

STATISTICAL SUMMARY OF HERBICIDAL WARFARE IN VIETNAM

Operation Trail Dust: 10 August 1961 - 31 October 1971

Assumptions and Conversion Factors:
3 gallons of herbicide disseminated per acre
640 acres per square mile
1,920 gallons disseminated per square mile

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.

SOURCE INFORMATION: XXXXXXXXXX

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

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

**For more information: type
in "Agent Orange at CBC
Gulfport" in search engines**

Special Collections of the National Agricultural Library

The
Alvin L. Young Collection on Agent Orange[Home](#) [Search](#) [Intro](#) [Bio](#) [Scope](#) [Series](#) [Container List](#)

Introduction

by Alvin L. Young

For those of us who went to college in the 1960s, the Vietnam War was a major social and political issue. I was a ROTC (Reserve Officers Training Corps) cadet at the University of Wyoming [Laramie, Wyoming] and 1964, the year of my commissioning and graduation from the University, was the year that the War officially became a national commitment. Because I graduated from the College of Agriculture, I was aware of the military's interest in the use of herbicides in Vietnam. Accordingly, I contacted Air University, Maxwell Air Force Base, Alabama, and requested a delay in reporting to active duty so that I could attend graduate school in the area of pesticides. Air University concurred in my delay and I quickly finished a Master's Degree at the University of Wyoming and was accepted for a Ph.D. at Kansas State University [Manhattan, Kansas] beginning in August 1965. At Kansas State I completed my degree in the areas of herbicide physiology and environmental toxicology. My dissertation was on the mechanism of action of Tordon® 101 (known as the military herbicide Agent White when it was used in Vietnam during the Vietnam War). I reported for active duty in the fall of 1968 to Eglin Air Force Base, Florida. I was assigned to the program that was developing the spray equipment for Operation Ranch Hand in Vietnam. Eglin's Test Area C-52 was the unique test site for the testing and development of such equipment.



A. Young conducting phytotoxicity test, Eglin AFB, 1969 (Folder 1626)

Special Collections, NAL

In April 1970, the Department of Defense and other agencies of the Federal government suspended the use of 2,4,5-trichlorophenoxyacetic acid (2,4,5-T) herbicide. The suspension was based upon the presence in the herbicide of the toxic contaminant 2,3,7,8-tetrachlorodibenzo-para-dioxin (TCDD or dioxin). Since Test Area C-52A had received more than 72,000 kg of 2,4,5-T from Agent Orange (a **definition of Agent Orange**) in the course of developing the spray equipment for Vietnam, it was the ideal place to conduct ecological studies on the fate of TCDD. I prepared a research proposal to the United States Air Force (USAF) for the study of the Test Area. It was accepted and funded beginning in late 1970. As we began the studies of the Test Area, we realized how important it was to document the literature on not only the use of 2,4,5-T in the United States, but also the use of Agent Orange in Vietnam. Thus, I began to develop the collection of reference materials later referred to as the "Agent Orange Collection." Initially, I collected as many documents/reports as were available on the early development and testing of the spray equipment used in Vietnam.

Our research at Eglin Air Force Base attracted national and international attention. We were one of only a few research teams that were conducting "field" environmental fate research on TCDD. By late 1971, the USAF was beginning to collect information on methods to destroy the surplus inventory of Agent Orange that remained from the Vietnam War (Project PACER IVY). Simultaneously, I was transferred to the USAF Academy, Colorado Springs, Colorado, and was in an ideal situation to continue work on the ecological studies at Eglin Air Force Base and on the biodegradation of Agent Orange, the latter being a method I had proposed for the disposal of the herbicide. The Agent Orange Collection continued to grow as we added documents in the area of herbicide disposal.



A. Young near drums of herbicide marked for sampling, Johnston Island, 1974 (Folder 1626)
Special Collections, NAL

In 1976, the Seveso, Italy, episode involving TCDD occurred. Again, our research team (now at the USAF Academy) was called in to assist the Italians in addressing the decontamination of TCDD from a residential area north of Milan. I served on the Seveso Authority from 1976 to 1986. In 1977, I was assigned to the Environmental Health Laboratory at Kelly Air Force Base, Texas. I was on the team for the disposal of Agent Orange by at-sea incineration (Project PACER HO). With destruction of the herbicide, I initiated the site monitoring at Gulfport, Mississippi, and Johnston Island, an atoll located in the central Pacific Ocean where drums of Agent Orange were stored before incineration. The Agent Orange Collection now included additional materials on environmental fate.

In the fall of 1978, I joined the USAF Occupational and Environmental Health Laboratory (OEHL), Brooks Air Force Base, Texas, and began working on background information for the Air Force Health Study, the study of the men who served in Operation Ranch Hand in Vietnam. This effort enlarged the Agent Orange Collection significantly to include all available information on the potential health effects of exposure to TCDD and herbicides. In addition, I had the opportunity to again interface with the men who had served in Vietnam. They donated hundreds of slides and photographs of Ranch Hand and Vietnam for the collection. In 1981, I was detailed to the Veterans Administration (VA) in Washington, D.C., to assist the VA in addressing the concerns of veterans potentially exposed to Agent Orange, and in 1983, I was detailed to the White House and the Office of Science and Technology Policy. These assignments added materials on the social and political implications associated with Agent Orange use to the collection.

With the increased interest in litigation on Agent Orange and dioxin, it became increasingly difficult to maintain the integrity of the collection, particularly with the number of Freedom of Information requests to view the collection materials. By 1985, the demand was so intense that I felt that it would be impossible to continue holding and moving the collection with each additional assignment that I received. After my appointment as Science Advisor to the Secretary of Agriculture, I contacted the National Agricultural Library (NAL) and asked that they accept the collection as part of their Special Collections. I considered NAL to be the ideal repository for the collection because herbicides were an important part of American agriculture and the scientific and historical perspective presented by the Agent Orange Collection would be recognized and valued by the library. The collection was moved to NAL that year, and over time I have tried to continue adding to the collection. It is my hope that the Agent Orange Collection will serve as a reference collection for future studies of the science, history, and social and political interactions that were a part of the Vietnam War.

I would like to thank NAL and the USAF for providing the funding and opportunity of having the collection properly organized and prepared in an electronic format as a special collection available to the public.

Introduction written by Alvin L. Young, July 2002

The Alvin L. Young Collection was arranged and processed by Patricia Murphy, Jennifer L. Hogue, and Stephanie M. Boehmer, with assistance from Lynn J. Stewart.

http://www.clarionledger.com/apps/pbcs.dll/article?AID=/20040927/NEWS01/409270361/1002

September 27, 2004

Families blame base pollution for illnesses

- Navy identifies another stretch of wetlands needing to be cleaned up

The Associated Press

GULFPORT — These are not new stories.

The tales of sickness, misery and death blamed by many families around the Naval Construction Battalion Center in Gulfport on Agent Orange contamination have been passed back and forth for decades.

"That whole neighborhood is dying over there, and it's not a quick, painless death," said 33-year-old Stephanie Ragar, who grew up playing at her grandparents' house two blocks from the base.

"I watched my mother throw up her liver in a trash can," she said.

Federal and state regulators have been tracking and trying to clean up Agent Orange pollution north of the base, first traced into ditches and streams in 1979, for years.

Suzanne Collum, who grew up a block north of the base, can cast her eye almost in any direction on her old street and find them. On her left is a father lost to cancer whose infant daughter was diagnosed with childhood leukemia. On her right are two learning disabled children.

"There's a lot of heart problems, liver problems, but especially kidney problems," Collum said. "We have 13 retardations in a five-block radius."

While federal agencies have tracked the pollution in the soils and water, the residents themselves say they haven't received the attention they deserve.

"They keep saying they're testing this and testing that, but when it comes to the sicknesses and diseases in our neighborhood, they're saying, 'We can't believe this is happening now from something back in the '70s,' " said Valerie Fryou.

In a report released last month, the Agency for Toxic Substances and Disease Registry found that the principal chemical of concern in the Agent Orange — tetrachlorodibenzo-p-dioxin, or TCDD — is not a public health risk.

The more difficult question, whether lives were put in jeopardy in years past, or if current illnesses may be linked to old exposures, can't be determined because of a lack of information, the report states.

The scarcity of data maintained by the U.S. Navy has been frustrating for Gordon Crane, the base's environmental program manager.

Although numerous cleanup efforts have been performed through the years, the Navy has identified yet another stretch of wetlands that still requires remediation.

Along the way, the effort being joined by the U.S. Fish and Wildlife Service and the National Oceanic and Atmospheric Administration will include tests for any other hazardous substances.

These include lead and cadmium that has leached from the base's waste pits into groundwater beneath the base, Crane said.

News

Navy prepares for new cleanup for heavy metal pollution at Seabee Base

<http://www.picayuneitem.com/articles/2004/09/25/news/17navy.txt>

Saturday, September 25, 2004 6:45 PM CDT

GULFPORT (AP) - These are not new stories.

The tales of sickness, misery and death blamed by many families around the Naval Construction Battalion Center in Gulfport on Agent Orange contamination have been passed back and forth from front yards and over coffee shop countertops for decades.

"That whole neighborhood is dying over there, and it's not a quick, painless death," said 33-year-old Stephanie Ragar, who grew up playing at her grandparents' house two blocks from the base.

"I watched my mother throw up her liver in a trash can," she said.

Federal and state regulators have been tracking and trying to clean up Agent Orange pollution north of the base, first traced into neighborhood ditches and streams in 1979, for years.

Suzanne Collum, who grew up a block north of the base, can cast her eye almost in any direction on her old street and find them. On her left is a father lost to cancer whose infant daughter was diagnosed with childhood leukemia. On her right are two learning disabled children. Collum's own children suffer from recurrent reproductive problems.

"There's a lot of heart problems, liver problems, but especially kidney problems," Collum said. "We have 13 retardations in a five-block radius."

While federal agencies have tracked the pollution in the soils and water, the residents themselves say they haven't received the attention they deserve.

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The more difficult question, whether lives were put in jeopardy in years past, or if current illnesses may be linked to old exposures, could not be determined because of a lack of information, the report states.

Requests by residents for the agency to take blood samples in hopes of showing what, if anything, is in their bodies making them sick were turned down based on a lack of demonstrated risk.

About seven years ago, just a few years after the Seabee Base was rejected as a potential Superfund site, a federal designation given to the most polluted sites in the country, surveyors hired by the U.S. Navy walked the streets around the base to talk to residents.

What they found - story after story of failing bodies, sickness and death, mostly blamed on leaching chemical pits and Agent Orange leaks from the base - left the surveyors suffering "significant emotional stress," according to the Navy report.

"Although the surveyors were trained in how to deal with stories like these, they were surprised by the number of cancer incidents in the neighborhoods, and this was a source of significant emotional stress to several of them," the report reads.

The Mississippi Department of Health has never done a similar survey to try to determine if clusters of related illnesses exist that could be blamed on toxic exposure, according to numerous sources, The Sun Herald reported.

Even the Navy has been unimpressed with the MDH's response through the years.

The Health Department's habit of comparing county-to-county statistics, rather than walking door to door as surveyors did in 1997, is not the best way to study illness in a specific neighborhood, the Navy's 1997 report states.

"While this practice can help identify cancer clusters by statistical comparisons," the report says, "it is of less use for smaller study areas, such as the survey neighborhoods."

The scarcity of hard data maintained by the U.S. Navy has been frustrating for Gordon Crane, the base's environmental program manager who complains that records about Agent Orange predating 1982 are virtually nonexistent.

Although numerous cleanup efforts have been performed through the years both on and off the base, the Navy has identified yet another stretch of wetlands along Canal Road that still requires remediation.

Along the way, the effort being joined by the U.S. Fish and Wildlife Service and the National Oceanic and Atmospheric Administration will include tests for any other hazardous substances.

These include lead and cadmium that has leached from the base's waste pits into groundwater beneath the base, Crane said.

Former dockworkers who unloaded railroad cars of Agent Orange weekly at the Port of Gulfport to be shipped off to Vietnam from 1967 to 1969 have their own horror stories.

"We poured out more stuff on the docks down there than we did in Vietnam," said Frank Ladner, who retired from the port in 1985. "Nobody's saying anything about that. All those boys that worked with me are damn near dead."

Ladner says he has suffered severe nerve damage and has had numerous joints replaced. He talks about forklifts punching holes in the drums and of black fluid spraying out, or barrels dropping from pallets being hoisted by crane onto waiting vessels.

"I've had this stuff in my eyes. I've had it all over," Ladner said.

Joe McKay, who spent about 45 years on the docks, said he recalled such spills but doesn't share Ladner's health complaints. Not familiar with the toxic nature of the liquid, workers would spray spills off into the water, both said.

"We didn't know what we were working with," Ladner said. "So help me God, we didn't know."

**For more information: type
in "Agent Orange at CBC
Gulfport" in search engines**

IN DEPTH
Agent Orange

Deadly defoliants

June 14, 2005

[CBC News](#)

The chemical colours

The names for the chemical defoliants come from the Vietnam War where the name signified the identifying bands that were used on the 55-gallon drums that contained the products. Herbicides used in Vietnam, as well as the best-known Agent Orange, were Agent White, Agent Blue, Agent Purple, Agent Pink and Agent Green.

What are the ingredients?

2,4,-D is a white crystalline irritant compound used as a defoliant and weed killer called also *2,4-dichlorophenoxyacetic acid*; (Chemical formula $C_8H_6Cl_2O_3$).

2,4,5,-T an irritant compound used especially as an herbicide and defoliant called also *trichlorophenoxyacetic acid*. (Chemical formula $C_8H_5Cl_3O_3$).

Picloram is a defoliant and systemic herbicide designed to break down very slowly in the soil (Chemical formula $C_6H_3Cl_3N_2O_2$).

PURPLE: A formulation of 2,4,-D and 2,4,5,-T.

GREEN: Used 2,4,5-T.

PINK: Used 2,4,5-T.

ORANGE: A formulation of 2,4,-D and 2,4,5-T.

WHITE: A formulation of Picloram and 2,4,-D.

BLUE: Contained cacodylic acid.

ORANGE II: A formulation of 2,4,-D and 2,4,5-T used in Vietnam in 1968 and 1969 (also sometimes referred to as "Super Orange").

DINOXOL: A formulation of 2,4,-D and 2,4,5-T. Small quantities were tested in Vietnam between 1962 and 1964.

TRINOXOL: Contained 2,4,5-T. Small quantities tested in Vietnam 1962-1964.

Where were the herbicides used?

U.S. veterans groups have compiled lists of areas where they believe the U.S. and allied military forces used chemical herbicides and defoliants. Some of the information has come from the U.S. Department of Defence and some of it from the veterans' own research.

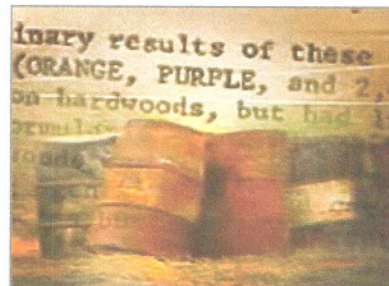
Areas confirmed by the U.S. Department of Defence, in which defoliants were used (in addition to Vietnam):
The Korean demilitarized zone in 1968 and 1969 (extensive spraying). Fort Drum, N.Y. in 1959 (testing).

Areas U.S. veterans say were sprayed:

1. Guam from 1955 through 1960s (spraying).
2. Johnston Atoll (1970s was used for AO storage).
3. Panama Canal Zone from 1960s to early 1970s (spraying).
4. Elgin AFB (Agents Orange and Blue) on firing range and simulated Viet Cong Village.
5. Wright-Patterson AFB (Ohio) and Kelly AFB (Texas).

In May 2003, a Democratic congressman, Lane Evans, asked U.S. Defence Secretary Donald Rumsfeld to investigate possible spraying in:

Aberdeen Proving Ground, Aberdeen, Md.
Apalachicola National Forest, Sopchoppy, Fla.
Avon Air Force Base, Fla.
Beaumont, Texas
Brawley, Calif.



Bushnell Army Air Field, Fla.
 Camp Detrick, Md.
 Dar and Prek Clong, Cambodia
 Eglin Air Force Base, Fla.
 Fort Gordon, Ga.
 Fort Richie, Md.
 Fredericton, N.B.
 Guanica, and Joyuda, Puerto Rico
 Gulfport, Miss.

 Huntington County State College, Pa.
 Jacksonville, Fla.
 Kauai, Hawaii
 Kingston, R.I.
 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
 Pinal Mountains, Globe, Ariz.
 Pranburi and other locations in Thailand
 Prosser, Wash.
 Rio Grande, Puerto Rico
 Wayside and Wilcox, Miss.
 Operation PACER HO (Disposal at sea)

What are the effects of chemical defoliants?



Dr. Joel Michalek during a press briefing on the Ranch Hand Study in the Pentagon on March 29, 2000. Michalek is the U.S. Air Force health study senior investigator for the study. (Courtesy: U.S. Dept. of Defense/Helene C. Stikkel)

On March 29, 2000, the United States Department of Defence released the results of a study by the U.S. air force called the Ranch Hand Study. That study was named for the original Agent Orange spraying program, also called Operation Ranch Hand.

In 1982, the U.S. air force began studying Vietnam veterans exposed to Agent Orange. In 1997, the U.S. air force conducted physical examinations of 2,300 Vietnam veterans exposed to Agent Orange.

The executive summary of the study said that the result showed "the strongest evidence to date that herbicide exposure is associated with diabetes, and some of its known complications." But the study said there was "no consistent evidence that Agent Orange is related to cancer."

The 2000 results confirmed an earlier 1992 study that also showed that Agent Orange is associated with adult-onset diabetes. "The 1997 results suggest that as dioxin levels increase, not only are the presence and severity of adult-onset diabetes increased, but the time to onset of disease is also decreased. A 47 per cent increase in

diabetes was seen in those with the highest levels of dioxin. This is particularly strong evidence, since dioxin is the component of Agent Orange linked to many health effects in laboratory animals," the air force said.

The study said that "cardiovascular disease findings were mixed."

The Vietnam veterans exposed to Agent Orange, studied in 1997, showed an overall 26 per cent increase in heart disease, but the air force study added "disease risk was not increased in Ranch Hands with high dioxin levels. However, within the Ranch Hand group, two specific measures of heart disease, the presence of high blood pressure and the percentage of veterans with evidence of prior heart attacks indicated by electrocardiogram, did tend to increase with dioxin levels."

The study said the relationship between diabetes and cardiovascular disease was statistical and noted that "the biological processes relating herbicide exposure with diabetes or cardiovascular disease have not been described" by scientists or doctors.

As for cancer, the air force doctors said in their report: "At the end of 15 years of follow-up, the Ranch Hand Study has found no consistent evidence that dioxin exposure is related to cancer." While overall, the veterans exposed to Agent Orange had a six per cent increase in the risk of cancer compared to other Vietnam veterans, the study also found that "enlisted ground crew, the subgroup with the highest dioxin levels and presumably the greatest herbicide exposure, exhibited a 22 per cent decreased risk of cancer." The study also found that veterans exposed to Agent Orange showed "a loss of sensation in the feet, which increased with dioxin levels."

Blood tests regarding liver function and lipids were slightly elevated, and did tend to increase with dioxin level of the patient.

However, these tests may be elevated for many reasons, are not a disease by themselves, and cannot be explained entirely by any other finding in the study.

There were two limitations to the study. Groups such as Americans veterans or Vietnamese civilians were exposed in different ways and to different levels of herbicide, so the study could not show what effect herbicides or dioxin could have at levels for people outside the Ranch Hand Study group, or from other sources such as contaminated food. It warned that groups with higher exposures may well have effects not seen in the study. The relatively small size of the study made it difficult to detect increases in rare diseases, so small increases of these diseases could have been missed.





Seabee Center Restarts Cleanup of Agent Orange

By Mike Keller, The Sun Herald, Biloxi, Miss.

Jan. 25--GULFPORT -- Work to clean up the poisonous remains of Agent Orange has begun again around Gulfport's Naval Construction Battalion Center after operations were shut down for several months because of Hurricane Katrina.

Gordon Crane, the center's environmental manager, said the project had been shut down for four months and that Katrina's surge did make contact with contaminated areas north of 28th Street, the northern border of the center.

"Out in the swampy area, we did have some piles of excavated soil. There was some water there," he said. "Something could have moved."

He said that both the U.S. Environmental Protection Agency and the Navy took samples to see if pollution had spread as a result of Katrina. They expect results back within the next two weeks.

The water infiltrated "into areas that had the highest level of contamination," but that movement of the dangerous soil should have been contained by sediment traps placed around the piles.

Crane said the contaminated area north of the base would be cleaned up by the end of February or March. No housing or playgrounds will be allowed to be built on it.

The Mississippi Department of Environmental Quality's Jerry Banks, who heads the state's part in depolluting the center, said 80 percent of the effort was completed before Katrina came ashore.

"We probably would have already been done with the cleanup by now if it weren't for the hurricane," he said.

Between 1968 and 1976, 850,000 gallons of Agent Orange, the military code name for one of a group of powerful herbicides, was stored in more than 15,000 drums at the Seabee Center.

One of the chemical byproducts in Agent Orange, 2,3,7,8-tetrachlorodibenzo-para-dioxin, has been linked to several diseases and cancer by federal health agencies and the military.

When it leaked out of the drums, Crane said, it soaked into the soil and washed out of the base into 15 acres north of 28th Street. That area is part of the Turkey Creek watershed.

The first two phases of the cleanup occurred in the 1970s and 1980s, Banks said. Navy personnel and the EPA cleaned up and contained the contaminants on the base, but missed the contaminated area to the north that totalled around 15 acres.

The final phase requires that all of the tainted soil be moved back onto the base, mixed into concrete and poured into a containment area.

So far, the soil and concrete mixture is 4.5 feet thick and covers roughly 13 acres.

When all of the soil has been set in the concrete, a 12-inch-thick layer of concrete is poured on top of it as a cap.

Banks said that area would then be used to store heavy equipment.

"That's pretty thick concrete," he said. "We don't want water or anything getting to it after we seal it."

He said he was not concerned that the storm had dispersed dioxin farther off the base, but that the EPA had taken samples to be sure.

"There was some erosion of soil from the hurricane surge, but we do not expect to see anything from the tests," he said.

Marie Hansen, who lives near the site north of the base, said that flood surge maps showed Katrina's flood made it to the contaminated mounds. She said she believes that current levels and movement of the substance were not the real problems.

"Our concern lays with past exposure," she said. "The levels today are a lot lower than they were in the past. So many people in the neighborhood have cancer now, and they are only in their 30s and 40s."

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3 INDEPTH ARTICLES:

- Agent Orange and Agent Purple, August 31, 2006
- Agent Orange: Grim Legacy, June 14, 2005
- Deadly Defoliants, June 14, 2005

CBCnews

IN DEPTH

INDEPTH: AGENT ORANGE

Agent Orange and Agent Purple

CBC News Online | Updated Aug. 11, 2006

In the palette of deadly poisons, one of the most famous is Agent Orange, a defoliant best known for its use during the war in Vietnam. Others are known by the names Green, Blue and Pink.

Far from Southeast Asia, dense forest was also a problem at CFB Gagetown. Military commanders said they needed to clear the brush in order to conduct training exercises. So the military struck an agreement with the Americans to test the defoliants.

Ottawa has acknowledged that Agent Orange defoliant was used in the 1960s to clear training areas at CFB Gagetown, but the government has only acknowledged the harm caused by Agent Orange when it was sprayed on Gagetown in 1966 and 1967.

CBC News learned Agent Orange wasn't the only herbicide sprayed at the base. There was also Agent Purple, lesser known, but more toxic.

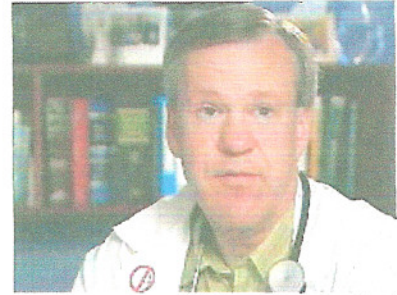


Wayne Cardinal

In 2005, Wayne Cardinal took 14 different medications every day for his heart and respiratory ailments. The 61-year-old retired soldier was wondering if he and his fellow soldiers were sick from Agent Orange.

"I can remember guys coming in with ears all blistered up and being sent to the MIR and told, 'There's nothing wrong with you, quiet about this, this is just probably a reaction to the chemical. It won't harm you.' And many guys can relate stories like that," Cardinal says.

Experts like cancer and leukemia specialist Richard van de Jagt of the University of Ottawa have long made a connection between Agent Orange and many health problems.



Richard van de Jagt

"Cancers including leukemia, prostate cancer, lung cancer, et cetera, and then we also know it to have endocrine effects and causing blindness, cataract formation," van de Jagt says.

Extensive spraying

CBC News learned that the spraying at CFB Gagetown was more extensive than previously thought. Documents obtained by CBC News show that in the summer of 1966 the military used Agent Purple.

Agent Purple had more than three times the level of lethal dioxin as Agent Orange. It was also laced with arsenic. It was so bad that the Americans stopped using it in Vietnam the year before.

The CBC investigation showed that planes sprayed other herbicides containing dioxin from 1956 to 1967, herbicides that were later banned for their health effects.

A military briefing note to the New Brunswick cabinet obtained by CBC News showed that more than a thousand barrels of a now-banned herbicide was sprayed on CFB Gagetown.

It listed in part: "Overview of herbicides spray program. 1956: 3,687 acres, 2,4,-D and 2,4,5-T 1957: 3,879 acres."

Then they were legal, now some of them have since been banned. 2,4,5,-T was sprayed frequently to kill dense brush. The New Brunswick documents also showed that substances mistakenly blew onto nearby farms.

In 1964 there was a spray application accident. Increased winds carried the spray to the Upper Gagetown and Sheffield area. The Crown paid approximately \$250,000 to several market gardens in the area as reparation for the damage to their crops.



Decades later, many residents are wondering if their illnesses are linked to the spraying at Gagetown.

Strenuous efforts

On June 13, 2005, in the House of Commons, then defence minister Bill Graham was asked about Agent Purple and replied: "We are making strenuous efforts to obtain the appropriate records, work with those who have been exposed, work with anybody in the community who knows anything about this."



Spraying in Vietnam

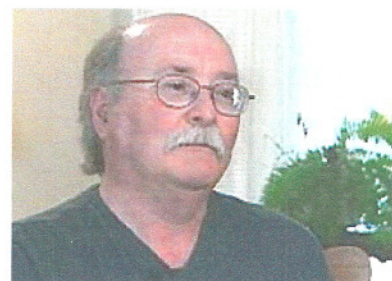
CBC News also obtained a draft fact sheet from the Department of National Defence. It says the department does not have a list of people who served at CFB Gagetown who may have been exposed, and it says the number who may have come into contact with the chemical is thought to be minimal.

"What upsets me so much is that my government, who I faithfully served for 40 years, has covered this up and lied about it for 40 years. What a shame. What a shame for the troops who have served them so well," Cardinal says.

Van de Jagt says like Agent Orange, the chemical 2,4,5,-T, can cause cancer: "Agent Orange and 2,4,5,-T have been banned because of their known toxic effects and they've actually been off. They've been banned for many years."

Civilian exposure

After planes took off from the Gagetown airstrip, nearby communities had no idea what chemicals were being sprayed. People say they were kept in the dark and they doubt the chemicals that were sprayed stayed put.



Ken Dobbie

Ken Dobbie has been sick for more than 30 years. It began with liver problems when he was a young man. The 58-year-old has been sick for more than 30 years. He never understood why until a few years ago.

It escalated to cirrhosis, pancreatitis, diabetes and brain atrophy. "I have type II diabetes; I have micro nodular sclerosis of the liver; idiopathic chronic pancreatitis; I'm in constant pain;" Dobbie says. "One of the questionnaires I remember had said, 'Have you ever worked with a chemical in your past?' That's when it hit me."

Dobbie remembered a summer job on the military base near his home in Oromocto, N.B. He was hired to clear brush that had been sprayed with a herbicide. That summer, 1966, the Canadian military sprayed Agent Orange at Gagetown.

Dobbie worked that summer with other local teenagers clearing and burning the contaminated brush. He says they had no protective gear.

"I know that I was there with several hundred other kids, I know what I did. It was an incredible experience because we were outdoors in the summertime working, and to us, it was a great job, but we didn't know that it was going to be killing us in the years later," Dobbie says. "There's no other reason on this Earth why I would be having about 15 different diseases and ailments that are going to eventually turn into cancer."

His family doctor says his symptoms likely point to some kind of chemical exposure. Dr. Robert West says: "He doesn't have a history of drug use or alcoholism, and it was a relatively acute illness with some changes in liver function on the blood, so that would suggest an immediate exposure to something."

Someone should be held accountable

Jody Carr is the MLA representing Oromocto and Gagetown. He says there are many civilians like Dobbie who should be compensated.

"I think the federal minister has the obligation to extend that compensation to firstly, any civilian that worked at base Gagetown at the time of spraying of Agent Orange.

If any of those civilians have an illness as a result of that, they should be compensated as well as the veterans," Carr says.

In 2004, Dobbie was hospitalized six times. He tests for liver cancer every three months. Along with cirrhosis, he has pancreatitis, diabetes and atrophy of the frontal lobes of his brain.

In 2005, Dobbie called the Defence Department in Ottawa to tell them about his job and see if they had any records. They said they would look into it.

Documents obtained by CBC News suggest the department believes no civilians were exposed to Agent Orange on the base. A draft fact sheet says there is no indication there were any civilians involved in or exposed to the testing.

Carr says he has heard from lots of civilians who say they've been affected by the spraying. He says they, too, should be compensated.

"To try to determine how many civilians, a particular number, it's very difficult, but the fact is that regardless of the costs, the federal government has the moral and ethical responsibility," Carr says.

But for people like Dobbie it's a tremendous challenge to try to prove his illnesses were caused by the spraying. Years afterwards, doctors are often unable to confirm exposure.

Dobbie may not have the time to prove it.

"I guess the way I can sum it up is it's too soon. I don't deserve to be dying at 57. I don't deserve this and no one who worked there deserves any kind of illnesses they have," Dobbie says.

Dobbie is now the president of the Agent Orange Association of Canada, an advocacy group for those affected by the dioxins sprayed.

So far, five Gagetown veterans have been awarded military disability pensions because of dioxin-related illnesses.



Persistent dioxins

A Canadian expert on Agent Orange says it's likely there is still dioxin in the soil at Gagetown.

Dr. Wayne Dwernychuk is an environmental consultant who spent several years testing dioxin levels in the countryside of Vietnam. He's an expert on the rainbow of toxic chemicals used by the U.S. military to kill jungle leaves so they could better see their enemy.

He says soil tests in that country show Agent Purple contained about four times the level of dioxin found in Agent Orange. And he says dioxin is likely still sitting in the soil at Gagetown.

"If you went back to the areas today where Agent Purple was sprayed and undertook some sampling, there's a high probability that you will find some dioxin, given the analytical techniques of today," Dwernychuk says.

That means dioxin may still be leeching into the water system ... and eventually into people's bodies.

"Through the process of biomagnification," he says, "it could eventually end up in humans and develop some form of high levels in livers and fatty tissues."

Dwernychuk also says the spraying of the chemical 2,4,5,-T throughout the 1950s and '60s undoubtedly drove up dioxin levels.

It's a key ingredient found in both Agent Orange and Agent Purple. It was banned in Canada in 1985.

The CBC's government documents refer to environmental assessments at Gagetown in the mid-1980s.

They show no evidence of dioxin.

But Dwernychuk says new studies are needed because dramatic changes in technology have improved the detection of toxins.

The federal government reaction

At the time of the Agent Orange testing, the Canadian government said very little about it, even denying the chemical was harmful at one point.

But in May 2005, Veterans Affairs acknowledged that the testing at CFB Gagetown exposed Canadian soldiers to a health risk. Then defence minister Bill Graham said those who believe they were affected can come forward and apply for assistance.



Graham has said he wants to hear from any veterans who may have been exposed to chemicals here, but the government did not promise any money to study health problems on the base or in the surrounding communities, nor has it promised to compensate any civilians.

On June 14, 2005, then Veterans Affairs Minister Albina Guarnieri said a committee will review disability applications. CBC News has learned 22 of those applications were previously denied.

The federal government eventually changed its stance. In August 2005, Ottawa launched an investigation into the use of Agent Orange and Agent Purple in the 1960s at CFB Gagetown. Investigators met with active and retired members of the Canadian military and retired civilian employees who were there during the tests.

And on Aug. 10, 2006, the results were in: present-day levels of dioxin are too low to be of any concern. The independent researchers hired by the government found that spraying in remote areas of the base in 1966 and 1967 did not pose a threat to the long-term health of those involved in the program. These were the first two of several reports examining health impacts of defoliant use at CFB Gagetown.

However, retired soldier Grant Payne said this contradicted earlier reports that showed current levels of dioxin were higher than the national guidelines in some areas. And, a scientific peer review raised concerns about the small number of soil samples and water samples.

Despite the findings, that same day the Conservative government announced it would still compensate those exposed to Agent Orange. But, it acknowledged the new reports meant fewer people were eligible. Veterans Affairs Minister Greg

Thompson said it would make a final decision on the compensation program by early 2007.

Sources: *CBC News Online stories, and the National and CBC Radio World Report, June 13 and 14, 2005. Reporter: Louise Elliott.*

CBCNEWS

IN DEPTH

INDEPTH: AGENT ORANGE

Agent Orange: Grim Legacy

CBC News Online | June 14, 2005

From the **National**, April 23, 2000

Reporter: Ian Hanomansing | Producer: Eric Rankin



The defoliant was sprayed over large areas of forest

In Vietnam in 1975, South Vietnam fell to the communists, ending a divisive conflict for the United States. And while the war is long over, the consequences are not; especially the "Grim Legacy" of Agent Orange. The Vietnamese insist the chemical defoliant used by the American military is still causing birth defects and deadly illnesses. The U.S. compensates its own veterans for the effects of Agent Orange, but it has so far refused to help the Vietnamese people. In the spring of 2000, the CBC's Ian Hanomansing travelled to Vietnam for a firsthand look at the problem and the efforts of a Canadian scientific team to find some answers.

Along a narrow trail lined by rice paddies and simple homes, Dr. Troung Cong Binh is taking us and a group of medical students on a house call. But there's no sense of urgency to this visit, no hope of curing his patient; just sadness and frustration about the plight of the family that lives here. This boy, Phan Tuan Anh, looks 10, but he's 16-years-old and he's dying. It is a cruel death, his muscles wasting away.

Crueller still, because his parents have already watched one son die of the mysterious disease. And another, a 14-year-old, has begun suffering the same symptoms.

"The parents know the progression of the disease. The younger one will get worse, like his brother," Dr. Binh says.

Their mother says she has no idea why three of her eight children have been stricken with the illness. But Dr. Binh says he has little doubt the culprit is Agent Orange.

"I think that Agent Orange is one of the main causes. These diseases are the effects of the Agent Orange because the rate of disease is very high. We find some families have a large number of members who have got the same disease," Dr. Binh says.

Agent Orange got its name from the orange bands on its drums. It was a potent blend of two herbicides and was sprayed around U.S. military bases in Vietnam to keep perimeters clear. But that was just a small part of its use. For 10 years beginning in 1961, the U.S. Forces drenched Vietnam with the defoliant, using more than 12 million gallons to strip the enemy of its cover and its food, including rice. The problem is that the U.S. government didn't realize until the late 1960's that the compound could be lethal to more than just vegetation. It was contaminated by dioxin -- the most toxic chemical made by man.

So today there are those who say because of Agent Orange, the Vietnam war is still claiming victims. The Vietnamese government has made sure its citizens are well-versed in the evils of Agent Orange. A display at a museum in Ho Chi Minh City leaves no doubt that the U.S. spray has caused deformities and deaths.

A TV documentary, never before seen outside of Vietnam, hammers home that message with graphic pictures of what the government says are victims of spraying. Is this science or propaganda? To what extent might these cases be the result of extreme malnutrition and chronic disease in parts of Vietnam?

Dr. Nuygen Thi Ngoc Phuong is head of Ho Chi Minh city's biggest maternity hospital. She has been here for more than 30 years and has studied the impact of Agent Orange. She is certain it's still causing birth defects. She says more than two-thirds of the patients are affected by Agent Orange.

Dr. Phuong says statistics show an unmistakable pattern: the rate of child deformities among mothers who were exposed to Agent Orange is much higher than among mothers living close by who were not exposed to the defoliant.

"There is a linkage between dioxin exposure and birth defects □ the increased rate of birth defects in my hospital in South Vietnam," she says.

No one questions that dioxin can be deadly, and that there is an alarming number of birth defects in this region. The problem, until now though, has been a lack of independently verifiable scientific evidence. That is, until a team of Canadian scientists and doctors entered the picture.

In an office in West Vancouver, scientists from a private research company, Hatfield Consultants, discuss their next trip to Vietnam.

One area that they have studied extensively, near the Ho Chi Minh Trail in west-central Viet Nam, is the remote Aluoi Valley. Funded by various Canadian government agencies, the scientists analyze the soil, sources of food, including fish in local ponds, as well as blood and breast milk from people who live in the valley.

In a report released in April 2000, they've found that dioxin contamination from Agent Orange is not just an historical fact, but a continuing problem. It's in the food chain and showing up in people born long after the spraying ended. The Canadian scientists have also confirmed dioxin levels from Agent Orange in this area, the site of a former U.S. military base, are far above what's considered safe in Canada and that the 20 families who live here should be relocated. But on what many consider to be the key question: is dioxin contamination the cause of the high rate of birth defects in Vietnam, the study provides no answer.

David Levy has been involved in the project since the beginning six years ago.

"There are higher percentages of birth defects in people living in close proximity to the contaminated site," Levy says. "What we don't know at the present time is to what extent other factors could be contributing to this. The maternal nutrition has a very big influence on the subsequent health of the baby that's born. These people are extremely poor, their nutrition is -- is not very good. And so we need to rule out some of these alternative explanations for the high birth defects."

In Hanoi, the capital of Vietnam, officials have been following the Hadfield study closely. We brought a summary of the report here and showed it to Dr. Le Cao Dai, Vietnam's top expert on Agent Orange.

Dr. Dai says he's confident that the Canadians will eventually conclude there is a link between birth defects and Agent Orange. But he says in the meantime, Vietnam needs help urgently.

"The first priority is to clean up the area. And continue to look at other problems. For example, malformation and so on," Dai says.

So the Americans should be paying for the cleanup?

"I do believe that the American government should do something," Dai says.

In fact the U.S. government is doing something, but for its own vets, not the Vietnamese -- providing compensation for some illnesses and one birth defect which may be related to Agent Orange. Washington says while there isn't conclusive data on the impact of exposure in Vietnam to the defoliant, dioxins are known to cause certain diseases, including: lung and throat cancer, lymphoma and prostate cancer, as well as the birth defect spina bifida in children of people exposed; these are some of the same maladies the Vietnamese have identified. So does that U.S. policy create at least a moral obligation on the country to help the Vietnamese, some of whom were allies during the war?

A State Department spokesman would only provide us with this statement: "the U.S. Government believes the Agent Orange issue should be addressed on a scientific basis and has told the Vietnamese government that we are prepared to conduct joint research in Vietnam on the effects of dioxins in Agent Orange and other herbicides and are awaiting a response to the offer."

Back in the countryside, the debate over Agent Orange matters little to the Phan family as they watch another son slowly die.

To the Vietnamese at least, he will be the latest casualty in a war that ended years ago.

CBCnews

IN DEPTH

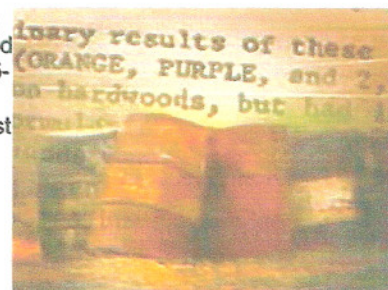
INDEPTH: AGENT ORANGE

Deadly defoliants

CBC News Online | June 14, 2005

The chemical colours

The names for the chemical defoliants come from the Vietnam War where the name signified the identifying bands that were used on the 55-gallon drums that contained the products. Herbicides used in Vietnam, as well as the best-known Agent Orange, were Agent White, Agent Blue, Agent Purple, Agent Pink and Agent Green.



What are the ingredients?

2,4,-D is a white crystalline irritant compound used as a defoliant and weed killer called also 2,4-dichlorophenoxyacetic acid; (Chemical formula C₈H₆Cl₂O₃).
2,4,5,-T an irritant compound used especially as an herbicide and defoliant called also trichlorophenoxyacetic acid. (Chemical formula C₈H₅Cl₃O₃).
 Picloram is a defoliant and systemic herbicide designed to break down very slowly in the soil (Chemical formula C₆H₃Cl₃N₂O₂).

PURPLE: A formulation of 2,4,-D and 2,4,5,-T.

GREEN: Used 2,4,5-T.

PINK: Used 2,4,5-T.

ORANGE: A formulation of 2,4,-D and 2,4,5-T.

WHITE: A formulation of Picloram and 2,4,-D.

BLUE: Contained cacodylic acid.

ORANGE II: A formulation of 2,4,-D and 2,4,5-T used in Vietnam in 1968 and 1969 (also sometimes referred to as "Super Orange").

DINOXOL: A formulation of 2,4,-D and 2,4,5-T. Small quantities were tested in Vietnam between 1962 and 1964.

TRINOXOL: Contained 2,4,5-T. Small quantities tested in Vietnam 1962-1964.

Where were the herbicides used?

U.S. veterans groups have compiled lists of areas where they believe the U.S. and allied military forces used chemical herbicides and defoliants. Some of the

information has come from the U.S. Department of Defence and some of it from the veterans' own research.

Areas confirmed by the U.S. Department of Defence, in which defoliants were used (in addition to Vietnam): The Korean demilitarized zone in 1968 and 1969 (extensive spraying). Fort Drum, N.Y. in 1959 (testing).

Areas U.S. veterans say were sprayed:

1. Guam from 1955 through 1960s (spraying).
2. Johnston Atoll (1970s was used for AO storage).
3. Panama Canal Zone from 1960s to early 1970s (spraying).
4. Elgin AFB (Agents Orange and Blue) on firing range and simulated Viet Cong Village.
5. Wright-Patterson AFB (Ohio) and Kelly AFB (Texas).

In May 2003, a Democratic congressman, Lane Evans, asked U.S. Defence Secretary Donald Rumsfeld to investigate possible spraying in:

Aberdeen Proving Ground, Aberdeen, Md.
 Apalachicola National Forest, Sopchoppy, Fla.
 Avon Air Force Base, Fla.
 Beaumont, Texas
 Brawley, Calif.
 Bushnell Army Air Field, Fla.
 Camp Detrick, Md.
 Dar and Prek Clong, Cambodia
 Eglin Air Force Base, Fla.
 Fort Gordon, Ga.
 Fort Richie, Md.
 Fredericton, N.B.
 Guanica, and Joyuda, Puerto Rico
 Gulfport, Miss.
 Huntington County State College, Pa.
 Jacksonville, Fla.
 Kauai, Hawaii
 Kingston, R.I.
 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
 Pinal Mountains, Globe, Ariz.
 Pranburi and other locations in Thailand
 Prosser, Wash.
 Rio Grande, Puerto Rico
 Wayside and Wilcox, Miss.
 Operation PACER HO (Disposal at sea)

**For more information: type
 in "Agent Orange at CBC
 Gulfport" in search engines**

What are the effects of chemical defoliants?



Dr. Joel Michalek during a press briefing on the Ranch Hand Study in the Pentagon on March 29, 2000. Michalek is the U.S. Air Force health study senior investigator for the study. (Courtesy: U.S. Dept. of Defense/Helene C. Stikkel)

On March 29, 2000, the United States Department of Defence released the results of a study by the U.S. air force called the Ranch Hand Study. That study was named for the original Agent Orange spraying program, also called Operation Ranch Hand.

In 1982, the U.S. air force began studying Vietnam veterans exposed to Agent Orange. In 1997, the U.S. air force conducted physical examinations of 2,300 Vietnam veterans exposed to Agent Orange.

The executive summary of the study said that the result showed "the strongest evidence to date that herbicide exposure is associated with diabetes, and some of its known complications." But the study said there was "no consistent evidence that Agent Orange is related to cancer."

The 2000 results confirmed an earlier 1992 study that also showed that Agent Orange is associated with adult-onset diabetes. "The 1997 results suggest that as dioxin levels increase, not only are the presence and severity of adult-onset diabetes increased, but the time to onset of disease is also decreased. A 47 per cent increase in diabetes was seen in those with the highest levels of dioxin. This is particularly strong evidence, since dioxin is the component of Agent Orange linked to many health effects in laboratory animals," the air force said.

The study said that "cardiovascular disease findings were mixed."

The Vietnam veterans exposed to Agent Orange, studied in 1997, showed an overall 26 per cent increase in heart disease, but the air force study added "disease risk was not increased in Ranch Hands with high dioxin levels. However, within the Ranch Hand group, two specific measures of heart disease, the presence of high blood pressure and the percentage of veterans with evidence of prior heart attacks indicated by electrocardiogram, did tend to increase with dioxin levels."

The study said the relationship between diabetes and cardiovascular disease was statistical and noted that "the biological processes relating herbicide exposure with diabetes or cardiovascular disease have not been described" by scientists or doctors.

As for cancer, the air force doctors said in their report: "At the end of 15 years of follow-up, the Ranch Hand Study has found no consistent evidence that dioxin exposure is related to cancer." While overall, the veterans exposed to Agent Orange had a six per cent increase in the risk of cancer compared to other Vietnam veterans, the study also found that "enlisted ground crew, the subgroup

with the highest dioxin levels and presumably the greatest herbicide exposure, exhibited a 22 per cent decreased risk of cancer." The study also found that veterans exposed to Agent Orange showed "a loss of sensation in the feet, which increased with dioxin levels."

Blood tests regarding liver function and lipids were slightly elevated, and did tend to increase with dioxin level of the patient.

However, these tests may be elevated for many reasons, are not a disease by themselves, and cannot be explained entirely by any other finding in the study.

There were two limitations to the study. Groups such as Americans veterans or Vietnamese civilians were exposed in different ways and to different levels of herbicide, so the study could not show what effect herbicides or dioxin could have at levels for people outside the Ranch Hand Study group, or from other sources such as contaminated food. It warned that groups with higher exposures may well have effects not seen in the study. The relatively small size of the study made it difficult to detect increases in rare diseases, so small increases of these diseases could have been missed.

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Posted on Wed, Jun. 13, 2007

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Input sought on Seabee Base pollution cleanup

I came to the Seabee Base on 17 April, 1968 and I have been exposed to Agent Orange not only on the Seabee Base but also in Vietnam.

There is suppose to be an Agent Orange Registry but I cannot locate my name on the registry.

This is a great article for the many military personnel which served during the Vietnam Era, but I would like to have more information concerning this matter.

Projects on, near Seabee Base

By MIKE KELLER
mkeller@sunherald.com

GULFPORT --

Officials involved in the widespread and decadeslong pollution cleanup around the Naval Construction Battalion Center asked for public comments on two new environmental restoration projects.

Public input is a legally required step before the projects can begin.

Navy contractors have developed plans to remove two different types of cancer-causing chemicals both on and off the base.

The first project seeks to remove up to 9,000 tons of dioxin-contaminated dredge piles northwest of Canal Road and 28th Street. Contractors want to transport the soil, taken from the adjacent canal in the 1970s as part of a flooding-reduction project, and lock it in concrete on the base like previous efforts undertaken after herbicide Agent Orange leaked from storage drums and polluted the area.

"Average dioxin concentrations (in the piles) definitely put us over the limits of a residential area," said assessment project manager Bob Fisher, an employee with Navy contractor Tetra Tech. "From an engineering standpoint, (cleanup plans) are a simple design. In execution, it will be anything but. There will definitely be a lot of headaches."

But Marie Hansen, a resident who has been active in holding the Navy responsible for cleaning up the Agent Orange leaks, said the government is shirking its duties in protecting the health of community members who may have been unknowingly exposed to the Vietnam-era herbicide.

"I don't like the way all this stuff is being dragged out," Hansen said. "I told them about these piles three or four years ago and they still haven't started cleaning them out."

Hansen also intends to show state environmental-quality officers next week a place north of the base where she said drums of Agent Orange are still buried.

Tetra Tech's Fisher also unveiled plans to remove about 450 cubic yards of PCB-contaminated soil on the base. The project will clear out an 80-foot section of a drainage ditch near the base's parade field. PCB, a chemical formerly used as a fluid coolant in transformers, was found 14 feet below ground during the base-wide dioxin study in 1997.

Fisher expects to excavate around 33 pounds of the cancer-causing organic chemical in the \$500,000 cleanup, which should bring the area back to residential standards for pollution.

"Excavation and disposal is the preferred method," Fisher said. "It's protective of human health and the environment. It's cost-effective and it's attainable."

Comments are being accepted until July 12, 2007. Send them in writing by e-mail to gordon.crane@navy.mil or to Gordon Crane at 2401 Upper Nixon Avenue, Gulfport, MS, 39501.

CYBER SARGE'S



**This Page Is Dedicated To All Veterans
& Families That Have Been Poisoned**

by



Agent Orange was one of the weed-killing chemicals used by the U.S. in Vietnam. The chemical compounds considered as herbicide agents in Vietnam include 2,4-D; 2,4,5-T and its contaminant TCDD (or Dioxin); cacodylic acid and picloram. Airplanes, helicopters, trucks and backpack sprayers applied herbicides. Herbicides containing Dioxin were used by the U.S. military to defoliate base camps and other facilities in the U.S. and in other countries as far back as the 1950s.

NEW INFO: Re-examining military records, researchers at the Columbia University School of Public Health determined that about 21 million gallons of the herbicides were sprayed from 1961 to 1971 - 1.84 million gallons, or 10 percent, more than previously believed. SEE MORE :[CLICK HERE](#)

AGENT ORANGE, A KILLER THEN AND A KILLER NOW!

The following diseases are those officially recognized by VA as related to herbicide exposure. To win benefits, VA law and regulations also require that some of these conditions appear (or ?manifest itself?) within a deadline that began to run the day you left Vietnam. If there is a deadline, it is listed in brackets after the name of the disease. If your condition is not listed below, ask your doctor whether what you have is similar to any of these. There may be room to argue that your condition is the same as one of these.

WARNING: This list may change

- [Diabetes](#)
- [Prostate Cancer](#)
- [Peripheral Neuropathy](#) (acute and sub-acute) (one year)
- Spina Bifida in children of Vietnam Veterans
- [Chloracne](#)
- [Chronic Lymphocytic Leukemia \(CLL\)](#) NEW!
- [Non-Hodgkin?s Lymphoma](#), including any diagnosis of a lymphoma [except Hodgkin?s lymphoma], mycosis fungoides, and old terms such as lymphosarcoma, reticulum cell sarcoma and Sternberg?s sarcoma
- [Porphyrria cutanea tarda \[one year\]](#)
- Respiratory cancers [30 years], including cancer of the lung
bronchus
larynx
trachea
- Multiple myeloma Hodgkin?s disease Soft Tissue Sarcomas, including:
- Adult fibrosarcoma