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**Item ID Number** 01479

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**Report/Article Title** Typescript: Working Paper: Exposure estimate to dioxin containing herbicides for veterans who served in South Vietnam during SEA conflict

**Journal/Book Title**

**Year** 0000

**Month/Day**

**Color**

**Number of Images** 13

**Description Notes** Working paper provides a method of rating exposure based on Veteran's year in Vietnam, unit assignment, base assignment, etc. Includes a draft of working paper and examples of veteran exposure (no names provided) based on the rating system.



EXPOSURE ESTIMATE TO DIOXIN CONTAINING HERBICIDES FOR VETERANS WHO SERVED IN SOUTH VIETNAM DURING SEA CONFLICT

1. YEAR IN VIETNAM

DATE	RATING
<del>1965</del>	<del>1</del>
1966 or prior	2
1967	4
1968-1970	6
1971-1973	1

FOR DATE (use year leaving most months in country from)

2. UNIT ASSIGNMENT Relative to Exposure

- RANCH HAND
- HELICOPTER CREWMAN
- HANDLER/LOADER (NON RANCH HAND)
- GROUND TROOP (MISCL.)

RATING	Value
4	8
3	4
2	2
1	1

3. BASE OF ASSIGNMENT

BASE	RATING	RATING AFTER ADJ
<del>TONKIN GULF</del>	<del>1</del>	<del>0</del>
RANCH HAND BASE		
TON SOU NHUT (1962-1970)	5	2
BIEN HOA (1966-1970)	4	2
DA NANG (1966-1970)	4	2
PHU CAT. (1967-1970)	4	2
LOADING DOCK SAIGON	3	1
NON RANCH HAND BASE	2	0
	1	0

4. LOCATION OF ASSIGNMENT in RVN

Province(s)	RATING
Province(s) of Heavy use	3
Province(s) of Moderate use	2
Province of Light use	1

Relative to Herbicide use

5. PROBABLE AGENT OF EXPOSURE

~~Primary Orange~~  
~~ORANGE~~ / ~~MOISTLY~~  
 ORANGE / BLUE / WHITE  
~~Malathion~~

Rating  
~~2~~ ~~3~~  
~~1~~ ~~2~~  
~~4~~ ~~3~~  
 6  
 3  
 0

6. Route of EXPOSURE TO TCDD

Route	RATING
Inhalation / Percutaneous	3 ✓
Inhalation	2 ✓
INGESTION	1 ✓

7. DURATION OF EXPOSURE

TIME	RATING
<del>MONTHS</del>	<del>1</del> <del>YEAR</del> 6
<del>WEEKS</del>	6-10 months 5
	3-5 months 4
DAYS	4-12 weeks 3
	15-30 days 2
	< 15 days 1

8. Assessment of Personal History

Probability  
 Likely  
 possible  
 Unlikely

Rating  
 6 ✓  
 4 ✓  
 1 ✓

Exposure to Dioxin containing Herbicide

was he included

Assessment of Personal History -

Likely - 3  
 Possible - 2  
 Unlikely - 1

Route of Exposure

3 Inhalation / Percutaneous  
 2 Inhalation (Smell)  
 1 Ingestion

IF RANCH HAND BASE

Air Force Unit - 2  
 Army/Marine - 1  
~~Navy~~ 0

~~Probable~~ AGENT

ORANGE 3  
 ORANGE/BLUE 2  
~~ORANGE/White/Blue~~ 1

~~BLUE~~  
 Malathion 0

RANCH HANDER

HELICOPTER CREWMAN

LOADER/HANDLER (NON RANCH HAND)

NONE of above (Ground Troop)

4  
 3  
 2  
 1

LOCATION ASSIGNED

RANCH HAND BASE 2  
 NON RANCH HAND BASE 1

Duration of Exposure

DAYS 1  
 WEEKS 2  
 MONTHS 3

Province estimate  
 General Area of Vietnam

Area of Heavy Use 3  
 Area of Moderate Use 2  
 Area of Light use 1

① - YEARS IN VIETNAM

1965 0  
1966 2  
1967 3

② UNIT ASSIGNMENT (Relative to Exposure) 1968-<sup>1970</sup> 4  
~~1969-1970~~

③ Base of Assignment - ④ IF RANCH HAND BASE-

⑤ LOCATION OF Assignment Relative to Herbicide Use

⑥ PROBABLE AGENT

⑦ ROUTE OF EXPOSURE

⑧ DURATION OF EXPOSURE

⑨ ASSESSMENT OF PERSONAL HISTORY

Dioxin

TIME in VIETNAM -  
LOCATION in VIETNAM

RANCH HAND BASE

TON SAHUT (DAGON)

PROVINCE RATE

~~DA NANG~~

SITUATION:

PHU CAT

BIEN HOA

HANDLER

AIR CREW

GROUND TROOP

PERIMETER

Probable Agent	likelihood
Malathion	0
B/L/E	0
White	0
ORANGE	= 2
Blue + Orange	= 1

Helicopter  
C-123

Sprayed during COMBAT

OBSERVATIONS

AIR FORCE  
 ARMY  
 MARINES  
 NAVY

- Was the individual assigned to RANCH HAND
- Was the individual assigned at RANCH HAND Base
- Did the individual likely handle herbicide



WORKING PAPER

EXPOSURE ESTIMATE TO DIOXIN CONTAINING HERBICIDES FOR VETERANS WHO SERVED IN SOUTH VIETNAM DURING SEA CONFLICT

1. YEAR IN VIETNAM

<u>Date</u>	<u>Rating</u>
1966 or prior	2
1967	4
1968-1970	6
1971-1973	1

2. UNIT ASSIGNMENT RELATIVE TO EXPOSURE

<u>Assignment</u>	<u>Rating</u>
RANCH HAND Squadron	8
Helicopter Crewman	4
Handler/Loader (non RANCH HAND)	2
Ground Troop (Misc)	1

3. BASE OF ASSIGNMENT

<u>Base</u>	<u>Rating</u>	<u>Rating if after 1970</u>
RANCH HAND Base		
Bien Hoa (1966-1970)	6	2
Da Nang (1966-1970)	6	2
Phu Cat (1967-1970)	6	2
Ton Son Nhut (1962-1966)	3	1
Loading Dock (Saigon)	2	1
Non RANCH HAND Base	1	0

4. LOCATION OF ASSIGNMENT IN RVN RELATIVE TO HERBICIDE USE

<u>Use</u>	<u>Rating</u>
Province(s) of Heavy Use	3
Province(s) of Moderate Use	2
Province(s) of Light Use	1

5. PROBABLE AGENT OF EXPOSURE

<u>Agent</u>	<u>Rating</u>
Primarily Orange	6
Orange/Blue/White	3
Malathion	0

- A. Service Branch and Dates:
- B. Military Occupation:
- C. Vietnam Organizational Unit:
- D. Vietnam Service Location and Dates:
- E. Defoliant Exposure:
- F. Immediate Symptoms:

1. A. SERVICE BRANCH AND DATES: Air Force, 1/6/67 to 1/5/71  
B. MILITARY OCCUPATION: Aircraft Mechanic 43151F  
C. VIETNAM ORGANIZATIONAL UNIT: 35th Tactical Airlift Squadron (PACAF),  
Naha Air Base  
D. VIETNAM SERVICE LOCATION AND DATES: Okinawa, 6/30/67 to 12/6/68; Cam  
Rahn Bay 10/3/67 to 10/16/67  
E. DEFOLIANT EXPOSURE: Unknown exposure; located away from exposure site  
F. IMMEDIATE SYMPTOMS: None given

EXPOSURE RATING \_\_\_\_\_

6. A. SERVICE BRANCH AND DATES: Marine Corps, 2/7/66 to 6/2/69  
B. MILITARY OCCUPATION: Infantryman, machine gunner 0300, 0331  
C. VIETNAM ORGANIZATIONAL UNIT: 1st Marine Div., 1st Marine Reg., 3rd Bn.,  
Co. I  
D. VIETNAM SERVICE LOCATION AND DATES: Danang & 5 mi. south of Danang Aug. 66  
to Jan. 68, Phipui Jan. 68 to Mar 68  
E. DEFOLIANT EXPOSURE: Direct, mild exposure of unknown duration; working in  
open or in foxholes in areas after spraying; drank from  
lakes and rice paddies continuously  
F. IMMEDIATE SYMPTOMS: None given

EXPOSURE RATING \_\_\_\_\_

8. A. SERVICE BRANCH AND DATES: Army, 6/19/69 to 6/10/70  
B. MILITARY OCCUPATION: Rifleman, assistant gunner 11B10  
C. VIETNAM ORGANIZATIONAL UNIT: Co.A, 3rd Bn, 21st Infantry Bde. Americal Div.  
D. VIETNAM SERVICE LOCATION AND DATES: Chu Lai, 12/10/69 to 12/9/70  
E. DEFOLIANT EXPOSURE: One direct, mild contact of 2-3 days in jungle on foot,  
cutting trails and setting up camp; drank from streams,  
artesian wells, rice paddie - late 1969; early 1970  
F. IMMEDIATE SYMPTOMS: None given

EXPOSURE RATING \_\_\_\_\_

9. A. SERVICE BRANCH AND DATES: Army, 11/1/66 to 11/20/69  
B. MILITARY OCCUPATION: Heavy vehicle driver, clerk, laundry worker 64B20,  
70A10, 57A10  
C. VIETNAM ORGANIZATIONAL UNIT: 81st Quartermaster Platoon, 158th SS Co, 3rd  
Maint Bn.  
D. VIETNAM SERVICE LOCATION AND DATES: Saigon, Song Be Loading Zone 5/23/69 to  
11/24/69  
E. DEFOLIANT EXPOSURE: Repeated indirect exposure for about 6 mon. during which  
drove water truck from lake to loading zone. Agent  
Orange & Agent White stored in loading zone area. Ate  
and drank lake water in area.  
F. IMMEDIATE SYMPTOMS: Rhinitis and back pain

EXPOSURE RATING \_\_\_\_\_

10

- A. SERVICE BRANCH AND DATES: Army, 6/19/67 to 6/18/70
- B. MILITARY OCCUPATION: Chemical equipment repairman 54D20, 54D40
- C. VIETNAM ORGANIZATIONAL UNIT: 27th Chem Detach, 196th Inf. Bde., Americal Div.
- D. VIETNAM SERVICE LOCATION AND DATES: Entire, especially northern, I Corps Area, 5/31/69 to 5/30/70
- E. DEFOLIANT EXPOSURE: Severe, direct, repeated and prolonged exposure to Agents Orange, Blue, and White; handled bulk chemicals, sprayed agents from helicopter, entering areas of spills and sprays, eating from utensils and drinking water that had been contaminated.
- F. IMMEDIATE SYMPTOMS: None given

EXPOSURE RATING \_\_\_\_\_

- 11. A. SERVICE BRANCH AND DATES: Army, 3/29/68 to 3/28/70
- B. MILITARY OCCUPATION: Military policeman, Door gunner 95B10, 67A1F
- C. VIETNAM ORGANIZATIONAL UNIT: Co C 716th MP Bn, 121st Avn Co
- D. VIETNAM SERVICE LOCATION AND DATES: Soc Trang, Rach-Gia VMH Force, Seven Virgin Mt. 8/22/68 to 10/30/69
- E. DEFOLIANT EXPOSURE: Severe, direct, repeated prolonged exposure 10-12 hours daily every 4 or 5 days for 9 mons. as helicopter door gunner and crew chief. Loaded drums, put chemicals into compressors, cleaned helicopter, and sprayed; in contaminated areas; ate and drank water in them.
- F. IMMEDIATE SYMPTOMS: None Given

EXPOSURE RATING \_\_\_\_\_

- 12. A. SERVICE BRANCH AND DATES: Army, 8/4/69 to 8/3/71
- B. MILITARY OCCUPATION: Medical corpsman, Medical specialist 91B20
- C. VIETNAM ORGANIZATIONAL UNIT: HHC, 1st Bn, 35th Inf. 4th. Div; HHC 3rd Bn, 8th Inf, 4th Inf. Div.
- D. VIETNAM SERVICE LOCATION AND DATES: Pleiku, Anky 1/13/70 to 8/30/70
- E. DEFOLIANT EXPOSURE: Direct, mild (also "unknown") exposure as combat medic during 7 mon. in field.
- F. IMMEDIATE SYMPTOMS: None

EXPOSURE RATING \_\_\_\_\_

- 13. A. SERVICE BRANCH AND DATES: Army, 2/12/70 to 3/29/72
- B. MILITARY OCCUPATION: Clerk typist 71B40
- C. VIETNAM ORGANIZATIONAL UNIT: 179th Aviation Co.
- D. VIETNAM SERVICE LOCATION AND DATES: Pleiku 7/4/70 to 5/15/71
- E. DEFOLIANT EXPOSURE: spraying as perimeter supervisor in DMZ (but in built-in quarters), entered sprayed areas and drank from Dung Ha River in Camlo. Also notes exposure at "Camp Holloway-October before"
- F. None Given

EXPOSURE RATING \_\_\_\_\_

14. A. Army, 1/23/67 to 2/26/71  
B. Helicopter pilot, RW Plt. Obsn, Util & Lt Cgo, Anstr. Plt. 062 DO, 100B, 100BC  
C. 1st Squadron, 9th Cavalry, 1st Air Cavalry Div., 1st Bn, 40th Artillery, 108th Artillery Group  
D. I & III Corps Areas, 5/6/68 to 4/29/69  
E. Severe, direct, repeated exposure flying open airplane & helicopter through spray while on scouting missions; men had moisture on them from spray.  
F. None given

EXPOSURE RATING \_\_\_\_\_

15. A. Army, 10/26/65 to 10/25/67  
B. Lt weapon infantryman 11B20  
C. Co B 2nd Bn, 27th Inf  
D. Cu Chi 4/20/66 to 4/19/67  
E. 10 direct, mild exposures during one month while spraying around perimeter with hand sprayer; ate and drank water from rice paddies  
F. Rash on legs, occasional diarrhea

EXPOSURE RATING \_\_\_\_\_

16. A. Army, 6/14/67 to 6/13/69  
B. Field Artilleryman Basic 13A10  
C. HHB, 10th Arty Gp.  
D. Dong Ha (sp.) 11/15/67 to 11/14/68  
E. Severe, direct, repeated, prolonged exposures when base where he was bunker guard was sprayed with chemicals; possibly used contaminated utensils and water  
F. None given

EXPOSURE RATING \_\_\_\_\_

19. A. Air Force 3/22/64 to 3/21/70  
B. Pavement mgt. spec'l., Pavement mgt. supv. 55150, 55170  
C. 819th CES, 3CES  
D. Phu Cat Air Base, Bien Hoa Air Base 9/3/66 to 7/5/67, 10/3/68 to 10/3/69  
E. More than 60 severe, direct, repeated, prolonged exposures while working (at Bien Hoa) in mixing and loading areas; during transport of "barrels" of chemicals, burst drums would get him damp or soaked usually without showers or clothes changed until night; also mixed and hand sprayed. Repeated use of Orange ("do to orange band on drums in Viet"), 2, 4D, "2,4T", and DDT in U.S. and overseas.  
F. None Given

EXPOSURE RATING \_\_\_\_\_

24. A. Army 11/30/67 to 1/14/70  
B. Lt. weapon infantryman 11 B 40  
C. Co E, 4 Bn, 39th Inf. 9th Inf. Div.  
D. - 7/29/68 to 4/1/69  
E. Repeated, direct and indirect exposure in the field when sprayed and drinking from contaminated streams  
F. None

EXPOSURE RATING \_\_\_\_\_

25. A. Army, 12/14/65 to 2/6/70  
B. "Communications" not given  
C. Not given  
D. Camp Evans (15 mi. south DMZ) Feb. 1969 to Oct. 1969  
E. Several repeated, short (30-60 min.) direct exposure; while installing field telephone equipment, planes flew over and sprayed "insecticide (?)"; felt material (defoliant) falling on shoulders.  
F. Possibly recurring dry, patchy areas on back and shoulders

EXPOSURE RATING \_\_\_\_\_

26. A. Air Force 12/9/65 to 3/1/69  
B. Aircraft Mechanic 43151A  
C. 12AC Sq (PACAF)  
D. Bien Hoa AB 7/12/67 to 7/7/68  
E. Severe, direct, repeated exposure for 1 yr. while in charge of "herbicide" unit, handling and pumping into aircraft tanks Agents Orange, White, and Blue; breathed fumes and "swam in it"  
F. None given

EXPOSURE RATING \_\_\_\_\_

27. A. Army 2/21/67 to 2/20/67  
B. Lt. Weapons infantryman 11B20  
C. Co,C, 3rd Bn. 87 Anf., 40 Inf. Div.  
D. Pleiku 8/12/67 to 8/7/68  
E. Unknown number of direct and indirect exposures while in jeep in areas where chemicals were used and trees were "Naked"; sprayed directly; bathed in bomb craters and rivers after spraying.  
F. No immediate symptoms. 4-6 weeks later had tingling of hands and feet with swelling; insomnia from pain; stiffness of fingers and toes; back pain and hematemesis

EXPOSURE RATING \_\_\_\_\_

- 28 A. Army, 3/19/68 to 3/18/71  
B. Personnel specialist 71H40  
C. 518th AG PSC AAFNK, 54th General Support GR, Com Rahn Bay Support Command  
D. Dalat LSA, Cam Rahn Bay, Central Highlands 6/13/70 to 3/11/71  
In LSAs: Phran Rang, Nah Trang, Bam Me Thout, Phan Fiet, Pra'line Mt. Area  
E. Repeated exposure of unknown intensity and frequency while in logistical support convoys going through defoliated areas; ate locally grown vegetables and fruits  
F. None

EXPOSURE RATING \_\_\_\_\_

- 29 A. Army 2/1/66 to 1/3/69  
B. Personnel specialist, "finance" 71H20  
C. 32nd Med. Depot Hqs  
D. Near Cam Rahn Bay 5/4/67 to 12/7/68  
E. Many repeated, indirect, prolonger exposure of uncertain intensity when driving through contaminated areas; lived on local economy with VN national while assigned to headquarters  
F. None given

EXPOSURE RATING \_\_\_\_\_

- 30 A. A. Army 6/24/70 to 7/2/74  
B. Light and heavy vehicle driver, truckmaster 64A10-30  
C. HHD 160th Signal Group, Stratcom Signal Brigade  
D. II Corps Area, Hq Longbink Port 3/29/69 to 3/28/70, 8/29/70 to 6/4/71  
E. Repeated, direct, severe exposure when sprayed around base by planes 2-3 times each week for prolonged periods; felt spray coming down, was on clothes and skin, probably drank contaminated water and ate in sprayed mess hall.  
F. Caused repeated coughing, made asthma worse, requiring one hospital visit (24th Evac)

EXPOSURE RATING \_\_\_\_\_

- 34 A. Army, 4/21/66 to 4/20/68  
B. Infantryman, Indirect Fire Crwmn 11C20  
C. Co E 4th Bn 39th Inf 9th Inf. Div  
D. Dong Taung, Long Ben 12/3/66 to 12/8/67  
E. Repeated direct exposure while in air mobile infantry going into sprayed areas, was in open, in fox holes, and in helicopters; "everything was covered with grey material; I thought it was phosphorus"  
F. None given

EXPOSURE RATING \_\_\_\_\_