, heavy ground fire was encountered and several planes sustained battle damage. At this point the mission was suspended. 103/

This mission not only illustrates the shortcomings mentioned above but also indicates how critical judgment and coordination become in a search and rescue effort. The original decision to conduct a search for Oak Lead was based on the slim possibility that, because of the cloud deck and the general confusion in Oak flight at the time, the pilot could have made a successful bailout without being seen. The position originally given for the first A-1E pilot's bailout turned out to be wrong, thus compounding the confusion that existed. At one point the A-1E's and the Navy helicopter were not acting in coordination with the central controlling authority. When disaster follows disaster, at what point should the mission be suspended? Differences of opinion

and perspective are bound to exist on the complicated problems posed by such missions and where a number of lives are at stake. For example, Brigadier General Murphy, Dep Cmdr, 2AD/13AF (Thailand), felt that the decision to withhold the HH-43's was premature, since it was the last USAF effort that could have succeeded. 104/ The outcome of the situation, if other decisions had been made, is only speculative. It can be concluded, however, when complex coordination has to be effected among different elements of the SAR force, the requirement for timely and accurate information among the several levels of control is paramount. General Murphy, in his report on the mission to Lt General Moore, 2AD Commander, went on to recommend that 'The SAR mission in this area of responsibility (Laos-NVN) be run completely by a single agency," and requested that 'the SAR mission for this area be returned to me and without the restrictions recently imposed.' 105/

One other helicopter was lost over North Vietnam. This was an unmodified HH-43B which was shot down on 20 September 1965. In this instance an F-105 was down and two HH-43 and the RESCORT were scrambled from Nakhon Phanom. The HC-54 control aircraft had picked up the pilot's beeper and the A-1E's believed they had the position pinpointed. No initial ground fire was experienced but troop movement was noticed in adjacent areas. One of the A-1E's was hit and sustained minor damage. The pilot's red smoke was spotted and an HH-43 descended for the pickup. Just as visual contact was made, ground fire erupted from all around the survivor's position and the HH-43 crashed. 106/

The remaining helicopter jettisoned its auxiliary fuel tank and immediately proceeded to the crash site. As it came to a hover, 50 feet over the wreckage, an automatic weapon continued the heavy fire from the ground. No survivors were spotted and since the helicopter was taking many hits, it climbed out of the area and returned to Nakhon Phanom. The mission was suspended as it was concluded that enemy forces would make the area impenetrable for search and rescue efforts the following day. The RCC, Captain Curtis, and his crew were listed as missing in action. 107/

C. The SAR Task Force (SARTF)

The Sikorsky HH-3E helicopter, the more powerful combat modified version of the cargo CH-3C, constituted a breakthrough for SAR in Southeast Asia. The most significant limiting factors of other rescue helicopters of range and survivability were overcome by the HH-3E. The HH-3E carries two jettisonable 200-gallon external fuel tanks of the type used by the F-100. These give the HH-3E an operating radius of approximately 250 miles, depending on loiter time and other operational factors. The HH-3E also provided additional fuel capacity in the form of an internal fiberglass tank which could be dumped but not purged (a rasidual danger remained with the fumes.). Fuel can be pumped from the external tanks to the self-sealing internal tank.

The HH-3E has 1000 pounds of half-inch titanium armor plating distributed around the cockpit and the vital parts of the aircraft,

which greatly increases its survivability. The crew members wear flak suits, as well as survival vests and parachutes. Additionally, the pilots usually don titanium chest protectors when they go in for a pickup. To date the HH-3E's have taken many hits and several crew members have been wounded, but none have been shot down. This record has been aided in a large measure, by the RESCORT Sandy (A-1E) pilots keeping the Jolly Greens out of impossible situations.

Speed and altitude are also crucial for survivability. The 1250 horsepower engine, an increase of 200 horsepower over the CH-3C, gives the HH-3E a ceiling of 12,000 feet, and a top speed of 142 knots. However, at altitudes of eight or nine thousand feet the speed falls off to 100 knots or below.[108/]

Other advanced features of the HH-3E include a shatter-proof acrylic glass canopy, an engine ice and FOD shield, and the 600-pound capacity, 240 foot cable with forest penetrator. The aircraft can transport 25 fully equipped troops or 15 litter cases. (See Appendix 3.)[109/]

Other elements in the Search and Rescue Task Force have been improved. Until June 1965, HU-16, operating first from Korat and later from Udorn, functioned as airborne control aircraft and communications relay. In June, three HC-54's on rotational TDY from the 79 ARS at Guam and the 36 ARS at Tachikawa were sent to Udorn to assume these duties. The HU-16's were transferred to Da Nang and then limited

to missions in the Gulf of Tonkin. The HC-54's, with their higher ceilings, were better suited for operating over the mountainous terrain of Laos. Their more spacious interior improved the crew's comfort during the long hours in precautionary orbit. 110/

The HC-54C was not, however, properly equipped to perform the function of a flying command post. Brigadier General John R. Murphy, the 2AD Deputy Commander, felt that it was the weakest link in the rescue operation because it lacked adequate back-up communications equipment, and, like the HU-16, had no special control equipment that would enable the crew to assume effective direction of the mission. The pilot had to try to keep track of the positions of the helicopters, the bingo times of the RESCAP, and many other details from the cockpit. A console arrangement was proposed but never installed. 111/

In December 1965, two HC-130H's arrived as replacements for the HC-54's, which were phased out by April 1966. These aircraft and crews were also provided by the 79th ARS and the 36th ARS. 112/ The HC-130H has proven to be more reliable and has a number of new devices making it a better SAR aircraft. The Cook Aerial Tracker (ARD-17), located in the bulb on top of the fuselage, is an extremely accurate direction finder which, given favorable transmission conditions, can fix the location of a pilot by triangulation. The development of the tracker was funded by NASA for space vehicle recovery work. The folding boom on the nose of the aircraft equips it to pick up stationary

objects and personnel on the ground with the Fulton system. Later models will be equipped to perform air-to-air refueling with helicopters. But, like the HC-54C, the HC-130H has no special equipment to control involved rescue missions such as those now being conducted in Southeast Asia. Consoles have also been proposed for this aircraft, but little action has, so far, been taken on these proposals. As an interim solution, the Commander of the 3rd ARRG has assigned an officer controller to each HC-130H flight. The communications limitations of the aircraft, however, preclude his doing more than occasionally assisting the pilot.[113/] Properly equipped, the aircraft could possibly replace the ground rescue coordinating centers now located at Udorn and Da Nang.[114/]

The A-1E aircraft provide RESCORT/RESCAP for the SARTF. Their slow cruising speed, short turning radius, extended range and loiter time, variety of armament and comm/nav equipment make them invaluable for SAR work. In effect, they provide the 'search' in search and rescue and then provide cover while the helicopter makes the recovery.

These aircraft are also sought for many other roles, and the SAR priority for four aircraft per mission was difficult to establish. Numerous requests were made before eight aircraft were provided for the SAR alert postures.[115/] Since August 1965, the SAR RESCORT/RESCAP missions have been flown by the 602nd Air Commando Squadron from Udorn.

Other strike aircraft are incorporated into the mission as necessary for MIG CAP or ground strikes. Currently, BANGO/WHIPLASH (Code name for USAF interdiction and close support in Laos.) alert aircraft provide an immediate resource for RESCAP. When jet aircraft are employed, KC-135's are positioned to insure that a constant cover is maintained.

D. The Mission [116]/

The tactics now used for ACR in Laos and NVN have developed around the basic search and rescue task force of two HH-3E helicopters, four A-1E escort aircraft, and an HC-130H rescue control aircraft. These aircreft are on alert in one of several postures during all strikes outside SVN. The entire task force is controlled by the on-scene-commander at the local level, the Crown HC-130H and the RCC at Udorn at the intermediate level, and ultimately by the JSARCC at 3d ARRG Headquarters.

To explain the manner in which these components are coordinated and employed tactically, the sequence of events during a mission will be outlined and illustrated by factual mission narratives. The missions are extraordinary for one reason or another. There are no "typical' missions, each having unique features and problems. The material should impart a general understanding of search and rescue in Laos and NVN. Equipment and tactics will continue to be refined and developed. This description can only present the methods now employed.

A normal alert posture consists of two HH-3E helicopters (Jolly Greens) and four A-1E's (Sandies) prepositioned on ground alert at Nakhon Phanom to cover the southern portions of Laos and NVN. (See coverage map, page 13.) One Jolly Green and two Sandies are rotated each day. Additional coverage of the area is provided by two Jolly Greens and two HH-43F's (Pedros), which alternate from Da Nang to one of several sites near the NVN border. Khe Sanh, Dong Ha, and Quang Tri are the sites currently used but the daily frag order will depend upon the security and weather conditions existing at each site. Prior to the arrival of the HH-3E's in July 1966, Marine H-34's shared the alerts from Da Nang with the Pedros.

The northern portion of Laos and NVN are covered by two Jolly Greens prepositioned at one of the forward operating sites in Laos. Again, the selection of the site will depend on security conditions, weather, and other operating factors. The Jolly Greens remain on alert overnight if security conditions and political constraints permit. Although conditions change, usually only one site is suitable for twenty-four hour operations. In February, Lima Site 36, one of the primary forward sites,was overrun by the PL/VN (A full report of this action is contained in (TS) Project CHECO Report Lima Site 36.). It has since been recaptured but remains insecure. At one time, political considerations prevented the crews from remaining at any of the sites overnight. This is no longer the case. Now, to "sanitize" the operation, the crews merely remove their personal insignia and the aircraft

markings. The latter is handily painted on a detachable panel. Since the Laotian sites, which are maintained by Air America, are only STOL strips, the four escort Sandies for these Jolly Greens usually remain on alert at Udorn. However in June of 1966, the intensity and penetration depths of the strikes in the North increased and, to reduce reaction time, two Jolly Greens and four Sandies orbit in northern Laos during the TOT's. Two other Jolly Greens remain on back-up ground alert in Laos and the Sandies on back-up alert at Udorn. A Crown HC-130 orbits on the Thai-Laotian border from early morning until late afternoon. Both of these postures are fragged daily by the JSARCC, in coordination with DOCO at 7AF.

An emergency is declared when the distressed pilot or his wingman switches to the UHF guard frequency and calls 'Mayday'. If the pilot successfully ejects, his wingman reports the location and remains in the vicinity to provide RESCAP and to guide the rescue force to the precise location. The initial report of position is in error, to some degree, in a very large percentage of the missions. This is due chiefly to errors inherent in the Doppler navigational system. Therefore, it becomes most important that an aircraft remain in the area until the Sandies arrive. If the fighters depart with bingo fuel before the Sandies arrive and the downed pilot is in an unfavorable position for radio transmission, search efforts will be much more difficult.