
Item ID Number 00211

Author Kinne, Harold C.

Corporate Author

Report/Article Title Memorandum: Defoliant Damage in Da Nang, from Colonel Harold C. Kinne, Jr. to Brigadier General John G Wheelock III, March 29, 1969

Journal/Book Title

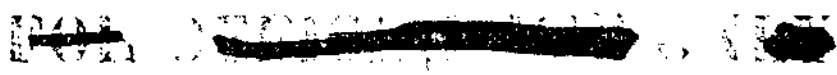
Year 0000

Month/Day

Color

Number of Images 9

Description Notes Includes two attachments: memorandum to Tran Dinh Tho from Kinne on Defoliant Damage in Da Nang, March 28, 1969; report by Jim Corey on defoliant damage, March 23, 1969



HEADQUARTERS
UNITED STATES MILITARY ASSISTANCE COMMAND VIETNAM
APO SAN FRANCISCO 96222
Chemical Warfare Division



MACJ3-09

29 March 1969

MEMORANDUM FOR: BRIGADIER GENERAL JOHN G. WHEELLOCK III
ACTING ACofS, JR

SUBJECT: Defoliant Damage in Da Nang

1. PURPOSE. To provide information on defoliant damage in Da Nang.
2. BACKGROUND. All herbicides used in SVN are purchased by the Air Force in CONUS and shipped to SVN in 55-gallon drums. Upon reaching the port, the herbicide becomes the property of ARVN. ARVN units are responsible for in-country herbicide supply to include the disposal of empty drums.
3. DISCUSSION.
 - a. The problem of defoliant damage in Da Nang first came to the attention of this office in October 1968. Mr. E. M. Stickney, the CORDS Agricultural Advisor for I CTZ, claimed that leakage from herbicide aircraft was causing extensive damage to vegetable plots in the Da Nang area. An investigation conducted by a representative of this office, Mr. Flemm of the USAID Forestry Section, and Mr. Stickney disclosed that the primary cause of damage was not leakage from aircraft, but rather, the spread of small amounts of herbicide throughout the area by means of empty herbicide drums. Mr. Stickney said that he would work through local GVN officials in an attempt to control the spread of these drums.
 - b. On 27 March a report was received from the Chief, CORDS/New Life Development/I CTZ again citing empty herbicide drums as the cause of extensive damage to shade trees in the city of Da Nang. The report also pointed out that the method used by ARVN personnel to transfer the herbicide from drums to large tanks results in a two to three gallon residue being left in each drum. These drums are then allegedly sold to local citizens for 300 piasters each. With the large number of drums



MACJ3-09

29 March 1969

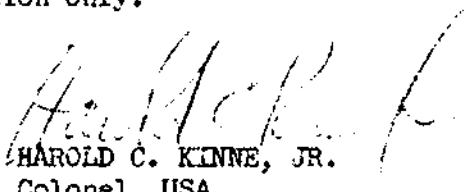
SUBJECT: Defoliant Damage in Da Nang

being generated by Ranch Hand operations in Da Nang, a significant amount of herbicide is being wasted which in turn is causing damage to trees and crops.

c. I have forwarded a copy of this report along with a memorandum recommending corrective action to Colonel Tho, Chairman of the JGS 202 Committee (TAB A). Copies have also been furnished to the US Embassy and the 12th Special Operations Squadron (Ranch Hand). I will closely monitor corrective action taken by ARVN to deal with this problem.

4. RECOMMENDATION. None - Information only.

1 Incl
as


HAROLD C. KINNE, JR.
Colonel, USA
C, Cml Opns Div

Chemical Operations Division

MACJ3-09

28 March 1969

MEMORANDUM FOR: COLONEL TRAN DINH THO
CHAIRMAN, JGS 202 COMMITTEE

SUBJECT: Defoliant Damage in Da Nang

1. Attached is a copy of a report prepared by the Deputy Chief, CORDS/New Life Development/I CTZ, on the subject of defoliant damage in Da Nang. The report states that there has been considerable damage to shade trees in the city due to the disposition of herbicide drums by ARVN. The report also points out that a significant amount of herbicide is being wasted because the drums are not being emptied properly.
2. This report confirms a previous investigation made in October 1968 by representatives of my office and the USAID Forestry Section. During this investigation it was noted that empty herbicide drums were also the primary cause of damage to vegetable crops in the Da Nang area. A copy of the investigation report was recently furnished JGS/J3/Chemical Branch.
3. Obviously, corrective measures are required. I suggest that two separate approaches be investigated:
 - a. First, that a more effective means be developed to ensure that the drums are completely emptied when the herbicide is transferred. The present system appears to result in loss of approximately 5% through wastage and is certainly not an economical use of this expensive material.
 - b. Second, that some system be developed for cleaning the drums prior to disposal. A simple flushing system may be sufficient, or the material may require chemical or steam cleaning; this would have to be investigated.

MACJ3-09

28 March 1969

SUBJECT: Defoliant Damage in Da Nang

4. ARVN herbicide storage points are located at Bien Hoa, Phu Cat, Nha Trang, and Saigon in addition to Da Nang. Bien Hoa generates by far the largest number of empty herbicide drums. Results of any investigation should be applied to all herbicide storage and transfer areas since this problem may not be peculiar to Da Nang.

HAROLD C. KINNE, JR.
Colonel, USA
Chairman, 203 Committee

2455



UNITED STATES MARINE CORPS
HEADQUARTERS
III MARINE AMPHIBIOUS FORCE
MILITARY ASSISTANCE COMMAND, VIETNAM
FPO. SAN FRANCISCO 96602

IN REPLY REFER TO:

29 Mar 1969

MEMORANDUM

From: Deputy for CORDS/III MAF
To: Assistant Chief of Staff, CORDS
Subject: Defoliant Damage in Da Nang

1. Last time you were up here you indicated strong interest in our study of the inadvertent damage to the trees and greenery of Da Nang caused by the improper handling of the defoliant chemicals. Attached herewith is our technical report.
2. The report was inadvertently distributed before I had a chance to see it in final form but so far the reactions from our Vietnamese colleagues have been quite good. Both the Mayor and General Lam have told me that they intend to take the necessary action to stop the ARVN resale of the contaminated containers.


Alexander Firfer

Attachment

Noted by LC
CHIEF OF STAFF

9 Mar 69

23 March 1969

To: See Distribution
From: ITC Jim Cooney, Deputy Chief, CORDS/NLD/ICTZ
Thru: E. M. Urquhart, Chief, CORDS/NLD/ICTZ
Subject: Defoliant Damage in Da Nang City

1. References: (DFC/ADFC/ICTZ copy only)

- Tab A - Rep, Flight Patterns Reach Hand
- Tab B - Rep, Tree Damage in Da Nang
- ② Tab C - Memo, for 7th USAF, YACC
- Tab D - Memo for NLD from Agriculture
- Tab E - Memo for NLD from III MAF
- Tab F - Trip Report - Forestry Branch
- Tab G - Memo, NLD to DFC
- Tab H - Summary Comment - City Advisor

2. Statement of the Problem

- a. A large number of beautiful shade trees along the streets in the city of Da Nang are dead or dying.
- b. This damage appears to be entirely a result of defoliation chemicals.
- c. To determine how the defoliant, which is damaging to the trees, is introduced into the city of Da Nang, and to recommend corrective measures.

3. Circumstances

- a. Investigation and competent technical and scientific analysis discloses that tree destruction in Da Nang is largely a result of defoliant chemicals. There is no evidence of insect infestation or fungal disease.
- b. Defoliant chemicals come into contact with the trees in the following manner:
 - (1) possible leakage from spray aircraft (Reach Hand)
 - (2) defoliant barrels introduced into the city of Da Nang

c. A recently conducted investigation indicates negligible leakage from Ranch Hand aircraft.

- (1) Aircraft leakage is so minor it cannot be a contributing factor to the extensive damage throughout the city.
- (2) Damage in the city does not parallel the rigid flight patterns of Ranch Hand (Tab A) compared to (Tab B).
- (3) Automatic pressure dispensing and automatic valve shut-off controls preclude any more than a very slight residual leakage from a faulty valve. Such leakage occurs only immediately after the spray pattern run. Even so, valves are checked and replaced when necessary after every flight. Although not necessary, a reverse pressure device could be installed, which would absolutely eliminate even one drop of minor leakage (Tab C).

d. In every instance of tree and garden plot damage, empty defoliant barrels are either present in the area or have been transported along the route of the damage (Tab B).

- (1) Defoliant mixtures are pumped from full barrels at the Ranch Hand site into large storage tank trailers, and then, from the trailers into aircraft. Each aircraft mission has a capacity of 1000 gallons releasable only under a pressure of about 85 lbs. per square inch (Tab D).
- (2) The method of pumping defoliant from an upright full barrel through the bung hole via a metal sleeve type siphon leaves a residue of two to three gallons of defoliant in each barrel. The bung is sometimes loosely, or generally not replaced, and the barrels are then loaded on a ARVN truck and delivered into the city of Da Nang (Tab E). Residue defoliant leaks from the barrels along the route, or is later emptied from the barrels in various locations throughout the city.
- (3) Considering the cost of the defoliants quoted at more than \$5.00 U.S. per gallon, the loss of several gallons in each 55 gallon barrel is prohibitive, and, in addition, constitutes a serious hazard.
- (4) Even when fully emptied, the fumes from the barrels are volatile enough to cause serious plant damage. Cleaning the barrels is impossible, since a burnout, or steam-flush through the small bung hole cannot be accomplished. The distinctive markings on the barrels are equivalent to POISON identification, with the intention that these containers be controlled and scrapped as not re-usable.

- e. It is interesting to note that the same type defoliant operation is conducted out of the city of Nha Trang. The empty barrels are carefully controlled and discarded in a remote beach storage area, around which all foliage has ceased to grow. There is, as a result of this control, no defoliant damage in and around Nha Trang from either aircraft or barrels.
- f. Vietnamese, informally interviewed at barrel locations in and around the city of Da Nang, indicate that the defoliant barrels are sold by ARVN for 300 piasters each, to be used by Da Nang citizens in whatever way they choose (Tab F).

4. Summary

- a. The report by NLD/Agriculture, 27 February, (Tab G) citing defoliant barrels as causative is essentially correct, except that damage from aircraft leakage is not conclusive and probably not so.
- b. This additional study as recommended by (Tab H) advisor to the Mayor of Da Nang is conclusive.

5. Conclusion

- a. Damage from aircraft leakage is minimal and is a negligible factor in contributing to the loss of trees in Da Nang.
- b. Defoliant barrels are not being properly emptied with a loss of more than \$10.00 U.S. per barrel. (HQ/MACV reports 6,000 gallons consumed in ICTZ on an average day).
- c. Defoliant barrels with residual defoliants are being sold to the citizens of Da Nang and surrounding areas.
- d. Residual defoliants leaking, and being drained out of supposedly empty barrels, are causing tree losses in Da Nang.

6. Recommendations

- a. Refer the matter of defoliant waste through improper pumping and emptying procedures to the Joint Economic Office/USAID (via distribution of this report).
- b. Direct this report (via distribution) to interested agencies to institute control of the empty barrels and to insure that they are all carefully accounted for and destroyed, sunk, or stored in a remote area.

- c. Determine if the profits accumulated thus far from the sale of barrels can be directed to the costs of dead tree removal and the replanting of replacement trees in the city of Da Nang.
- d. Initiate a program to immediately remove hazardous dead trees in Da Nang and replace them with defoliant resistance species. Eucalyptus appears to be the most resistant and may be suitable for replanting.
- e. Funding for costs contingent to the removal of dead trees and their replacement should be borne by the organization, person or persons responsible for the damage incurred.
- f. It is finally recommended that positive steps be taken by the GVN to prohibit the further introduction of defoliant barrels into the city of Da Nang.

7. Distribution

- a. DFC/ADFC/ICTZ
- b. Joint Staff, COMUS
- c. III MAF, G-3
- d. Quang Da Sector Commander
- e. Mayor, City of Da Nang
- f. COMUS, City Advisor, Da Nang
- g. 7th Air Force, TACC
- h. Chemical Operations Division, MACJ3-09
- i. Forestry Branch/USAID
- j. SII Ordnance Depot, ARVN
- k. Joint Economic Office/USAID