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Description Notes Includes data table of number of gallons of military herbicide procured by the U.S. Department of Defense and disseminated in South Vietnam during the period January 1962 - December 1964, source of table listed as USAF OEHL Report, p. 1-9

Pre 65 DFL Spray Operations RUM

The first actual test mission in South Vietnam was flown along a road north of Kontum by a VNAF H-34 helicopter equipped with a US Navy Helicopter Insecticide Dispersion Apparatus Liquid (HTDAL) Spray system 10 August 1961. Two weeks later, the first fixed-wing spray mission was flown by a VNAF C-47. This mission, flown on 24 August, a four km stretch of route 13 about 80 km north of Saigon near the Village of Chon Thanh. Both of these missions dispersed the herbicide Dinoxol.

On 3 January 1962, President Kennedy authorized limited DFL operations of an experimental nature against separate targets which together comprised about 16 miles of the total distance about 60 miles along route 15 between Bien Hoa and Vung Tau.

Three C-123 equipped with MC-1 spray tanks (1000 gallon capacity) landed at Tan Son Nhut on 7 January 1962. Tan Son Nhut remained the headquarters for Ranch Hand until 1 December 1965 when the unit moved to Bien Hoa.

The first Ranch Hand spray mission was flown on the morning of 10 January 1962. A target north of Route 15 was chosen adjacent to a swath, a VNAF C-47 had sprayed with herbicide pink on 29 December 1961. At 0830 and 0900 on the morning of 10 January one Ranch Hand C-123 sprayed less than 200 gallons of herbicide purple. Two spray missions were flown on 13 January along Route 15 which inaugurated the Ranch Hand program. Swath width was 500 feet for the first flight and 400 feet for the second flight. Again purple was applied. Missions continued along Route 15 on the following three days. The mission on the 16th completed the initially authorized spray work which totaled 10 sorties, used 7,920 gallons of herbicide and covered 6,920 acres.

During the period January - March 62, many training missions were also flown. On one low level mission, in February 1962, a Ranch Hand aircraft crashed, destroying the aircraft and killing the three crew members. The plane went down in an inaccessible area off of Route 15 between Bien Hoa and Vung Tau.

Ranch Hand again flew spray missions on 14-17 February 1962. On the 14th, they sprayed a target along Route 14 which was approximately 10 miles long by 400 yards wide and totaled 1300 acres. That same day they sprayed about 900 acres surrounding the Nhan Co airfield. Spraying on the 15th was accomplished on a stretch of Route 1 the same dimension as along Route 14 on the previous day. The Father Hoa area, in the southern portion of the Ca Mau peninsula, was sprayed on the 16th and 17th of

February. These February operations took 12 sorties, used 154 drums of purple herbicide and covered 7,800 acres.

With the exception of the Bien Hoa airfield and the Than Tuy Ha ammunition storage area which were treated by VNAF helicopters, the spray missions on 17 February completed the initial coverage of all authorized targets.

Ranch Hand aircraft resprayed the areas along Rt 15 on 20 March. There was a break in herbicide operations for five months after this mission, to await evaluation of the chemical effects on the foliage.

On 17 and 21 July 62 VNAF sprayed scrub growth north, northeast and west of the runway at Bien Hoa.

Ranch Hand began spray operations again during the period 3 to 7 September. Six spray missions were conducted along the Ong Doc River in An Xuyen Province.

Spray operations were again resumed on 20 September. Between the period 3 September and 11 October 1962, Ranch Hand sprayed a total of more than 9,000 acres dispensing 27,648 gallons of purple herbicide. These missions cleared vegetation along about 50 miles of rivers and canals in the Ca Mau Peninsula.

30 November 1962 authorized clearances for 5 specific areas to be sprayed

proposed in the July recommendation and also delegated the authority to approve the employment of herbicides in future operations. East side of Highway 1 south of Tuy Hoa on 14 Dec 62. On 18 & 24 Dec 62 4 km of Highway 1 south of Qui Nhon. After these missions were completed defoliation activities were halted until the advent of the rainy season the following June.

VNAF carried out crop destruction using 5 H-34 helicopters equipped for crop destruction. The first test crop destruction operation in South Vietnam occurred on 10 Aug 61. VNAF helicopter sprayed trinoxol on crop near a village north of Dak To. President Kennedy's basic authority for Ranch Hand prohibited crop destruction. Crop destruction remained an all Vietnamese program. On 2 Oct 62 President Kennedy allowed restricted crop destruction operations. Area to be sprayed were portions of a 25 k square area of Phuoc Long Province. The base for this crop destruction program was the air strip at Nui Bara in Phuoc Long Province. US Airforce C-123's transported chemicals supplies and equipment to this base. With advise and assistance of American technicians, the South Vietnamese installed HIDAL spray equipment on five VNAF H-34 helicopters. Spray operation began on the morning of 21 Nov 62. A total of 700 gallons of Herbicide "Blue" (cacadylic acid) was sprayed over about 400 acres of crops. On 23 Nov 62 they again sprayed Herbicide "Blue" on a total of 375 acres of crops in Phuoc Long Province.

Ranch Hand began applying herbicides along 46 km of canals in the CA MA"

peninsula in June 1963. Eight sorties were flown in this region of IV Corps between 6 and 9 June dispensing 7,200 gallons of chemicals. The unit flew spray missions along a powerline extending from Da Lat to Bien Hoa. From 3-27 July 1963, Ranch Hand sprayed 10,722 gallons of herbicide during 19 sorties along 58 km of transmission line right-of-way.

Ranch Hand spray operations ceased after the July spray missions due to request by the Thai government to assist in the control of locusts.

Ranch Hand resumed spray operations in October 1963. Between the period 14 Oct 1963 and 13 Jan 1964 they dispensed 71,360 gallons of herbicide on six separate target complexes. Three of these involved highways, one was a railroad, one was a canal on the Ca Mau Peninsula and the southern tip of the peninsula which connected directly with the Gulf of Thailand. This target required 16 sorties and 14,050 gallons of defoliant. During March & April 1964 targets were sprayed on the Ca Mau Peninsula.

In January 1964, authority was delegated to the senior US Advisors serving with Vietnemie division for hand-spray operations. This greatly reduced log time that has existed from proposal to completion of small defoliation projects; i.e., around depots, airfields and outposts. Locations and types of herbicides unknown at this time

A mission flown by Ranch Hand along a canal in the Me Kong Delta on 22 April 1964 accidentally caused crop destruction near the model strategic

hamlet of Cha La.

During a mission on 30 April 1964 in the Delta, Ranch Hand aircraft received considerable ground fire. One of the two C-123's received a hit in one of its engines at this time the pilot feathered the engine and dumped his herbicide load.

After encountering this intense ground fire on 30 April, Ranch Hand discontinued operations until 19 May. Spraying resumed on that date against a canal 40 miles south east of Saigon. This target was sprayed for two days, however, spraying was discontinued during their mission on the third day due to increased ground fire and damage to the aircraft and spray equipment.

Twice during May & June 1964 Ranch Hand shifted its base of operations north to Da Nang. Targets sprayed were mainly winding mountain roads which connected South Vietnamese outposts along the Laotian border. The aircraft flew a total of 26 sorties from DA Nang.

During July 1964 Ranch Hand resprayed areas of the delta that had been discontinued on 30 Apr. Ranch Hand completed the re-spray of these areas on 22 July 1964.

New spray equipment was received by Ranch Hand in August of 1964. This equipment, known as A/A45Y-1, incorporated spray booms under each wing, boom under the tail and a new 28 horse power pump which increased the

pump pressure from 38 to 60 psi and boosted the herbicide flow rate from 170 to 280 gallons per minute. Prior to the arrival of this new equipment MC-1 spray tanks were used for spray mission. After the arrival of this equipment the unit flew 31 defoliation sorties along Rt 14 and also did more spraying in the northern part of South Vietnam before the end of 1964.

On 3 October 1964, Ranch Hand flew its first crop destruction sorties, one of 19 flown between 3 and 13 October against a complex of fields near War Zone D. During November and December 1964, Ranch Hand planes flew 1 crop destruction sorties in Phuoc Long Province. During 1964 the unit destroyed 7620 acres of Viet Cong crops. Prior to 3 Oct 1964 the Vietnamese destroyed crops by VNAF H-34's and hand delivered spray on the ground.

A test program was conducted in Thailand in 1964 & 1965 to determine effectiveness of acre applications of Purple, Organe and other candidate chemical agents in defoliation of upland jungle vegetation representative of Southeast Asia on duplicate 10 acre plots.

Agent Organe was first tested Thailand in Feb 1965.

Attached is a breakdown of gallons of herbicide disseminated in South Vietnam by the US during the period January 1962- December 1964.

There is no evidence of Agent Orange being sprayed during the period 196
- 1964.

Number of gallons of military herbicide procured by the U.S. Department of Defense and disseminated in South Vietnam during the period January 1962 - December 1964.

| Military Herbicide | Gallons of Formulation | Pounds Active Ingredient |
|--------------------|------------------------|--------------------------|
| Blue | 5,200 | 10,000 |
| Green | 8,208 | 66,980 |
| Pink | 122,792 | 1,001,980 |
| Purple | 145,000 | 1,180,300 |
| Total | 281,200 | 2,259,260 |

Source of table: USAF OEHL Report, p. I-9