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DEPARTMENT OF THE AIR FORCE

HEADQUARTERS 3RD AEROSPACE RESCUE & RECOVERY GROUP (MAC)
APO SAN FRANCISCO 96310



REPLY TO
ATTN OF: CC

5 JAN 1983

DEC 15 1973

SUBJECT: Project CORONA HARVEST End-of-Tour Report (U)

TO: 3825 (HOA)
Maxwell AFB, AL 36112

The following End-of-Tour Report is submitted in support of project CORONA HARVEST and the USAF Historical Program.

Part A. (U) Biographical Information.

Name: Herbert R. Zehnder Rank: Colonel
Duty Stations in SEA: Tan Son Nhut AB, RVN
Nakhon Phanom RTAFB, Thailand
Job Title: Commander, 3ARRGp (MAC) Duty AFSC: E0000
Inclusive Tour Dates in SEA: 9 Jan 73 to 15 Dec 73
Current ZI Address: Vice Commander
39 Aerospace Rescue and Recovery Wing (MAC)
Eglin AFB, Fla 32542
Name and DEROS of Replacement: Col Richard F. Burdett
10 December 1974

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Part B. (U) Resume of Duties and Activities:

Commander, 3rd Aerospace Rescue and Recovery Group, and 7th Air Force (7AF) Director of Rescue (DOR) from 9 January 1973 through 15 December 1973. Exercised operational control of all USAF Rescue units in South Vietnam and Thailand. As 7AF/DOR I was advisor to the Commander, 7AF, on all matters associated with Search and Rescue (SAR) in the Southeast Asia theater of operations.

Part C. (S) Brief Discussion of Major Tasks.

I. (U) As 3ARRGp Commander/7AF DOR, I accomplished the following major tasks:

- Provided the Commander, 7AF, advice on matters pertaining to SAR requirements and procedures.
- Exercised operational control of all Rescue forces in the Southeast Asia subregion in accordance with policies established by the Commander, 7AF, and/or Commander, 41ARRWg, (the next higher unit in ARRS chain of command).

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SUBJECT TO GENERAL DECLASSIFICATION
SCHEDULE OF EXECUTIVE ORDER 11652
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c. Maintained operational equipment and qualified personnel to perform the SAR role in SEA.

d. Recommended SAR force structure and disposition to cover the 7AF area of responsibility. This included providing recommendations for the final withdrawal of forces from Vietnam and repositioning rescue resources in Thailand for SAR coverage of combat and possible NEMVAC (Non-Combatant Emergency and Evacuation) operations in the Khmer Republic and Laos.

e. Provided expertise for the identification of SAR equipment deficiencies/requirements and recommended solutions.

f. Kept Commander 7AF and the MAC/APRS chain of command informed of status of all SAR operations in as near real time as possible.

g. Operated the Joint Rescue Coordination Center (JRCC), JOKER, as a facility of the 7AF Command Post (BLUE CHIP) at Tan Son Nhut AB, RVN and a Rescue Coordination Center (RCC), JACK, at Nakhon Phanom RTAFB, Thailand until 15 February 1973. JACK was then deactivated and replaced by JOKER as a result of the Group's move to Nakhon Phanom.

2. (S) The following plans and programming actions were implemented during my tenure as Commander, 3ARRGP:

a. (U) On 31 January 1973, 40ARRSq Detachment 8 (Provisional) at Takhli RTAFB, Thailand was deactivated and TDY personnel manning the unit were returned to home stations. On the same date, Detachment 10, 40ARRSq, was permanently activated at Takhli and manned with personnel transferred in from the Republic of Vietnam.

b. (C) Detachment 7, 40ARRSq, at Danang AB, RVN, and Detachment 14, 40ARRSq, at Tan Son Nhut AB, RVN, were deactivated effective 15 February 1973. Depending upon retainability, personnel in the detachments were either granted tour curtailments and reassigned back to the COMUS, or were transferred to other local base rescue units in Thailand. The six HH-43F helicopters assigned to these detachments were also transferred to Thailand and were used to replace the older "B" models at Udorn, Ubon, and Nakhon Phanom Royal Thai Air Force Bases.

c. (C) The Vietnam cease fire and subsequent withdrawal of American forces resulted in Headquarters, Military Assistance Command Vietnam/Seventh Air Force (MACV/7AF) being deactivated at Tan Son Nhut AB, RVN, and the United States Support Activities Group/Seventh Air Force (USSAG/7AF) activated at Nakhon Phanom RTAFB, Thailand. USSAG/7AF became operational at Nakhon Phanom on 15 February 1973. Headquarters, 3ARRGP also transferred from Tan Son Nhut to Nakhon Phanom on 15 February 1973, and became operational at that location on that date. Under a realignment of functions within USSAG/7AF, Commander, 3ARRGP was designated Director of Rescue (DOR) and placed under the Assistant Chief of Staff, Operations, (USSAG J-3/7AF DO) for SAR control purposes.

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With the activation of the Joint Rescue Coordination Center (JROCC), JOKER, at Nakhon Phanom, the 40ARRSq Rescue Coordination Center, JACK, was deactivated. The associated manpower spaces were deleted, with the exception of one radio operator position (AFSC 20350), which was transferred to the 3ARRGp JROCC Unit Detail Listing. This transfer and realignment of manpower spaces allowed 3ARRGp to retain the same basic authorizations and rank structure and provided the additional authorization of one radio operator for the JROCC. Actual realignment and transfer of personnel was based on retainability of the individual. Those personnel who were nearing the end of their tours were either reassigned on their normal DEPOS or were granted short curtailments. Personnel with long retainability were transferred with the Group to Nakhon Phanom.

d. (S) In February 1973, the 40ARRSq transferred one of its 12 assigned HH-53C helicopters to the 76ARRSq at Hickam AFB, Hawaii. This action eliminated the NOA airframe at Nakhon Phanom and reduced the 40th ARRSq to its authorized 10 UE HH-53's.

e. (S) In March 1973, a second HH-53C was transferred from the 40th ARRSq to the 76ARRSq in order to meet the recovery support requirements of NASA's SKYLAB Program. Essentially, this action accelerated by one calendar quarter the programmed reduction of the 40th ARRSq to 10 UE HH-53's which was not scheduled to occur until 30 June 1973.

f. (S) Also, in March 1973 a 56 ARRSq HC-130P was transferred to the 76ARRSq at Hickam AFB, Hawaii. This action eliminated the NOA airframe at Korat RTAFB and reduced the 56ARRSq to its 6 UE HC-130's.

g. (S) On 14 June 1973 a HH-53 was lost in a major aircraft accident over Tonle Sap Lake in Cambodia. This reduced the 40ARRSq to nine aircraft assigned, or one under the authorized 10 UE. To date, no action has been taken to bring the 40ARRSq back up to its authorized 10 UE HH-53's.

3. (S) The following research and development (P&D) actions were continued or initiated during the period of this report:

a. (U) Combat Required Operational Capability (ROC) 60-70, Tactical Secure Voice for HH-53's was finally satisfied during July 1973. TCTO HH-53-527 was completed on all assigned HH-53's as of 31 July 1973, and USSAG/7AF formally declared Combat ROC action completed on 9 Aug 1973.

b. (S) Combat ROC 4-72, Electronic Countermeasures (ECM) and Radar Homing and Warning (RHAW) System for HC-130P aircraft, was initially submitted on 25 February 1972. In June 1972, Air Force approved the RHAW portion of the Combat ROC but disapproved the ECM portion. The RHAW portion of this ROC is currently competing for funds. USSAG/7AF indicated that in view of limited funds, it is doubtful that this project will be funded in the near future.

c. (S) Combat ROC 6-72, Electronic Countermeasures (ECM) for Aircrew Recovery HH-53C Helicopters, was submitted on 21 March 1972.

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Initially, technical problems delayed identification of appropriate equipment to satisfy this requirement. Simulator tests using two MELPAR units per aircraft were conducted in late 1972 and evaluation tests of candidate systems were conducted by ASD during the first half of 1973. ASD is responsible for selecting the most suitable system to satisfy this requirement.

d. (S) Combat ROC 14-72, Infrared (IR) Countermeasures for Combat Aircraft. The ALE-20 flare launch system installed aboard HC-130 and HH-53 aircraft in Southeast Asia has provided an interim solution to the IR missile threat. Installation of this system was completed in Jan/Feb 1973.

e. (S) Combat ROC 20-72, Electronic Location Finder (ELF) ARD-21 for Aircrew Recovery HH-3/HH-53's. Installation of ELF on all assigned HH-53C's in theater was completed in March 1973 and this Combat ROC action has been formally declared completed for HH-53 helicopters in SEA.

f. (S) Combat ROC 31-72, Electronic Location Finder (ELF) for A-7 "Sandy" Aircraft. A revised Best Price Estimate (BPE) submitted by ASD identified four options for a four month test phase of equipment. (1) ARA-50 UHF/DF, (2) AR-243, "mini" ELF, (3) ARD-21 ELF with two blade and two spiral antennae, and (4) ARD-21 with four blade antennae. CSAF directed AFSC to document a test and development program for the AR-243 and one ARD-21 ELF option. Plans for installation of an AR-243 "mini" ELF and an ARD-21 ELF in an A-7 aircraft at Eglin AFB are apparently continuing; however, at this writing the Air Staff has not funded this program and actual installation and testing has not yet begun.

g. (C) Combat ROC 1-73, Night Vision Goggles for SAR Forces. This Combat ROC was initiated to provide a follow-on night vision capability for HH-53 aircrews during night recovery operations. The PVS-5 (40° Field of View) goggles were listed as a replacement for the SU-50 (60° Field of View) goggles during a TA 016 conference. The basis of issue for the PVS-5 is six per each HH-53 equipped with the night recovery system. In view of the availability of the PVS-5 through normal supply channels, MAC/ARRS concurred in cancellation of this Combat ROC on 13 March 1973. Combat ROC action was formally terminated on 21 March 1973.

h. (S) Combat ROC 7-73, Helicopter Visual Acquisition. This combat ROC was initiated on 4 April 1972 in an attempt to provide a solution to a problem that pilots of escort aircraft in Southeast Asia were experiencing in visually locating camouflaged HH-53 helicopters during escort operations. A parallel program was also pursued by MAC in attempting to increase the conspicuousness of helicopters in high density traffic areas in a peacetime environment. OT&E was conducted on a Xenon Strobe Light installed on HH-53 helicopters at Hill AFB, Utah, and at Nakhon Phanom RTAFB, Thailand. MAC OT&E Final Report was distributed in May 1973 and noted a considerable difference in the results obtained at the two locations. The Xenon Strobe Lights appeared to work well at Hill but were not very effective in operations conducted out of Nakhon Phanom RTAFB, Thailand. The final report

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recommended that the strobe lights should be installed on all MAC helicopters for anti-collision purposes and that ASD develop a system that will satisfy the requirements for this Combat POC. In view of the disparity of test results in the OT&E conducted at Hill AB and Nakhon Phanom RTAFB, ASD has recommended an in-house MAC/AFSC study to determine optimum design and candlepower of a strobe light which can satisfy the requirements of Combat POC 7-73.

i. (C) The Combat POC program was terminated in May 1973. Projects affecting MAC equipment were converted to MAC POC's and POC 31-72, concerning ELF equipment for A-7 aircraft, was converted to a TAC POC.

4. (S) The above listing of tasks and facts does not convey the full scope of activities in which the 3rd Aerospace Rescue and Recovery Group participated during this most difficult, but rewarding period. To clarify and illuminate these activities, I propose to discuss more extensively the following general areas:

a. (S) LINEBACKER II: Immediately after assuming command of the 3rd Aerospace Rescue and Recovery Group at Tan Son Nhut AB, RVN, I was faced with maintaining continuity of necessary SAR coverage of the final stages of LINEBACKER II, a massive air offensive against the heartland of North Vietnam. Colossal in scope, the desired objective of the operation (18 December 1972 - 10 January 1973) was to pound the enemy so severely in his own backyard that he would have no choice but to negotiate for an end of hostilities. The desired effect was realized by 10 January when the North Vietnamese, badly battered by intensive air strikes north of the DMZ (Demilitarized Zone), and particularly around the Hanoi area, could offer little resistance and were forced back to the negotiating table in Paris. A cessation of hostilities agreement was signed and a cease fire went into effect on 27 January 1973.

(1) (S) Of course, none of this could have come about without substantial losses of American airmen and equipment, especially in the initial phases of LINEBACKER II when enemy SAM and AAA activity were at a peak. Twenty-six United States Air Force and Navy aircraft were downed by enemy firepower. Fifteen of these were B-52's. Fortunately, my predecessor's emphasis on SAR unit mobility and flexibility paid ample dividends. While wave after wave of B-52's and fighter bombers dropped a total of 20,370 tons of bombs on targets in extremely heavily defended areas, HH-53's monitored by Rescue HC-130's and escorted by A-7 (SANDY) aircraft orbited at the very fringe of the bombardment zone, ready to move in for quick pickup of downed airmen. I am very pleased to relate that many lives were saved due to the quick response of SAR airborne and ground alert forces and the efficient coordination employed by both the JRCC (JOKER) in Tan Son Nhut and the RCC (JACK) at Nakhon Phanom.

(2) (S) A classic example of Joint service SAR coordination was the Ruby 02 mission. In the early morning hours of 3 January 1973, Ruby 02, a B-52, having incurred severe battle damage during a strike over North Vietnam, proceeded along the enemy coastline over the Gulf of Tonkin toward its post strike alternate, Danang AB, RVN. Unable to

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maintain altitude, the entire crew bailed out. In spite of darkness, all six crewmembers were located in the water by USAF OV-10's who guided the rescue forces in for pickup. One survivor was hoisted aboard a Navy helicopter. Three were recovered by a Marine HH-53, and the remaining two were hoisted to safety by an AF HH-43 based at Danang.

(3) (S) Other examples of impressive SAR response were the Brass 02 and Ash 02 missions on 20 and 27 December 1972 respectively. Both were B-52 bailouts during the hours of darkness within the Nakhon Phanom local area. All the crewmembers from both aircraft were recovered by HH-53, HH-43, and CH-53 helicopters with the exception of one crewmember, who, to the relief and amusement of all, unassuringly caught a local Thai Commercial bus to Nakhon Phanom.

(4) (S) A total of forty-six combat saves were accomplished during the period of the LINEBACKER II operation; thirty-four of which were directly attributable to the major air offensive itself.

(5) (S) In summary, I would like to emphasize the fact that SAR forces tasked during the major portion of LINEBACKER II were under the command of my predecessor, Colonel Cecil M. Muirhead, Jr. It was largely due to his sound judgement and strategy in SAR force employment that my assumption of command during this critical period went so smoothly. Accurate facts and data about this massive air operation were not available, of course, for compilation in Colonel Muirhead's End-of-Tour report. Therefore, I feel it appropriate, for the sake of history and as a courtesy to Colonel Muirhead, to include it in mine.

b. (S) Withdrawal and changing missions/tactics in the Khmer Republic.

(1) (S) The withdrawal from South Vietnam to Thailand presented few difficulties. MAC Special Order G-61, 1 February 1973 deactivated the two remaining Rescue flying units in Vietnam, Det 7 and Det 14, LBGs located at Danang and Tan Son Nhut Air Bases, on 10 February 1973. The only remaining task I was faced with then was the movement of 3ARDCGp, itself from Tan Son Nhut to Nakhon Phanom RTAFB, Thailand. This was accomplished by 15 February 1973. The Rescue Coordination Center (JACK) was deactivated and replaced by the Joint Rescue Coordination Center (JOKER). The Group and its JRCC continued to function in their subordinate roles to 7AF as DOP since MACV/7AF in its entirety also moved to Nakhon Phanom, acquiring a new title in the transfer: USSAG (United States Support Activities Group)/7AF.

(2) (S) The transfer to Thailand featured several changes. The JRCC (JOKER) set up its Coordination Center in the 56 SQWg TUOC, while terminating its co-location function with the 7AF Tactical Air Control Center (BLUE CHIP) yet still remaining under the latter's control. The deployment of rescue air resources proved to be no problem since the forces were already in place prior to the transfer. Unit locations and equipment for the period of this report are covered in Attachment I.

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(3) (S) Following the Cease Fire Agreement on Vietnam and the accompanying restrictions that limited U.S. air operations in Laos to reconnaissance only; the area of combat involving U.S. participation shifted to the Khmer Republic, where Khmer Government forces were engaged in a bitter and rapidly expanding conflict with the Khmer insurgents and NVA infiltrators. This location of conflict in SEA introduced a major change in combat air tactics. First, the combat environment, unlike the heavily defended areas of North Vietnam and locations directly adjacent to the DMZ and the Ho Chi Minh Trail, was one of relatively low threat. SAM and AAA activity were isolated, generally positioned in or around the main infiltration routes and staging areas in the northwest sections of the Khmer Republic. Second, U.S. air operations were limited in scope and intent, strictly performing reconnaissance, interdiction and close-air support for beleaguered Khmer Government ground forces. U.S. ground participation was limited to advisory status only. My policy, therefore, was to provide swift and effective SAR coverage, designed to insure rapid survivor pickup and preclude the possibility of the enemy taking any U.S. flying personnel as POW's. The following SAR posture, which I recommended to 7AF, met these requirements very effectively: One HC-130 (KING) maintained SAR airborne alert daily by flying an orbit over Lake Tonle Sap in the very heart of combat air operations. It was backed up by another HC-130 on 15 minute ground alert at Korat RTAFB, Thailand. Two HH-53's (JOLLY GREEN) remained on 15 minute ground alert at our FOL at Ubon RTAFB ready to move across the Thai-Khmer border swiftly in the event of a SAR mission. In addition, the two Ubon based HH-53's flew late afternoon refueling missions over Lake Tonle Sap insuring an even more timely response during the periods of peak air activity. Serving as backups for those at Ubon and insuring SAR coverage in northern Thailand, two HH-53's were kept on 15 minute ground alert, 24 hours per day, at Nakhon Phanom RTAFB, Thailand. The A-7 (SANDY) force of the 3TFS at Korat was kept on 15 minute ground alert, however, it was reduced from nine to six aircraft in order to release additional A-7s for tactical operations in the Khmer Republic. The LBR status at bases in Thailand remained unchanged, continuously poised to handle any aircraft emergency or mishap within their local areas of responsibility. As one last additional factor, my staff and I coordinated with Thai and Khmer authorities insuring utilization of their SAR resources in saving U.S. flying personnel.

c. (S) Communications and MACTHAI Coordination:

(1) (S) Upon arrival at Nakhon Phanom I was pleased to note the superb communications plant inherited by the JPCC (JOKER) from the RCC (JACK). In actuality, the JPCC possessed the most comprehensive and flexible communications plant at Nakhon Phanom. Dual HF, UHF, VHF, and FM radio communications were available to airborne forces. This was further enhanced by a secure voice capability. In addition, the JPCC possessed hot lines to Ubon, Udorn, Takhli, U-Tapao, Korat Command Posts, 40th and 56th ARRSq, all LBR detachments, and the local command centers at Nakhon Phanom, including BLUE CHIP. Installation of an EAC (Emergency Action Communication) instrument insured priority telephonic contact with MACTHAI (Military Assistance Command Thailand), the American Embassies in

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Phnom Penh and Vientiane, and up the chain of command in MAC through the 41st ARWg in Hawaii to headquarters APPS at Scott AFB, Illinois. Needless to say, this impressive capability greatly aided mission accomplishment and provided other organizations a communications link within their own command structures.

(2) (S) Desiring the smoothest working relationships possible and recognizing the fact that operating in the new Thai environment might present some unforeseen problems, I dispatched members of my staff to Bangkok where they received invaluable briefings from MACTHAI personnel on Thai political and military structure, local customs, SAR resources, communications, and a host of other subjects that aided immeasurably in day-to-day operations. Medevac, rescue, recovery, and training missions in Thailand, which by their very nature are fraught with local legal complexities, were handled routinely due to our new-found expertise in coordinating such matters with MACTHAI, Embassy officials, and the Thais themselves.

d. (S) "EAGLE PULL"

(1) (S) By early April 1973, the military situation in the Khmer Republic had deteriorated to such a point that the protection and evacuation of U.S. non-combatants became a distinct possibility. Although the Secretary of State had overall responsibility for the protection and evacuation of U.S. noncombatants and designated aliens in the Khmer Republic, COMUSSAG/7AF had to be prepared to take appropriate actions to assist the Department of State in discharging this responsibility in the event imminent or actual hostilities made noncombatant status there untenable. USSAG/7AF CONPLAN 5060C (short title: EAGLE PULL) provided the required military support to assist the Department of State in the event NEMVAC (Noncombatant Emergency and Evacuation) operations became necessary. In the event the enemy captured or otherwise denied use of Pochentong Airport, the 3ARRGp was tasked to provide helicopter (HH-53) airlift for evacuating 580-600 designated personnel from specific landing zones in Phnom Penh. Fixed wing aircraft or helicopters would be used to evacuate personnel from Battambang, Ream/Kampong Som, and other areas in the Khmer Republic. All evacuees would be taken to designated safe havens, primarily Ubon RTAFB and U-Tapao RTN Afb, in Thailand. Third ARWg was not only tasked to provide helicopter airlift from its own resources, but was also directed to coordinate the entire helicopter evacuation phase, which in reality was a large and complex combined operation involving U.S. Marine, Navy and USAF helicopters. This task was further complicated by the fact that in the event designated landing zone areas became threatened by hostile elements, GSF (Ground Security Forces) composed of one Marine infantry battalion and two rifle companies would have to be airlifted into the zones by the NEMVAC helicopters. This, of course, literally doubled the number of personnel to be airlifted out of the embattled areas. In addition, Rescue HC-130's (56ARRSq) were tasked to provide airborne command, control, coordination and refueling for the entire operation.

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(2) (S) My staff and I immediately set up working groups, attended Joint Service Conferences, and developed flexible communications procedures and flow plans for the entire operation. A realistic HC-130 simulator program, designed to train crewmembers in NEMVAC operations was initiated at Korat. Checklists with accompanying maps and flow charts were issued and all HH-53 and HC-130 crewmembers were thoroughly briefed on their specific duties tasked by the plan.

(3) (S) By early August 1973, the military situation around Phnom Penh became very critical. I was directed by COMUSMACV to place our crews on immediate alert and restrict all HH-53 flying activities to the Nakhon Phanom local area. The probability of the operation being implemented was enhanced even more after 15 August 1973 when U.S. combat involvement in the Khmer Republic was terminated by Congressional action. The HC-130 orbit over Lake Tonle Sap was stopped and the FOL for HH-53's at Ubon PTAFB was closed down, further increasing our critical operating range in this NEMVAC operation. Fortunately, by mid-September, due to the hardening resistance of Khmer Government forces, the enemy pressure on Phnom Penh and other provincial centers in that country relaxed. However, on 10 Oct 73 the FOL at Ubon was reinstated primarily for SAR coverage of EC-47s flying over the Khmer Republic. As of the time of this report, rescue forces in SEA are still committed to EAGLE PULL, though the possibility of its execution becomes more remote daily.

e. (S) Jolly Green 64 tragedy: At approximately 1730G, 14 June 1973, Jolly Green 64, a 40ARRSq HH-53, crashed into Lake Tonle Sap, Khmer Republic. The aircraft had just completed refueling when it pitched up into a near vertical attitude, entered an uncontrollable spiralling descent and impacted inverted along the shoreline in water approximately three feet in depth. Two pararescue crewmembers were able to escape and parachuted to the dry land along the lake's shoreline. The second HH-53 in the flight monitored the two bailouts and executed immediate pickups of the survivors. It then proceeded to the crash site. Failing to find any sign of other survivors, the aircraft departed the area accompanied by impending darkness and recovered at Ubon PTAFB, Thailand.

(1) (S) After briefing the 7AF Commander and his staff, I directed that a first-light effort be organized the following day with the objective of recovering possible survivors, human remains and any extractable wreckage that could be used for investigative purposes. The total effort included flare ship coverage during the hours of darkness preceding the operation, procurement of scuba gear from the 31st ARRSq at Clark AB, RP, and designation of HH-53 flight crews and pararescue recovery teams.

(2) (S) On 15 June 1973, extensive photography was accomplished and numerous small parts were recovered. The co-pilot's body was recovered. However, further salvage operations were terminated after six exhausting hours of wading and probing through layers of silt of undetermined depth, a difficulty not planned for in an already discouraging project.

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(3) (S) No recovery operations were attempted on 10 June, however, preparations were made for the following day to recover additional parts and continue the search for the pilot and flight mechanic.

(4) (S) On 17 June, with the assistance of a CH-53 from the 21st SOS, the lower portion of the fuselage was recovered and flown via sling to Phnom Penh. The body of the pilot and numerous small parts were recovered, and all SAR activities in connection with the loss of Jolly Green 64 were terminated. On 20 June, the Commander 7AF disapproved any further attempts to recover the wreckage due to the insecurity of the area.

(5) (S) The Aircraft Accident Board assessed the cause as undetermined and ruled the probable cause to be materiel factor: Failure of the first stage hydraulic system in conjunction with failure of the second stage portion of the rear fore and aft primary servo caused an uncontrolled pitchup in flight.

Part D. (S) Lessons Learned.

1. (S) It is significant to note that although the LINEBACKER II operation accomplished its objective, SAR coverage for such a massive operation had its limitations. Recovery by air of survivors downed in extremely heavily defended areas, such as Hanoi itself, is generally impossible. We discovered by the course of actual events, that the only crewmembers picked up were those who managed to fly their battle damaged aircraft to the fringe of the target area, over the Gulf of Tonkin, or to adjacent safe-haven countries. Peach, Brass, Straw, Ash and Ruby 02 missions were all successful B-52 SARs and they all occurred outside the target area. With the exception of a B-52 that crashed at U-Tapao, the other twenty B-52 and fighter bomber crews lost during LINEBACKER II went down within a 50 nautical mile radius of Hanoi itself and were either killed or taken prisoner. Another unsettling factor was the lack of basic survival techniques employed by Strategic Air Command (SAC) crewmembers. Personal authenticators were often long, confusing and complex, thus virtually useless in a real emergency. A lack of survival discipline was apparent when survivors were found without survival vests, usable radios, required flight clothing and the knowledge of escape and evasion techniques. Midway through the operation, action was taken to remedy these shortcomings. Fortunately, all SAC crewmembers are now required to attend Jungle Survival School at Clark AB, Philippines; however, I can't help but feel this was a "hard" lesson learned.

2. (C) As a result of the Jolly Green 64 accident, other helicopter mishaps that occurred under similar circumstances, and the unacceptable failure rate of H-53 hydraulic components, the following recommendations were forwarded to Headquarters AFRS: A high priority program be established to determine causes of, and solutions to, the excessive number of hydraulic system failures in H-53 aircraft. A hydraulic analysis program be initiated to include periodic hydraulic fluid samplings of unit aircraft. This program would monitor contamination level and indicate

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possible need for improved hydraulic filters or a filter time change requirement. Consequently, the Commander, ARPS, has requested assistance from MAC to obtain a critical design review of the entire HH-53 hydraulic systems, and a hydraulic fluid analysis program has been implemented between the 40ARPSq and the system manager. Another lesson pounded home in the accident was the failure of three crewmembers to escape from Jelly Green 64. Factors revealed during the investigation of this accident indicate the three fatalities were due to inability to escape using current procedures and equipment. Aeronautical Systems Division has been requested to establish a priority program for developing a helicopter escape system.

3. (S) Lessons of major importance were learned in changing SAR tactics. On 21 December 1972, an AC-130 SPECTRE gunship was utilized very effectively as on-scene commander (OSC) during our first successful pickup utilizing the Night Recovery System (NRS). During the night of 31 January 1973 another SPECTRE demonstrated its unique combination of capabilities by providing accurate suppressive fire and vectors for an HH-53 pickup of an allied ground party surrounded by a numerically superior enemy force in Laos. As a result of these successful combat missions and numerous impressive tests conducted at Eglin AFB, Florida, it became obvious that the AC-130 could be an effective addition to the SARTF in a relatively low-threat environment. Its specialized on-board sensors (Low Light Level Television (LLLTV), infrared detection equipment (IR), Black Crow (BC) electrical emission detectors, UHF-DF, and self-illumination devices provide the capability to search for and locate survivors with accuracy. Another lesson learned in combat was, as the A-7D SANDYs became thoroughly integrated in the combat SAR role, their tactics became more complex and sophisticated especially in the roles of flight elements and ordnance configurations. The 26 May 1973 Wolf 06 mission in the Khmer Republic taught us another important lesson. Though the mission was successful, transmissions from other aircraft on the Electronic Location Finder (ELF) frequency adversely affected the homing and hover information displayed on the HH-53's ELF equipment, thus delaying the pickups substantially. In order to derive the maximum benefit from these lessons, I directed my staff to hold working groups and conferences and incorporate all of these factors learned from SPECTRE, SANDY, and ELF missions in 7AFM C4-1. The result was an entirely new chapter devoted to SPECTRE and a revised chapter on SANDY tactics; special emphasis relating to the critical aspects of ELF equipment was also introduced in the 11 September edition of 7AFM C4-1.

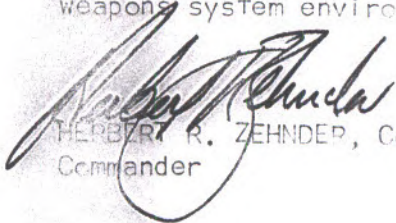
4. (S) Probably the most important lesson learned was the expertise gained in developing smooth relationships with military and civilian agencies in Thailand. Upon our arrival in Thailand, most MACTHAI and Thai personnel were not aware of 3ARPSq's role in SEA. Conversely, we knew very little about their functions. Therefore, I was especially pleased over the practical results achieved from the coordination visit paid by members of my staff to MACTHAI at the onset of our tour in this country. The purpose of the visit was to develop a finer line of SAR coordination with regard to communications and operational resources involving MACTHAI and Royal Thai Military assets in SEA with particular emphasis on the current political and military situation in Thailand. For example, whenever USAF SAR or MEDEVAC actions are undertaken outside the 16 kilometer radius limit of a station in Thailand, approval must be obtained from the local Province Chief.

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To obtain this approval, a definite chain of command must be followed as a courtesy to the host country. Failure to comply with this line of protocol could result in loss of lives or political embarrassment. Another example was the MACHTAI All Sources Information Center (ASIC) briefing on unsafe areas for downed fliers in Thailand. The Thai government does its utmost in containing Communist guerrillas, bandits, and drug smugglers. However, the fact remains that the country is literally dotted with "hot spots", and USAF personnel down in these areas and the SAR forces committed to their rescue should be well aware of their locations. Naturally, all the knowledge gained about MACHTAI ASIC, J3, J5, J6, the U.S. Embassy, RTAF Air Operations Center (AOC), Royal Thai Army, Navy, and Air Force proved to be immensely helpful. The expertise gained by developing smooth working relationships with the Thais and other U.S. agencies proved to be the major factor in the successful Rescue mission in Thailand.

Part E. (U) Personal Observations

1. (U) As the conflict in SEA draws to a close I consider the inclusion of SAR forces in maneuvers and exercises a must if we are to preserve the knowledge gained, and continue to improve SAR tactics and procedures.
2. (S) Acquisition of downed airmen by supporting SAR forces still poses a real problem, particularly if the survivor is located in a hostile area requiring sterilization. Before helicopters are called in and any ordnance is expended the survivor's position must be pinpointed. The present procedure is time consuming, allows the hostile forces to organize and increases the threat to both the survivor and SAPTF. I feel that even after ELF equipment is installed on the A-7's a better and more rapid method for locating and pinpointing survivors will be required.
3. (U) As each of my predecessors have indicated, I agree that the acquisition of a specialized Recovery Vehicle dedicated to the Rescue mission is a must if the rescue forces are to operate in the sophisticated weapons system environment of the future.


HERBERT R. ZEHNDER, Colonel, USAF
Commander

3 Atch

1. Unit Location and Equipment (U)
2. SEA Flying Hours (U)
3. APPS Southeast Asia Saves (U)

UNIT LOCATIONS AND EQUIPMENT

<u>DESIGNATION</u>	<u>LOCATION</u>	<u>UNIT EQUIPMENT</u>
Hq 3ARRGp	Tan Son Nhut Aflid, RVN 10 Feb 73 Nakhon Phanom RTAFB, Thailand 15 Feb 73	
40ARRSq	Nakhon Phanom RTAFB, Thailand	HH-53's (10 UE/9 Assign) HH-43's (2UE)
Det 3, 40ARRSq	Ubon RTAFB, Thailand	HH-43's (2UE)
Det 5, 40ARRSq	Udon RTAFB, Thailand	HH-43's (2UE)
Det 7, 40ARRSq	Danang Aflid, RVN (deactivated 10 Feb 73)	HH-43's (2UE)
Det 10, 40ARRSq	Takhli RTAFB, Thailand	HH-43's (2UE)
Det 12, 40ARRSq	U-Tapao RTN Aflid, Thailand	HH-43's (2UE)
Det 14, 40ARRSq	Tan Son Nhut Aflid, RVN (deactivated 10 Feb 73)	HH-43's (4UE)
56ARRSq	Korat RTAFB, Thailand	HC-130's (6UE) HH-43's (2UE)

Total ARRS Resources in SEA

HC-130	-	6UE
HH-53	-	10UE/9 Assign
HH-43	-	18UE (Post 10 Feb 73 - 12 UE)

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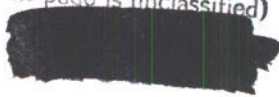
Attachment 1

SOUTHEAST ASIA FLYING HOURS BY TYPE AIRCRAFT

<u>MONTH</u>	<u>HH-43</u>	<u>HH-53</u>	<u>HH-130</u>	<u>TOTAL</u>
Jan 73	476.8	434.0	407.6	1318.4
Feb 73	315.4	353.0	342.9	1011.3
Mar 73	336.4	463.3	403.3	1203.0
Apr 73	334.0	383.0	479.3	1196.3
May 73	363.3	449.2	443.8	1256.3
Jun 73	267.0	363.8	346.3	977.1
Jul 73	376.0	385.0	421.3	1182.3
Aug 73	317.9	273.4	306.8	898.1
Sep 73	269.8	295.3	226.6	791.7
Oct 73	326.1	374.4	227.8	928.3
Nov 73	179.3	189.8	150.1	519.2
Dec 73	Dec Flying time will be forwarded by 15 Jan 74 as an atch.			
<u>TOTALS</u>	3562.0	3964.2	3755.8	11,282.0

Attachment 2

(This page is unclassified)



ARRS SOUTHEAST ASIA SAVES

1973 Combat Saves 14

1973 Non-Combat Saves 54

1973 Total Saves 68

<u>BREAKDOWN</u>	<u>C/NC</u>	<u>USAF C/NC</u>	<u>USN C/NC</u>	<u>USA N/NC</u>	<u>F/MLL C/NC</u>	<u>CIV C/NC</u>
HH-43	3/11	3/6	0/2	0/1	0/2	0/0
HH-53	11/5	5/2	0/0	0/3	3/2	3/0
HC-130	0/38	0/27	0/2	0/2	0/0	0/0
Total	14/54	8/35	0/2	0/6	3/2	3/0

NOTE: C-Combat
NC-Non-Combat

ARRS SOUTHEAST ASIA COMBAT LOSSES

AIRCRAFT

1 HH-53 (Destroyed by friendly forces after crash
landing in enemy territory. Crew picked up.)

PERSONNEL

1 KIA (Pocket attack
Tan Son Nhut AB, RVN,
6 Dec 1972)

ARRS SOUTHEAST ASIA NON-COMBAT LOSSES

AIRCRAFT

1 HH-53

PERSONNEL

3

(This page is unclassified)

Attachment 3