

Extract from 1408, 68, "Review and Evaluation, Tasks 2 and 20, October 1961," by James W. Brown.

Contemplated Areas for Spray in Vietnam

1. D Zone and adjacent border areas (perimeter and trails) estimated area 100 square miles. Chemical recommended: 50-50 mix of pure butyl esters of 2,4-D and 2,4,5-T. At one gallon per acre, 64,000 gallons are required. Since a gallon weighs 11 pounds, total weight of chemicals will be 705,000 pounds.

Chemicals at \$1.25/lb	\$900,000
Airlift, at \$1/lb	705,000
Airlift for drums (50lb each) at \$1/lb	64,000
For chemicals in VN	<u>\$1,700,000</u>

2. Borders: 900 miles $\times \frac{1}{4}$ mile wide = 225 square miles. 2.25 x \$1.7 million = \$3.9 million.

3. Mangrove (area unknown): for 100 square miles see estimate for 1. above (\$1.7 million). Chemical: pure butyl 2,4-D.

4. Roadside: 900 miles $\times \frac{1}{4}$ mile wide = 225 square miles. 2.25 x \$1.7 million = \$3.9 million.

5. Manioc and/or rice (area unknown): per 100 square miles see 1. above. Applicable for rice only if sprayed about one month ahead of harvest. Chemical: pure butyl 2,4,5-T. Cost: \$1.7 million.

These estimates are rough but total far less than \$75 million, the first estimate received. An honest error in arithmetic may have crept in between the source and destination. Or, alternatively, the communication systems in this instance is precarious and might be amenable to allowing a useful tool to be priced out of consideration.

REQUEST AND AUTHORIZATION FOR TEMPORARY DUTY TRAVEL OF MILITARY PERSONNEL
(If more space is required, continue on reverse, identifying items by number.)DATE
22 Nov 61

REQUEST FOR AUTHORIZATION

TO: Administrative Officer 4500th AB Wg (TAC) Langley AFB, Virginia
 FROM: (Requesting authority)
 CUPAS - 4500th Air Base Wing (TAC) Langley Air Force Base, Virginia

2. TYPED NAME, GRADE AND TITLE OF AUTHORIZED OFFICIAL
 JAMES F SPRINGSTEEN
 2ND LT, Personnel Officer

3. SIGNATURE OF AUTHORIZED OFFICIAL
James F. Springsteen

4. PHONE NR.
 4230

II. TEMPORARY DUTY TRAVEL ORDERS

5. THE FOLLOWING INDIVIDUAL(S) WILL PROCEED AS INDICATED. UPON COMPLETION WILL RETURN TO PROPER STATION.

GRADE	NAME (First name, middle initial, last name, AFPSN)	ORGANIZATION	SECURITY CLEAR- ANCE FOR PERIOD OF TDY
CAPT	CARL W MARSHALL, A0926656	4500th Operations Sq	Top Secret
TSGT	LEON C ROME, AF6969313	4500th Operations Sq	Interim TS
SSGT	HUGHIE R BLANKENSHIP, AF36655432	4500th Operations Sq	Secret
SSGT	ROY H COATS, AF17362918	4500th Operations Sq	Secret
A1C	EDWARD S FITZPATRICK, JR, AF15579705	4500th Con Acft Main	Secret
TSGT	JOHN R GILES, AF17260174	4500th Operations Sq	Secret
SSGT	JAMES H KAHL, AF13488976	4500th Con Acft Main	Secret
A1C	OLFUSE M LEGER, JR, AF18515771	4500th Con Acft Main	Secret
SSGT	JOHN A MESIC, AF13370594	4500th Air Base Wing	Secret
SSGT	KEITH D VALE, AF12415571	B/E 500 4500th Operations Sq	Secret

6. DEPART ON OR ABOUT 24 Nov 61 7. APPROXIMATE NR. OF DAYS (Include travel time) 120 8. O DDALV

9. SPECIFIC PURPOSE OF TDY
 In support of transport operations.

10. ITINERARY: VARIATIONS IN ITINERARY AUTHORIZED
 FROM: Langley AFB, Va
 TO: Tac AF Transport Sq Provisional # 1
 Pope AFB, NC
 RETURN TO: Langley AFB, Va

11. SPECIAL INSTRUCTIONS Items 1, 2, 3, 4, 5, 6, 7, and 8 of Overseas Checklist apply.
 TDY Travel Vouchers will be submitted to Accounting and Finance Officer not later than 7 days upon completion of travel. Excess baggage authorized.

12. MODES OF TRAVEL A. TRAVEL BY Commercial & Military ADIRECTED WHEN AVAILABLE. B. TPA. TRAVEL TIME BY COMMON CARRIER (rail or bus) IS ____ DAYS. TRAVEL TIME IN EXCESS IS CHARGEABLE TO DELAY ENROUTE AUTHORIZED IN ITEM 8. C. TPA. THIS MODE OF TRANSPORTATION HAS BEEN DETERMINED TO BE MORE ADVANTAGEOUS TO THE GOVERNMENT. D. OTHER.

III. AUTHORIZATION

13. AUTHORITY TS Message DOCP 61 2481 Hq TAC Dated 16 Nov 61	14. DATE 22 Nov 61	15. SPECIAL ORDER NR. T-1247
16. DESIGNATION AND LOCATION OF APPROVING HEAD- QUARTERS OR UNIT Hq 4500th Air Base Wing (TAC) USAF Langley Air Force Base, Virginia	17. APPROPRIATION ACCOUNTING SYMBOL <i>James F. Springsteen</i> 40 R. BEVIER, Capt USAF 57221400 273-3111 P-58 S-570700 2114.56 121.56	
18. DISTRIBUTION (If required) "A"	19. REQUEST FOR TDY IS APPROVED AND WILL BE PERFORMED. TDN. FOR THE COMMANDER	
	20. SIGNATURE ELEMENT OF ORDER ISSUING OFFICIAL (Seal or signature) <i>G. N. McINTYRE</i> Major, USAF Dir. Admin	

REQUEST AND AUTHORIZATION FOR TEMPORARY DUTY TRAVEL OF MILITARY PERSONNEL
(If more space is required, continue on reverse, identifying items by number.)

DATE
22 OCT 62

REQUEST FOR AUTHORIZATION

TO: DA, 4500TH AIR BASE WING (TAC), Langley AFB, Virginia

FROM: (Requesting authority)

4500TH OPERATIONS SQUADRON (TAC), Langley AFB, Virginia

2. TYPED NAME, GRADE AND TITLE OF AUTHORIZED OFFICIAL

THOMAS E. DYE, LT COL, USAF
COMMANDER

3. SIGNATURE OF AUTHORIZED OFFICIAL

Thomas E. Dye, Lt Col, USAF
22200

1. REQUEST TDY BE AUTHORIZED AS INDICATED IN ITEMS 5 THROUGH 12

TEMPORARY DUTY TRAVEL ORDERS

5. THE FOLLOWING INDIVIDUAL(S) WILL PROCEED AS INDICATED. UPON COMPLETION WILL RETURN TO PROPER STATION.

GRADE	NAME (First name, middle initial, last name, AFSN)	ORGANIZATION	SECURITY CLEAR- ANCE FOR PERIOD OF TDY
CAPT	MICHAEL W. DEVLIN, JR. A03037452	0-493 4500TH OPS SQ	TOP SECRET
CAPT	ALAN R. KIDD, JR. A03046158	0-494 346TH TCS	TOP SECRET
1LT	RICHARD G. HAUFT, A03103876	0-495 4500TH OPS SQ	TOP SECRET
SSGT	JOHN A. MESIC, AF13370592	0-496 4500TH OPS SQ	TOP SECRET
SSGT	KEITH D. YALE, AF12415571	0-497 4500TH OPS SQ	SECRET

6. DEPART ON OR ABOUT 1 NOV 62

7. APPROXIMATE NR. OF DAYS (Include travel time) 120

8. DDALY

9. SPECIFIC PURPOSE OF TDY

To perform duty as directed at destination.

10. ITINERARY: VARIATIONS IN ITINERARY AUTHORIZED

FROM: Langley AFB, Virginia

TO: DET 21, 2ND ADVON, APO 143, San Francisco, Calif.

RETURN TO: Langley AFB, VA.

11. SPECIAL INSTRUCTIONS Items 1, 2, 3, 4, 5, 6, 7 and 8 of Overseas Checklist apply.

"TDY Travel Vouchers will be submitted to Accounting and Finance Officer not later than 7 days upon completion of travel. 200 pounds excess baggage authorized.

12. MODES OF TRAVEL A. TRAVEL BY Military Aircraft DIRECTED WHEN AVAILABLE. B. TPA. TRAVEL TIME BY COMMON CARRIER (rail or bus) IS ____ DAYS. TRAVEL TIME IN EXCESS IS CHARGEABLE TO DELAY ENROUTE AUTHORIZED IN ITEM 8. C. TPA. THIS MODE OF TRANSPORTATION HAS BEEN DETERMINED TO BE MORE ADVANTAGEOUS TO THE GOVERNMENT. D. OTHER.

III.

AUTHORIZATION

13. AUTHORITY S Msg DOOP-SS 2-11529
HQ TAC DTD 27 Aug 62.

14. DATE
23 October 1962

15. SPECIAL ORDER NR.
T-1420

**16. DESIGNATION AND LOCATION OF APPROVING HEAD-
QUARTERS OR UNIT**

4500TH AIR BASE WING (TAC), USAF
Langley AFB, Virginia

Paul M. Miller, Jr. R. BEVIER, CAPT, USAF
CIC 44 378 4580
670700
5733400 3037851 8458 212169 213169 2290 2670700

**17. REQUEST FOR TDY IS APPROVED AND WILL BE PERFORMED. TDY:
FOR THE COMMANDER**

18. DISTRIBUTION (If required)

"AII

20. SIGNATURE ELEMENT OF APPROVING OFFICIAL (Seal or signature)



309 Air Commando Squadron
315 Air Commando Wing (PACAF)
UNITED STATES AIR FORCE
APO 96307, San Francisco, Calif.

28 Mar 66.

Capt Marvin C. Zepf

I have just received notice of your proposed assignment to the best flying and fighting unit in the Republic of Viet Nam, known as the Special Aerial Survey Flight of the 309th Air Commando Squadron otherwise called "Ranch Hand".

I wish to offer my sincere welcome along with that of the other members of the unit.

I know you probably have feelings of uncertainty about this assignment as others before you have, but let me assure you that you are in for the greatest and most challenging flying experience of your Air Force career. This feeling is not mine alone but is shared by each man in the Ranch - officers and airmen alike.

Let me give you some idea of what you can expect in the future. Your training at Langley will be of great value to you. The II's and IFN's there have all had tours in the "Ranch" and will give you a good firm foundation. You may note some difference in tactics or techniques from those taught but this is not to discredit the training only to note that we vary our approach with the immediate situation. The confidence gained in yourself and the aircraft to accomplish this unique mission will be invaluable to you.

On arrival in the Theatre you will be given a few days to get settled, and cleared in, but should be flying within one week of your arrival. You will generally fly 5 out of each 7 days, one to two sorties a day with a duration of from 30 minutes to 4 hours. Your first 9 sorties will be with an IP and generally follow this pattern. 3 rides on the strap with an experienced crew, 3 rides in the right seat with an IP in the left and lastly 3 in the left seat with an IP in the right seat. Then your check ride for qualification. Appreciate the fact that we are not a training unit. You should take full advantage of the talent available at Nurlburt and Langley. The orientation to the job is merely our attempt at orderly progress. All of your orientation missions will be flown on actual targets (cool ones if available).

We have no co-pilots in our unit regardless of rank. We expect all of our people to be aggressive and professional in their efforts. Basically stated we have two objectives here, to accomplish the mission and provide for our troops to the best of our ability.

You will probably see as much of Viet Nam and other areas in SE Asia i. e. Clark, Hong Kong, Bangkok, and Taipei as the C-123 airlift types. Primarily you will be flying from Saigon with periodic TDY's to Da Nang.

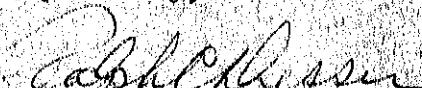
I suggest you bring with you a minimum of 4 sets of fatigues (to be tailored or configured here with rank, patches, etc.); 2 green flying suits, 1 set 1505's. If you can, secure a jet helmet with mike boom attached and equipped with a clear visor if available. Helmets are in short supply over here at the present. However, don't sweat it if you are unable. We'll outfit you regardless. Bring along enough cash or have available in your checking account enough to sustain you 2 to 3 weeks. Everyone in the Ranch lives off base with the exception of a few flight mechs. Rentals are somewhat scarce and expensive. Moving in with established troops is best if vacancies exist, otherwise 3 months advance rent is frequently required. Rentals usually run from \$90 to \$150 per month per man. Your pay will be supplemented as follows:

Combat Pay	\$ 65.00
FSAI	\$ 105.00
FSAI II	\$ 30.00
COLA	\$ 66.00

You have the option to continue having income tax, amount of your choice, withheld or receive full pay each month (not recommended).

I realize I haven't discussed all of the areas of interest to you so feel free to write. Again welcome to the "Ranch".

Respectfully,



RALPH C. DRESLER Major, USAF
Commander, Special Aerial Spray Flight

DEPARTMENT OF THE AIR FORCE
12th Air Commando Squadron (DPL) PACAF
APO San Francisco 96307

INITIAL TO

ACM/C: 12th AC3/4437

29 November 1966

SUBJECT: Entry of Award on Individuals AF Form 11

FROM: 315th ACW (C)
354th AW (C)

TO: 7th AF

1. The Vietnamese established criterion for the award of Vietnamese Wings is the acquisition of over 200 combat flying hours in VNAF aircraft (VNAF markings).

2. The following named personnel, this unit, have been awarded the appropriate Vietnamese Wings by the Vietnamese Air Force:

Major Gagnon, Leo J. Jr., FRA3619, Pilot
Major Hubbs, Charles H., FV2223493, Pilot
Captain Davie, Thomas E., FV73313, Pilot
Captain Eaglecon, Rolf E., FV3025931, Pilot
Captain Kubley, Roy R., FR77661, Pilot
Captain Ross, Edwin C., FV3031709, Pilot
Captain Zopf, Marvin C., FV2209177, Pilot

Major Hall, Donald C., FV2223334, Navigator
Captain Foltz, Warren L., FR76063, Navigator
Captain Foulk, Dan H., FV3036732, Navigator
Captain Posturek, Leonard J., FV2203115, Navigator

TSGT Merritt, William H., AF10415302, Flight Mechanic
TSGT Smith, Sanford, AF1422094, Flight Mechanic
SSGT Clark, Willie C., AF24599915, Flight Mechanic
TSGT Blount, Robert N., AF14409934, Flight Mechanic
SSGT Lahmon, Gary W., AF15526562, Flight Mechanic.

3. Request these awards be approved and entered on the individuals records.

Robert Dennis
ROBERT DENNIS, Lt Col, USAF
Commander

DEPARTMENT OF THE AIR FORCE
HEADQUARTERS SEVENTH AIR FORCE (PACAF)
APO SAN FRANCISCO 96307



REPLY TO
ATTN OF: DPSA

4 DEC 1966

SUBJECT: Foreign Decorations

TO: 377th Cmbt Spt Gp
APO 96307

This headquarters has determined that the requirements stated in paragraph 5-3, AFM 900-3 have been satisfied. Individuals listed on Atch 2 are authorized to wear the decoration and to have it posted to their personnel records (see Table 29, AFM 35-9 for officers; paragraph 8-10, AFM 35-12 for airmen).

FOR THE COMMANDER

Francis C. Grundy
FRANCIS C. GRUNDY, Colonel, USAF
Director of Personnel Services

2 Atch
1. 1st Ind, 315AD, 30Nov66
2. Ltr, 12 ACS, 29Nov66

DEPARTMENT OF THE AIR FORCE
HEADQUARTERS SEVENTH AIR FORCE (PACAF)
APO SAN FRANCISCO 96307



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FOR THE COMMANDER

Francis C. Grundy
FRANCIS C. GRUNDY, Colonel, USAF
Director of Personnel Services

2 Atch
1. 1st Ind, 315AD, 30Nov66
2. Ltr, 12 ACS, 29Nov66

QUÂN-ĐỘI VIỆT-NAM CỘNG-HÒA

TỔNG-THAM-MƯU

KHÔNG QUÂN

BẰNG HOA TIÊU QUÂN SỰ

Tổng Tham-Mưu - Trường Q.Đ. V.N.C.H.

Chiếu theo chỉ-thị hiện hành

cấp bằng: Hoa Tiêu Quân SỰ DANH - DỰ

cho Đại-Úy BOWLES HOWARD F. số quân: FR 76787

kè từ ngày 15.12.1966 do Quyết định số 00442/TTM/KQ/HL/KHDC ngày 15.12.1966

K.B.C.3.011 ngày 26 - 12 - 1966

THUA UY-NHIEM :

Thieu-Tuong NGUYEN-CAO-KY
Tu-Lenh Khong-Quan
Chuan-Tuong TRAN-VAN-MINH
Tu-Lenh Pho

Số 819



SPECIAL ORDER OF THE PUNCTURED PROVIDER



Let it be known to all that during the period indicated while performing low level Defoliation Missions in Southeast Asia the crew of said aircraft experienced the perforation of that aircraft by enemy ground fire, to the extent of a total of 75 hits from .30 and .50 caliber. During the period 8 August 1966 to 4 July 1967.

After replying in kind to the hostile forces let it also be known that in the true spirit of aerospacedom and with the typical conviction of a member of The 12TH Air Commando Squadron (Defoliation), Captain Howard F. Bowles, Jr. **U.S. AIR FORCE** Readjusted his iron jockey shorts and continued his flight recalling that the mission of the air force is to fly and fight.

Given this 8th day of July , 1967

ROBERT DENNIS, Lt Col, USAF

Commander
RANCH HAND

SPECIAL AERIAL SPRAY FLIGHT

The mission of Ranch Hand is to conduct aerial spray operations as directed by higher headquarters.

The defoliation program for the Republic of Vietnam began in November 1961 when six C-123 aircraft were specially equipped with aerial spray apparatus. These aircraft were deployed 29 November 1961 to Clark AFB, P.I., code-named Ranch Hand. Three of these were further deployed to Vietnam for defoliation operations along selected points of route 15 on a test basis. This program was ended 20 March 1962 for evaluation. The three aircraft were then used for logistical missions.

Results of the evaluation indicated that to be most effective the foliage must be treated during the growing season and the rate of chemical flow must be increased from one and one-half to three gal. per acre.

By December 1962 Ranch Hand had completed two new projects. These were the defoliation of canals and rivers in the south and a mountain pass south of Qui Nhon.

In 1963 lines of communication targets included a power line from Dalat to Saigon, the railroad from Saigon to Phan Thiet, and other highways and canals. Because groundfire and hits to aircraft were increasing, the Ranch Hand unit experimented with spraying at night with lighting provided by flare ships and by moonlight alone. These operations were discontinued mainly because of the small chance of rescue in the dark.

Defoliation operations increased in 1964 and hits on aircraft became more frequent until on 30 April one aircraft was hit 14 times and the co-pilot was wounded. At this time operations were discontinued for military reassessment. They were resumed in July with increased sorties programmed.

A gradual increase in sorties continued during 1965 and in mid November the Ranch Hand unit was almost doubled as three additional aircraft and crews arrived from the United States.

The defoliant chemical sprayed by the UC-123 is the commercial type used along railroad and highway rights-of-way. The sprayed chemical is non-toxic to human or animal life. The chemical is most effective when applied during the growing (rainy) season. The defoliant will effect a color change in two days. In six weeks the leaves wrinkle up but some physical force such as wind or rain is necessary to knock them off. The scene is then one of late autumn and aerial visibility is increased by at least 50 percent. This chemical does not sterilize the soil.

Laying a swathwidth of 240 feet, each aircraft covers a length of 10 miles. Temperature and winds are limiting factors in aerial application of defoliants. If the temperature is above 80 degrees F., the defoliant will not settle to the jungle target as planned. Eight knots is the maximum allowable wind velocity on the target.

Proposed targets for defoliation are carefully screened at all echelons. Requests for defoliation are originated by Army of V.N. force commanders at or below the province level. The request is approved by the province chief and sent to the Joint General Staff. After approval it goes to MACV where a joint planning committee reviews specific target areas and operational requirements. A coordination meeting is held at the province where a final plan is agreed upon. Following this an Ops order is published by the Joint General Staff and an execution order then issued by MACV. Through 7th Air Force Ranch Hand goes to work.

Operating at the low altitude necessary in aerial spray application the risks are many. The environment exposes crews to the same hazards as the stateside spray pilot and in aircraft not designed for this purpose. Additionally, they face hostile ground fire daily. The unit is on record as being the most shot-at and hit group of aircraft in Southeast Asia. Averaging five aircraft flying daily on 1050 sorties from January 1st to July 1st 1966, the unit took 351 hits.