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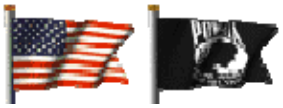
AGENT ORANGE



INFORMATION PAGE

Former Marine Danny Gene Jordan remembers sitting on Hill 549 near Khe Sanh in the spring of 1968, waiting for night and cooking his C-rations. Jordan had been in country just a few weeks and was still learning his way around, so he wasn't sure why the five C-123s approaching his unit would be flying so low and in formation.

"They're defoliating," one of his buddies told him. Then came the mist, like clouds floating out of the back of the C-123s, soaking the men, their clothes and their food. For the next two weeks, the men of Jordan's unit suffered nausea and diarrhea. Jordan returned from Vietnam with an unusual amount of dioxin in his system. More than 15 years later, he still had 50 parts per trillion, considered abnormally high. He also had two sons born with deformed arms and hands.

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There are three companies that produced Agent Orange (main ingredient is Trioodobenzoic acid). They are Dow Chemicals, Monsanto and Diamond Shamrock. The earliest form of Triiodobenzoic acid, was studied by Arthur Galston, but for use as a plant growth hormone.

Dioxin is a compound found in certain herbicides, including agent Orange, used in Vietnam. The law presumes that all military personnel who served in Vietnam and later suffer
certain diseases were exposed to herbicides.

Vietnam veterans who believe they have health problems that may be related to their Vietnam service or exposure to herbicides while serving in Vietnam should contact the
nearest VA medical center or regional office. VA's nationwide toll-free number
is 1-800-827-1000.

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This map is a representation of herbicide spray missions in Vietnam. The dark areas represent concentrated spraying areas. This map only represents fixed-wing aircraft spraying, and does not include helicopter spraying of perimeters, or other spray methods.
The III Corps area received the heaviest concentrations of spraying, followed by I Corps, II Corps and IV Corps.

During the Viet Nam war, over 72 million liters of herbicide was applied over southern Viet Nam to deprive northern Vietnamese forces of protective forest cover and food. Agent Orange accounted for approximately 60% of all herbicide used during the conflict. Dioxin (specifically 2,3,7,8 Tetrachlorodibenzo-p-dioxin) was a contaminant in the Agent Orange mixture.

OPERATION RANCH HAND HERBICIDES
SOUTHEAST ASIA--AMOUNTS USED
1961-1971

I Corps - 2,355,322

Location	Orange	White	Blue	Total Gallons
A Shau	53,550	2,550	6,128	62,228
An Hoa	6,500	1,800	11,250	19,550
Binh Hoa	8,220	0	1,600	9,820
Cam Lo	80,375	8,660	12,785	101,820
Camp Carrol	78,200	5,400	5,050	88,650
Camp Eagle	14,250	0	0	14,250
Camp Esso	53,410	5,600	0	64,510
Camp Evans	18,690	0	880	19,570
Camp Henderson	68,155	7,040	4,800	79,995
Chu Lai	12,170	4,150	1,598	17,918
Con Thien	84,700	12,460	10,925	108,085
Da Nang, China Beach	13,800	0	2,000	15,800
Dong Ha	54,385	5,060	9,935	69,380
Duc Pho, LZ Bronco	46,225	14,400	1,175	61,800
Firebase Jack	140,875	11,900	3,280	156,055
Firebase Rakkassan	150,145	23,900	2,510	176,555
Firebase West	15,405	3,690	18,480	37,575

Hill 63	20,500	3,200	0	23,700
Hill 69	11,620	4,150	1,598	17,368
Hoi An	17,520	3,000	13,950	34,470
Hue	41,395	0	5,070	46,465
Khe Sanh, Firebase Smith	43,705	3,040	4,300	51,045
LangCo Bridge	50,610	5,600	3,500	59,710
LZ Baldy	15,430	3,000	13,950	32,380
LZ Dogpatch, Hill 327	4,490	0	8,250	12,740
LZ Geronimo	22,535	14,000	468	37,003
LZ Jane, Firebase Barbara	91,150	6,750	3,700	101,600
LZ Langley, Firebase Shepard	72,105	7,040	4,800	83,945
LZ Profess, Hill 55	39,300	13,000	17,209	69,509
LZ Rockcrusher, Hill 85	47,800	0	0	47,800
LZ Rockpile	110,050	15,440	7,650	133,140
LZ Ross	15,405	6,720	18,508	40,633
LZ Sandra	118,780	20,210	24,755	163,745
LZ Snapper, Firebase Leather	11,350	0	3,000	14,350
Marble, Hill 59	15,405	6,720	18,508	40,633
Phu Bai	54,300	3,000	120	57,420
Phu Luc, LZ Tommahawk	78,250	4,000	0	82,250
Quang Nai	25,605	0	1,800	27,405
Quang Tri, LZ Nancy	68,000	2,750	3,700	74,450
				2,355,322

II Corps - 1,054,406

Bon Song, LZ Two Bits	80,643	630	6,000	87,273
Bre Nhi	6,600	0	0	6,600
Cam Ranh Bay	21,227	1,373	0	22,600
Camp Granite	59,310	2,075	5,390	66,775
Che Oreo	0	1,800	0	1,800
Da Lat	575	0	0	575
Dak To	49,460	600	34,800	84,860
Firebase Pony	43,490	0	3,800	47,290
Kontum	0	415	0	415

LZ Dog, LZ English	63,073	630	6,000	69,703
LZ Oasis		No Data		
LZ Putter, Firebase Bird	50,095	0	7,200	57,295
LZ Uplift	43,455	3,220	275	46,950
Nha Trang	6,950	325	0	7,275
Phan Rang	110	2,075	0	2,185
Phan Thiet	5,000	330	220	5,550
Plei Ho, SF Camp	15,300	1,260	110	16,670
Plei Jerang	98,220	51,235	1,800	151,255
Pleiku	1,210	11,640	1,950	14,800
Puh Cat, LZ Hammond	29,700	7,210	0	36,910
Qui Nhon	53,215	1,800	4,125	59,140
Song Cau	5,650	55	0	5,705
Tuy An	13,215	3,740	0	16,955
Tuy Hoa	29,565	4,485	0	34,050
				1,054,406

III Corps - 4,086,229

Location	Orange	White	Blue	Total Gallons
An Loc	77,000	79,830	0	156,830
Ben Cat	87,250	83,640	20,105	190,995
Ben Hoa	35,045	124,525	3,950	163,520
Cholon	320	0	0	320
Cu Chi	59,150	67,540	14,105	140,795
Dau Tieng (Michelin)	32,370	45,800	3,800	81,770
Dien Duc, Firebase Elaine	66,850	25,800	0	92,350
Duc Hoa	750	0	0	750

Firebase Di An	6,000	0	1,595	7,595
Firebase Frenzel	13,445	57,560	900	71,905
Firebase Jewel, LZ Snuffy	219,550	146,010	7,300	372,860
Firebase Mace	34,280	23,350	730	58,360
Katum	299,420	239,395	20,000	558,815
Lai Khe	57,120	22,300	1,800	81,220
Loc Ninh	46,660	103,710	1,800	152,170
Long Binh, Firebase Concord	13,445	57,560	0	71,005
LZ Bearcat	17,840	75,470	0	93,310
LZ Fish Nook	44,000	23,800	0	67,800
LZ Schofield	38,640	17,210	7,800	63,650
Nha Be (Navy Base)	119,725	121,925	6,000	247,650
Nui Ba Den, Firebase Carolin	50,020	66,500	2,100	118,620
Phouc Vinh	484,383	146,576	12,810	643,769
Phu Chong	39,848	62,230	12,055	114,130
Phu Loi	79,000	83,430	0	162,430
Qua Viet	50,610	5,600	3,500	59,710
Quan Loi	44,190	34,300	0	78,490
Saigon		No Data		
Song Be	1,900	9,220	0	11,120
Tan Son Nhut	6,320	0	1,595	7,915
Tay Ninh	720	3,225	600	4,545
Trang Bang	32,365	39,560	6,000	77,925
Vo Dat, Firebase Nancy	14,180	29,100	0	43,280
Vung Tau	7,350	0	0	7,350
Xuan Loc	23,865	58,750	660	83,275
				4,086,229

IV Corps - 669,534

Location	Orange	White	Blue	Total Gallons
Ben Luc	45,900	14,838	0	60,738
Ben Tre	24,800	24,750	0	49,550
Can Tho	15,160	13,915	11,685	40,760
Cao Lanh	1,875	2,935	830	5,640
Dong Tam	5,870	605	165	6,640
Firebase Grand Can(yon?)	0	1,540	0	1,540
Firebase Moore	9,820	0	0	9,820
Ham Long	3,275	1,620	0	4,895
Moc Hoa	12,400	6,590	0	18,990
My Tho	13,320	7,316	965	21,601
Nam Can	150,345	64,295	0	214,640
Phnom	0	184	0	184
Phu Quoc	19,000	0	0	19,000
Rach Gia	0	2,155	0	2,155
Seafloat	4,700	0	0	4,700
Soc Trang	3,410	2,391	1,280	7,081
Tan An	89,550	36,450	0	126,000
Tieu Con	8,700	0	0	8,700
Tra Vinh	9,885	8,000	0	17,885
Vinh Loi	30,010	0	0	30,010
Vinh Long	8,360	9,755	890	19,005
				669,534

Note: This does NOT include US Army helicopter or ground applications, or any form of the insecticide programs by GVN, or the US military. The amount represents gallons within eight (8) kilometers of the area. Thus, each area is 9.6 miles in diameter.

Description	TCDD (Dioxin) Amounts
Agent Orange	1.77 to 40 ppm
Agent Blue (Purple)	32.8 to 45 ppm
Agent Red (Pink)	65.6 ppm
Agent White (Green)	65.6 ppm
Silvex	1 to 70 ppm
2,4,5-T (Current)	0.1 ppm or less

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GENOCIDE

AGENT ORANGE

Agent Orange is a defoliant, a plant killer, that was used in Vietnam for "Territory Denial". The idea was that the VC wouldn't be so hard to kill if we could see them better by killing the jungle canopy that protected them. Specifically Agent Orange was a 50:50 mixture of two Phenoxy herbicides, 2, 4-D (2, 4 dichlorophenoxy acetic acid) and 2, 4, 5-T (2, 4, 5-trichlorophenoxy acetic acid). It is ironic that the Dioxin that makes Agent Orange so deadly isn't even an intended part of the plant killer. Dioxin is a man made by-product of the manufacturing process for making Phenoxy herbicides like Agent Orange. Actually, when 2, 4, 5-T is manufactured a "synthetic contaminant" TCDD (2, 3, 7, 8-tetrachlorodibenzo-para-dioxin) is an unwanted by-product that cannot be removed.

Dioxins are also created unintentionally during the manufacture of Chlorine containing products like the Polychlorinated Byphenal (PCB) oils used for years in the utility transformers that supply power to our homes. They are created by burning chlorine containing wastes, the plastic pipe Polyvinyl Chloride (PVC) for example when burned creates and releases Dioxin. Because of this widespread use dioxins are present, albeit in trace amounts, in the body fat of nearly everyone in the civilized world.

Other factors that make Dioxin poisoning hard to prove is the fact that each individual seems to have their own tolerance to it and everyone has a certain background exposure to the chemical. It may be that this background level serves to hide the seriousness of the situation by clouding the exposure levels required to make a symptom manifest itself. It may also be that Dioxins like TCDD lie dormant in body fats until triggered by some internal stress.

The unpredictable reactions of the lab animals exposed to dioxins and the actual method by which they kill is one of the mysteries that medical science is still trying to solve. One thing is certain, exposure to Dioxins multiplies the chances of cancers, immune system disorders, liver problems, and a host of other complaints.

Even more tragic is the fact that exposure to Agent Orange appears to multiply the chances of birth defects in the children of those exposed. Vietnam veterans and certain peasants in South Vietnam have the highest level of exposure of anyone tested.

Sudden Infant Death Syndrome (SIDS), for example is four times more likely to kill the children of Veterans exposed to Agent Orange than it is children of parents who were not exposed. This makes medical sense because it has been shown in the laboratory that Dioxin has an affect on the immune system and SIDS seems to be an immune system defect. Information and cases are sparse but they are there. And they are frightening.

In one case a platoon that operated in an part of Vietnam that had been heavily sprayed has had five of it's twenty members diagnosed as suffering from dioxin poisoning. That's twenty five percent. That's 500 percent above the national average for these types of disorders. This in itself is frightening but, the researcher was only able to locate six of the twenty members of his platoon! How many of those that weren't contacted had similar symptoms? Veterans tell story after story of Veterans who suddenly age. Their hair falls out in clumps, what remains turns white. They suffer from strange nerve disorders, irritableness, weight loss, palsies and finally, mercifully, death. In every case these men were exposed to Agent Orange.

In Vietnam, when the men in the field saw the effects of this chemical on the vegetation and questioned it's affects on them they were told not to worry. They were told that the spray was not harmful to humans. Despite the weight of evidence to the contrary the military and the Chemical companies continue to insist that Agent Orange is harmless. The Veterans Administration, Chemical Companies and the Department of Defense point to a study done with the personnel of Operation Ranch Hand that showed no correlation between Agent Orange and the problems associated with it by the Veterans. The critics of this study point out that the average "Ranch Hander" returned to base each night to shower and change clothes while the ground soldier walked through contaminated dust, drank contaminated water and wore contaminated clothes for weeks and months. The federal government refuses to conduct a study of Ground combat troops as a comparison.

Only in the last few years has that opinion begun to change. One of the projects that signify this change is the "Pointman" project. Under "Pointman" New Jersey has established an Agent Orange Commission to investigate the effects of exposure to Agent Orange. They examined people who served with the Second Battalion/ 8th Cav, 1st Cav Division, Companies A, B, C and D between January and December 1969. The report of their findings has not yet been published.

- Dioxin comes in 75 flavors, each with its own chemical structure and a unique toxicity
- Several large groups of related compounds, including the 209 PCBs and the 135 dibenzofurans, have similar effects.
- These chemicals can have effects at levels as low as parts per trillion, forcing the use of delicate, expensive, and error-prone measurement technology.
- The exposure to dioxin depended on the number of times a place was defoliated, the person's dietary and other habits, and the rates of movement and decay of the toxins in the ecosystem and body.
- Cancer is just one of many possible health effects: other problems blamed on dioxin -- with varying degrees of proof -- include immune disorders, lowered sperm counts, diabetes, malformations and other reproductive and developmental effects, and endocrine disruption.
- The damage may not stop with the first generation: researchers have documented reproductive damage, including cancer, spina bifida and immune problems, in offspring of people exposed to dioxin.

JOHN A. HAMMACK CHAIRMAN & CEO

CANCER AND AGENT ORANGE

Here are several medical conditions which have been determined to be related to Agent Orange exposure. Congress has declared that any service member who served in Vietnam during the war-time era (Feb 28, 1961, through May 7, 1975) was exposed to Agent Orange. It was further ruled that such exposure may have caused several types of cancer. Therefore, diagnosis of any of these conditions will be considered "service connected" by the Department of Veterans Affairs.

Veterans and survivors may be entitled to compensation for such diseases as lung cancer, multiple myeloma, Hodgkin's disease, non-Hodgkin's lymphoma and, as of November, 1996, Prostate Cancer. If a Vietnam veteran is ever diagnosed with prostate cancer, even if it is many years after service, it will be considered a service connected disability and compensation may be paid.

Compensation can range from $0 (non-disabling) to around $2000 (totally disabling). The degree of disability is determined by such factors as urinary frequency, leakage, and impotence. For example, daytime voiding interval of less than one hour or awakening to void five or more times per night will result in a rating of 40%. Awakening to void twice per night is rated 10%. Continual urine leakage or incontinence requiring the wearing of absorbent materials which must be changed more than four times per day will result in a 60% rating. If the pad must be changed less than twice a day, the rating is 20%. A small special monthly compensation is paid for impotence. The symptoms must be medically documented - usually by a physical examination at a VA medical facility.

A veteran files a claim on VA form 21-526 (Claim for Compensation or Pension.) It must be accompanied by DD Form 214 showing Vietnam service and any medical evidence establishing the diagnosis of prostate cancer. If the veteran has already completed that form in the past, it is not necessary to do so again. A brief letter requesting reopening the claim will suffice. Here is a suggested format for that letter: "This is to amend my original disability compensation claim to include Prostate Cancer as per new Agent Orange regulations. Medical records showing the diagnosis are attached".

The claim should be submitted to the VA Regional Office serving the area where the veteran resides. To obtain a claim form or to get the address of the VA, call 1-800-827-1000. Help in completing the form is available from many veterans service organizations or from the VA. Other veterans' benefits may accrue as a result of a finding of service connection. They include insurance, medical treatment, and vocational rehabilitation.

Survivors of Vietnam veterans who died of prostate cancer may also be entitled to benefits from the VA. An un-remarried surviving spouse may be entitled to a monthly payment of Dependency and Indemnity Compensation (DIC). The current rate is $861. Dependants' Education Assistance may also be available for college attendance. That rate for full-time attendance is $485 per month.

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Subject: Various Cancers which seem to be caused by agent orange

THIS IS A LIST OF PROPOSED RULES FOR COMPENSATION OF SOFT TISSUE SARCOMAS AND TUMORS FOR THE VA.

THIS LIST CONTAINS THE TUMORS MOST REPORTED TO THE VA BY VIETNAM VETS. THE NATIONAL ACADEMY OF SCIEANCE HAS A STUDY BEING CONDUCTED ON THIS MATTER NOW.

ADULT FIBRO SARCOMA
DERMATOFIBROSCOMA
MALIGNANT FIBROUS HISTIOCYTOMA
LIP SARCOMA
LEIOMYOSACOMA
EPITHELIOID LEIOMYOSARCOMA
MALIGNANT LEIOMYBLASTOMA
RHABDOMYOSACOMA
ECTOMESENCHYMOMA
ANGIOSARCOMA
HEMANGIOSACOMA
LYPHHANGIOS
SARCOMA
PROLIFERATING(SYSTEMIC)
ANGIOENDOTHELIOMATOSIS
MALIGNANT GLOMUS TUMOR
SYNOVIAL SARCOMA (MALIGNANT SYNOVIOMA)
MALIGNANT SCHWANNOMA, INCLUDING
MALIGNANT
SCHWANNOMA WITH RHABDOMYOBLASTIC
DIFFERENTIATION
(MALIGNANT TRITON TUMOR)
GLANDULAR AND EPITHELIODID
MALIGNANT SCHWANNOMAS.
MALIGNANT MESENCHYMOMA
MALIGNANT GRANULAR CELL TUMOR
ALVEOLAR SOFT PART SARCOMA
CLEAR CELL SARCOMA OF TENDOMS
Diabetes Type II
APONEUROSES

Leukemia, Agent Orange Link Found 2003 Janurary 2

OSTEOSARCOMA, CHONDROSARCOMA,
KAPOSI'S SARCOMA AND MESOTHELIOMA ARE SPECIFICALLY EXCLUDED FROM COMPENSATION

VA Adds To Agent Orange Disabilities List 2003

Chronic Lymphocytic Leukemia(CLL)

Agent Orange Lawsuit A site for veterans to learn about the Agent Orange Lawsuit. Vietnam veterans can find various information about symptoms, treatments, and legal help for the exposure to Agent Orange.

DISEASES LINKED TO AGENT ORANGE EXPOSURE:

Diseases recognized by the VA as connected to Agent Orange and the VA's Length of Time Requirements - (When symptoms of the disease have to appear and result in a disability at least 10% disabling in order to qualify for benefits):

Types of cancer - Time Requirements

- Cancer of the bronchus (no time requirement)
- Cancer of the larynx (no time requirement)
- Cancer of the lung (no time requirement)
- Cancer of the trachea (no time requirement)
- Prostate cancer (no time requirement)
- Hodgkin disease (no time requirement)
- Non-Hodgkin lymphoma (no time requirement)
- Multiple myeloma (no time requirement)
- Chronic Lymphocytic Leukemia (no time requirement)
- Soft-tissue sarcoma (no time requirement)
  - Adult fibrosarcoma
  - Alveolar soft part sarcoma
  - Angiosarcoma
  - Clear cell sarcoma of aponeuroses
  - Clear cell sarcoma of tendons
  - Congenital and infantile fibrosarcoma
  - Dermatofibrosarcoma protuberans
  - Ectomesenchymoma
  - Epithelioid malignant leiomysarcoma
  - Epithelioid malignant schwannoma
  - Epethelioid sarcoma
  - Extraskeletal sarcoma
  - Hemangiosarcoma
  - Infantile fibrosarcoma
  - Leiomysarcoma
  - Lipsosarcoma
  - Lymphangiosarcoma
  - Malignant fibrous histiocytoma
  - Malignant giant cell tumor of tendon sheath
  - Malignant glandular schwannoma
  - Malignant glomus tumor
  - Malignant hemangiopericytoma
  - Malignant mesenchymoma
  - Malignant schwannoma with rhabdomyoblastic proliferating (systemic) angiendotheliomatosis
  - Rhabdomyo sarcoma
  - Synovial sarcoma

Diseases other than cancer (Time Requirements)

- Peripheral neuropathy (acute and subacute) (within months of exposure and cured within 2 years after symptoms first show up!
- Chloracne (within 1 year of last day the veteran served in Vietnam)
- Porphyria cutanea tarda (within 1 year of last day the veteran served in Vietnam)
- Diabetes Type II adult onset) (in-country veterans ONLY)
- Disabilities in children of Vietnam veterans
- Spina bifida* (child must have been conceived after Veteran first arrived in Vietnam) *NOTE: This does not include spina bifida occulta
- Diseases and Disabilities Having the Best Chance of Being Added in the Future
- Abnormal Sperm Parameters and Infertility
- Birth Defects (other than Spina Bifida in children of Vietnam Veterans)
- Bone Cancer
- Breast Cancer
- Childhood Cancer (in children of Vietnam Veterans)
- Chronic Peripheral Nervous System Disorders
- Circulatory Disorders
- Cognitive and Neuropsychiatric Disorders
- Female Reproductive Cancers (cervical, uterine, ovarian)
- Hepatobiliary Cancers
- Immune System Disorders
- Leukemia
- Liver Cancer
- Low Birthweight (in children of Vietnam Veterans)
- Metabolic and Digestive Disorders (diabetes, changes in liver enzymes, lipid abnormalities, ulcers)
- Motor or Coordination Dysfunction
- Nasal or Nasopharyngeal Cancer
- Neonatal or Infant Death and Stillbirths
- Renal Cancer
- Respiratory Disorders
- Skin Cancer
- Spontaneous Abortion
- Testicular Cancer

GLOSSARY

- **Acute Peripheral Neuropathy.** A temporary dysfunction involving the nervous system.
- **Adult Fibrosarcoma.** A tumor formed as an adult derived from connective tissue.
- **Alveolar Soft Part Sarcoma.** A sarcoma found in the alveolus, the sac-like ducts in the lung.
- **Angiosarcoma.** A tumor occurring in the breast and skin, and believed to originate from blood vessels.
- **Birth Defects.** An abnormal structure, function, or metabolism of the fetus, whether genetically determined or as the result of an environmental influence during embryonic or fetal life.
- **Cancer of the Bronchus.** A malignant tumor found in a bronchus, an extension of the trachea (windpipe) connecting to the lungs.
- **Cancer of the Larynx.** A malignant tumor found in the larynx (voice box).
- **Cancer of the Lung.** A malignant tumor found in the lung.
- **Cancer of the Prostate.** A malignant tumor found in the prostate gland.
- **Cancer of the Trachea.** A malignant tumor found in the trachea (windpipe).
- **Chloracne.** An acne-like eruption due to prolonged contact with certain chlorinated compounds.
- **Clear Cell Sarcoma of Aponeuroses.** A sarcoma found at the end of a muscle where it becomes a tendon.
- **Clear Cell Sarcoma of Tendons.** A sarcoma found in the tendons.
- **Congenital Fibrosarcoma.** A malignant tumor formed before birth and derived from connective tissue.

- **Dermatofibrosarcoma.** A relatively slow growing benign skin tumor consisting of one or more firm nodules.
- **Ectomesenchymoma.** A tumor found in a certain part of the skin.
- **Epithelioid Malignant Leiomyosarcoma.** A malignant tumor derived from smooth muscle found in the layer covering the muscle.
- **Epithelioid Malignant Schwannoma.** A moderately firm, benign, tumor found in the layers of membrane covering surfaces inside the body, caused by too many Schwann cells growing in a disorderly manner.
- **Epithelioid Sarcoma.** A tumor found in the membrane covering surfaces inside the body.
- **Extraskeletal Ewing's Sarcoma.** A tumor outside the bone consisting of small, rounded cells.
- **Hemangiosarcoma.** A tumor derived from blood vessels and lining blood filled spaces.
- **Hodgkins Disease.** A tumor in the lymph nodes characterized by the increasing enlargement of the lymph nodes, liver, and spleen, and by progressive anemia.
- **Infantile Fibrosarcoma.** A tumor formed as a child derived from fibrous connective tissue.
- **Leiomyosarcoma.** A tumor derived from smooth muscle.
- **Liposarcoma.** A tumor that may occur in any site in the body consisting of irregular fat cells.
- **Lymphangiosarcoma.** A tumor derived from blood vessels.
- **Lymphoma.** A malignant tumor of lymph nodes.
- **Malignant Fibrous Histiocytoma.** A type of tumor present in connective tissue.
- **Malignant Giant Cell Tumor of the Tendon Sheath.** A tumor found in the membrane of the tendon]
- **Malignant Glandular Schwannoma.** A moderately firm, malignant tumor in the glands caused by too many Schwann cells growing in a disorderly pattern.
- **Malignant Glomus Tumor** A tumor found in the glomus, the tiny nodes found in the nailbed, pads of fingers and toes, ears, hands, feet and many other organs of the body.
- **Malignant Hemangiopericytoma.** A tumor characterized by rapidly growing fat cells formed in blood vessels and lining blood filled spaces.
- **Malignant Mesenchymoma.** A malignant tumor in the embryonic tissue or fluid.
- **Malignant Schwannoma with Rhabdomyoblastic.** A moderately firm, malignant tumor found in skeletal muscle resulting from the rapid growth of Schwann cells in a disorderly pattern.
- **Multiple Myeloma.** Cancer of specific bone marrow cells characterized by bone marrow tumors in various bones of the body.
- **Non Hodgkins Lymphoma.** Malignant tumors of the lymph nodes, distinguished from Hodgkins disease by the absence of the giant Reed-Sternberg cells.
- **Peripheral Neuropathy.** A dysfunction involving either the somatic nerves or the autonomic system. See also acute peripheral neuropathy and subacute peripheral neuropathy.
- **Porphyria Cutanea Tarda.** A disease characterized by liver dysfunction and light sensitive lesions, with pigment changes in the skin.
- **Proliferating (systemic) Angiendotheliomatosis.** A growing number of 20 benign tumors formed in blood vessels. Often causes skin discoloration.
- **Rhabdomyosarcoma.** A tumor derived from skeletal muscle.
- **Sarcoma.** A tumor arising in connective tissue, bone, cartilage, or muscle.
- **Soft Tissue Sarcoma.** A diverse group of sarcomas arising in the soft tissues that are found in and around organs.
- **Spina Bifida.** A disability characterized by the defective closure of the spinal cord, through which the cord is exposed and may protrude.
- **Subacute Peripheral Neuropathy.** A dysfunction involving either nervous system with a course between acute (temporary) and chronic (long duration)
- **Synovial Sarcoma.** A tumor found in the lubricating fluid surrounding joints and tendons

Some To Get Agent Orange Testing

By PAULINE JELINEK
11/2000

The Associated Press

WASHINGTON (AP) -

The government is offering to examine Cold War American troops who served in Korea three decades ago for possible exposure to the defoliant Agent Orange.

In a little-publicized initiative, the Veterans Affairs Department expanded a program previously offered to Vietnam War veterans to include people who
served in Korea in 1968-69.

The rule change follows by a year the Pentagon's disclosure that South dioxin, during that time along the demilitarized zone between North and Korean troops sprayed Agent Orange, which contained the toxic herbicide South Korea.

The decision to give vets free Agent Orange Registry exams, for diseases and medical conditions associated with exposure to the herbicide, is set out in a directive issued Sept. 5 and posted on the department's http://www.va.gov World Wide Web site.

Agent Orange and other similar herbicides were used during the Vietnam War to eliminate forest cover by defoliating broad sections of jungle mainly to facilitate pursuit of infiltrators and supplies moving into South Vietnam from the north. After it appeared probable that the defoliant caused numerous serious illnesses and birth defects, the VA set up the Agent Orange Registry in 1978, three years after the war ended, for U.S. veterans with in-country Vietnam War military service. More than 300,000 veterans have participated so far

Now that we understand that it was sprayed there,'' said VA spokesman Jim Benson, we can say, If you were in Korea, you may be exposed, and we would like you to come in.

The Defense Department has always known it was used along the Korean DMZ, but it wasn't until last December that the information was publicly known

Following news reports quoting unclassified U.S. documents about the usage, the Pentagon and South Korea's government admitted that the chemical and two others were used in 1968-69 to kill dense foliage that North Korean infiltrators used for cover heading south.

Around 50,000 South Korean soldiers did the spraying by hand.

However, it is plausible that U.S. service members in the area near spraying operations may have been exposed,'' the directive said, adding that as many as 80,000 troops served in the country during the two years. A smaller number would have been near the DMZ.

The new directive does not entitle veterans to compensation for diseases, offering mainly physical examinations and counseling. Specifically, it opens to Korean veterans registration on the registry's computerized index of all examinations taken by Vietnam vets who worried they had illnesses caused by exposure to the chemical.

Like Vietnam vets in the registry, the Korea-based veterans will be tracked in Agent Orange research and get newsletters and other information that Vietnam vets get, Benson said.

A law passed a decade ago assumes exposure for any American who served in Vietnam during a certain period. The VA has compensated veterans who have some forms of cancer and a limited number of other diseases presumed, although not proven, to have been caused by the exposure.

After Korean vets register and are examined, the government would have to take further action to add their names to the list of people eligible for compensation, Benson said.

Under the law governing Agent Orange, Vietnam veterans need not prove a direct causal relationship to receive service-based compensation for certain diseases. The diseases currently on the list include Hodgkin's disease, multiple myeloma, respiratory cancers, soft-tissue sarcoma and prostate cancer. Veterans' children with spina bifida, a congenital birth defect of the spine, are also eligible for benefits and health care.

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At last, more veterans will have access to Agent Orange service

Saturday, November 11, 2000

POST-INTELLIGENCEREDITORIAL BOARD

The U.S. government has a couple of presents for some of those who served in uniform under its flag in years past, just in time for Veterans Day. But these presents come wrapped with black ribbon.

For 30 years, the Pentagon knew that the same defoliant linked to illness in thousands of Vietnam War veterans, and birth abnormalities in their offspring, was used in Korea during 1968 and '69. But they didn't tell the men and women who served there that they might have been exposed to the infamous Agent Orange while stationed near the demilitarized zone between North and South Korea.

That nasty secret was kept until late last year. And it probably would have been kept longer if it hadn't been for news leaks quoting U.S. documents.

Now the government is extending to former Korean duty vets the same eligibility it provided to Vietnam War vets, including free medical exams under the Agent Orange Registry.

Agent Orange was used in Korea, as it was in Vietnam, to defoliate large tracks of jungle to expose enemy troops and possible supply routes.

On Thursday, the Department of Veterans Affairs announced that Vietnam veterans with Type-II diabetes will now be eligible for disability compensation based on their presumed exposure to Agent Orange or other herbicides used during the war.

Although it will take several months to complete the rule-writing for this directive, affected vets are encouraged to enroll in the VA's health care system immediately so they can begin receiving medical care.

This form of diabetes is added to the existing list of ailments connected with Agent Orange exposure, including a number of skin, nerve and respiratory conditions, as well as non-Hodgkin's lymphoma, Hodgkin's disease, prostate cancer and the birth defect spina bifida.

The Pentagon fought tooth and nail for years to discredit allegations that at times indiscriminate use of the defoliants had left American soldiers with medical problems, including cancer and birth defects in their offspring.

Veterans Day might be a good time to stop lying to veterans.

VA has received a listing from the Defense Department of locations outside of Viet Nam where Agent Orange was used or tested over a number of years. The information gives periods of time, locations and chemicals used. It does not contain units involved or individual identifying information. The listings are almost exclusively Army records although there are an extremely limited number of Navy and Air Force records. These listings relate only to chemical efficacy testing and/or operational testing. The records do not refer to the use of Agent Orange or other chemicals in routine base maintenance activities such as spraying along railroad tracks, weed control on rifle ranges, etc. Information on such use does not exist. VA will develop the listing for proof of exposure for claims for disabilities resulting from Agent Orange exposure outside of Viet Nam.
VA does have significant information regarding Agent Orange use in Korea along the DMZ. DoD has confirmed that Agent Orange was used from April 1968 up through July 1969 along the DMZ. DoD defoliated the fields of fire between the front line defensive positions and the south barrier fence. The size of the treated area was a strip of lane 151 miles long and up to 350 yards wide from the fence to north of the civilian control line. There is no indication that herbicide was sprayed in the DMZ itself. Herbicides were applied through hand spraying and by hand distribution of pelletized herbicides. Although restrictions were put in place to limit potential for spray drift, run-off, and damage to food crops, records indicate that effects of spraying were sometimes observed as far as 200 meters down wind. Units in the area during the period of use of herbicide were as follows:

1. The four combat brigades of the 2nd Infantry Division. This includes the following units: a) 1-38 Infantry b) 2-38 Infantry c) 1-23 Infantry d) 2-23 Infantry e) 3-23 Infantry f) 3-32 Infantry g) 109th Infantry h) 209th Infantry i) 1-72 Armor j) 2-72 Armor k) 4-7th Cavalry.
2. 3rd Brigade of the 7th. Infantry Division. This includes the following units: a) 1-17th Infantry b) 2-17th Infantry c) 1-73 Armor d) 2-10th Cavalry.
3. Field Artillery, Signal and Engineer troops were supplied as support personnel as required. The estimated number of exposed personnel is 12,056.

Unlike Viet Nam, exposure to Agent Orange is not presumed for veterans who served in Korea. Claims for compensation for disabilities resulting from Agent Orange exposure from veterans who served in Korea during this period will be developed for evidence of exposure. If the veteran was exposed the presumptive conditions found for Agent Orange exposure apply.
www.vba.va.gov/ro/south/spete/news/notes/0304/2.htm

Agent Orange Compensation [Non-Vietnam]: Until recently, the VA would grant compensation to veterans exposed to Agent Orange (AO) outside of Vietnam only if the claimant proved exposure to AO and provided a medical connection between the current disease and that exposure. VA is making an effort to equalize the treatment of all veterans exposed to AO. They recently announced that if exposure outside of Vietnam were proven, and the veteran had one of the ten diseases presumed by law to be related to exposure to AO, the medical

connection would be presumed and the claim granted unless there were other disqualifying factors. This was noted in comments on the final rule adding diabetes to the list of "AO diseases" in 38 C.F.R. § 3.309(e), at 66 Federal Register, page 23, 166 (May 8, 2001). In addition, any veteran concerned about exposure to AO during use, manufacture, testing or transport outside of Vietnam, may be given an AO physical by the VA and added to the Agent Orange Registry (VHA Directive 2000-027).
The only real issue is proving exposure. All persons who served in Vietnam are presumed to have been exposed. The VA is determining whether Department of Defense information is sufficient to add some non-Vietnam units to the presumptive exposure list, but none have been added as of June 2001. The following areas outside of Vietnam have been confirmed as places where AO was used:

- **1. The Korean demilitarized zone in 1968 and 1969 (extensive spraying).**
- **2. Fort Drum, NY in 1959 (testing). Other areas where veterans allege AO to have been sprayed include:**
- **3. Guam from 1955 through 1960s (spraying).**
- **4. Johnston Atoll (1972-197 was used for unused AO storage.**
- **5. Panama Canal Zone from 1960s to early 1970s (spraying).**
- **6. Elgin AFB (Agents Orange and Blue) on Firing Range and Viet Cong Village**
- **7. Wright-Patterson AFB (OH) and Kelly AFB (TX)**

FOR RELEASE: May 9, 2003

Evans Asks Secretary Rumsfeld for Information Concerning Agent Orange and Similar Herbicide Usage in Guam, Cambodia, Laos, Thailand, Puerto Rico and Various Locations in the United States
Veterans Need Access to Information to Establish VA Claims Related to Herbicide Exposure
Washington, DC - Congressman Lane Evans of Illinois, the Ranking Democrat on the House Veterans Affairs Committee, has asked Secretary of Defense Donald Rumsfeld for information concerning the use and storage of Vietnam-era herbicides such as Agent Orange, Agent Blue, and Agent White at the Anderson Air Force Base at Yigo, Guam. Evans has been contacted by veterans who report that these herbicides were used in Guam during the Vietnam era.

Evans also provided the Secretary with a report which indicates that dioxin has been found in soil at the Air Force Base.

Evans also asked the Secretary for an assessment of the use, testing or storage of Agent Orange, Agent Blue, Agent Purple, Agent White or other herbicides which contain dioxin at locations in Cambodia, Laos, Thailand, Puerto Rico and various locations in the United States. U.S. locations include sites in Maryland, Florida, Texas, California, Georgia, Mississippi Hawaii, Rhode Island, Pennsylvania, Arizona and Washington. Evans cautions that the amount of herbicides used in some of these locations may have been small amounts for short term testing and may present no danger to populations.

Evans notes that veterans who are claiming service-connection of disabilities which have been associated with herbicide exposure have had serious difficulty in proving exposure. "If the Department of Defense hasevidence that herbicides were used in particular areas, during specific periods of time, that information should be made public so that affected veterans may receive appropriate assistance in establishing their claims," said Evans. Evans complained, "It is more than 30 years since many of the herbicides were used, yet veterans are still having claims denied because the Department of Defense has not been forthcoming with information concerning the locations where veterans may have been exposed. It is well past the time for full and open disclosure."

May 7, 2003
Honorable Donald Rumsfeld
Secretary
Department of Defense
Washington, DC 20301-1000

Dear Secretary Rumsfeld:

According to a "Public Health Assessment" of Anderson Air Force Base, Yigo, Guam which my staff has received, dioxin levels have been detected in soil at the Main Base and other locations described in the attached document. I have also received information from veterans who were stationed on Guam andwho have reported the use of Agent Orange, Agent Blue and Agent White during the Vietnam era. I am requesting that you review the enclosed document and provide me with information concerning the use and storage of Vietnam era herbicides, including the contaminant dioxin on Guam. I am also requesting an assessment of the use, testing or storage of Agent Orange, Agent Blue, Agent Purple, Agent White or other herbicides which contain dioxin, including the locations, amounts and relevant dates at the following locations and any other location for which documentation exists:

Aberdeen Proving Ground, Aberdeen, Maryland
Apalachicola National Forest (Sophoppy, Florida)
Avon Air Force Base, Florida
Beaumont, Texas
Brawley, California
Bushnell Army Air Field, Florida
Camp Detrick, Maryland
Dar and Prek Clong, Cambodia

Eglin Air Force Base, Florida
Fort Gordon, Georgia
Fort Richie, Maryland
Fredericton, New Brunswick, Canada
Guanica, and Joyuda, Puerto Rico
Gulfport, Mississippi
Huntington County, State College, Pennsylvania
Jacksonville, Florida
Kauai, Hawaii
Kingston, Rhode Island
Kompong Cham Province, Cambodia
Laos
Las Marias, Puerto Rico
Las Mesas Cerros and La Jugua, Mayaguez, Puerto Rico
Loquillo, Puerto Rico
Mauna Loa, Hilo, Hawaii
Operation PACER HO (Disposal at sea)
Pinal Mountains, Globe, Arizona
Pranburi and other locations in Thailand
Prosser, Washington
Rio Grande, Puerto Rico
Wayside and Wilcox, Mississippi

I would appreciate a response to this letter by June 13, 2003. If you have any questions about this request, please contact Mary Ellen Mc Carthy, Democratic Staff Director, Subcommittee on Benefits. Thank you for your efforts to improve services to our Nation's veterans.

Sincerely,

LANE EVANS
Ranking Democratic Member

cc: The Honorable Anthony J. Principi
The Honorable Daniel L.

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Even more DOD details on Agent Orange usage Outside Vietnam

Agent Orange and other herbicides used in Vietnam were tested or stored elsewhere, including some military bases in the United States.

The Department of Defense gave VA a list of dates and locations of herbicide tests and storage. View dates and locations:

- **In the U.S. – Herbicide tests and storage**
- **Outside the U.S. – Herbicide tests and storage**

View all as PDF: Herbicide Tests and Storage Outside of Vietnam (Department of Defense List) (224 KB, PDF)

Englin Air Force Base, FL	11/1952-12/1952	2,4-D, 2,4,5-T: 143 and 974, respectively	Two trials: Chemical Corps- concerned with basic fundamental work, using 2,4-D, Air Force-concerned with evaluating prototype large capacity spray system for aircraft installation using 2,4,5-T, primarily. Used 3 atomizing nozzles: Bete Fog Nozzles, Whir	Yes
Beaumont, TX	6/1944	LN *phenoxy	Small plot experiments were commenced to test the effectiveness of LN agents. Various trials were done under contract with the USDA, aided by personnel at Camp Detrick. Here, they were testing on rice crops.	No
Bushnell Army Air Field, FL	2/1945	LN *phenoxy	Small plot experiments were commenced to test the effectiveness of LN agents. Various trials were done under contract with the USDA, aided by personnel at Camp Detrick. Here, it was aerial spray experiments on potted plants	Yes
Vigo Plant CWS, Terre Haute, IN	5/1945-9/1945	LN (see attached) *phenoxy	Small plot experiments were commenced to test the effectiveness of LN agents. Various trials were done under contract with the USDA, aided by personnel at Camp Detrick. Here, it was aerial trials spraying field grown plants.	Yes
Jefferson Proving Grounds, Madison, IN	Summer 1945	LN *phenoxy	Small plot experiments were commenced to test the effectiveness of LN agents. Various trials were done under contract with the USDA, aided by personnel at Camp Detrick. Here, it was dropping trials.	Yes
Granite Peak, UT	Summer 1945	LN *phenoxy	Small plot experiments were commenced to test the effectiveness of LN agents. Various trials were done under contract with the USDA, aided by personnel at Camp Detrick. Here, it was dropping trials.	Yes
Avon Air Force Base, FL	2/1951-4/1951	butyl 2,4 D	Trials were conducted at Avon Air Force Base, FL by Chemical Corps with personnel of the Air Force and Navy to determine the practical effectiveness of spraying pure anticrop agents from at low volume from aircraft. C-47 and Navy XBT2D-1 aircraft with var	Yes
Area B, Camp Detrick, MD	Spring/Summer 1953	3:1 mixture 2,4-D and 2,4,5-T	Personnel at Camp Detrick tested the feasibility of using an experimental spray tower for applying a mixture of chemical anticrop agents to broad-leaf crops.	Yes

Bushnell Army Air Field, Bushnell, FL	2/1945-4/1945	2,4-D and its ammonium salt	Trials, performed by C.W.S. personnel from Camp Detrick, MD tested the practicability of severely injuring or destroying crop plants sprayed from smoke tanks mounted on tactical aircraft.	Yes
Sea	Summer 1977	Orange	In 1977, the USAF incinerated 2.22 million gallons of Herbicide Orange at sea in an operation entitled PACER HO. Extensive industrial hygiene sampling efforts supporting the transfer operations at Gulfport, MS and Johnston Island indicated all exposures	Yes, Gulfport No, JI
Korea, third Brigade, 2nd Division area	7/23/1968-7/24/1968	Hyvar XWS, tandex, Urox B, Urox Oil concentrate (liquids) bromacil, tandex, Urox 22 (solids)	In 1968, chemicals were sent from the Plant Sciences Lab, Ft Detrick, MD, to the Republic of Korea for the purpose of testing their effectiveness in the control of vegetation.	Yes
Marinette, WI, Weslaco, TX	5/1967-1/1969	arsenic compounds, Orange, cacodylic acid, sodium cacodylate	71 new arsenic compounds were tested in primary screening against 6 plant species in greenhouse tests. Then, 5 of the most active compounds were tested in field trials against Red Maple and compared to formulations of cacodylic acid and a 50:50 blend of	Yes
Eglin AFB, FL	6/11/1968-9/12/1968	orange, Bifluid #1, Bifluid#2, Stull Bifluid	A spread factor study was performed by the Army to correlate the spherical drop sizes of both Orange and Stull Bifluid defoliants. It involved development of new techniques to determine spread factors over an extended range of drop sizes. A spinning cup d	Yes
Fort Ritchie, MD	1963	Tordon, 2,4-D, Orange, diquat, endothal, and combinations of each with Tordon	Various studies were done to explore the effectiveness of different herbicides. They were all field trials. These studies were done by personnel from the US Army Biological Laboratories.	Yes
Fort Meade, MD	1963	cacodylic acid, Dowco 173, butyediol	Various studies were done to explore the effectiveness of different herbicides. They were all field trials. These studies were done by personnel from the US Army Biological Laboratories.	Yes
Kumbla, South India	1945-1946	LN compounds *phenoxy	The main objective of the experiments was to determine the feasibility of accomplishing severe injury or destruction of tropical food crops by the application of growth-inhibiting (LN*) compounds in static trials. Field plantings were treated with variou	Yes

Camp Detrick, MD-Fields A,B, and C	1946-1947	2,4,5-T, 2,4,5-T triethanolamine, tributylphosphate, ethyl 2,4-D, butyl 2,4,5-Ttriet 2,4-D,	The experiments were directed mainly towards the investigation of plant inhibitors applied as sprays or to the soil in the solid form to be taken up by the roots.	Yes
Camp Detrick, MD- Fields C,D, and E	1948	2,4,5-T, isopropyl phenol carbamate, LN-2426, 2,4-D	The experiments were directed mainly towards the investigation of plant inhibitors applied as sprays or to the soil in the solid form to be taken up by the roots.	Yes
Camp Detrick, MD-Fields C,D,E	1949	triethelyne. 2,4,5-T, carbamates	The experiments were directed mainly towards the investigation of plant inhibitors applied as sprays or to the soil in the solid form to be taken up by the roots. Experiments were done by Ennis, DeRose, Newman, Williamson, DeRigo, and Thomas.	Yes
Kingston, RI	7/26/1949, 1950-51	trieth.2,4,5-T, butyl 2,4,5-T,974	The experiments were directed mainly towards the investigation of plant inhibitors applied as sprays or to the soil in the solid form to be taken up by the roots. Experiments were carried out under supervision of T.E. Odland if RI State College. H.T. D	Yes
Camp Detrick, MD-Fields A,B,D,E	1950	2464, butyl 2,4-D, 974, butyl 2,4,5-T, q:q 143 and 974	The experiments were directed mainly towards the investigation of plant inhibitors applied as sprays or to the soil in the solid form to be taken up by the roots. Experiments were done by Ennis, DeRose, Acker, Newman, Williamson, and Zimmerly.	Yes
Camp Detrick, MD-Field F	1950-51	2464, carbamate, butyl 2,4-D, 143 and 974 (orange?),2,4,5-T, 2,4-D, Orange	The experiments were directed mainly towards the investigation of plant inhibitors applied as sprays or to the soil in the solid form to be taken up by the roots. Experiments were done by Acker, DeRose, McLane, Newman, Williamson, Baker, Dean, Johnson, T	Yes
Orlando, FL at Army Grove Air Force's Tactical Center	3/14/1944, 4/12/1944	ammonium thiocynate, zinc chloride, sodium nitrate, sodium arsenate, sodium fluoride	The purpose was to determine means of accomplishing defoliation of tropical forest vegetation by application of a chemical agent.	Yes
Marathon, FL	3/21/1944-3/23/1944	zinc chloride, ammonium sulphamate, ammonium thiocynate	The purpose was to determine means of accomplishing defoliation of tropical forest vegetation by application of a chemical agent. Spraying was done here.	Yes

Near Lake George, FL	Spring 1944	zinc chloride	The purpose was to determine means of accomplishing defoliation of tropical forest vegetation by application of a chemical agent. Spraying here.	Yes
Near Wayside, Miss., Wilcox Road, Greenville, Miss.	9/19/1967	picloram, bromacil, pyriclor, and terbacil, Orange, cacodylic acid	In 1967, the Dow Chemical Company was awarded a DoD research contract. The objective was to prepare as pellets mixtures of various herbicides and to test them on varying vegetation situations for the control of a range of plant species.	Und
Las Mesas Cerros, Mayaguez, PR	5/24/1968, 5/26/1968, 5/27/1968	picloram, bromacil, pyriclor	In 1967, the Dow Chemical Company was awarded a DoD research contract. The objective was to prepare as pellets mixtures of various herbicides and to test them on varying vegetation situations for the control of a range of plant species.	Und
Fulcher Ranch, Greenville, Mississippi	4/15/1968	picloram and bromicil	In 1967, the Dow Chemical Company was awarded a DoD research contract. The objective was to prepare as pellets mixtures of various herbicides and to test them on varying vegetation situations for the control of a range of plant species.	Und
Replacement raining Center of the Royal Thai Army near Pranburi, Thailand	1964 and 1965	Orange, Purple	An extensive series of tests were conducted by Fort Detrick during 1964 and 1965 in collaboration with the Military Research and Development Center of Thailand. The objective was to perform onsite evaluation of phytotoxic chemicals on vegetation in SE As	Yes
Las Mesas and La Jagua experimental areas at Mayaguez, PR	2/1956-6/1956	2,4,5-T, 2,4-D, pentachlorophenol, ammate, weedazol, endothal Harvestaid, Butyne -1,4-diol	During February to June, 9 chemicals were evaluated in PR on 16 genera tropical woody plants. The chemicals were applied in highly concentrated solutions with a microsprayer to the leaves.	Yes
Guanica and Joyuda, PR	6/1956-9/1956	2,4,5-T, potassium cyanate, amiendo, F-2, 6-Ca-4, Y-F Tree and Brush Kiler, ACP M-118, Shed-A-Leaf	9 chemicals were evaluated on 16 genera of tropical woody between June and September. The chemicals were sprayed to duplicate small branches, using a microsprayer.	Yes

Las Mesas and La Jagua, Mayaguez, Joyuda at Cabo Rojo, and Guanica Insular Forest at Guanica, PR	9/1956-12/1956	6-Ca-4,Liojn Oil,2,4,5-T, B-1613, B-1638, Ammate, V-C1-186, endothal, shed-a-leaf, M-118, Y-F,esteron 2,4-	16 compounds with defoliating properties were evaluated using 28 different tropical woody plants, each representing a separate genus. The chemicals were applied to duplicate small branches with a microsprayer and to single larger branches or whole trees	Yes
Las Mesas and La Jagua, Mayaguez, Guanica Beach, PR	1/1957-3/1957	V-C 3-105, V-C 1-21, V-C 1-443, F-7, TBP, Phillips 713, V-C 3-173	7 compounds were evaluated on 29 different woody plants to determine their effectiveness as defoliants, desiccants, and as killing agents. They were applied with a microsprayer to the upper leaf surfaces of duplicate small branches.	Yes
Las Mesas and La Jagua, Mayaguez, Guanica Beach, PR	4/1957-6/1957	B-1676, B-1638, NP 1098, SD 1369, Ammate, Shed-a-leaf	7 compounds were sprayed on 25 different plants in order to evaluate their effectiveness as defoliants, desiccants, and killing agents. The compounds were applied with a microsprayer to the upper and lower leaf surfaces of duplicate small branches.	Yes
Las Mesas and La Jagua, Mayaguez, PR	7/1957-12/1957	MgClO3, Golden Harvest Defoliant, Dow-M562, F-8, F-9, F-10, F-11, F-12	8 different spray formulations were applied to 16 different tropical trees and shrubs in order to evaluate their effectiveness as defoliants, desiccants, and killing agents.	Yes
Southeastern part of Kompong Cham Province and Dar and Prek Clong plantations, Cambodia	6/1969	Orange	In 6/1969, the US government received notice of charge by Cambodian government that major defoliation damage to the Cambodian rubber plantation near the RVN border had occurred as a result of US defoliation activity. This was confirmed by a team of exper	Yes
State Forest area, 3500 ft.elevation on slope of Mauna Loa, near Hilo, HI	12/2/1966, 12/4/1966, 1/12/1967	Orange, M-3140, TORDON ester, 2,4-D ester, 2,4,5-T ester	The purpose of this project was to evaluate iso-octyl ester of picloram (TORDON) in mixtures with ORANGE, as a candidate defoliant agent, using ORANGE as standard. There were personnel from Fort Detrick there.	Und
Stone Valley Experimental Forest in Huntington County and near State College in Centre County, PA	3/1969-10/1970	bromacil, diuron, tandex, fenuron, picloram	Soil- applied herbicides were studied by the U of Pa with Ft Detrick for 18 months for their effectiveness, rapidity of action, and duration of response in native stands of central PA grasses, broadleaf weeds and woody plants. These herbicides were sprea	Und

Fort Detrick, MD; Fort Ritchie, MD	1956-1957	various, 577 compounds	In 1956 And 1957, defoliation and desiccation were carried out at Fort Detrick and Fort Ritchie, Maryland by the Chemical Corps and Biological Warfare Research. These were bench tests.	Yes
GA and TN	1964	diquat and Tordon 101, various	In 1964, helicopter spray tests were conducted on transmission line rights-of-way by the Georgia Power Company and Tennessee Valley Authority in collaboration with Fort Detrick to evaluate effectiveness of several commercially available herbicides.	Yes
2 areas in FL, 2 areas in GA, and 1 in TN	1968	bromacil, Tandex, monuron, diuron, and fenuron	In 1968, emphasis was given to soil applied herbicides for grass control. Applications were made by a jeep-mounted sprayer on small plots or by helicopter on larger plots.	Und
Orlando, FL, Cocoa, FL	1944	ammonium thiocyanate and zinc chloride	Tests were conducted in 1944 by the Army in Orlando and Cocoa areas of Florida to determine the value of ammonium thiocyanate and chloride as marking and defoliation agents.. They were conducted initially at ground level and later from aircraft.	Yes
Fort Knox, KY	1945	various	In 1945, a special project known as Sphinx was conducted jointly by CWS and the ARML to investigate the use of chemical agents for increasing the flammability of vegetation prior to flame attack.	Yes
Avon Park Air Force Base, FL	Spring 1954	butyl 2,4-D, butyl 2,4,5-T, Isopropyl 2,4-D	Series of tests were conducted at Avon Park AFB during the spring of 1954 to study the behavior of chemical anticrop aerial sprays when released from high-speed jet aircraft. The Navy F3D jet fighter was used with Aero 14A Airborne Spray Tanks to dispers	Yes
Galatin Valley near Bozeman, Montana	7/3/1953, 7/6/1953, 7/14/1953	4- fluorophenoxy-acetic acid and 2 of its esters, 3:1 butyl 2,4-D and butyl 2,4,5-T	A preliminary series of field evaluations of chemical agents for attacking wheat using a miniature spraying system mounted on light aircraft were performed by USDA.	No
Laos	12/1965- 1967	Orange	In December 1965, herbicide operations were begun in Laos, with sorties being flown from Tan Son Nhut and Da Nang. The purpose was the exposure of foot trails, dirt roads and other LOCs that crossed into SVN. This network leads from NVN, through the eas	Yes

Pinal Mountains near Globe, AZ	1965, 1966, 1968, and 1969	2,4-D isooctyl-ester, 2,4,5-t isooctyl-ester, silvex, propyleneglycolbutylether ester, 2,4,5-T butyl ester, 2,4,5-T 2-e-h e	In 1965, the USFS began a land improvement program in the Pinal Mountains. The program called for spraying an area of chaparral with herbicides to accomplish the objectives of multiple land use.	No
Near Rio Grande, on the northeast coast of Puerto Rico	8/23/1967, 10/18/1967, 12/21/1967-12/26/1967	picloram, bromacil, pyriclor, and terbacil	In 1967, the Dow Chemical Company was awarded a DoD research contract. The objective was to prepare as pellets mixtures of various herbicides and to test them on varying vegetation situations for the control of a range of plant species.	Und
Poole's Island, Aberdeen Proving Ground, MD	7/14/1969-	Orange, Orange plus foam, Orange plus foam Orange, Foam	During the week of 7/14/1969, personnel from Naval Applied Science Laboratory in conjunction with personnel from Limited War Laboratory conducted a defoliation test along the shoreline.	Yes
Fort Drum, NY	1959	Orange	The Commanding General, 1st US Army, requested that Ft Detrick assist with defoliation efforts at Ft Drum. Thirteen drums were sprayed there on 4 square miles from a helicopter spray device.	Yes
Loquillo, PR	4/1966, 10/1966	Orange	Field tests of defoliants were designed to evaluate such variables as rates, volume of application, season, and vegetation. Data from aerial application tests at several CONUS and OCONUS locations are provided in tables.	Yes
Hilo, HI	12/1966	Orange	Field tests of defoliants were designed to evaluate such variables as rates, volume of application, season, and vegetation. Data from aerial application tests at several CONUS and OCONUS locations are provided in tables. There were Fort Detrick personne	Yes
Kauai,HI	1967	Orange	Field tests of defoliants were designed to evaluate such variables as rates, volume of application, season, and vegetation. Data from aerial application tests at several CONUS and OCONUS locations are provided in tables.	Yes
Thailand	1964-65	Orange, Blue	Field tests of defoliants were designed to evaluate such variables as rates, volume of application, season, and vegetation. Data from aerial application tests at several CONUS and OCONUS locations are provided in tables.	Yes

Jacksonville,FL	7/18/1962-7/21/1962	Purple, Fuel Oil, Mix	The HIDAL was used successfully on an H-34 helicopter to spray herbicidal materials. Therefore, it had not been calibrated previously. Spray tests were performed to do so. This was done under order by OSD/ARPA.	Yes
Fort Detrick, MD	8/1961-6/1963	1410 compounds	From 8/1961 to 6/1963, compounds were spray-tested in the greenhouse to evaluate them as effective defoliants, desiccants, and herbicides.	Yes
Gulfport, Miss.	1968-1970	Orange	While discussing the mandatory disposal of Orange, it was mentioned that 15,161 drums were being stored at Gulfport, Mississippi.	Yes
Korea,2nd and 4th Brigades, 2nd Division area	8/1968	Hyvar XWS, tandex, Urox B, Urox Oil concentrate (liquids) bromacil, tandex, Urox 22 (solids)	In 1968, chemicals were sent from the Plant Sciences Lab, Ft Detrick, MD, to the Republic of Korea for the purpose of testing their effectiveness in the control of vegetation.	Yes
Korea, third Brigade, 2nd Division area	10/3/1968	Hyvar XWS, tandex, Urox B, Urox Oil concentrate (liquids) bromacil, tandex, Urox 22 (solids)	In 1968, chemicals were sent from the Plant Sciences Lab, Ft Detrick, MD, to the Republic of Korea for the purpose of testing their effectiveness in the control of vegetation.	Yes
Hays, KS, Langdon, ND	1960	stem rust of wheat	Two studies on the stem rust of wheat were conducted during 1960 to obtain data on the establishment, development, and destructiveness of artificially induced stem rust epiphytotics.	Und
Eglin AFB, FL, C-52A test area	1962-70	Orange (1962-68), Purple (1962-68), White (1967-70), Blue (1968-70)	CPT John Hunter discussed vegetation changes and ecological studies of the 2 square mile test area which had been sprayed with herbicides over the period 1962-70.	Yes
Beaumont, TX	1950-51	2,4-D	The purpose was to determine means of accomplishing defoliation of tropical forest vegetation by application of a chemical agent. Here, irrigation water studies were done with the agent. Coghill, Hasse, and Yeatner wooorked here.	Und.
Prosser,WA	1950-51	2,4-D	The purpose was to determine means of accomplishing defoliation of tropical forest vegetation by application of a chemical agent.Here, irrigation water studies were done with the agent. V.F. Burns worked here.	Und.

Agent Orange: Herbicide Tests and Storage in the U.S.

Agent Orange and other herbicides used in Vietnam were tested or stored elsewhere, including many military bases in the United States. Below is information from the Department of Defense (DoD) on projects to test, dispose of, or store herbicides in the U.S. For projects outside the U.S., go

Alaska

Location:
Fort Chaffee, AK
Dates: 5/16/1967 - 5/18/1967, 7/22/1967 - 7/23/1967, 8/23/1967 - 8/24/1967
Project Description: During the period of 12/1966 - 10/1967, a comprehensive short-term evaluation was conducted by personnel from Fort Derrick's Plant Science Lab in coordination with contract research on formulations by chemical industry and field tests by USDA and U of HI.
Agents: Basic, in-house, improved desiccants and Orange, Blue
DoD Involvement: Yes

Arizona

Pinal Mountains near Globe, AZ
Dates: 1965, 1966, 1968, and 1969
Project Description: In 1965, the USFS began a land improvement program in the Pinal Mountains. The program called for spraying an area of chaparral with herbicides to accomplish the objectives of multiple land use.
Agents: 2,4-D isooctyl-ester, 2,4,5-t isooctyl-ester, silvex, propyleneglycolbutylether ester, 2,4,5-T butyl ester, 2,4,5-T 2-e-h e
DoD Involvement: No

California

Location Brawley, CA
Dates: 1950-51
Project Description: The purpose was to determine means of accomplishing defoliation of tropical forest vegetation by application of a chemical agent. Here, irrigation water studies were done with the agent. H.F. Arle worked here.
Agents: 2,4-D
DoD Involvement: Undetermined

Florida

Location: Orlando, FL; Cocoa, FL
Dates: 1944
Project Description: Tests were conducted in 1944 by the Army in Orlando and Cocoa areas of Florida to determine the value of ammonium thiocyanate and chloride as marking and defoliation agents. They were conducted initially at ground level and later from aircraft.
Agents: Ammonium thiocyanate and zinc chloride
DoD Involvement: Yes

Location: Near Lake George, FL
Dates: Spring 1944
Project Description: The purpose was to determine means of accomplishing defoliation of tropical forest vegetation by application of a chemical agent. Spraying here.
Agents: Zinc chloride
DoD Involvement: Yes

Location: Orlando, FL at Army Grove Air Force's Tactical Center
Dates: 3/14/1944, 4/12/1944
Project Description: The purpose was to determine means of accomplishing defoliation of tropical forest vegetation by application of a chemical agent.
Agents: Ammonium thiocynate, zinc chloride, sodium nitrate, sodium arsenate, sodium fluoride
DoD Involvement: Yes

Location: Marathon, FL
Dates: 3/21/1944 - 3/23/1944
Project Description: The purpose was to determine means of accomplishing defoliation of tropical forest vegetation by application of a chemical agent. Spraying was done here.
Agents: Zinc chloride, ammonium sulphamate, ammonium thiocynate
DoD Involvement: Yes

Location: Bushnell Army Air Field, FL
Dates: 2/1945
Project Description: Small plot experiments were commenced to test

the effectiveness of LN agents. Various trials were done under contract with the USDA, aided by personnel at Camp Detrick. Here, it was aerial spray experiments on potted plants.
Agents: LN *phenoxy
DoD Involvement: Yes

Location: Bushnell Army Air Field, FL
Dates: 2/1945 - 4/1945
Project Description: Trials, performed by C.W.S. personnel from Camp Detrick, MD, tested the practicability of severely injuring or destroying crop plants sprayed from smoke tanks mounted on tactical aircraft.
Agents: 2,4-D and its ammonium salt
DoD Involvement: Yes

Location: Avon Air Force Base, FL
Dates: 2/1951 - 4/1951
Project Description: Trials were conducted at Avon Air Force Base, FL by Chemical Corps with personnel of the Air Force and Navy to determine the practical effectiveness of spraying pure anticrop agents from at low volume from aircraft. C-47 and Navy XBT2D-1 aircraft with various nozzles were used.
Agents: Butyl 2,4 D
DoD Involvement: Yes

Location: Englin Air Force Base, FL
Dates: 11/1952 - 12/1952
Project Description: Two trials: Chemical Corps- concerned with basic fundamental work, using 2,4-D, Air Force-concerned with evaluating prototype large capacity spray system for aircraft installation using 2,4,5-T, primarily. Used 3 atomizing nozzles: Bete Fog Nozzles, Whirljet Spray Nozzles, and Fogjet 1.5F50.
Agents: 2,4-D, 2,4,5-T: 143 and 974, respectively
DoD Involvement: Yes

Location Avon Park Air Force Base, FL
Dates: Spring 1954
Project Description: Series of tests were conducted at Avon Park AFB during the spring of 1954 to study the behavior of chemical anticrop aerial sprays when released from high-speed jet aircraft. The Navy F3D jet fighter was used with Aero 14A Airborne Spray Tanks to disperse the anticrop agents.

Agents: Butyl 2,4-D, butyl 2,4,5-T, Isopropyl 2,4-D
DoD Involvement: Yes

Location: Jacksonville, FL

Dates: 7/18/1962 - 7/21/1962
Project Description: The HIDAL was used successfully on an H-34 helicopter to spray herbicidal materials. Therefore, it had not been calibrated previously. Spray tests were performed to do so. This was done under order by OSD/ARPA.
Agents: Purple, Fuel Oil, Mix
DoD Involvement: Yes

Location: Eglin AFB, FL, C-52A test area
Dates: 1962-70
Project Description: CPT John Hunter discussed vegetation changes and ecological studies of the 2 square mile test area which had been sprayed with herbicides over the period 1962-70.
Agents: Orange (1962-68), Purple (1962-68), White (1967-70), Blue (1968-70)
DoD Involvement: Yes

Location: Apalachicola National Forest near Sophoppy, FL
Dates: 5/3/1967 - 5/8/1967
Project Description: During the period of 12/1966 - 10/1967, a comprehensive short-term evaluation was conducted by personnel from Fort Detrick's Plant Science Lab in coordination with contract research on formulations by chemical industry and field tests by USDA and U of HI.
Agents: Basic desiccants and Orange/Blue
DoD Involvement: Yes

Location: Eglin AFB, FL
Dates: 6/11/1968-9/12/1968
Project Description: A spread factor study was performed by the Army to correlate the spherical drop sizes of both Orange and Stull Bifluid defoliants. It involved development of new techniques to determine spread factors over an extended range of drop sizes. A spinning cup drop generator was used.

Agents: Orange, Bifluid #1, Bifluid#2, Stull Bifluid
DoD Involvement: Yes

Location2 areas in FL, 2 areas in GA, and 1 in TN
Dates: 1968
Project Description: In 1968, emphasis was given to soil applied herbicides for grass control. Applications were made by a jeep-mounted sprayer on small plots or by helicopter on larger plots.
Agents: Bromacil, Tandex, monuron, diuron, and fenuron
DoD Involvement: Undetermined

Georgia

: Georgia and Tennessee
Dates: 1964
Project Description: In 1964, helicopter spray tests were conducted on transmission line rights-of-way by the Georgia Power Company and Tennessee Valley Authority in collaboration with Fort Detrick to evaluate effectiveness of several commercially available herbicides.
Agents: Diquat and Tordon 101, various
DoD Involvement: Yes

Location: Fort Gordon, GA
Dates: 7/15/1967 - 7/17/1967
Project Description: During the period of 12/1966 - 10/1967, a comprehensive short-term evaluation was conducted by personnel from Fort Detrick's Plant Science Lab in coordination with contract research on formulations by chemical industry and field tests by USDA and U of HI.
Agents: In-house desiccants mixtures and formulations, Orange and Blue
DoD Involvement: Yes

Location: 2 areas in GA, 2 areas in FL, and 1 in TN
Dates: 1968
Project Description: In 1968, emphasis was given to soil applied herbicides for grass control. Applications were made by a jeep-mounted sprayer on small plots or by helicopter on larger plots.
Agents: Bromacil, Tandex, monuron, diuron, and fenuron
DoD Involvement: Undetermined

Hawaii

Location: Hilo, HI
Dates: 12/1966
Project Description: Field tests of defoliants were designed to evaluate such variables as rates, volume of application, season, and vegetation. Data from aerial application tests at several CONUS and OCONUS locations are provided in tables. There were Fort Detrick personnel there.
Agents: Orange
DoD Involvement: Yes

Location: State Forest area, 3500 ft.elevation on slope of Mauna Loa, near Hilo, HI
Dates: 12/2/1966, 12/4/1966, 1/12/1967
Project Description: The purpose of this project was to evaluate iso-octyl ester of picloram (TORDON) in mixtures with ORANGE, as a candidate defoliant agent, using ORANGE as standard. There were personnel from Fort Detrick there.
Agents: Orange, M-3140, TORDON ester, 2,4-D ester, 2,4,5-T ester
DoD Involvement: Undetermined

Location: Kauai, HI
Dates: 1967
Project Description: Field tests of defoliants were designed to evaluate such variables as rates, volume of application, season, and vegetation. Data from aerial application tests at several CONUS and OCONUS locations are provided in tables.
Agents: Orange
DoD Involvement: Yes

Location: Kauai Branch Station near Kapaa, Kawai, HI
Dates: 6/1967, 10/1967, 12/1967, 2/1968
Project Description: During the period of 12/1966 - 10/1967, a comprehensive short-term evaluation was conducted by personnel from Fort Detrick's Plant Science Lab in coordination with contract research on formulations by chemical industry and field tests by USDA and U of HI.
Agents: Blue,diquat,paraquat, Orange, PCP, Picloram, White, HCA, 2,4,5T, Endothall
DoD Involvement: Yes

Indiana

Location: Vigo Plant CWS, Terre Haute, IN
Dates: 5/1945 - 9/1945
Project Description: Small plot experiments were commenced to test the effectiveness of LN agents. Various trials were done under contract with the USDA, aided by personnel at Camp Detrick. Here, it was aerial trials spraying field grown plants.
Agents: LN *phenoxy
DoD Involvement: Yes

Location: Jefferson Proving Grounds, Madison, IN
Dates: Summer 1945
Project Description: Small plot experiments were commenced to test the effectiveness of LN agents. Various trials were done under contract with the USDA, aided by personnel at Camp Detrick. Here, it was dropping trials.
Agents: LN *phenoxy
DoD Involvement: Yes

Kansas

Location: Hays, KS; Langdon, ND
Dates: 1960
Project Description: Two studies on the stem rust of wheat were conducted during 1960 to obtain data on the establishment, development, and destructiveness of artificially induced stem rust epiphytotics.
Agents: Stem rust of wheat
DoD Involvement: Undetermined

Kentucky

Location: Fort Knox, KY
Dates: 1945
Project Description: In 1945, a special project known as Sphinx was conducted jointly by CWS and the ARML to investigate the use of chemical agents for increasing the flammability of vegetation prior to flame attack.
Agents: Various
DoD Involvement: Yes

Maryland

Location: Camp Detrick, MD - Fields A, B, and C
Dates: 1946-47
Project Description: The experiments were directed mainly towards the investigation of plant inhibitors applied as sprays or to the soil in the solid form to be taken up by the roots.
Agents: 2,4,5-T, 2,4,5-T triethanolamine, tributylphosphate, ethyl 2,4-D, butyl 2,4,5-Ttriet 2,4-D
DoD Involvement: Yes

Location: Camp Detrick, MD - Fields C, D, and E
Dates: 1948
Project Description: The experiments were directed mainly towards the investigation of plant inhibitors applied as sprays or to the soil in the solid form to be taken up by the roots.
Agents: 2,4,5-T, isopropyl phenol carbamate, LN-2426, 2,4-D
DoD Involvement: Yes

Location: Camp Detrick, MD - Fields C, D, and E
Dates: 1949
Project Description: The experiments were directed mainly towards the investigation of plant inhibitors applied as sprays or to the soil in the solid form to be taken up by the roots. Experiments were done by Ennis, DeRose, Newman, Williamson, DeRigo, and Thomas.
Agents: Triethelyne. 2,4,5-T, carbamates
DoD Involvement: Yes

Location: Camp Detrick, MD - Fields A, B, D, and E
Dates: 1950
Project Description: The experiments were directed mainly towards the investigation of plant inhibitors applied as sprays or to the soil in the solid form to be taken up by the roots. Experiments were done by Ennis, DeRose, Acker, Newman, Williamson, and Zimmerly.
Agents: 2464, butyl 2,4-D, 974, butyl 2,4,5-T, q:q 143 and 974
DoD Involvement: Yes

Location: Camp Detrick, MD - Field F
Dates: 1950-51
Project Description: The experiments were directed mainly towards the investigation of plant inhibitors applied as sprays or to the soil in the solid form to be taken up by the roots. Experiments were done by Acker, DeRose, McLane, Newman, Williamson, Baker, Dean, Johnson,

Taylor, Walker, and Zimmerly.
Agents: 2464, carbamate, butyl 2,4-D, 143 and 974 (orange?),2,4,5-T, 2,4-D, Orange
DoD Involvement: Yes

Location: Area B, Camp Detrick, MD
Dates: Spring/Summer 1953
Project Description: Personnel at Camp Detrick tested the feasibility of using an experimental spray tower for applying a mixture of chemical anticrop agents to broad-leaf crops.
Agents: 3:1 mixture 2, 4-D and 2, 4, 5-T
DoD Involvement: Yes

Location: Fort Detrick, MD; Fort Ritchie, MD
Dates: 1956-57
Project Description: In 1956 And 1957, defoliation and desiccation were carried out at Fort Detrick and Fort Ritchie, Maryland by the Chemical Corps and Biological Warfare Research. These were bench tests.
Agents: Various, 577 compounds
DoD Involvement: Yes

Location: Fort Detrick, MD
Dates: 8/1961 - 6/1963
Project Description: From 8/1961 to 6/1963, compounds were spray-tested in the greenhouse to evaluate them as effective defoliants, desiccants, and herbicides.
Agents: 1410 compounds
DoD Involvement: Yes

Location: Fort Ritchie, MD

Dates: 1963
Project Description: Various studies were done to explore the effectiveness of different herbicides. They were all field trials. These studies were done by personnel from the US Army Biological Laboratories.
Agents: Tordon, 2,4-D, Orange, diquat, endothal, and combinations of each with Tordon
DoD Involvement: Yes

Location: Fort Meade, MD
Dates: 1963

Project Description: Various studies were done to explore the effectiveness of different herbicides. They were all field trials. These studies were done by personnel from the US Army Biological Laboratories.
Agents: Cacodylic acid, Dowco 173, butyediol
DoD Involvement: Yes

Location: Poole's Island, Aberdeen Proving Ground, MD
Dates: 7/14/1969 -
Project Description: During the week of 7/14/1969, personnel from Naval Applied Science Laboratory in conjunction with personnel from Limited War Laboratory conducted a defoliation test along the shoreline.
Agents: Orange, Orange plus foam, Orange plus foam Orange, Foam
DoD Involvement: Yes

Mississippi

Location: Near Wayside, MS, Wilcox Road, Greenville, MS
Dates: 9/19/1967
Project Description: In 1967, the Dow Chemical Company was awarded a DoD research contract. The objective was to prepare as pellets mixtures of various herbicides and to test them on varying vegetation situations for the control of a range of plant species.
Agents: Picloram, bromacil, pyriclor, and terbacil, Orange, cacodylic acid
DoD Involvement: Undetermined

Location: Fulcher Ranch, Greenville, MS
Dates: 4/15/1968
Project Description: In 1967, the Dow Chemical Company was awarded a DoD research contract. The objective was to prepare as pellets mixtures of various herbicides and to test them on varying vegetation situations for the control of a range of plant species.
Agents: Picloram and bromicil
DoD Involvement: Undetermined

Location: Gulfport, MS
Dates: 1968-70
Project Description: While discussing the mandatory disposal of Orange, it was mentioned that 15,161 drums were being stored at Gulfport, Mississippi.

Agents: Orange
DoD Involvement: Yes

Montana

Location: Galatin Valley near Bozeman, MT
Dates: 7/3/1953, 7/6/1953, 7/14/1953
Project Description: A preliminary series of field evaluations ofchemical agents for attacking wheat using a miniature spraying system mounted on light aircraft were performed by USDA.
Agents: 4- fluorophenoxy-acetic acid and 2 of its esters, 3:1 butyl 2,4-D and butyl 2,4,5-T
DoD Involvement: No

New York

Location: Fort Drum, NY
Dates: 1959
Project Description: The Commanding General, 1st US Army, requested that Fort Detrick assist with defoliation efforts at Fort Drum. Thirteen drums were sprayed there on 4 square miles from a helicopter spray device.
Agents: Orange
DoD Involvement: Yes

North Dakota

Location: Langdon, ND; Hays, KS
Dates: 1960
Project Description: Two studies on the stem rust of wheat were conducted during 1960 to obtain data on the establishment, development, and destructiveness of artificially induced stem rust epiphytotics.
Agents: Stem rust of wheat
DoD Involvement: Undetermined

Pennsylvania

Location: Stone Valley Experimental Forest in Huntington County and near State College in Centre County, PA

Dates: 3/1969 - 10/1970
Project Description: Soil- applied herbicides were studied by the U of Pa with Ft Detrick for 18 months for their effectiveness, rapidity of action, and duration of response in native stands of central PA grasses, broadleaf weeds and woody plants. These herbicides were spread or sprayed.
Agents: Bromacil, diuron, tandex, fenuron, picloram
DoD Involvement: Undetermined

Rhode Island

Location: Kingston, RI
Dates: 7/26/1949, 1950-51
Project Description: The experiments were directed mainly towards the investigation of plant inhibitors applied as sprays or to the soil in the solid form to be taken up by the roots. Experiments were carried out under supervision of T.E. Odland if RI State College. H.T. DeRigo was also there.
Agents: Trieth.2,4,5-T, butyl 2,4,5-T,974
DoD Involvement: Yes

Tennessee

Location: Tennessee and Georgia
Dates: 1964
Project Description: In 1964, helicopter spray tests were conducted on transmission line rights-of-way by the Georgia Power Company and Tennessee Valley Authority in collaboration with Fort Detrick to evaluate effectiveness of several commercially available herbicides.
Agents: Diquat and Tordon 101, various
DoD Involvement: Yes

Location: 1 in TN, 2 areas in FL, 2 areas in GA
Dates: 1968
Project Description: In 1968, emphasis was given to soil applied herbicides for grass control. Applications were made by a jeep-mounted sprayer on small plots or by helicopter on larger plots.
Agents: Bromacil, Tandex, monuron, diuron, and fenuron
DoD Involvement: Undetermined

Texas

Location: Beaumont, TX
Dates: 6/1944
Project Description: Small plot experiments were commenced to test the effectiveness of LN agents. Various trials were done under contract with the USDA, aided by personnel at Camp Detrick. Here, they were testing on rice crops.
Agents: LN *phenoxy
DoD Involvement: No

Location: Beaumont, TX
Dates: 1950-51
Project Description: The purpose was to determine means of accomplishing defoliation of tropical forest vegetation by application of a chemical agent. Here, irrigation water studies were done with the agent. Coghill, Hasse, and Yeatner worked here.
Agents: 2,4-D
DoD Involvement: Undetermined

Location: Weslaco, TX
Dates: 5/1967 - 1/1969
Project Description: 71 new arsenic compounds were tested in primary screening against 6 plant species in greenhouse tests. Then, 5 of the most active compounds were tested in field trials against Red Maple and compared to formulations of cacodylic acid and a 50:50 blend of orange and sodium cacodylate. The Ansul Co. for DoD.
Agents: Arsenic compounds, Orange, cacodylic acid, sodium cacodylate
DoD Involvement: Yes

Utah

Location: Granite Peak, UT
Dates: Summer 1945
Project Description: Small plot experiments were commenced to test the effectiveness of LN agents. Various trials were done under contract with the USDA, aided by personnel at Camp Detrick. Here, it was dropping trials.
Agents: LN *phenoxy
DoD Involvement: Yes

Washington

: Prosser, WA
Dates: 1950-51
Project Description: The purpose was to determine means of accomplishing defoliation of tropical forest vegetation by application

of a chemical agent. Here, irrigation water studies were done with the agent. V.F. Burns worked here.
Agents: 2,4-D
DoD Involvement: Undetermined

Wisconsin

Location: Marinette, WI
Dates: 5/1967 - 1/1969
Project Description: 71 new arsenic compounds were tested in primary screening against 6 plant species in greenhouse tests. Then, 5 of the most active compounds were tested in field trials against Red Maple and compared to formulations of cacodylic acid and a 50:50 blend of orange and sodium cacodylate. The Ansul Co. for DoD.
Agents: Arsenic compounds, Orange, cacodylic acid, sodium cacodylate
DoD Involvement: Yes

Agent Orange: Herbicide Tests and Storage Outside the U.S.

Agent Orange and other herbicides used in Vietnam were tested or stored elsewhere, including in countries outside of the U.S. Below is information from the Department of Defense (DoD) on projects to test, dispose of, or store herbicides outside the U.S. For projects in the U.S., go to

Cambodia

Location: Southeastern part of Kompong Cham Province and Dar and Prek Clong plantations, Cambodia
Dates: 6/1969
Project Description: In 6/1969, the US government received notice of charge by Cambodian government that major defoliation damage to the Cambodian rubber plantation near the RVN border had occurred as a result of US defoliation activity. This was confirmed by a team of experts.
Agents: Orange

DoD Involvement: Yes

Canada

Location: Base Gagetown near Fredericton, New Brunswick, Canada
Dates: 6/20/1967 - 6/24/1967
Project Description: During the period of 12/1966 - 10/1967, a comprehensive short-term evaluation was conducted by personnel from Fort Detrick's Plant Science Lab in coordination with contract research on formulations by chemical industry and field tests by USDA and U of HI.
Agents: Basic desiccants and Orange, Blue, various
DoD Involvement: Yes

India

Location: Kumbla, South India
Dates: 1945-1946
Project Description: The main objective of the experiments was to determine the feasibility of accomplishing severe injury or destruction of tropical food crops by the application of growth-inhibiting (LN*) compounds in static trials. Field plantings were treated with various agents at different rates in different forms.
Agents: LN compounds *phenoxy
DoD Involvement: Yes

Korea

Korea, third Brigade, 2nd Division area
Dates: 7/23/1968 - 7/24/1968

Project Description: In 1968, chemicals were sent from the Plant Sciences Lab, Ft Detrick, MD, to the Republic of Korea for the purpose of testing their effectiveness in the control of vegetation.
Agents: Hyvar XWS, tandex, Urox B, Urox Oil concentrate (liquids) bromacil, tandex, Urox 22 (solids)
DoD Involvement: Yes

Location Location: Korea, third Brigade, 2nd Division area
Dates: 10/3/1968
Project Description: In 1968, chemicals were sent from the Plant Sciences Lab, Ft Detrick, MD, to the Republic of Korea for the purpose of testing their effectiveness in the control of vegetation.
Agents: Hyvar XWS, tandex, Urox B, Urox Oil concentrate (liquids) bromacil, tandex, Urox 22 (solids)
DoD Involvement: Yes

Laos

Location:

Laos
Dates: 12/1965 - 1967
Project Description: In December 1965, herbicide operations were begun in Laos, with sorties being flown from Tan Son Nhut and Da Nang. The purpose was the exposure of foot trails, dirt roads and other LOCs that crossed into SVN. This network leads from NVN, through the eastern panhandle, to Combodian border.
Agents: Orange
DoD Involvement: Yes

Puerto Rico

Location:

Las Mesas and La Jagua experimental areas at Mayaguez, Puerto Rico
Dates: 2/1956 - 6/1956
Project Description: During February to June, 9 chemicals were evaluated in PR on 16 genera tropical woody plants. The chemicals were applied in highly concentrated solutions with a microsprayer to the leaves.
Agents: 2,4,5-T, 2,4-D, pentachlorophenol, ammate, weedazol, endothal Harvestaid, Butyne -1,4-diol
DoD Involvement: Yes

Location

: Guanica and Joyuda, Puerto Rico
Dates: 6/1956 - 9/1956
Project Description: 9 chemicals were evaluated on 16 genera of tropical woody between June and September. The chemicals were sprayed to duplicate small branches, using a microsprayer.
Agents: 2,4,5-T, potassium cyanate, amiendo, F-2, 6-Ca-4, Y-F Tree and Brush Kiler, ACP M-118, ShedA-Leaf
DoD Involvement: Yes

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Mesas and La Jagua, Mayaguez, Joyuda at Cabo Rojo, and Guanica Insular Forest at Guanica, Puerto Rico

Dates: 9/1956-12/1956
Project Description: 16 compounds with defoliating properties were evaluated using 28 different tropical woody plants, each representing a separate genus. The chemicals were applied to duplicate small branches with a microsprayer and to single larger branches or whole trees with a 2-gallon knapsack sprayer.
Agents: 6-Ca-4,Liojn Oil,2,4,5-T, B-1613, B-1638, Ammate, V-C1-186, endothal, shed-a-leaf, M-118, Y-F,esteron 2,4-D,F3,F4,F5,F6
DoD Involvement: Yes

Location: Las Mesas and La Jagua, Mayaguez, Guanica Beach, Puerto Rico
Dates: 1/1957 - 3/1957
Project Description: 7 compounds were evaluated on 29 different woody plants to determine their effectiveness as defoliants, desiccants, and as killing agents. They were applied with a microsprayer to the upper leaf surfaces of duplicate small branches.

Agents: V-C 3-105, V-C 1-21, V-C 1-443, F-7, TBP, Phillips 713, V-C 3-173
DoD Involvement: Yes

Dates: 4/1957 - 6/1957
Project Description: 7 compounds were sprayed on 25 different plants in order to evaluate their effectiveness as defoliants, desiccants, and killing agents. The compounds were applied with a microsprayer to the upper and lower leaf surfaces of duplicate small branches.
Agents: B-1676, B-1638, NP 1098, SD 1369, Ammate,

Shed-a-leaf
DoD Involvement: Yes

Location: Las Mesas and La Jagua, Mayaguez, Puerto Rico
Dates: 7/1957 - 12/1957
Project Description: 8 different spray formulations were applied to 16 different tropical trees and shrubs in order to evaluate their effectiveness as defoliants, desiccants, and killing agents.
Agents: MgClO3, Golden Harvest Defoliant, Dow-M562, F-8, F9, F-10, F-11, F-12
DoD Involvement: Yes

Location:

Loquillo, Puerto Rico
Dates: 4/1966, 10/1966
Project Description: Field tests of defoliants were designed to evaluate such variables as rates, volume of application, season, and vegetation. Data from aerial application tests at several CONUS and OCONUS locations are provided in tables.
Agents: Orange
DoD Involvement: Yes

Location

: Las Marias, Puerto Rico
Dates: 2/1967 - 12/1967
Project Description: During the period of 12/1966 - 10/1967, a comprehensive short-term evaluation was conducted by personnel from Fort Detrick's Plant Science Lab in coordination with contract research on formulations

by chemical industry and field tests by USDA and U of HI.
Agents: Various, including Orange
DoD Involvement: Yes

Location: Near Rio Grande, on the northeast coast of Puerto Rico
Dates: 8/23/1967, 10/18/1967, 12/21/1967-12/26/1967
Project Description: In 1967, the Dow Chemical Company was awarded a DoD research contract. The objective was to prepare as pellets mixtures of various herbicides and to test them on varying vegetation situations for the control of a range of plant species.
Agents: Picloram, bromacil, pyriclor, and terbacil
DoD Involvement: Undetermined

Location: Las Mesas Cerros, Mayaguez, Puerto Rico
Dates: 5/24/1968, 5/26/1968, 5/27/1968
Project Description: In 1967, the Dow Chemical Company was awarded a DoD research contract. The objective was to prepare as pellets mixtures of various herbicides and to test them on varying vegetation situations for the control of a range of plant species.
Agents: Picloram, bromacil, pyriclor
DoD Involvement: Undetermined

At Sea

Location: At Sea
Dates: Summer 1977
Project Description: In 1977, the USAF incinerated 2.22 million gallons of Herbicide Orange at sea in an operation entitled PACER HO. Extensive industrial hygiene sampling

efforts supporting the transfer operations at Gulfport, MS and Johnston Island indicated all exposures were inconsequential (2-3 orders of magnitude below the TLVs for 2,4-D and 2,4,5-T).
Agents: Orange
DoD Involvement: Yes (Gulfport, MS); No (Johnston Island)

Thailand

Location: Replacement Training Center of the Royal Thai Army near Pranburi, Thailand
Dates: 1964 and 1965
Project Description: An extensive series of tests were conducted by Fort Detrick during 1964 and 1965 in collaboration with the Military Research and Development Center of Thailand. The objective was to perform onsite evaluation of phytotoxic chemicals on vegetation in SE Asia.
Agents: Orange, Purple
DoD Involvement: Yes

Location: Thailand

Dates: 1964-65
Project Description: Sponsored by ARPA; ARPA Order 423, Between the mentioned dates, there was a large-scale test program to determine effectiveness of mentioned agents in defoliation of upland forest or jungle vegetation representative of SEA.
Agents: Purple, Orange, Others

DoD Involvement: Yes

Location: Thailand
Dates: 1964-65
Project Description: Field tests of defoliants were designed to evaluate such variables as rates, volume of application, season, and vegetation. Data from aerial application tests at several CONUS and OCONUS locations are provided in tables.
Agents: Orange, Blue

Admiral Elmo Zumwalt, commander of U.S. Navy in Vietnam and member of the Joint Chiefs of Staff, charged that the government's exoneration of Agent Orange was “politically motivated to cover up the true effects of dioxin, and manipulate public perception.”

Admiral Elmo R. ("Bud") Zumwalt, Jr

USN (1920-2000)

This is the forgotten story of the shameful nexus between politics-industry-scientists to poison the living and the future generations by terming the toxic chemical as safe for humans and environment. There are an estimated 650,000 like Hong Hanh in Vietnam, suffering from an array of baffling chronic conditions. Another 500,000 have already died. We are talking of the most toxic molecule known to science -- Agent Orange -- sprayed during a prolonged military campaign in the Vietnam war.

The company which manufactured and marketed Agent Orange, has now moved into genetic engineering. This is the company, which former US President Bill Clinton once remarked: "...will lead us into 21st century."

Nearly 30 years after the Vietnam war, the chemical weapon used by US troops is still exacting a hideous toll on each new generation. Cathy Scott-Clark and Adrian Levy report.

Spectre Orange

CATHY SCOTT-CLARK & ADRIAN LEVY / The Guardian 29mar03

Hong Hanh is falling to pieces. She has been poisoned by the most toxic molecule known to science; it was sprayed during a prolonged military campaign. The contamination persists. No redress has been offered, no compensation. The superpower that spread the toxin has done nothing to combat the medical and environmental catastrophe that is overwhelming her country. This is not northern Iraq, where Saddam Hussein gassed 5,000 Kurds in 1988. Nor the trenches of first world war France. Hong Hanh's story, and that of many more like her, is quietly unfolding in Vietnam today. Her declining half-life is spent unseen, in her home, an unremarkable concrete box in Ho Chi Minh City, filled with photographs, family plaques and yellow enamel stars, a place where the best is made of the worst.

Hong Hanh is both surprising and terrifying. Here is a 19-year-old who lives in a 10-year-old's body. She clatters around with disjointed spidery strides which leave her soaked in sweat. When she cannot stop crying, soothing creams and iodine are rubbed into her back, which is a lunar collage of septic blisters and scabs. "My daughter is dying," her mother says. "My youngest daughter is 11 and she has the same symptoms. What should we do? Their fingers and toes stick together before they drop off. Their hands wear down to stumps. Every day they lose a little more skin. And this is not leprosy. The doctors say it is connected to American chemical weapons we were exposed to during the Vietnam war."

There are an estimated 650,000 like Hong Hanh in Vietnam, suffering from an array of baffling chronic conditions. Another 500,000 have already died. The thread that weaves through all their case histories is

defoliants deployed by the US military during the war. Some of the victims are veterans who were doused in these chemicals during the war, others are farmers who lived off land that was sprayed. The second generation are the sons and daughters of war veterans, or children born to parents who lived on contaminated land. Now there is a third generation, the grandchildren of the war and its victims.

This is a chain of events bitterly denied by the US government. Millions of litres of defoliants such as Agent Orange were dropped on Vietnam, but US government scientists claimed that these chemicals were harmless to humans and short-lived in the environment. US strategists argue that Agent Orange was a prototype smart weapon, a benign tactical herbicide that saved many hundreds of thousands of American lives by denying the North Vietnamese army the jungle cover that allowed it ruthlessly to strike and feint.

"In Vietnam the US had conducted the
"largest chemical warfare campaign in history."

Scientists at a conference at Yale University in April 20

New scientific research, however, confirms what the Vietnamese have been claiming for years. It also portrays the US government as one that has illicitly used weapons of mass destruction, stymied all independent efforts to assess the impact of their deployment, failed to acknowledge cold, hard evidence of maiming and slaughter, and pursued a policy of evasion and deception.

Teams of international scientists working in Vietnam have now discovered that Agent Orange contains one of the most virulent poisons known to man, a strain of dioxin called TCCD which, 28 years after the fighting ended, remains in the soil, continuing to destroy the lives of those exposed to it. Evidence has also emerged that the US government not only knew that Agent Orange was contaminated, but was fully aware of the killing power of its contaminant dioxin, and yet still continued to use the herbicide in Vietnam for 10 years of the war and in concentrations that exceeded its own guidelines by 25 times. As well as spraying the North Vietnamese, the US doused its own troops stationed in the jungle, rather than lose tactical advantage by having them withdraw.

On February 5, addressing the UN Security Council, secretary of state Colin Powell, now famously, clutched between his fingers a tiny phial representing concentrated anthrax spores, enough to kill thousands, and only a tiny fraction of the amount he said Saddam Hussein had at his disposal. The Vietnamese government has its own symbolic phial that it, too, flourishes, in scientific conferences that get little publicity. It contains 80g of TCCD, just enough of the super-toxin contained in Agent Orange to fill a child-size talcum powder container. If dropped into the water supply of a city the size of New York, it would kill the entire population. Ground-breaking research by Dr Arthur H Westing, former director of the UN Environment Programme, a leading authority on Agent Orange, reveals that the US sprayed 170kg of it over Vietnam.

John F Kennedy's presidential victory in 1961 was propelled by an image of the New Frontier. He called on Americans to "bear the burden of a long twilight struggle ... against the common enemies of man: tyranny, poverty, disease, and war itself." But one of the most problematic new frontiers, that dividing North and South Vietnam, flared up immediately after he had taken office, forcing him to bolster the US-backed regime in Saigon. Kennedy examined "tricks and gadgets" that might give the South an edge in the jungle, and in November 1961 sanctioned the use of defoliants in a covert operation code-named Ranch Hand, every mission flown signed off by the president himself and managed in Saigon by the secret Committee 202 - the call sign for defoliating forests being "20" and for spraying fields "2".

Ngo Luc, 67, was serving with a North Vietnamese guerrilla unit in the Central Highlands when he saw planes circling overhead. "We expected bombs, but a fine yellow mist descended, covering absolutely everything," he says. "We were soaked in it, but it didn't worry us, as it smelled good. We continued to crawl through the jungle. The next day the leaves wilted and within a week the jungle was bald. We felt just fine at the time." Today, the former captain is the sole survivor from his unit and lives with his two granddaughters, both born partially paralysed, near the central Vietnamese city of Hue.

When US troops became directly embroiled in Vietnam in 1964, the Pentagon signed contracts worth $57m (£36m) with eight US chemical companies to produce defoliants, including Agent Orange, named after the coloured band painted around the barrels in which it was shipped. The US would target the Ho Chi Minh trail - Viet Cong supply lines made invisible by the jungle canopy along the border with Laos - as well as the heavily wooded Demilitarised Zone (DMZ) that separated the North from the South, and also the Mekong Delta, a maze of overgrown swamps and inlets that was a haven for communist insurgents.

A reporter for the St Louis Dispatch witnessed a secret spraying mission and wrote that the US was dropping "poison". Congressman Robert Kastenmeier demanded that the president abandon "chemical warfare" because it tainted America's reputation. Instead, William Bundy, a presidential adviser, flatly denied that the herbicide used by America was a chemical weapon, and blamed communist propagandists for a distortion of the facts about the Ranch Hand operation. Only when the Federation of American Scientists warned that year that Vietnam was being used as a laboratory experiment did the rumours become irrefutable. More than 5,000 American scientists, including 17 Nobel laureates and 129 members of the Academy of Sciences, signed a petition against "chemical and biological weapons used in Vietnam".

Eight years after the military launched Operation Ranch Hand, scientists from the National Institute of Health warned that laboratory mice exposed to Agent Orange were giving birth to stillborn or deformed litters, a conclusion reinforced by research conducted by the US department of agriculture. These findings coincided with newspaper reports in Hanoi that blamed Agent Orange for a range of crippling conditions among troops and their families. Dr Le Ke Son, a young conscript in Hanoi during the war and now director of Vietnam's Agent Orange Victims Fund, recalls, "The government proposed that a line of runners carry blood and tissue samples from the front to Hanoi. But it was more than 500 miles and took two months, by which time the samples were spoiled. How could we make the research work?

There was no way to prove what we could see with our own eyes." In December 1969, President Nixon made a radical and controversial pledge that America would never use chemical weapons in a first strike. He made no mention of Vietnam or Agent Orange, and the US government continued dispatching supplies of herbicides to the South Vietnamese regime until 1974.

That year, Kiem was born in a one-room hut in Kim Doi, a village just outside Hue. For her mother, Nguyen, she should have been a consolation because her husband, a Viet Cong soldier, had been killed several months earlier. "The last time he came home, he told me about the spray, how his unit had been doused in a sweet-smelling mist and all the leaves had fallen from the trees," Nguyen says. It soon became obvious that Kiem was severely mentally and physically disabled. "She can eat, she can smile, she sits on the bed. That's it. I have barely left my home since my daughter was born."

By the time the war finally ended in 1975, more than 10% of Vietnam had been intensively sprayed with 72 million litres of chemicals, of which 66% was Agent Orange, laced with its super-strain of toxic TCCD. But even these figures, contained in recently declassified US military records, vastly underestimate the true scale of the spraying. In confidential statements made to US scientists, former Ranch Hand pilots allege that, in addition to the recorded missions, there were 26,000 aborted operations during which 260,000 gallons of herbicide were dumped. US military regulations required all spray planes or helicopters to return to base empty and one pilot, formerly stationed at Bien Hoa air base between 1968 and 1969, claims that he regularly jettisoned his chemical load into the Long Binh reservoir.

"These herbicides should never have been used in the way that they were used," says the pilot, who has asked not to be identified. Almost immediately after the war finished, US veterans began reporting chronic conditions, skin disorders, asthma, cancers, gastrointestinal diseases. Their babies were born limbless or with Down's syndrome and spina bifida. But it would be three years before the US department of veterans' affairs reluctantly agreed to back a medical investigation, examining 300,000 former servicemen - only a fraction of those who had complained of being sick - with the government warning all participants that it was indemnified from lawsuits brought by them. When rumours began circulating that President Reagan had told scientists not to make "any link" between Agent Orange and the deteriorating health of veterans, the victims lost patience with their government and sued the defoliant manufacturers in an action that was finally settled out of court in 1984 for $180m (£115m).

It would take the intervention of the former commander of the US Navy in Vietnam, Admiral Elmo Zumwalt, for the government finally to admit that it had been aware of the potential dangers of the chemicals used in

Vietnam from the start of Ranch Hand. The admiral's involvement stemmed from a deathbed pledge to his son, a patrol boat captain who contracted two forms of cancer that he believed had been caused by his exposure to Agent Orange.

Every day during the war, Captain Elmo Zumwalt Jr had swum in a river from which he had also eaten fish, in an area that was regularly sprayed with the herbicide. Two years after his son's death in 1988, Zumwalt used his leverage within the military establishment to compile a classified report, which he presented to the secretary of the department of veterans' affairs and which contained data linking Agent Orange to 28 life-threatening conditions, including bone cancer, skin cancer, brain cancer - in fact, almost every cancer known to man - in addition to chronic skin disorders, birth defects, gastrointestinal diseases and neurological defects.

Zumwalt also uncovered irrefutable evidence that the US military had dispensed "Agent Orange in concentrations six to 25 times the suggested rate" and that "4.2m US soldiers could have made transient or significant contact with the herbicides because of Operation Ranch Hand". This speculative figure is twice the official estimate of US veterans who may have been contaminated with TCCD.

Most damning and politically sensitive of all is a letter, obtained by Zumwalt, from Dr James Clary, a military scientist who designed the spray tanks for Ranch Hand. Writing in 1988 to a member of Congress investigating Agent Orange, Clary admitted: "When we initiated the herbicide programme in the 1960s, we were aware of the potential for damage due to dioxin contamination in the herbicide. We were even aware that the military formulation had a higher dioxin concentration than the civilian version, due to the lower cost and speed of manufacture. However, because the material was to be used on the enemy, none of us were overly concerned."

The Office of Genetic Counselling and Disabled Children (OGCDC) operates out of a room little bigger than a broom cupboard. Dr Viet Nhan and his 21 volunteers share their cramped quarters at Hue Medical College with cerebral spinal fluid shunt kits donated from Norfolk, Virginia; children's clothes given by the Rotary Club of Osaka, Japan; second-hand computers scavenged from banks in Singapore.

Vietnam's chaotic and underfunded national health service cannot cope with the demands made upon it. The Vietnamese Red Cross has registered an estimated one million people disabled by Agent Orange, but has sufficient funds to help only one fifth of them, paying out an average of $5 (£3) a month. Dr Nhan established the free OGCDC, having studied the impact of Agent Orange as a student, to match Vietnamese families to foreign private financial donors. "It was only when I went out to the villages looking for case studies that I realised how many families were affected and how few could afford help," he says. "I abandoned my research. Children need to run before they die."

The walls of his room are plastered with bewildering photographs of those he has helped: operations for hernias and cleft palates, open-heart surgery and kidney transplants. All of the patients come from isolated districts in central Vietnam, villages whose names will be unfamiliar, unlike the locations that surround them: Khe Sanh, Hamburger Hill, Camp Carroll and the Rock Pile. "I am not interested in apportioning blame," Nhan says. "I don't want to talk to you about science or politics. What I care about is that I have 60 sick children needing financial backers. They cannot wait for the US to change its policy, take its head out of the sand and clear up the mess."

He takes us into an intensive care ward to meet nine-year-old Nguyen Van Tan, who two weeks before had open-heart surgery to correct a birth defect thought to be connected to dioxin poisoning. There is no hard proof of this, but his father, who sits beside the bed, talks of being sprayed with defoliants when he fought with the Viet Cong. The area they live in was repeatedly doused during the war. Almost all of his former battlefield comrades have disabled children, he says. Nhan ushers us away. "I don't want to tell the family yet, but their boy will never fully recover. He is already suffering from total paralysis. The most we can do now is send them home with a little money."

Back in his tiny office, the doctor gestures to photocopies of US Air Force maps, sent by a veterans' organisation because the US government refuses to supply them. These dizzying charts depict the number of herbicide missions carried out over Quang Tri, a province adjacent to the DMZ, from where almost all Nhan's patients come. Its topography is obliterated by spray lines, 741,143 gallons of chemicals dropped here, more than 600,000 of them being Agent Orange. "I'm just scratching the surface," he says.

The Vietnamese government is reluctant to let us travel to Quang Tri province. It does not want us "to poke and prod" already dismal villagers, treating them as if they are medical exhibits. We attempt to recruit some high-powered support and arrange a meeting in Hanoi with Madame Nguyen Thi Binh, who until last year was the vice-president of Vietnam. She receives us at the presidential palace in a teak-panelled hall beneath an enormous photograph of Ho Chi Minh in a gold frame writhing with dragons. "Thank you, my young friends, for your interest in Vietnam," Madame Binh says, straightening her grey silk ao dai, a traditional flowing trouser suit.

She looks genteel, but old photographs of her in olive fatigues suggest she is a seasoned campaigner. As minister of foreign affairs for the Provisional Revolutionary South Vietnamese government, she negotiated at the Paris peace talks in 1973. "I must warn you, I will not answer questions about George W Bush," she says, casting a steely gaze, perhaps conscious of the fact that, since the lifting of the US economic embargo in 1994, trade with America has grown to £650m a year.

Madame Binh does, however, want to talk about chemical warfare, recalling how, when she returned after the war to her home province of Quang Nam, a lush region south-west of Hue which was drenched in defoliants, she found "no sign of life, just rubble and grass". She says: "All of our returning veterans had a burning desire for children to repopulate our devastated country. When the first child was born with a birth defect, they tried again and again. So many families now have four or five disabled children, raising them without any hope."

What should the US do? Madame Binh laughs. "It's very late to do anything. We put this issue directly on the table with the US. So far they have not dealt with the problem. If our relationship is ever to be normal, the US has to accept responsibility. Go and see the situation for yourself." She sends us back to Hue. Over chilled water and tangerines, we talk to a suspicious party secretary who asks us why we have bothered to come after all these years. "There is no point," he says. "Nothing will come of it."

But he opens his file all the same and reads aloud: "In Hue city there are 6,633 households affected by Agent Orange and in them 3,708 sick children under the age of 16." He eventually agrees to take us north-west, over the Perfume river, beyond the ancient royal tombs that circle this former imperial city, towards the DMZ. We arrive at a distant commune where a handyman is sprucing up a bust of Ho Chi Minh with white gloss paint.

Eventually, the chairman of the People's Committee of Dang Ha joins us, and our political charabanc stuffed with seven officials sets out across the green and gold countryside, along crisscrossing lanes. The chairman tells us proudly how he was born on January 31 1968, the night of the Tet offensive, the turning point of the war, when the Viet Cong launched its assault on US positions. By the time we stop, we are all the best of friends and, holding hands, he pulls us into the home of the Pham family, where a wall of neighbours and an assembly of local dignitaries dressed in shiny, double-breasted jackets stare grimly at a moaning child.

He lies on a mat on the floor, his matchstick limbs folded uselessly before him, his parents taking it in turns to mop his mouth, as if without them he would drown in his own saliva. Hoi, the boy's mother, tells us how she met her husband when they were assigned to the same Viet Cong unit in which they fought together for 10 years. But she alone was ordered to the battle of Troung Hon mountain. "I saw this powder falling from the sky," she says. "I felt sick, had a headache. I was sent to a field hospital. I was close to the gates of hell. By the time I was discharged, I had lost the strength in my legs and they have never fully recovered. Then Ky was born, our son, with yellow skin.

Every year his problems get worse." Her husband, Hung, interrupts: "Sometimes, we have been so desperate for money that we have begged in the local market. I do not think you can imagine the humiliation of that." And this family is not alone. All the adults here, cycling past us or strolling along the dykes, are suffering from skin lesions and goitres that cling to necks like sagging balloons. The women spontaneously abort or give birth to genderless squabs that horrify even the most experienced midwives.

In a yard, Nguyen, a neighbour's child, stares into space. He has a hydrocephalic head as large as a melon. Two houses down, Tan has distended eyes that bubble from his face. By the river, Ngoc is sleeping, so wan he resembles a pressed flower. "They told me the boy is depressed," his exhausted father tells us. "Of course he's depressed. He lives with disease and death."

This is not a specially constructed ghetto used to wage a propaganda war against imperialism. The Socialist Republic of Vietnam has long embraced the free market. This is an ordinary hamlet where, in these new liberal

times, villagers like to argue about the English Premiership football results over a glass of home-brewed rice beer. Here live three generations affected by Agent Orange: veterans who were sprayed during the war and their successors who inherited the contamination or who still farm on land that was sprayed. Vietnam's impoverished scientific community is now trying to determine if there will be a fourth generation. "How long will this go on?" asks Dr Tran Manh Hung, the ministry of health's leading researcher.

Dr Hung is now working with a team of Canadian environmental scientists, Hatfield Consultants, and they have made an alarming discovery. In the Aluoi Valley, adjacent to the Ho Chi Minh trail, once home to three US Special Forces bases, a region where Agent Orange was both stored and sprayed, the scientists' analysis has shown that, rather than naturally disperse, the dioxin has remained in the ground in concentrations 100 times above the safety levels for agricultural land in Canada.

It has spread into Aluoi's ponds, rivers and irrigation supplies, from where it has passed into the food chain, through fish and freshwater shellfish, chicken and ducks that store TCCD in fatty tissue. Samples of human blood and breast milk reveal that villagers have ingested the invisible toxin and that pregnant women pass it through the placenta to the foetus and then through their breast milk, doubly infecting newborn babies. Is it, then, a coincidence that in this minuscule region of Vietnam, more than 15,000 children and adults have already been registered as suffering from the usual array of chronic conditions?

"We theorise that the Aluoi Valley is a microcosm of the country, where numerous reservoirs of TCCD still exist in the soil of former US military installations," says Dr Wayne Dwernychuk, vice-president of Hatfield Consultants. There may be as many as 50 of these "hot spots", including one at the former US military base of Bien Hoa, where, according to declassified defence department documents, US forces spilled 7,500 gallons of Agent Orange on March 1 1970. Dr Arnold Schecter, a leading expert in dioxin contamination in the US, sampled the soil there and found it to contain TCCD levels that were 180 million times above the safe level set by the US environmental protection agency.

It is extremely difficult to decontaminate humans or the soil. A World Health Organisation briefing paper warns: "Once TCCD has entered the body it is there to stay due to its uncanny ability to dissolve in fats and to its rock solid chemical stability." At Aluoi, the researchers recommended the immediate evacuation of the worst affected villages, but to be certain of containing this hot spot, the WHO also recommends searing the land with temperatures of more than 1,000C, or encasing it in concrete before treating it chemically.

At home, the US takes heed. When a dump at the Robins Air Force Base in Georgia was found to have stored Agent Orange, it was placed on a National Priority List, immediately capped in five feet of clay and sand, and has since been the subject of seven investigations. Dioxin is now also a major domestic concern, scientists having discovered that it is a by-product of many ordinary industrial processes, including smelting, the bleaching of paper pulp and solid waste incineration. The US environmental protection agency, pressed into a 12-year inquiry, recently concluded that it is a "class-1 human carcinogen".

The evidence is categoric. Last April, a conference at Yale University attended by the world's leading environmental scientists, who reviewed the latest research, concluded that in Vietnam the US had conducted the "largest chemical warfare campaign in history". And yet no money is forthcoming, no aid in kind. For the US, there has only ever been one contemporary incident of note involving weapons of mass destruction - Colin Powell told the UN Security Council in February that, "in the history of chemical warfare, no country has had more battlefield experience with chemical weapons since world war one than Saddam Hussein's Iraq".

The US government has yet to respond to the Hatfield Consultants' report, which finally explains why the Vietnamese are still dying so many years after the war is over, but, last March, it did make its first contribution to the debate in Vietnam. It signed an agreement with a reluctant Vietnamese government for an $850,000 (£543,000) programme to "fill identified data gaps" in the study of Agent Orange. The conference in Hanoi that announced the decision, according to Vietnamese Red Cross representatives who attended, ate up a large slice of this funding. One of the signatories is the same US environmental protection agency that has already concluded that dioxin causes cancer.

"Studies can be proposed until hell freezes over," says Dr Dwernychuk of Hatfield Consultants, "but they are not going to assist the Vietnamese in a humanitarian sense one iota. We state emphatically that no additional research on human health is required to facilitate intervention or to protect the local citizens."

There is cash to be lavished in Vietnam when the US government sees it as politically expedient. Over the past 10 years, more than $350m (£223m) has been spent on chasing ghosts. In 1992, the US launched the Joint Task Force-Full Accounting to locate 2,267 servicemen thought to be missing in action in Vietnam, Cambodia and Laos. Jerry O'Hara, spokesman for JTF-FA, which is still searching for the remains of 1,889 of them, told us, "We don't place a monetary value on what we do and we'll be here until we have brought all of the boys back home."

So it is that America continues to spend considerably more on the dead than it does on the millions of living and long-suffering - be they back home or in Vietnam. The science of chemical warfare fills a silent, white-tiled room at Tu Du hospital in Ho Chi Minh City. Here, shelves are overburdened with research materials. Behind the locked door is an iridescent wall of the mutated and misshapen, hundreds of bell jars and vacuum-sealed bottles in which human foetuses float in formaldehyde. Some appear to be sleeping, fingers curling their hair, thumbs pressing at their lips, while others with multiple heads and mangled limbs are listless and slumped. Thankfully, none of these dioxin babies ever woke up.

One floor below, it is never quiet. Here are those who have survived the misery of their births, ravaged infants whom no one has the ability to understand, babies so traumatised by their own disabilities, luckless children so enraged and depressed at their miserable fate, that they are tied to their beds just to keep them safe from harm.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY WASHINGTON D.C. 20460 OFFICE OF SOLID WASTE AND EMERGENCY RESPONSE

MEMORANDUM

DATE: November 15, 1990
SUBJECT: Criminal Investigation of Monsanto Corporation - Cover-up of Dioxin Contamination in Products - Falsification of Dioxin Health Studies.
FROM: Cate Jenkins, Ph.D., Chemist Regulatory Development Branch (OS 332) Characterization and Assessment Division.
TO: John West, Special Agent in Charge Office of Criminal Investigations Center U.S. Environmental Protection Agency Building 53, Box 25227 (303) 236-5100 Kevin Guarino, Special Agent Office of Criminal Investigations National Enforcement Investigations Center, EPA

As per our meeting yesterday, I am summarizing information available to me supporting allegations of a long pattern of fraud by Monsanto Corporation. The fraud concerns 2,3,7,7-tetrachlorodibenzodi (dioxin) contamination of Monsanto's dioxin-exposed workers. You indicated that you would contact me regarding the specific documents which would be useful to your investigation.

SIGNIFICANCE OF MONSANTO'S DIOXIN FRAUD

You stated that pursuing a criminal prosecution against Monsanto would require a prior determination of the significance of the fraud. In order for proceedings to be initiated by EPA, the fraud would need to have affected the regulatory process at EPA and Monsanto would need to have knowingly submitted the falsified data and health studies to EPA in order to affect the regulatory process.

Monsanto has in fact submitted false information to EPA which directly resulted in weakened regulations under RCRA and FIFRA since these regulations do not take into account tetrachlorinated dioxin contamination in trig, tetra, and pentachlorophenols, as well as 2,4-dichlorophenol and its phenoxy acetate (2,3-D, a currently used herbicide). In addition, Monsanto's failure to report dioxin contamination of the disinfectant in Lysol has prevented any ban or other alleviation of human exposures to dioxins in this product.

The Monsanto human health studies have been submitted to EPA by Monsanto as part of public comments on proposed dioxin rules and Agency-wide dioxin health studies are continually relied upon by all offices of EPA to conclude that dioxins have not caused cancer or other health effects (other than chloracne) in humans. Thus, dioxin has been given a lesser carcinogenic potential ranking, which continues to be the basis of less stringent regulations and lesser degrees of environmental controls. The Monsanto studies in question also have been a key basis for denying compensation to Vietnam Veterans exposed to Agent Orange and their children suffering birth defects from such parental exposures. (1)

Monsanto would not be able to support a claim that independent researchers were responsible for the falsifications, because Monsanto personnel compiled all data utilized by these researchers. In addition the National Institute of Environmental Health Sciences partially funded one of the Monsanto studies in question providing a basis for charges of the fraudulent use of governmental funds.

DIOXIN CONTAMINATION OF MONSANTO PRODUCTS

Monsanto covered-up the dioxin contamination of a wide range of its products. Monsanto either failed to report contamination, substituted false information purporting to show no contamination or submitted samples to the government for analysis which had been specially prepared so that dioxin contamination did not exist.

The earliest known effort by Monsanto to cover-up dioxin contamination of its products involved the herbicide used in Vietnam Agent Orange (2,4, 5- trichlorophenoxy acetate, 2,4,5-T). Available internal Monsanto correspondence in the 1960s shows a knowledge of this contamination and the fact that the dioxin contaminant was responsible for kidney and liver damage, as well as the skin condition chloracne."

Early internal Monsanto documents reveal that samples of 2,4,5-T and other chlorinated herbicides and chlorophenols submitted to the U.S. Department of Agriculture in the 1970s were "doctored." In other words, highly contaminated samples were not submitted to the government, and Monsanto samples of penta tetra-, tetra-, tri-, dichlorophenol, and associated herbicides never contained tetrachlorinated dioxins. These analyses were subsequently adopted by EPA in a 1980 publication and were used without any data from other sources as the basis for 1984 regulations under RCRA. As a result, these regulations do not control the chlorophenol phenoxy acetate products as acutely hazardous due to their contamination of tetrachlorinated dioxins.

Monsanto also submitted assertions to EPA that process chemistry would preclude the formation of tetrachlorophenol or its phenoxy acetate. Evidence from the Kemner v. Monsanto proceedings revealed that this process chemistry claimed by Monsanto was not always used. In fact, off- specification dichlorophenol, known to be contaminated with tetrachlorinated dioxin, was being used as a feedstock to make pentachlorophenol and other chlorinated products. The result of this alternate synthesis route is the introduction of dioxins as a contaminants.

EPA also relied on these "process chemistry" arguments by Monsanto as a basis for not regulating most chlorophenols and 2,4-D for their tetrachlorinated dioxin content.

Another Monsanto document introduced as evidence in the above proceedings shows cross-contamination of a range of Monsanto products with tetrachlorinated dioxins by the following mechanism: The same production equipment is used without cleaning for all chlorinated phenolic products. In 1984, when promulgating the dioxin regulations under RCRA, EPA was only made aware of the cross contamination problem in the event that 2,4-D was made on equipment previously used to make 2,4,5-T. Thus, EPA again was subverted from promulgating adequate regulations for products other than 2,4-D that were cross-contaminated with dioxins.

Members of the Canadian Parliament recently directed investigations by the Royal Canadian Mounted Police and government scientist into the dioxin contamination of disinfectants such as Lysol containing Monsanto's Santophen (ortho-dichloro-para-phenol), and directed laboratory analyses of existing stocks. This disinfectant uses the ortho-dichlorophenol, discussed above, as a feedstock, which would introduce any dioxins present into the disinfectant. In a 1984 letter to the Canadian government, Monsanto asserted that their disinfectant contained no dioxin. This was later refuted by testimony by Monsanto's chemist.

FRAUDULENT DIOXIN HEALTH STUDIES

As you indicated today, demonstrating criminal fraud in the epidemiological studies performed by Monsanto on its dioxin-exposed workers would necessitate bringing in appropriate groups in EPA capable of performing scientific study audits.(3) You indicated, however, that NEIC did not believe this would be a barrier to the investigation. The following are a few key instances where obvious fraud was utilized in the conduct of these studies:

Dr. Raymond Suskind at the University of Cincinnati was hired by Monsanto to study the workers at Monsanto's Nitro, West Virginia plant. Dr. Suskind stated in published studies in question that chloracne, a skin

condition was the prime indicator of high human dioxin exposures, and no other health effects would be observed in the absence of this condition. Unpublished studies by Suskind, however, indicate the fallacy of this statement. No workers except those having chloracne were ever examined by Suskind or included in his study. In other words, if no workers without chloracne were ever examined for other health effects, there is no basis for asserting that chloracne was "the hallmark of dioxin intoxication."(4) These conclusions have been repeatedly utilized by EPA, the Veterans Administration, etc., to deny any causation by dioxin of health effects of exposed citizens, if these persons did not exhibit chloracne.

The results of Dr. Suskind's studies also were diluted by the fact that the exposed group contained not only individuals having chloracne (a genuine, but not the only effect of dioxin exposure), but also all workers having any type of skin condition such as chemical rash. The workers could have had no or negligible dioxin exposures, but they were included in the study as part of the heavily exposed group. This fact was revealed only by the careful reading of the published Suskind study.(5) Further, Dr. Suskind utilized statistics on the skin conditions of workers compiled by a Monsanto clerical worker, without any independent verification.(6) Dr. Suskind also covered-up the documented neurological damage from dioxin exposures. At Workers Compensation hearings, Suskind denied that the workers experienced any neurological health effects. In the Kemner, et al. v. Monsanto proceedings, however, it was revealed that Suskind had in his possession at the time examinations of the workers by Monsanto's physician, Dr. Nestman, documenting neurological health effects. In his later published study, Dr. Suskind denied the continuing documented neurological health effects suffered by the workers, falsely stating that symptoms "had cleared."

All of the Monsanto dioxin studies also suffer another fatal flaw. The purported "dioxin unexposed" control group was selected from other workers at the same Monsanto plant. An earlier court settlement revealed not only that these supposedly unexposed workers were exposed to dioxins, but also to other carcinogens. One of these carcinogens, para-amino biphenyl, was known by Monsanto to be a human carcinogen and it was also known that workers were heavily exposed.

Another Monsanto study involved independent medical examinations of surviving employees by Monsanto physicians. Several hundred former Monsanto employees were too ill to travel to participate in the study. Monsanto refused to use the attending physicians reports of the illness as part of their study, saying that it would introduce inconsistencies. Thus, any critically ill dioxin-exposed workers with cancers such as Non-Hodgkins lymphoma (associated with dioxin exposures), were conveniently excluded from the Monsanto study.

There are numerous other flaws in the Monsanto health studies. Each of these misrepresentations and falsifications always served to negate any conclusions of adverse health effects from dioxins. A careful audit of these studies by EPA's epidemiological scientists should be obtained as part of your investigation.

The false conclusions contained in the Monsanto studies have recently been refuted by the findings of a recent study by the National Institute of Occupation Safety and Health (NIOSH). This NIOSH study, recently circulated by Dr. Marilyn Fingerhut for review, found a statistically significant increase in cancers at all sites in the Monsanto workers, when dioxin exposed workers at Monsanto and other industrial locations were examined as an aggregate group.(7)

Please do not hesitate to contact me regarding documents to support your investigation, which include testimony and evidentiary documents from the on-going Kemner v Monsanto litigation, earlier litigation in West Virginia brought by the Monsanto workers, ongoing investigations by the Canadian government internal Monsanto documents, as well as documentation of the submission of the fraudulent data and studies by Monsanto to support the rulemaking process under RCRA and other EPA authorities.

CC: Admiral E. Zumwalt
Senator Thomas Daschel Congressman Ted Weiss American Legion

National Vietnam Veteran's Coalition
Oklahoma Agent Orange Foundation
Independent International Agent Orange Network
Vietnam Veterans of New Zealand
Greenpeace, U.S.A.
Earth First
Natural Resources Defense Council
Environmental Defense Fund
Lennart Hardell, M.D., Ph. D.
Mikael Eriksson, M.D.
Olaf Axelson, M.D.
Friedaman Rohleder, M.D.
Mike Petruska Chief, Regulatory Development Branch
Carrol G. Wills, Acting Director, NEIC, EPA/Denver

References

- (1) The American Medical Association, concerned about the veracity of one of the Monsanto studies published in its journal, stated that a reassessment would be undertaken if the outcome of appeal of the Kenmer v. Monsanto litigation did not reverse the verdict impugning the credibility of the Monsanto studies.
- (2) You indicated that NEIC would be reticent to receive documents of this nature suspected to be under a court protective order, but assured me that you would pursue legal routes to obtain them independently.
- (3) You should be cautioned regarding any consultation with Dr. Renate Kimbrough at EPA regarding the review of the Monsanto studies. Dr. Kimbrough was contacted by Monsanto during the Kenmer v. Monsanto litigation and provided expert testimony, while an employee of the Centers for Disease Control, on behalf of Monsanto. Dr. Kimbrough has provided expert testimony on behalf of other defendant corporations responsible for dioxin pollution even co-authoring papers with these defendants.
- (4) Suskind examined only one worker without chloracne (Mr.Kiley), and dismissed this individual's health complaints as being those of a complainer.
- (5) Later studies by the Centers for Disease Control have demonstrated that any manifestation of chloracne in humans is not correlated with the blood dioxin levels. In other words, individuals with lower blood dioxin have been observed to develop chloracne, those with higher blood levels did not.
- (6) The deposition of Ms. Jan Young of Monsanto, previously under a protective order, is in the process of release pursuant to a motion by Greenpeace, USA.
- (7) This NIOSH study does have a inherent design weakness that would diminish the capability of detecting excess cancers. This is because Monsanto and the other dioxin-producing companies were allowed to independently select the group of dioxin-exposed workers to be studied by NIOSH.
- More page 12: Monsanto's Agent Orange: /The Persistent Ghost from the Vietnam War

Leukemia, Agent Orange Link Found

The Associated Press
Friday, January 24, 2003; 7:13 AM

WASHINGTON --

The Veterans Affairs Department will extend benefits to Vietnam vets with a type of leukemia that researchers now say is linked to exposure to herbicides, including Agent Orange.

Vietnam War veterans diagnosed with chronic lymphocytic leukemia, or CLL, would start receiving improved benefits, such as disability compensation and priority health care services, in about a year, VA Secretary Anthony Principi said Thursday.

"It's sad that we have to presume service connection, because we know that (veterans) have cancer that may have been caused by their battlefield service. But it's the right thing to do," Principi said.

The Institute of Medicine, which re-examined past research on cancer rates in agricultural workers and farm community residents, announced Thursday that it had found the link between CLL and Vietnam herbicides.

Veterans Affairs expects to find about 500 new cases of CLL a year among Vietnam veterans, said spokesman Phil Budahn. About 2.6 million people served in Vietnam during the war and most are still alive.

There are 10,000 Vietnam veterans receiving disability pay for other illnesses related to exposure to Agent Orange and other herbicides used during the war, Veterans Affairs said.

"It's just one more indication that service on the battlefield exposes men and women to dangers beyond bullets, shrapnel and missiles," said Principi, who requested the review. "Environmental hazards are as worrisome and deadly as some of the more common forms of battlefield injury."

Although health care is available to nearly all veterans, Principi's decision means that veterans with CLL who were in Vietnam during the war will get disability compensation of about $2,300 a month, they won't have to pay co-payments for health care to treat CLL and will have better access to the agencies' health services. Principi must draft rules and publish them in the Federal Register before the benefits can take effect.

Principi's decision to extend benefits pleased veterans groups who have continued to fight for research on the illnesses suffered by veterans exposed to the defoliants.

But Rick Wiedman, Vietnam Veterans of America government relations director, said the findings are incremental and large scale research should be funded to study problems in veterans.

"At the rate we are going, little by little bit, we are all going to be dead," Wiedman said.

In December 2001, Principi extended benefits to Gulf War veterans with Lou Gehrig's disease after preliminary studies showed they were nearly twice as likely to develop the illness as other military personnel.

U.S. troops sprayed 20 million gallons of Agent Orange and other herbicides over parts of South Vietnam and Cambodia in the 1960s and '70s to clear dense jungle. Some veterans reported a variety of health problems shortly after returning from the war.

Some forms of cancer, Type 2 diabetes and birth defects in veterans' children already are considered associated with herbicide exposures during the war. But it has been difficult to research the problem because no one knows how much chemicals troops were exposed to, the Institute of Medicine said.

"For more than two decades we've had many complaints from Vietnam veterans about serious problems from Agent Orange exposure and it's taken a long time to have sufficient proof to satisfy the VA and now we have it," said Sen. Arlen Specter, R-Pa., Senate Veterans Affairs Committee chairman.

By connecting the defoliant and CLL, the Institute of Medicine altered its own previous finding that not enough scientific evidence existed to determine whether the two were associated. The institute is part of the National Academy of Sciences.

Previously, researchers lumped CLL with other forms of leukemia when looking at cancer rates among Vietnam veterans. But this time the scientists examined rates of CLL separately, said Dr. Paul Engstrom, a member of the review committee and a vice president with Fox Chase Cancer Center in Philadelphia.

The scientists said although CLL is a form of leukemia, it shares some similarities with Hodgkin's disease and non-Hodgkins lymphoma, two diseases that have long been known to be associated with exposures to the types of chemicals used in Agent Orange and other defoliants.

Wednesday, April 25, 2012 8:39 PM

AO claim at Ft McClellan approved for Diabetes, and proliferative diabetic retinopathy, or PDR as secondary to Diabetes

Decision Nr: 1108696
Decision Date: 03/04/11 Archive Date: 03/17/11

DOCKET NO. 09-16 193) DATE
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On appeal from the
Department of Veterans Affairs Regional Office in Nashville, Tennessee

THE ISSUES

1. Entitlement to service connection for diabetes mellitus, type II, to include as due to herbicide exposure.

2. Entitlement to service connection for bilateral proliferative diabetic retinopathy (PDR), to include as secondary to diabetes mellitus.

3. Entitlement to left lower extremity diabetic neuropathy, to include as secondary to diabetes mellitus.

4. Entitlement to right lower extremity diabetic neuropathy, to include as secondary to diabetes mellitus.

REPRESENTATION

Appellant represented by: The American Legion

WITNESSES AT HEARING ON APPEAL

Appellant, Appellant's Spouse

ATTORNEY FOR THE BOARD

W.H. Donnelly, Counsel

INTRODUCTION

The Veteran served on active duty with the United States Army from February 1969 to February 1971.

These matters come before the Board of Veterans' Appeals (Board) on appeal from April 2005 and January 2008 rating decisions by the Nashville, Tennessee, Regional Office (RO) of the United States Department of Veterans Affairs (VA).

The April 2005 rating decision denied service connection for type II diabetes mellitus. The Veteran filed a timely notice of disagreement (NOD) and a statement of the case (SOC) was issued in May 2006. The RO determined that no timely substantive appeal was received; a VA Form 9, Appeal to Board of Veterans' Appeals, was not received until November 2006, several months beyond the end of the appellate period. However, within 60 days of the issuance of the SOC, the Veteran submitted a request for a local hearing before a decision review officer. This is a clear indication of his intent to pursue his appeal, and is accepted as a substantive appeal in lieu of a formal Form 9. The issue has therefore been recharacterized to reflect that new and material evidence to reopen a previously denied claim is in fact not required; the current appeal arises from the original claim for benefits.

Claims of service connection for PDR and lower extremity neuropathy were denied in the January 2008 rating decision. The issue with regard to neuropathy has been recharacterized to reflect the fact that each lower extremity is entitled to separate consideration and evaluation.

The Veteran and his wife testified at a November 2010 hearing held before the undersigned at the RO. A transcript of that hearing is of record.

This appeal has been advanced on the Board's docket pursuant to 38 C.F.R. § 20.900(c) (2010). 38 U.S.C.A. § 7107(a)(2) (West 2002).

The issues of service connection for left and right lower extremity neuropathy are addressed in the REMAND portion of the decision below and are REMANDED to the RO via the Appeals Management Center (AMC), in Washington, DC.

FINDINGS OF FACT

1. The Veteran was exposed to herbicides while stationed at Fort McClellan, Alabama, in 1969.

2. Type II diabetes is currently diagnosed.

3. Currently diagnosed PDR is related to service connected diabetes mellitus, type II.

CONCLUSIONS OF LAW

1. The criteria for service connection of diabetes mellitus, type II, have been met. 38 U.S.C.A. §§ 1110, 1113, 1116, 5107 (West 2002 & Supp. 2010); 38 C.F.R. §§ 3.102, 3.303, 3.307, 3.309 (2010).

2. The criteria for service connection of bilateral proliferative diabetic retinopathy have been met. 38 U.S.C.A. §§ 1110, 5107 (West 2002 & Supp. 2010); 38 C.F.R. §§ 3.102, 3.303, 3.310 (2010).

REASONS AND BASES FOR FINDINGS AND CONCLUSION

I. VA's Duties to Notify and Assist

VA has a duty to notify and assist claimants in substantiating a claim for VA benefits. 38 U.S.C.A. §§ 5100, 5102, 5103, 5103A, 5107, 5126; 38 C.F.R. §§ 3.102, 3.156(a), 3.159 and 3.326(a). With respect to the issues decided here, the benefit sought on appeal is being granted in full. Accordingly, any error committed with respect to either the duty to notify or the duty to assist was harmless and will not be further discussed.

II. Service Connection

Service connection will be granted if it is shown that the veteran suffers from a disability resulting from personal injury suffered or disease contracted in the line of duty, or for aggravation of a preexisting injury suffered or disease contracted in the line of duty, during active military service. 38 U.S.C.A. §§ 1110, 1131; 38 C.F.R. § 3.303.

Certain diseases may be presumed to have been incurred in service for Veterans exposed to herbicides, if they become manifest to a degree of ten percent or more within the applicable presumptive period. Type II diabetes mellitus is a listed disease for purposes of presumptive service connection. 38 U.S.C.A. § 1116; 38 C.F.R. §§ 3.307(a), 3.309(e). Diabetes may manifest at any time following exposure. 38 C.F.R. § 3.307(a)(6).

A disability which is proximately due to or the result of a service-connected disease or injury shall be service connected. When service connection is thus established for a secondary condition, the secondary condition shall be considered a part of the original condition. 38 C.F.R. § 3.310(a).

To establish service connection, there must be a competent diagnosis of a current disability; medical or, in certain cases, lay evidence of in-service occurrence or aggravation of a disease or injury; and competent evidence of a nexus between an in-service injury or disease and the current disability. Hickson v. West, 12 Vet. App. 247, 252 (1999); see Jandreau v. Nicholson, 492 F.3d 1372 (Fed. Cir. 2007).

Competent medical evidence is evidence provided by a person who is qualified through education, training, or experience to offer medical diagnoses, statements, or opinions. Competent medical evidence may also include statements conveying sound medical principles found in medical treatises. It also includes statements contained in authoritative writings, such as medical and scientific articles and research reports or analyses. 38 C.F.R. § 3.159(a)(1). Competent lay evidence is any evidence not requiring that the proponent have specialized education, training, or experience. Lay evidence is competent if it is provided by a person who has knowledge of facts or circumstances and conveys matters that can be observed and described by a lay person. 38 C.F.R. § 3.159(a)(2). This may include some medical matters, such as describing symptoms or relating a contemporaneous medical diagnosis. Jandreau v. Nicholson, 492 F.3d 1372 (Fed. Cir. 2007).

In determining whether service connection is warranted for a disability, VA is responsible for determining whether the evidence supports the claim or is in relative equipoise, with the veteran prevailing in either event, or whether a preponderance of the evidence is against the claim, in which case the claim is denied. 38 U.S.C.A. § 5107; Gilbert v. Derwinski, 1 Vet. App. 49 (1990). When there is an approximate balance of positive and negative evidence regarding any issue material to the determination, the benefit of the doubt is afforded the claimant.

A. Diabetes Mellitus

The competent and credible medical evidence of record clearly establishes a current diagnosis of type II diabetes mellitus. There is no dispute over this fact.

The Veteran contends that he was exposed to herbicides while stationed at Fort McClellan, Alabama, in 1969. Personnel records verify his presence at the base from May 1969 to December 1969, as a photographer.

He states that while photographing a training exercise during Advanced Individual Training (AIT) at a "Tiger Village" mock-up of a village in Vietnam, he repeatedly walked through an area that had been cleared using Agent Orange. He additionally alleges that Agent Orange was in widespread use around the base for weed control and landscaping, such as at the golf course. Finally, he states that Agent Orange (as well as Agents Blue and White) were present and being tested in the same building where he worked.

In a May 2010 response to VA inquiries, the Department of Defense (DoD) has certified that a "review of the DoD documentation does not show any use, testing or storage of tactical herbicides, such as Agent Orange, at any location in Alabama, to include Fort McClellan." The DoD also stated, however, that records would not reflect "small scale non-tactical herbicide applications" such as routine base maintenance activities like range management, brush clearing, or weed killing.

This certification excludes the possibility that Agent Orange was being tested in the same building where the Veteran worked; while other chemicals and compounds may have been used, it was not the required herbicide.

However, the DoD certification leaves open the possibility that herbicides may have been used in the manner described by the Veteran, to clear brush and weeds around the Tiger Village. Both the Veteran and his direct supervisor have stated that he was exposed to herbicides when photographing a training exercise. The basis for the supervisor's knowledge is unknown, but the Veteran relies upon reports made to him at the time by the officer in charge of the exercise, who told him Agent Orange had just been sprayed and they should stay out of certain areas.

That officer, whose specific identity cannot be determined, was in a position, with commensurate duties and responsibilities, to know what chemicals or substances were being used to maintain or prepare the training area. While it cannot be definitively ascertained whether Agent Orange was in fact the substance used in 1969 at Fort McClellan, all reasonable doubt must be resolved in favor of the Veteran. The Veteran's reports of the officer's statements are credible and competent evidence, and the officer was in the best position to identify the substance. The evidence of record establishes that the Veteran was at least as likely as not exposed to herbicides during service. This finding is limited to the specific facts and allegations of this case.

A number of treating doctors, both private and VA, have stated that the Veteran's currently diagnosed diabetes is related to that herbicide exposure. There is no opinion or evidence contrary to that conclusion, and so the presumption of service connection for type II diabetes mellitus in herbicide exposed Veterans is not rebutted.

Accordingly, service connection for type II diabetes mellitus is warranted.

B. Retinopathy

VA and private ophthalmological records reveal a current diagnosis of bilateral proliferative diabetic retinopathy, or PDR. All doctors relate this condition to diabetes mellitus; there is no contrary evidence.

As the preponderance of the evidence establishes that currently diagnosed PDR is causally related to now service connected diabetes, service connection for PDR on a secondary basis is warranted.

ORDER

Service connection for diabetes mellitus, type II, is granted.

Service connection for bilateral PDR is granted.

REMAND

The Veteran has alleged that he experiences numbness and tingling of both lower extremities, which he attributes to diabetic neuropathy. Although VA treatment records indicate a current diagnosis of diabetic neuropathy at several points, and VA doctors repeatedly refer to such in medical histories, there is actually no clear examination, evaluation, and diagnosis of such reflected in the record. Doctors specifically addressing his neurological complaints report only that they are "likely secondary to diabetes." Some neurology evaluations fail to specifically diagnose any condition of the extremities, and others refer to the possibility of radiation of pain from the back.

It is therefore unclear whether there is actually a current diagnosis of diabetic neuropathy. On remand, examination is required to clarify the diagnosis.

Further, the Veteran has informed VA that he is in receipt of Social Security disability payments. The records relied upon in support of that grant are potentially relevant to the claim and must be obtained.

Accordingly, the case is REMANDED for the following action:

(This appeal has been advanced on the Board's docket pursuant to 38 C.F.R. § 20.900(c) (2010). Expedited handling is required.)

1. Schedule the Veteran for a VA peripheral nerves examination. The claims folder must be reviewed in conjunction with the examination. The examiner should conduct all necessary testing, to include nerve conduction or EMG studies, and should clearly identify any neurological disability of the lower extremities. The examiner should then opine as to whether it is at least as likely as not that any currently diagnosed condition is caused or aggravated by service connected type II diabetes mellitus.

If the examiner feels that the requested opinion cannot be rendered without resorting to

speculation, the examiner should state whether the need to speculate is caused by a deficiency in the state of general medical knowledge (i.e. no one could respond given medical science and the known facts) or by a deficiency in the record or the examiner (i.e. additional facts are required, or the examiner does not have the needed knowledge or training).

2. Contact the Social Security Administration and obtain all medical records utilized in determining the Veteran's entitlement to disability benefits. If such are unavailable, written certification of such is required.

3. Review the claims file to ensure that all of the foregoing requested development is completed, and arrange for any additional development indicated. Then readjudicate the claims on appeal. If either of the benefits sought remain denied, issue an appropriate SSOC and provide the veteran and his representative the requisite period of time to respond. The case should then be returned to the Board for further appellate review, if otherwise in order. No action is required of the appellant unless he is notified.

The appellant has the right to submit additional evidence and argument on the matters the Board has remanded. Kutscherousky v. West, 12 Vet. App. 369 (1999).

This claim must be afforded expeditious treatment. The law requires that all claims that are remanded by the Board of Veterans' Appeals or by the United States Court of Appeals for Veterans Claims for additional development or other appropriate action must be handled in an expeditious manner. See 38 U.S.C.A. §§ 5109B, 7112 (West Supp. 2010).

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VA's new Agent Orange presumptions will increase Vietnam Veteran's benefits almost twenty percent

VA Begins Paying Benefits for New Agent Orange Claims

11/2/2010

An official news release is tied up in the Veterans Affairs Washington, DC press office but Tom Philpott's Military Update gives excellent early coverage.

A "VA policy*fast letter* has been sent to all VA regional offices noting new claims can begin to be developed but there may be a five month delay until the new ruling is published, trained for and distributed. In the past, the Services have criticized VA as slow to develop training programs, and this seems to be the case again.

The Services will have to gear up for additional Combat Related Special Compensation (CRSC) applications while DFAS processes complex retroactive payments to retirees and widows. However coordination between the Pentagon who developed service guidance to DFAS has not started.

Expect the Veterans Benefit Association to expand it's outreach and support staff to coordinate the implementation of this significant ruling. The Pentagon, Defense Finance and Accounting (DFAS) and the Services are all impacted with this new ruling.

Many Vietnam Veterans with retiree status will also be eligible for tax exempt Combat Related Special Compensation of up to $3000 monthly, in the case of 100% agent Orange disability including retroactive back pay.

Coordination with The Pentagon is often a problem, so expect year long delay in retiree CRSC payments. Thousands stationed in Vietnam could be eligible.

Three conditions – B cell leukemia's, Parkinson's disease and ischemic heart disease, are now considered to be associated with Agent Orange exposure.

The VA expects 185,000 more Vietnam Vets will qualify for $50B more in benefits. Heart disease alone will amount to a 14B increase in benefits. The cost estimates were divulged by an OMB official.

Both Vietnam Veterans and their spouses will be eligible for awards, including retroactive DIC payments and back pay in accordance with the recent Nehmer court decision.

About 86,000 claims previously denied by the VA before 1985 will be revisited, and $14B is expected to be paid related to heart disease.

Widows or widowers with claims denied in the past whose spouse’s death was contributed to (or caused by) what is now a presumptive Agent Orange illness can re-open their DIC claims requesting that either they be awarded DIC—if denied in the past—and be awarded retro DIC back to the date of the veteran’s death.

Many older rating decisions precluding many agent orange related claims may now receive retroactive awards back to the date the disability was first approved by the VA.

Many payments will have to be processed by DFAS and most are eligible for CRSC awards.

We expect the VA to announce a new policy soon. The rules are crafted to avoid compensation backlogs and increased benefit exams. For example, a personal family physician's letter will be allowed for the three newly approved agent orange conditions.

Previously approved conditions for which Vietnam War veterans receive compensation, including prostate cancer, respiratory cancers, soft-tissue sarcomas, Hodgkin's disease, non-Hodgkin's lymphoma and multiple myeloma.

Veterans who served in Vietnam between 1962 and 1975 will qualify for monthly disability compensation and do not have to provide proof they were exposed to Agent Orange.

NAUS is positioned to assist its members and new members in applying for this under simplified rules, soon to be officially announced by the VA.

In order to assist with claims backlog and new exams the VA will accept letters from family physicians supporting claims for Agent Orange related conditions. Thousands of widows whose husbands died

of Agent Orange disabilities will benefit to retroactive benefits and back pay, as well as DIC payments.

Both VBA and VHA expect to be deluged by this increase in new claims and NAUS encourages its members and potential new members to use the NAUS staff, assisted by NAUS board member Win Reither to stay tuned for updates, as well as progress reports of the VA claims handling.

- Ischemic Hart Disease worksheet e
- Leukemia worksheet
- Parkinson's Disease worksheet

New Agent Orange Claims Payment Delay?

6/8/10 - An Oct 2009 decision by VA Secretary Eric Shinseki, GEN, USA (Ret), added ischemic heart disease, Parkinson's disease, and B-cell leukemia to the department's list of presumptive conditions for veterans exposed to Agent Orange in Vietnam (see story below). VA planned to publish final regulations on the new presumptive diseases already, but that action is still under review. And by law, Congress has 60 days to examine Shinseki's decision as well. Now the Senate appears to be taking a more cautious approach against what some perceive as excess spending on a potential new wave of Agent Orange claims, citing concerns that *"based on modest scientific evidence, VA could be paying claims on diseases that a large proportion of any population will contract through normal aging."* A provision in the Senate version of H.R. 4899, the FY 2010 war supplemental funding bill, would set aside funding for this expansion until the 60-day congressional review is complete. The House must still agree with the Senate's changes to H.R. 4899

New Gulf War, Iraq/Afghanistan War Presumptive Conditions

3/19/10 – Based on a recommendation by the Gulf War Veterans Illness Task Force, the VA has proposed a regulation change that names nine conditions or diseases as "presumptive" due to service in the Persian Gulf War, and for the first time, the current wars in Iraq and Afghanistan. Presumptive status means that veterans with such conditions only need show that they served in the conflicts/areas included for their condition to be deemed service-connected, usually resulting in access to additional VA health care or compensation benefits. *"We recognize the frustrations that many Gulf War and Afghanistan veterans and their families experience on a daily basis as they look for answers to health questions and seek benefits from VA,"* Veterans Affairs Secretary Eric Shinseki said in a statement. The nine conditions/ diseases are malaria, West Nile Virus, brucellosis, campylobacter jejuni, coxiella burnetii, mycobacterium tuberculosis, nontyphoid salmonella, shigella and visceral leishmaniasis.

Health Topics: Cancer

Content provided by: Agent Orange Exposure Tied to Prostate Cancer Return Study finds vets at higher risk of aggressive recurrence only 8 months after surgery--

Update #1.

Robert Preidt

THURSDAY, April 23, 09 (Health Day News) --

U.S. male military veterans exposed to the Agent Orange herbicide/defoliant are at increased risk for aggressive recurrence of prostate cancer, a new study finds.

It included 1,495 veterans who'd had surgery to remove cancerous prostates. Of those, the 206 men who'd been exposed to Agent Orange were nearly 50 percent more likely to develop an aggressive recurrence of their cancer, even though their disease seemed relatively non-aggressive at the time of surgery.

The study also found it took only eight months for prostate specific antigen (PSA) levels -- an indicator of cancer aggressiveness -- to double among the Agent Orange-exposed veterans with recurrent cancer, compared to more than 18 months among non-exposed veterans.

The study is published in the May issue of the British Journal of Urology International. "There is something about the biology of these cancers that are associated with prior Agent Orange exposure that is causing them to be more aggressive.

We need to get the word out," study corresponding author Dr. Martha Terris, chief of urology at the Charlie Norwood VA Medical Center in Augusta and professor of urology at the Medical College of Georgia School of Medicine, said in a school news release. She said doctors treating prostate cancer patients who've been exposed to Agent Orange need to be aware that these patients may require closer monitoring and so-called salvage therapy quickly if their prostate cancer returns.
"Not only are their recurrence rates higher, but their cancers are coming back and growing much faster when they do come back," Terris said.

There's increasing evidence that exposure to Agent Orange, which was used during the Vietnam War, increases the risk for a number of health problems. Agent Orange contained a known carcinogen called dioxin, which is also found in herbicides and pesticides used by U.S. farmers, according to background information in the news release about the study.

More information: The American Cancer Society has more about prostate cancer. SOURCE: Medical College of Georgia, news release, April 20, 2009.

Update #2

July, 09

Al Amlyloidosis Added To Agent Orange Presumptive Disabilities

The Department of Veterans Affairs has added Al amyloidosis to the list of presumptive service-connected disease associated with the exposure to certain herbicide agents, including Agent Orange. A recent Institute of Medicine report on Agent Orange found a positive association between the disease and exposure to herbicides used in the Vietnam War. As a result, the VA has amended regulations to grant presumptive service -connection. The rule also applies to previously denied claims of AL armyloidosis submitted by Vietnam veterans. AL armyloidosis is a rate plasma cell disorder which originates in bone marrow and is usually treated with chemotherapy. Is the most common type of armydoidosis in the U.S.,with an estimated 2,000 cases diagnosed each year.

The disease results when protein build up in one or more organs causes malfunction. The heart, kidneys, nervous system and gastrointestinal tract are most often affected. Although AL armyloisdosis is not cancer, it is very serious and disabling or life-threatening. It joins the list of 11 other presumptively service-connection conditions recognized in Vietnam veterans.

They include choracne; Non-Hodgkin's lymphoma; soft tissue sarcoma (other than osteosarcoma,chondrosarcoma, Kaposi's sarcoma, or mesotheloma); Hodgkin's disease; porphyria cutanea tarda; multiple myeloma; respiratory cancers, including cancers of tghe lung, larynx, trachea, and bronchus; prostate cancer; acute and subacute transient peripheral neuopathy; Type 2 diabetes; and chronic lymphocystic leukemia.
For additional information, please contact your nearest National Service Office.

I know this is a long article, but I wanted you to know why I chose to get into the paranormal, why I think the way I do, and now what is going on in my life.

To whom it may concern
I remember as a kid my father getting up in the middle of the night to eat peanut butter for his sugar would drop from the diabetes. I also remember him getting these weird rings on his legs, from what I had no idea. Dealing with my dad's diabetes was strange as a kid, different diets, pills being popped, and then the needles at one point for the insulin injections. He had it so called under control then. I had no idea it was Agent Orange or even what that was. I remember looking at all the military photos of him in wet gear under ground and all through the forests of the war. Had no idea they had dumped all the poison on him and the rest of the men and women and how it would become my life at the age of 18.

I was about to graduate high school when it all started to snow ball. I remember on January 1st 1999, my father had called me from our house in Orlando Florida telling me he was about to go to the hospital because he was having a heart attack. I never felt so scared in my life. My dad, a 52 year old having a heart attack and I was just a kid. What did this mean, is he ok, will he be ok, I thought. I couldn't even go in his hospital room. That made me feel so guilty, but to me I was to young for this. My mother with crones disease me and my brother could handle, We were used to here being in and out of hospitals but our dad, our provider no way. He was treated and we were on our way in a few days. Then 9 months later another heart attack. This put enough stress on me to start researching anti-depressants, and figure out my life if he was going to die. I though about his death day and night. I was worrying to the point of insanity. Little did I know he had a heart attack in February and did not tell any one. He worked a lot so when he wasn't around that is where we thought he was, not hiding out in a hospital and not telling the family so he

wouldn’t worry us. He had a procedure done and had a Stent put in. Now he was ok I thought. We are good and happy and healthy.

A few years later, I was in art college and getting ready to go to a different college to become a computer graphics artist. I got into Full Sail, a great college and I was stoked. I was going to start soon, then one day my dad called me and put his friend on the phone, I was like what is wrong and why can’t he speak, he said they were in the hospital and to come right away. I was terrified, all over again, thoughts of dad going away, what was I going to do. I got there and found out no heart attack, wonderful I thought. Nope, little did I know this would be the snow ball that started rolling again. He had a stroke. He couldn’t talk very well and his arm was screwed up, of course it had to be his right arm, the writing hand that was paralyzed. This was just not happening. They said therapy could help and all that. They didn’t try to reverse the stroke with any medicine at all. We went home so he could start recovery, then a few days later he had another one. Back to the hospital, less motor skills, and on and on. This happened 4 more times. He was only 56. This is where I took over, I started working 90 hour weeks serving and bartending. I took over all the bills. 900 dollar rent, 2 cars and so on. I had no life and we had no food. I mean no food. I had to steal food for my dad from work so he wouldn’t go into a diabetic coma. I was so stressed, couldn’t afford my meds so the way I coped was self-mutilation. Obviously not the healthiest way to deal with problems. I started the process of SSD and that took beyond forever, from trying to get information from a man who can’t speak or write was frustrating and difficult to say the least. Some one mentioned the VA. I was like the VA, what can they do for us. It was a way for his medical problems to be taken care of. I was so relieved, finally some help. I wish I had a computer to be able to look into things and I couldn’t hit the library because of work and taking care of my father. Getting my dad enrolled wasn’t easy again for all the info was hard to get. His military proof as well was a nightmare. He finally stared getting care. We were bumped all over the system and clinics like there was no tomorrow .I didn’t know what was going on half the time and who to talk with. The social worker at the Orlando VA was

no help. My dad got an diabetes ulcer on his foot around this time. He also needed IV fluids. They sent me home with all the equipment and supplies to take care of these 2 problems. So a non trained 22 year old GIRL had to take a Q-Tip and stick it all the way through her dad's foot, then stuff medicine and cotton up into a cavity to stop an infection from happening before and after work as well as change an IV 4 times a day, yes driving home from work change an IV and go back. It is not that I didn't ask for help like I said before, no one would point me in the right direction on what to do or who to talk with. I got my father into the VA benefits so we could get some food money. He was getting approximately 231.00 from VA benefits and social security had kicked in so we moved out of the house into an apartment. I had found that there started to be more weird things going on with my father. From all the new medication he was on he started having accidents. I couldn't take it any more. I put him in the nursing home on the VA of Orlando's property. They used all his money to have him stay there. I thought I would finally get a break at least from him, I was still working about 70 hours now a week to pay off dept and catch up. He wasn't there that long and he had to come home with me before they had to send him to a Tampa nursing home for a month or so before they sent him to Miami to have surgery on his foot. The care that I did on his foot was no help he had to get a toe removed.

He came back to Orlando and it started all over again taking care of him, working 90 hours again and being all over the system, getting laser surgery on his eye, prostate surgery, and diabetes therapy. His health was just awful. His feet started getting neuropathy, as well as the bottom half of his legs, but he kept walking and trucking along which was great. I was excited that the strokes did not completely take his motor skills over. We had gone to over 50 doctors appointments in a matter of 4 years, maybe more. I again needed a break. I sent my dad to Oklahoma to live with my mother who had crones disease. She had been in and out of hospitals since I was 4 or 5. From having 20 surgeries and an Ostomy. She was in a little house on her mom's property. Very convenient and around family, plus I had some help which was great. My mom put my dad in the Oklahoma

VA system. She had class and had to drop him off sometimes, so with him and no speech I am sure was just a disaster in the clinics. This went on for a year or so, they were divorced so they lived in separate parts of a 600 square foot house. He was always coughing and blowing his nose which drove her nuts. She coped by drinking. She was not happy with the situation at all, it was really messing with her crones, making her have all kind s of other health problems, from her pancreas and her weight. She was considered anorexic because all the food she ate was not getting absorbed. I told my mother to get ready to come live with me, I will get a 3 bedroom apartment, so we all could live together again, at least the state would be sunny and warm and more help for her having me take care of my dad. She was very excited and so was my dad. I found a 3 bedroom place and started the process of moving in, when I got a call. My mother had passed away, I feel like it was all my fault. Putting the strain of my dad on her caused her health to just go down hill. I thought she was going to able to be happy again. She did not get the chance, so I moved my dad back to Orlando with me in a 2 bedroom. Back to the same routine.

In all this craziness, I was never able to have kids, get married or even have relationships, and no college. We had gone to so many appointments and talked with so many people at the VA, there are memories that I think about all the time. These are the memories of clerks, nurses, and all kinds of staff being so awful, and I don't mean incompetent with their practice, they were rude, mean, impatient, and made me feel like I was not doing enough. What else was I supposed to do? My mom had died, I felt like it was my fault, my dad is very disabled, we are broke, and I am still making all the appointments, and working over time. Me and my dad would rate our visits, not on the diagnoses but on how nice the people were to us that day. I know working for the government and dealing with very sick veterans has to be taxing, but when I walk out of the VA crying 3 out of 5 appointments, there needs to be some reason why things are not organized, if you would just answer a question or, two, I am sure we would get out of your hair and we would be pointed in the right direction. It was about a year later when a doctor said my dad had to get reevaluated.

They only had my father as 20% disabled and that is why we were only getting 230.00 from VA disability. We got to talk to a man I will never forget named Andy McCormick. He pointed us in the right direction, telling us we had a car allowance, back pay, clothes allowance and all kinds of things to help us out. We have not been that happy in years. We decided to get a new start and move to Las Vegas. We were able to get two, 400 square foot apartments a few doors down from each other. I was able to have my own place, which was very important to me. I was a young women and living with your father is not very appropriate. So dad's health was stable and we had food and clothes and we were happy. I started writing and not bartending anymore, and that was great. I was able to travel and see some beautiful places. I had to get my dad back into the VA system in Las Vegas. I looked into getting life insurance for him. Because of the agent orange we could not get any through regular companies. Now that no one told us there was a deadline with the VA's life insurance that was out too. Once again I felt like people were not telling me things on purpose. They didn't want to help! The only life insurance I was able to get was accidental. He never really left the house it was pointless.

We started the process in February, about a year and 3 months after we moved. More problems started to arise, ulcers in his feet, he couldn't even feel his feet any more as well. Diabetes had gotten worse, we had to do insulin injections now. His right eye was completely blind. They said if he had a new condition then we could get life insurance. So we started that process, the new ischemic heart disease release was going to help us out a lot. His heart, age and everything would meet the requirements. By this point we had gone to 30 doctors appointments. The social worker at the East clinic in Las Vegas was great. She got someone to help me out with his feet. The first time around was traumatizing. I still remember the little things that really mess up my emotions now a days. Like the voice on the intercom at the Orlando VA, is the same voice that is used in the grocery store I go to .I think about finding my dad dead all the time because of all the strokes. I write about death because it is so familiar.

Jan the social worker, was great and he had a slew of things to be done. Mainly his heart. We had an appointment that got moved a week later because the nurse said she had another commitment and she was the only one who knew how to work the equipment. Two other appointments had gotten moved for what ever reason. One I remember because they didn't have a piece of equipment at that location, so we had to go to a different clinic. Things were being over looked left and right. At one of the cardiology appointments, the assistant doctor said that he would need another echo because they couldn't see what was really going on. They had to inject him with ink to see better. That is a day or two before the one appointment got moved because of the lady that had a previous commitment. In my world that means it had nothing to do with her job, and she blew us off.

I had talked to my dad and told him that his appointments had gotten canceled but he had one on Monday. This was Tuesday. I ordered groceries for him to be delivered on Thursday. I woke up and had not heard from him, as in, if he needed smokes, or soda. I called the nurse lady, that comes and takes care of his feet and she said she had been by the house. I was relieved, until she said he did not answer the door. I called management to open his door, and they sent over two guys to do so. They walked in, and he was on the floor of the bathroom. My father died on April 29th 2010. Was it something they could have done, I totally believe so. The amount of times we had been at the doctors, and they always said that his heart was irregular. Why did they not look further into it. His main primary care doctor even wrote it as heart and diabetes. I am alone now. It has been one day with out my dad. I have no skills to do anything but work in restaurants. We paid all of our debt with the back pay and now I am broke, scared and parentless. No life insurance and if there is benefits for a child at the age of 29 for taking care of a veteran no one has told me. I feel like this whole time I was moving against a current.

I have to plan his funeral now with no money. I thought when a veteran who fought for your freedom was in need that a fellow soldier would be

there. I feel like out of the hundreds of military staff that I have come in contact with, maybe 4 really cared, and pointed me in the direction needed. I attempted suicide twice and still have a habit of self mutilation. It has been to much for a young women to handle. I thought I did the best I could. Now the guilt is just a new emotion to deal with. What is wrong with people? My dad was only 63, and I found him dead, with his TV on and a soda by his chair, lying on the bathroom floor, he didn't even know he was going to die. I want to say to all the people who were mean to us, thank you very much for making all this so memorable, and I will have the thoughts of your sighs and annoyance run through my head forever. I will also remember the dirty looks and judgment you passed when you had to DEAL with us. I starved, had blood squirt on me, became a cutter on ant-depressants, changed IVs, and found feces because my father was on so many drugs he had an accident. I will also mention, I blame myself for my mother dying, and now the same feeling for my dad, all before I am 30. Thank you for such a scary life.

This is an"Agent Orange" page I, Andrew Wilson formatted for Paul Sutton, who was then President of the New Jersey State Council of the Vietnam Veterans of America, and Chairman of the VVA's national Agent Orange and Dioxin Committee. This information has never, to my knowledge, appeared in any VVA publication, nor has it been publicly published elsewhere. Mr. Sutton has since resigned his positions in the VVA. This document is not an official publication of the Vietnam Veterans of America, but was formatted by me to appear as if it was -- in the hopes that we could push the VVA to publish the data. Seems this info is a political hot potato.

Andrew Wilson Proud to Serve Utah Veterans with useful, thought provoking info since 2003
UtVet.com editor and publisher **(Check out Andrew's website it Outstanding)**
Former Director, Utah VVA Chapter 924
(since resigned in protest)

The amounts used are varying for several reasons-- some only include air spraying-- others do not include repeated spray over the same area-- and some include the other locations that were not in Nam--see attached-- when you add all the variables it does total over 22 mil gallons

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EXECUTIVE SUMMARY

Operations Trail Dust/Ranch Hand

H. Lindsey Arison III

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Prefatory Notes:

The military use of herbicides in Vietnam began in 1961, was expanded during 1965 and 1966, and reached a peak from 1967 to 1969. Herbicides were used extensively in Vietnam by the U.S. Air Force's Operation RANCH HAND to defoliate inland hardwood forests, coastal mangrove forests, and cultivated land, by aerial spraying from C-123 cargo/transport aircraft and helicopters. Soldiers also sprayed herbicides on the ground to defoliate the perimeters of base camps and fire bases; this spraying was executed from the rear of trucks and from spray units mounted on the backs of soldiers on foot. Navy riverboats also sprayed herbicides along riverbanks. The purpose of spraying herbicides was to improve the ability to detect enemy base camps and enemy forces along lines of communication and infiltration routes. Spraying was also used to destroy the crops of the Viet Cong and North Vietnamese.

The code name for the overall herbicide program was TRAIL DUST. The code name RANCH HAND specifically referred to the C-123 herbicide-spraying project.

The different types of herbicide used by U.S. forces in Vietnam were identified by a code name referring to the color of the 4-inch band painted around the 55-gallon drum that contained the chemical. These included Agents Orange, White, Purple, Blue, Pink, and Green. e.g. A 55-gallon drum with an orange band contained 50% n-butyl ester of 2,4-D (2,4-dichlorophenoxyacetic acid) and 50% n-butyl or isooctyl ester of 2,4,5-T (2,4,5-trichlorophenoxyacetic acid).

Agent Orange accounted for over 60% of the total herbicides disseminated over Vietnam (11.7 million gallons of a total 19.4 million gallons).

Orange contained relatively high levels of an exceedingly poisonous contaminant known as "dioxin" or "TCDD" (2,3,7,8-tetrachlorodibenzo-p-dioxin)

Chronology:

1961. Robert S. McNamara was appointed Secretary of Defense by President Kennedy and served until 1968.

1961. Dr. Alain Charles Enthoven (Ph.D., MIT, 1956), while an economist for RAND Corporation 1956-60, was hired by the Office of the Secretary of Defense to be the Director of the newly established Weapon Systems Analysis Directorate.

1961. The situation in Indochina deteriorates. (Cecil, p. 22)

April 12, 1961. Walt W. Rostow, a foreign affairs advisor to President Kennedy, forwarded a memo on Vietnam to the President recommending nine specific courses of action, setting into motion a series of events which led to the decision to send Air Force C-123s to South Vietnam to spray herbicides. The fifth action on the memo recommended a military hardware research and development team go to Vietnam to work with the Chief of the U.S. Military Assistance Advisory Group (MAAG), Army Lieutenant General Lionel C. McGarr, to explore the usefulness of various "techniques and gadgets" then available or under development. Aerial defoliation became one of these unspecified "techniques". (Buckingham pp. 9-10)

Early May 1961. President Kennedy sent Vice-President Lyndon B. Johnson to Saigon to consult with Vietnamese President Diem about future American assistance. One result of this consultation was the establishment of a joint U.S./Vietnamese Combat Development and Test Center (CDTC) in Vietnam, under the direction of the Defense Department's Advanced Research Projects Agency (ARPA). The CDTC was formed to develop new counterinsurgency methods and weapons, and one of its first tasks was to evaluate the use of herbicides to destroy concealing tropical vegetation and enemy food supplies. (Cecil, pp. 22-23)

May 11, 1961. National Security Council meeting, after which the focus of action on border control and the exploitation of technology in counterinsurgency shifted from the White House to subordinate levels of the Administration. (Buckingham, p. 11)

1961. 23-year-old John M. Deutch, upon graduation from MIT with a Bachelor's Degree in Chemical Engineering (B.Ch.E.), was hired by Dr. Enthoven (OSD Director for Weapon Systems Analysis) most likely to provide the OSD staff with expertise concerning chemical defoliation and to coordinate chemical defoliation studies with RAND Corporation.

(This is likely how John Deutch linked up with Dr. James R. Schlesinger who was a senior staff member at RAND from 1963-67. Dr. Schlesinger later served as Assistant Director, OMB; Chairman, Atomic Energy Commission; Director, CIA; Secretary of Defense; and in 1977 as the first Secretary of Energy. Dr. Schlesinger appointed Dr. Deutch to be Director, Office of Energy Research in 1977 and then Under Secretary of Energy in 1979.)

June 1961. The joint U.S./Vietnamese Combat Development and Test Center (CDTC) was formed in Saigon. (Cecil, p. 23)

August 10, 1961. The first defoliation test mission along a road north of Kontum flown by a South Vietnamese Air Force (VNAF) H-34 helicopter equipped with a Helicopter Insecticide Dispersal Apparatus, Liquid (HIDAL) spray system dispersing Dinoxol. (Buckingham, p. 11)

August 24, 1961. The first fixed-wing spray mission flown by a VNAF C-47 dispersing Dinoxol over a four-kilometer stretch of Route 13 about 80 km north of Saigon near the village of Chon Thanh, a target personally selected by South Vietnamese President Diem. (Buckingham, p. 11)

September 23, 1961. A joint State-Defense message stated that emergency actions were needed to support the Diem government and suggested that defoliants for an operational program be included in a list of items to be delivered without delay. (Buckingham, p. 14)

September 29, 1961. President Diem and his advisors met with an American delegation proposing immediate efforts be made to destroy crops before they could be harvested. (Buckingham, p. 13)

November 3, 1961. Memorandum from the Joint Chiefs of Staff to the Secretary of Defense, Robert S. McNamara, recommending implementation of a three-phased defoliation plan. (Buckingham, p. 16)

November 7, 1961. Memorandum from Defense Secretary McNamara to the Chairman of the Joint Chiefs of Staff and the Secretary of the Air Force directing the Air Force "to provide, on a priority basis, the required aircraft, personnel, and chemicals" to attack fast-maturing Viet Cong crops. (Buckingham, p. 16)

December 4, 1961. The Secretary of Defense, Robert S. McNamara, met with the Joint Chiefs of Staff and set December 15th as the target date for beginning defoliation operations. (Buckingham, p. 29)

December 1961. 20,000 gallons of pink and green herbicides and 15,000 pounds of cacodylic acid were already in Saigon. They had been sent for use in a crop destruction operation, which waited for President Kennedy's approval and which could not then be conducted because that year's rice crop had already matured in the target areas. DoD was procuring additional chemicals for use in the defoliation of Viet Cong base areas, border regions, and transportation routes on an expedited basis. (Buckingham, p. 29)

December 15, 1961. The first shipment of chemicals left the docks at Oakland, CA on the S.S. Sooner State - 111,000 gallons of purple and 49,000 gallons of pink. A second shipment later in the month contained an additional 17,000 gallons of purple and 31,000 gallons of pink. (Buckingham, pp. 29-30)

December 16, 1961. Secretary of Defense McNamara held a conference in Hawaii with Pacific area military commanders to examine Operation RANCH HAND preparations and make further decisions affecting the operations. (Buckingham, p. 30)

January 7, 1962. At 9 am, six Ranch Hand C-123s departed Clark Air Force Base in the Philippines and arrived at Tan Son Nhut airport outside Saigon at 4:30 pm. The crews parked the RANCH HAND planes in a secure fenced area on the field, sharing the space normally occupied by President Diem's personal aircraft. (Buckingham, p. 31)

January 8, 1962. The first shipment of chemicals arrived in Saigon at night. Off-loading of the drums began on the 9th.

January 9, 1962. Air Force personnel loaded four drums of Agent Purple (about 220 gallons) on one of the RANCH HAND C-123s. (Buckingham, p. 33)

January 10, 1962. The first RANCH HAND defoliation mission. Less than the full 220 gallons of Agent Purple were sprayed on a target north of Route 15, adjacent to a swath, which a VNAF C-47 had sprayed with pink on December 29, 1961. The effect of the spray was rated as poor, probably because the spray deposit was sub lethal. (Buckingham, p. 33)

Note: More than a decade earlier, the French Foreign Legion had laboriously cleared roadside vegetation by hand, in an unsuccessful attempt to halt ambushes of their military convoys. Now another foreign military power sought the same goal, but with a new military weapon - chemical herbicides. (Cecil, p. 30) The results of the French cutting and burning back of vegetation for 50 yards on either side of the road were still evident along Route 13 in the mid-1960s. (Cecil, p. 190)

See attached statistical summaries by year and chemical agent.

1965. John M. Deutch left OSD and returned to MIT to complete his Ph.D. in Physical Chemistry. 1966 Dissertation title: "Selected Problems in Statistical Mechanics".

October 1967. RAND Corporation issued two reports concluding the crop destruction program:

- had an insignificant effect on Viet Cong consumption of rice,
- had not resulted in any significant food shortages among Viet Cong units,
- had harmed residents in the vicinity of crop destruction targets,
- had alienated the rural South Vietnamese population from the government,
- had aroused much hostility toward the U.S. and its South Vietnamese allies,
- was not considered necessary or useful by the rural population, and
- might well be counterproductive. (Buckingham, p. 133-134)

November 1967. After reviewing RAND's results, Dr. Alain C. Enthoven, the Assistant Secretary of Defense for Systems Analysis, and his staff published their conclusions, which agreed that the existing wholesale crop destruction program was counterproductive because it alienated the affected population without denying food to the Viet Cong. (Buckingham, p. 135)

November 21, 1967. Secretary of Defense McNamara (obviously not pleased with these findings) directed the Joint Chiefs of Staff to review RAND's work. (Buckingham, p. 135)

December 29, 1967. The Joint Chiefs of Staff, in contradiction with RAND's findings and Dr. Enthoven's validation, asserted the published objectives of the crop destruction program as part of the overall economic warfare program were being met; that crop destruction was an important and effective part of the overall effort in South Vietnam; and that no changes in the program were needed. (Buckingham, p. 135)

As if to force "success", over 76% of the total gallons of herbicides sprayed over Vietnam occurred between 1967 and 1969 and repeated sprayings of the same area(s) occurred frequently.

1968. Robert S. McNamara left the Department of Defense.

1969. Slightly over one year after Dr. Enthoven agreed publicly with RAND's conclusions, he left public service permanently. DoD awarded him the Medal for Distinguished Public Service and he returned to RAND as a consultant while serving as vice-president for economic planning for Litton Industries.

October 7, 1970. Mandated by the U.S. Congress, an extensive and "independent" study of the effects of herbicides in South Vietnam was signed into law (Public Law 91-441) by President Nixon. (Buckingham, p. 189)

December 8, 1970. The Department of Defense signed a contract with the National Academy of Sciences (NAS) to provide funds and other support for the "independent" study. Seventeen scientists and thirty consultants comprised the committee. (Buckingham, p. 189)

January 7, 1971. RANCH HAND flew its last three C-123 sorties spraying a crop target in Ninh Thuan province.

October 31, 1971. The last U.S. helicopter herbicide operation was flown.

"Bottom Line":

Between 1961 and 1971, the U.S. sprayed enough herbicides to cover 30,305 square miles or 23.8% of the total area of Vietnam with one spraying.

19,395,369 total gallons sprayed by the U.S. between August 10, 1961 and October 31, 1971 equates to an average of 5,193 gallons per day for 3,735 days.

February 22, 1974. Three years and five months after contracting with DoD to perform an "independent" study, the National Academy of Sciences finally published its report, "The Effects of Herbicides in South Vietnam".

The NAS Committee found:

- no clear evidence of direct damage to human health from herbicides,
- "no conclusive evidence" linking the defoliants with human birth defects, and
- no proof of permanent soil damage. The Committee determined soils were capable of sustaining growth as soon as six weeks after spraying and that a year after spraying the effects on plant growth were "undetectable".

February 24, 1974. Dr. George Kistiakowsky, then a vice-president of the National Academy of Sciences and former science advisor to President Eisenhower, was the only NAS official with integrity enough to publicly criticize and challenge the commission's report. In the Washington Post article "Viet Defoliation Damage Held Serious", Dr. Kistiakowsky claimed the report "seriously underestimated the damage and is too casual about the possible ill effects on humans".

April 1995. Twenty-three and a half years after the last herbicidal mission was flown, former Secretary of Defense Robert S. McNamara, who directed and energized Operation TRAIL DUST from its inception in 1961 through a peak year in 1968, publicly admits that:

- "We were wrong, terribly wrong",
- The American bombings never seriously threatened Hanoi's capacity to wage war,
- American ground operations never established any real, lasting security in the South Vietnamese country-side, and
- The pacification program failed to win many "hearts and minds".

April 17, 1995. Researchers have found that during the spraying of Agent Orange in southern Vietnam, dioxin levels in human tissue were as high as 900 times greater in Vietnamese living in southern Vietnam than those living in northern Vietnam where Agent Orange was not used. Even now, although dioxin levels are at their lowest since the war ended, the study found that dioxin levels are as high as 50 times higher in Vietnamese living in southern Vietnam than those living in northern Vietnam. These findings suggest that citizens in southern Vietnam may be at a greater risk of cancers, adverse reproductive and developmental effects, immune deficiency, and other adverse health effects due to their exposure to Agent Orange. (From Agent Orange and the Vietnamese: The Persistence of Elevated Dioxin Levels in Human Tissue, Dr. Arnold Schecter, State University of NY Health Science Center) How is it that the National Academy of Sciences can conclude there was no clear evidence of direct damage to human health from herbicides?

In retrospect, RAND's October 1967 reports were precisely correct and Doctors Enthoven and Kistiakowsky deserve the highest reverence for their courage to challenge "the system" in the name of truth.

Epilogue:

In March 1995, President Clinton called for an "independent" study of "Gulf War Syndrome", the health tragedy that has resulted from coalition forces' exposure to chemical warfare agents during the Gulf War. Until May 1995, Dr. John M. Deutch, who was a chemical engineering expert for former Defense Secretary Robert McNamara's staff for the first four years of Operation TRAIL DUST (1961-65), was DoD's key proponent in asserting "there is no clear evidence of any exposure of American soldiers to chemical or biological agents at any time during the Gulf War".

On 11 May 1995, President Clinton elevated Dr. Deutch to Director of Central Intelligence with special Cabinet-level status.

This is irrefutable proof that history does repeat itself.

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STATISTICAL SUMMARY OF HERBICIDAL WARFARE IN VIETNAM
Operation Trail Dust: 10 August 1961 - 31 October 1971 (3,735 days)

SUMMARY BY YEAR

YEAR	TOTAL GALLONS USED	TOTAL ACRES EFFECTED	TOTAL SQ. MILES EFFECTED
1962	17,171	5,724	27
1963	74,760	24,920	117
1964	281,607	93,869	440
1965	664,657	221,552	1,039
1966	2,535,788	845,263	3,962
1967	5,123,353	1,707,784	8,005
1968	5,089,010	1,696,337	7,952
1969	4,558,817	1,519,606	7,123
1970	758,966	252,989	1,186
1971	10,039	3,346	16
Year Unknown	281,201	93,734	439

TOTAL:	**19,395,369**	**6,465,123**	**30,305**

Assumptions and Conversion Factors:

3 gallons of herbicide disseminated per acre

640 acres per square mile

1,920 gallons disseminated per square mile

SUMMARY BY CHEMICAL AGENT

(Herbicide drums were identified by a 4-inch-wide circular band of paint colored in correspondence with these color codes.)

CHEMICAL AGENT	TOTAL GALLONS PROCURED BY DOD	TOTAL GALLONS USED	PERCENT OF TOTAL USED	TOTAL GALLONS REMAINING
Green	8,208	8,208	0.04%	0
Pink	122,792	122,792	0.6%	0
Purple	145,000	145,000	0.7%	0
Blue	2,166,656	2,166,656	11.2%	0
White	5,600,000	5,239,853	27.0%	360,147
Orange	13,927,985	11,712,860	60.4%	2,215,125
TOTAL:	**21,970,641**	**19,395,369**		**2,575,272**

The 15,480 drums of Agent Orange stockpiled at the Naval Construction Battalion Center (NCBC) in Gulfport, Mississippi were transferred to the Dutch-owned ship the Vulcanus and destroyed between 15-24 July 1977.

The 24,795 drums of Agent Orange stored on Johnston Island were subsequently incinerated on the Vulcanus in two loads.

The last of the herbicide orange once destined for the jungles of Vietnam burned on September 3, 1977.

Data Sources: SIPRI, 1976 and Cecil, 1986.

The following 59 U.S. military bases were suffering from significant water or soil contamination a year ago, according to the Department of Defense's interpretation of its latest hazardous waste survey. DoD officials say not every base suffering such contamination is on the list, because information was not available for all bases. The list is based on the latest status report for DoD's Installation Restoration Program.

The IRP report contains no explanation of the problems at each base, so we asked each service to provide details. The Army did so. The Navy Chief of Information refused to help us gather the information. Air Force Public Affairs could not provide the information by our deadline, but we will publish it as soon as it becomes available. We gathered information on some of these missing bases from EPA and a DoD report to Congress on

"Superfund" sites. LIFE IN THE TIMES cannot vouch for the accuracy or completeness of the information that was provided.

Army

Aberdeen Proving Ground, MD

Essentially every land portion of the Edgewood, MD, area (on which a portion of the base is located) is contaminated or potentially contaminated. Monitoring in 1977-78 indicated contamination of surface and ground water. Four standby wells were shut down in 1983 due to detected organic compounds. The base's active drinking water supplies come from two off-post sources. Deer Creek and Winters Run, unaffected by contamination on base.

Fort A.P. Hill, VA

There are three problems. A herbicide contaminated the soil near an old pesticide storage building. The soil has been placed in sealed drums. Second, herbicide and dioxin Contaminated soil and debris are stored at a base warehouse in 33-gallon drums inside sealed 55-gallon drums. A study will be done to recommend an environmentally sound method of permanent disposal. Third, the base plans to remove some 70 tons of soil contaminated by DDT. The base water comes from a deep aquifer and is not contaminated, the Army says.

Fort Belvoir, VA

Several contaminants - benzene, trichloroethylene, chloroform, toluene, ethylbenzene, and 1-2-dichloroethane - have seeped from the Building 324 tank farm into an unnamed creek. None of these contaminants was detected in surface water at the installation boundary, and no health hazard is apparent, the Army, says. Post drinking water comes from the Fairfax County Water Authority.

Fort Devens, MA

A sanitary landfill that is a potential source of contamination is being closed. It was used as an open burning site, then for incineration of waste and burial of residues. Water quality meets state standards.

Fort Dix, NJ

Nine potentially contaminated sites are known. One, the sanitary landfill, was placed on the National Priority (Superfund) List due to the presence of organic solvents. However, the Army says no significant health hazards have been identified. To avoid any risk, the landfill may be capped with clean soil and vegetated with grass. The other eight sites were identified only recently. Organic solvents and/or petroleum products were located at an old magazine area, a tank farm, a fire station, the golf course, a motor pool, a firing range, a pesticide storage building, and a National Guard facility. Investigation is under way to determine any problems. The sites to not endanger the base water supply according to the Army.

Fort Lewis, WA

There are two problems: One, is Landfill No. 5. Plans call for a landfill liner and leachate collection to preclude ground water contamination. There are also plans for a refuse-fired incinerator to reduce reliance in the landfill. Also trichloroethylene (TCE) has been found in the ground water beneath the Logistics Center. Post drinking water comes from a spring unrelated to that aquifer.

Fort McClellan, AL
Ten old training areas and three former disposal sites have a slight chance of subsurface contamination from mustard agent and its breakdown products and possible byproducts of chemical agent decontamination. Only very small quantities of agent were used and all sites have been closed, decontaminated and fenced. No evidence of any surface or surface water contamination has been found in the past, the Army says. The post receives its water from the city of Anniston.

Redstone Arsenal, AL
A $30 million cleanup was recently completed by Olin Corp, which made DDT in a leased factory that was closed in 1970 for environmental reasons. Manufacturing waste was contaminating soils and streams. DDT was found in the wildlife food chain but not in potable water supplies inside or outside the base. In addition, the presence of PCBs. heavy metals, while phosphorous and other organic compounds is known or suspected. An investigation is under way to determine if they contaminated the active sanitary landfill, a DDT waste landfill, open burning and detonation grounds, and 22 old disposal sites. Also, a $5 million program is in progress to remove all asbestos from post buildings.

Navy

Brunswick NAS, ME

A study is under way to determine contaminants and their migration habits.

Lakehurst Naval Air Engineering Center, NJ
Soil and shallow ground water at the tetraethyl lead disposal site are contaminated, perhaps from aviation fuel. The ground water in some areas is covered with a 6-inch layer of JP-Fuel. Elsewhere, the carcinogen nitronomine may be present. Waste oils, battery acid, and solvents are suspected of having been discharged into some dry wells. The soil stabilization field test received 362 gallons of aniline and 161 of furfural (toxic by ingestion, inhalation, or skin absorption), and ferric choride solution; personnel and animals that come in contact with the soil may be endangered. A landfill received thousands of gallons of hydraulic fluids, five tons of asbestos, and also cutting oils, solvents, sludge, and heavy metals. A site for PCB testing and storage is near the environmentally sensitive Ridgeway Branch. The western portion of the base may be contaminated by ordnance: shells, gas-loaded projectiles, phosgene, phosphorus, mustard agent, explosives, flares, and depth bombs. The shallow aquifer in this area may also be contaminated.

Moffett Field NAS, CA
The major contaminants in the ground water are volatile organic compounds.

Whidbey Island NAS, WA
The ground water could be contaminated. Waste oil, solvents, fuel, and caustic rinse water containing heavy metals have been discharged through the storm sewer system and into Dugella Bay. Waterfowl and fish that feed or live in drainage's may be affected. Subsurface migration at the seaplane base may have affected fish or shellfish in Oak and Crescent Harbors. A backup well at Ault Field is threatened by potential migration of contaminants.

Other Navy bases:

China Lake, CA
Indian Head NOS, MD
Jacksonville NAS, FL
Miramar NAS, CA

Pabmont River NAS, MD
Roosevelt Roads NS, Puerto Rico

Air Force

Castle AFB, CA
On-base drinking water supply has been contaminated with trichloroethylene (TCE). Work is under way to install a new well drawing from a deeper, uncontaminated aquifer.

Dover AFB, DE
Ground is contaminated with arsenic and other metals, and a stream on base is contaminated with trichloroethylene (TCE). The base well, however, is free of these contaminants. Remedial action has been under way since 1985.

Griffiss AFB, NY
Phenols, ethyl benzene, and benzene have been detected in ground water on base, and toluene in surface water on base.

Hill AFB, UT
Seepage water near two disposal areas contains toxic organic chemicals, such as trichloroethylene (TCE), 1-2 dichloroethane, and 1,1,1 trichlorethane. None of the affected water is used for human consumption. Remedial action to date includes construction of a slurry wall and landfill covers as well as pumping and treating contaminated ground water.

Mather AFB, CA
Water in 36 homes was affected by trichloroethylene (TCE) contamination of a well on base. A new permanent water supply is to be provided to these homes.

McChord AFB, WA
Various chemicals -- methylene chloride, chloroform, benzene, arsenic, chromium, and mercury -- have been detected in test wells and in surface drainage leaving the base. One site is a liquid waste spill next to the wash rack and industrial waste treatment system. Contracted work for the American Lake Gardens Water Supply Project began in 1985; a contractor installed shallow wells and one deep well.

McClellan AFB, CA
An estimated 160 sites have been identified. Contaminants include organic compounds, such as trichloroethylene (TCE), methylene chloride, and 1-1 dichloreythlene. Wells both on and off base that had contaminants exceeding government standards have been shut down. McClellan is considered a leader in cleanup efforts. Completed projects include alternate water supply for off base residents and a ground water containment system and treatment plant.

Norton AFB, CA
Trichloroethylene (TCE) was detected in concentrations exceeding state drinking water standards. All base wells were contaminated to various degrees with silver and tetrachlorethylene (PCE). Closure of a lagoon and sludge removal was begun several years ago.

Robins AFB, GA
Contaminants include halogenated solvents, heavy metals, pesticides (DDT, chordane, etc.), cyanide, and oil products. The toxic organic compounds trichloroethylene (TCE), and tetrachloroethylene (PCE) have been

detected in ground water on base. Ground water is not used as drinking water, but the contaminants could eventually appear in surface water.

Tinker AFB, OK
Some base wells were closed due to contamination from chlorinated solvents. Chlorinated solvents were also detected in the aquifer that is the primary water source in the region. Organic compounds have been detected at all sites, though migration is limited. Remedial action begun in 1984 includes capping landfill No. 6, and stopping leaks from underground storage tanks at the fuel farm.

Wright-Patterson AFB, Ohio
Fourteen organic compounds, including trichloroethylene (TCE) and tetrachloroethylene (PCE) in relatively high quantities has been found in wells serving the base. Nearly half the 17 wells have been shut down due to contamination or age. An air stripper has been put on two wells to remove the organics, and installation of two other strippers is planned.

Other Air Force bases:

Beale AFB, CA
Chanute AFB, IL
Charleston AFB, SC
Columbus AFB, MS
Edwards AFB, CA
England AFB, LA
F.E. Warren AFB, WY
George AFB, CA
Hanscorn AFB, MA
Hickam AFB, HI
Kelly AFB, TX
Lowery AFB, CO
Luke AFB, AZ
Kirtland AFB, NM
Langley AFB, VA
MacDill AFB, FL
McGuire AFB, NJ
Moody AFB, GA
Mountain Home AFB, ID
Otis AG Base, MA
Pope AFB, NC
Pease AFB, NH
Plattsburgh AFB, NY
Reese AFB, TX
Seymour Johnson AFB, NC
Shemya, AL
Travis AFB, CA
Vandenburg AFB, CA
Wurtsmith AFB, MI

October 24, 2010 posted by Robert O'Dowd · 7 Comments

(WASHINGTON, DC) – For the life of me, I still don't know why the Veteran Service Organizations (VSO's) have not published the list of 130 military bases on the National Priority List (EPA Superfunds), the chemicals found by EPA and the health effects of exposure.

Courtesy: Salem-News.com

The EPA Superfund database is accessible from the internet and the health effects of exposure to many of the contaminants have been identified by the Agency for Toxic Substances Disease Registry (ATSDR).

Many vets have access to the internet from their own computers or from another family member. It's not like this is classified information or any national security issues are in play.

What is at stake is the health of veterans. The health of veterans should be of paramount interest to all VSO's. Veterans pay dues to their VSO's to represent them and to protect their interests.

Not everyone who served on an EPA Superfund base was exposed to toxic chemicals. Publishing the EPA lists is not going to spread panic among veterans. We're mature adults fully capable of making rational decisions about our health care needs.

DOD, the biggest owner of Superfund sites, has no interest in notifying veterans of their possible exposure to toxic chemicals nor is there a legal requirement for any government agency to notify veterans or Congressional interest in pursuing this.

I have personally sent emails or letters to the CEO's of most of the major VSO's, including the VFW, American Legion, Marine Corps League, Catholic War Vets, etc. Only the Catholic War Vets agreed to notify their membership.

Am I going to cancel my membership to the American Legion and the Marine Corps League? No. But, I'd like to think that the CEO's of these organizations would demonstrate a personal interest in the health care of their memberships by publishing this information.

What's the big deal? We pay dues to VSO's to represent our interests. I'm betting that most vets have no idea that bases they served on are now EPA Superfund sites. A number may have been exposed to deadly contaminants, are now sick, and have never connected the dots to military service. Putting aside the VA disability claim issue, these men (mostly) need to know what chemicals they were exposed to so their doctors can provide an effective treatment plan. Keeping them in the dark is definitely not helpful. DOD is not going to tell them anything. If I didn't know better, I'd think the VSO's are working for DOD, not for their memberships.

EPA's Unacceptable Risks to Human Health

For every military base on the National Priority List (Superfunds), EPA lists the chemicals found in the soil and groundwater that are an "unacceptable risk" to humans and the environment. This information is not classified. It's not a secret. Every veteran who served on an EPA Superfund needs to know what chemcials he or she may have been exposed to and the health effects of exposure.

EPA's Contaminants of Concern (COC's) "are the chemical substances found at the site that the EPA has determined pose an unacceptable risk to human health or the environment. These are the substances that are addressed by cleanup actions at the site."

" Identifying COC's is a process where the EPA identifies people and ecological resources that could be exposed to contamination found at the site, determines the amount and type of contaminants present, and identifies the possible negative human health or ecological effects that could result from contact with the contaminants."

A link to the list of COC's is shown on the first page of each EPA Superfund website under the caption, "view contaminants of concern at this site."

For example, the health effects from exposure to a particular COC at MCAS El Toro, an EPA Superfund base, can be obtained by clinking on the ATSDR Profile next to the COC as shown below.

Vetshome Comment:
Why have'nt the Veteran Service Organizations (VSO's) published the list of 130 military bases on the National Priority List (EPA Superfunds), the chemicals found by EPA and the health effects of exposure. YOU NEED TO KNOW!!!!!

Maybe, just maybe you have been sick and did'nt know why.

MILITARY BASES ON THE NPL (EPA SUPERFUNDS) National Priorities List (NPL) Environmental Protection Agency (EPA)

MILITARY BASES ON THE NPL (EPA SUPERUNDS)

US Air Force Links

Fort Worth TX	Air Force Plant #4 (General Dynamics)
Columbus OH	Air Force Plant 85
Littleton CO	Air Force Plant PJKS
Tacoma WA	American Lake Gardens/McChord AFB
Yigo GU	Andersen Air Force Base
Andrews Air Force Base MD	Andrews Air Force Base
Tullahoma/Manchester TN	Arnold Engineering Development Center (USAF)
Brandywine MD	Brandywine DRMO
Merced CA	Castle Air Force Base (6 Areas)
Rantoul IL	Chanute Air Force Base
Dover DE	Dover Air Force Base
Edwards AFB CA	Edwards Air Force Base
Fairbanks AK	Eielson Air Force Base
Ellsworth AFB SD	Ellsworth Air Force Base

Anchorage AK	Elmendorf Air Force Base
Cheyenne WY	F.E. Warren Air Force Base
Spokane WA	Fairchild Air Force Base (4 Waste Areas)
Victorville CA	George Air Force Base
Rome NY	Griffiss Air Force Base (11 Areas)
Bedford MA	Hanscom Field/Hanscom Air Force Base
Hill AFB UT	Hill Air Force Base
Homestead Air Force Base FL	Homestead Air Force Base
Limestone ME	Loring Air Force Base
Glendale AZ	Luke Air Force Base
Riverside CA	March Air Force Base
Mather CA	Mather Air Force Base (AC&W Disposal Site)
Tacoma WA	McChord Air Force Base (Wash Rack/Treatment Area)
McClellan AFB CA	McClellan Air Force Base (Ground Water Contamination)
Wrightstown NJ	McGuire Air Force Base #1
Mountain Home ID	Mountain Home Air Force Base
San Bernardino CA	Norton Air Force Base (Lndfll #2)
Portsmouth/Newington NH	Pease Air Force Base
Plattsburgh NY	Plattsburgh Air Force Base
Lockbourne OH	Rickenbacker Air National Guard (USAF)
Houston County GA	Robins Air Force Base (Landfill #4/Sludge Lagoon)
Oklahoma City OK	Tinker Air Force Base (Soldier Creek/Building 3001)
Travis AFB CA	Travis Air Force Base
Minneapolis MN	Twin Cities Air Force Reserve Base (Small Arms Range Landfill)
Panama City FL	Tyndall Air Force Base
Chandler AZ	Williams Air Force Base
Dayton OH	Wright-Patterson Air Force Base
Oscoda MI	Wurtsmith Air Force Base

US Army Links

Edgewood MD	Aberdeen Proving Ground (Edgewood Area)
Aberdeen MD	Aberdeen Proving Ground (Michaelsville Landfill)
Childersburg AL	Alabama Army Ammunition Plant
Anniston AL	Anniston Army Depot (Southeast Industrial Area)
Hall County NE	Cornhusker Army Ammunition Plant
Fort Devens MA	Fort Devens
Sudbury MA	Fort Devens-Sudbury Training Annex
Pemberton Township NJ	Fort Dix (Landfill Site)
Newport News VA	Fort Eustis (US Army)
Odenton MD	Fort George G. Meade
Tacoma WA	Fort Lewis (Landfill No. 5)
Tillicum WA	Fort Lewis Logistics Center
Marina CA	Fort Ord
Anchorage AK	Fort Richardson (USARMY)
Junction City KS	Fort Riley
Fort Wainwright AK	Fort Wainwright

Middletown IA	Iowa Army Ammunition Plant
Joliet IL	Joliet Army Ammunition Plant (Load-Assembly-Packing Area)
Joliet IL	Joliet Army Ammunition Plant (Manufacturing Area)
Independence MO	Lake City Army Ammunition Plant (Northwest Lagoon)
Franklin County PA	Letterkenny Army Depot (PDO Area)
Chambersburg PA	Letterkenny Army Depot (SE Area)
Texarkana TX	Lone Star Army Ammunition Plant
Karnack TX	Longhorn Army Ammunition Plant
Doyline LA	Louisiana Army Ammunition Plant
Watertown MA	Materials Technology Laboratory (USARMY)
Milan TN	Milan Army Ammunition Plant
Natick MA	Natick Laboratory Army Research, and Engineering Center
New Brighton MN	New Brighton/Arden Hills/TCAAP (USARMY)
Rockaway Township NJ	Picatinny Arsenal (USARMY)
Riverbank CA	Riverbank Army Ammunition Plant
Adams County CO	Rocky Mountain Arsenal (USARMY)
Sacramento CA	Sacramento Army Depot
Savanna IL	Savanna Army Depot Activity
Schofield HI	Schofield Barracks (USARMY)
Romulus NY	Seneca Army Depot
Lathrop CA	Sharpe Army Depot
Desoto KS	Sunflower Army Ammunition Plant
Tobyhanna PA	Tobyhanna Army Depot
Tooele UT	Tooele Army Depot (North Area)
Tracy CA	Tracy Defense Depot (USARMY)
Hermiston OR	Umatilla Army Depot (Lagoons)
Huntsville AL	US Army/NASA Redstone Arsenal
St. Charles County MO	Weldon Spring Former Army Ordnance Works
Point Pleasant WV	West Virginia Ordnance (USARMY)

US Coast Guard Link

Baltimore MD	Curtis Bay Coast Guard Yard

U. S. Navy Links

Adak AK	Adak Naval Air Station
Alameda CA	Alameda Naval Air Station
Mineral County WV	Allegany Ballistics Laboratory (USNAVY)
Silverdale WA	Bangor Naval Submarine Base
Bremerton WA	Bangor Ordnance Disposal (USNAVY)
Barstow CA	Barstow Marine Corps Logistics Base
Brunswick ME	Brunswick Naval Air Station
Onslow County NC	Camp Lejeune Military Res. (USNAVY)
Camp Pendleton CA	Camp Pendleton Marine Corps Base
Havelock NC	Cherry Point Marine Corps Air Station
Concord CA	Concord Naval Weapons Station
North Kingstown RI	Davisville Naval Construction Battalion Center
El Toro CA	El Toro Marine Corps Air Station
Indian Head MD	Indian Head Naval Surface Warfare Center
Kitsap County WA	Jackson Park Housing Complex (USNAVY)
Jacksonville FL	Jacksonville Naval Air Station
Quantico VA	Marine Corps Combat Development Command
Albany GA	Marine Corps Logistics Base
Moffett Field CA	Moffett Naval Air Station

Warminster Township PA	Naval Air Development Center (8 Waste Areas)
Lakehurst NJ	Naval Air Engineering Center
Whidbey Island WA	Naval Air Station, Whidbey Island (Ault Field)
Whidbey Island WA	Naval Air Station, Whidbey Island (Seaplane Base)
Virginia Beach VA	Naval Amphibious Base Little Creek
Wahiawa HI	Naval Computer and Telecommunications Area Master Station EP
Fridley MN	Naval Industrial Reserve Ordnance Plant
Sabana Seca PR	Naval Security Group Activity
Dahlgren VA	Naval Surface Warfare Center – Dahlgren
Keyport WA	Naval Undersea Warfare Engineering Station (4 Waste Areas)
Bedford MA	Naval Weapons Industrial Reserve Plant
Yorktown VA	Naval Weapons Station – Yorktown
Colts Neck NJ	Naval Weapons Station Earle (Site A)
Mechanicsburg PA	Navy Ships Parts Control Center
New London CT	New London Submarine Base
Newport RI	Newport Naval Education & Training Center
Norfolk VA	Norfolk Naval Base (Sewells Point Naval Complex)
Portsmouth VA	Norfolk Naval Shipyard
Yorktown VA	NWS Yorktown – Cheatham Annex
Parris Island SC	Parris Island Marine Corps Recruit Depot
Patuxent River MD	Patuxent River Naval Air Station
Pearl Harbor HI	Pearl Harbor Naval Complex
Pensacola FL	Pensacola Naval Air Station
Indian Island WA	Port Hadlock Detachment (USNAVY)
Kittery ME	Portsmouth Naval Shipyard
Bremerton WA	Puget Sound Naval Shipyard Complex
Weymouth MA	South Weymouth Naval Air Station
Chesapeake VA	St. Juliens Creek Annex (U.S. Navy)
San Francisco CA	Treasure Island Naval Station-Hunters Point Annex
Jacksonville FL	USN Air Station Cecil Field
Washington DC	Washington Navy Yard Milton FL Whiting Field Naval Air Station
Horsham PA	Willow Grove Naval Air and Air Reserve Station
Yuma AZ	Yuma Marine Corps Air Station