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INVOLUNTARY EXPOSURE TO AGENT ORANGE AND OTHER TOXIC SPRAYING

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Consultant, Environmental Sciences

HEARINGS

BEFORE THE

SUBCOMMITTEE ON OVERSIGHT AND INVESTIGATIONS

OF THE

COMMITTEE ON INTERSTATE AND FOREIGN COMMERCE HOUSE OF REPRESENTATIVES

NINETY-SIXTH CONGRESS

FIRST SESSION

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INVOLUNTARY EXPOSURE TO AGENT ORANGE AND OTHER TOXIC SPRAYING

TUESDAY, JUNE 26, 1979

HOUSE OF REPRESENTATIVES,
SUBCOMMITTEE ON OVERSIGHT AND INVESTIGATIONS,
COMMITTEE ON INTERSTATE AND FOREIGN COMMERCE,
Washington, D.C.

The subcommittee met, pursuant to notice, at 10:30 a.m., in room 2123, Rayburn House Office Building, Hon. Bob Eckhardt, chairman, presiding.

Mr. ECKHARDT. Today the Subcommittee on Oversight and Investigations begins a series of hearings on involuntary exposure to dangerous herbicide and pesticide products. Current knowledge about the toxicity of these products has led many scientists and medical doctors to conclude that the health of millions of Americans has been unnecessarily endangered over the years by exposure to these chemicals.

Last year this subcommittee examined Federal efforts to protect the public from potentially dangerous pesticide residues in food. In its December 1978 report entitled "Cancer-Causing Chemicals in Food," the subcommittee concluded that the Federal pesticide tolerance setting, residue monitoring, and enforcement programs were inadequate. In doing so, it stated:

"American consumers cannot be sure that the meat, poultry, fruits, and vegetables they buy are not tainted with potentially dangerous pesticide residues."

As the individuals appearing before this subcommittee today and tomorrow will demonstrate, not only have Americans been exposed to toxic residues in food but many have been exposed to toxic substances through application of these products.

Very little research has been conducted to determine what effects this exposure may have on health. In the case of the Vietnam veterans, failure to conduct this research can only be described as a national disgrace. We must move ahead on this matter with dispatch.

Before we hear the first witness, I would like to point out that the substances we will be discussing were designed by their makers to kill insects and certain types of vegetation. They are by definition poisons. Given this fact, it is not surprising that human exposure to these compounds may result in illness or death. It is for this reason that we must take every action possible to reduce our exposure to these poisons.

Although other committees in the Congress have jurisdiction over the commerce of these poisons, this committee has responsibil-

ity for public health. Moreover, it is important that we carefully scrutinize the similarities, differences, and the interrelations between the Toxic Substance Control Act and the Food, Drug and Cosmetic Act under this committee's jurisdiction and the Federal Insecticide, Fungicide, and Rodenticide Act which regulates the poisons we will be discussing today.

Mr. Lent?

Mr. LENT. Today thousands of Vietnam veterans who claim they were exposed to agent orange while in Vietnam are reporting serious and strikingly similar medical problems. These health problems include recurring dermatological disorders, suspiciously high rate of genetic defects in stillborn children, impotency, various forms of cancer, neurological dysfunctions, and a host of psychological abnormalities.

I recently have been in contact with a constituent of mine who served in Vietnam and he is convinced that the skin disease he currently is suffering from is the result of exposure to agent orange. He also fears that genetic damage and cancer possibly may have resulted from this exposure.

Needless to say, I am doing everything I can to help this man and his family. I have taken his case before every conceivable party that could assist him.

I realize that he is only one of many on Long Island and in this country who suspect that their current health problems may have been caused by involuntary exposure to agent orange in Vietnam.

Recently, I was heartened to learn of the announcement by the Veterans' Administration that a number of Government agencies will conduct companion studies to its own, examining the possible effects of agent orange on veterans who served in Vietnam. However, I am distressed that it has taken the Government so many years to act on this serious problem. I urge the Veterans' Administration to act swiftly to get these additional programs underway.

On the related issue of pesticide and herbicide spraying in this country, I lend my support to those who have dedicated themselves to an assessment of the health effects of these chemicals. I understand that the EPA has issued an emergency ban on the use of 2,4,5-T, a potent herbicide, for forests, pasture uses, and rights-of-way. The EPA has concluded that using 2,4,5-T for these purposes poses an imminent hazard to humans.

Again, as with agent orange, I sincerely hope that those Government agencies responsible for protecting the public from unwarranted health risks from toxic chemicals will act expeditiously to clear up the question of risk posed by the current use of toxic pesticides and herbicides.

Mr. ECKHARDT. The gentleman from Tennessee, Mr. Gore, has done yeoman's work in this area and has contacted a number of veterans who have been most helpful in developing testimony today.

Mr. GORE. The Federal Government has been aware of the hazards of dioxin for more than a decade. Dioxin, a contaminant contained in a number of pesticides and other products, may well be the most toxic chemical substance known to man. It is a proven carcinogen, teratogen, and is suspected of being the cause of a wide range of diseases.

Back in 1970 Senator Philip Hart convened hearings to investigate the hazards posed to man and the environment by 2,4,5-T and dioxin. At that hearing, Senator Hart expressed his perplexity about the hazards of these compounds. He was uncertain of the dangers involved, but he argued strongly for immediate action to answer the concerns raised.

These questions were posed 9 years ago. And we have not yet found the answer. Thousands of Vietnam veterans were exposed to this chemical agent orange. We cannot tell them what these chemicals are capable of doing to these men and their families. Hundreds of people were evacuated from the Love Canal area. We cannot tell them what are the roots of their numerous ailments. We have wrongfully and perhaps tragically allowed many unsuspecting groups of people to be exposed to hazardous chemicals and their contaminants.

As a member of the Vietnam veterans in Congress, I have become particularly aware of the concerns and fears of thousands of Vietnam veterans who may have been exposed to agent orange. Agent orange, a herbicide used in Vietnam to clear vegetation and destroy crops was a mixture of 2,4-D and 2,4,5-T. These chemicals and their contaminants are also incorporated in a variety of products used throughout the United States.

Gaps in the scientific knowledge will always exist. But society must make decisions based on the best existing evidence. We have the responsibility not only to conduct research but also to respond promptly to facts when they are made obvious and available to us. I don't believe we have met either responsibility adequately. Too many Americans are subjected to toxic substances about which we know too little.

Thank you, Mr. Chairman.

Mr. ECKHARDT. There is no Member of Congress who has been more assiduous in attempting to identify the dangers and arrive at solutions to the problem we have before us today than the distinguished Member from the State of Michigan, Mr. David Bonior.

We are delighted to have you today, Mr. Bonior, to testify before this subcommittee. In the subcommittee we even administer the oath to Members.

Do you swear to tell the truth, the whole truth, and nothing but the truth, so help you God?

Mr. BONIOR. I do.

Mr. ECKHARDT. You may proceed.

TESTIMONY OF HON. DAVID E. BONIOR, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF MICHIGAN

Mr. BONIOR. Thank you, Mr. Chairman.

Mr. Chairman and distinguished colleagues: I am pleased and grateful to be able to address the Subcommittee on Oversight and Investigations during your hearings regarding the use of chemical herbicides and their effects on humans exposed to them.

As the current chairman of the Vietnam veterans in Congress, 19 Members of Congress who served in the military during that era, I will try to limit my remarks to the relationship between herbicides and the Vietnam veteran, a group of Americans with a large stake in these hearings.

Although herbicides were first used during World War II, agent orange, the herbicide most commonly used in Vietnam, was first used by the British in Malaysia in the 1950's. The first U.S. field tests were apparently not conducted until 1959. Between 1962 and 1970, at least 11 million gallons of agent orange, also known as 2,4-D and 2,4,5-T, were used in Vietnam. It was sprayed from planes, helicopters, trucks, boats, and hand-held tanks. It is possible that all 2.8 million Vietnam veterans may have been exposed to the herbicide because of its entry into the food chain and water system.

In the casework seen by VVIC members—Vietnam Veterans in Congress—there is an ominous recurrence of severe medical problems exhibited in those who claim to have been exposed to agent orange. These problems include tumors, chloracne rash, birth defects in offspring, and neurological disorders. The only alternative funding source would seem to be a fee system where a charge is imposed on the disposer and transferred to the State to support program operating costs. Although such fee systems might be a viable alternative for supporting State programs, they were only being used by California and Maryland at the time of our review. Other States, however, are currently considering their use.

This is not the first time these symptoms have been seen in connection with agent orange. Dow Chemical, the largest manufacturer of agent orange in the United States, experienced an outbreak of chloracne at one of its manufacturing plants in 1964. Thomas Whiteside, in his research, cites Dr. Benjamin Holder, director of Dow's Midland Division as stating that heavy exposure could lead to internal organ damage and nervous system disorders.

In 1953, male workers at a German manufacturing plant were found to have developed chloracne.

In 1963, following an explosion at a Dutch manufacturing plant, 50 workers suffered chloracne and internal damage.

The danger of agent orange lies primarily in a contaminant called dioxin, one of the most toxic substances known to man. The most famous case involving dioxin occurred in Soveso, Italy, in July 1976. An explosion at a Swiss-owned chemical plant produced a cloud of dioxin and forced the evacuation of the surrounding communitities. The people exposed experienced eye and throat irritation, skin eruptions, headaches, and dizziness.

Within 2 days, small animals in the area began to die. Post mortems showed extensive liver damage. Because of the publicity on the teratogenicity, disfigurement of fetuses, from dioxin, the Catholic Church sanctioned abortions for exposed women. Spontaneous abortions appeared to double. The following year, 280 children north of the contaminated area were suffering from chloracne. To my knowledge, many of these families are still unable to return to their homes.

Numerous studies have been done on agent orange and dioxin, none of them definitive.

Dr. Matthew Meselson of Harvard University, a pioneer in dioxin analysis, has stated, "if you feed a guinea pig one-billionth of its weight with dioxin, this will kill the guinea pig. One part per billion. Yet we do not know the sensitivity of humans."

Tests on laboratory animals have produced cancer, abortion, and impairment of the body's immunal system. Plants enlarge and

distort in a twisted death. Veterans have told me they have seen 100-foot trees felled in 2 days.

Dr. Wilbur McNulty of the Oregon Primate Institute found that monkeys exposed to dioxin lost hair and developed boils on the skin. Pregnant monkeys aborted even at the lowest levels of dioxin.

In studies on mice, Dr. James Allen of the University of Wisconsin, found a significant increase in the development of neoplasms, "suggesting the carcinogenic potential of dioxin."

Various studies done in the late sixties and early seventies show workers to exhibit fatigue, headaches, loss of appetite, stomach and kidney pain, decreased neurological responses, skin and eye irritations, and concentrated dioxin levels in the body fat and liver tissue.

A National Institute of Environmental Health Services study showed agent orange to have significant teratogenic effects on study animals with relatively low dioxin levels.

Based on this study, the Surgeon General and Department of Defense, on April 15, 1970, announced a limitation of agent orange use in the United States and suspension of its use in Vietnam.

CBS in Chicago just finished the second of a two-part series on agent orange. The CBS crew spoke with people like Mike Belcher, Peter Kirk, and Roland Correa of Chicago, all of whom were exposed to agent orange and now suffer some of the symptoms we have been discussing. However, I have spoken to veterans from all over the United States who display similar symptoms.

They are not whiners or malcontents. They are people who are seeking answers to their problems. The EPA banned most uses of 2,4-D and 2,4,5-T in this country after a sprayed section of Oregon displayed an alarmingly high rate of miscarriages. The level of dioxin in agent orange used in Vietnam was 20 to 50 times higher. The veterans of that conflict are concerned about what effect that chemical may have on themselves or their children.

The Department of Defense, Veterans' Administration, and Dow Chemical all claim that they know of no scientifically proven causality. However, there has been no concerted effort by these groups to collect data that might show causality. This to me is functionally dishonest.

The Veterans' Administration claims they have an outreach program and will provide testing for those who seek it. Yet, as recently as 3 weeks ago, officials at the VA hospital which services my district had no knowledge of an outreach program, were not aware of how many had been tested or what tests were administered.

A constituent in my district, upon presenting himself to a VA hospital for testing, was told by the doctor after a perfunctory examination that it appeared the young man was "simply trying to get more money from the VA." This veteran has experienced periodic chloracne rash and his wife explained to me that the only thing they wanted from the VA was to know if it was safe to have children.

Answers, advice, and treatment—this is what Vietnam veterans, no less than the people of Alsea, Oreg., or Colcut, Calif., are after. While Vietnam veterans are the most visible object of attention, agent orange and dioxin may affect millions of Americans who never left the United States and generations yet unborn.

To my knowledge, the VA has never paid compensation for genetic damage; hence, the possibility of precedent-setting legislation may be the eventual outcome of these hearings.

What we need are definitive, accelerated studies on the effects of dioxin. The Vietnam veterans in Congress have called upon the VA to notify all Vietnam veterans about the possible exposure to agent orange and call them in for testing. We don't have time to wait for the 6-year study the VA has proposed. People have to put their lives in order now. Perhaps even presumptive disability would be a prudent course.

I am not a doctor or scientist and, therefore, do not presume to declare that there is a causal link. However, as a layman, as a person elected to represent my district, and as 1 of 19 Members of this body who have sought to act as advocates of the Vietnam veteran, I am aware of enough evidence that there should be cause for concern. I feel that we must now move posthaste to address that concern in the most expedient and compassionate way possible.

I think the chairman's remarks that this is indeed a national disgrace are quite accurate. I think the gentleman from Tennessee was correct when he stated that in 1970 Phil Hart began this investigation. It just seems a tragedy to me that we had to wait so long to get action from people who performed honest service for their country.

I thank the committee for its indulgence and for the opportunity to speak to it as these important hearings begin.

I commend the chairman and members of the subcommittee for the initiatives taken to begin this process.

Thank you very much.

Mr. ECKHARDT. Mr. Gore?

Mr. GORE. No questions, Mr. Chairman.

Again I would like to thank my colleague, not only for his testimony but for his leadership on this issue.

Mr. ECKHARDT. Mr. Lent?

Mr. LENT. Mr. Chairman, I have no questions. However, I want to commend my colleague and congratulate him on the contribution he has made to these hearings.

Mr. BONIOR. Thank you.

Mr. ECKHARDT. We all commend you and thank you for your testimony here today, Mr. Bonior.

Next we have a panel of Vietnam veterans. The panel comprises Robert Muller, Steve Champlin, Michael and Maureen Ryan and their daughter Kerry, and John and Mildred Woods.

Gentlemen and ladies, do you swear to tell the truth, the whole truth, and nothing but the truth, so help you God?

[In chorus, "I do."]

Mr. ECKHARDT. Mr. Muller, would you proceed?

TESTIMONY OF ROBERT MULLER, EXECUTIVE DIRECTOR, COUNCIL OF VIETNAM VETERANS; JOHN WOODS AND MILDRED WOODS, HEMPSTEAD, N.Y.; MICHAEL RYAN, MAUREEN RYAN, AND THEIR DAUGHTER KERRY, STONEYBROOK, N.Y.; AND STEVE CHAMPLIN, VIETNAM VETERANS OF AMERICA

Mr. MULLER. Let me first start by thanking you, Mr. Chairman, and the subcommittee for your leadership role and your interest in calling the Nation's attention to this very serious issue.

It is a very pleasant surprise, having testified on veteran-related issues over the years, to see the kind of attendance we have here today, including network TV coverage. It will bring forth to the rest of the country what is being developed today.

We have a prepared statement which, if it pleases the Chair, I would like to waive reading and have inserted in the record.

The reason for waiving the reading of the prepared testimony is not to save time but rather that we can move more quickly toward what is the essense of the subject here today—the veterans, their wives, and their families who we feel are affected by the agent orange.

If it pleases the chairman, may we submit the testimony for the record?

Mr. ECKHARDT. You ask unanimous consent to submit your written testimony for the record so that you might speak verbally? That is acceptable. [See p. 10.]

Mr. MULLER. Thank you.

I would, on the heels of introducing the statement into the record, like to give a special note of appreciation and thanks for some excellent and extraordinary staff work which has been done by the staff of members of the committee and my staff, in particular—Steve Champlin and Joe McCarthy. They have worked literally hundreds of hours in discussions with veterans, studies, and have dedicated a good part of their emotional lives to prepare today's testimony and facts.

I would like to be honest about something. I tended to downplay the significance of agent orange. As I heard about it my first reaction was that it was an attempt by environmentalists to grab headlines. Giving the pressing weight of so many of the problems facing the Vietnam veteran I didn't really focus in on the effects of the herbicide.

I have turned around on the issue. I have worked as an advocate for the veteran, and specifically the Vietnam veteran, for 10 years now. I have never seen an issue create the concern within the veteran community as has the issue of agent orange exposure.

When my name was mentioned in a paper in Long Island there were 35 veterans who called every Muller in the phone book until they reached me at home to express their concern, their fear, their anxiety, and their problems as a result of agent orange.

I think it is fair to say that we now have a crisis of anxiety and concern within the ranks of the Vietnam veterans across the country on this issue.

I should follow that by saying that part of that crisis has been generated by the absolutely unbelievable failure of response by the Veterans' Administration. We have basically been of the belief and

opinion that the Veterans' Administration was our agency, our advocate, and our champion.

The Veterans' Administration has become the blocking force to try and get some relief for the Vietnam veteran. They have misrepresented the facts; they have been grossly insensitive; I will say directly they have been guilty of the grossest negligence in responding to the demands, the need, and the concerns of the Vietnam veteran.

Joe McCarthy, who spent hundreds of hours in discussing the treatment of the veterans who have gone to the VA, has compiled a map of the United States, and it is available to the committee, where we have the case record of Veterans' Administration hospital abuse of veterans who went in for information or treatment about agent orange across the country.

As late as last night on national news, NBC's network news coverage, we had VA spokesmen again misrepresenting the knowledge and state of affairs of the agent orange issue.

There is much that needs to be done, but I think if we can single out for purposes of focus and clarity one priority, let that priority be the following:

It has been the practice of our Government to subject veterans to very difficult periods of service, as in Vietnam, in fighting a war, and having been exposed not only to enemy fire but all the multitudes of problems we have come to appreciate endured by the Vietnam veteran.

Now we have a situation which seems to have come to the surface where possibly millions of men and women and their families and their children and future generations have suffered from a catastrophic disability which often leads to death. I might offer, more often quite tragically it leads to survival of innocent victims in the form of children and the veterans themselves who carry major disabling disabilities throughout the rest of their lives.

We require the veteran by himself in the isolate to compile the evidence to bring before the Veterans' Administration and prove the case that the disabling conditions which he and his families face are directly related to the exposure to agent orange.

We have veterans who are very often totally ill-equipped to meet that burden. You need money, you need lawyers, you need doctors, medical research, and you need time.

Why do we not for once shift the burden? Let us have a presumption in law that veterans and their family members that manifest the symptoms that we can identify as being the symptoms of agent orange, why not allow the presumption to be in favor of the veteran and let the presumption be that the cancers, the liver defects, kidney malfunctions, chloracne, that these are service-connected disabilities. Let the veteran receive health care in the VA system. Let the veteran's dependents become eligible for health care in the system.

Let there be compensation afforded these victims, and let the onus and the burden of proof be shifted to the Government which has the resources and in fact should have the mandate to rebut the presumption of service connection. Let them demonstrate beyond that reasonable doubt that the effects being suffered by hundreds of thousands are not in fact attributable to agent orange. A rebut-

table presumption in favor of the veteran and his family is, if nothing else, the one remedy that should come forth out of these hearings today.

Maybe with that as an impetus the Veterans' Administration and the rest of the Federal Government will finally crank up a comprehensive, meaningful, and aggressive effort to address this issue which I do not want to delay any longer in making you privy to what the effects of it are.

[Testimony resumes on p. 25.]

[Mr. Muller's prepared statement and attachments follow:]

Statement of

Robert O. Muller

Executive Director

Council of Vietnam Veterans

I am honored to appear today before the distinguished Oversight and Investigations Subcommittee of the House Interstate and Foreign Commerce Committee. These hearings mark a milestone in the Congressional response to problems resulting from the use of Agent Orange in Vietnam, and the use of similar defoliants domestically. I commend the Committee for its leadership.

Mr. Chairman, in response to the continuing chronic health questions, the Council of Vietnam Veterans today calls for legislation to

- Enact a rebuttable presumption of service connection for cancer and liver disorders;
- Require the V.A., within a limited period of time, to box in other chronic health problems related to Agent Orange exposure, establishing a rebuttable presumption for each; and
- Clarify that birth defects may be compensable, at the same rate given a veteran with similar disabilities with compensation paid to the child for life.

In each case, the presumption can be rebutted by a showing that there is no <u>probability</u> of exposure. But the burden of showing non-exposure lies clearly with the V.A.

The thrust of my testimony is simple. The medical questions raised by Agent Orange are complex. But that complexity cannot become an excuse for bureaucratic delay. It cannot become a defense allowing indifference hidden behind a facade of prudence. Instead, the complexity must become a mandate for aggressive action to resolve that very complexity.

Regrettably, the V.A. has not taken that challenge. For too long they have pursued a policy of indifference, a policy that has required each veteran and his family, in near isolation, to bear the weight alone. It is time to take that weight off of the veteran and place it on the V.A., where it belongs.

Mr. Chairman, today's hearings happen at a significant moment. On Monday, June 18, the Senate amended S. 1039 to mandate that the Center for Disease Control in Atlanta undertake an epidemiological study of the health impact of dioxins on military personnel and civilians, both in Vietnam and domestically. The study must be completed in thirty (30) months. On Thursday, June 21, Judge Pratt, of the Federal District Court for the Eastern District of New York, scheduled for hearing in July a motion to enjoin the further sales, marketing and manufacturing of phenoxy herbicides.

The time of decision is approaching. Soon the courts and Congress will have to address two questions. First, should the use of phenoxy herbicides continue? Second, what should we do to meet the needs of individuals who were exposed? Today's hearings build an important record informing those decisions.

But, Mr. Chairman, these are two very different questions. The decision on the further domestic use of phenoxy herbicides points inexorably back to the existing procedures for removing a pesticide from the market. Are they adequate? Does the emergency suspension process provide a full remedy in the face of a looming environmental crisis? Has the RPAR and cancellation process become so complicated that it can no longer function as the normal procedure for cancellation?

Underlying these questions is a more fundamental one. Was our basic environmental legislation designed primarily to meet environmental hazards that did not immediately affect human

life? Has that intent so permeated the design that the legislation may not be adequate to address environmental toxicants that directly and immediately affect human health?

Mr. Chairman, despite the importance of this first set of questions, I would like to turn today to concentrate instead on the second: the continuing dilemmas faced by many veterans exposed to Agent Orange. The question I would like to ask is a simple one.

WHO IS CONCERNED NOW ABOUT THEM?

For the Vietnam veterans, the lead agency has been the Veterans' Administration. I am afraid, Mr. Chairman, that within the V.A. real concern has been hard to find.

I. V.A. MEDICAL RESEARCH HAS BEEN INADEQUATE AND RESPONSIVE TO ADVERSE PUBLICITY INSTEAD OF THE NEEDS OF VETERANS.

Exposure to phenoxy herbicides and dioxin produces widely recognized acute problems: skin, eye, and respiratory irritation, liver problems, headaches, weight loss. But the actute problems may be only the beginning. Exposure may begin processes that years later, long after the chemicals may have left the system, could produce chronic problems. Cancer, for example, after a latency period of fifteen or twenty years, may appear.

While the acute problems produced by exposure have been widely seen and are generally well-defined, the exact range of chronic problems has raised more serious questions. (See, R.R. Suskind, "Chloracne and Associated Health Problems in the Manufacture of 2,4,5-T," presented at the Joint National Institute of Environmental Health Sciences, International Agency for Research on Cancer, World Health Organization, Lyon, France, January 11, 1978.) For at stake in the chronic problems is not only continuing, crippling illness, but life or death.

On March 23, 1978, WBBM-TV in Chicago aired Agent Orange: Vietnam's Deadly Fog. In the course of that broadcast, Dr. Barry Commoner said,

> It may well be true to be found in soldiers who were exposed to dioxin in Vietnam which accumulated in their body fat with no symptoms... except for the immediate skin symptoms and then let's say ten years later they become sick and lose weight. They would break down that fat, releasing the dioxin into the body and then symptoms would appear. (sic)

The Commoner statement suggested that veterans may experience acute symptoms long after the initial exposure. As such, it added another suggestion to the wide-ranging scientific discussion on the mechanisms of dioxin exposure, but did not even address the fundamental chronic health questions.

But despite the irrelevancy to the fundamental questions, the statement attracted the V.A.'s attention. Two months later, their May 18th Telex circular to all hospitals concluded:

> Experimental evidence from animal studies indicates that this chemical is eliminated from the body fairly rapidly and that it produces its toxic effects rather promptly. All available data suggests that it is not retained in tissues for prolonged periods of time. Accordingly, the recent suggestions by some observers that dioxin might still be detected in the fat tissues of Vietnam veterans exposed to it appear to be implausible. (Telex, p. 4)

Implausibility, however, did not seem to rest the case. The viability of the Commoner hypothesis became of major concern to the V.A.

In June, 1978, the V.A. Central Office convened a Steering Committee on Health Related Effects of Herbicides. In their very first meeting, the Committee is designing an experiment to measure the presence of dioxin in the body fat of exposed veterans. In their second meeting, on July 3rd, as reflected in the minutes, obtained through a Freedom of Information Act request, the Committee discusses the pros and cons of proceeding with the experiment.

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Two views were expressed. The first held that the study would prove little because the half-life of dioxin in body fat is so short that any dioxin found must have entered the system subsequent to Vietnam. The second held that it would be important because

> The absence of dioxin in a veteran's fat tissues have (sic) a specific diagnostic importance since it would cast doubt about the etiological role of dioxin in any specific illness that the involved veteran might be manifesting. (Minutes, p. 2)

Not only was the decision made to proceed with the test, but the fatty tissue study became the centerpiece of in-house V.A. research. It is still the centerpiece today.

In October, 1978, Dr. Haber, Assistant Chief Medical Director for the V.A., appeared before the House Veterans Subcommittee on Medical Facilities and Benefits and stated that

> investigation of the (Agent Orange) problem revealed that the main scientific concern is whether a highly toxic contaminant of herbicide 2,4,5-T, namely TCDD, or dioxin, may persist in body tissues for protracted periods and thus serve as an indicator of prior exposure. (See, Statement of Paul A. L. Haber, M.D., Assistant Chief Medical Director, p. 4)

Why? Why was the fatty-tissue test, condemned to be irrelevant to the fundamental medical questions at stake, selected? And why were its results considered definitive, given that there could be no dioxin in the veteran's system at all and he still could be dying of cancer?

The answer seems clear. It is spelled out in the V.A. Telex and in the decisional documents of the Steering Committee. The fatty tissue test was selected not to explore the medically unknown, but to provide a rationale for denying claims.

The history of the fatty tissue study is important because the study has been the centerpiece of in-house V.A. research. But, unfortunately, the history is also significant because it is typical of the general course of V.A. research.

For not only has the selection of the fatty tissue research projects been suspect, but the very decision to undergo research at all has had a kind of on-again, off-again quality that bespeaks an underlying disinterest.

On October 11, 1978, the V.A. was asked to appear before the Subcommittee on Medical Facilities and Benefits of the House Veterans' Affairs Committee to discuss their action in response to Agent Orange. The V.A. presented an impressive array of projects. The most significant was a commitment to fund an epidemiological study of the workers exposed to dioxin in an industrial accident in Nitro, West Virginia, in 1949. (See, Statement of Paul A. L. Haber, M.D., Assistant Chief Medical Director, pp. 9-10.)

The study was significant because the early data of the Nitro incident allowed a longitudinal study. The latency period of cancer, which makes an epidemiological study of Vietnam veterans problematical, would have passed. A second generation should have been born, allowing a study of birth defects.

The news was even more significant because the V.A. claimed to have isolated a research center prepared to undertake the study: The Institute for Environmental Health Sciences at the State University of Colorado.

Accordingly, it was disturbing to learn five months later from telephone calls to Dr. Levinson, Chairman of the Steering Committee, that no such study was actually underway. It was even more disturbing to discover that the contract, so certainly described in the October testimony, first appears in the V.A. Steering Committee minutes on October 10, 1978--one day before the appearance--and apparently was first discussed at all on September 25--only fifteen days earlier. The meeting minutes note:

> The initiation of such a study was discussed at the September 25 meeting of the Advisory Committee. A member of that Committee, Dr. Walter Melvin, Professor of Environmental Health Services at Colorado State University, would be willing to undertake such a study if he can obtain the necessary funding. (Minutes, p. 1)

After all this, it was not surprising to learn that the V.A. contract was not only non-existent, but unnecessary. No less than two studies of the Nitro incident were already underway: one under the direction of Dr. Suskind, and one with Dr. Selikoff, a member of whose team will appear before this Committee later today. The V.A., it appears, had heard that somewhere in West Virginia there was a place called Nitro, but had done little further research.

The impression left is clear. There was no serious decision to undertake a Nitro study. Instead, forced to appear before a House Committee, they appear to have reached for whatever was handy.

On March 28, 1979, WBBM aired a second special entitled, Agent Orange: The Human Harvest. A special screening of the documentary for Congressional staffers was set up by the Vietnam Veterans in Congress, under the leadership of Congressman Al Gore (D.-Tenn.) and Congressman David Bonior (D.-Mich.).

At the time of the airing, V.A. Administrator Max Cleland released yet another statement on V.A. research efforts. Conspicuous among the promises was a resurrected Nitro study. (See, Newsday, "V.A. Acts on Agent Orange Issue," Friday, March 30, 1979.) Dead during the interim while publicity declined, it had been resurrected when the profile of the issue rose again.

For Vietnam veterans, facing and dealing with serious health problems, this on-again, off-again policy bespeaks an underlying indifference. It suggests that V.A. research is not responsive to the needs of the veteran at all. It is the grudging product

of bad publicity. Conjoined with the intent that appears to lie behind the fatty tissue test, it suggests an agency that is far from caring for the veteran, seeking aggressively, without bias to pursue an answer, but an agency interested, finally, in creating the case for denying claims.

But underlying the selection and direction of research is another problem.

II. THE V.A. HAS ESTABLISHED UNACCEPTABLE STANDARDS FOR DEFINING THE HEALTH EFFECTS OF AGENT ORANGE EXPOSURE

The V.A. pays veterans who suffer from service-connected disabilities compensation in lieu of lost income. If the veteran dies because of his service-connected health problems, the veteran's widow receives compensation to help her support herself and her family.

At stake in the V.A. medical research is a final determination of whether or not veterans and their children will be awarded compensation for disabilities incurred because of exposure to phenoxy herbicides.

Two distinct problems are posed in reaching a decision on service connection. First, the V.A. has to determine that a particular pattern of symptoms may be connected to herbicide exposure. Given a finding for the pattern of symptoms, the V.A. must then determine that any particular veteran did indeed incur the disability from exposure while in service.

On February 28, the Environmental Protection Agency used for the first time their emergency suspension powers to discontinue several major uses of 2,4,5-T. The order was based on extensive experimental evidence of the carcinogenicity, and a a major epidemiological study of the teratogenicity of 2,4,5-T contaminated by dioxin. (44 FR 15874-15893, March 15, 1979)

The order followed an earlier, April, 1978 notice of a rebuttable presumption against the continued use of 2,4,5-T. (43 FR 17116-17147) The April, 1978 order, in turn, followed years of research and study.

The E.P.A. emergency suspension order was signficant because a major governmental agency had acted decisively based on a determination that 2,4,5-T contaminated by dioxin posed a health hazard. Veterans who felt there might be a problem were given a sign that they were not alone. The E.P.A. thought there was an emergency too.

With the E.P.A.'s explicit action, all attention shifted to the V.A. If the evidence had reached a point where the E.P.A. could act, was the V.A. prepared to act as well?

The answer was no. Indeed, not only did the V.A. not act to follow the E.P.A., but they explicitly acted to dismiss the E.P.A. action.

In the March 7, 1979 meeting of the V.A. Central Office Steering Committee on the Toxic Effects of Herbicides, only nine (9) days after the E.P.A. action, the V.A. found that "the studies on which the E.P.A. ban was based do not offer definitive evidence for an adverse effect of herbicides on human health." (Minutes, p. 3, emphasis added.) They stated further: "The Committee strongly recommends that the V.A. continue its effort to gain valid data on herbicide toxicity and that it resist arguments against this approach based on what may be a premature decision by the E.P.A." (Minutes, p. 3, emphasis added.)

The V.A. decision raised a series of major questions. Where had the V.A., almost entirely without experience in dealing with environmental toxicants, and clearly without the E.P.A.'s experience in dealing with epidemiological data,

secured the expertise to so quickly, thoroughly, and negatively judge such a major and long-developed E.P.A. action?

But more importantly, the fundamental question was the standard of evidence implicit in the V.A.'s decision. If the E.P.A. evidence was not "definitive," what evidence is? What is required before we can conclude that adverse effects on human health have been shown?

The E.P.A. RPAR was based on an explicit set of standards defining what evidence is required to show "human risk." (40 CFR 162.11(a)(3)) In contrast, the V.A. decision seems spontaneous and without a rational, explicit framework. Like pornography, the V.A. apparently knows "definitive" evidence when they see it.

But if the decision seems intuitive, can we define in general terms what "pornography" means to the V.A.?

The answer seems regrettably clear. It is implicit in the V.A.'s attitude toward, and use of, experimental evidence, as shown in their statement dismissing the volumes of experimental evidence the E.P.A. mustered on the health hazards of dioxin and 2,4,5-T. It is clear in their research protocols that have moved increasingly toward epidemiological studies.

The V.A. has decided to require <u>human</u> evidence before they will grant service-connected status. Direct evidence in humans is the burden of proof. Experimental evidence, even primate evidence, is not "definitive."

The contrast with the E.P.A. is again acute. 40 CFR 162.11 (a)(3)(ii)(A) allows the E.P.A. to find chronic toxicity when the chemical:

> Induces oncogenic effects in experimental mammalian species or in man as a result of oral, inhalation or dermal exposure; (emphasis added)

And the E.P.A.'s emergency suspension order explicitly moves from animal evidence to a human health conclusion:

> Numerous studies have clearly demonstrated that TCDD and/or 2,4,5-T contaminated with TCDD can produce fetotoxic, teratogenic, and carcinogenic effects in experimental animals which have been exposed to these chemicals. I find that the occurrence of these effects in test animals indicates that humans who are exposed to TCDD and/or 2,4,5-T may experience comparable effects. (40 FR 15076)

The courts have specifically approved E.P.A.'s use of animal data to infer human risks. (See, E.D.F. v. E.P.A., 548 F.2d 998 (D.C. Dir., 1976))

Nor is the E.P.A. alone. The Occupational Safety and Health Administration (OSHA) of the Department of Labor has proposed a rule on the identification of toxic substance posing a potential occupational carcinogenic risk and has not only allowed inference from animal studies, but has explicitly found such inferences necessary. (42 FR 54148-54247, See, p. 54155 and following) As OSHA notes, they are merely following the universal practice of the world scientific community. (See, p. 54157, and following)

Indeed, it is the V.A. which is all alone in its single-minded pursuit of human evidence. It is not hard to see why.

For it is important to remember what that direct human evidence is. Human evidence means, simply, human deaths. It means, simply, humans suffering continuing chronic liver problems. As stated by the attorneys at the National Veterans' Law Center, it means the V.A. will postpone action until the bodies have fallen.

CONCLUSION

Mr. Chairman, today I am honored to be here with Mr. and Mrs. Ryan, their daughter Kerrey, and Mr. and Mrs. Woods. They will give you an opportunity to learn something of the continuing courage and the great dignity of the veterans and their families as they face today the health consequences of exposure to Agent Orange.

Perhaps that will allow you to sense the outrage and the fear that has swept me as I have gotten to know these families.

When we were in Vietnam there was no problem in acting aggressively. There was little hesitation about using these defoliants in the first place. It is an outrage that when the war is over that same sense of urgency and aggressiveness seems to be lacking. When the health of hundreds of thousands of veterans is involved, I think that a reasonable sense of justice and indebtedness demands the strongest and most responsible efforts to address those needs.

For, Mr. Chairman, I am deeply fearful that many veterans may have died in Vietnam and not known it. I am deeply fearful that the body count may not be over.

APPENDIX A

V.A. Denials of Compensation

Date:

In Reply Refer to:

VETERANS ADMINISTRATION
REGIONAL OFFICE
536 SOUTH CLARK STREET
P.O. BOX 8136
CHICAGO, ILLINOIS 60680

Mr.

Dear Mr. :

Your disability compensation claim has been carefully considered. To be entitled to compensation, the evidence must show: (1) That you have a disability which was incurred in or aggravated by your service, in line-of-duty, and (2) it must be 10% or more disabling. The evidence, including your service records, does not meet these requirements. You are not, therefore, entitled to compensation.

Service connection for your claimed disabilities were denied for the following reasons:

Service connection for a nervous condition, if present, must be denied as this condition would not be related to any incident of active military service. Declining strength and numbness of hands, legs and feet, if present, are symptoms only and not ratable entities.

We do not find in your medical records or elsewhere any evidence of the existence of symptoms relating to agent orange exposure. If you have additional evidence to show that your claimed condition does exist, please send it to us for consideration.

Sincerely yours,

J. D. Kozloski

J. D. KOZLOSKI
Adjudication Officer

Enclosure:
VA Form 1-4107

1975

Date:

In Reply Refer to:

VETERANS ADMINISTRATION
CENTER
WISSAHICKON AVE. AND MANHEIM ST.
P.O. BOX 8079
PHILADELPHIA, PA. 19101

Mr.

This is in reference to your inquiry regarding benefits for your daughter.

Veterans Administration compensation benefits are only payable to veterans who have disabilities incurred in service. There are no provisions in the law to pay for disabilities of a veteran's children.

If a veteran has service connected disabilities rated at 50% or more disabiling additional monies are payable for his children as dependents. If you are now out of the service and wish to file for compensation benefits, complete the enclosed VA Form 21-526 (Veterans Application for Compensation of Pension) and return it to our office along with a copy of your DD 214.

Additional benefits for veterans with dependents are also payable if a veteran is attending school at a half time rate or more. The enclosed VA Form 22-1990 should be completed if you wish to file for education benefits. A copy of your DD 214 should also accompany this application if submitted.

H. H. Tallen
H. H. TALLEN
Adjudication Officer

Enclosures

APPENDIX B

V.A. Failure to Make Medical Records Available

COUNTY OF COOK)
STATE OF ILLINOIS) SS:

AFFIDAVIT

My name is L. Steven Platt. I am an attorney licensed to practice law in the State of Illinois and in the Federal Courts. My business address is 10 S. LaSalle, Suite 1600, Chicago, IL 60603.

I represent several Viet Nam veterans in the so-called "agent orange" lawsuit against six chemcial companies. It has been my experience with the Veterans Administration that they do not release information when it is requested. In fourteen specific instances, they failed to produce any information relative to my clients' service in Viet Nam. The only records I have received that relate to Viet Nam service is an item in one veteran's files that show he purchased U.S. Government Savings bonds in Saigon.

The VA Centers that have been the biggest offenders are: the National Military Personnel Records Center in St. Louis; Heinz VA Hospital in Chicago; and the Military Archives Division of the National Archives & Records Service, General Services Administration.

L. Steven Platt

Subscribed and sworn to
before me this 13th day
of June, 1979.

Notary Public
My commission expires November 10, 1981

Mr. MULLER. I would like first to introduce a Vietnam veteran named John Woods. John served as a Green Beret in Vietnam. He served with honor and distinction. He served 5 years in the military. He served as an airborne ranger and he served as a medic.

He was recently cited for heroism since he is employed as a bus driver for his immediate response to a crisis situation on his bus when a little girl became ill. He applied his combat training and saved the child's life.

We have here a veteran who served honorably and with distinction in a difficult war, who has paid one heck of a price.

I would just remind the committee as we go into understanding a little bit about the price he and his family have paid that what goes on here today before the lights and before the cameras is encouraging and helpful. However, let us remember the hours, weeks, the months, and what has now been years where this has been endured in silence, in loneliness, in fear, anxiety, frustration, and pain.

When the lights are gone and the cameras are off and we all go back to our respective homes this issue, this product, and its effects will go back with us.

John?

TESTIMONY OF JOHN WOODS

Mr. WOODS. My name is John Woods. This is my wife Mildred.

I entered the service December 6, 1962, and served a total of 5 years.

In 1966 I volunteered for Vietnam. In Vietnam within 2 months I went from almost 200 pounds down to 139 pounds. I had skin rash and migraine headaches.

Upon my return from Vietnam I experienced blindness, loss of color vision, migraine headaches, skin rash, pus pockets which I still have and get. I have forced heart attacks. The forced heart attack comes on and the radiation of the pain goes down my left arm.

When I go to the doctor the doctor gives me an electrocardiogram and finds nothing.

I get to a position where I think I am going crazy because I have so many different symptoms, and all they do is treat.

When I go into the doctor's office now they think I'm crazy. They think I'm lying. They don't believe me. Still I have the symptoms. I have the stomach cramps. Every examination that can be done I have had. I have had IVP, I have had EKG, not a liver scan but a liver functioning test, a brain scan when I went blind.

On my return from Vietnam I went to the VA. The VA gave me 30 percent for the skin rash.

Within 6 months they called me and they knocked me from 30 percent down to 20 percent.

A month later they called me in again. They went from 20 percent down to 10 percent.

A month later they called me back down. I went from 10 percent to zero.

When I went blind I went to the VA. The VA said, "We don't have your records. Your records have been lost."

At that time I wrote my last duty station, which was upstate New York. I asked them for some type of confirmation.

The secretary up there wrote a letter because she remembered and we had used the private ophthalmologist because it was a small unit. We used the ophthalmologist off base. He said after 5 years they destroy the records.

At that time the nurse sent me a letter. I presented that to the VA.

The VA said to me, "This doesn't prove anything. You have to go for a hearing."

I went before the hearing. They disallowed the claim.

Meanwhile they gave me an eye examination and said to me, "You're color blind."

I said, "This is when I found out I was color blind. I cannot be color blind because every unit I have served in in the service you have to be of good health. You cannot have loss of color vision."

He said, "You have to be born without color vision."

At that time I made the same statement. I said, "Then someone is lying to me because I couldn't get into the unit to function if I didn't have my health and didn't have my color vision."

At that time I left. I was using my own ophthalmologist. They were treating me. At one time I was on 80 tablets per day, a steroid. I went from 80 down to 69, and gradually I was cut off from the steroid.

As of now I am still experiencing difficulties with my health. I get angry at myself because I do not know what is going on.

When I go to the VA they give me a runaround.

I have nothing else to do but go to my doctor. It is causing a financial burden on me and my family.

My offsprings, and I have two kids who were born before I went to Vietnam, I have a daughter, 16, and a daughter, 14, they have no birth defects. They were born normal.

My 8-year-old was born. He suffers from skin rashes. He also suffers from muscle cramps and muscle spasms.

My 5-year-old, who was also born after Vietnam, he suffers from a tumor of the face and several other health problems. He is very hypertensive.

When we go to the doctor the doctor says there is a possibility that it is chemical. "Has your wife taken anything before birth," they ask. It was no, she has taken nothing because the doctor prescribed nothing.

When my 5-year-old was born his right-hand side was about two to three times the size of the left-hand side.

The VA, when you talk to them about it, the VA disallows it. They run from you.

As of now the VA—called them and asked them whether I could come in for an agent orange examination. I go in for the examination.

At first I was getting the runaround and started raising a fuss in the VA. They gave me tests and the doctor says, "There is nothing wrong with you."

The only thing that my doctor says they can do for me is treat the symptoms. Believe me, in my medical group with which we deal they think we're crazy. They think I'm crazy. But the problem

is there and the problem will be there. The only thing we are asking Congress to do is to help us.

When I was exposed to agent orange it was either July or August. I was drinking new water and we had a buffer zone. We surrounded what they call Bien Hua base. Our unit secured the areas and our operation was in Bien Hua and Lon Bien. That was the theater of our operation.

Between the air base and us there was a mortar field, but on the other side of us, which we call the suicide zone, that was constantly sprayed with a chemical, and within 2 to 3 days the leaves would fall off and we could see maybe 1,000 meters.

The chemical would come into our compound, or our area, and whatever trees we had there did not grow. The leaves would fall off.

As I said before, within 2 to 10 weeks I started losing pounds. I went from 200 pounds down to 139 pounds.

Mr. MULLER. Mr. Chairman, I would like to introduce the other veteran with us, Mike Ryan. Mike also served in Vietnam. He is a disabled Vietnam veteran. He received shrapnel wounds through the head. He serves as a policeman in Suffolk County, Long Island. He was recently cited for heroism for repeatedly entering a burning building in search of some children who were inside.

TESTIMONY OF MICHAEL RYAN

Mr. RYAN. This is my wife Maureen.

I was inducted into the service November 1965. After basic training and advanced training I was attached to the 11th Army cavalry regiment at Fort Meade, Md., and in August 1966 I was sent on an advance party to Vietnam.

I would like to note that I was in Vietnam approximately 7 miles from John Woods at exactly the same time he was there.

In August 1966 when I went to Vietnam I was 178 pounds. Within 5 weeks I was in the hospital at 128 pounds, fully clothed and fully dressed. I developed a severe skin rash in both eyes and in my groin area. I also had migraine headaches.

In the hospital I was shot full of penicillin. My weight went from 128 to 138. The rash continued and the migraines continued. The rash continued for about 8 years. It is just about gone now but I still suffer from headaches.

Upon being discharged from San Francisco I went home to my bride, and 4 years later our daughter Kerry was born. My wife Maureen can explain the problems we encountered when Kerry was born.

TESTIMONY OF MAUREEN RYAN

Mrs. RYAN. On January 24, 1971, Kerry entered the world. At that point she was operated on for about 6 hours, emergency surgery to correct three major birth defects that were immediately jeopardizing her life. She had pyloric stenosis, which meant the bottom of the stomach was opening. In her stomach there was an opening so that when she swallowed anything she went into spasmodic vomiting.

The next problem was that her intestines would go from the size of a sausage to the size of a piece of spaghetti.

What was done at that point was the same thing they would do with film. They spliced out parts of her intestines and fed her intraveneously.

Then there was a total absence of her rectum. What had to be done to save her life was to give her a colostomy.

Later they would do corrective surgery to construct the rectum. At this point it was keeping her alive.

What they thought at birth was a functional heart murmur. Now, after surgery and after the trauma of this 8-hour operation, she went into cardiac failure.

Now we have another birth defect. We went from what was a functional murmur to a ventricular septal defect, a hole in the chamber between the heart.

Kerry stayed in cardiac failure 2 years. In that span of time she had continual bouts with pneumonia and hospitalization. She was dying from the heart condition and had to have open heart surgery.

Besides open heart surgery they had to remove the colostomy. If they cut you from the top of your chest to above the navel tract you cannot have a colostomy right here, so now we are putting her back in the hospital to close the colostomy.

They constructed a rectum for her surgically but post-operatively she had a blood clot. The blood clot went through the initial hole in her heart and now it is near her brain.

Kerry prior to this time was developing normally. We had all the signs of a physically involved child but intellectually defective.

Then Kerry went through a second stage of a pullthrough prior to the open heart surgery. Twenty-three months later we took Kerry home. She was totally blind. She has not walked since and was told she would never speak. They felt if they died at home they will blame themselves.

We attempted at this point to rebuild our lives and we attempted to get Kerry to see. After about 2 years the doctor told us we were insane, that this would never happen. Kerry does see today. She woke up seeing. She woke up one morning and was following light, following movement, and after 2 years of being totally blind she now sees. She has perceptual problems but the sight is there.

She has never been in a city hospital. Kerry has gone private care all the way. I think it is partly because of Michael's mother's background. She was an obstetrical nurse. From the moment of Kerry's birth she assembled a medical team to save Kerry.

We went from NYU to open heart. She was flown to Johns Hopkins because the orthopedic surgery there was the best.

Wherever Kerry's needs were the greatest we attempted to do research to find a hospital and physician who could attempt to redo what we thought were Nature's mistakes.

In this span of time we now find Kerry does not have the five birth defects. She has a total of 18 major birth defects. Of these 18 birth defects every organ in her body is defective.

Some of the other defects are the right arm is malformed. There is an absence of the radius bone, thumb, four center fingers contracted, and her hand is about an inch or two up to her elbow. We are lucky. She has a hyperplasia of the other hand. She has part of the spine defective which led to a defective bladder.

The problem with a neurogenic bladder is that there is no control of urine. I have an 8-year-old child almost helpless. She has one vagina which changes off into a second vagina, two cervixes, two uteruses, and an undetermined number of ovaries. I have an 8-year-old child who has been in puberty since age 7 years. This means developing breasts and feelings of a child of 13 or 14.

Our medical coverage has covered 80 percent of our bills. The other 20 percent we have handled ourselves.

We have estimated that in the last 8 years above what our insurance companies have paid we have laid out about $75,000.

Emotionally it is very difficult to expose your private life to a group of strangers and start telling you what we have been through.

I think as I draw the picture for you that you probably have in your own minds what Kerry is like. I would like to bring her in but I want to say some things prior to bringing her in.

When she was 6 years old I followed articles on agent orange. I began to follow a veteran named Reutersham.

Michael's cousin was a Green Beret and also helped as a pilot. About halfway into my investigation of agent orange I asked him if Michael was in the area defoliated. He told me he was in a heavily defoliated area.

Going back 8 years Michael's mother was part of the team that delivered Kerry. She was an obstetrical nurse and I went to her hospital to give birth.

At the moment of Kerry's birth I received from my own mother-in-law the fact that Kerry's problem was the result of a heavy insult to the embryo. In all 40 years of delivering children she never saw the complexity of birth defects Kerry had.

Again another part of the puzzle. I continued to read. I continued to read The Pendulum and Toxic Cloud. I finally took action and approached the attorney and found out not only does Kerry have all the symptoms that fit the description of agent orange but Kerry is a classic case of agent orange.

Couple that with the fact of what my husband's symptoms showed. I felt this was the direct result of agent orange. What I am saying to you is that when I found this out it was a very difficult thing to contend with. At Kerry's birth I felt no sense of loss because she did the best she could. Now I have to deal with the fact that now I was mourning a loss. Now I really feel that the birth defects never had to be. Now I realize that Kerry had every right to be on a bicycle instead of a wheelchair. She had the right to grow up to be a woman, to know what it feels like to be a woman, and I feel I have been getting raped.

I feel I have been raped from a corporate level in the sense that, if they knew the magnitude of what they were spraying, this is a moral question. I feel I was let down by my own Government because I was naive enough to believe that if I were in Uganda and went to the American consulate and told them I was in trouble you would send the Marines in for me.

Now I have to go through a revelation of the values I lived by. I was questioning my whole value system.

Now I don't want to come away bitter from this, so I continue to question. The answers I have come up with are that if this is agent

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orange, I hope to God I am wrong but I don't feel I am, if it is agent orange I feel my Government has to stand behind us. They have to come forward and say there was a horrendous corporate genocide that took place here. There has to be a rectification of the situation.

I hope in 10 years when Kerry realizes the ramifications of what she has endured she will be able to look to her Government and say, "At last when you realized the situation you came forward and took definitive action."

Mr. RYAN. We originally went to Vietnam on the domino theory. They were falling all over this country with cancer and birth defects. They wanted a study. We were the guinea pigs. We were sprayed.

The companies say no human study has been done. We are the guys sprayed. We cannot be treated in veterans' hospitals. My daugther never will be treated in a veterans' hospital as long as there is Mayo Clinic, NYU, Johns Hopkins, and others. She is entitled to the best. To allow legislation to send her to a veterans hospital is the same as giving me a certificate to go into an empty store. I will not use it.

Mr. WOODS. As of now I am still in the Army Reserve. I am in the medical unit.

I would like to put this on the record. I did not go in there as a spy. I did not go in there to undercover anything for another agency.

I still believe in the system in a sense. I have turned this around in my mind and still come up with the same thing—that I would probably go back into combat again if my country called.

However, I worked as a ward master in New York City in a VA hospital twice on weekends. The things I see in the VA I have told my wife I don't even want to go into the VA.

Mr. RYAN. I am not bitter. I am just sad. If they called me in I would probably go, too. I think we went off the track. Now is the time to say, "We made a mistake. Let's get this country back to the way it was."

Thank you.

Mrs. RYAN. I would like to bring my daughter in. Before I bring her in, I know what the reaction will be. She is only an 8-year-old kid. When you view her, view her as a child. View her not as a birth defect in a wheelchair and don't be overwhelmed by the whole situation. She's my little kid.

Mr. ECKHARDT. We really do appreciate your making yourself available. We certainly will be most respectful of your daughter.

Mrs. RYAN. We appreciate it. Thank you.

[Kerry Ryan is wheeled before the subcommittee.]

Mrs. RYAN. This is Kerry Ryan of Stoneybrook.

Mr. ECKHARDT. We are certainly glad to have you here before this committee. We appreciate your mother, your father, and the other people here who have come to help make the Government work in the best way we can make it work. We also appreciate your being here. We are glad to see you.

Mr. RYAN. She is a little shy.

Mr. ECKHARDT. Is there more to be presented?

Mr. MULLER. Mrs. Woods.

TESTIMONY OF MILDRED WOODS

Mrs. WOODS. I would just like to say that I hope that someone will try to help us. I hope that someone will bring anxiety out of our home. I was unable to bring my son today because he cannot be in a crowd of people. I am looking for some help somewhere.

I hope the Government, Congressmen, anybody who can help us would just stand up, hold their heads up and say, "We realize what you are going through."

Thank you.

Mr. ECKHARDT. We understand from your testimony that one of the big problems is to get information concerning agent orange from a source as close to an unbiased source as we can find.

With that in mind I have sent a letter to the Honorable Joseph Califano, Secretary of the Department of Health, Education, and Welfare, stating:

The Subcommittee on Oversight and Investigations, pursuant to Rules X and XI of the House of Representatives, has been conducting an inquiry into the possible toxic effects resulting from human exposure to dioxin-contaminated 2,4,5-T and related dioxin-contaminated phenoxy herbicides. In reviewing the material on this subject, I have been struck by the paucity of human health data collected to date. I am quite frankly puzzled that an epidemiology study on the health effects of dioxin-contaminated phenoxy herbicides has not been conducted utilizing American service men exposed to these products during the Vietnam War.

It is my belief that the National Institutes of Health and the Center for Disease Control in your Department are the Federal agencies most capable of conducting such a study. This matter is a public health issue and, although it involves other Federal departments including the Department of Defense and the Veterans' Administration, your agency has the expertise and independence necessary for an undertaking of this type. In this regard, it is possible that you might derive resource assistance and further expertise from the Atomic Bomb Casualty Commission.

This study should be given priority within HEW. It is hoped that the study could be conducted under existing appropriations; however, if additional funds are necessary, I am confident that my colleagues in the House will quickly act upon such a request.

Thank you for your cooperation.

We do want to dig into this question. We also recognize that perhaps necessarily within the structure of Government the Veterans' Administration might not be altogether impartial because it is like an insurance company—it is paying out some money and it has some responsibility to try to guard those funds.

We want to know the truth, and we want to know it from the highest level of expertise in Government, and from an area where we believe there is less reason for that agency to have a prior opinion.

The Department of HEW is sensitive to the use of herbicides. Similar problems were disclosed in connection with our hearings in Nevada and Utah with respect to the A-bomb tests.

For that reason it would appear extremely important that an agency concerned primarily with the question of health, with some of the best expertise in the epidemiological field, should engage in complete research in the area described here today.

Mr. Gore?

Mr. GORE. Thank you, Mr. Chairman.

I would like to thank all of the witnesses for their testimony—Bobby Muller, who has been a fine leader in this area; Steve Champlin, who did not testify, has been a real leader; Mr. and Mrs. Woods, Mr. and Mrs. Ryan, and Kerry.

We are really focusing on two aspects of this problem—first, the problem as it relates to veterans; second, the problem as it relates to other Americans now being exposed to substances very similar to those that you two gentlemen contacted in Vietnam.

Both of you served in Vietnam. You both were exposed to agent orange substance in areas treated with agent orange. Is that right?

Mr. WOODS. Yes.

Mr. GORE. Both of you experienced health problems, including skin rashes and rapid loss of a large amount of weight. Is that right?

Mr. RYAN. Yes.

Mr. WOODS. Yes.

Mr. GORE. Both of you, then, upon your return to the United States, had children with birth defects.

Mr. RYAN. That is correct.

Mr. WOODS. That is correct.

Mr. GORE. And you, Mr. Woods, and your wife, had two children before you went to Vietnam with no problems?

Mr. WOODS. That is right. Also she had a miscarriage in between my two sons.

Mr. GORE. Was that after your return or before?

Mr. WOODS. After I returned.

Mr. GORE. It was after you returned from Vietnam.

Mr. WOODS. Yes.

Mr. GORE. Have either of you had genetic problems in your family?

Mr. RYAN. No.

Mr. WOODS. No.

Mr. GORE. None that you know of.

Have either of you been able to get any response from the Veterans' Administration or any assistance from the Veterans' Administration?

Mr. RYAN. No.

Mr. WOODS. No; we get nothing but a slap in the face.

Mr. GORE. I saw a spokesman for the Veterans' Administration on television interviewed about that matter. He said rather blithely that birth defects cannot be caused by the male being exposed to a substance that causes birth defects.

Mr. WOODS. Might I have my wife answer that?

Mr. GORE. Yes.

Mrs. WOODS. I am a registered nurse. I cannot see how a supposedly intelligent man can get on television and make a statement like that.

Mr. GORE. Years ago human beings believed that men had nothing to do with the creation of babies.

Mrs. RYAN. I would like to cover the two situations. How can you say it is not male carried when you have Downs syndrome?

Mr. GORE. They are putting their heads in the sand and don't want to recognize this is the case. As I said, years ago people did not realize that the male had anything to do with procreation. It is just as simplistic to believe that genetic damage can be caused only if the mother is the one exposed to the agent which creates genetic damage.

I was stationed at the same place you were, John Woods, a few years after you were there. And I understand you were stationed about 7 miles away, Mike Ryan.

I find it a great disgrace that the Veterans' Administration has not seen fit to respond to this matter.

Many people in World War I were exposed to new substances that had not been known to mankind. Before that time chlorine gas was used in the trenches in World War I.

My uncle, my father's oldest brother, was exposed to clorine gas in World War I. For the rest of his life he had impairment in his lungs. He had about one-tenth of his lung capacity remaining.

However, the Veterans' Administration helped him out with that problem because it was the enemy who had used this new substance.

I wonder what the reaction of the Veterans' Administration would be in these two cases if the Vietnamese had been the ones spraying agent orange. I think perhaps it is difficult for the Veterans' Administration to admit that we used a herbicide that might have caused these problems to our own service people.

I simply do not understand why they refuse to recognize it. And the question goes beyond just the Vietnam veterans because the Vietnam veterans were the first to be exposed to this substance. Other Americans are being exposed to it right now, and the survey results in Oregon are very similar to what was found in Vietnam.

In many States we have evidence of birth defects, miscarriages, and so on, caused by the spraying of this substance. Again the authorities insist upon absolute and irrevocable proof that there is a causal relationship when the coincidences simply keep piling up.

You know, this carries us beyond rage really. There is no point in lashing out at the circumstances in which you find yourselves, but we must respond to those circumstances. We must provide Vietnam veterans with the assistance that they deserve and we must prevent other Americans from being thrown into similar circumstances.

I don't really know what to ask you because these events just speak for themselves.

Mr. Muller, what would you have the VA do first?

Mr. MULLER. First and foremost would be back to what I think is the one thing, if nothing else, we get out of this. In addition I applaud particular the chairman's letter to HEW. Have them pick it up. Sensitivity to conflict of interest is very acute.

However, what I would have the VA do is follow the precedents in law which are there. Shift the burden and let there be a presumption, since they cannot tell us, that the disabilities, the diseases, the deformities are not the result of agent orange. Why should those who are least able carry the burden? Let the presumption be that it is a service-connected disability, therefore making the veteran and his family eligible for the compensation and for the health care for catastrophic disabilities and let the Government come back to us and tell us with certainty that the problems endured are not the result of what we were exposed to during military service.

Mr. GORE. I would endorse that.

In conclusion let me say that if a Vietnam veteran was exposed to agent orange and returned to this country and had children with birth defects, the burden of proof ought to be on the Veterans' Adminstration to show that it was not caused by this agent. We have seen too many cases, and we have seen too many cases where the people cannot get the help they need.

Thank you all for your testimony. It was very moving this morning. I appreciate it.

Thank you, Mr. Chairman.

Mr. ECKHARDT. Mr. Lent?

Mr. LENT. Thank you, Mr. Chairman.

I want to thank the panel of witnesses for the contribution they have made this morning to these hearings.

I am particularly concerned about some of the statements that have been made about the treatment of veterans by the Veterans' Administration. Traditionally I know, as a veteran myself, we relied on the VA as our advocate and as our spokesman in connection with whatever problems we had following our service in the military.

I know as a Congressman I have my veterans organizations out in Long Island that are enlisting my assistance in a fight to keep the VA hospitals from being taken over by HEW.

Yet here we are running into a blank wall with the VA and going to HEW in order to get them to conduct a study of the effects of agent orange on our veterans.

I understand that there is an undated VA memorandum which is in circulation which can be obtained from the VA Congressional Liaison Officer here at the Capitol entitled "Biological Action of Herbicides Used During the Vietnam War."

That memo is very brief. It makes the following assertion:

> Every veteran who presents a claim that he has some form of illness which he believes may have its origin in an exposure to herbicides will receive careful and sympathetic consideration and full documentation will be established of all facts.

Unfortunately, from personal accounts that I have received from my own constituents on Long Island and from the witnesses who are here today it does not appear that every veteran who suspects he may have been exposed to agent orange has received so-called careful and sympathetic consideration by the Veterans' Administration. In fact, such consideration seems to be the exception rather than the rule.

Veterans' from all over the country have claimed to me that the examination, the so-called agent orange examination they have received, has very frequently been hasty. Unfortunately our subcommittee does not have jurisdiction over the Veterans' Administration. There is another committee of Congress which oversees that agency, and I will communicate what I have learned here to my colleagues who are members of the Veterans' Committee because it would seem to me that this is an area in which they should look.

I did have one or two questions. I would like to ask Mrs. Ryan, during medical care for Kerry I am sure you have been to see many physicians and doctors. Have these doctors ever reported to you that they have seen a case like Kerry's?

Mrs. RYAN. I was never able to get a diagnosis as to what caused it, why or how it happened. In Kerry's initial years it was just survival. We didn't question the whys. As she gets older and you question the different teaching institutions, NYU, Columbia Presbyterian, and others, no one has been able to come up with anything. The only person who made a stab at it was the geneticist from Johns Hopkins. His flippant answer to me was that it was a random genetic throwoff.

Mr. LENT. Aside from the one doctor who said it might be a random genetic throwoff, have you ever had any sort of medical confirmation of your own theory that the birth defects are as a result of your husband's exposure years before to agent orange?

Mrs. RYAN. At Kerry's birth chromosomal studies were done. Chromosomes came out normal.

At the time we put off having genetic counseling done because there was no child in the future. It took me 8 years of my husband's badgering me to get pregnant again because it can't help. It took 8 years, and it would be the end of this summer that I was going to be pregnant with our second child. It was 5 months ago I got confirmation on agent orange.

Now what has happened here, as I listen to the chairman, is that time is running out for us. I am 31 years old. I have produced Kerry. I have now been told that from the sampling of histories being taken families are producing more than one child like this.

I will throw the question back to you. With this preponderance of evidence, would you want your wife to get pregnant?

Mr. LENT. A very good question, especially inasmuch as I do not have a wife. It is an excellent question. I understand the spirit in which it is given.

Mrs. RYAN. The frightening part is that we have no idea if 2 years from now I find out my husband has cancer.

Mr. LENT. The one thing that has come through loud and clear to all of us here is that the Veterans' Administration in its handling of these cases certainly has not contributed the kind of spirit of advocacy that we veterans had come to expect from them. I think this is something we will bear in mind—the recommendations of Mr. Muller that a presumption should be given on these claims in favor of the veteran and let the VA come back and rebut that presumption.

I have no further questions.

Mr. ECKHARDT. Mr. Russo?

Mr. RUSSO. Thank you, Mr. Chairman.

I want to thank the panel for being here. I know how tough it is to go over these problems, especially when in your own minds the Government has let you down. I hope that your Government will not let you down any more.

I think the one thing that disturbs me more than anything else is the attitude and treatment you receive not only from the VA at the present time but, Mr. Woods, when you and Mr. Ryan were in the service.

I understand when Mr. Ryan had problems with weight loss you asked the doctor to examine you. He just told you it was pneumonia. Did he perform tests on you to determine whether or not you had pneumonia?

Mr. RYAN. The first doctor thought I was malingering and kept me working 16-hour days. When the main body got there, the second doctor, my company doctor, put me in the hospital immediately. All they told me was, "Roll over and we will give you a shot."

Mr. RUSSO. Were there any other people in your battalion who had the same symptoms as you or were you the only one?

Mr. RYAN. I was the only one that I knew of. Once we all got there we all separated. The advance party was made up of guys from all over the 11th Cavalry. When the main body got there they all spread.

Mr. RUSSO. Have you heard of any other members of your group who have the problems that you have, physical problems?

Mr. RYAN. The only ones of my group I became friendly with never made it back alive. They were killed.

Mr. RUSSO. How about you, Mr. Woods? Have you any friends of yours with whom you served in this particular area who are back in the States with whom you have corresponded or been in touch?

Mr. WOODS. I was the only one from New York. The rest were California, Chicago, and the Southern States.

Mr. RUSSO. You don't know whether or not—I will ask Mr. Muller: Do you know whether or not the Veterans' Administration is conducting any research to find out whether other men in this particular area have suffered the same problems as others in their battalion or in this specific group?

Mr. MULLER. I have to answer that the best I can by citing the written statement we submitted, which is that it is really hard to say with any confidence what the VA is doing. They say something when the media becomes involved in the issue and it is on the front page or on the evening news. Then they don't follow up what they say they will do.

The answer to your question is that I cannot give you an answer with confidence.

Mr. CHAMPLIN. The VA has discussed a computer search of cancer cases of Vietnam-era veterans which I understand has the capacity to call back if they will throw in the right codes. We have not seen the results from such computer search of cancers which would give you a quick epidemological study. They have not done anything geographically in terms of isolating men in units at Vietnam in a particular time and tracing them and trying to find out where they are now.

Mr. RUSSO. It seems if they wanted to conduct an investigation to determine whether there is any correlation between agent orange and the problem the simple thing to do is to take these areas where the defoliant was sprayed and check out the men who survived the war and see what the conditions are.

I would suggest to the chairman—I know he has written a letter to the Secretary of HEW—but I think it is important that a letter be written to the Veterans' Administration asking for a thorough and complete investigation and what plans they have and how long it will take before we get results and not sit here, as one study indicated.

Also we should refer information to the Veterans' Affairs Committee to conduct a hearing regarding the care of veterans in VA

hospitals. I know we do not have that jurisdiction but as with Mr. Woods, when tears came to his eyes when he mentioned there were certain problems at the VA hospital, I would imagine there are other problems.

I have a difficult problem understanding the plight of the Vietnam veteran. When veterans from World War I came home everybody was happy and everybody saluted them.

World War II veterans came home and they couldn't give them enough.

Vietnam veterans come home and nobody cares about them. The Vietnam veteran has a problem with this agent orange and the Government is ducking it as best they can. I suspect, like anybody else, if we had to do it over again nobody would go to Vietnam and fight the war because we all think it was an immoral war and we were better off if it didn't happen in the first place. However, we are trying to wipe out the whole thought of a bad war by just destroying the Vietnam veteran whenever we have a chance because he reminds us of the war we didn't like. Therefore, the best thing to do is to write him off and forget about him and maybe we can write off the war.

It is really disheartening to see that the VA is doing this to the Vietnam veteran.

I have a solution. I would send the general who made the decision to spray the defoliant, the VA administrators, and those doctors and all the chemical company representatives out to Vietnam. I would just like to fly a helicopter there and spray it. I want them to be the guinea pigs because they are the ones who come before us and tell us that there is no causal connection, that you have to put forth the presumption. I wonder how many of them would volunteer.

I know you two told me you would volunteer to go back to fight for your country again. I commend you for that. I think we would all do that even though we didn't agree with the war.

I wonder how many of the theoreticians and academicians would do that and take the chance and let the defoliant go onto them.

I hope the chemical experts who will come before us will be prepared to be guinea pigs. Let's see how much courage they have to take some dioxin sprayed on their bodies and see what happens to them. Then see whether they would like to have children.

I commend you, Mr. and Mrs. Ryan. She is a beautiful child. I was watching her writing there. You have a lot to be proud of.

I don't think many families who faced the problems you have could come out as well as you have. I take my hat off to you. Don't give up because we all really care.

I have no questions.

Mr. ECKHARDT. Mr. Maguire?

Mr. MAGUIRE. Thank you, Mr. Chairman.

I want to say to the witnesses and the Ryan family, I appreciate the fact you came here to talk to us and the American people about matters which are not easy to talk about. We have to hear them. We have to act and we have to do what we can. Otherwise there is no point in any of us sitting up here.

Mr. Ryan and Mr. Woods, when you were in Vietnam were there any precautions taken to protect you from agent orange? Did any-

body give you any information about its hazards? Were you provided with special clothing or masks?

Mr. RYAN. We were told the enemy was in the bush wearing sandals and black pajamas. We were not strafed by helicopters operated by the Vietcong. Nobody ever suspected that possibly the real enemy was in the air. The Vietcong had no planes. There were no precautions taken.

Mr. MAGUIRE. No precautions were taken to protect you from agent orange?

Mr. RYAN. No; they didn't even tell us.

Mr. MAGUIRE. Mr. Woods, is that your experience?

Mr. WOODS. That is my experience, too.

Mr. MAGUIRE. Did the soldiers know at all themselves, without being told, that perhaps this would be a problem for them?

Mr. RYAN. The tragedy is that most of the Vietnam veterans don't even know unless the media gets it out. To this day they don't know. I didn't know definitely until 6 months ago. I am sure there is a walking time bomb out there, thousands of guys who will die of cancer or produce birth-deformed children and they don't know.

Mr. MAGUIRE. I have been told that the men who were fighting in Vietnam thought this was something to kill plants and it would have no effect on human beings; indeed, that from time to time it was actually played around with. People would sometimes play and fly spray it on each other. I don't know whether any of you experienced that but that is what I was told by one veteran.

Mr. WOODS. I was a medic. I dealt with the indigenous personnel and I dealt with our own combat troops. Our job as medics was to know what goes on in our area so we would know what to expect.

At no time was anything ever told to me or the other medics as to what symptoms to expect from the defoliant they were spraying or what type of rash to expect. There was nothing. We were left ignorant of the fact that this stuff could bring harm to American soldiers.

Mr. MULLER. I served in Vietnam as a Marine infantry officer. I lasted for 8 months before I finally got shot.

As an officer who attended briefings we had at company-battalion-regiment level, we never had any briefings at all about any potential harmful effects from the spraying going on around the areas.

Mr. MAGUIRE. It appears that the VA wants to ignore the scientific data we have. We have data, animal test data, the best indicator of the hazard, that these are dangerous chemicals. Certainly, they want to ignore it if it costs money to do something about it. However, the fact is that the Defense Department and the Environmental Protection Agency have already taken action against this chemical because of what we know about it and its hazards.

If you got multiple sclerosis, even though it was not service connected, and my understanding is that within 7 years after you left you would be covered, you would be covered by the VA. Don't you find it is incredible that given what we know about agent orange, the VA won't provide assistance to the men and their families? In effect, we are saying they will have their lives jeopardized twice—once when they were there and now again after they

come back and try to live normal lives. Not only that but their families will suffer as well.

I guess that is a rhetorical question because obviously you have already answered it.

Mr. MULLER. The point you just made I think is deserving of real emphasis. There are numerous precedents in existing law, in statutes, in title 38 of the United States Code, in recognition of presumptions. I think the one we can cite as the best example which can be applied here is the one that you just did—multiple sclerosis, or MS.

Nobody knows what the origins of MS are. However, out of recognition and perhaps in appreciation for the fact that it is a catastrophic disability, there is the presumption that if you manifest any symptom whatsoever of MS which can be as vague and subtle as poor coordination, up to 7 years after you have left the military you will be deemed to have contracted MS by presumption during your period of military service.

Mr. MAGUIRE. We do the same thing with coal miners. They are presumed to have as a result of their exposure in the mines a black lung condition develop as a result of that exposure. It seems to me that if we can do that for multiple sclerosis, which nobody can show has anything whatsoever to do with service, that we ought to be able to do something for a child like Kerry, the daughter of a serviceman exposed to what animal tests clearly show cause birth defects.

Was there anything else you wanted to add, Mr. Muller?

Mr. MULLER. That was it.

Mr. MAGUIRE. Members of this subcommittee should focus on this, Mr. Chairman. What are we going to do now, based on the scientific knowledge and on the legal precedents to be sure that our veterans, are financially able to bear the burden that results from their having been in Vietnam and having been sprayed with this chemical?

I would hope we can ask the Veterans' Administration to come before us. I know we are not the committee which deals directly with the VA and its programs but we are a committee which should insist that the Veterans' Administration discharge its responsibilities with respect to the health of veterans and their families.

I would be happy to yield.

Mr. RUSSO. I have one additional comment. While we are waiting to do that I think it is important we do something further. One other thing they would do, in spite of the fact we do not have these presumptions built in right now, which is important to do, is that they should treat the veteran properly right now and help them with the problem.

They have these memoranda, as the gentleman from New York indicated, that they should be treated with all due care, and let's go out and notify them and work with them, bring them in. You would think what they would do is to go out and reach out and try to grab the veteran and say, "Look, you may be a time bomb. You don't know it yet. Let's get them in."

They have the greatest access to veterans' information than anybody else. They have it there so they should be reaching out.

While we are trying to determine what legal changes we want to make in statutes they should treat the veteran as they should be treated—properly—and help them realize there is a potential problem, and let's get all the information we can on this potential problem and try to solve it together, not against each other, but together.

Too many times the Government pits itself as an adversary against those who are trying to help. We should not be adversaries. We should do something right now and get the Veterans' Administration doing a good job as they should be doing right now as we change the presumptions regarding those suffering from agent orange.

Mr. MAGUIRE. I thank the gentleman. HEW has reached out for people exposed to asbestos when they worked in shipyards. Why can't we do the same thing for our men who fought in Vietnam and were exposed to agent orange?

Thank you, Mr. Chairman.

Mr. ECKHARDT. We have seen great courage and great fortitude here as well as parental responsibility and love. You have added to all of that a wonderful public spirit by appearing here today. We thank you.

Mrs. RYAN. I have one more statement. Paul Moss said that the individual is nothing more than a mere puppet of corporate powers. I think this country is built on the importance of the individual. I appreciate your seeing us.

Mr. WOODS. If I may add to something Mr. Ryan said.

He made a statement with regard to our children. We are not the only veterans. Our children have become veterans. When we hit the battlefield Mr. Ryan's two daughters were with him and my two sons with me. We have to bring that back. They are veterans. We are not the veterans, but our kids are the veterans.

Mr. ECKHARDT. Thank you very much.

Mr. MULLER. Thank you, Mr. Chairman.

Mr. ECKHARDT. Next we have Mr. Victor Yannaconne.

Do you swear to tell the truth, the whole truth, and nothing but the truth, so help you God?

Mr. YANNACONNE. I do.

Thank you.

Mr. ECKHARDT. You may proceed.

TESTIMONY OF VICTOR YANNACONNE, JR., ATTORNEY, PATCHOGUE, N.Y.

Mr. YANNACONNE. Mr. Chairman and members of the subcommittee, I was indeed honored to receive the invitation to meet with you today. First of all it is a pleasure to meet and hopefully assist the work of a group which is responsible for one of the more significant pieces of legislation to protect the environment and the consumer, the Toxic Substances Control Act; and, second, because according to the manufacturers of the chemical 2,4,5-T, Dow Chemical, Northern American, Philips, Diamond Shamrock, Monsanto, and Hercules, they have asked the courts to compel me to cease any communications with the media or with veterans groups about matters related to this litigation during the pendency of the

lawsuit that I am here to tell you about. This may be my last public pronouncement on that lawsuit.

You saw Maureen and Mike Ryan; you saw John and Mildred Woods; you saw Kerry Ryan. You did not see the hundreds of others who are in similar circumstances to both of them.

It all began in June 1978 when a young Vietnam veteran, Paul Reutersham, came down with a particularly virulently and rapidly metastasizing cancer and made the connection between his work as a helicopter crew chief, his exposure to agent orange, and his cancer.

He tried to enlist the aid of the public in raising the consciousness of the world at large with regard to the problem. He had his sister, he had his mother, and he had a gentleman in back of the room, Frank McCarthy, and they knocked on doors and they made statements, and eventually they enlisted the help of the media.

As Paul died in December a lawsuit was filed, Paul Reutersham against two or three of the manufacturers of the 2,4,5-T and agent orange.

I never saw Paul while he was still alive, but eventually Frank McCarthy came to me, and on January 8 it became obvious there might be as many as 300 or perhaps 400 individuals who had died of cancer under strangely similar circumstances to Paul Reutersham's.

Paul Reutersham died of what is called in the epidemiological world a signal cancer. It is a cancer you would not expect in a young man of that age, of that background, and the kind of good health Paul had when he served in the military.

We filed a simple definitive class action on January 8. By the end of that week, and that was a Monday, 300 veterans had called. Most of them told us the same story—chloracne-like rashes in Vietnam, migraine headaches, liver disfunctions manifested by alcohol intolerance, and by the end of the month we began to see that it was not those individuals who were actually handling the material, as Paul Reutersham was, or who flew through the clouds of the toxic spray as Paul did, but a young man called from Jersey who had cancer of the vocal cords. He was 28 years old. He didn't smoke. Another signal cancer—the mouth, the vocal cords, pharynx, and in nonsmokers of that age this is very rare.

He made the connection—the water tasted foul. How did he get his water? He was told in the field to wait for it to rain, scoop it out of the shell crater or bomb crater, filter it through his shirt, put it in his canteen, add his disinfectant, shake it up and drink it.

The water tasted so oily and so bad that he had to mix it with equal parts of Kool-Aid to kill the taste. It is obvious what happened. It rained regularly in Vietnam. The material was washed off the jungle canopy right into the area where the people drank it. They ingested it. They weren't sprayed with it but they drank it. Some who ate native food in the bush ate it.

Finally in February a marine by the name of Smith called. His daughter, Marcel Jean Smith from Allentown, Pa., was born with a strange combination of birth defects—lagging development of an eye and ear, a cleft palate, and a club foot. The connection became obvious. These are symptoms you find in certain animals who

survive the ingestion of dioxin-contaminated 2,4,5-T and give forth offspring.

This man was a career marine. He told us that at one of the service hospitals he had been told there were six other children like Marcie. The suit was filed. Hundreds of others also came forward—not as catastrophic in defects as Kerry Ryan, who you saw this morning. Kerry has more problems than any surviving child of the agent orange syndrome we have seen.

However, there is this pattern, and it is this pattern that should concern this committee—every one of these children has a bizarre combination of polygenetic defects and normal chromosomes from parents with normal chromosomes. Every one of these children has normal mental development with their catastrophic problems.

You saw Kerry Ryan this morning. Kerry Ryan is a stroke victim. Unfortunately she had her stroke at 2 or 3 years of age. She, like Patricia Neal, will eventually survive that stroke and come back through the care of her parents.

Nothing is going to fix her arm which lacks a wrist, her thumb which doesn't work particularly well, and her disastrous internal problems, just as nothing will fix the young girls who were born without any reproductive organs, no ovaries, no vaginas, no uterus, some without bladders; but all of them surviving, all of them, thanks to modern surgery, otherwise normal children. Nothing is going to improve the situation physically for the young boys who have their testes misplaced and attached to other organs where they are functioning and spewing forth hormones as little children and where they have to be found and removed so the child can develop normally.

Nothing will help the veterans who have more testicular cancers than you would expect in a population of elderly men.

What we did was file a complaint against the manufacturers. The complaint purports to be a class action. We have identified 15 basic classes of veterans and their families who are suffering from the effects of agent orange.

There was one group we cannot help any more. They died of rapidly metastasizing virulently malignant cancers from 1974 to 1976. The information on those cancers is in the hands of the Veterans' Administraton, and the Veterans' Administration is not about to furnish us that information at this time.

Mr. RUSSO. I know it is not a practice to interrupt testimony. One of the things I heard when I was outside is that the VA, the military, has a tendency to destroy records after a period of 5 years. I think we should do something to protect those records if we are trying to build a record here as to what the potential problems are, and those records should be kept beyond a 5-year period. A lot of Vietnam veterans are now beyond the 5-year period and we will not be able to do anything unless we can keep those records.

Mr. ECKHARDT. I think that is a very fine suggestion. Also I would like to respond to some of the remarks which have been made here by calling in the Veterans' Administration. I think also the Department of Defense should be called in order that we obtain some information which might be available from both of those

sources. Certainly it would be necessary for both of those sources to afford information to HEW.

Mr. RUSSO. I would be concerned about the records. After 5 years they are destroyed and the medical history kept on a veteran is gone. There is no way you can reconstruct it.

We would tell the Veterans' Administration not to destroy other records they have and that they should be kept intact until we complete the investigation.

Mr. ECKHARDT. Without objection, such a letter will be sent from the committee to the Defense Department.

Mr. RUSSO. Thank you, Mr. Chairman.

Mr. YANNACONNE. Mr. Chairman and Mr. Russo, you touched on a point that is directly raised in the pending litigation. This is not an ordinary damage action. It is not a products liability case where we sue for money damages on behalf of these veterans. None of the veterans who called me have ever asked, "How much am I going to get? How much money can I get from the manufacturers? Will there be a substantial recovery? How much are we suing for?"

They have joined the action because what we are asking the courts to do is something that is unheard of in the history of the court system as it exists in the Federal practice today. We are asking the corporate defendants, the manufacturers of the contaminating materials, to create out of their current corporate earnings—and that is a point of great significance to you as the Commerce Committee—this is an attempt to create a reserve in the nature of an insurance reserve, to first reimburse the U.S. Department of Defense, the Veterans' Administration, and the Social Security Administration for the costs that they are incurring now and will incur for medical care and treatment of the victims you heard about, the victims you have seen, and the victims who have yet to require the benefits, and to reimburse the veterans themselves as a group so that their needs will be taken care of as trust beneficiaries to establish in the nature of a trust fund.

We ask for that, Mr. Chairman, and we ask the Federal Government by notice to furnish us with six simple pieces of information. We ask them for the names of the manufacturers of all the herbicides applied for use as defoliants from February 1962 through January 1971. We ask them to give us copies of their contract specifications and purchase orders. We ask them to give us the results of tests. We ask them to give us maps of the Vietnam theater of action where the defoliation occurred so we can match the claimants with the areas. We also ask them for a list of the units that were exposed.

We asked this after a representative of the Veterans' Administration spoke to a committee of Congress on Yom Kippur, 1978, and announced that approximately 4.2 million Americans were exposed.

The reply to that application was a categoric no. They would not cooperate.

When the judge asked the U.S. attorney, "Suppose I treat it as a subpena and issue a so-ordered subpena?" the response of the young U.S. attorney was, "We will move to quash the subpena."

Now, as Mr. Russo pointed out, his district in Illinois already knows, and has been the scene of, problems with veterans trying to

obtain records and finding out that records prior to 5 years ago already have been destroyed. Your action is well taken.

We asked the court in this particular case to do something that perhaps administrative agencies should do, but the administrative agencies are not doing it. The use of 2,4,5-T has been suspended but not for western rangeland on which we range-feed our cattle and on the rice crop grown in the United States.

On July 18 the court will hear our application for an injunction on behalf of these veterans suing individually and representatively not only on behalf of all the veterans so unfortunate as to be similarly situated but on behalf of all the people of the United States that they served once in combat and are now serving as individuals. It is those veterans who have taken the first step to produce what I hope will be a change in the policy of the way we do business in this country.

I am asking you, as the appropriate committee of the Congress, to seriously consider the kind of action that should be taken to impose a measure of responsibility on multinational corporations and those engaged in interstate and foreign commerce——

Mr. ECKHARDT. We are called for a vote. We will have to recess for the luncheon period. Have you just about completed?

Mr. YANNACONNE. Yes.

Mr. ECKHARDT. We very much appreciate your appearance.

Mr. YANNACONNE. Thank you, Mr. Chairman.

Mr. ECKHARDT. We will reconvene at 2 o'clock.

[Whereupon, at 12:25 p.m., the subcommittee recessed to reconvene at 2 p.m.]

AFTER RECESS

[The subcommittee reconvened at 2:30 p.m., Hon. Bob Eckhardt, chairman, presiding.]

Mr. ECKHARDT. Mr. Yannaconne, please continue.

Mr. YANNACONNE. Basically, Mr. Chairman, I had completed the direct remarks I intended to make. I understand Mr. Brown might have questions.

Mr. ECKHARDT. Very well.

Mr. Russo?

Mr. RUSSO. Thank you very much, Mr. Chairman. My basic problem with this situation is this: You and I had a discussion concerning problems you are having in Chicago. I would appreciate your relating for the record the conversation that you and I just previously had.

Mr. YANNACONNE. Yes. One of the problems that plagues the veteran now seeking to determine whether he is or is not a victim of agent orange contamination is obtaining his medical records for treatments even as recently 1 as month or 2 months ago.

A number of veterans volunteered in the Chicago area to have liver biopsies done. They were told they were going in for a needle puncture biopsy of the liver, a little incision in the rib, and they woke up 4, 5, or 6 hours after they went into the operating room with 17-stitch incisions in their left lower abdomen.

For those of you not anatomically oriented, you cannot reach a liver from there without being disemboweled.

The problem is that when they later went back for their records there were no records even of that surgical procedure of a few weeks before.

Mr. RUSSO. Did they know which doctor performed the surgery?

Mr. YANNACONNE. They have no idea who the physician was who performed the surgery. They were unconscious when they went into the operating room. Because of the way the rotating physicians system works in most veterans hospitals where you do not have a single common physician for each patient as he comes in, you are referred from service to service. There is really no patient-client or patient-doctor contact.

Mr. RUSSO. Do they have any records in the surgery room as to who performed surgery, the time of the day, who is assigned that particular duty on that day?

Mr. YANNACONNE. If they do they are not willing to give it to us at this time. Part of the problem is the absolute lack of cooperation from the large number of veterans hospitals which have treated these patients.

Some of them have been very good. There are some fine veterans hospitals which have given us cooperation and provided records. The majority of them either cannot find the records, the records are sealed in a safe and not available on normal discovery procedures other than with a court order, or they refuse categorically to produce any records.

Mr. RUSSO. Can you cite any order from a court to obtain these records?

Mr. YANNACONNE. Yes. We asked the court to entertain an order to direct the Veterans' Administration to provide us with the records, all the records, of all the claimants now claiming agent orange-related conditions who are presently involved in the litigation or who later joined the litigation. The court has indicated that if all the parties agree that those records are necessary they will issue the appropriate order. We are assuming, as is conventionally done, the VA on production of an authorization furnishes records. Apparently with the agent orange victims they are not willing to do that.

Mr. RUSSO. So they are retrenching or doing something much different in the case of agent orange than in other cases?

Mr. YANNACONNE. That is correct. We have never seen this pattern of conduct in a veterans hospital, and my associated colleagues daily involved with VA matters in automobile cases and the like, where we routinely obtain veterans' records, say they have never seen this kind of conduct in the VA.

Mr. RUSSO. Normally when you go in for a biopsy of the liver don't they puncture a hole on the right side with a needle and take the sample from the liver and pull it right out again?

Mr. YANNACONNE. That is the way they told me they did it.

Mr. RUSSO. These three gentlemen had an operation, 17-stitch incision on the left side of their stomachs?

Mr. YANNACONNE. Lower left abdominal quadrant.

Mr. RUSSO. Did they ever take a biopsy of the liver?

Mr. YANNACONNE. We don't know.

Mr. RUSSO. You cannot find out whether they did that?

Mr. YANNACONNE. No.

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Mr. RUSSO. That is what they went in for.

Mr. YANNACONNE. Yes.

Mr. RUSSO. Voluntarily?

Mr. YANNACONNE. That is right. That is the signed authorization.

Mr. RUSSO. Mr. Chairman, again it is another case where this committee should do extra oversighting to find out what is going on in these particular hospitals. In cases like this we have three gentlemen who voluntarily went in for agent orange biopsies. They don't even know what they got, which is unbelievable for us to hear today and hearing that with regard to an institution like the veterans hospital.

If they are doing that to three gentlemen who went in voluntarily obviously they will not do an outreach program and they will not keep records we would need to go back and check on them.

Mr. YANNACONNE. The court also has been asked to prevail upon the Veterans' Administration, either by writing a letter or if necessary preparing an order, requesting the VA to cooperate in the computerization and the computer management of a data base which includes all of the Vietnam veterans who have complained of either skin conditions or have been diagnosed as having cancer or liver impairments.

Mr. RUSSO. I have not practiced law for a number of years but you should make a claim on the present imminent danger of records being destroyed. Perhaps you can get an injunction to freeze everything and keep the veterans hospitals and the VA from doing anything with records they have in their possession.

Mr. YANNACONNE. Mr. Cleland advised a number of veterans groups in February, around the 23d or 24th when this story broke, that by his order there would be no further destruction for a while. We cannot get a definitive answer.

Mr. RUSSO. Do you know whether Mr. Cleland was ever involved in an area in Vietnam where they sprayed agent orange?

Mr. YANNACONNE. I don't know. You would have to ask one of the veterans service groups. I don't know anything about Mr. Cleland.

Mr. RUSSO. Maybe he would be more interested if he was possibly in a field after it had been sprayed.

Mr. YANNACONNE. He has problems other than agent orange-type problems I understand.

Mr. RUSSO. I am aware of that. It seems to me that as a former Vietnam veteran himself who suffered these casualties he would be more sympathetic to the Vietnam veteran.

I have nothing further, Mr. Chairman.

Mr. ECKHARDT. Thank you, Mr. Yannaconne.

Next we have Dr. John A. Moore.

Dr. Moore, do you swear to tell the truth, the whole truth, and nothing but the truth, so help you God?

Dr. MOORE. I do.

Mr. ECKHARDT. Please identify yourself.

TESTIMONY OF JOHN A. MOORE, D.V.M., ASSOCIATE DIRECTOR FOR RESEARCH AND RESOURCES, NATIONAL INSTITUTE OF ENVIRONMENTAL HEALTH SCIENCES, NATIONAL INSTITUTES OF HEALTH, DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE

Dr. MOORE. I am Dr. John Moore. I am an Associate Director of the National Institute of Environmental Health Sciences, National Institutes of Health.

I am pleased to appear before you today and discuss the toxicity of 2,3,7,8 tetrachlorodibenzo-p-dioxin, better known as TCDD or dioxin.

As a toxicologist, I have conducted and directed research on TCDD, consulted on the Seveso contamination at the request of the Italian Government, and served as a member or chairman of committees of the International Agency for Research on Cancer of the World Health Organization; the Royal Swedish Academy of Science; and the National Academy of Sciences.

TCDD is formed as a contaminant in the commercial synthesis of trichlorophenol. Therefore, TCDD will be found in products synthesized from trichlorophenol such as the herbicide 2,4,5-T that constituted approximately 50 percent of the agent orange used in Vietnam. 2,4,5-T was also used in formulations code named agents purple, pink, and green. These formulations, according to Air Force reports, accounted for only 4 percent of the total 2,4,5-T used in Vietnam but accounted for approximately 40 percent of the TCDD disseminated in that country. If these estimates are correct, the personnel exposed to these formulations were at greater risk of TCDD exposure and are a valuable population to examine when investigating the health effects associated with TCDD exposure as a consequence of 2,4,5-T use.

TCDD is but one, albeit the most toxic, of a family of dioxins, other members of which demonstrate marked toxicity dependent upon the number and location of the chlorine atoms in their molecular structure. Our research has shown that the diseases produced by all dioxins are indistinguishable from each other. Further, a related class of chemicals, the chlorinated dibenzofurans, are also very toxic and produce diseases similar to that caused by dioxins. All of these chemicals are impurities that are far more toxic and therefore represent a potential health hazard greater than the compounds they may contaminate.

In my opinion, symptoms of dioxin illness may not solely result from TCDD in 2,4,5-T but to the sum of contaminant exposure. Population exposure to other dioxins and dibenzofurans may occur through their presence in such products as pentachlorophenol; I understand that this material, a wood preservative, was used extensively in Vietnam.

TCDD has been the subject of extensive laboratory investigation during the past decade, stimulated in part by its extreme toxicity. It does cause birth defects in mice and fetal toxicity and death in mice, rats, rabbits, hamsters, and monkeys. It is readily secreted in milk with postnatal toxicity and death observed in studies with rats, mice, and rhesus monkeys. Symptoms observed in these offspring include failure to gain weight, skin abnormalities, a depres-

sion of the immune system, and, in rhesus monkeys, evidence of alteration in behavior.

TCDD has also been studied for its cancer-causing potential. It is a confirmed carcinogen in rats, and additional studies in rats and mice are to be reported by the National Cancer Institute and the National Toxicology Program later this year. It has not been definitely found to be a mutagen or cause chromosome abnormalities.

TCDD is known to enter the body through the skin or the intestinal tract. It persists with a half-life—length of time for 50 percent of the chemical to be eliminated—of 3 to 4 weeks in several species; the major sites of deposition are liver and fat. The distribution and half-life of this chemical in man are not known.

The extensive study of various TCDD effects has, as yet, failed to reveal how this chemical exerts its toxic or lethal effects. There is no known antidote and attempts to discover methods for speeding its elimination from the body have not, to date, been successful.

Our knowledge of the toxic effects of dioxins on humans is principally from occupational exposure. There are 23 known episodes of this sort, of which 8 are associated with accidents that occurred due to loss of control of the chemical process. The number of people involved in these 23 episodes totals about 1,100, with an overwhelming number being adult males.

A review of these exposures reveals that the most common effect was chloracne, a skin disease characterized by multiple eruptions of pustules that can cover extensive portions of the body and persist for months and years. Other frequent effects included liver damage, abnormalities of lipid metabolism, peripheral nerve disorders, porphyria, weakness, and depression.

There are two notable instances of dioxin exposure that occurred outside the workplace. These two are in addition to those which may have occurred through use of agent orange in Vietnam.

The first occurred in Missouri during 1971 as a result of treating several horse arenas with salvage oils, for dust control, that were contaminated with TCDD. Within several weeks there were illnesses and deaths in birds, horses, dogs, cats, and rodents that frequented one arena; illness and death occurred in horses from two other arenas. At least seven people who frequented the arenas became ill with symptoms that included chloracne, urinary tract infection, gastrointestinal disorders, headache, and joint pain.

In July 1976 a runaway chemical reaction in a plant producing trichlorophenol caused TCDD contamination over a populated area of Seveso, Italy. The contamination involved an area of 1 to 2 square miles. Extensive illness and death were observed in the animal populations inhabitating the area. Chloracne, at an incidence of about 1.5 percent of the exposed population, was observed.

Other human effects associated with the TCDD contamination were a decrease in the ability of peripheral nerves to transmit impulses and a transient, modest increase in liver size with mild indications of abnormalities in clinical tests of liver function. There is no clear evidence, to date, in the Seveso area of an increase in birth defects or fetal wastage, a type of data that is very difficult to gather and assess.

Human dioxin exposures that have occurred throughout the world during the past 30 years have led to a general concern as to

the long-term hazards associated with these episodes. Each occurrence involved a population that is considered to be too small for conducting and interpreting an epidemiologic study with a great degree of confidence.

A meeting in 1977 hosted by the National Institute of Environmental Health Sciences and WHO's International Agency for Research on Cancer recommended the development of an international registry of exposed persons as a basis for long-term followup. Such a registry would reduce the obstacle of population size in defining the long-term risk associated with exposure to dioxins and related chemicals. NIEHS is currently exploring IARC's willingness to lead such an effort.

Also, it is my understanding that the National Institute for Occupational Safety and Health is currently exploring the possibility of establishing a registry of workers with known occupational exposure to dioxins. All of these registries, given that they are based on occupational exposures, are deficient in being able to serve as a base for long-term followup of pregnant women, women of child-bearing age, and children. Thus some mechanism for studying these populations needs to be developed.

In summary:

One, dioxin and dioxin-contaminated substances have caused dermatologic, internal, and neurobehavioral effects in humans and animals. In my opinion, this indicates that the toxic effects observed in animals are predictive in a qualitative sense. At this time the quantitative extrapolation of doses from animals to humans is not possible with any degree of certainty.

Two, animal toxicity tests indicate that TCDD can cause cancer, birth defects, and fetal toxicity. There is, as yet, no unequivocal evidence for these diseases being observed in man. However, we should not lose sight of the fact that animal data historically are accurate indications of potential effects in humans.

Three, toxic effects due to dioxin are somewhat delayed in their appearance. This is true of animals and humans. Since TCDD persists in the body for weeks and months, disease effects can be the result of low-level chronic exposure. Illness caused by TCDD does not result in a unique disease; a similar disease can be caused by other dioxins, dibenzofurans, certain PCB's and other halogenated aromatic chemicals. The ultimate expression of disease plausibly could result as an aggregate total burden of all or some of these chemicals.

I will be happy to answer any questions you may have.

Mr. ECKHARDT. Mr. Russo?

Mr. RUSSO. I thank the chairman. I go back to the testimony on page 3, that the TCDD has been a subject of extensive laboratory investigations during the past decade. That would put it in 1968–69. Would that be correct?

Dr. MOORE. Yes.

Mr. RUSSO. Was a lot of this data available at that time with regard to the toxicity of dioxin?

Dr. MOORE. In about 1969 the first data came out showing that TCDD was causing defects. In this case it was a study showing there were birth defects seen in animals treated with 2,4,5-T. There was TCDD in that 2.4.5-T.

We were able to synthesize both chemicals purely and show that TCDD was the main culprit in birth defects or toxicity.

Mr. RUSSO. How long has this particular chemical been on the market?

Dr. MOORE. It is a post-World War II phenomenon.

Mr. RUSSO. It has been used since World War II?

Dr. MOORE. Yes.

Mr. RUSSO. It was not done before 1968 and 1969?

Dr. MOORE. Not to my knowledge. There were instances prior to 1969 of problems associated with materials contaminated with chlorinated phenols. Some of these were picked up by the Food and Drug Administration. For example, in poultry dying, as they traced back the rations that were in the poultry feed they found out it came from fat treated with chlorinated phenols. Subsequently they were able to go back to those samples, 10 or 15 years later, and determine it was dioxin that was the problem. We knew there was a problem but we didn't know the name of the problem.

Mr. RUSSO. The reason I ask that question is this: It would seem to me that if we had knowledge of any problem this caused way back then, then the Department of Defense should have been warned and information disseminated to members of the Armed Services who were fighting in Vietnam. Obviously none of that was done.

I am wondering why the Defense Department would not have known about this and whether or not the companies that sold the product gave any indication to the Department of Defense as to what happened with this substance.

Dr. MOORE. I think, Mr. Congressman, it was the identification back in 1969 and 1970 of the problems associated with 2,4,5-T causing birth defects in laboratory animals that led the Surgeon General to raise the concern which I think was due in large part to DOD markedly reducing or terminating the use of agent orange in 1970 or 1971.

Mr. RUSSO. In 3 years we were still spraying. Were you here for the morning session?

Dr. MOORE. Yes.

Mr. RUSSO. You heard the gentlemen who fought in Vietnam?

Dr. MOORE. Yes.

Mr. RUSSO. You heard the various symptoms they had. Would that be similar to the dioxin-type of problem?

Dr. MOORE. Their descriptions of chloracne or rashes certainly would be consistent with what we would expect with dioxin.

Mr. RUSSO. How about loss of weight?

Dr. MOORE. Yes, one of the classic symptoms of toxicity of dioxin is a loss of weight?

Mr. RUSSO. Nervousness?

Dr. MOORE. It has been reported that some of the workers exposed have had neurological problems.

Mr. RUSSO. And the fact both children born after they got back from Vietnam had birth defects, does that help in making an analysis?

Dr. MOORE. There has been no data, and this includes animal data, able to implicate birth defects as a result of male exposure. That doesn't say it cannot occur.

Mr. RUSSO. As a result of what?

Dr. MOORE. Dioxin exposure. There have been a couple studies.

Mr. RUSSO. You say laboratory animals showed birth defects. Is that right?

Dr. MOORE. Treated females.

Mr. RUSSO. Did you ever try injecting a male with dioxin to see what happened?

Dr. MOORE. There was a study reported by the Canadians a number of years ago with treated males at high doses. The type of test they did subsequent to treatment was a test which looks for fetal effects. Those studies were negative.

I would say the numbers of animals used for study were certainly not adequate to be the sole basis——

Mr. RUSSO. They injected males and females which produced——

Dr. MOORE. Males.

Mr. RUSSO. Male animals?

Dr. MOORE. That is right.

Mr. RUSSO. No deformities in that test?

Dr. MOORE. There might have been some but none above the untreated controls in this case. To my knowledge that is the only study which has been done.

Mr. RUSSO. It may be that in animals it does not happen but in humans it does.

Dr. MOORE. It could be.

Mr. RUSSO. Because everything seems to be the same except for that feature.

Dr. MOORE. It is conceivable.

Mr. RUSSO. On page 1 of your statement you state, "2,4,5-T was also used in formulations code named agents purple, pink, and green."

You are saying agents purple, green, and pink had a higher content?

Dr. MOORE. Approximately tenfold higher TCDD content.

Mr. RUSSO. What were those products used for?

Dr. MOORE. As I read some of the Air Force and DOD literature put out, they were some of the early formulations. There was apparently a variety of formulations used in the early stages of defoliation in Vietnam.

Mr. RUSSO. Those are stronger than the agent orange?

Dr. MOORE. Yes.

Mr. RUSSO. They sprayed this early?

Dr. MOORE. Yes, 1962 though 1964, or 1963 through 1965.

Mr. RUSSO. What is the life of dioxin in agent orange in animals compared——

Dr. MOORE. The half-life of the dioxin itself, would be about 3 to 4 weeks.

Mr. RUSSO. Once a human is in contact with it, how long does it stay in the body?

Dr. MOORE. We don't know. We know how long it stays in a couple species of test animals, 3 to 4 weeks. How long it stays in man is unknown.

Mr. RUSSO. Is it possible it could lay dormant for years and react?

Dr. MOORE. If you were to take the animal data, where it would say have a half-life of 1 month, you would expect over the period of a year with a half-life every month going down you would not have much left. This is one of the criticisms which has been raised, I think somewhat legitimately, in looking for the presence of dioxin in Vietnam veterans 7 to 8 years subsequent to their exposure, because one would predict if the half-life was about 1 month you wouldn't find it any more. The dioxin would not be there.

Mr. RUSSO. We don't have humans to experiment with, except we find out the Vietnam veterans turned out to be the experiment.

Dr. MOORE. That is right.

Mr. RUSSO. Why do these products contain a higher amount of dioxin?

Dr. MOORE. Dioxin is an unwanted impurity in the synthesis of tricholorophenol. This is a reaction that if the temperature is not closely controlled can produce more TCDD.

In the sixties, it was realized if they would more tightly control the reaction temperature they could minimize the amount of dioxin formed. This was a technology that I am told did not come into play in a commercial sense until about the midsixties.

These agents pink, green, and purple could represent 2,4,5-T made prior to 1963, perhaps made in 1962 or 1963.

Mr. RUSSO. Has any research been conducted as to the approximate amount of dioxin in these particular products, parts per million, parts per billion?

Dr. MOORE. Some of the levels I can recall in agent purple ranged somewhere around 40 to 50 parts per million whereas the agent orange which was destroyed a couple of years ago had a mean concentration of 1 to 2 parts per million.

Mr. RUSSO. Based on research you conducted on dioxin in animals, would you say it would have a less toxic effect than in man?

Dr. MOORE. I have no basis for making such a statement.

Mr. RUSSO. It could have more of a toxic effect?

Dr. MOORE. I have no basis for making that statement, either. The largest population exposure outside of occupation exposure was in Seveso, Italy, almost 3 years ago now. A number of people have been surprised that the severity of disease that occurred in that exposed population was less than we would have predicted.

Mr. RUSSO. Based on the uncertainty that you are giving me now, the fact you don't know and there is no hard data, don't you think it would be prudent and wise to try to locate those individuals who came into contact with agent orange to find out what is happening to their lives and see whether there is a type of pattern which has developed? Do you think that it would be important?

Dr. MOORE. Clearly. This is what I alluded to when I mentioned agents purple, pink, and green. This group got 10 times the dioxin exposure. If I were going to look I would want to look at that group first.

Mr. RUSSO. That would be important, Mr. Chairman, to find out areas the Department of Defense did spray with this agent.

Mr. ECKHARDT. Have you attempted to obtain cooperation from the Veterans' Administration or the Department of Defense in obtaining information which would give you some statistical experience with respect to persons exposed?

Dr. MOORE. Mr. Chairman, I have been appointed as one of the HEW representatives to the recently created VA Advisory Committee on Effects of Herbicides on Veterans.

We have been told at the inaugural meeting all of this type of data would be forthcoming. I have not yet received it.

Mr. ECKHARDT. If you have not yet received it, would it be helpful to you if we should ask for it ourselves in connection with our letter to your organization requesting further examination of the problem?

Dr. MOORE. It certainly would not hurt. With respect to the Department of Defense, I have had a conversation in the last couple weeks, with an individual in the Air Force who is involved with agent orange, stimulated by the fact that I had read in the papers they were going to conduct an Operation Roundup, a clinical and epidemiological study of the Air Force veterans as well as people who were still in the Air Force involved in the application of this defoliant, some 1,100 or 1,200 people.

At that time I requested if it was possible to get a copy of the health examination they proposed to use. I was told it was not now available but I would perhaps get it within a couple months.

Mr. ECKHARDT. I thank the gentleman for yielding.

Mr. RUSSO. You indicated that wood was contaminated with these chemicals. Do you think that might have contributed to their exposure to dioxin?

Dr. MOORE. I would speculate given the type of climate Vietnam represents that the wood used there was perhaps heavily laced with preservatives to be sure it lasted longer.

Mr. RUSSO. Do you have any idea how much preservative was used?

Dr. MOORE. No. Again in the conversation that I had with the Air Force a number of weeks ago they confirmed that there were significant quantities, large quantities of Bentachlorophenol used.

Mr. RUSSO. Has there been attempted research on that?

Dr. MOORE. Less on pentachlorophenol than trichlorophenol and TCDD. We have done some work on pentachlorophenol since it is a ubiquitous chemical used in this country. We can all buy it. Two years ago now there was some dioxin found in the milk and meat of cattle.

Mr. RUSSO. We have some action in the State of Illinois on this problem.

Dr. MOORE. It is the second most widely used pesticide in this country.

Mr. RUSSO. What is happening to it right now?

Dr. MOORE. I know that the EPA has out a rebuttable presentation against re-registration.

Mr. RUSSO. It is being used?

Dr. MOORE. Yes. The issue for the——

Mr. RUSSO. Do you think this would be a sufficient case to take to the FDA and other agencies, and that they would get the message before half the population suffers?

Dr. MOORE. I may be one of the half that isn't around.

Mr. RUSSO. There is a lot of correlation involved here which should give us a presumption that taking it off the market proves it is unsafe. That is the way I view it. When you have this type of

information do you think it would be proper to take it off the market immediately pending a determination that it is safe? Or would you rather go ahead and let it continue to be sold knowing that it is a highly toxic substance and perhaps 5 years down the road, when 2,000 more people die from it, you then consider you have enough information.

Dr. MOORE. As a member of an ad hoc committee that was advisory to the EPA on the pentachlorophenol issue our recommendation was that the contaminants such as dioxin and dibenzofurans should be markedly reduced. One of the pentachlorophenol producers does market a product which has a markedly reduced——

Mr. RUSSO. There are substitutes for the product?

Dr. MOORE. The same product but the level of contaminants is reduced markedly. The company is considering withdrawing from that market because they cannot maintain a competitive economic position.

Mr. RUSSO. To whom were those recommendations made? What happened?

Dr. MOORE. Our report went to a larger science advisory board, to EPA who I believe passed on our recommendations.

Mr. RUSSO. Passed on to whom?

Dr. MOORE. To whomever that board reports. It may be the Administrator of EPA. I am not sure.

Mr. RUSSO. Would it be important to find out the status of that?

Dr. MOORE. Yes.

Mr. RUSSO. Perhaps he has several more documents to go through before action is taken.

I have nothing further at this time. I had one other but I can't think of it because I am so upset about this.

Mr. ECKHARDT. There are two possible causes of birth defects, are there not, that caused by some effect on the mother which resulted in an injury to the child in utero, and the possible birth defect that might be the result of the effect on the chromosomes of either the mother or father? Those would be the two sources of birth defects. Is that correct?

Dr. MOORE. There could be a third.

Mr. ECKHARDT. What is that?

Dr. MOORE. A direct effect on neither the mother nor the father but a direct effect on the development of the fetus.

Mr. ECKHARDT. Yes, but that would have to be somehow through an effect on the mother or the result of a blow, or something done by the mother which affected the fetus.

Dr. MOORE. That is correct.

Mr. ECKHARDT. Only the chromosome-type of injury would be related to a situation like that described in the Ryan case assuming the child was deformed as a result of the contamination suffered by the father. Is that correct?

Dr. MOORE. Yes, chromosome or genetic damage; right.

Mr. ECKHARDT. What you have discovered with respect to animals is birth defects which could have been caused in either way, but you have not found evidence at this time either that chromosome or mutagen-type injury occurred. It may occur or it may not, but you simply do not have evidence presently to show with any

degree of satisfaction that it occurs or does not occur. Is that correct?

Dr. MOORE. Yes, sir. I might expand a bit on some of the work to see whether dioxins can cause mutagenetic effects, of which chromosome damage would be one means of expression.

Dioxins are very insoluble in water. A lot of the assay systems used in the laboratories today involve an aqueous or water-based system. Indeed a lot of the compounds of the chlorinated hydrocarbons class don't work the way we would expect them to work because they are insoluble so it never gets to the target cell. One of the more notable and widely used tests is the Ames test. It is negative in that test but this may be because TCDD is insoluble and never gets to the cell.

Mr. ECKHARDT. Would that not also be true of contamination in the war zone, at least with respect to the drinking of water contaminated by agent orange?

Dr. MOORE. We would expect if one consumed water contaminated by Agent Oranage and say it is dioxin-contaminated, if there were dioxins in it they would be absorbed.

Mr. ECKHARDT. This would be the same as the laboratory test. However, the actual deposit of these dioxins by virtue of spraying which comes directly in contact with the skin might be a condition which you have not tested in the laboratory. Is that correct?

Dr. MOORE. No. Dioxin has been tested as to skin as a route of entry. We find it can gain presence into the body through the skin with as equal ease as through the intestinal tract.

Mr. ECKHARDT. To the best of your ability, then, you have applied tests in the laboratory which are similar to the tests which existed in real life, both through the imbibing of fluid such as water and direct contact with the skin. Is that right?

Dr. MOORE. Yes, sir.

Mr. RUSSO. Would the chairman yield?

Mr. ECKHARDT. Surely.

Mr. RUSSO. When you say you have made similar tests, did you do tests which dealt with males?

Dr. MOORE. I didn't hear you.

Mr. RUSSO. The test which dealt with the males where they were injected with dioxin, were they performed under the same conditions? Was it sprayed on them? Was it injected? How was that test done?

Dr. MOORE. As I recall, that was either given by stomach tube or injection. It was either one or the other. It was not by dermal application.

Mr. RUSSO. Thank you.

Mr. ECKHARDT. But there is one thing that you cannot actually simulate, and that is species. You are testing on a laboratory animal which may not respond in the same way as a human being. Mr. Russo went into that question. Therefore, it would be extremely valuable to you, and the fact that exposure has already occurred, to utilize that human laboratory by attempting to assemble the information to be obtained statistically from those exposed over a considerable period of time in Vietnam. Would that be correct?

Dr. MOORE. We would strongly endorse looking at any population exposed so we can fill in this gap.

As I said, what data we have seems to qualitatively suggest that the animal data is holding up. It is predictive. We are seeing the same types of effects.

Where we are falling down is in the quantitative sense. We cannot say that dose x produces this effect in the monkey or the rat and that dose which produce this effect in man. There is too much species variability.

Once you reach that toxic effect in a variety of species the pattern of disease seen is similar or compatible with that reported in a variety of the occupational exposures. You see chloracne, neurological effects, and so on.

Mr. ECKHARDT. Obviously persons like the Ryans would be most interested in knowing whether or not the birth defects which are caused by dioxins are caused in the utero or caused as a result of chromosomal changes, because if it was the latter there would be no problem about having further children except the risk of having the one previous experience which might indicate some chromosomal disorder beginning from another source. However, at least it would not be hanging over their heads but it seems like a much larger certainty of a birth defect. Is that correct?

Dr. MOORE. As I was listening to the testimony given this morning a question that came to my mind is that you can never prove a negative. If we had had the ability to have looked at a population and seen no evidence of chromosome effects, which we have not done in a big enough population yet, and have seen nothing, that doesn't mean that it can't happen. You cannot prove a negative.

Mr. ECKHARDT. That is correct, but either way it might come out and at least give the Ryans an opportunity to make an enlightened judgment with respect to the very desirable possibility of having another child. And it is not just the Ryans who would be affected. It would affect tens of thousands of former veterans, would it not?

I think you can be assured we will attempt to aid in every way we can to get the kind of statistical information which would be useful to the Institutes of Health.

Thank you for your presentation.

Dr. MOORE. Thank you.

Mr. ECKHARDT. Next we have Dr. Rudolf Becking.

Dr. Becking, do you swear to tell the truth, the whole truth, and nothing but the truth, so help you God?

Dr. BECKING. I do.

Mr. ECKHARDT. Identify yourself for the record.

TESTIMONY OF RUDOLF BECKING, PH. D., PROFESSOR OF NATURAL RESOURCES, HUMBOLDT STATE UNIVERSITY, ARCATA, CALIF.

Dr. BECKING. Mr. Chairman, I am Dr. Rudolf Becking. I have a Ph.D. from the University of Washington in 1954 in forest management. I am a professional registered forester in California.

I represent here Mr. Ernest D. Freeman, whom I represented in a case of herbicide spraying in the year 1976. I would like to allude to this case and to show you some slides as to what happened subsequently to this spraying.

The court case was filed in 1970. On June 1 and 2, 1970, defendants Wayne Vickers and Clarence Bugenic of the Angel Ranch

contacted William McBride, an aerial applicator for Yellow Jacket Pest Control, Inc., in the business of crop spraying and dusting.

The application was industrial brush killer, Amchem, 2 pounds of 2,4-D and 2 pounds of 2,4,5-T. Concentration was 4 to 5 gallons per acre.

The permit was secured by telephone from the Humboldt County agricultural commissioner and the spray date and time was left up to the applicator.

According to the deposition in court the spray was executed June 1 and 2 of 1970 with no accurate records available and the estimation is that the spray occurred anywhere between 6 a.m. and 9:30 a.m. on both days.

The pilot was Mr. William McBride. He had made personal observation as to wind direction and execution of the spray. He subsequently filed his report with the agricultural commissioner who makes a report to the State.

In June 1970 Mr. Freeman complained to the defendant, Mr. Vickers and Mr. Bugenic, that his property was damaged by the spray. The applicator, Mr. McBride, was familiar with the property boundaries and during his testimony he admitted that he sprayed up to the property line.

Nine months later Mr. McBride visited the spray area and noticed damage on the Freeman property. According to Mr. McBride the spray limit of spraying 10 feet above the ground had to be waived because of the steep mountainous terrain. According to Mr. McBride, the general technique of aerial applicators is to apply the spray according to contour lines. He had to dodge trees on the prairie so he must have applied the spray over 200-feet high in some cases.

I got involved in the case on August 31, 1972, when Mr. Freeman engaged my services as a professional forester to assess the damage on his property as far as forest trees were concerned. I took slides and pictures I want to show to you and I have exhibits which were the court exhibits for the case. The slides were taken in 1972, 1973, and 1974.

In 1972, I discovered that the orchard at approximately 1 mile distance of the spray area was severely damaged by the spray. I have evidence of this.

I would like to show you the slides of my findings and then further elaborate on the spray.

Mr. ECKHARDT. Would it be possible for you to state this orally if we turn the lights down a bit? It is difficult to see the slides.

Dr. BECKING. Yes. I will comment on the slides and it will not be long.

Mr. ECKHARDT. You don't need to read it?

Dr. BECKING. No. I have no script, anyway.

Mr. ECKHARDT. Let's cut the lights down somewhat.

Dr. BECKING. This is Mr. Freeman's property in the background and in the foreground is shown what was sprayed. The prairie shows a picture taken in 1972. This picture was taken in 1972 and 1973. The purpose of the picture was to show that this spraying was done to enhance the grass growth. Here is the poison oak, one of the brush pieces, flourishing following the spraying because it lacked the competition of the oak and its shade.

Other brushes are hardwood trees. The spray was not so effective here.

According to the aerial applicator the area had to be sprayed three times to be effective. Luckily that didn't happen.

This is the fence line which separates the Freeman property with the trees from the Bugenic property and the spray drifted across the fence line.

Here are the trees that are 200-feet tall. The tops are damaged, as you can see.

The hardwood trees are more severely affected. The tops are bare for 10 to 20 feet.

Here is a maple severely affected in the canyon area into where the spray drifted, presumably.

All the hardwoods have been deformed on this property as you can see on this slide.

This slide was taken in August. One of the problems is that the maples affected had a premature fall coloration of their foliage, one of the symptoms noticed on affected trees.

On the tan oak shown with Mr. Freeman we see severe bark lesions.

The necrosis could not be tied directly to the spray but all the tan oak trees in the spray zone have similar effects. The bark splits open, the cambrium dies and this affects future tree growth.

This tree has been deformed. As a result of this we can see the deformity of the tree tops.

More sensitive is the pine. Here is a Monterey pine I wanted to show you. Most Monterey pine is outright killed by the spray. This is about 1 mile from the area allegedly sprayed.

The oak and madrona fell in 1972 since the 1970 spraying.

This is the the orchard and way in the distance, is where the spraying occurred. The orchard is situated on a south-facing slope. This is where the wind usually goes up the canyon from the spray area. It has an upper and lower orchard.

I noticed in 1972 that most of the apple trees had lost their foliage. As a result of that most of the trees produced very little fruit. The fruit also was far undersized than normal, but 10 to 20 percent of the normal size. Also the trees were very unhealthy and mildew created all kinds of problems with these trees.

The apples, as you can see, are all varieties, from green to red apples to golden delicious. All the apples were far undersized.

Most interesting to me were the deformities of these apples. They were very abnormal. In many cases it appeared the embryo had split and formed two apples, as you can see here, one minute and one large.

Some of the apples were Siamese-twin types. This occurred on practically all apple trees and varieties, and to such an extent that this is not a mere coincidence. The coincidence with the spraying was all too obvious.

There is no known published data that any of the normal sprays, or diseases, or mildew, or bacteria may cause such mutants.

Although it cannot be proven by me after 5 or 10 years lapse from the spraying, I suspected particular dioxin as the damaging agent in 1972.

Plum trees, prune trees, and other trees in the orchard were also affected, particularly plum trees were often outright killed.

The other spray effect is that most plum trees were very premature in their leaf drop. They lost their foliage very early, in July, where normally they would drop their leaves at the end of September or October. Fall coloration in the middle of summer indicates that the tree is sick. You can see the plums were not developed when the fruit dropped. Sometimes. the fruit shriveled up on the tree itself.

These pictures of the apple trees were taken in August and there was a tremendous premature drop in crop. All varieties exhibited this. When the apples drop they rot rather rapidly.

The cherry trees showed similar bark lesions as was demonstrated on the tan oak. Causes of these lesions are mysterious. The bark dies back. The apple tree had the same problem, its bark splitting open and creating bark lesions. On most of the apple trees the wood started to rot and had to be cut and replaced.

In the apple trees, there is sprouting from the tree, again indicating an unhealthy condition and note, hardly any fruit on the tree.

The pear trees exhibited basal sprouting, a phenomenon of unhealthy trees.

That dioxin damage was suspected was evident to me because trees back of the orchard, maples and Douglas-firs, showed spray damage similar in symptoms to those adjacent to the property which was sprayed severely. In the background you see deformed Douglas-fir and maple trees.

Mr. Freeman has a good sense of horticulture, a good watering system in his orchard. He has given the trees the best of care.

I would now like to report further on the situation. Due to legal delays and a lot of legal maneuvering, the court case filed in 1970 went to trial August 3, 1976. This is more than 6 years later.

A jury was empaneled and upon presentation of the same evidence you saw plus testimony of chemical and timber companies and other experts the jury reached a verdict on August 16, 1976. The jury was instructed by the judge to determine first if the defendant was negligent in the application of the spray.

Second, they were to decide whether such negligence was the approximate cause for the injury demonstrated. The injury was beyond doubt.

The jury verdict was that since the applicant followed the label approved by the EPA it could not prove negligence and the case was lost.

Mr. Freeman appealed the case on November 1, 1976, through his lawyer, Robert C. Dunn. I must say Mr. Dunn had been severely ill in 1975 and unfortunately he died of a heart attack on November 16, 16 days after the appeal had been filed.

No lawyer could be found in the Humboldt County area to further prosecute the case. In February 1977 Mr. Freeman agreed on a settlement out of court, him assuming his own court costs and defendants assuming their costs. It had cost Mr. Freeman $6,000 in legal fees. One of the understanding was that the case should not be appealed.

As I was saying, there are several problems in this spraying case. Two Federal agencies are involved. One is the EPA, which licenses

use and application of pesticides and herbicides for safe use. They have not responded to correspondence regarding the toxicity of 2,4,5-T. They referred us to the Department of Agriculture in the State of California which has authority to do this.

According to my knowledge, never has there been an environmental impact statement prepared by EPA sanctioning the use of 2,4,5-T which EPA would be required to do according to the National Environment Policy Act (NEPA) of 1970.

In March of 1979 the EPA took an unprecedented first time, bold step in the history of its existence, and banned the use of 2,4,5-T. Dow Chemical Co. filed a court suit, and they lost the court case, according to my information, in June 1979 and the emergency suspension of 2,4,5-T by EPA was sustained by the court.

They are still spraying 2,4,5–T on beef grazing land and rice field. Also the use of 2,4-D is still unimpeded although under permit.

Since 1970, the herbicide spraying permit system of the Department of Agriculture in the State of California has been severely tightened on account of this court case. Because of the EPA approval of the label and no proven toxicity, a lot of 2,4,5–T has been sprayed in northern California

One notorious exemption is the U.S. Forest Service. Several national forests in northern California still apply large quantities of herbicide spraying over cutover lands to remove the unwanted brush and hardwoods and to foster conifer regeneration.

The other Federal agency involved is the Federal Aviation Administration. Many people do not realize what nearly complete control and jurisdiction the FAA has over aerial toxic spraying. They have almost absolute and complete control of spraying of poisons by airplane.

The FAA has not developed regulations on spray drift or problems, has no personnel monitoring sprays, no personnel monitoring weather conditions and wind conditions during spraying, and even written permission is usually given as a token notice by the county agricultural commission without the FAA's knowledge.

With lack of professional monitoring and checking of wind speed, and so forth, the greatest problems seem always to occur in spray drift due to lack of control and concern of the FAA. The problems of herbicide and pesticide spraying are identical in this respect. We are talking about dioxins and these have equal effects. They all affect growth, life, and they are all equally deadly.

I would suggest that the FAA revise its procedures of granting permits to seek enforcement and to revoke licenses of pilots when spray drift occurs. As a minimum, persons within 1,000 feet of the spray area must give written permission to the pilot before the aerial spraying because of the chance of spray drift.

Thousands of people are being sprayed upon without their knowledge and with no identified liability. People are organizing against spraying in Humboldt County, because we have suffered tremendous damages, like in Mr. Freeman's case. These people gave their casewide publicity and this was aired by the KRON–TV broadcast station in San Francisco. As a result of this 1-hour documentary the TV station received an unprecedented 35,000 letters related to this documentary.

Citizens Against Toxic Sprays, the CATS organized in Oregon. They brought court evidence of the miscarriage occurring within the sprayed drainage to national attention. GOATS, an other citizen organization against toxic sprays in northern California has been instrumental in fighting the U.S. Forest Service and the different timber companies in spraying timberlands with toxic sprays.

Fifteen hundred signatures have been collected against a spray program in Loudoun County in Virginia but it failed and the spray did occur.

Seven thousand signatures were collected for a public ballot vote in Mendocino County in California to ban aerial spraying by public referendum. The preliminary count of this vote taken in June is 8,644 for the ban against aerial spraying and 4,980 against, so the citizens of Mendocino County voted to ban aerial sprays within their county.

On May 21, 1979, the board of supervisors of Trinity County, adjacent to Humboldt County, took an unprecedented action and banned all aerial spraying within that county and made the permit subject not only to approval by the agricultural commissioner but also by the county health department. The county health department will not issue any more permits until it has absolute proof that 2,4,5-T (dioxin) is not endangering human health.

The U.S. Forest Service and the private timber companies and the applicators are on the other side of the fence. Literature of the last 20 years indicates none of the effects I described here and as you saw on the slides. None of these facts have been described in professional forestry literature. The facts are there and they have been demonstrated to you.

The U.S. Forest Service is still spraying. They have set more stringent rules not to spray within 100 feet from live streams, spray 10 feet above the ground even in mountainous terrain, which spraying would require the use of helicopters.

However, the Forest Service bans any observers within the spraying area. If there are trespassers on Federal or private land who want to observe the spraying they are removed by the county sheriff.

It has been reported that helicopters have had accidents. Spray booms have snapped by hitting tree tops and spray has been spilled. A truck carrying a large tank of toxic spray chemicals lost its brake and spilled its total content.

Spraying areas will affect wildlife and other, nondesignated areas have been sprayed inadvertently. Therefore, there are still numerous problems associated with this but damage is often very difficult to demonstrate. If spraying is necessary, I would say it is due to mismanagement of these timberlands by the timber operators and owners. Continued 2,4,5,-T and 2,4-D spraying will eventually endanger natural biological processes of these forest ecosystems.

There are other sprays available. There is always the alternative of manual labor which is far superior to any toxic chemical application because manual labor is usually far more effective, intelligent, selective, and it also could lessen significantly the chronic unemployment problems of the Humboldt County area.

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The economic justifications for spraying by the timber companies and Forest Service are incomplete and often twisted. Their cost of spraying reflects only the actual contract cost they pay to the spraying company to bring in the helicopter and to apply the toxins to the area. Not included in these costs are site preparation, flagging the area, administrative control and supervision, and the subsequent costly monitoring and sampling which is now required to protect the water quality of the streams within the affected areas, and other testing procedures needed for human safety and health.

If all these costs were to be added together it is doubtful that spraying under the current conditions and restrictions is even economical. Therefore, the greatest benefit for the forestry enterprise would be to abandon the spraying as a management tool. This would apply equally to pesticides as well as to herbicides.

It has always been repeated by foresters and the chemical industry in many cases that we do not have evidence or proof of any damage or toxicity. What bothered me most is the fact that there is no evidence in professional literature of damage. I found significant effects of the dioxin damage in 1972 to 1974 and even up to today, almost 10 years after the actual spraying. These effects are still exhibited today.

I have here a series of aerial pictures to show you and I have a tree from the Freeman property which will show you the effects of the spray.

Starting at the tree top, and this was cut this past Friday, this is after 5 years of growth. The tree is extended 6, 7, 8, and 9 years to 1970. There you see the deformity. The deformity lingers on for a number of years. There is no foliage on this tree toward the top.

Also there is a very premature development of cones on the tree. It continuously has produced cones every year following the spray. The effects are still clearly visible and we offered these samples to EPA but they refused to investigate and analyze the samples. We have a lot more evidence to prove what I have just stated on the Freeman property.

I will be glad to answer any questions.

Mr. ECKHARDT. Is it true that the damage to Mr. Freeman's orchard resulted from a single spraying of pesticides?

Dr. BECKING. The property was sprayed in 1969 but the applicator sprayed after the growing season so it had no effect. Mr. Freeman did not complain.

On his own accord Mr. McBride sprayed again on June 1 and 2, 1970, and he wanted to spray in 1971 but he did not do that.

Mr. ECKHARDT. And the spraying was some 2 miles away; is that right?

Dr. BECKING. The spraying was adjacent to the property and the fence line. The orchard was 1 airline-mile away from the spray zone.

Mr. ECKHARDT. One mile from the spray zone.

Dr. BECKING. Yes.

Mr. ECKHARDT. Would it be fair to say that the spraying affected Mr. Freeman's orchard for 5 years after the last spraying occurred?

Dr. BECKING. To my knowledge as a scientist, I cannot find any evidence about the half-life, longevity of dioxin into this environment.

Mr. ECKHARDT. I understand the manufacturers of these herbicides have stated that these products break down within a few weeks. Is that correct?

Dr. BECKING. This has been reported in the literature and I cannot find any explanation for deformities, birth deformities of apples, foliage, and so on, and this tree damage by any known disease or mildew or fungus except by dioxin damage. I am at a loss. I have asked the Federal agencies to test these affected tree samples. Unfortunately the apples were frozen. With the court case not appealed the apples were destroyed.

Mr. ECKHARDT. So either the spraying does so much damage at the time it occurs or else it has lingering effects which affect the trees we have seen here. Is that correct?

Dr. BECKING. Yes. When I represented Mr. Freeman, we indicated to the court that Mr. Freeman did not suffer damage because the spraying just ruined his trees. I testified that the forest growth has been deformed and retarded for at least 10 years, so Mr. Freeman had substantially lost in volume and quality growth of his tree crop due to these lingering effects of the spraying.

Mr. ECKHARDT. He lost the suit because it could not be shown that the applicator was negligent in his application of the spray. Is that correct?

Dr. BECKING. Based upon the knowledge we had in 1970—and we had very little evidence of any forest damage and about these emerging effects, the applicator in good faith applied the toxic material. However, in 1976 the jury was sufficiently educated to see these damages. Although all parties acknowledged the damage to Mr. Freeman's trees, the jury they felt the applicator applied the spray in good faith in 1970 and was therefore, not negligent.

Mr. ECKHARDT. Was the manufacturer of the herbicide joined in the suit as a defendant or not?

Dr. BECKING. Yes, with two or three experts testifying that there were no effects to the trees. The Agricultural Commissioner testified that the orchard was not sufficiently attended, not taken care of, was ridden with disease, and that it was not a place to have apples and orchards, and there was no damage to the orchard.

Mr. ECKHARDT. What commissioner?

Dr. BECKING. The Humboldt County Agricultural Commissioner is the only one who can approve spraying in Humboldt County.

Mr. ECKHARDT. He had approved the spraying and also testified against Mr. Freeman; is that right?

Dr. BECKING. That is correct. He could not produce the spraying permit either. Unfortunately the jury ignored that.

Mr. ECKHARDT. Did you observe the method—I believe you indicated in your pictures you observed the method—by which Mr. Freeman kept up his orchard?

Dr. BECKING. He had an extensive irrigation system. He had an extensive manuring system. Upon my advice Mr. Freeman is now removing the total top soil on the north orchard and has planted new trees in totally new fresh topsoil. The new trees are doing fine. The cost is horrendous.

Mr. ECKHARDT. From the information you obtained from Mr. Freeman and from the observation of the area, would you say whether or not the testimony concerning Mr. Freeman's losing his orchard because of his own failure to attend it was correct or incorrect?

Dr. BECKING. I was only testifying on behalf of Mr. Freeman and was not present throughout the total trial period or hearings. The hearing record of the trial is available—superior court case No. 51168, Eureka, Calif., 850 pages. I returned to Humboldt County only after the jury had made its verdict. It is inconceivable to me that they made that verdict. But, that is not uncommon for juries in our area, though.

Mr. ECKHARDT. Of course that would also have exonerated the chemical companies if it were found that the cause was something other than the spraying. Was any defense made in behalf of the chemical companies with respect to EPA's having approved the spray for use?

Dr. BECKING. Yes. I wrote letters to EPA asking for evidence that 2,4,5-T was safe. I have also been engaged in private correspondence as a consultant protesting the spraying of forest lands. I have received no answer except one answer from a national forest supervisor who told me my scientific knowledge was incorrect.

I invited both of the two national forest supervisors that I would buy the salad. They would spray the salad with the safe doses of 2,4,5-T, and then eat the salad themselves. I have no takers to my offer.

Mr. ECKHARDT. To your knowledge did Mr. Freeman ever receive any assistance from EPA in his attempts to determine the cost for the destruction of the orchards?

Dr. BECKING. We have not received any answer. We cannot even say we had any assistance.

Mr. ECKHARDT. Thank you very much, Dr. Becking. We appreciate your testimony.

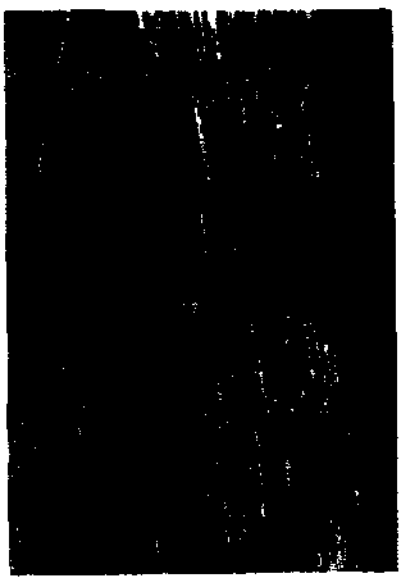
Dr. BECKING. I have some aerial photos in colors if you want to look at them.

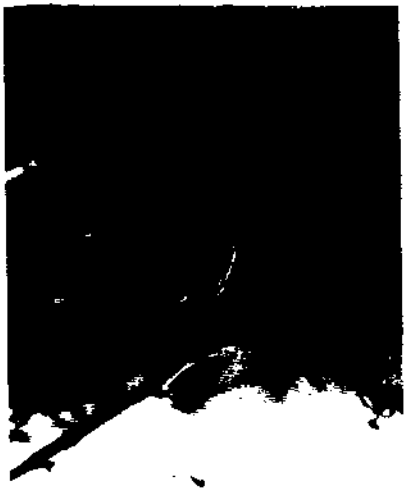
Mr. ECKHARDT. You have pictures there?

Dr. BECKING. Yes.

Mr. ECKHARDT. Without objection, the record will be kept open for what photographs might be useful in completing illustration of your testimony.

[The following photographs were received for the record:]





Dr. BECKING. Thank you very much for letting me testify. I commend your committee for looking into these matters.

Mr. ECKHARDT. Thank you.

The subcommittee will stand recessed for 10 minutes.

[Brief recess.]

Mr. ECKHARDT. The subcommittee will reconvene.

Dr. Marion Moses?

Do you swear to tell the truth, the whole truth, and nothing but the truth, so help you God?

Dr. MOSES. I do.

Mr. ECKHARDT. I am sorry to keep you waiting this long.

TESTIMONY OF MARION MOSES, M.D., ENVIRONMENTAL SCIENCES LABORATORY, MOUNT SINAI SCHOOL OF MEDICINE, CITY UNIVERSITY OF NEW YORK

Dr. MOSES. I am happy to have the opportunity to be here and I want to thank you for inviting me.

I am a physician on the staff of the Environmental Sciences Laboratory of the Mount Sinai School of Medicine in New York City. The Environmental Sciences Laboratory is under the direction of Dr. Irving J. Selikoff and has been involved in clinical investigation of occupational and environmental health problems for more than 15 years. We have recently completed a survey of workers in a plant where 2,4,5-T was manufactured and are currently planning a field survey of the health status of another group of workers involved in the manufacture of 2,4,5-T and disposal of waste products from this operation. We have also studied workers exposed to trichlorophenol.

My testimony today will concern the health effects of human exposure to a contaminant of 2,4,5-T called 2,3,7,8-tetrachlorodibenzodiosin, or TCDD. I would like to clarify that TCDD is the most toxic of the 75 different forms of compounds called dioxins. Dioxins are not manufactured per se but are undesirable and unwanted contaminants in products and intermediates made from chlorinated phenols; in the case of 2,4,5-T, trichlorophenol. 2,4,-D which is made by a different process is not contaminated with TCDD.

There are many known episodes of human illness related to the manufacture of trichlorophenol for 2,4,5-T and other uses. The first known episode was an explosion at a Monsanto plant in Nitro, W. Va., in 1949. The health survey already completed by our laboratory that was mentioned above was a study of workers in this plant.

One of the first clinical reports in the open literature of worker intoxication and illness was made in 1957 in Germany. It was also at this time that the toxic compound responsible for illness of the workers was identified as a dioxin.

The following table is a list of accidents and incidents in which human overexposure to dioxin has been known to occur:

Year	Company	Country	Source
1949	Monsanto	United States	Explosion.
1952 to 53	Boehringer	West Germany	Overexposure

Year	Company	Country	Source
1953	BASF	do	Explosion.
1953 to 71	Rhone-Poulenc	France	Overexposure.
1956	do	do	Explosion.
1956	do	do	Do.
1956	Hooker	United States	Overexposure.
1960	Diamond-Shamrock	do	Do
1963	Philips-Duphar	Holland	Explosion.
1964 to 68	Spolana	Czechoslovakia	Overexposure.
1964	Dow	United States	Do.
1968	Coalite	England	Explosion.
1971	Waste Disp. Co.	United States	Toxic Waste.
1970	Research Lab.	England	Overexposure.
1972 to 73	Chemie/Linz	Austria	Do.
1976	Givaudan	Italy	Explosion.

Some comments on the table: Our laboratory studied 233 people at the Monsanto plant in April.

The report from Diamond-Shamrock in 1964 is the first report in the American literature of any worker illness or any type of illness in human beings related to 2,4,5-T, or dioxin.

The 1963 accident in Holland demonstrated the persistence of this compound. The entire operation was shut down and they were unable to decontaminate the building. The way they solved the problem was taking it apart, embedding it in concrete, and dumping it into the Atlantic Ocean.

In 1968 Coalite Co. in England had a severe explosion and the operator was killed in that explosion. Three years later, after all operations had ceased, there was again worker illness from contacting with one of the reactors.

Most of what we know about the effects of TCDD in humans is from exposures related to the incidents mentioned above. The body systems that are affected are the skin, nervous system, liver, lipid metabolism, general metabolic state, as well as the cardiovascular system, blood-forming organs and most likely the immune system.

Chloracne, an occupationally acquired disease characterized by comedomes (blackheads), cysts, pustules, and inflammatory skin changes of varying degrees of severity, is commonly found in overexposure to TCDD. It is very refractory to treatment and may involve almost the entire body. Hyperpigmentation, darkening of the skin, and hypertrichosis, increased hairiness, may accompany the chloracne in severe cases. The chloracne usually appears within 4 to 6 weeks of exposure and in some cases may persist for many years. Chloracne can also occur in family contacts of workers who are exposed to the toxic agent and carry it home on their clothing.

Severe effects on the nervous system occur with TCDD exposure. Signs and symptoms of peripheral neuropathy have often been reported. Pain and weakness in the lower extremities often accompanied by difficulty in walking and coordinating the lower limbs are the most frequent symptoms.

Objective measures such as motor and sensory nerve conduction testing and histological examination of nerve biopsy tissue have confirmed that nerve damage exists. Diminished sense of hearing and taste have also been seen. Complaints that are consistently reported are hyperirritability, sleep disturbances, insomnia or hy-

persomnia, loss of vigor and drive, decreased libido, and in some cases impotence. Such psychiatric manifestations are frequent and often severe. "Neurasthenia" and "psychovegetative dysfunction" are terms that have been applied to this complex of signs and symptoms.

Effects on the liver range from abnormalities in liver enzymes to toxic hepatitis, to porphyria cutanea tarda; all are indicative of liver changes or damage. In the cases in which liver biopsies have been done, results have shown abnormalities. Porphyria cutanea tarda is an acquired defect in metabolism of porphyrins by the liver. It is characterized by excretion of abnormal amounts of porphyrins in the urine, skin fragility, blistering of the skin with exposure to sunlight and hyperpigmentation.

Elevated serum cholesterol and serum lipids have also been reported in these workers. The mechanism and the implications of this finding are not yet well understood. It is not known if the abnormalities in blood lipids predispose these workers to increased risk of cardiovascular disease. There is a case report of a rapidly progressive fatal atherosclerosis in a severely affected worker. Also there is a report of an excess of cardiovascular deaths in a small group of workers involved in the cleanup after the explosion in Holland in 1963.

In summary, I would like to emphasize that very few toxic substances have been shown to affect such a wide range of body systems, and nothing in the industrial environment approaches TCDD in how very little of it is biologically active. Moreover, there are numerous experimental studies that reveal significant effects on the immune system in animals. Although no findings have yet been reported in humans, such studies are in progress.

This is important in view of recent reports on defects in immunity of farmers exposed in Michigan, not only those which are infectious but also possibly more important those of a malignant nature.

Again I wish to thank you for the opportunity to testify. I will be pleased to answer any questions.

Mr. ECKHARDT. Dr. Moses, did you say that 2,4-D is what is found in agent orange?

Dr. MOSES. It is a 50–50 combination of 2,4,5-T and 2,4-D.

Mr. ECKHARDT. So if it contained only 2,4-D it would not be dangerous?

Dr. MOSES. 2,4-D is not contaminanted with TCDD but there have been effects on human beings with 2,4,-D exposure, neuropathy, nervous system changes.

Mr. ECKHARDT. But it does not contain the dioxin.

Dr. MOSES. No, it does not contain the highly toxic TCDD found in 2,4,5-T.

Mr. ECKHARDT. Therefore, you would not include those toxic effects.

Dr. MOSES. That is right.

Mr. ECKHARDT. But agent orange contains the dioxin, 2,4,5-T. Is that right?

Dr. MOSES. Yes. 2,4-D is made from dichlorophenol. There are two chlorines in that molecule. In 2,4,5-T there are three. Trichlorophenols are also used to make hexachlorophene. In fact this is

what the trichlorophenol being made in Seveso contained, and it was used in the New Jersey plants to make hexachlorophene.

Mr. ECKHARDT. Does trichlorophenol consist of three phenols?

Dr. MOSES. No.

Mr. ECKHARDT. Does it constitute chlorines?

Dr. MOSES. It is a phenol, a benzene ring. The chlorines are in the 2,4,5 position.

Mr. ECKHARDT. Those are the positions around the benzene. Is that right?

Dr. MOSES. Exactly.

Mr. ECKHARDT. Is 2,4-D also a defoliant?

Dr. MOSES. Yes.

Mr. ECKHARDT. Is it as effective as 2,4,5-T?

Dr. MOSES. It depends on the use. The Air Force people really know the answer to this question in regard to defoliation. I am sure they can answer it for you because they did a lot of experiments. That is why there are agents purple, green and pink. However, they experimented with different ones, 2,4,-D alone and 2,4,5-T combinations in Florida. They have a lot of information on this. They found the best combination for their purposes was a 50-50 combination of 2,4-D and 2,4,5-T.

Mr. ECKHARDT. Do you know whether they have been able to produce 2,4-D by this other process during the period of the Vietnam war?

Dr. MOSES. 2,4-D production was started around the same time as DDT. They both came in in the late thirties, early forties. 2,4-D is one of the oldest herbicides used in the United States.

Mr. ECKHARDT. Do you know whether or not any experimentation was done with 2,4,5-T and its content of dioxins and their effect prior to the Vietnam war?

Dr. MOSES. It was not until 1957 that it was even known there was a dioxin in the trichlorophenol which was responsible for the chloracne and illness in workers.

Mr. ECKHARDT. It was known as early as 1957?

Dr. MOSES. That was known.

Mr. ECKHARDT. And as early as 1957, 2,4-D was made by a different process, even at a considerably earlier period?

Dr. MOSES. 2,4-D has never——

Mr. ECKHARDT. That was known at that time.

Dr. MOSES. Yes.

Mr. ECKHARDT. Can you give any explanation of why 2,4-D was not used instead of agent orange, both that and 2,4,5-T?

Dr. MOSES. It is possible that at the time the 2,4,5-T was used—we were told this by the Air Force people who visited our laboratory—at the time they didn't realize the problems with 2,4,5-T and the dioxin contaminant was not considered.

Mr. ECKHARDT. Didn't you say that was known as early as 1957?

Dr. MOSES. All of these accidents that I have listed here where trichlorophenol was being manufactured are known. The actual amounts of dioxin in the final product varied tremendously, depending on the temperature of the process. Illness and toxic effects were known in 1949.

Mr. ECKHARDT. But it was known that dioxin did exist?

Dr. MOSES. That is right, since 1957.

Mr. ECKHARDT. In the compound agent orange?

Dr. MOSES. Yes.

Mr. ECKHARDT. And it was known dioxin had certain deleterious effects on humans?

Dr. MOSES. It was known that workers who worked with trichlorophenol, the manufacture of trichlorophenol, did get chloracne and other illnesses. Yes, by 1949 it was known.

Mr. ECKHARDT. Trichlorophenol is 2,4,5-T?

Dr. MOSES. One has to make trichlorophenol first and monacetic acid in another process is added to make 2,4,5-T, the herbicide.

Mr. ECKHARDT. Do you know whether it was known as early as 1957 that 2,4,5-T as opposed to trichlorophenol contained dioxins?

Dr. MOSES. It was known. It was also known how dangerous it could be.

Mr. ECKHARDT. But it was known that dioxins were deleterious to human beings.

Dr. MOSES. Yes, it was known that dioxins were responsible for adverse effects on human health since 1957. But is has been known since 1949 that toxic effects occurred but it was not known what the actual cause was.

As I stated before, there were no reports in the American literature until 1964, although there had been several prior industrial accidents as seen in the table, when the Diamond-Shamrock plant was studied by Dr. Bleiberg in New Jersey in 1964 when very severe cases of chloracne occurred. He investigated that work force and found cases of liver disease, porphyria in the workers.

That same plant was studied approximately 7 years later after which, recognizing what the problem was, some measures were taken to change the process and this same disease was not found later. Chloracne was not as severe. Porphyria was not found in the workers, however.

Mr. ECKHARDT. I thank you very much, Dr. Moses, for your testimony here today. You have been most helpful.

Dr. MOSES. Thank you.

Mr. ECKHARDT. The subcommittee is now adjourned to reconvene tomorrow morning at 10 o'clock.

[Whereupon, at 4:20 p.m., the subcommittee adjourned to reconvene at 10 a.m., in room 2141, Rayburn House Office Building.]

INVOLUNTARY EXPOSURE TO AGENT ORANGE AND OTHER TOXIC SPRAYING

WEDNESDAY, JUNE 27, 1979

HOUSE OF REPRESENTATIVES,
SUBCOMMITTEE ON OVERSIGHT AND INVESTIGATIONS,
COMMITTEE ON INTERSTATE AND FOREIGN COMMERCE,
Washington, D.C.

The subcommittee met, pursuant to notice, at 10 a.m., in room 2141, Rayburn House Office Building, Hon. Bob Eckhardt, chairman, presiding.

Mr. ECKHARDT. This morning the Subcommittee on Oversight and Investigations will hold its second hearing on involuntary exposure to dangerous herbicide and pesticide products. Yesterday the subcommittee focused primarily on 2,4,5-T or agent orange, as it was known during the Vietnam war, and the tragic effects of this poison upon people and plants who come in contact with it.

Today we will concentrate on the problem generally of involuntary exposure of persons and property to the spraying of all poisons on croplands, forests, rights-of-way, and wetlands throughout the country. We will want to determine the extent of the hazard and whether the law is adequate to safeguard the public health. We will also want to examine the manner in which the EPA and the States are handling enforcement responsibilities under existing law.

Before hearing our first witnesses, I would ask that, without objection, the record be held open to enter a statement which will be submitted by our distinguished colleague from the State of Oregon, James Weaver [see p. 134]. Congressman Weaver of Oregon and Congressman Boland of Massachusetts have expressed to me their grave concern over continued use of toxic sprays before absolute proof exists that they are safe to human exposure.

Mr. ECKHARDT. I would now ask our first panel from Scottsdale, Ariz., to step forward. Our first panel today will be Mrs. Susan Watkins and Mrs. Claude Prosnier.

Do you swear to tell the truth, the whole truth, and nothing but the truth, so help you God?

Mrs. WATKINS. I do.

Mrs. PROSNIER. I do.

Mr. ECKHARDT. Please identify yourselves for the record.

Mrs. PROSNIER. I am Mrs. Suzanne Prosnier. I live in Scottsdale, Ariz., a northeast suburb of Phoenix.

Mrs. WATKINS. I am Mrs. Watkins. I am from Scottsdale, Ariz., also.

Mr. ECKHARDT. You may proceed in whatever order you prefer.

TESTIMONY OF SUZANNE PROSNIER, SCOTTSDALE, ARIZ., AND SUSAN WATKINS, SCOTTSDALE, ARIZ.

Mrs. PROSNIER. Basically I would like to follow the written statement I submitted which covers, first of all, the illnesses that my family has suffered. Second, I would like to cover the lack of concern and lack of help that we had at a State level and the confusion that surrounds the medical situation and the lack of expertise that we have had in seeking advice with regard to the medical situation.

In September 1973 our family moved into our present home in Scottsdale, Ariz. Almost immediately we began to suffer unusual, recurring illnesses.

Our 10-month-old baby, who had previously never been ill, began to wake during the early morning hours, at about 1, 2, or 3 o'clock in the morning. He was unusually restless, writhing and thrashing about in his crib. He appeared to be very thirsty and warm and totally irritable.

During the day he was very listless, lost his appetite, and appeared generally sick. I noticed several times that the bottoms of his little feet were very red, and during the night he was often drenched in perspiration.

I took him repeatedly to a physician who could not find anything specifically wrong. The baby began to have what seemed to be repeated respiratory infections and several times had giant hives. As he learned to speak he was able to communicate to me that he frequently had bad headaches and very bad cramps in his legs.

Our 10-year-old son who shared the bedroom with the baby also was having difficulties. He complained very often of a stomach ache and had several episodes of sore throats and fevers. On two occasions he had a very frightening episode of severe chest pains and heaviness in his chest. He also experienced visual disturbances and said he felt as though the room were spinning and closing in on him. He thrashed his arms about in a strange way and was unusually restless. The following day he appeared drained and weak and felt muscle weakness.

The other members of the family, myself, my teenage son, and two teenage daughters were also experiencing a variety of uncomfortable sensations. We all developed an annoying skin rash, had frequent headaches, sore throats, and stomach aches. The girls and I had several periods of dizziness and lightheadedness and a feeling of disorientation.

On two occasions my blood pressure was elevated. At other times it was normal.

One of my daughters stopped menstruating after 3 years of having been very regular. The other daughter began to have bladder problems and severe headaches.

At one point my older son had a fever of 105 and subsequently experienced several episodes of profuse salivation, such that he had to sit with a bucket under his mouth because the saliva literally drooled into the bucket. When we took him to the doctor, we were told each time that his throat was bad and ulcerated.

We continued to experience all of these problems, off and on during the year, except for my husband.

My husband is one of those very unusually healthy people. He never had had a headache or a cold in about 25 years of marriage. He never has been ill in that time.

It is important to point this out because when we spoke to the local health authorities they continually said, "We cannot talk to you people about sickness because we don't know what your previous health experiences have been. Maybe you were sick when you moved into the area."

It is important to note that my husband never had been sick and my baby never had been sick previous to our moving there.

In 1975 I was pregnant with my sixth child. In general I was experiencing a very normal, healthy pregnancy like the other five, until early March when I began to hemmorrhage. My baby was due in mid-April, but because of the hemmorrhaging he was born 2 weeks early and he weighed only 5 pounds 11 ounces. He had to have hernia surgery and was the only one of my children who had any birth defect whatsoever.

Subsequently I have heard of other women in my neighborhood who have had the same problem, and there are birth defects. Some of the babies have been born dead, prematurely at 6, 7, or even 8 months. Many women have had early pregnancy terminations.

Another situation that alarmed us greatly, and we feel this is of major concern, is that I personally know of 10 people in our neighborhood who have died of leukemia in the past few years. We sat down at a meeting we were having and we began discussing it. We all became very alarmed because to me it does not seem normal that one individual in a certain neighborhood should know at least 10 people who have died of leukemia in the general area.

We know of several others who presently have leukemia and are on therapy for it. They also have other forms of cancer, I might add.

In our own personal situation we continued to suffer these same illnesses throughout the year and we noted times when we had house guests who also became sick. They developed headaches, sometimes vomited, developed skin rashes and sore throats.

We even had our dog poisoned in May. She had glazed eyes. Her head and four legs were paralyzed. The vet said immediately that she had been poisoned by something. We could not imagine what it was, but at this point I began to be really concerned and wondered what in the world was happening in our environment.

Was it in our water? Was it in the air? Was it something in our house? What was it? I knew there was a problem of some kind.

Also that year it appeared at the time indiscrete to discuss it, but I began to suffer from rectal bleeding. As time went on we discovered many people in our area are suffering from rectal bleeding. This is not a usual type of symptom to be suffered by young children and young adults.

Incidentally, recently a woman who called me and said her husband is dying of leukemia now told me rectal bleeding was one of his first symptoms.

In 1976 all three of our older children left the area to go to universities out of town. Their health improved dramatically. They had no more sore throats, no more stomach aches. The skin rashes were gone and they felt 100 percent better.

However, in this year my husband began to have headaches, gastrointestinal problems, and frequent chest pains. I continued to have stomach aches, gastrointestinal disorders, including increased rectal bleeding.

Our youngest baby, who had begun toddling about outside, before long was experiencing the same problems the next to the youngest had.

One day in October he suddenly collapsed in our backyard, screaming and drenched in perspiration.

I rushed him to the hospital where they asked me if he had gotten into anything poisonous. For 3 days this baby had stomach spasms about every 20 minutes, each one lasting for 2 to 3 minutes.

About a week later he had some rectal bleeding and then began coughing terribly. So did my 4-year-old. They both had hives, particularly blotches under the eyes.

We all had bad coughs and my husband had unusually bad chest pains.

During the year that followed, the little ones had repeated episodes of coughing, hives, at times waking in the early morning hours, coughing and gagging and at times vomiting in their beds.

In short our life was a nightmare. We began to talk about moving away from the area. We went to bed at night uneasy, wondering what we should do.

In 1977 the same problems began lasting throughout the year. I began to feel that there was a kind of pattern emerging in the illnesses. I began charting on the calendar when these episodes occurred. I saved the types of illnesses we were suffering and subsequently matched them closely to the types of spraying that were going on in our neighborhood.

However, at that time, I was not aware of the spraying and I didn't know to what we could attribute this.

In the spring of 1978 my 5-year-old had what appeared to be a chronic cough. We found he had pneumonia. My mother also had pneumonia and was hospitalized. Many people in our area had pneumonia, chronic bronchitis, and respiratory problems.

Others suffered operations and had parts of their lungs removed. Some families had as many as four members ill with pneumonia at the same time.

Still, in 1978, beginning on the Fourth of July weekend, our whole family became violently ill with stomach cramps, muscle pains, diarrhea, and vomiting. It lasted the whole month.

My older son who had come home from college and was working an outdoor job in the neighborhood became so ill he had to quit work.

Two young boys who were staying with us suffered the same symptoms. They had ulcerated throats, skin rashes, and diarrhea.

We went to San Diego in early August and the diarrhea stopped, the stomach cramps stopped, and we all felt fine. We arrived home on August 13 and by the 19th we were all going back to the doctor again. We noticed disagreeable odors, particularly late at night and in the early morning hours. I had noticed these bad odors previously but had not paid attention to them. Now they were so strong, it was hard to ignore them. Our neighbors also had been very ill and

the doctor had feared they had hepatitis for liver function tests showed some trouble.

Several of the neighbors had hepatitis. Several had bladder infections. Many had been hospitalized. My mother had been hospitalized.

The morning of September 11 school had started. My children were outside waiting for a ride to school. They came running back into the house crying. They said their noses were burning and they felt sick.

I went outside and my nose instantly was on fire. I could feel it choking me, a burning sensation halfway down into my chest.

The odor was so pungent that I just knew at this point it was the source of our problems.

My 5-year-old because of that exposure suffered a severe bronchial spasm which I was told was an asthma attack. It was so severe he had to have injections of epinephrine. It was one of the most terrifying experiences in my life.

That morning I discovered that the fields close to us were being sprayed with toxic chemicals.

At this point, I cannot stress enough that our local authorities were absolutely, totally ineffective and totally unconcerned for our well-being.

I called that morning on the phone every agency that I could imagine could possibly be effective in this matter. I called the State Department of Health, the county health department, the city. I tried calling the EPA in San Francisco. I called our State Air Quality Control. I got a continual passing of the buck. Each agency said call the next agency. I went full circle.

Finally a neighbor of mine said, "Why don't you call the local Scottsdale newspaper? They have had some articles about it in the paper and maybe they would be interested or give you some advice."

I did call the local Scottsdale newspaper. The young reporter was interested in my story, particularly interested in the fact that my child had a bronchial spasm. He said he had many reports of this happening.

He wrote an article about it in the paper.

Incidentally, I forgot to mention that on that particular morning there were insects dying all over my front porch. I scooped them up into a glass jar. I asked to have someone come and check the insects. I called the extension divisions of our universities, the agricultural services, the EPA people who supposedly came to town. No one ever came to check on the insects, no one. Nobody asked me to fill out a form. They were absolutely totally unconcerned and inconsiderate.

Finally I learned that the only people who supposedly had any jurisdiction over the matter were the State pesticide control board people. I called that board, explained what was happening to our family, told about my son's violent attack, and the man there asked me, "Do you put salt on your dinner table?" I said, "Yes, I do."

He asked, "Do you take aspirin?"

I said, "Occasionally."

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He said, "Lady, the stuff they are using out there isn't any more harmful than table salt or aspirin." He literally made me feel like a fool.

I subsequently made several telephone calls to a chemist that I knew, to a physician. I subsequently was referred to an emergency division of one of our local hospitals. I was told they were using organophosphate and organophosphates are toxic and are known to cause severe asthmatic attacks and all of the illnesses which I described to them.

This began a battle with the agencies. It was a question of "you people prove that you are sick."

At this point I discovered that literally thousands of people had been calling in with the same complaint, and each person was made to feel ridiculous in that he or she was the only person complaining.

In the neighborhood we began to organize. We had money raised in campaigns. We had T-shirts such as this printed up by local artists. We also gave ourselves the name "People's Environmental Organization for Pesticide Legislation and Enforcement using the initials PEOPLE." We did this to make money. We needed money to write letters to our local legislators, to publish newsletters, and try to get publicity for the problem we had.

We later printed bumper stickers which we sold. We did make a fair amount of money and we were able to start a letterwriting campaign.

We sent for information from every source we could find. We purchased every book we could get our hands on that had anything to do with pesticides, particularly the medical problems involving pesticides.

We printed flyers and called a public meeting. We had about 300 people show up at the first meeting and it mushroomed. Each person would bring 5, 6, or 10 more. We estimated roughly we were considering approximately 3,000 families in our neighborhood who were directly involved. We took a conservative estimate of four people to a family, meaning perhaps 12,000 people.

In the course of this organizing we had people contact us. They told us that as far back as 1971 they had tried to organize. They had written letters to Congressmen at that time. They had had as many as 2,000 signatures on a petition asking our local authorities to do something, and still nothing was done about it.

Eventually we had a meeting with our Governor. The Governor himself declined to take responsibility for the situation. He did call in the State health department and they had a meeting with some of the people, representatives, from our groups and other groups forming in the State.

I want to say it was not just our area involved but it turned out practically the whole southern part of Arizona, which is agricultural and mainly cotton, was affected. There were petitions coming in from all the southern areas complaining about the same problem.

Our attorney general ruled that the State health department had no authority whatsoever in this matter if it involved pesticides. The only authority came from the State pesticide control board. The State pesticide control board is a regulatory agency composed of farmers and pesticide salesmen. It was rather obvious they were

not going to be concerned, nor did they have the medical expertise to do anything about it.

One of the citizens in our area had her blood checked. This time they put an announcement in the paper. It said, in part "If you are truly poisoned by organophosphates there is a blood test that can be taken to determine this."

She had her blood checked and the doctor said, "You are right at the borderline. You are legally poisoned." She had been complaining since early August. Planes flew over her house. Toxaphene or metylparathion actually fell on her roof. She had complained at this time to local authorities and they would do nothing about it. They would not even issue a violation to the pilot.

She had proof in her hand that she had this legal poisoning. So then the mushroom started with the blood tests. The papers were saying, "If you think you have been poisoned have your blood checked."

It turned out that there are no labs in our area qualified to run these tests. She had to request hers be sent to a California lab, so it was a dilemma. People were going for blood tests. I did the same thing. I took my boy for blood tests. Then they didn't know what the level is on children.

I got all the books in the library I could find which describe the diagnosis for this type of thing. I found great contradictions.

Our State health authorities were telling us one thing. The medical school in Tucson was telling us something else. The readings coming back from the labs were contradictory, and in general there was a tremendous controversy about it.

A neighbor called the Atlanta Center for Disease Control and said, "We are in trouble in Arizona. We don't have competent people who can handle this. Can you help us?"

They sent someone to Phoenix. The first thing we knew our State health department was all involved in it again. They were handling the tests. They were passing out the forms that were to be filled out and selecting the people who were to be tested.

My family was refused at the testing center. My neighbor's daughter suffered spells of stopping breathing to the point where the ambulance had to come and get her, suffered seizures, and incidentally that is another case where we found many people who have suffered seizures, and organophosphates attack the central nervous system and they cause this type of ailment. This girl was refused at the testing center.

I believe they tested 43 people who supposedly had been exposed to the pesticides and they chose 14 people to serve as a control group. The tests were done in early October.

November came and still no results on the test.

December came, still no results on the test.

For once our Phoenix newspaper, which previously carried no news about the pesticide problem, began to pick up the story. They kept saying, "What is the mystery with the blood tests?"

People began hounding the State officials, "We want the blood test results."

Then we found out those people who had been tested were going to have to get a lawyer in order to get their own results back or to

release the information. It became the most complicated controversy I can imagine.

Mr. ECKHARDT. Who was conducting these tests?

Mrs. PROSNIER. The Atlanta Center for Disease Control was called in. There was a Dr. Glass who supposedly was heading the testing. Actually testing was turned over to our State health department. A Dr. Starco, located in Phoenix but who I believe is actually an employee of the Atlanta Center for Disease Control.

Mr. ECKHARDT. A State agency conducted the tests?

Mrs. PROSNIER. Pardon me?

Mr. ECKHARDT. Under the auspices of the State?

Mrs. PROSNIER. Of the State health department but under the auspices of the Atlanta Center for Disease. Because we did not have labs equipped for it, blood tests and urine samples were to be sent out of State. We presumed they were sent to the Atlanta Center.

They were not, and this was part of the problem. They were sent all over the country. They were sent to Iowa, subsequently supposedly the labs in Iowa broke down and they were sent to Idaho, and so on.

The blood tests finally came back and at this point we suspected some kind of conspiracy. One newspaper article said the blood tests are inconclusive, there is nothing in the test indicating people were poisoned.

On the other hand, one of the employees in our State health department said in a public meeting there is a trend to indicate people possibly have been poisoned.

At this point our group, this particular group and others, had gone to our legislature. We had said it appears that the situation is a law situation. We need a law allowing the State health department to have authority because the State pesticide control board obviously is not equipped medically to handle this situation.

Ultimately the tests came back just the day, very ironically, that the legislature was voting on the pesticide bill which was before our local house.

Our group in all instances involved accused the State health department and every authority we could think of of having withheld evidence that we felt did prove that we had been poisoned.

The legislators, on the other hand, were making the same accusations the other way because the press came out and said there isn't enough in the test to indicate there was sickness, so there were accusations on both sides that there had been some kind of contrivance to manipulate the bill in our local legislature.

As it was, our legislature is predominantly agricultural. The lobbyists were there. They paid a lot of experts to come in from out of town, from all kinds of different places, and they lobbied the legislature. Citizens were allowed very little time to make any points.

In fact, at one point in a hearing before the pesticide control board which was supposed to air the complaints of the citizens, 3 hours of testimony was devoted to paid experts who were brought in by the Arizona Cotton Growers Association, the Arizona Farm Bureau, and all the agricultural people.

After 3 hours we still had not even been able to hear any of the complaints from the citizens.

To make a long story short, I would like to come up with the fact that I do have the results of these blood tests. At this point we feel helpless because it becomes a medical problem. Our situation now is that the burden of proof has been placed on us. They tell the citizens, "You prove to us that you are sick and that these chemicals are actually the cause—we want scientific proof that this is why you are sick."

We feel we should have authorities who can do this for us, experts who should be able to do this for us. I don't believe the average citizen is supposed to have to go running about and spending as I have done a full year trying to study this problem. I assure you, I have read, as a matter of fact, in discussing this with physicians and with our State health department it became obvious to me that there is tremendous confusion in the medical profession about this type of thing.

These chemicals are so new, and the most recent ones are combinations. You can no longer say this is an organophosphate, this is a carbamate, this is a phenoxy phenol. There are combinations of all these things.

Every one of the chemical agents is mixed with some kind of a disappearing agent, aromatic solvents, emulsifiers, a variety of things. There are as many as four or five items mixed in one tank and sprayed all at one time.

In our area we are sprayed on virtually a daily basis. The month of December is about the only time they do not spray. They begin in early January on the bare ground spraying preemergence herbicides. As the crops begin to come up they spray other very selective herbicides for particular weeds.

Then as the cotton reaches a mature state they start spraying for the insects. They start with all kinds of insecticides.

Then toward the end of the growing season they spray defoliants and more herbicides.

Then the cotton is finally out by the end of November and you have sugar beets and lettuce and barley. They start the same process over again.

Believe it or not, they spray the most toxic things on lettuce. I am wondering who is eating that lettuce. The sugar beets at least are under the ground but who eats the lettuce? All those defoliants are sprayed side by side on the fields where the lettuce is growing.

There is no doubt about the toxicity of the chemicals. I have with me all kinds of charts which show that we are getting some of the most toxic. When you look at a toxicity chart, I have a long list of them, they are right at the top of the toxic list.

More important, perhaps even more than the toxicity of it, they have not fully checked the other side effects of some of the chemicals which may not be rated so high on a toxic basis.

To me this is a whole new discovery. When I was in high school I did not even have high school chemistry. I feel now I would like to study more about it. In today's age you have almost to be a chemist before you dare eat anything or do anything because everything is so contrived with these chemicals.

However, I do know that when they spray toxaphene, and in our area last year they sprayed 2½ million pounds of toxaphene, 90 percent of that is sprayed on cotton, and a major portion of the cotton is 1 block from my house. They spray practically the full 2½ million pounds in the months of June, July, and August. Therefore, for 3 months you are literally bombarded with 2½ million pounds of an extremely toxic chemical which in the last few months has made all the national headlines because it is a recognized carcinogen.

I cannot emphasize enough the danger that we are in to be subjected to this on a daily basis and the fact we are receiving no help whatsoever from our local authorities.

I brought with me a map. If that could be held up.

We conducted a survey. We tried to ask our State health department to do a survey. We asked the EPA people if they could help us. No one would do it for us.

One of our residencts, who has a Ph. D in environmental sciences, made a very scientific survey. He did seek outside help to be sure that the survey was done properly and in a scientific fashion.

We conducted a house-to-house survey on several streets which were picked at random along an approximately 7-mile strip.

Indeed we found that about 52 percent of the families have suffered not just benign symptoms but quite serious symptoms.

The survey was done only on the single-family houses. We have tremendous numbers of apartments and townhouses in this area. It is one of the fastest growing areas in the whole United States.

We feel if we surveyed the apartments and townhouses our numbers would be significantly higher.

The map of course is north at the top. To the right, of course, is east. Where that far green strip is on the right, that is the beginning of the fields. All of those red spots along the map represent the houses where we received complaints of illness.

The green strip which comes down along there to the left is a kind of wash area and a wind drift area. For years they didn't build in that area because of the wind and floods.

In 1971, after the initial complaints were made about this, the EPA did come in and check this area. They didn't have the funds to do very much about it, but they counseled one of the university extension divisions on how to do a test. They did put air monitors along this residential area and out into the fields. Indeed they identified the area which, incidentally, is only 2 blocks from me, as a danger zone.

There are grade schools all along that strip. These darkened areas are grade schools. This fall we had physical education teachers calling the State health department saying, "We cannot let the kids out on the playground. They are vomiting and getting sick. The odor is terrible and we cannot stand it. Something has to be done."

There is a community college located on the field itself. I don't know what kind of political situation was involved which caused them to build a college there in the field but it is right in the middle of the field.

The president of that college became very active in our group. He joined our group and allowed us to use the facilities there for

meetings. He subsequently, by the Governor, was appointed to refill one of the positions on the State pesticide control board which is for a public citizen. We hope he is concerned about it and possibly he can shed some new light on it. However, it is such a terrible political process to try to get anything done politically.

During the study done in 1971 the conclusion was that no planting or spraying should take place in that area because of the wind currents and the spray drifts. The northern area is a mountain area. Then there are open plains in there and we are in kind of a valley. The wind just whips down in through there and it brings all of these chemicals right over onto the houses.

There is so much to say. There is a year's study put into this. My head is so full of things. I am so afraid I will forget to say something that is vital.

Mr. GORE. Did you also survey the houses west of that green strip?

Mrs. PROSNIER. We began to have a few complaints that were up in the area just to the northwest tip where you see the dark spot. Scottsdale Road is the main street of the city. It goes north and south. There are new housing developments in that area. Once we began to get publicity and we were on television a few times we got complaints there and people saying, "We smell these odors all the way up here. This fall it was so terrible."

A woman called me who lives in one of those red dots and said, "I lost my baby 8 months along. We moved in here in August and I was pregnant. The odors made me so terribly sick. In September and October we thought we couldn't stand it. In November I miscarried my baby after 8 months and lost him."

Mr. GORE. The red dots seem to be clustered along the edge of the field.

Mrs. PROSNIER. This is where the predominance of complaints came.

Mr. GORE. That is more or less significant depending upon the extent to which you also surveyed the area to the west.

Mrs. PROSNIER. Yes. This is something which would have to be done and this is what we have asked our local——

Mr. GORE. That has not been done?

Mrs. PROSNIER. To this point it has not been done. However, it appeared that when there was publicity and we asked for comments, we passed out a number of sheets, there were mailings done, and we asked people, "If you are suffering these symptoms respond." This is where the responses came from. Therefore, we presumed people would have responded in the other areas.

Mr. GORE. The areas in the west were given the same invitation?

Mrs. PROSNIER. Not totally. It depends on how much exposure they had to the publicity. We have a problem in the area in that Scottsdale is a suburb of northeast Phoenix. We have a local paper which always has been considered rather provincial. For years we ourselves did not subscribe to it, which is the main reason I was not aware of the fact there had been spraying problems in the past. Maybe people do not subscribe to the paper. It was the only newspaper that accurately reported the events.

In the Phoenix area the papers did not cover it until we hit the health aspect of it with the blood tests and then started to pick it

up. However, it had mushroomed. It is still in process. This is something we feel needs to be done. All of us are working. We are mothers with children. We are busy. We cannot go out and do this. It took a lot of time in February to do the surveys.

I will be introducing Mrs. Watkins. I never knew Mrs. Watkins before in my life. I met her about 2 weeks ago when in corresponding with Mr. Brown we talked about letters he had received. He mentioned he had a letter from Mrs. Watkins. I didn't know who she was. I had never met her before.

After I spoke with her we realized she was one of the people who was contacted during the survey which we had and she was happy to see somebody was doing something about it.

Mr. ECKHARDT. There is a green strip to the right of the map. Is that the road?

Mrs. PROSNIER. That indicates where the fields begin.

Mr. ECKHARDT. And the fields would be off this chart generally just to the right?

Mrs. PROSNIER. Yes; to the right of that.

Mr. ECKHARDT. That is where the spraying occurred, but the drift of the wind carries it across the road into the areas you described.

Mrs. PROSNIER. Yes.

Mr. ECKHARDT. Perhaps up and down the irregular green line?

Mrs. PROSNIER. This is another problem we have, measuring the drift or getting anyone to do it for us. The gentleman who helped work up this chart and did the survey has a Ph. D. in environmental areas. He claims a 4-mile drift is not at all exaggerated. These chemicals can easily drift 4 miles.

In the research I have done and the study I have done I found this is very true.

There is an added problem particularly if herbicides are used. They are also plowing at the same time. The hydrocarbons which are in a lot of these products cling to the dust particles. Chemicals cling to the dust particles and they can be carried for miles. You can breath this into your lungs.

Mr. ECKHARDT. Has there been any testing of the ambient air over that area between the irregular green strip and the road?

Mrs. PROSNIER. In 1971 there was. This was a study which was suggested by the EPA at that time. It was conducted by a Dr. Clifford Roan who at that time was employed, I believe, by the University of Arizona in Tucson. This is the one I alluded to earlier.

At that time they made the statement that no spraying should take place in that area because on the air monitoring they classified that area as a danger zone.

Mr. ECKHARDT. I understand there was a study of drifts in 1972 in this area and a report made which stated that on November 1, 1971, this office made a study.

Mrs. PROSNIER. The study might have been completed in 1972.

Mr. ECKHARDT [reading]:

> On November 1, 1971, this office received a telephone call from the administrator of the Arizona Board of Pesticide Control advising us that he was receiving numerous complaints * * * regarding aerial application of pesticides.

The report talks about a specific incident in which parathion, toxaphene, and cryolite were sprayed. Further in the report, it

states that a "fog" comprised of "insecticidal dust together with a major component of 'traffic dust' " was over the suburban sector. Have you continued to experience these problems?

Mrs. PROSNIER. Absolutely, continually. This year we asked for air monitors. I asked whether we could have one placed in our home because the odors penetrate our houses even, particularly the defoliants. This does not surprise me because in talking with the chemist he explained to me—I believe it is the butyl essence that is in the defoliant, which has a deep penetrating quality and it will seep into things.

In October, when they were using the defoliants, at one time the odor within our house was there for 4 days. I could not believe it. When I would open bureau drawers the odor would literally just jump out of the bureau drawers and out of the closets. It stayed in the house.

At one of the pesticide hearings one of the experts that was called in by the Farm Bureau to testify had a little glass jar and he explained it was volatile. When he opened the lid you could immediately smell the odor in the room.

He tried to insinuate that the odor was what was making us ill and it was not the chemical itself. It was just the odor.

This is the attitude, this is the ploy they are trying to use now. They are saying: "If we take the odors out you people won't be sick." It is kind of: "Ha, ha, you won't know what we are spraying."

At the University of Arizona one of the people in charge of their environmental studies program said that the only safe way to use the chemical is when it does have an odor so you know you are breathing it and you have a chance to get away from it. In fact they caution you. In the newspaper they said: "If you smell these odors, mothers get your children in the house quickly. It is dangerous. It is harmful to smell it."

She said: "If you smell it you are breathing it. When you smell it you are breathing it. You are absorbing it. These things are absorbed dermally and through the lungs."

I am told some of these cause permanent damage. Paraquat can cause irreversible damage. After the damage you can do nothing.

If you are sick and vomit it is a serious problem in a hospital situation.

Mr. ECKHARDT. I understand in connection with that investigation in 1972 the researcher concluded:

> In view of the rather high acute toxicity of the nonpersistent pesticides being used it is our opinion that separation of suburban housing areas from agricultural lands, where such pesticides are used, by a country road represents questionable wisdom.

That was the conclusion?

Mrs. PROSNIER. Yes.

Mr. ECKHARDT. Was anything done about it?

Mrs. PROSNIER. Nothing was done about it. The gentleman who did this test has since moved elsewhere and nothing ever has been done. The problem continues.

In 1973 evidently there was a massive complaint, with signatures and petitions and everything else. Nothing was done.

Mr. ECKHARDT. Of course, the question of whether or not permanent damage was done to you as the result of this, whether or not

the substances have certain specific deleterious effects, seems not necessarily to control your right not to be subjected to these pesticides if you don't want to. Actually the vapors are coming onto your land in your area, and in effect it amounts to a trespass against you it would seem to me.

Also it might be subject to what we ordinarily call common law nuisances. Has any action been taken privately by the person living there to enjoin this activity which invades your property?

Mrs. PROSNIER. This is the point we have reached now. We have begun to feel that as private citizens we have no choice but to do some kind of litigation. In fact some of us have contacted lawyers. This is our next pursuit. It is perhaps the only thing we can do.

We asked the city about filing an injunction. The situation is complicated by the fact that that particular land is on Indian reservation land and they try to duck out of it by saying it is Indian land and they have no jurisdiction. However, the land is leased to major growers. One in particular is Sun Harvest.

Mr. ECKHARDT. The land you own is not Indian land?

Mrs. PROSNIER. No; it is not.

Mr. ECKHARDT. If you will excuse us a moment. We will recess the hearing so we can vote and then proceed in about 10 minutes.

[Brief recess.]

Mr. GORE [presiding]. The subcommittee will be back in order.

Mrs. Watkins, I would like to invite you to proceed and in your own words tell us about the problems you and your family have experienced.

TESTIMONY OF SUSAN WATKINS

Mrs. WATKINS. Yes; Mr. Chairman and members of the subcommittee. My name is Susan Watkins. I am from Scottsdale, Ariz. I am married and have three children.

I moved to Scottsdale 1 year ago and I live two blocks from an agricultural area that is heavily sprayed with pesticides.

To give you some idea, I live in the upper right-hand corner of this map right below the brown line which is the canal.

Mr. GORE. Where are you on this map again, Mrs. Prosnier?

Mrs. PROSNIER. Just a little bit less than halfway south. I am about 2 miles south of where Susan lives.

Mr. GORE. All right.

Mrs. PROSNIER. If you take halfway I am a little north of that.

Mr. GORE. Please proceed.

Mrs. WATKINS. What I find very interesting is the fact that I have lived there only 1 year and prior to that we had never been ill enough, the five of us, to need the services of a doctor for any illness. I didn't know there was any organization such as hers referring to Mrs. Prosnier, nor did I know her. I was surveyed by someone coming door to door.

I knew my family had a big problem, and I knew it was from the pesticide spraying. I had complained to the proper officials. I was real excited when the survey came around.

Then I received another pamphlet from Mrs. Prosnier's organization which said that you can write to your Congressman for help. That is what I did.

I wrote to Mr. Brown and explained to him the health problems we have had in 1 year's time when we never have had any before.

I will start with my son, who was 2 weeks old when we moved in 1 year ago this month. He was born perfectly healthy. We were released 6 hours after his birth and neither of us had any problems. We then went home.

When we got settled into our new home he became ill shortly thereafter. He had violent vomiting. It was projectile and would go almost to the edge of this table, 3 feet. He couldn't eat and I was nursing him.

He had violent stomach cramps and a hoarse cough. While he was still ill we were required to move to Dallas for a computer training school. We lived there for 1 month. While we were there he recovered and I had no problems with him the whole time we were there.

Upon returning home we were there maybe 2 weeks, and he started having all these same symptoms again.

During the rest of the year he had stomach cramps, fever, congestion, labored and shallow breathing, and he was diagnosed as being asthmatic or as being bronchitis. I wore out a humidifier in his nursery and had to buy another one in one winter.

Then in February of this year it became very serious. His temperatures were up as high as 107°. He got a glazed look in his eyes with a blank stare. Then his body would stiffen out and he quit breathing. This happened on two occasions.

I took him to the doctor and they diagnosed it as abortive seizures. The doctors were very concerned that this might happen again. Before I could leave their offices, they taught me artificial respiration, things to do to revive him in case he could not come out of these attacks, like slapping him or shaking him real hard. This is very traumatic for me and my husband. I spent night after night watching him because his breathing was so labored.

They suggested that if it didn't clear up soon he would have to be hospitalized. He would be better off at home with me since I was nursing him if I wanted to keep the pace of giving him medication every 4 hours around the clock, which I did because I didn't want to put him in a hospital.

During the first year he had two X-rays. He broke out into a skin rash three times. He was almost hospitalized twice.

With a young child you would say—well, maybe he was born with these problems because he has no medical history. He lived in Scottsdale almost from the day he was born. However, he was so young and I feel he was really susceptible, more than we were, because his body couldn't handle the situation.

I thought well, maybe it would be from birth—except that it affected all of us. The other four of us were never ill before.

My daughter is 10 years old. All of a sudden she started having recurring chest pains, severe chest pains. She would be laying on the couch watching TV and she couldn't get up. She would cry and moan in her sleep at night. I would hear her and she wouldn't even know she was doing it, it was bothering her so much.

On several occasions I had to write to the school asking them to limit her participation in physical education classes because I was

afraid and didn't know for sure what the problem was or how serious it could be.

I took her to the doctor and he ran chest X-rays on her but no diagnosis was made.

Then we started having problems with blood in her stool for no reason. She had a knot in her intestines. She started having sore throats, stomach cramps, diarrhea, and had nosebleeds. She had irritated eyes. On several occasions she left school riding her bicycle only to return home 5 minutes later walking the bike because she couldn't see where she was going.

Another daughter aged 9 who also was healthy in the past had several bouts with stomach cramps and vomiting along with headaches. She had two cases of flu this year. She has had a croupy cough and sore throats, and occasionally nosebleeds. She has not had as many nosebleeds as her older sister. The oldest has the most but they are both experiencing nosebleeds which they never had before.

My husband and I have had frequent headaches and congestion, sore muscles, diarrhea, stomach cramps, and excess mucous. We seem to have these attacks all at once so I have to take care of the rest of the family, being sick myself.

I have a close girlfriend who lives 2 miles south of me, probably in Suzanne's area. She is my age, 32 years old. I think for being such a young person she has experienced a lot of health problems as well. She has had two miscarriages and a premature birth. She was hospitalized for a viral infection because her body resistance was so low and she started having serious complications.

After her hospitalization, about 8 months later, she suffered severe chest pains and her chest X-rays revealed a nodule in her lung. They diagnosed it as valley fever. The nodule grew and started rubbing the lining of her lung. Early this year she had major surgery to remove part of her lung.

Also her children went to the doctor for unexplained rashes. They just don't know what the rashes are from.

During her illness I felt I should have a chest X-ray done for my own peace of mind just to see whether I was all right. I was shocked to learn they discovered a nodule on my lung as well.

They diagnosed this as being valley fever. They ran three tests—one to see if I had it, if I was getting it, or if I ever had it. They were all negative so that was not my problem.

We're watching this. I am being X-rayed every 2 months to see whether there is any change. I am happy to say the last X-ray I had shows little white spots on the nodule which are signs of calcium deposits, so my body is correcting it hopefully.

Medical problems are my biggest concern, but there are also others. The smell of the air—you cannot stand to breath. You have to keep your doors and windows closed up no matter how nice the weather is. I am not used to that. I have always been able to open the windows and just smell the air.

I go to Scottsdale Community College, which is the college they spoke of surrounded by the fields. I go to night school. If there is a recent application of pesticides where you would like to go outdoors and have a break from class and breath fresh air you cannot go outdoors. You feel it on your clothing and feel uncomfortable.

Mr. GORE. I would ask your patience once again. We have another vote on the floor. I think this recess will be about half as long as the last one because the chairman is on his way back from the floor.

We will stand in recess for about 5 minutes.

[Brief recess.]

Mr. ECKHARDT. Mrs. Watkins, you may proceed.

Mrs. WATKINS. Thank you. I was discussing my going to the community college where we could not breath the air. I feel as though if you are going to go to school to get an education and they are spraying chemicals on you at the same time that may cause permanent damage to your health 10 or 20 years from now, they find out, it will be of little use to have an education.

I complained to the proper officials in the area. Two of their remarks stick in my mind. One, "It's Indian land and out of our jurisdiction."

Two, to remember that the worse the smell the safer it is for you. That wasn't very consoling to me.

They went further to explain they were being bombarded with phone calls about the smell. They said they were considering asking the sprayers to use chemicals with no smell or remove the smell altogether.

What good will that do? So we won't smell it, it doesn't mean we won't have the problem.

Mr. ECKHARDT. If you could remove the smell from gas and let it escape in your house you would not be bothered by the conscious odor of gas.

Mrs. WATKINS. Isn't that nice?

So then, on another occasion, I complained to them of a crop duster flying over my home. They were more cooperative with that because they said that wouldn't be allowed. I have not experienced that since my complaint.

They have always been nice to me in explaining where they are spraying, which fields they are spraying, and what chemicals they are using. However, their hands seem to be tied as far as correcting the situation is concerned. That doesn't get rid of the illnesses or the smell. They are just telling you, "Well, it is right here or there and this is what we are using."

What I am hoping is that my information will be beneficially used to help stop this spraying close to a residential area. With the recent publicity in Scottsdale about the smell and all the illnesses it is very possible it will affect the selling price of my home or, if I can sell it at all, our health problems are still there, of course. With the continued medical problems, if we continue to experience these severe problems, or if my baby comes down with another attack like he has had and we are afraid for his life, you know we will have to move. I cannot stay there.

With the higher interest rates in Phoenix, where we would move to, the higher home prices, the moving costs, and all the medical bills, you can see it has been a very expensive problem for us. We just want to breath some fresh air and go back to being a "no doctor family."

Mr. ECKHARDT. What is this about Indian lands? You don't live on Indian lands.

Mrs. WATKINS. No.

Mr. ECKHARDT. These are Indian lands being cultivated? Is there a contention that the State has no jurisdiction with respect to controlling spraying over Indian lands?

Mrs. WATKINS. That is what I gathered from what they told me, yes, that land was the Indians and therefore they could do nothing about it.

My personal feelings are that the land is being rented by our people and the chemicals are being purchased from our people. The Indians don't make those chemicals and the Indians are not the ones cultivating that land. How can they say, "We have no control over it."?

Mr. ECKHARDT. That is my immediate impression, that they are incorrect about that. We will leave the record open at this point, without objection, to check that proposition. It would appear to me that the State does have control over the activities of its citizens within its sovereignty.

Mrs. WATKINS. Right, they should have control over them.

Mr. ECKHARDT. And it seems the Federal Government could control activities over the Indian lands because of that relationship. However, I can see no reason why the State would be blocked from doing it. However, we will check that question and the record will be left open.

[The following memorandum was subsequently received for the record:]

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON D.C. 20460

NOV 16 1979

OFFICE OF
GENERAL COUNSEL

MEMORANDUM

FROM: John W. O'Donnell
Pesticides Division (A-132)

THRU: David E. Menotti
Associate General Counsel
Pesticides Division (A-132)

TO: Richard D. Wilson
Deputy Assistant Administrator
for General Enforcement (EN-339)

INTRODUCTION:

The State of Arizona has asserted jurisdiction to enforce state pesticide use laws over non-Indian applicators applying pesticides on land within the boundaries of the Salt River Indian Reservation. This assertion has been disputed by the Pima-Maricopa Indian Tribe, owners of the land within the reservation. The Tribe adopted a tribal pesticide use ordinance on August 29, 1979. You have asked for an opinion on the question of state and federal jurisdiction over pesticide use violations occurring on Indian reservations in general and on the Salt River Reservation in particular.

QUESTIONS:

1. Does the State of Arizona have jurisdiction to regulate the use of pesticides by non-Indians on the Salt River Indian Reservation even though the Pima-Maricopa Indian Tribe has enacted its own pesticide use ordinance?

2. When does the state or federal government have jurisdiction over pesticide use violations occurring on Indian reservations?

CONCLUSIONS:

1. By enacting a comprehensive pesticide use ordinance, the Pima-Maricopa Indian Tribe has assumed jurisdiction for the control of pesticide use on the Salt River Indian Reservation. Authority to pass and to enforce a tribal ordinance of this type is inherent in the Tribe's right to self-government. The Pima-Maricopa Tribe has jurisdiction to invoke civil and criminal penalties for Indian applicators and civil penalties for non-Indian applicators.

2. State regulatory authority over pesticide use on Indian reservations ceases when the tribal government enacts pesticide use ordinances or otherwise takes action to control pesticide use on the reservation. Tribal civil regulatory authority extends to Indians and non-Indians alike.

DISCUSSION:

1. Absent specific federal legislation, a State has regulatory jurisdiction over activities on Indian reservations only when the State action does not infringe on the tribe's inherent right to self-government. Williams v. Lee, 358 U.S. 217 (1959); Bryan v. Itasca County, 426 U.S. 373 (1976). Given this general principle of Indian law, it is apparent that the State of Arizona would have jurisdiction over non-Indian pesticide applicators on the Salt River Indian Reservation only if the Pima-Maricopa tribe had not initiated tribal action to control pesticide use. Once the tribe acted, by enacting its own pesticide use ordinance, it acquired jurisdiction over both Indian and non-Indian applicators on the reservation. The actual type of regulatory activity that was needed to vest jurisdiction in the Tribe is uncertain, but enactment of a tribal ordinance was clearly enough. Confederated Tribes of the Colville Indian Reservation v. Washington, 446 F. Supp. 1339 (E.D. Wash. 1979) cert. granted, _____ U.S. _____, 99 S.Ct. 1210 (1979).

The Pima-Maricopa tribal ordinance is a comprehensive pesticide use law, including enforcement, licensing, record-keeping, and registration provisions. The Tribe assumes responsibility for licensing applicators, enforcing pesticide use regulations, and assessing penalties for use violations.

We think an EPA failure to recognize the Tribe's authority to adopt and enforce a basic environmental protection ordinance would result in the "undermining or destruction of such tribal governments as did exist and a conversion of the affected tribes into little more than private voluntary organizations, U.S. v. Mazurie, 419 U.S. 544, 557 (1975)--a possible result if tribal governments and reservation Indians were subordinated to the full panoply of civil regulatory powers . . . of state and local governments." Bryan v. Itasca County, supra, at 388; see also, Bryan, note 14 at 388.

2. Indian reservations in the United States, with few exceptions, were created by federal rather than State law. In establishing the reservations, the federal government sought to maintain "the right to reservation Indians to make their own laws and be ruled by them." Worcester v. Georgia, 6 Pet. 515, 8 L.Ed. 483 (1832). An individual State's jurisdiction over a reservation within the State's borders is therefore limited. The general test for determining whether State or Indian tribal jurisdiction will apply to reservation activity was stated in Williams v. Lee, 358 U.S. 217 (1959). In the absence of specific federal legislation, a State may exercise jurisdiction on an Indian reservation only when such jurisdiction does not infringe on the tribal right to self-government. Williams v. Lee, supra, at 220. The Supreme Court has not yet clearly defined what State action constitutes "infringement." The primary consideration, however, seems to be whether or not the tribal government has enacted a tribal ordinance concerning the activity over which the State asserts jurisdiction. Confederated Tribes of the Colville Indian Reservation v. Washington, 446 F. Supp. 1339 (1978), cert. granted ____ U.S. ____, 99 S.Ct. 1210 (1979). 1/ Recently, the Supreme Court reaffirmed a tribe's inherent right to self-government in civil regulatory matters. Bryan v. Itasca County, 426 U.S. 373 (1976). The Court noted in the legislative history of "Public Law 280," an Act allowing States to assume jurisdiction over Indian reservations under

1/ Oral arguments on this case were held on October 9, 1979. Case 78-630.

certain conditions, 2/ "the absence of anything remotely resembling an intention to confer general state civil regulatory control over Indian reservations." Bryan v. Itasca County, supra at 384.

Jurisdiction over activity on Indian reservations is now split between the State and the tribal government. Civil and criminal jurisdiction over Indian activity on reservations is clearly in the hands of the tribal governments. 18 U.S.C. §1152; Ex Parte Crow Dog, 109 U.S. 556 (1883); Fisher v. District Court of Montana, 424 U.S. 382 (1976). It is equally clear that tribal courts do not have inherent authority to try and to punish non-Indians for criminal activity on reservations. Oliphant v. Squamish Indian Tribe, 435 U.S. 191 (1978). Difficult jurisdictional questions arise in the area of non-Indian activity on reservations. Courts have upheld state civil jurisdiction in a number of instances, Confederated Tribes of Colville Indian Reservation v. Washington, supra; Moe v. Salish & Kootenai Tribes, 425 U.S. 463 (1976); Fort Mojave Tribe v. San Bernadino County, 543 F.2d 1253 (1976), cert. denied, 430 U.S. 983 (1977). In other instances, however, courts recognized tribal civil jurisdiction. McClanahan v. Arizona State Tax Commission, 411 U.S. 164 (1973); Confederated Tribes of Colville Indians Res. v. Washington, supra; Moe v. Salish & Kootenai Tribes, supra. This split in authority is especially pronounced in the regulation of non-Indian hunting and fishing on reservations. No consensus exists on whether fish and game regulations are within the power of the State, Confederated Tribes of Colville Indian Res. v. Washington, 591 F.2d 89 (1979); U.S. v. Sanford, 547 F.2d 1085 (1976); Sac. & Fox v. Licklider, 576 F.2d 145 (1978), or are inherent in the tribal right to self-government, Cherokee v. North Carolina 588 F.2d 75 (1978); Mescalero Apache Tribe v. New Mexico, No. 77-395-M. Civil (D.N.M..

2/ Public Law 280, 67 St. 588, passed in 1953, specifically addressed the question of criminal and civil jurisdiction on Indian reservations. 25 U.S.C. §§ 1321-1326. This Act authorized certain States to assume criminal and civil jurisdiction over both Indian and non-Indian activity on reservations located within the States' borders. The Civil Rights Act of 1968, 82 Stat. 78, amended this procedure to require that affected tribes consent by referendum to the State's assumption of jurisdiction. Failure of either the State or the tribe to follow this procedure prevents the State from assuming jurisdiction. Kennerly v. District Court of Montana, 400 U.S. 423 (1971).

August 2, 1978). 3/ In most civil regulatory areas, no agreement is yet present on what regulatory powers are inherent in tribal self-government. Case-by-case analysis seems to be the rule. 4/

Among the regulatory powers tribes may wish to exercise are those concerning environmental protection. The Federal Insecticide, Fungicide and Rodenticide Act (FIFRA), 7 U.S.C. §136, specifically recognizes Indian tribes as partners with EPA in a joint effort to control pesticide use on Indian reservations. Section 23 of FIFRA, 7 U.S.C. §136(u), authorizes the EPA Administrator to enter into cooperative agreements and contracts with tribes to develop training, licensing, and enforcement programs. 5/ The federal-tribe programs would not, however, be identical to federal-state agreements. Most, if not all, Indian plans, for example, propose using State extension services for the training components of their

3/ The conflicting regulatory interests of the State and the tribe are perhaps best illustrated by the case of the Quechan Tribe. In one instance, a federal court recognized the tribe's inherent authority over non-members of the tribe who enter the reservation to hunt or fish. Quechan Tribe v. Rowe, 531 F. 2d 408 (1976). Two years later, however, the same court upheld the applicability of certain state fish and game regulations to non-members on the Quechan reservation. California v. Quechan Tribe, 424 F.Supp. 969 (1977), vacated on other grounds, 595 F.2d 1153 (1979). See also, U.S. v. Montana, Nos. 78-2917, 78-2865 (9th Cir. June 12, 1979), 6 ILR D-43.

4/ The decision in Confederated Tribes of Colville Indian Reservation v. Washington, supra, currently on appeal in the Supreme Court, may provide a better understanding of exactly what authority is inherent in tribal governments. In that case, the Ninth Circuit Court of Appeals held certain state taxes inapplicable on an Indian reservation where the tribe had enacted analogous tribal ordinances. The case was argued on October 9, 1979.

5/ Regulations allowing Indian tribes to submit cooperative agreement plans were promulgated by EPA in 1975, 40 F.R. 11704, before Indian tribes were mentioned in the Act. The FIFRA Amendments of 1978, P.L. 95-396, amended the Act to specifically include Indian tribes as well as States in Section 23.

plans. Both tribal and State applicators can be trained with the same courses, and independent tribal training programs would be obvious redundancies. Tribal governments also have two options for certifying registered use pesticide applicators. A tribe can develop and require a separate tribal certification procedure, or it can simply accept State certification as automatic tribal certification. 40 CFR §171.10(a). This is analogous to a State's ability to accept another State's certification as valid for its own program. 40 CFR §171.8(e)(6). The major difference, however, between State and Indian tribe plans concerns use of criminal penalties for violations by non-Indians. Under the holding of Oliphant v. Squamish Indian Tribe, supra, a tribe has no criminal jurisdiction over non-Indians. This limitation poses serious problems for any tribe contemplating criminal penalties for non-Indian applicators. The EPA Administrator can, of course, invoke any of the listed penalties for FIFRA violators, 7 U.S.C. §136(l), but tribal enforcement authority over non-Indians is limited to civil penalties.

Even in those cases where a tribe has enacted pesticide use ordinances and thereby acquired jurisdiction over applicators, the State may still exercise a form of administrative control over applicators on the reservation. If the tribe uses State certification procedures in its program rather than separate tribal certification, 40 CFR §171.10(a)(1), State "control" in the form of certificate renewal, revocation, and so forth, will continue, even for those applicators, Indian and non-Indian, working on reservations. This situation will not exist on those reservations where the tribe adopts its own certification program. 40 CFR §171.10(a)(2).

In contrast to EPA's role under a State-federal cooperative enforcement agreement, the federal government theoretically will have a larger role in pesticide use enforcement activities on Indian reservations. In a joint State-federal control program, both the State and the EPA can invoke civil or criminal penalties for any applicator. 6/ Under a tribe-federal cooperative agreement, however, because of a tribe's inability to try non-Indians for criminal offenses, Oliphant v. Squamish Indian Tribe, supra, EPA will have the responsibility for any enforcement involving FIFRA's criminal penalties over non-Indians on reservations. The tribe will be able to invoke criminal and civil penalties for Indian applicators and civil penalties for non-Indian applicators. Given the relatively infrequent use of criminal penalties, the practical effect of this split in jurisdiction is unclear, but EPA enforcement staff should be aware of the limitation.

6/ The respective enforcement roles of the State and EPA will be affected by section 26 of FIFRA - primary enforcement responsibility, 7 U.S.C. §136(w-1). Although this section of the Act does not specifically mention Indian tribes, we believe it would be a wise policy decision if EPA were to recognize primary enforcement responsibility in Indian tribes which meet the section 26 requirements.

Mrs. PROSNIER. This is one of the problems we had. The information they gave her was that it was an Indian problem. Originally they tried to tell me that. I got into my truck and drove onto the reservation one day and spoke to the assistant tribal chief, Mr. Hershel Andrews.

He said as far as what goes on out here—

Yes, as far as the contracts and to whom we will lease the land, that is our jurisdiction. When it comes to the pesticides it is out of our hands.

He told me—

We can't even call down one of the fliers. If we feel one of the applicators is doing something wrong we cannot stop them. We have no jurisdiction when it comes to the pesticide application.

He said it rests solely with the State pesticide control board.

Mr. ECKHARDT. It would appear to me he has more awareness with respect to the law than the State authorities. Maybe they ought to get advice from the Indian chief.

Mrs. PROSNIER. This was the Indian chief's statement also, that as far as pesticides are concerned that is the story.

The Indians had a meeting this year and invited the State pesticide control board. They decided, the Indians did, that they would impose their own law as far as requiring a license to fly over their land on the crop dusting, so any of the pilots who do the crop dusting in that area need not only a State license but they would have to secure a license from the Indian tribe. In this way the Indians could then go out and stop them if they wanted to.

Frankly, I feel that was just something that they could put in the paper to make it appear they are trying to solve the situation because they are not going to stop them any more than the State pesticide control board did.

There have been several violations of their flying over the houses, even dropping chemicals on them.

One lady testified they dropped right on her house. They have issued no violations.

We asked that at the hearing—"Have you issued violations?" They issued one violation because the man did not get the proper insurance policy.

Mr. ECKHARDT. Did I understand you to say in your original testimony that some kinds of tests were afforded? By whom was it? Was that the State pesticide control board?

Mrs. PROSNIER. The last test, the health test?

Mr. ECKHARDT. Yes.

Mrs. PROSNIER. They were conducted by the State health department through the auspices of the Atlanta Disease Control Board. When the report came back the EPA evidently had labs they recommend for testing. One of them is in Iowa. They did some at a local lab and then they sent some to Iowa.

The idea was to have a cross-check, compare the tests done in Iowa with the local labs to see whether the local labs were qualified to run these types of tests.

The lab in Iowa evidently broke down and it was subsequently shipped to Idaho. Everything I have read said that time is of the essence in these things. It has to be done immediately. You cannot ship this stuff all over the country. There are certain procedures

that must be followed, a certain protocol in the testing process. It seems to me it was violated in the first place.

At this point I don't trust the EPA to handle the test. I don't think the Atlanta Disease Control Board did a good job. Our local health officials are totally lost. They admitted they don't have the information and don't know what to do.

The tests that came back, it is important to note, in the research I have done there is a level, a kind of base number that you can gauge as being normal. If you use the same consistent test—there are about four different ways of testing—the thing that was significant when the results came back is that the control group, the 14 people who supposedly were unexposed, had a consistent 0.72 level, blood level.

The people who were exposed had levels, one all the way down to 0.43. Anything 0.5 or below is considered poisoned. Yet they said there was nothing in the test to indicate poisoning. I cannot understand their reasoning.

[See letter dated July 16, 1979, from Mrs. Prosnier, p. 114.]

Mr. ECKHARDT. I understood you to say at one point that you could not join the test, they excluded you from the test?

Mrs. PROSNIER. That is correct.

Mr. ECKHARDT. If they were doing a controlled group study that is understandable with respect to the method in which they were attempting to make the test. However, how about a person who wanted to be tested to find out personally whether they have been subjected to danger? Is there a process by which you can do that without joining the controlled group?

Mrs. PROSNIER. That testing has been finished. As I understand it, it was funded by the Atlanta Disease Control Board. This is the reason they turned people away. They had limited funds to do the testing. When they reached their quota they turned everyone else away.

If you go by yourself to get a test, which I did for my son, it costs $39.

Mr. ECKHARDT. I see. That clears up another point for me because you said you had been turned down with respect to testing but then you said some testing had occurred.

I understand that now. You can do that at your own expense?

Mrs. PROSNIER. You can do it at your own cost. It costs $39 just for the blood test.

Mr. ECKHARDT. If you do that you can get the results of the test back for yourself, can you not?

Mrs. PROSNIER. If you can find a reliable lab to do it.

Mr. ECKHARDT. Pardon me?

Mrs. PROSNIER. If you can find a reliable laboratory to do it. It is a problem.

Mr. ECKHARDT. Who were the people who were not able to get back the results of their own tests? Is that the group that was in the controlled testing group?

Mrs. PROSNIER. Everyone who was tested. There were supposedly 14 control people. They were selected by the State health department. They were supposedly people who had not been exposed to pesticides.

The other people tested, I believe there were 33 or it might have been 43, I am not sure, they were people who lived in the area who had complained of symptoms.

Mr. ECKHARDT. They volunteered for the test?

Mrs. PROSNIER. Yes.

Mr. ECKHARDT. Were they permitted to see the results of the test?

Mrs. PROSNIER. They did not get the results back until late March. At one point when they tried to ask, there was a question about having to have a lawyer to get the test released.

Mr. ECKHARDT. They finally did get them?

Mrs. PROSNIER. Yes. By then the legislature had ended. We couldn't use the proof. As I say, one woman's level was 0.43. That is very low. That woman had a seizure. The State health department tried to tell us, "We won't count that one because she had a seizure."

We said, "That is what we are trying to tell you. People are getting sick and getting seizures."

Mrs. Watkins' baby had seizures. Our neighbor's daughter had seizures. They had to move because of it.

Mr. ECKHARDT. Let me see whether I can clarify this. Did they get the test results back prior to the time the legislature acted or afterward?

Mrs. PROSNIER. We have no way of knowing that. We don't know when they actually received them. That is when they released them.

Mr. ECKHARDT. Were the results of the test to the 34 people——

Mrs. PROSNIER. Yes.

Mr. ECKHARDT. Were they available to those people before the legislature acted or after?

Mrs. PROSNIER. I am not absolutely positive of the date.

Mr. ECKHARDT. At any rate it was about simultaneous, about the same time?

Mrs. PROSNIER. Yes.

Mr. ECKHARDT. There was no time for them to go back and say, "These tests were wrongly taken. We have some evidence."

Mrs. PROSNIER. That is right. When they got the test they got no—what shall I say—summary explaining what the test results would be. The average person would not understand what it meant, anyway.

It took a lot of research. At this point we are checking with medical doctors. As recently as last week there was a pesticide seminar put on by the environmental division of one of our local universities. It was supposed to be for professional people.

I was invited to be there by the head of nursing from one of our hospitals who received the invitation. She said, "Why not go in my place because I know you are concerned about this?"

It was obvious to me that the doctor who was giving the presentation, I asked him—"What would you consider a safe cholinesterase level?"

It was obvious he could not answer.

I asked, "What methods do you use?" He didn't know that, either.

Mr. ECKHARDT. I have a document here with regard to long periods of insecticide exposure and then partial exposure. Is that what your organization put out?

Mrs. PROSNIER. Yes.

Mr. ECKHARDT. What were the sources of information with respect to the medical complexities of pesticides?

Mrs. PROSNIER. I personally put that together. I had gone to the library and spent hours and hours and copied things from medical textbooks.

Mr. ECKHARDT. The same was true of the long-term effects of pesticide exposure?

Mrs. PROSNIER. That was taken from a Dr. Michael Hartgraves who had done research in linking this to cancer and leukemia.

Mr. ECKHARDT. The golden rod color sheet added which gives dates of various chemicals used for spraying, this was also prepared by you?

Mrs. PROSNIER. Yes, with great difficulty because at that time they were reluctant to release the information as to what the spraying was. At one of the hearings we asked them please to provide us with a list of what had been sprayed. They did not do so, so subsequently I went down in person to the State pesticide control board and found out that their records were a mumbo-jumbo of nonsense. Then I understood why they didn't provide me with it because it took me weeks and weeks and weeks to sit and go through their records to secure this information.

I subsequently discovered this was only partial information. They were still hiding things from me.

Mr. ECKHARDT. But at any rate you ultimately got the information about spraying on January 22 on spray containing urea, on February 2 Banvel, February 14, Banvel. You got all that information from there. Is that right?

Mrs. PROSNIER. The State pesticide control board since improved their records. They file each spraying on individual sheets, giving the location, field number, and the EPA asked them to do that.

Mr. ECKHARDT. This is not the State's sheet here but you did add onto that sheet a little drawing with some lettering on it, and so forth, that the State Industrial Commission of Arizona puts out. You just added that to it?

Mrs. PROSNIER. The day I went to the State pesticide control board to secure the sprayings I found this little booklet that they print. They give it to their applicators and flagmen. It says, "Look out for yourself when you are around crop spraying."

Here this man is telling me it is no more harmful than table salt. It is full of drawings of people in hospitals, watch out for your lungs, this can kill you, this is harmful, and wear respirators and proper clothing. It is full of childish-like cartoons. Wash your cloths. If you get this on them put them in a plastic bag and throw them away.

Then the last page has a picture of a doctor saying:

> Just because you don't feel the effect of small doses, don't think everything is all right. Repeated doses of some of these poisons may accumulate until one small dose may harm you seriously.

When I began——

Mr. ECKHARDT. It seems what they ought to put here from what they told you is, "Just because you do feel the effects of small doses don't think anything is wrong." That is apparently what they were telling you.

Mrs. PROSNIER. Yes. They left out the last part.

Mr. ECKHARDT. Without objection, the document which has been identified and referred to will be admitted in the record at this point.

[See letter dated July 16, 1979, from Mrs. Prosnier, p. 114.]

Mr. ECKHARDT. Mr. GORE?

Mr. Gore. I would like to thank both of the witnesses for telling us about these difficulties. I find both of these statements very troubling.

Since World War II we have learned how to make use of these insecticides and things the human body cannot absorb. The difficulty is drawing the line between herbicides, pesticides, and "peoplecides." Where you have a residential community right next to an area which is sprayed with massive doses over a long period of time and repeatedly it is not surprising, I imagine, that problems of this kind show up, but the remedy is something else again.

I take it that you have been very frustrated in your efforts to get health authorities to respond in any way. Is that correct?

Mrs. PROSNIER. That is correct.

Mrs. WATKINS. Yes.

Mr. GORE. What advice would you have for people in some other community in the United States who come up against this problem? What would you tell the mother of a family who has a problem such as this? Where do they start? What would you tell that person to do?

Mrs. PROSNIER. I would suggest first that they move and not become entrenched.

Where we are, one of the women from one of the papers asked me recently why we didn't move. I said it is difficult to do when you have lived in an area for awhile.

You attend the church you like, your children are happy in their schools, and you like your home. It is a difficult decision to move emotionally as well as financially.

I would say before you ever begin, when you see the first symptoms, if there is spraying, get out. Just stay away from it. If there is no way you can avoid it at this point I believe probably the only thing to do is litigation. Even now, as I say, that is costly.

My own question is: Even when you do litigation what do you litigate for? Do you litigate for the past damages? Do you litigate for the defoliant ruining your yard? What do you do about the problem in general? It is not going to permanently stop the problem—or is it? Is there a way to litigate and get them to stop doing it?

Mr. GORE. I understand that you and the other members of your group are currently deciding whether or not you want to go that route. Is that correct?

Mrs. PROSNIER. Yes.

Mr. GORE. If you decide to do it you can potentially recover for all those things. The court is empowered to take into account the need to stop these actions from harming others.

I am not qualified to advise you as to the answer to that question but it would be all those things if these things can be proven. Certainly that is a remedy available to every American citizen.

Mrs. Watkins, would you like to respond to the question? What would you advise someone to do who encountered these kinds of difficulties?

Mrs. WATKINS. One of the things that I think personally would help is if when you are buying a home in a problem area that the realtors should be required to tell you there is a problem of health and smell. I had no idea I was buying a home where there is a problem. It was all new to me.

I hate the thought of that because if they did that, it would decrease the value of my home. I care enough about people that I would not sell them my home without letting them know. Therefore, I will have a problem selling my home as long as there is a problem. That is the only suggestion I have.

I think the public should be warned if they are going to be exposed to these chemicals. They should know they are in that area.

Mr. GORE. I would like to thank you again for your testimony. Thank you, Mr. Chairman.

Mr. ECKHARDT. Mr. Maguire?

Mr. MAGUIRE. Thank you very much. I did not hear all of the oral testimony but I have had an opportunity to read both of your statements in the last several minutes.

I was interested, first of all, in the number of trips that each of you made to various doctors. I think I found in only one place, bottom of the second page of Mrs. Prosnier's statement, reference to a doctor, indicating that indeed some of the difficulties in this case, the bronchial asthma attack, could in fact be related to pesticides.

Could you tell us a little more about how doctors reacted to you? Surely these were doctors who were practicing in this general area, presumably with a variety of families from your neighborhood. Am I correct about that?

Mrs. WATKINS. Right. My pediatrician for my children, when my baby was experiencing these attacks, and I felt it was a pesticide problem, I pinpointed it and asked him: "Do you think it is a pesticide problem?"

His answer to that was, "It very well could be." That is all he said.

When I told him of my trip, that I was putting together all my medical information and I was going to try to have something done about it, I asked him for a statement.

He said that he wouldn't sign a paper but if anyone had any questions they could call him and he would respond. They don't want to subject themselves.

Mr. MAGUIRE. Has it been your experience that the doctors were perfectly willing to talk about the pesticides?

Mrs. WATKINS. They are not at all.

Mr. MAGUIRE. The problem in relation to your illness?

Mrs. WATKINS. No, not at all.

Mr. MAGUIRE. They were reluctant to do that?

Mrs. WATKINS. I would say reluctant.

Mr. MAGUIRE. Mrs. Prosnier, what was your experience with that?

Mrs. PROSNIER. My experience was this: At the initial visits, which represented the first few years we lived there, I never mentioned pesticides to the doctors because I simply did not know.

At one point as I mentioned in my testimony we changed physicians because I felt the doctor simply was missing something. I kept feeling there was something wrong. It seemed to me a competent doctor could pinpoint something and find out what it was that caused this.

We changed doctors and it coincided with the time in September when I suddenly became aware of it, so I had the opportunity to ask the doctor. It was a woman doctor.

She said, "By all means. Organophosphate did definitely cause bronchial spasms your child is having. There is no doubt about it."

I subsequently called an allergist and he said, "This is so."

Again when you ask them to put it in writing, would you defend me in court, they back off. They say, "Well, the symptoms could be caused by other things, also." They want scientific proof before they get involved.

Even the vet said, "We know it was poison to your dog but we didn't run tests and I couldn't make the statement without scientific proof in my hand."

This is the problem we face right now. How do we get this scientific proof?

Mr. MAGUIRE. How did you feel when the Arizona Pesticide Board representative told you that it wouldn't be any worse than taking an aspirin?

Mrs. PROSNIER. I was still very naive. As I said before, I didn't take high school chemistry. I didn't know anything about chemicals. For a moment it kind of shut me up, which I think is what their intention was. I backed off when I thought, "Gee, there must not be anything wrong with this."

Mr. MAGUIRE. Mrs. Watkins, you were told that the worse it smelled the less harmful it is to you?

Mrs. WATKINS. Right.

Mr. MAGUIRE. That was by an official?

Mrs. WATKINS. The Arizona State Pesticide——

Mr. MAGUIRE. The same outfit, Arizona State Pesticide Board?

Mrs. WATKINS. Yes.

Mr. MAGUIRE. It sounds to me as if the Arizona State Pesticide Board could use a little bit of scientific knowledge itself.

Mrs. PROSNIER. That is right.

Mr. MAGUIRE. The gentleman from Tennessee would like me to yield.

Mr. GORE. What is the makeup of the Arizona State Pesticide Board? Have you looked into it?

Mrs. PROSNIER. Yes. There were 13 members on the board.

Mr. GORE. All right.

Mrs. PROSNIER. Two of them are considered public members.

Mr. GORE. Two out of thirteen?

Mrs. PROSNIER. Yes.

Mr. GORE. Who are the other 11?

Mrs. PROSNIER. The others are farmers. There is supposed to be one from the citrus industry, one from cotton, representing the agricultural interests totally, and the chemical interests. Two of them at least were salesmen for the agricultural chemical industry.

Mr. GORE. This group is supposed to protect the public against this?

Mrs. PROSNIER. Yes.

Mr. MAGUIRE. This is the group charged with spraying pesticides?

Mr. GORE. No.

Mrs. PROSNIER. Literally they are regulators.

Mr. GORE. It may not show up in the black-and-white print of the record just by the tone. Let's clarify this.

Mrs. PROSNIER. They are a regulatory board. I don't know how other States operate but Arizona has this. The regulatory agencies, like our dairies, people who check the milk, for instance, they are the dairy people, people in the industry. I don't know if you get the press back here but we have toxaphene in our milk. The FDA stepped in and ordered dumping of milk.

Mr. GORE. Let's not get too far afield on the entire regulatory framework in Arizona. I want to focus on this board. The Arizona State Pesticide Control Board is that State agency which normally would protect a citizen of the State in your circumstance?

Mrs. PROSNIER. They are the only agency that has the authority to do it.

Mr. GORE. That is the point.

Mrs. PROSNIER. But they simply do not. They are not set up to do it.

Mr. GORE. They are set up in a way that guarantees, or seems to guarantee, that the industry's interests will be paramount. Out of 13 members on the board by statute only 2 of them are public members and the other 11 come from interests which directly benefit from unrestrained use of these chemicals. Is that correct?

Mrs. PROSNIER. That is correct. During recent legislation we were trying to get them to name some health authorities and give the Arizona State Board of Health some jurisdiction if health problems arose because of pesticides. They refused to put that in.

Mr. GORE. The health board has no jurisdiction?

Mrs. PROSNIER. That is right.

Mr. GORE. It is all in the hands of this pesticide board?

Mrs. PROSNIER. That is right.

Mr. GORE. The health board is prevented from looking into this?

Mrs. PROSNIER. Yes.

Mr. GORE. That is incredible.

Mrs. PROSNIER. The new law placed the State's health director and the State chemist, who clearly said, "I am a chemist and not a toxicologist, and what you need is a toxicologist and a medical doctor," but he was appointed, he and the State director were appointed as kind of ex officio members, I believe. They are as advisers. They have no voting power or anything as far as I know.

[See letter dated July 16, 1979, from Mrs. Prosnier, p. 114.]

Mr. GORE. Amazing. I thank my colleague for yielding.

Mr. MAGUIRE. I thank my colleague for clarifying this very important point about this board which is supposed to be protecting

the public interest. I think a restatement of the gentleman's characterizations of the board might more accurately go like this:

The board is supposed to protect the public interest but that normally, to use the words the gentleman used, it does not in fact do so. At least that is the way it looks from this episodic evidence that the committee now has before it.

Mr. ECKHARDT. If the gentleman would yield, it looks to me as though it can't be said that the fox guards the chickens. The fox, the weasel, the owl, and a number of other predators are on the board.

Mr. MAGUIRE. Mr. Chairman, this is a recurring problem. This subcommittee did a lengthy study of Federal regulatory agencies. Unfortunately, these conflicts of interest are all too common.

These two women have clearly been gathering an adequate response from persons who ought to be experts and who are charged with protecting the public interest. I suspect they get sick and tired of being told it is someone else's responsibility or there is nothing that this particular official or that official can do or that scientific evidence is inadequate.

The fact is that these are poisons. The fact is that you are being exposed to them. It seems logical under those circumstances to conclude there is some relationship between the spraying of the poisons in your neighborhood and the difficulties that your family has faced.

Perhaps someone will claim that is not a fully scientific statement but, after all, we are not children. We can make conclusions.

These are shocking hearings we are having, yesterday and today. I just don't understand how we can expect citizens of this country who are trying to raise their families, go to work and live normal lives, to tolerate a situation like this in which they are being poisoned.

This subcommittee must come up with some answers to the problem of what to do when you have a State body such as the one described here which is clearly in default of its responsibility.

Perhaps these are statements which are inadequately supported as yet by a full record, but we have been through this enough times that I do not feel altogether hesitant, Mr. Chairman, to at least state that it looks to me as if these are some of the hypotheses that will be borne out when the committee looks more closely at the record.

Mr. ECKHARDT. Ladies, we thank you very much for your appearance here. I would like to say to you that we do intend to do several things immediately with respect to getting some of the information you have discussed here with us.

First, HEW, of course, is the agency where the Center for Disease Control is lodged. The test that you described was done jointly between the Center and the Arizona Health Department. We will ask the Center for Disease Control to supply us with the results taken in the tests you described.

In addition, without objection, the record will be held open at this point to determine the structure of the control agency, the Arizona State Pesticide Board and its authority, so that we may have that definitively taken care of.

[Testimony resumes on p. 113.]

[The following correspondence was received for the record:]

NINETY-SIXTH CONGRESS

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HOUSE OF REPRESENTATIVES
SUBCOMMITTEE ON OVERSIGHT AND INVESTIGATIONS
OF THE
COMMITTEE ON INTERSTATE AND FOREIGN COMMERCE
WASHINGTON, D.C. 20515

August 8, 1979

Dr. William H. Foege
Director
Center for Disease Control
Atlanta, Georgia 30333

Dear Dr. Foege:

The Subcommittee on Oversight and Investigations, pursuant to Rules X and XI of the House of Representatives and its jurisdiction over health matters, is conducting an investigation into the adverse health effects of exposure to herbicides and pesticides.

In the course of its investigation, the Subcommittee heard testimony from residents of the Scottsdale, Arizona area concerning serious symptoms they had suffered allegedly from exposure to herbicides and pesticides being sprayed in their neighborhood. Their concerns led them to contact the Atlanta Center for Disease Control in the fall of 1973, after requests for aid from local and state agencies proved fruitless.

It is our understanding that under the auspices of the Center for Disease Control, blood tests and urine samples were taken from a number of the residents; further, that a number of residents were refused an opportunity to be tested.

The Subcommittee would appreciate receiving information regarding this matter, as follows:

(1) Please provide a description of the methodology used in the testing of the Scottsdale residents.

(2) Please identify the laboratory or laboratories responsible for processing the test results. If more than one laboratory were used, provide the reason and state whether this is a common practice.

(3) The Scottsdale residents were tested in the fall of 1973, yet no results were returned until March 1974. Please describe the reason for this apparent delay. Moreover, it is our understanding that some test results have never become available. Please explain this unavailability and identify those so affected.

(4) Please supply the Subcommittee with the results of all tests conducted on the Scottsdale residents.

We would appreciate receiving this information by close of business on Friday, August 31, 1979. If you have any questions regarding this request, feel free to contact David Nelson of the Subcommittee staff at (202) 225-5365.

Sincerely,

Bob Eckhardt
Chairman
Subcommittee on
Oversight and Investigations

DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE
PUBLIC HEALTH SERVICE
CENTER FOR DISEASE CONTROL
ATLANTA, GEORGIA 30333
(404) 329-3291

SEP 24 1979

The Honorable Bob Eckhardt
House of Representatives
Washington, D.C. 20515

Dear Mr. Eckhardt:

Thank you for your letter of August 8, concerning the testimony of Scottsdale, Arizona, area residents who were concerned about adverse health effects of exposure to pesticides. The Center for Disease Control (CDC) has reviewed the pertinent facts concerning the events to which we believe the testimony refers, and we are able to supply you with the information you have requested. Although the testimony refers to the fall of 1973 as the date in question, the complaints and subsequent investigation actually occurred in October 1978.

In October 1978, the Arizona State Department of Health Services conducted an investigation of Scottsdale residents living near cotton fields which had been sprayed with numerous pesticides. The State Health Department requested assistance from CDC in the investigation.

The methodology used was straightforward. After an informed consent form was signed, each of the 44 subjects, self-selected on the basis of symptoms reported, was given a questionnaire and had blood and urine samples taken. The number of persons tested was limited by the laboratory facilities, but the most symptomatic persons were included. Controls were 18 State Health Department employees who did not live near the cotton fields.

The common practice of splitting the blood samples and sending each subject's blood to two different laboratories was employed. This method is frequently used in complex and sensitive determinations such as cholinesterase activity. The two laboratories used were the Affiliated Pathologists, Inc., 9201 N. 7th Avenue in Phoenix and the CDC laboratories in Atlanta. The two laboratories are completely independent of each other.

The CDC data showed no significant difference between subjects and controls. The results of these tests were provided to the Arizona State Health Department in November 1978. The state chose to rely on the CDC results which were consistent and because CDC ran the controls each day

along with additional internal quality controls. The Phoenix laboratory analyzed their specimens over a 3-day period and all the controls were run on the third day. This may have caused a laboratory artifact which caused the data to be inconsistent and different from the CDC results.

On December 21, the Health Department mailed the results to the private physicians of those subjects who gave the addresses of their physicians. Simultaneously, letters were sent to the subjects notifying them that the physicians were sent the results. Later, twelve subjects asked that their results be made known to an attorney. After a release was signed, the Health Department sent the results to the attorney. Individual results are available from the Arizona State Health Department upon request with proper identification.

Because the investigational hypothesis had been that organophosphorus pesticides were the source of the symptoms, only cholinesterase activity levels were checked in the original screening (cholinesterase is an enzyme that is found in all humans, and it is this enzyme or catalyst that is affected by organophosphorus insecticides). Since the CDC lab tests did not reveal organophosphorus poisoning, the Arizona Health Department sought further tests on the same blood samples. Tests for numerous other pesticides were performed by the Environmental Protection Agency at Fort Collins, Colorado, and the Iowa Epidemiologic Studies Program at the University of Iowa. These laboratories did not find any pesticide residues greater than those found in the general population. These results were sent to the Arizona Department of Health Services in February and March 1979.

Enclosed are the results of all tests performed at CDC on the Scottsdale residents. The results from the three other laboratories may be obtained by contacting Dr. Alex Kelter, Arizona State Department of Health Services, Bureau of Epidemiology and Laboratory Services, 1520 West Adams Street, Phoenix, Arizona 85007.

I hope that you find this information helpful to the Subcommittee.

Sincerely yours,

William H. Foege

William H. Foege, M.D.
Assistant Surgeon General
Director

56-594 O - 80 -- 8

August 20, 1979

Dr. Peter Drotman
Chronic Disease Division
Bureau of Epidemiology
Center for Disease Control
1600 Clifton Road, N.E.
Atlanta, Georgia 30333

Dear Dr. Drotman:

As requested, I am sending you a copy of the cholinesterase activities. Dr. Roger Glass has these results which were provided him after completion of the determinations.

For your information, the approximate lower limits of normal plasma and red cell cholinesterase activities in humans are 0.4 ΔpH/hr for plasma and 0.5 ΔpH for RBC. The range of serum cholinesterase activity as reported by Varhaus is 0.58 ΔpH/hr to 1.37 ΔpH/hr with a mean of 0.94 ΔpH/hr. The average ΔpH/hr value for red cell cholinesterase activity as reported by Michel in twelve normal human subjects is 0.753. Therefore, it is imperative to have individual base line values.

If I can be of further assistance, please let me know.

Sincerely yours,

Steve Miller, Ph.D.
Research Chemist
Host-Parasite Studies Branch
Vector Biology & Control Division
Bureau of Tropical Diseases

Enclosures

CEC/BTD/VBCD/SMiller:jk

RBC - Michel October 17,18,19, 1978

Whole Blood Samples from Phoenix, Arizona via

Dr. Roger Glass

Sample	ΔpH	Date Run
1	0.69	19 X 78
2	0.83	19 X 78
3	1.0	18 X 78
4	0.95	18 X 78
5	0.88	19 X 78
7	0.86, 0.84	17 X 78, 18 X 78
8	0.74	19 X 78
9	0.98	19 X 78
10	0.80	18 X 78
11	0.93	18 X 78
12	0.71	19 X 78
13	0.495	19 X 78
14	1.02	18 X 78
15	0.89	19 X 78
16	0.79	18 X 78
18	0.66	17 X 78
19	0.70	19 X 78
20	1.03	18 X 78
21	0.93	18 X 78
22	0.86	19 X 78
23	0.86	18 X 78
24	0.94	18 X 78
25	0.62	17 X 78
26	0.57	17 X 78
27	0.61	17 X 78
28	0.84	19 X 78
29	0.84	18 X 78
30	0.99	19 X 78
31	0.82	19 X 78
32	0.61	17 X 78
33	0.59	18 X 78
35	0.67	18 X 78
36	0.59	18 X 78
37	0.59	17 X 78
39	0.68, 0.62	17 X 78, 18 X 78
40	0.58	18 X 78
41	0.83	19 X 78
42	0.68	17 X 78

Sample	ΔpH	Date Run
43	0.67, 0.67	17 X 78, 18 X 78
45	0.87	19 X 78
46	0.62	17 X 78
47	0.5841	19 X 78
48	0.65	19 X 78
50	0.65	18 X 78
51	0.72	19 X 78
52	0.82	18 X 78
54	0.58	17 X 78
55	0.64	18 X 78
58	0.54	17 X 78
59	0.56	17 X 78
61	0.62	18 X 78
62	0.76	18 X 78
64	0.54	18 X 78
66	0.52	17 X 78
67	0.61	17 X 78
68	0.60	17 X 78
69	0.55	17 X 78
70	0.54	17 X 78
71	0.68	17 X 78
72	0.72	18 X 78
73	0.71	17 X 78
74	0.58	17 X 78

PLASMA - Michel Oct. 17, 1978

Sample	ΔpH	% of 0.92
7	1.16	126.
18	1.03	112.
25	0.63	68.5
26	0.74	80.
27	0.54	58.7
32	0.75	81.5
37	0.89	96.7
39	0.48	52.2
42	0.80	87.
43	1.06	115.
46	1.09	118.
54	0.90	97.8
58	1.2	130.
59	0.80	87.
62	1.04	113.
66	1.2	130.
67	0.81	88.
68	0.97	105.
69	0.83	90.
70	1.1	120.
71	1.05	114.
74	0.61	66.

Plasma from Whole Blood Samples from Phoenix, Arizona via

Dr. Roger Glass

Mr. ECKHARDT. I think I previously stated that the record would be kept open for an analysis with respect to rights of citizens concerning continued nuisance and the type of trespass in the upper air above your property which seems to exist and seems to have existed. We will keep you informed of that and let you have it before we complete the hearing.

Thank you very much for your attendance.

Mrs. PROSNIER. Thank you, Mr. Chairman.

Mrs. WATKINS. Thank you, Mr. Chairman.

[Testimony resumes on p. 134.]

[The following letter and attachments were subsequently received for the record:]

July 16, 1979
Scottsdale, Arizona

Congressman Bob Eckhardt
Chairman, Subcommittee on
Oversight and Investigation
Washington D.C 20515

Dear Mr. Chairman,

I would like to request that 2 additional inserts be included in my testimony.

The first of these refers to the portion of my testimony which appears on lines 1513 to 1519, which referred to changes that were made in the last Arizona Legislature regarding the State Pesticide Control Board. There were actually several bills presented and subsequantly various amendments added, then deleted etc. It was extremely complicated and I was never able to secure in writing a complete summary of the changes which actually occured. My statements in that paragraph are incomplete in that I should have continued to explain that last minute amendments to the bill placed the Director of Health on the Board. It also placed a physician trained in occupational medicine, NOT the State Chemist on the Board. My last statement in that paragraph may be erroneous because the State Health Director and the industrial physician may indeed have voting status on the board. I have tried to ascertain this and have gone through the usual "run around" receiving vague, contradictory answers. I have just requested a copy of Senate Bill 1333, Chapter 27, A.R.S. Title 3, which should clarify the situation. I will mail it immediately upon receipt and request that it be included as an insert along with this letter, immediately following line 1519 of my testimony. I would also request that the *Scottsdale Daily Progess* article dated March 31, 1979 be included for it describes the legislative controversy quite accurately.

The second insert should be entered beginning on line 1297. It is a group of papers and documents which concern the blood tests and lists of sprayings which I referred to in my testimony, including an amended copy of the golden rod colored paper previously submitted. It also includes a documlent published by the Arizona Department of Health entitled Medical Update and another document from the Salt River Indian Reservation which is called an Environmental Impact Statement. It lists the ingredients which the growers in that area plan to use during the year 1979.

I would like to thank you for your concern in this matter and for allowing Mrs. Watkins and myself the opportunity to appear before you.

Sincerely,

Suzanne Prosnier

Mrs. Claude Prosnier (Suzanne)
Research Director for P.E.O.P.L.E.
8610 E. Hazelwood
Scottsdale, Arizona 85251

(From the Scottsdale Daily Progress--Scottsdale, Ariz., Saturday, March 31, 1979)

Poor Mr. Kret died suddenly shortly after this picture was taken - He was only 54 or 55 and lived in Scottsdale.

ANTI-PESTICIDE PROTESTER Carol Schwebel corrals her 2-year-old twin sons *Derek* and *Cortney this morning* (above) as they marched in front of the home of Rep. David Kret, R-Scottsdale, calling for his support for more stringent pesticide control legislation. Kret (left) takes a look at the statement given him by the protesters as they marched in the street nearby.

For 'weak stand'

Pesticide foes picket Kret

By KEITH BAGWELL

Rep. David Kret, R-Scottsdale, was charged today with taking a "weak stand" on pesticide control legislation by members of an anti-pesticide group who picketed the legislator's home.

"We do not feel that your performance as a legislator from Scottsdale was satisfactory during recent committee hearings. Your weak stand in no way reflects the position of your constituency," claimed a prepared statement the group handed to Kret.

The group called on Kret to "make a sincere and energetic effort to enact. . . legislative amendments to existing legislation. . ."

Kret said he is sympathetic with the demonstrators' cause and that he wanted to do more for them.

"The agricultural and chemical industries are very powerful and they are not about to roll over and let us make these changes easily," he said.

He said he plans to offer amendments in line with what the protesters are demanding to the pending Senate pesticide control bill when it reaches the House of Representatives floor for action, expected next week.

Kret promised to vote against the Senate bill if it reaches a House vote in its present form.

Scottsdale residents living near cotton fields lining the east side of Pima Road banded together in two citizen groups last summer and fall to push for more state control of spraying.

One of them, People's Environmental Organization for Pesticide Legislation and Enforcement, led today's demonstration at Kret's home.

Gov. Bruce Babbitt and Rep. Jim Shelley, R-Scottsdale, introduced bills that would have altered the membership of the agricultural industry-dominated state Pesticide Control Board to include health experts from the state Department of Health Services and more public members. They also would have given the Health Services Department director the power to halt pesticide spraying when a public health hazard is identified.

These bills have been watered down in committees to only add to the licensing requirements for pesticide applicators and place two more public members on the Pesticide Control Board. It now has 15 members, 10 of whom represent agricultural or chemical industries.

Babbitt promised to veto either the amended House or Senate versions of the pesticide bill if one reaches his desk and charged that they are now "cosmetic placebos."

Kret, in committee, voted in favor of the amended House version of the bill, now dead for this session. The similar Senate version still awaits final action on the Senate and House floors.

The PEOPLE protesters called for amendments to the Senate bill that would change the Pesticide Control Board membership along the lines of Babbitt's original bill but with even tougher restrictions regarding possible conflicts of interest among board members.

In addition, the protesters called for amendments that would:

— Require the board to meet monthly.

— Give the Health Services Department the power to forbid the use of chemicals that pose a health threat to residents.

— Charge the board and the state chemist with the primary responsibilities of assuring that growers use the most efficient methods of pest management and protecting the public health and welfare.

— Require the board to make growers and pest control advisers file advance notices of intent to apply chemicals, including all information normally given to applicators.

Kret said his committee vote in favor of the watered-down House bill was a "matter of getting the bill onto the floor. We had to get it out of committee to hope to amend it. It was the best we could do."

He said he plans to offer an amendment that will call for phasing in a new Pesticide Control Board of five members — the Health Services Department director, one member from the public and three agricultural and chemical company representatives.

In addition, Kret said he will support an amendment expected to be submitted by Rep. Diana McCarthy, R-Glendale, "that will give the ADHS director the power to shut down spraying immediately with the discovery of a public health hazard."

He said the legislative agricultural interests are strongly fighting that proposal, but "it's needed, public health must come first."

Crop Pesticide Dispute Hung On Blood Tests Of Complain

By DAWN KYSER
Gazette Agri-business Reporter

More blood tests must be done to determine if Scottsdale residents along Pima Road were victims of pesticide poisoning last fall.

Long-awaited results of tests three months ago have been received, but, according to Dr. Alex Keiter, Department of Health Services, two factors prevent the data from being conclusive.

"First, we need to take blood samples of each subject again," Keiter said. "We have to determine their normal cholinesterase level to find out if the October level was abnormal. We can't say it's abnormal if we don't know what normal is for that particular individual.

"SECOND, IN October we took two samples from each subject and sent them to two separate labs. We did that to confirm our test results so there would be no question, and also to satisfy ourselves that we could have confidence in a local lab instead of having to continue all testing through the Center for Disease Control in Atlanta.

"Unfortunately," Keiter said, "The two labs submitted entirely different results. We have to analyze the differences and determine which is correct."

Keiter said new blood samples will be drawn within the next "couple of weeks."

RESULTS FROM blood and urine samples, drawn for residue analyses, have not yet been received by DHS, but are expected in a week or two. They are being analyzed by EPA laboratories in Iowa and Colorado.

In early September, residents along Pima Road started calling Health Department officials and the Pesticide Control Board complaining of illnesses they felt were associated with pesticide sprayings.

DHS began assisting the board with investigation of complaints. "In the beginning, we had an epidemiologist going into the homes and interviewing the people. He was unable to give physical examinations or anything of that nature.

"FINALLY, THE volume of calls made it impossible to continue in-home interviews and we began interviewing by telephone," he said.

By the end of the third week in September, Keiter and others thought the "reasonably well contained episode" was over, but calls resumed the following week.

A lack of good information on how to proceed, what equipment was needed, how often to study, etc., prevented environmental testing. Medical testing also was delayed.

"The Pima Road area is "practically unique," Keiter said, because there are few locations where so many people live so near an agricultural area.

"There have been many occupational studies relating to pesticides, but very few community studies to guide us," he said.

"WE ADVISED people to see their personal physicians and publicly asked physicians who felt they had a patient with pesticide poisoning to contact our office," Keiter said.

Results were "scanty." Perhaps half a dozen doctors called, according to Keiter, and most of them were mistaken. "They thought a high cholinesterase level indicated it was abnormal," he said. "Of course, it's just the opposite. It was obvious we couldn't depend on the loose voluntary reporting system."

In the meantime, Dr. Roger Glass at CDC returned to his office after an

continued

absence of several weeks. He learned about Arizona's problem, called Dr. Keiter and offered help. His subsequent visit resulted in medical testing of about 44 people.

PLANS ARE UNDER WAY for environmental and medical monitoring to be conducted during the next spraying season.

EPA officials in Washington and San Francisco will cooperate with

Turn to • PESTICIDE, Page B-2

• PESTICIDE

(Concluded from Page B-1)

state officials to establish the program.

Steven D. Jellinek, EPA's assistant administrator for toxic substances, said, however, that the chemicals in question (Bolstar, Folex and DEF) are safe, particularly Bolstar, the most foul smelling of the three.

"These chemicals are basically not hazardous to human health or EPA would not have approved them for use," he said. "If they are being used the way the labels specify, they should not be a health problem."

JELLINEK SAID he didn't know under what circumstances they would be harmful. "Certainly if you spooned them on your cereal," he said.

A temporary ban on spraying the chemicals within a half-mile of homes, enacted by the Pesticide Control Board in October, expired Tuesday.

William Blackledge, administrator of the board, said public hearings will be held before the next cotton spraying season and a decision will be made at that time regarding whether to reinstate the ban.

IN THE MEANTIME, Blackledge said the board is considering all avenues of resolving the problem. It is working with a chemical company in an effort to reduce odiferous substances in the products; considering specifications for spray equipment which would enlarge droplet sizes to eliminate drift; and looking at the possibility of distance restrictions in zones residential areas where people have been offended.

medical update

NOTE: At the same time the Arizona Department of Health Services issued this to medical personnel and hospitals, they were telling us there was nothing to worry about.

October 20, 1978

TOPIC ORGANOPHOSPHATE TOXICITY

BACKGROUND

Between Labor Day and Columbus Day, the Department of Health Services and several other governmental agencies received hundreds of calls from citizens complaining of symptoms they felt were related to exposure to pesticides. All were residents in neighborhoods near cotton farms where the fields had been sprayed with organic phosphates and other pesticides.

This year spraying has been more frequent than in the past, an attempt to control the severe pest problem and additional plantings caused by wet weather. The increase in the number of complaints parallels a marked increase in the use of chemicals, especially those with objectionable odors and respectable toxicities. (oral LD/50's).

PESTICIDES CAN KILL

The prototype organophosphate is parathion (O, O-Diethyl-O-p-nitrophenyl thiophosphate). Parathion may be absorbed through any portal in the body, including intact skin. The minimum lethal dose for an adult is probably 10-20 mg., although the mean lethal dose is probably 300 mg. (4 mg./kg.). There are reports of fatalities for children after only 2 mg. of parathion (.1 mg./kg.). As with many toxic substances, the young of a species is more susceptible than the adult.

MASSIVE EXPOSURE NOT NECESSARY FOR SYMPTOMS

Parathion and the other organophosphates inhibit the enzyme cholinesterase in all parts of the body, probably by phosphorylating it. Toxic signs and symptoms are regarded as an indirect consequence of this enzyme inactivation. Thus, acetylcholine accumulates and leads to the clinical presentation of a parasympathetic storm of varying severity, depending on dose. Although the inhibition of cholinesterase

The Arizona Department of Health Services publishes this newsletter to disseminate information for the medical profession. It is issued whenever there is special news on a current problem.

appears to be partially reversible for several hours afte acute exposure, progressive and irreversible inactivation of the enzyme following repeat exposures probably occurs. Therefore, under circumstances of small repeated subclinical exposures, clinical intoxication may result.

Symptoms often begin in the organ system most closely related to the route of entry. Gastrointestinal symptoms would precede other symptoms after an ingestion, while respiratory symptoms would precede others following inhalatior Local muscular and nervous disturbance might be expected at the site of dermal absorption before systemic toxicity is apparent.

ANY MIXTURE OF CLINICAL FINDINGS POSSIBLE

Headache, nausea, abdominal cramps with diarrhea, rhinorrhea, and a sensation of discomfort on breathing are common and dose-related. Later symptoms include decreased visual acuity, miosis and tearing, and ocular pain (eye effects are not dependable clinically; mydriasis may sometimes be seen and is thought to be due to sympathoadrenal response). Systemic symptoms include fasciculations and twitching of muscles, profound weakness, mental confusion and disorientation, and excess salivation and respiratory tract secretions which may lead to respiratory distress, cyanosis, and resulting convulsions, incontinence, coma and, ultimately, death.

LABORATORY FINDINGS HELPFUL

Analysis of red blood cells for decreased cholinesterase activity can be pathognomonic. Some patients will be symptomatic when RBC cholinesterase is depressed to 70% of normal, and others not until it is depressed 50% or less. It is often unreliable to correlate the level of red blood cell (true) or plasma (pseudo-) cholinesterase activity with the severity of symptoms in the individual patient. Since most patients have never been tested, their normal levels will not be known until recovery, which occurs at a rate of 1-2% per day. Thus it is useful to repeat the test 4-8 weeks after the first test, the exact interval depending on initial results.

OUTPATIENT THERAPY NOT RELIABLE

In the absence of acute poisoning requiring hospitalization or emergency treatment, there may well be no adequate outpatient therapy. Because each of the organophosphates has its own individual hierarchy of symptoms and biochemical effects, trial and error with various atropine-like drugs may not be successful. The balance between the nicotinic and muscarinic effects of such drugs is rarely compatible with those of the organophosphates.

IN AN EMERGENCY

In the acute emergency, a patent airway and administration of untoward amounts of atropine are requisite. In an adult, a severe intoxication may require an initial dose of 1-4 mg. of atropine sulfate with continuing doses of 2 mg. at intervals of 15 minutes or longer for 24 hours or more. Cyanosis should be corrected before atropine is administered if possible; if not possible, atropine should be given immediately. After atropinization is complete pralidoxime chloride may be given to revitalize cholinesterase activity. The initial adult dose is 1-2 gm., preferably by the intravenous route, in 100 ml. of saline over 15-20 minutes. If more rapid action is necessary, intravenous injection as a 5% solution in water over a period of not less than 5 minutes may be substituted. In children, the initial dose should be 20-40 mg./kg. body weight. Both pralidoxime chloride and atropine may have to be repeated frequently to prevent breakthrough of the symptoms of the initial poisoning. Clearly, maintenance of a patent airway with adequate oxygenation is central to successful therapy.

In emergency treatment, the most common error is the giving of insufficient doses of atropine. Truly heroic amounts may be required to atropinize a severely intoxicated patient. Heart rate, presence of salivation and continued appearance of toxic symptoms should be used as guidelines for adequate atropinization. Ocular signs are not reliable.

NEVER GIVE AMINOPHYLLINE (OR RELATED DRUGS), CNS DEPRESSANTS (NARCOTICS, BARBITURATES, PHENOTHIOZINES, OR OTHER TRANQUILIZERS) OR RELATED DRUGS. IF THE INTOXICATION IS A RESULT OF A CARBAMATE PESTICIDE EXPOSURE, PRALIDOXIME CHLORIDE SHOULD NOT BE USED.

Patients with underlying chronic cardiac, pulmonary or metabolic disease, allergies, hay fever, eczema, or other potentially debilitating disorders may be more sensitive to the effects of these chemicals. It is not known whether long-term effects are important or if the survival of a short-term exposure eliminates need for future concern.

PREVENTION IS THE BEST ANSWER

As with many other diagnoses, that of pesticide intoxication is disquieting because of our relative inability to treat it adequately and relieve the patient's anxiety and discomfort, except in a life-threatening emergency. On the other hand, the search for a diagnosis is ended and its implications for prevention are crucial.

Phoenix Gazette March 2, 1979

Pesticide Tie With Disease Is Discounted

A Department of Health Services epidemiologist whose work contributed to the recent recognition of a link between Influenza A and Reyes Syndrome, has discounted Valley residents' concerns that pesticides may contribute to the disease

Reyes Syndrome, recognized since 1962, afflicts children under the age of 18. Its victims normally are from 12 to 15 years of age.

Dr Karen Starko said Thursday there is "a much stronger case, against aspirin" being a contributor to the disease than "any environmental thing"

"It would be very difficult for me to associate pesticides with Reyes Syndrome, considering the evidence which points toward a viral association," Dr Starko added

CAUSE OF THE disease is unknown, but Dr Starko said there are "many, many theories"

In the past, leading theories linked Reyes Syndrome with chicken pox and influenza B

But Dr Starko said eight cases were reported in Arizona during December last year at the peak of influenza activity in the state

"All eight cases were hospitalized within five days of each other," she said.

(Two of the cases were fatal and two other victims have not completely recovered, but doctors were unsure whether there is permanent damage)

The Arizona victims were not clustered in a particular area but were from Prescott, Tucson, Glendale, Tempe, Scottsdale and Phoenix

CHILDREN STRICKEN with the disease develop a viral-like illness, much like flu. They begin vomiting abruptly and violently within a day or two and then, about 24 hours after vomiting begins, there is a change in mental status

"They become confused, delirious and, in some cases, go into coma," Dr Starko said

Turn to • PESTICIDE, Page B-2

John Dwyard
University of Maine
entomologist

Articles which appeared in the Sept. 1978 Audubon magazine + the Jan. + Feb. Organic Gardening magazine do link pesticides with Reye's Syndrome.

• PESTICIDE TIES DISCOUNTED

(Concluded from Page B-1)

The epidemiologist said she questioned an association between the Reyes Syndrome cases and the influenza outbreak. "I called the Center for Disease Control in Atlanta and we proceeded with our studies," she said.

Serum samples showed heightened influenza A antibody activity in most of the victims and many of their family members

MEANWHILE, Reyes Syndrome was reported in Utah, Colorado and Michigan In each case, the state was in the midst of Influenza A activity.

Dr Starko said while evidence is strong that the two diseases are connected, researchers have not yet determined how

"As we investigate these cases, we try to identify any similar experiences of the victims," she said Exposure to or usage of similar drugs or substances would place those substances in a suspected position

The two substances which have most concerned researchers are aspirin and phenothiazines, she said

The two keep coming up in investigations because "most of the victims had taken aspirin for their flu symptoms and phenothiazines were prescribed to control vomiting," she explained

BUT DR. STARKO pointed out that other children with Influenza A also had taken aspirin. "Perhaps those stricken with Reyes Syndrome had suddenly become sensitive to aspirin at that point. We just don't know," she said

Research groups across the country are working on "every conceivable cause" of the disease, including pesticides and aflatoxin

However, Dr. Starko feels results are more likely through investigating links between viral-like infections and Reyes Syndrome

"The bank robber said he robbed the bank because that's where the money is," she said. "I believe investigating Influenza A as a link, is where the money is."

Contact
Dr John Crocker
L.W. Killam Hospital for Children + Dalhousie University Medical School
in Halifax Nova Scotia

A-22 - Thurs., Mar. 1, 1979 ○ The Phoenix Gazette

Aflatoxin Link To Disorder Probed

A possible link between the mold aflatoxin and Reye's Syndrome, a neurological disorder that affected eight persons in Arizona in December, is under investigation, the Department of Health Services said

The federal Center for Disease Control in Atlanta, Ga., is conducting the investigation, officials said

News reports revealed last year that aflatoxin, a suspected cancer-causing agent, was discovered in the state's milk supply. The aflatoxin apparently came from contaminated cottonseed fed dairy cattle.

DHS officials said the viral infection, Influenza A, is also being investigated as a cause of Reye's Syndrome.

A spokesman said seven of the eight cases recorded in Arizona in December showed recent signs of having the flu and 43 percent of the affected children's siblings had a flu-like illness before the onset of Reye's Syndrome.

Dr Karen Starko, DHS epidemiologist, said Reye's Syndrome has been recognized since 1962 The disease begins with mild respiratory problems, followed by severe vomiting, lethargy and various stages of coma It can be fatal in about 40 percent of the cases, officials said

Dr Starko said a disease similar to Reye's Syndrome, Udorn encephalopathy, occurs in Thailand, where aflatoxin contamination is often found in

March 24

Pesticide test data inconclusive

By KEITH BAGWELL

The test results from blood and urine samples from Scottsdale residents who complained of illnesses attributed to pesticide exposure are inconclusive, a draft report on the testing has indicated.

The draft report, circulating among legislators who are considering bills intended to strengthen state pesticide controls, is stamped "not for publication." Alex Keller, state Department of Health Services epidemiologist who headed the ADHS-Atlanta Center for Disease Control study, said he plans a press conference next week to release the data with his conclusions.

But state Sen. Trudy Camping, R-Phoenix, already used references to the Keller test data in the Senate to back her stance that the watered-down pesticides bill the Senate passed Wednesday should get favorable consideration.

The Progress obtained access to a copy of the draft report and it contained a March 15 cover letter to Sen. Anne Lindeman, R-Phoenix, from James E. Sarn, assistant director of the Department of Health Services.

The Sarn letter stated that the test results neither prove nor disprove "the. . .hypothesis that residents of Scottsdale who exhibited or still exhibit symptoms can attribute (them) to levels of exposure to pesticide chemicals."

The study, which began on Oct. 16, was aimed only at determining the relationship, if any, between reported illnesses of Scottsdale residents and their cholinesterase inhibition from exposure to organophosphate pesticides, Sarn said.

Cholinesterase is an enzyme produced in the human body to break down acetylcholine to form acetic acid and choline. Organophosphate pesticides, one of the most commonly used types on the nearby cotton fields, inhibit the body's production of the substance.

"At the time (when the study began), we had no comprehensive list of chemicals used on the cotton fields across Pima Road. We still do not have complete data on the various chemicals used," Sarn said.

"Suppression of blood cholinesterase is the only reliable indication of the health effects of organophosphate pesticides," the Sarn letter explained.

Conclusive test results were "not possible with the incomplete information and limited resources available," Sarn stated.

The testing involved 44 persons exposed to pesticide sprays and a control group of 18 Department of Health Services employees. Of the 44 exposed subjects, 43 of them lived in Scottsdale at the time and one in Phoenix. The control group consisted of 12 Phoenix residents, three from Scottsdale, two from Tempe and one Glendale resident.

Forty-three members of the exposure group lived within 4,000 feet of sprayed fields and 15 of the control group lived more than 5,000 feet from agricultural fields and were used for the study comparisons.

The blood and urine samples taken from the study groups were sent to the federal Center for Disease Control in Atlanta for analysis.

Upon their return, Keller said: "There is enough of a trend suggesting a positive outcome to warrant further. . .tests." He did not release the data, terming it inconclusive.

The blood samples also were sent to a U.S. Environmental Protection Agency laboratory in Colorado and the urine samples to the University of Iowa Epidemiological Studies Program.

The results of both the Colorado and Iowa tests were included in the legislative draft report.

Charles W. Miller, field studies coordinator of the human effects monitoring branch of EPA, stated in a letter from Colorado that the values derived from the blood samples are "in line with those we have encountered in samples from the general population. We do not see any indication of an exposure problem for these pesticides."

Likewise, Kenneth W. Kirby, project director of the Iowa Epidemiological Studies Program, stated in his letter that "from an analytical viewpoint, the . . . samples represent the near equivalent of a group of blank determinations. None of the values appear to represent any significant exposure."

Late Nov.

Tests indicate illnesses tied to pesticides

Evidence that pesticide exposure may be involved in illnesses reported by Scottsdale residents has been found, giving merit to further study, the assistant director of the state Department of Health Services said Tuesday.

Dr. Alex Keller, head of a joint ADHS-Atlanta Center for Disease Control study of claims that pesticide exposure resulted in illnesses of Scottsdale residents, told about 200 Valley residents at a state Pesticide Control Board hearing on the pesticide spraying problem that "there is enough of a trend suggesting a positive outcome to the study to warrant a further battery of statistical and epidemiologic tests to be run on the data."

Keller's comments followed his receipt last week of the results of the CDC's testing of blood samples taken from 44 Scottsdale residents and 18 non-exposed ADHS employees Oct. 16. The tests were to determine the levels of cholinesterase in the systems of the exposed residents compared with those in the control group.

Organophosphate chemicals, the kind of many of the pesticides used on the cotton fields adjacent to Scottsdale's east side, block the body's normal production of cholinesterase, producing illness.

CDC was brought into the Valley pesticide study at the request of Bill Stearns, chairman of Citizens for Pure Air, a group of disgruntled Scottsdale residents who want the pesticide spraying curtailed.

It teamed with ADHS to launch a detailed study of illnesses allegedly caused by residents exposed to pesticide sprays.

Karen Starko, a CDC employee stationed in Phoenix, said the study includes not only the blood sample testing, but also urinalyses, study of a questionnaire with more than 70 questions completed by the ill residents and a look at where each complainant lives in respect to the sprayed fields.

The data acquired is to be fed into CDC computers in Atlanta to obtain more definitive answers to the questions raised by the residents, she added.

Starko said those results still may not be definitive enough for firm conclusions and more study may be required, including taking random samples from a larger population group for comparisons and trying to determine more closely the distances from sprayed fields that may lead to health problems.

Keller predicted that conclusive results from the testing will require at least two to three weeks of analysis; more depending on the need for further tests.

"We will maintain a posture of openness with the board (of Pesticide Control), all other parties and agencies and the public," Keller promised. He warned, however, that premature conclusions based on incomplete analyses will not be issued by him or his department.

The Control Board's hearing was aimed at getting testimony from experts in the field of pesticides. The board is dominated by agricultural and chemical company interests as mandated by state law and its choice of experts reflected that makeup.

Testifying were Norman Akesson, chairman of the Department of Agricultural Engineering at the University of California at Davis; Claude Finnell, agricultural commissioner for California's Imperial County; Edgar Hobbs, director of Mississippi's Agricultural Aviation Board; Dr. Donald P. Morgan, director of Iowa's Epidemiologic Studies Program; Clifford G. Roan, former University of Arizona professor and now a U.S. Army consultant; Dr. Hope Sandifer, former U.S. Army doctor and now a toxicologist at the Medical University of South Carolina; and William B. Hazeltine, a representative of the Arizona Farm Bureau Federation.

All generally backed claims made by farmers, chemical company representatives and their consultants since the outbreak of the controversy in August that the problem is the pesticides' odors, not the chemicals themselves.

"It's probably not a health problem here, just an odor problem. The odors of pesticides can make one sick, so I suggest a compromise between sprayers and nearby residents," Sandifer said.

Hazeltine called for a "compromise" that would have the state adopt regulations to require that pesticides sold here contain less mercaptans, odor-causing ingredients in many of them, than is now the case.

Stearns and Ben Smith, a representative of Association of County Organizations for Reform Now, an anti-pesticide group from the Valley's southwest side, called for prompt board action to protect residents from further pesticide exposure.

Ralph Wong, board chairman, has promised new crop-spraying regulations late this year or early next year.

amended to include those listed in plan

PARTIAL LIST OF PESTICIDES SPRAYED ALONG PIMA ROAD BETWEEN THE CANAL AND INDIAN SCHOOL ROAD

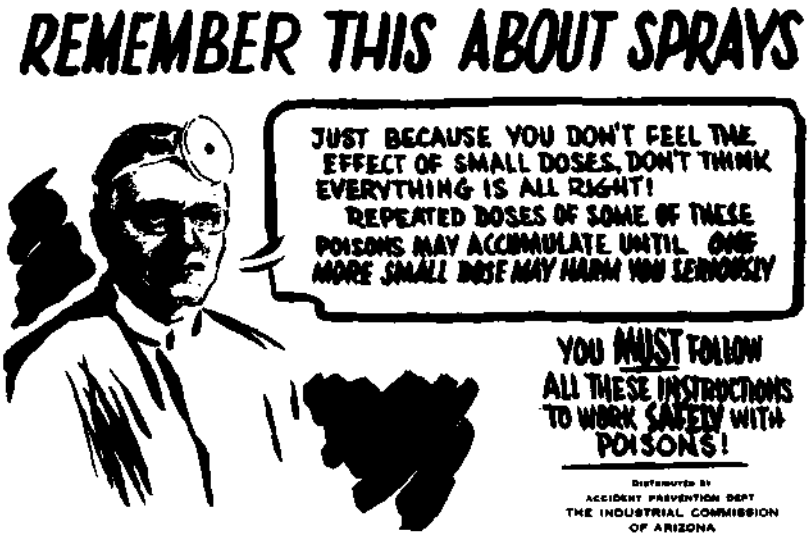
for 1978

Jan 26	Urea
Feb 2	Banvel
Feb 16	Banvel
Mar 24	Thimet
April	(unavailable)
May 11	Cobex
May 18	Cobex and Caparal
June	(unavailable)
July 20	Orthene
July 22	Orthene and Galecron
July 24	Orthene and Galecron
Aug 1	Orthene
Aug 2	Orthene
Aug 8	Medrin and Parathion
Aug 9	Lannate and Parathion
Aug 16	Parathion, Orthene and Galecron
Aug 23	Orthene and Parathion + Toxaphene - also Aug 29
Aug 28	Neudren and Azodrin - Aug 29. Azodrin and EPN
Sept 2	Parathion and Azodrin
Sept 3	Parathion and Azodrin
Sept 9	Orthene
Sept 11	Bolstar

THE INTERACTION OF DIFFERENT TOXICANTS IS A CAUSE FOR CONCERN IN THAT PESTICIDES MAY REACT IN THE ENVIRONMENT AND IN THE BODY TO FORM NEW CHEMICALS. THIS INTERACTION MAY RESULT IN A POISON FAR MORE TOXIC THAN THE ORIGINAL COMPOUND.

Paraquat used in Oct. Nov.

Bolstar was used continuously through the month of September and toward the end of the month and into the month of October they began to spray Folex and DEF. During the past two weeks they have been spraying Sodium Chlorate combined with Ammonium Sulphate and/or Urea.



PARTIAL LIST OF SPRAYINGS FOR EARLY 197[illegible] NEAR PIMA ROAD, SCOTTSDALE, ARIZ.

First spraying for 1979 was on Jan. 13 with a mixture of the following:

Jan 13 MANZATE D, NUTRIPHOS SUPER K, MIP, ORTHENE
These same mixtures plus others were used almost daily til Jan 23

Jan 23 CYGON 400, MANZATE D, NUFILM, THIMET 600, LINK ZN.

Jan 24 CYGON, MANZATE, NUFILM

Jan 27 CYGON, MANZATE, NUFILM

Jan 28 CYGON, LINK, MANZATE, LB UREA

Feb 6 ORTHENE WPS, ZIP

Feb 7 1 CYGON, MANZATE LB UREA

Feb 8 " " "

CHEM-HOE was used almost daily, but was evidently sprayed seperately.

Feb 10 KERB

Feb 13 "

Feb 15 "

Feb 16 THIMET, THIODAN, MANZATE, NUTRIPHOS MG, MIP, CAB (Sorbra spray)

Feb 17 ORTHENE, WPS, ZIP, THIMET, THIODAN MANZATE, NUTRIPHOS K, CAB, MIP,

Feb 20 ORTHENE, NUTRIPHOSK, CAB, MIP, MANZATE

Feb 22 ORTHENE, WPS, ZIP, MANZATE

Feb 24 20-10-30, CALCIUM NITRATE, LEAF LIFE, ORTHENE, MANZATE, REBELATE

Feb 25 MANZATE, NUFILM, REBELATE

Feb 27 " " "

MAR 1 ORTHENE, NUTRIPHOSK, CAB, MANZATE, LEAF LIFE BORON, CA NO 3, 20-10-30

Mar 2 THIMET, THIODAN, MANZATE, CAB, MN (Sorbra spray) LB UREA

Mar 3 ORTHENE, ALFATOX, THIODAN, NUTRIPHOSK, CAB, MIP, MANZATE, LEAF LIFE, ZIP, CROP PLUS, NIFILM

Mar 4 ORTHENE, NUTRIPHOSK, CAB, MIP, LB UREA, MANZATE, LEAF LIFE BORON, CA NO 3, 20-10-30

Mar 5 ORTHENE, MANZATE, NUFILM

Feb several dates COBEX

[illegible] period of [illegible] 4 [illegible]

PARTIAL LIST OF SPRAYINGS IN EARLY 1979 CHEMICAL INGREDIENTS

KERB Pronamide 3,5-dichloro-N-(1,1-dimethyl-2-propynyl)benzamide

CHEM HOE Propham isopropyl carbanilate

NUFILM

THIODAN Organo hydrocarbon 6,7,8,9,10,10 Hexachloro-1,5,5a,6,9,9a-hexahydro-6,9-methano-2,4,3, benzodiorathiepin-3-oxide

ZIP

CYGON same as Rebelate o,o-dimethyl-S-(N methycarbamoyl meythyl)phosphorodithoate
Manufactured by American Cyanamid or Thompson Hayward

LINK

LEAF LIFE

TIOVEL same as THIODAN

PHOSDRIN insecticide, acaricide carbomethoxy-1-methylvinyl dimethyl phosphate alpha isomer
label reads, readily absorbed through skin and mucous membranes, highly corrosive, toxic to bees, birds, fish.
Manufactured by Shell

THURICIDE bacterial organism, viable spore which causes disease in insects.
Manufactured by Sandoz

ALPATOX insecticide .8 diazanon methoxychlor

SORBRA SPRAYS are nutrients, buffers, spreaders, surfactants etc.

PARTIAL LIST OF 1978 SPRAYINGS NEAR PIMA ROAD, SCOTTSDALE, ARIZONA

AMBUSH (permethrin) carbamate EPA experimental label, not registered
(3-phenoxy phenyl)methyl (%-cis,trans-3) (,,2-dichloro ethenyl) -2,2-dimethyl cyclo propane carboxylate) 25.6%
74.4% inert

label reads;avoid eye irritation, do not allow drift onto weeds or use where bees are present, do not use where weather favors drift. Note to physician reads in part, do not induce vomiting because hydrocarbon solid may increase pulmonary edema and chemical pneumonia.
Manufactured by ICI Americas

AZODRIN (dimethyl phosphate 3-hydroxy-N-methyl-cis crotonamide 55%
inert 45%

Manufactured by Shell Oil

BANVEL Herbicide (dicamba) 3,6-dichloro-o-anisic acid

CAPAROL Herbicide 2,4-bis(isopropylamino)-6-(methylthio)-s-triazine

COBEX Herbicide N4,N4-diethyl-a,a,a,trifluoro-3,5-dinitrotoluene-2,4-diamine

BOLSTAR Insecticide 1-ethyl-O-(4-(methylthio)phenyl (S-propylphosphorodithioate) 64% aromatic
21% inert
Manufactured by MoBay

DEF s,s,s,tributyl phosphorotrithioate (cholinesterase inhibitor used as cotton defoliant.

EPN (ethyl p-nitrophenyl thionobenzene phosphorate) is acetylcholinesterase inhibitor.

FOLEX (merphos) tributyl phosphorotrithioite. Note: medical reference book entitled "Clinical Toxicology; of CommercialProducts" states, "the nature of the systemic toxic syndrome has not been described. Presumably this substance is not a cholinesterase inhibitor and should not be confused with DEF. (other references contradict this)

Galecron (chlordimeform) N'-(4-chloro-O-tolyl)-N, N-dimethyl-formamidine
48.5%
43.4% aromatic petroleum solvent.
8.1% inert

Manufactured by Ciba-Geigy

LANNATE Larvacide methylmyl S-methyl N-[methylcarbamoyl](oxy)thioacetimidate
Manufactured by Du Pont

METHYL PARATHION Insecticide diethylnitrophenyl phosphorathionate

MIP Sorbra Spray ?

MEDRIN Larvacide ?

PARAQUAT

MANZATE D Fungitide carbamate ethyelyinbisdithiol

NEUDREN Larvacide 1.8 liquid methylmyl s-methy-N-[(methyl carbamoyl) Shell Oil oxy]thioacetinidate 24.1%

NITRIPHOS K Fertilizer

ORTHENE Insecticide acephate O,S,D imethyl-acetylphosphoramitothiate

REBELATE Insecticide (same as Cygon 400)

THIMET Insecticide o,o Diethyl (S-ethylmercaptomethyl)dithiophosphate Cholinesterase inhibitor, highly toxic.

TOXAPHENE Insecticide Terpene polychlorinate

PARAQUAT Herbicide 1,1'-dimethyl-4,4'-bipyridinium ion

CHLORATE SALTS defoliant general toxin. Medical reference text says it produces gastritis, methemoglobinemia and a late toxic nephritis.

IT IS IMPORTANT TO NOTE THAT OUR LOCAL ARIZONA STATE PESTICIDE CONTROL BOARD HAS TOLD US THAT THESE PRODUCTS ARE NOT VERY TOXIC, THAT THEY ARE NOT HARMFUL. THAT ONE COULD EVEN DRINK THEM BY SPOONSFUL WITHOUT GETTING SICK!!!

This is called "E.I.S." stands for Environmental Impact Statement

ATTACHMENT "A"

Sun Harvest Inc — Farm

1979 — Year

Brand Name or Common Name of Pesticide	Application Method	Reason For Use	Kind of Crop (If applied to Growing Crop)
THIMET Liquid	AIR + GROUND	APHIDS & THRIPS	SPRING LETTUCE
CYGON	AIR + GROUND	" "	lettuce + onions
THIODAN.	AIR + GROUND	" "	spring + fall lettuce
THURICIDE / Dipel	AIR + GROUND	WORMS	Spring + Fall lettuce
PHOSDRIN	AIR	APHIDS & WORMS	Spring + Fall lettuce
ALFAX TOX	AIR	" "	" " " "
Mumzuteb	Air + ground	Mildew	lettuce + onions
orthene	Air + ground	aphid + worms	Spring + fall lettuce
Ambush (Pyrethroids)	Air + ground	Bollworm	Cotton + fall lettuce
Sevin w.e	Air	Pink Boll worm	Cotton
Galecron / Fundal	Air	Budworm, Bollworm	cotton
Azodrin	Air	Pink Bollworm	cotton
Lannate / nudrin.	Air + ground	worms	lettuce + cotton
Di Syston Granule	Air	aphid / Grasshopper	Wheat
Buctril	Air	weed control	wheat
Diazanon.	Air	aphids	lettuce + cotton
Kelthane EC.	Air	Red spider mites	watermelons
Kryocide / cryolite	Air-ground	worms	fall lettuce
Def / folex	Air	Defoliation	cotton
Sod. chlorate	Air	" " "	cotton
Avenge / carbyne	Air	weed control	wheat
meta-Systox	Air	aphid	lettuce

Note: Other weed control materials + foliar minor elements such as iron, Zinc, mg. may be used on certain fields as needed.

J A WOOD [illegible]

Farm

Brand Name or Common Name of Pesticide	Application Method	Reason For Use	Kind of Crop (If applied to Growing Crop)
KELTHANE 35	AIR & GROUND	MITE CONTROL	MELONS
LANNATE L & S.P. (or Nudrin)	AIR & GROUND	ARMYWORM CONTROL	LETTUCE
ORTHENE	AIR & GROUND	APHID CONTROL	LETTUCE
PHOSDRIN 4	AIR	APHID, LOOPER, ARMYWORM CONTROL	LETTUCE
PYDRIN OR AMBUSH [redacted]	AIR	CORNEAR & BUDWORM CONTROL	COTTON
SEVIN 5 BAIT	AIR	GRASSHOPPER & CRICKET CONTROL	LETTUCE
TEMIK 15G	GROUND INJECT	LYGUS & BLACK FLEAHOPPER	COTTON

J A WOOD COMPANY
Farm

1979
Year

Brand Name or Common Name of Pesticide	Application Method	Reason For Use	Kind of Crop (If applied to Growing Crop)
ALFATOX	AIR	INSECT CONTROL APHID, ALFALFA WEEVIL	ALFALFA
CYGON 400 CYGON 267	AIR GROUND	INSECT CONTROL APHID, THRIPS, LEAFMINER	LETTUCE, WATERMELONS CANTALOPUES, HONEYDEWS
DIAZINON AG500	AIR GROUND	INSECT CONTROL APHID, THRIPS, LEAFMINER	MELON CROPS
DIPEL B.T.B	AIR GROUND	INSECT CONTROL LOOPERS	LETTUCE AND MELON CROPS
DIPEL DUST	GROUND	INSECT CONTROL LOOPERS	LETTUCE AND MELON CROPS
DISYSTON L.C.	INJECT	LYGUS & BLACK FLEAHOPPERS	COTTON
GALECRON	AIR	TOBACCO BUD	COTTON

J A WOOD COMPANY
Farm

1975
Year

Brand Name or Common Name of Pesticide	Application Method	Reason for Use	Kind of Crop (If applied to Growing Crop)
THIMET 600	AIR & GROUND	APHID CONTROL	LETTUCE
THIODAN 3	AIR & GROUND	APHID CONTROL	LETTUCE
THURCIDE	AIR & GROUND	CORNEAR & LOOPER CONTROL	LETTUCE & MELONS

Farm: [illegible] Wilson

Year: 1979

Brand Name or Common Name of Pesticide	Application Method	Reason For Use	Kind of Crop (If applied to Growing Crop)
D. System 15% Gran	Air	aphid	Sugar Beets
Sulfur	Air	mildew	" " " "
Cobra - Treflan "	Air & ground	weed control	cotton - weed control
Caparol	- Ground	" - " "	" " " "
Cygon	Air	Aggs	cotton
Supracide	Air	Aggs	cotton
Sevin "	Air	pink Bell worm	cotton
Ambush, Pydrin (Pythrinds)	Air	Budworm, Bollworm	cotton
Galecron / and a Tandel	Air	Bollworm / Budworm	cotton
Azodrin, EC	Air	Pink Bell worm & mites	cotton
Thuricide / Elcar (B.T.)	Air	cotton Bollworm & Budworm	cotton
Tumbleat (Sid ethrids)	Air	D. Solidian	cotton

RECEIVED
APR 13 1979
SALT RIVER AGENCY

Salt River Farms
Farm

1979
Year

Brand Name or Common Name of Pesticide	Application Method	Reason For Use	Kind of Crop (If applied to Growing Crop)
Dimethoate 15% Bean	Air	Aphid	Sugar Beets
Sulfur	Air	Miller	" "
Gober - Treflan	Air + Ground	Weed Control	Cotton - Weed Control
GA Parol	Ground	" "	" " "
Cygon	Air	Aphids	Cotton
Supracide	Air	"	Cotton
Sevin	Air	Pink Boll Worm	Cotton
Ambush (Pyrethroid)	Air	Bollworm, Bollworm	Cotton
Balecron (Pyrethroid)	Air	Bollworm/Pink	Cotton
Azodrin EC	Air	Pink Bollworm + Mites	Cotton
Thuricide/Elcar (B.T.)	Air	Cotton Bollworm	Cotton
Tumbleaf (Sod Chlorate)	Air	Defoliation	Cotton

RECEIVED
APR 13 1979
SALT RIVER AGENCY

Associated Farming Corporation — Farm

1979 — Year

Brand Name or Common Name of Pesticide	Application Method	Reason For Use	Kind of Crop (If applied to Growing Crop)
* Plan To Start With Thuricide + Fundal or Galecron	Helicopter	Bollworm + Budworm	Cotton
* This No Longer works Ambush + Pydrin + Fundal or Galecron	Helicopter	Bollworm + Budworm	Cotton
We Plan To Wait Very Late Before we Apply Anything. After Taking Some Damage we will Try These Mild Sprays (Thuricide is Not A Hard Chemical)			
We Hope To use An Helicopter And will Not Fly or Turn over Any Land except North of Canal And over our Southern Most Field on Indian School Road.			

RECEIVED MAR 8 1979 SALT RIVER AGENCY

Mr. ECKHARDT. We have our distinguished colleague, James Weaver, who asked he be permitted to make a statement at this time.

We are delighted to have you. You may offer at this time or later give us a statement for the record. You may summarize it at this time if you like.

STATEMENT OF HON. JAMES WEAVER, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF OREGON

Mr. WEAVER. Thank you. I wanted briefly to relate to you some of the experiences that we have had in the forest field with chemicals. I represent the largest timber district in the Nation. Our national forests are heavily sprayed with certain chemicals—generally 2,4,5-T, 2,4-D, and silvex—to kill the deciduous plants that foresters feel inhibit the growth of the soft woods, which are the money trees.

It was from my area, in a place called Alsea, Oreg., that a woman named Bonnie Lee, who had miscarriages, decided there might be a connection between the spraying of these chemicals and her miscarriage, and began investigating other women's miscarriages in her area that brought upon the EPA temporary suspension of 2,4,5-T and silvex in the forests.

I did my own investigation of this and I find that the gentleman from New Jersey remarks actually were mild.

One of the things that has not been brought out about the miscarriage study that the EPA announced is that this is an area of rather pristine purity. This is way up in the forests where normal pollution, cars, and so on, do not come. Therefore, it is almost certainly attributable only to the chemicals put in there and which exist there, and that is these herbicides.

I want to make the simple point, as the gentleman from New Jersey did, and that is herbicide means to kill plants. "Cide" means kill. These are killer chemicals. They are designed to attack the chromosomes, the genetic structure of all living organisms—our own as well as those of plants.

As the chairman of the Forest Committee in the House of Representatives I want to know their effect on the very tree that we are trying to enhance—the Douglas-fir or the conifer tree. We put chemicals on them to release these conifers.

I was shocked to find out that we are spraying millions of acres of forest land in this country with these killer chemicals to kill the broad-leaved plants without one single research study on the effect of conifer itself of these herbicides. I was so flabbergasted I could not believe this.

I am going to introduce a bill and hold hearings with the Forest Committee on the effects of these herbicides on the very tree we need to build our homes in this Nation.

What I want to describe to you, however, is the story very briefly of a little girl, a 7-year-old little girl, named Angelina Lee. Angelina Lee and her mother, Rose Lee, were constituents of mine in Coos Bay, Oreg. They lived up on the East Millicoma River where a great deal of herbicide spraying is done on forests.

Angelina Lee came down with a disease called thrombocytopenic purpera. Her mother was concerned that it might, as the ladies

preceding me here said, have been caused by the chemicals had their water analyzed. Even though scientists said the chemical broke down within 1 day, they found traces of 2,4,5-T in their drinking water, and later on, as her disease progressed and became more serious, they found 2,4,5-T in her blood. That is an official laboratory analysis. The girl almost died. She had her spleen removed.

The timber industry then went, much like the Arizona Pesticide Control Board, to the University of Oregon Medical School where they got a doctor in the toxicology department to write a letter to the Coos Bay World, a local newspaper, saying there was no connection between thrombocytopenic purpera and 2,4,5-T, no connection at all.

They said it was a false alarm. This little girl is the most lovely and photogenic girl you have ever seen. Her picture appeared in the papers.

They were worried about this problem. They had documented proof there was no connection between her illness and the chemical they were using because this medical doctor said there was no connection between 2,4,5-T and the thrombocytopenic purpera.

They infuriated me so much I went to the medical textbooks to find the following experiment:

Morphological Changes in Monkeys Consuming a Diet Containing Low Levels of 2,3,7,8-tetrachlorodibenzo-p-dioxin.

Female rhesus monkeys fed a diet for nine months containing 500 parts per trillion 2,3,7,8-tetrachlorodibenzo-p-dioxin became anemic within six months and pancytopenic after nine months of exposure. The marked thrombocytopenia was associated with widespread hemorrhage.

In other words, directly caused, this chemical directly caused thrombocytompenic purpera. This is a loss of the chemical that prevents coagulation. Any bruise you might have would tend to continue to bleed if the blood does not coagulate because of destruction to the capillaries. The spleen is removed because the spleen kills platelets.

Therefore, again we have an instance where the medical profession catered too thoughtlessly to the industry.

I want to point out that I could go on and tell the subcommittee many other instances of the effects of this chemical, or suspected effects of this chemical, in the forests, and we must act. We must act now. We are poisoning our world with some of the most dangerous chemicals that have ever been conceived.

I urge the subcommittee to take any action it possibly can. I certainly will with the Forest Committee try to eliminate the use of these chemicals.

I thank the chairman for allowing me to make this statement.

Mr. ECKHARDT. Mr. Maguire?

Mr. MAGUIRE. Mr. Weaver, you represent a part of the country where there are great forests and agriculture. We are told again and again that we are dealing here with tradeoffs, that there are benefits to be derived from these pesticides, that people are being protected. Their food is being protected. We are told there will be a less costly product available as the result of being able to deal with pests, with weeds.

What is your response to that argument which we hear every time this issue is debated in the House?

As you know, the House unwisely agreed to allow the EPA to continue what was euphemistically described as a conditional reregistration program. This translated into allowing as yet unanlyzed pesticides to be marketed even though we don't know they are safe. What is your response to that argument?

Mr. WEAVER. The timber industry says definitely there will be enormous loss of wood if we do not use these herbicides.

As I mentioned earlier, they have never conducted one single experiment to see the effect of these herbicides in the very tree they are trying to produce.

I happen to know the Forest Service has a showcase stand of trees in the southern part of my district. For years they have been taking people out to show what a perfectly managed stand of trees looks like. They put herbicides on them early on, fertilized them, et cetera.

Mr. MAGUIRE. Probably play music to them?

Mr. WEAVER. They played music to them and everything. The interesting thing is that these trees are 20 years old. In 15 years they grew well. A Douglas-fir must grow 80 to 100 years before it becomes merchantable. It grew well for 15 years.

Suddenly 5 years ago they stopped growing. They stopped growing. It is extremely embarrassing to the Forest Service. They started to grow out laterally now.

I am making the point that we may have killed or stunted millions of acres of forest land in this country. They don't know. I don't know, either, but they don't know.

I can tell you if I had put this chemical on millions of acres of our forest land I would want to know for absolute certainty it had no effect on the conifer.

Mr. MAGUIRE. Why would they do that?

Mr. WEAVER. It is madness.

Mr. MAGUIRE. Why would they do that without being sure scientifically? They want Mrs. Watkins and Mrs. Prosnier—nothing can be done about them until they have absolute scientific certainty.

Mr. WEAVER. Pure madness.

Mr. MAGUIRE. As somebody said, "There are lots of decisions we make about regulating our lives without having scientific certainty." Why do we have this requirement that there has to be scientific certainty before we stop spraying people with things manufactured to kill?

Mr. WEAVER. Let me relate a brief story. We have to vote, I know.

I was talking to my office about this thrombocytopenic purpera. It is a high forest official whose name I will not mention.

He said, "Say, my wife's got that illness. It's caused by aspirin."

I said, "Caused by aspirin? When did she get it?"

He said, "1965."

I said, "Didn't she take aspirin before 1965?"

He said, "Sure, but that is when it culminated and started."

I said, "Where were you living in 1965?"

He said, "I was a ranger on X forest where they were spraying all that"—and his voice trailed off and he said, "Don't tell anybody I said this. Don't tell anybody I said this."

It is macho. It is in their culture.

Mr. MAGUIRE. What about these little organisms that apparently can be used instead of pesticides? Aren't we scientifically at the point where there are alternatives?

Mr. WEAVER. Many alternatives to brush control. It can be done very well by hand, much better by hand because they can go right up the stream beds, do it right around the existing tree without being afraid of damaging the tree. There are all kinds of different alternatives.

I could go into the agriculture but I will stick to forestry for purpose of this testimony.

Mr. MAGUIRE. Why isn't it the case that whenever people are actually living in the immediate area to be sprayed that you have to use other techniques unless you specifically apply for permission to use pesticides? In that case, the burden of proof would be on you. What would be the matter with doing it that way?

Mr. WEAVER. That is the very least we should do, the very least.

Where Angelina Lee comes from, 120 people live there. Right now 11 have cancer. That is documented, absolute, the names and addresses of everything—120 people and 11 have cancer; 1 of the 120 having died last year. He was a sprayer for the Weyerhaeuser Co. and he died of a strange blood disease they don't talk about. These are documented actual facts. I could go on for hours.

Mr. MAGUIRE. I am sure some people would say that is not a sufficiently large sample.

Mr. WEAVER. I understand that.

Mr. MAGUIRE. Therefore, some people would throw up their arms and say we can do nothing about it.

Mr. WEAVER. I understand that.

Mr. MAGUIRE. Thank you, Mr. Chairman.

Mr. ECKHARDT. We had Dr. Becking here who brought in samples of conifers showing the effects of some of the spraying on them. Of course the spraying was reportedly done in 1970, I think. There were very serious effects on conifers. We have exhibits in the back room at the present time so we are looking into that question.

Mr. WEAVER. I would appreciate that, Mr. Chairman.

Mr. ECKHARDT. I greatly appreciate your appearance here and your very strong and competent and well-thought-out statement.

Mr. WEAVER. Thank you, Mr. Chairman.

Mr. ECKHARDT. We had better take a brief recess for 10 minutes.

[Brief recess.]

Mr. ECKHARDT. The subcommittee will be in order.

Dr. Davies?

Do you solemnly swear to tell the truth, the whole truth, and nothing but the truth, so help you God?

Dr. DAVIES. I do.

TESTIMONY OF JOHN E. DAVIES, M.D., M.P.H., CHAIRMAN, DEPARTMENT OF EPIDEMIOLOGY AND PUBLIC HEALTH, UNIVERSITY OF MIAMI SCHOOL OF MEDICINE

Dr. DAVIES. Mr. Chairman and members of the Subcommittee on Oversight and Investigations, I am very pleased and honored by the opportunity afforded by this invitation to try and provide an overview on the topic of pesticide exposure and related human health effects. I would like to keep my remarks in my opening

statement to a minimum in order that there may be adequate time for me to try and answer any questions and concerns that you may have on human pesticide exposure and the related health consequences. My statement endeavors to provide an overview of (1) pesticide exposure, (2) modern techniques to quantitate these exposures, (3) known health effects and special areas of concern, and (4) the need for greater public health involvement in a future agromedical partnership for pesticide safety.

Before discussing these four areas, perhaps, I should introduce myself and briefly summarize my reaearch and training experience in those areas which qualify me to cmment on such important health concerns.

BACKGROUND EXPERIENCE

I am a physician, and presently, professor and chairman of the Department of Epidemiology and Public Health at the University of Miami School of Medicine, Miami, Fla. I have been concerned with the total health effects of pesticide exposure since 1965 when I was appointed director of the community studies on pesticides in Dade County, Fla., using the multidisciplinary approach in conjunction with the Florida State Department of Health. We were required to determine the total health effects of pesticides in Florida, a State second to California in pesticide usage. Since then I have continued working in this area and have published 63 articles including a book on the epidemiology of DDT as well as a training manual for health personnel entitled "Pesticide Protection." I have served as a consultant for the World Health Organization on several occasions as well as for the Pan American Health Organization studying the health effects of pesticides in Indonesia, Phillipines, Columbia, and El Salvador.

In the United States I was a consultant member for the Secretary's Commission on Pesticides—Mrak report—and the National Academy of Sciences on "Pest Control and the Assessment of Present and Alternative Technologies"—Donald Kennedy's report—and currently serve in the Office of Technology Assessment on pesticide management strategies and human monitoring. I am also a member of the FIFRA Scientific Advisory Panel for the past 2 years. These experiences both here and overseas have made me realize that there are a wide variety of health-related effects which stem from current pesticide usage practices, the nature and magnitude of which is ill understood and incompletely investigated.

At present many illnesses, both acute and chronic, are occurring here and overseas which are frequently unrecognized and theoretically preventable. To a certain extent the converse is also true for selected pesticides wherein a variety of claims on the occurrence of pesticide-related illnesses are being made, the history of these incidences are primarily anecdotal and lack indepth epidemiologic and laboratory verification. I believe that exposure assessment is the answer to these controversial public health issues. Comprehensive epidemiologic studies with appropriate laboratory exposure assessment is the only way that present health concerns can be adequately validated.

There are three succinct types of human pesticide exposure which can result in acute illness and which are in urgent need of study. These are, one, acute exposures which are the result of accidental spillage, drift, or saturation of the worker's clothing; two, chronic high occupational exposure to a single or multiple group of pesticides and which occur at the sites of manufacture, formulation, distribution, application and mixing, packing and disposal; and three, incidental or chronic low exposure such as is acquired by different general population groups and which is often the result of unrecognized contamination of the air, water, food, clothing, and dust which form an integral part of our modern-day environment.

There are three routes of absorption. These are: oral, respiratory, and dermal routes; skin and respiratory exposure being the most common routes under present operating conditions.

Advances in chemical methods development and analytical methods and instrumentation have become so sophisticated that it is often possible to obtain conclusive laboratory verification of acute pesticide exposures and document both qualitatively and quantitatively the occupational exposure of the worker and the incidental exposure of the general population.

In the past in the United States serious acute systemic illness have resulted from excessive exposures to the organophosphate and carbamate insecticides.

Red blood cell and plasma cholinesterase determinations have been the conventional method of laboratory confirmation of the cholinergic illness produced by these groups of pesticides. A blood sample drawn in a heparinized tube is all that is required by the laboratory to confirm the suspect illness.

Carbamates are being increasingly used and because of rapid reactivation of the cholinesterase enzyme, normal values are found not infrequently in such intoxications.

For these and a variety of other reasons, measurement or determination of the alkyl phosphate and phenolic metabolites in the urine of the exposed patient has assumed increasing importance and in many instances, particularly with the phenols, specific quantitation of the exposure can frequently be acquired by these urinary studies.

There are occasions, however, wherein worker exposure illness stems from some of the newer pesticides whose human metabolism is at present unknown. In these circumstances verification is possible through the measurement of the intact pesticide which can be identified on alpha cellulose pads placed on the workers' clothing or on the glove being used in the field to pick fruits or vegetables. I brought an example of this for you to see.

Our recent studies have shown that workers in the field find this cotton coverall is a useful garment to protect the worker. We put a little pad on the outside and another one on the inside. We can determine the penetration of the pesticide both on the outside and on the inside.

Again in certain studies we have used these gloves for pickers. These are specially selected. We ask the worker to wear this for an hour or so. We have these patches which are pulled off and then analyzed.

Clearly not only are these good ways of measuring the exposure of the worker but they also show that quite a lot of protection, absence of penetration, is afforded by the wearing of the gloves.

Here is a pair worn after 1 hour in the field. There is obvious exposure from the dirt and the tomato juices but we can identify the pesticide exposure the worker is sustaining by analyzing the gloves.

We have recently found in the laboratory that alpha cellulose pads were particularly useful in measuring penetration of pesticide through cotton coveralls. Penetration was minimal when these coveralls were changed on a daily basis and we are currently exploring the protective potential of such clothing by treatment of the clothes with fluoroalipatic carbon resin. The use of the cotton gloves is also a particularly sensitive way of determining worker exposure in the field. For the more volatile pesticides, the use of portable air samplers attached to the workers' clothing has been a very effective method of determining this type of exposure. In our ongoing studies in Florida of acute poisoning cases, we have found that the mixer-loader, particularly the individual who mixes and loads aircraft, is the single most severely exposed occupational category, and represents the group in which worker poisoning from pesticides has been most frequently reported.

Recent events, particularly those which have raised a variety of public health concerns such as carcinogenecity, sterility, delayed neurotoxicity, to name but a few, have specifically highlighted the importance of chronic exposure.

In addition to the acute pesticide poisoning problem, the magnitude and chronicity of these exposures and the potential of a variety of intervention procedures which can reduce or eliminate such exposures should become the dominant concern of public health.

Acute pesticide poisoning statistics for the whole of the United States are as yet unavailable. The most comprehensive data available is to be found in the State of California wherein the physician is reimbursed for his treatment of the poisoned victim only when the case has been notified to the workmen's compensation bureau.

An average of 1,468 poisonings annually were thought to have occurred between 1971 and 1973. These cases were not verified and almost certainly mild since only a few cases were hospitalized.

Dr. David Pimental and his colleagues have extrapolated data from regional poisoning statistics from California and South Carolina, and estimated that 109,280 human poisonings occur annually in the United States, and in 1974 the U.S. Environmental Protection Agency estimated 200 deaths per year from pesticides. These should be compared with the World Health Organization which estimated that approximately 500,000 cases occur annually with about a 1-percent fatality rate.

Thus, not only are there many data gaps on the actual number of poisonings but chemical laboratory verification information is equally deficient.

The U.S. Environmental Protection Agency has instituted a pesticide incidence monitoring system which is designed to ultimately document the magnitude of pesticide poisonings in the United States. The PIMS data center presently has 28,587 incidents on file, of which 20,555 are computerized.

During the first 6 months of 1979, the PIMS data center received 3,216 incidence reports. A survey of 5,495 current incident reports, 88 percent involved humans. Of the reported human incidents, 0.72 percent were deaths and 7.74 percent were hospitalizations.

In particular, of the 5,495 incidents surveyed, 25 involved parathion, 2 deaths; 16 involved lindane, 3 deaths; and 6 involved paraquat, 3 deaths. Paraquat is a special health problem since if it is accidently or intentionally ingested recovery is dependent upon immediate recognition and vigorous treatment.

Apart from systemic poisoning, dermatitis and injury to the eyes reflect a serious occupational hazard. The former is only reported in California and has been the leading cause of occupational morbidity in agriculture. Systemic pesticide poisonings which can often mimic other more common occurring medical conditions present the attending physician with a dire emergency which calls for a high index of suspicion, the need to implement vigorous and specific antidotal therapy immediately, and an indepth field investigation as to the mechanism and source of the poisoning.

The health effects of chronic pesticide exposure have been highlighted by a variety of medical problems in recent years. Chlordecone was the first organochlorine pesticide to attract attention because of the widespread occurrence of neurological disorders in the worker.

Further studies demonstrated toxicological effects in the nervous system, liver, and testes. Animal carcinogenicity was also demonstrated and the chemical was withdrawn voluntarily.

Leptophos was another example of a pesticide chemical which was suspected of causing neurological disease in the worker; it is a fat soluble organophosphorus compound, and delayed neurotoxicity was demonstrated in animals several years before there were reports of human and animal, water buffalo, poisonings. Both episodes reflected poor industrial management and deficient occupational monitoring.

More recently, reports of dibromochloropropane associated with male sterility and inorganic arsenic with increased lung cancer prevalences were identified as a result of greater indepth medical evaluation of the workers and an epidemiologic study of pesticide plant employees.

Interpretation of these health effects was facilitated by the fact that the exposure was to single pesticides. Much more complex is the situation when multiple exposures occur.

The documentation of incidental pesticide exposure is the responsibility of existing national human and environmental pesticide monitoring programs under the U.S. Environmental Protection Agency. Recent events such as the documentation of DBCP in the well waters of California and Arizona, and episodes such as the Love Canal, highlight the public health importance for the continuation and expansion of these monitoring activities.

Events have shown that incidental pesticide exposure is often unrecognized and the environmental identification of the location of these "hot spots" as well as the time trends of residues within the population present a vital public health concern to all.

These several health-related effects of pesticides which have been described are of special concern to agriculture and public health.

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They have emphasized the need for an interdisciplinary monitoring alliance for future pest management techniques.

Agromedicine has been defined as "the integrated interdisciplinary application of the skills and knowledge of agriculture, applied chemistry, and medicine to the production of an adequate and wholesome food supply for the welfare of man."

Some degree of chemical control of pests and vectors seems likely for many years to come if we are to insure an adequate global food supply and expect to continue to control vectorborne diseases. Thus, pesticide management is a good example of an area in which the agromedical approach affords the means of utilizing the safe and effective techniques of this technology.

Because of the problem of increasing pest resistance, agriculture is turning toward the integrated pest management philosophy. Here agriculture has been primarily concerned with crop protection strategies. Man, too, is an important member of this agroecosystem so that public health needs to be more directly involved in the health responsibilities which stem from these changing pesticide management strategies.

Thank you, Mr. Chairman.

Mr. ECKHARDT. From whom would you collect exposure data, what agency, or do you think it should be from a number of agencies?

Dr. DAVIES. By which agencies?

Mr. ECKHARDT. Yes.

Dr. DAVIES. When an acute poisoning occurs in an area, this is a public health problem and I would like to see conventional public health departments go out and investigate this, ascertain its mechanism, just as they used to in the past when they had a case of typhoid. It is a serious public health problem which is currently not the responsibility of the local health departments in many areas.

Mr. ECKHARDT. Do you believe that collection of these data is essential to our understanding of the adverse health effects which might result from pesticide exposure?

Dr. DAVIES. I believe that those health effects classified as acute poisonings would lead to correct decisions being made about the continued use of the offending agent in our society.

With regard to the chronic exposures, I think it involves a much greater indepth study by epidemiology, particularly in the workplace and in the field.

Mr. ECKHARDT. The collection of the data, of course, can be done by one agency and the epidemiology and studies done elsewhere, I presume. That is if the proper techniques were used in collecting the data in the first place.

Dr. DAVIES. That is right. However, I believe that epidemiologic studies should be multidisciplinary. I think we have to have those skilled in ecology and persistence of chemicals in the field who can lend much to our interpretation of health effects we are suspicious of.

Mr. ECKHARDT. I had worked on the Toxic Substances Control Act and immediately after its passage I went to the medical school at Galveston, Tex. I had a discussion there with persons concerned

with toxicology. They told me there was a great shortage of toxicologists.

Dr. DAVIES. Yes, sir.

Mr. ECKHARDT. The problem is difficult because of that shortage.

Do most of the medical school programs you are aware of include adequate training in the area of pesticides, herbicides, poisons, both acute and chronic?

Dr. DAVIES. You hit on a sore spot and weak spot. Seldom does one see, for example, questions on pesticide safety and toxicity and human health effects in the ordinary national board examinations. That is the first place to start. You get that and then you have a greater time for teaching this. It is very deficient at the moment.

Mr. ECKHARDT. I would think that the injection of poison, chemical poisons into the environment, might cause considerable difficulty in diagnosis because the results might be something that would be similar to common diseases and frequently the real cause of the poisoning might escape notice unless there is more trained personnel to detect this.

Dr. DAVIES. I agree with you, Mr. Chairman.

Mr. ECKHARDT. Can you give me examples of problems which might result from misdiagnosis and treatment of pesticide and herbicide poisonings?

Dr. DAVIES. Very definitely. Only last week I was called in to consult on a paraquat poisoning where the institution of immediate treatment is essential. I do not think it was fully recognized for several hours.

Another classical example is the recent public health problem stemming from poisoning by vacor, which I understand has been withdrawn. This was a rodenticide. There are not reports of children ingesting some of it. They are not very sick for a day or two, and often would go home only to come back 2 or 3 days later with diabetes. Here again the index of suspicion suffers from a lack of publicity and education on the rapidly changing profile of chemicals in our environmental and hazards they present to health.

Mr. ECKHARDT. Your testimony has been very helpful to this committee. We certainly appreciate your staying here. We hope we have not held you here too long.

Dr. DAVIES. Thank you, Mr. Chairman.

Mr. ECKHARDT. The subcommittee will be in recess until 2:30 p.m.

[Whereupon, at 1:22 p.m., the subcommittee recessed to reconvene at 2:30 p.m.]

AFTER RECESS

[The subcommittee reconvened at 2:30 p.m., Hon. Bob Eckhardt, chairman, presiding.]

Mr. ECKHARDT. The subcommittee will resume its hearings.

Dr. Tessler, please.

Do you swear to tell the truth, the whole truth, and nothing but the truth, so help you God?

Dr. TESSLER. I do.

TESTIMONY OF IRVING TESSLER, M.D., SACRAMENTO, CALIF.

Dr. TESSLER. My name is Irving Tessler. I am a licensed physician in the State of California. I am a specialist in psychiatry and family practice. I am certified by the American Board of Psychiatry and Neurology and certified by the American Board of Family Practice.

For the last few years I practiced in a rural health clinic in Humboldt County in northern California. Currently I reside in Sacramento doing some extra post graduate training.

The area where our clinic is located is southern Humboldt County. We serve a population of about 10,000 people. Only about one-tenth of those would be considered patients, about a 1,000 people.

I am mostly here to tell you the story of something that happened a couple years ago in the area of my clinic, something which happened while I was practicing medicine, which I was unable to explain at the time and which I wanted to bring to the people's awareness. This was in 1977 in the spring.

The area around where I practice is an area which has been heavily sprayed with herbicides for some time. Spraying took place, 2,4-D and 2,4,5-T, in the spring of 1977. I have more explicit dates.

What happened was that following the spraying certain changes began to occur in terms of who was coming into the clinic and why. I noticed these changes and I was just puzzled by them. I didn't understand what they meant and what to make of them.

Certain illnesses were on the increase. I had no explanation for why they had suddenly increased within a period of a few weeks.

Another odd thing about the occurrence was that many of these illnesses were unseasonable so that as we got into the month of May I should not really normally have been seeing a lot of flu, sore throats, and certain illnesses totally out of season.

Many of the people who came in had been very healthy young people who had no illnesses, and particularly no illnesses with the types of systems of their body which were now involved. These people never had this type of problem. It was a brandnew type of problem for them.

Many of these people were totally unaware there was any spraying going on. Some of the people who came in mentioned there was spraying, and I didn't really know what to make of it or whether to make anything of it. There was a question asked this morning about education at medical schools. I certainly never heard the words "herbicide" or "pesticide" when I was in medical school.

However, when I was a medical student, at just about the time that the Surgeon General announced a connection between cigarette smoking and cancer, I remember reading some of the hearings that were going on and how people were telling a lot of horror stories and quoting a lot of statistics and various people from the industry were saying, "You have no scientific proof; you just have stories."

Now it is 1979 and the industry still is saying the same thing, there is no scientific proof. That is a lot of what is happening in hearings throughout the country. People come in with horror stories such as you heard yesterday and today, and then somebody

says, "We can't scientifically connect these so the burden of proof has to lie somewhere else."

Because of the findings and because I was not certain what was going on I conducted my own small little study. There is one sheet of paper I have passed out which perhaps you have in front of you. It shows a little bit about what I have observed.

Mr. ECKHARDT. Without objection, that chart entitled "Redwoods Rural Health Center" will be made part of the record.

[The chart referred to follows:]

REDWOODS RURAL HEALTH CENTER
REDWAY, CALIFORNIA

	PRE- SPRAY PERIOD 3/8/77 to 4/22/77		POST-SPRAY PERIOD 4/27/77 to 6/15/77	
NUMBER OF CLINIC DAYS:	14		15	
NUMBER OF PATIENTS SEEN:	135		132	
GASTROINTESTINAL	✓	1	✓✓✓✓✓✓✓✓	8
RASH	✓✓	2	✓✓✓✓✓✓✓✓✓✓	10
URINARY TRACT INFECTIONS	✓✓✓✓	4	✓✓✓✓✓✓✓✓	8
UTERINE BLEEDING	✓	1	✓✓✓	3
MALAISE	✓✓	2	✓✓✓✓✓✓✓✓✓	9
		10		38

Irv Tessler, M.D.

Dr. TESSLER. I have divided the clinic visits into two 6-week periods of equal length. I call them the prespray period and the postspray period. You can see on this sheet a number of clinic days. That means during the 6-week visit there were 2 or 3 days that the clinic was open during that time. Almost an equal number of patients were seen.

Then I have used check marks to indicate the illnesses that I saw and what happened to these illnesses after the spray. This is when I went back 6 weeks after and began to try to see whether there was some kind of trend occurring.

The numbers you have before you are what I would like to point out.

The first category is called gastrointestinal, nausea, vomiting, stomach cramps, and diarrhea. As you can see, in the prespray period we had one report of such a problem. There were eight in the postspray period. Again these are the two 6-week periods, prespray and postspray.

Rash, two in the prespray period and 10 in the postspray period.

Urinary tract infections, four prespray and eight postspray.

Uterine bleeding, one prespray and three postspray.

Malaise, or just general sickness, prostration, two prespray, nine post-spray.

I was struck by this. I could see some of the illnesses increased four or fivefold and I don't know why. I tried to culture out some of the diarrhea, some of the sore throats, some of the urinary tract infections. No bacteria grew out of any of these infections, which was very strange and not the usual type of thing I expected to find.

Therefore, I didn't know what to make of it other than a big change had occurred. I went back and did another 6-week period before the first 6-week period. Those two 6-week periods looked the same. Therefore, I knew a change had taken place.

I didn't know much about the sprays. I just let people know this had happened.

Also it is important to note that I see about one-tenth of the general population, about 1,200 people being considered my patients of the 10,000 who live in that area.

There are other physicians working in the area and from what I hear they were not interested in keeping numbers or filing pesticide illness reports, so I cannot tell what was going on there.

In addition to these physical ailments, it would be difficult for me now to recount for you the amount of psychological damage that was being done at that time. There was a tremendous amount of fear and anger and depression and anxiety. People did not know what to do. They didn't know whether to leave their homes. Pregnant women didn't know whether they should have abortions. Nobody really knew what to do, and the anxieties mounted considerably. There were a lot of anxiety-related ailments going on.

I say this because I think the psychological component of the mental health of the community suffered almost as much, or maybe even more than, the physical because people were so unsure of what was going on, were so unsure of what it was that was affecting them.

I looked into it and found, as we heard today, there wasn't much that could be done in the way of scientific practice.

Somehow we got a call from the Environmental Protection Agency. They wanted to do a study on the mothers' milk. They would look for traces of phenoxy herbicides, traces of dioxin in the mothers, breast milk of nursing mothers. Wonderful. Finally, somebody would do a test and figure out whether this was really affecting the people because we knew the residue was stored in fat cells.

The EPA took samples from that geographical area in November 1977. The EPA has never published the results. Nobody knows what happened to the milk samples. Nobody knows whether the tests have been done. Nobody can get a straight answer. It is almost 2 years since the EPA took those tests. Perhaps somebody from the EPA today will be able to tell us why we could not get an answer.

A lot of women in our clinic came in and gave breast milk. It was not an easy thing to do. We couldn't get an answer of what happened.

All right. That was 6 weeks after the spraying. Since that time I learned more about phenoxy herbicides. Since that time there have been a lot more serious illnesses coming out.

The incidence of several things has changed in our county. Complications of pregnancy, miscarriages, and birth defects are common. These have come out since the time I did my study. I have not seen a lot of people and I cannot give you now my own figures because these were not the figures from my clinic, but I can, some partially myself and some partially through other documentation, give you an indication of what is going on.

Under pregnancy complications a lot of hemorrhaging. Under pregnancy complications I would have to quote. I think perhaps I could at this time ask to enter into the record a transcript of a documentary film that I believe this subcommittee saw last week, the "Politics of Poison," in which I appeared and helped to collect some of the data.

I would like to ask that this transcript be submitted.

Mr. ECKHARDT. The transcript, without objection, will be included in the file of the subcommittee.

Dr. TESSLER. For those of you who saw this documentary, it tells in great detail about many of the case histories of what happened. Some very distinguished scientists give their findings in it. There is very startling evidence.

There is some evidence out of a town called Orleans, Calif., that is absolutely incredible why there have not been people investigating sooner, and that is anbody's guess.

There is one condition called mole pregnancy. A mole pregnancy is a condition where there is conception taking place and instead of a fetus growing a large fungus-like tumor that looks like a cluster of grapes grows. This is a rare condition and it occurs 1 in 10,000 births.

In Orleans, Calif., they have had two in the last 3 years. Orleans is a heavily sprayed area. Population is 650.

Cleft palates occur 1 in 1,000 births. I don't know the incidence in Orleans except I know there are three children at a day care center who have had cleft palates.

The number of incidents of other types of problems, including partial hip disk locations, is astounding in this one particular area.

In 1976 there is documentation in the transcript I just submitted of seven pregnancies. There were seven pregnant women. Three miscarried, one had a medical abortion. That left four births. One had a cleft palate, one had an eye deformity, one had twisted limb, a variation of a dislocated hip, and one baby was normal. This is in and around the town of Orleans.

That is the extent of the evidence I would like to submit. I would like to say I have gone to a few hearings since I found these results. I get an optimistic/pessimistic kind of experience when I go because what I found is that there are some concerned legislators who listen, who sound concerned and I think they are concerned. For some reason it tends to die out after these hearings and nothing happens. I don't know a lot about the legislative process so I don't know where things die out. I am just making an appeal because I know that a lot of you have been moved and outraged by what you have heard in the last couple of days. I would just like to see it not die.

At these hearings various people from the industry get up and say the materials are safe; no one has gotten sick; there is no harm which has been done.

Well, I have seen their people. They are my patients. I have been responsible for the care. I have seen the harm these can do.

Thank you very much.

Mr. ECKHARDT. Mr. Gore?

Mr. GORE. Thank you, Mr. Chairman, and thank you, Dr. Tessler.

This survey which you gave us, you went back and reconstructed this from your own records?

Dr. TESSLER. That is right.

Mr. GORE. You have two periods, prespray and postspray. The spraying took place when?

Dr. TESSLER. The 24th and 25th, as I recall.

Mr. GORE. April 24 through 25?

Dr. TESSLER. Yes.

Mr. GORE. And you found a tremendous increase in all of these disorders after the spraying?

Dr. TESSLER. Yes.

Mr. GORE. And you come to the obvious conclusion that the spraying in some way caused the increase in disorders?

Dr. TESSLER. To myself I have come to that conclusion. At a scientific meeting I don't know what to say to anybody.

Mr. GORE. You are a doctor. You have been in medical school. Does it trouble you that a lot of the evidence that we are hearing during these proceedings is of this nature or is this the best we can do with these substances? How do you respond to that? Do you understand what I am getting at?

Someone who was attempting to defend the indiscriminate use of these chemicals might sit here and say that nobody has established a definite causal reason. You cannot say this urinary tract infection on June 7, 1977, was definitely caused by the spraying which occurred on April 25, for example. You are a doctor with scientific training. Your evidence is challenged in that way. How do you respond?

Dr. TESSLER. I would probably not respond so much from my professional background as much as a person asking the question—

is this the way the system should work, that the burden be on me to show that it is absolutely true that my results are due to sprays? Should that be the question? Is that the way we should be working, that it is innocent until I or somebody else can prove at the laboratory that it is guilty? I think that is the question.

Mr. GORE. I notice that one of the leading experts in this field, Mr. Meselson, a biochemist at Harvard, has said that the leading scientists in the field still do not even know how dioxin causes the effects that it does. I would not attempt to respond to the question I posed to you, but it has caused me some difficulty.

I think the only response is that these chemicals are very new. The effects are not fully understood. Yet, the exposure is massive. The number of people being exposed to huge amounts of these chemicals should lead one to adopt the approach that you recommended in your response but shift the burden of proof where the risk appears to be this great.

In the interim look at the circumstantial evidence inasmuch as it is the best we can find and inasmuch as it is so compelling and inasmuch as the tragedies suspected of being caused by these chemicals are so vast, so tragic, let us exercise the thought and let's err on the side of prudence and try to minimize the amount of danger to which we are subjecting these people.

Along those lines has it been your experience that doctors have a clear understanding of the effect and proper treatment for pesticide poisoning?

Dr. TESSLER. The only one that is popularly known now is paraquat. There is a lot of publicity about it. All the hospitals are well trained. They are seeing a lot of paraquat poisoning.

When it comes to the other chemicals popularly being used and making headlines I have never, other than at a hearing, run into any doctor who knew anything about it.

Mr. GORE. So, something like this 2,4,5-T, 2,4-D, silvex, as to these doctors just are not prepared to diagnose the effects, such as silvex poisoning and 2,4,5-T poisoning. Is that your testimony?

Dr. TESSLER. That is true.

Mr. GORE. Do you believe that problems caused by these substances are often misdiagnosed by doctors and treated incorrectly?

Dr. TESSLER. I think that is a very safe assumption.

Mr. GORE. What do you do about it?

Dr. TESSLER. I can throw out easy phrases such as education and public health, but they are not effective systems.

Mr. GORE. We have thought about it at all of the hearings.

Dr. TESSLER. I wish I had better answers. However, making noise I think does help. Bringing it to the attention of the media and the citizens does eventually seem to bring about some change, as it has with some of the things which have been banned. However, it is a little bit late, such as with DDT and several others. However, you have to start somewhere.

My understanding, and it is in this transcript I submitted, I think I heard there are 20,000 to 25,000 chemicals in use and the EPA is supposed to be investigating them. They are now being used and their safety has not been established. I think you will find that figure to be from the EPA, in their files.

Mr. GORE. We have a figure of 30,000.

Dr. TESSLER. Yes; I wish I had an easier answer for you.

Mr. GORE. It is a tough problem. As a doctor I know you have wrestled with it.

I certainly would like to commend your industriousness in going back and providing this evidence for the subcommittee. This is scientifically arrived at even though the causal link is not specifically tied down. However, it is certainly very clear that there was a dramatic increase in all of these different categories immediately after the spraying around this community occurred.

I would like to thank you for caring enough to get involved and caring enough to do this extra amount of work.

Thank you, Mr. Chairman.

Mr. ECKHARDT. Mr. Maguire?

Mr. MAGUIRE. I have no questions.

Mr. ECKHARDT. Thank you very much, Doctor, for your interest and your participation. It has been very valuable.

Dr. TESSLER. Thank you for the same.

Mr. ECKHARDT. Next we have Mr. Ralph Lightstone.

Do you swear to tell the truth, the whole truth, and nothing but the truth, so help you God?

Mr. LIGHTSTONE. I do.

Mr. ECKHARDT. You may proceed.

TESTIMONY OF RALPH LIGHTSTONE, STAFF ATTORNEY, CALIFORNIA RURAL LEGAL ASSISTANCE

Mr. LIGHTSTONE. Thank you for providing me the opportunity to speak to you today about the poisoning of farmworkers and their families by pesticide chemicals.

I would like to read excerpts of my written statement and then go on to some other points, some of which have been raised this morning. [See p. 158.]

Before I do that, in the summer of 1969 Senator Mondale's Subcommittee on Migratory Labor held a series of hearings on pesticides and the farmworker.

Each issue which has been raised here today, the incidence of death, acute poisoning from pesticides, lack of information about the chronic effects, drift of pesticides onto workers and others, failure of the health care community to diagnose and treat pesticide poisoning cases, lack of reasonable standards, and enforcement of those standards by responsible Government agencies, each of those issues was aired at those hearings one decade ago.

The primary difference in our experience between then and now is that the problem has gotten worse.

Pesticide use overall has more than doubled since that time. There is a multitude of new pesticides, many untested now in use. The pesticides which have been banned since that time, such as DDT and certain other chlorinated hydrocarbons, are less toxic than those they have been replaced with, organophosphates and carbomate.

Acute pesticide poisonings remain largely uncounted. Chronic pesticide poisonings remain undiagnosed.

We are still in a situation which Mr. Gore alluded to a few moments ago of anecdotal evidence of the problem of chronic poisonings.

The final point, the loss of crops to pests appears to have significantly increased as well. I cite in my statement here a study showing that even growers are losing out under the scheme of things.

I would like to read into the record—I have provided the committee with an original copy of it, an affidavit from a woman in Florida being represented by Florida Legal Services. Let me read portions of her affidavit if I might.

She speaks in this affidavit about her husband who was a farmworker in Florida. He was not a full-time pesticide sprayer but a general farmworker who occasionally was called upon to do pesticide spraying.

During the first week of April 1979 my husband was requested to spray parathion poisoning on several occasions.

Specifically, he sprayed all day on April 4, 5, and 6.

Because he sprayed continuously for a few days, his clothes as well as his body smelled like the pesticide. Even after he took a bath, he still had a slight odor of the pesticide.

During the course of the week my husband complained to me about feeling ill. In particular, he stated that he felt weak and dizzy; he complained about headaches and nausea and the fact that he had lost his appetite. His chief complaint, however, was that he was having difficulty breathing and had developed a strange cough.

On Friday, April 6, my husband consulted a physician in Delray because of his breathing problems. The doctor prescribed duracillin for the respiratory problem and periactin tablets for his loss of appetite.

That weekend my husband elected not to work, since he wasn't feeling well.

On Monday, April 9, my husband reported to work and was told to spray another field with parathion.

He was gone all day, presumably spraying the fields. At about 4:30 in the afternoon his brother, Guadalupe Gonzalez, went to look for Luis since he had not returned for lunch. Guadalupe and his son found my husband face down on the ground behind the sprayer. According to Guadalupe, Luis' body was twitching even though he was unconscious. When he picked up his brother, he noted that my husband was foaming at the mouth. They rushed him home and then to the hospital. The grower's son called the hospital and reported that my husband had been spraying parathion.

After the initial observation at the hospital, the doctor diagnosed parathion poisoning and also stated that my husband may have also suffered a mild stroke. I was told that he may not make it through the night.

Later that night, he was transferred to the intensive care unit. He was in the ICU for approximately two weeks, after which he was transferred to a semi-private room.

During the course of his stay in the hospital my husband was in a state of semi-consciousness and he could not speak. I visited him every day, and although I felt he recognized me he could not speak to me.

He was released on April 28, and although he was conscious he could not use the right side of his body and had to remain in bed.

On May 2, we took him to the hospital for his first physical therapy session. When we arrived at home, my husband went into convulsions. We rushed him back to the hospital. A short time after our arrival, he was pronounced dead. On May 8 we buried my husband in Texas.

The last 3 weeks prior to my husband's death were the most painful and difficult days of my life. I felt hopeless knowing that my husband was in pain and could not speak out.

I am left alone now with my two sons. I have no skills and cannot work.

I present my situation to this committee in the hopes that something could be done to prevent this from happening to someone else.

Every time we examine a pesticide poisoning incident there are lessons that come out that seem to be repeated again and again but do not get heeded. There are several issues raised here that the committee has already heard about, one of which was the question of this man spraying parathion for several days who went to a

doctor to seek assistance, and yet apparently he did not receive the assistance he needed. He went back to work in the fields with parathion.

One thing that is not in this affidavit, although I have discussed this case with them, is the fact that he was not wearing protective equipment such as the equipment that Dr. Davies showed to the committee earlier. In fact, the kind of gloves, the rotted-away gloves Dr. Davies showed the committee, are the common ones found, at least in California in my experience, when farmworkers are provided with gloves, which is extremely rare. When they are provided it is done seasonally. The problem of lack of provision of safety equipment is endemic in farming.

I would like to touch on an area which also was discussed here this morning, which is the drift of pesticides onto bystanders. Many pesticide poisoning cases have been discovered involving drifts. As recently as May 14 of this year in San Luis Obispo County 18 people were hit directly with spray from a nearby field and they developed the classic symptoms of organophosphate poisoning.

On May 3 of this year northern Santa Barbara County, some were poisoned by application from a helicopter nearby.

In terms of the application of defoliants to cotton which you heard about in the Phoenix area, the Mendota City schools, on the west side of Fresno County, had to close for a week last fall, last September, because of the drifts of cotton defoliants during the cotton harvest around that town. The children were complaining of respiratory problems so they closed the schools so the harvesting could proceed.

In July of last summer an application of toxin drifted into a labor camp in Stanislaus County, Calif. Thirteen children became ill that morning when they went out to sit on the grass and play on the grass and have their lunch there.

We took residue samples and found residues of orthorylene on the grass in the schoolyard in the labor camp. I have filed a lawsuit on behalf of the children against the grower and the applicating company.

Typical of the State's response in that type of situation was the immediate response that the pesticide did not cause the poisoning, even though the symptoms that the children exhibited are described on the labels of the pesticides involved, even though the children became ill within several hours after the spraying occurred, and even though we have laboratory proof that they had been exposed to the chemicals.

The problem of drift, at least at one time, was understood quite well by the Environmental Protection Agency. I have handed out to the committee and I submit for the record an excerpt from a report, which I will also offer to the committee, on pesticide regulatory programs in California. This excerpt summarizes five pesticide use observations studies that EPA did in 1976 and 1977. EPA went out and watched the application of pesticides by air and by ground application in order to find out what it was like in the field.

In each of these applications they told the applicator they would be watching this application.

In the four aerial applications where the applicator knew that the EPA was observing and testing, three resulted in substantial drift.

The one in Monterey County, the helicopter allowed the pesticide to drift into a schoolyard and a labor camp. This was a test application for EPA.

In Mississippi there was an application of metylparathion for cotton. Twenty-five to thirty-five percent of the pesticide drifted from the treated field up to 100 meters into a pasture, a creek, a soybean field, and a lake.

In Imperial County 30 percent of the spray on cotton drifted, and it was located in metropolitan areas according to the EPA report.

In the one ground rig application observed in the series of studies they found the pesticide 300 feet downwind. There was nearby contamination of pastures and ponds.

In the conclusion of one of EPA's own reports in 1976, which is cited in this chart which I presented the committee, EPA says this:

> From this pesticide use observation study and associated literature search, it has become evident that complete drift control no loss beyond the treated field cannot be achieved with any devise commercially available.

That is the experience that our clients have had and that the people in Phoenix have had, and it has been documented here, and repeatedly. The draft report of the environmental assessment team in California came up with an estimate of how much that means in terms of drift in California. In 1977 they estimate that 17 million pounds of pesticides landed on other property than the targeted property from aerial application.

I could go on with numerous other pesticide poisonings which resulted from drift. The thing that amazes me is that after all these years and all these studies and the discussion 10 years ago with regard to this problem there is no apparent change in the regulation of aerial application to prevent drift. There are some techniques available at least to reduce the risk.

I would like to speak for a moment about the standards that EPA has adopted for the protection of farmworkers. OSHA does not have jurisdiction over pesticides over farmworkers according to a court ruling but it has jurisdiction over protecting factory workers from the same chemicals, toxic substances including pesticides. Pesticides are manufacturerd in factories. They are protected by OSHA standards. Farmworkers have to rely upon EPA to adopt standards for their protection. I think the contrast is extremely important to understand why there are so many poisonings among farmworkers.

Congress has mandated for factory workers coverage by OSHA of toxic substances, that exposure limits be set to prevent harm to an employee regularly exposed to toxic substances over his or her lifetime. EPA has taken a different approach to setting exposure standards for farmworkers. It does not set them. The most vivid example of that problem for me relates to DBCP. This is a case where I represent a number of farmworkers.

In 1977 it was discovered that DBCP caused sterility among factory workers in California, Arkansas, and Alabama. It was discovered it was a highly potent carcinogen. It produced cancer early and at high rates among animals tested at low doses.

OSHA has adopted a DBCP standard for the protection of factory workers of one part per billion as an inhalation standard and zero dermal exposure.

EPA, which is supposed to protect farmworkers from the same substance in the field, has not set an exposure standard. It does not intend to set an exposure standard.

When asked why not, the general counsel's office gave us an astonishing explanation. EPA does not believe it has the authority to limit exposure of farmworkers to pesticides through an exposure standard. What that logic means is that EPA believes that Congress has granted it an authority to allow the use of a pesticide but not to set a limit on how much farmworkers can be exposed to it.

Another major distinction in the approach of EPA and OSHA. OSHA law squarely places the responsibility for the protection of workers on the employer. The OSHA standard for DBCP says that employer shall provide, the employer shall prevent exposure, the employer shall assure that the workers change clothes, all the way down the line. The employer is responsible for the training of the workers.

Mr. ECKHARDT. EPA has completely failed in this regard. If you read an EPA label such as the one for DBCP, you will find no allocation of responsibility.

Another comparison I think demonstrates the incredible failure of EPA to adopt standards for the protection of farmworkers. The longest worker reentry interval—let me pause for a moment to explain what that is. The State of California and EPA to a much lesser degree have tried to prevent some exposure to fieldworkers. This is not applicators but fieldworkers. They do this by limiting the amount of time, setting a time limit before which workers cannot reenter a sprayed field. This has been a major poisoning problem for farmworkers, entering fields for harvesting and other labor purposes and exposed to heavy residues.

One method of protecting them is to set a reentry interval. The longest reentry interval set by EPA is 48 hours.

California, and I have submitted to the committee a copy of their regulations, for the same pesticides, such as ethylparathion, where EPA allows reentry after 48 hours, California prohibits reentry from 30 to 60 days. That is based on repeated poisonings.

I would urge the committee to have a look at the comparison of the entire California farmworker regulations which I have submitted, compare them to what EPA has done. It has basically abdicated responsibility in even adopting worker safety regulations.

There was discussion earlier about the capability of State agencies to enforce pesticide protection laws and to protect the public in Arizona. EPA has delegated the enforcement of pesticide laws to 35 States. In most of those States the delegate agency is an agriculture department or pesticide control board. In California it is the California Department of Food and Agriculture.

The California Department of Food and Agriculture further delegates responsiblity to the local county agricultural commissioner.

The result of this, and I think it was explored earlier, is that the people responsible for enforcing pesticide protection are primarily concerned with promoting the agricultural industry. They have a conflict and they have a difficult time doing that.

Mr. GORE. You are saying that is true in California as well as in Arizona?

Mr. LIGHTSTONE. Yes, it is. In California, which is counted as the best system in the country, the problem is incredibly severe. We have sponsored legislation in each of the past several years to correct that by bringing farmworkers in California within the California OSHA program's protection.

One of the things that is most disappointing is that after all the years of farmworkers being discriminated against in various programs we find today basically all workers are under protection of the OSHA program except farmworkers in pesticide safety. That legislation has been fought vigorously by those who have a vested interest in the status quo—chemical companies and agriculture.

I relate in the testimony I submitted the largest penalty on record for the poisoning of workers in California was for the poisoning of 118 workers in Madera, Calif., in 1976. The penalty was $1,750, or $14.83 per worker. That is the record. That is hardly a deterrent. The grower in that case who is found guilty of numerous violations of pesticide safety regulations got his crop harvested and got his profit out and $1,750 is no deterrent at all.

Our problem is that in California we have to rely upon county agricultural commissioners to bring such enforcement action. In another county the next year, in 1977, we had the clearest violation that you could expect to find investigating an insecticide poisoning case. Warning signs were taken down and workers taken into an orange grove before the safety period was up. In that case there was no penalty whatsoever for the grower.

EPA to our knowledge has participated in at least one major criminal action in recent years in California for violating pesticide laws. It was not on behalf of workers. It was for the poisoning and killing of ducks in Glenn County.

Mr. ECKHARDT. Does that complete your testimony?

Mr. LIGHTSTONE. Let me make one additional point, if I might, which is not in the written testimony. What EPA has done instead of adopting regulations governing the protection of workers is that it relies totally on the label which goes on the pesticide can. It puts all of its warnings, controls, equipment requirements where there are any, and there are few, on a label that goes on the pesticide container.

There was a study done several years back of farmworkers to find out how many understood what was on the label. Out of 1,400 farmworkers interviewed by an agricultural economist who was doing the study for the University of California it was found that 14.5 percent could read and understand fully what was on the label, that is if one were presented with the label.

It is clear to anyone familiar with practice in farmwork and in farming that labels do not communicate or train or warn farmworkers about hazards of the chemicals. In fact, one could take that as a measure of the fact that farmworkers are ignorant. However, in researching the DBCP and the propene poisoning in California in the last 3 years, where there are numerous cases, I discovered the county agricultural commissioners apparently don't know what is on the labels either. Out of dozens of investigations of acute poisonings involving these substances not one single county

agricultural commissioner correctly identified the safety equipment which is mandated by the label. Each investigation report calls for investigation or to write in what safety equipment is required in this particular case. Not one correctly identified the correct type of equipment.

Even a cursory survey of the investigations by the experts in California reveals they don't know what is on the label. Therefore, EPA's reliance on labels, as in the case of DBCP and thousands of other pesticides, is completely misplaced. I think it evidences total lack of understanding of what is going on with farmworkers and the use of pesticides on farms.

Thank you, Mr. Chairman.

[Testimony resumes on p. 217.]

[Mr. Lightstone's prepared statement and attachments follow:]

56-594 o - 80 -- 11

Before the Subcommittee on Oversight and Investigations
of the House Committee on Interstate and Foreign Commerce
June 27, 1979
Statement of Ralph Lightstone
Staff Attorney, California Rural Legal Assistance

Thank you for the opportunity to speak to you today about the poisoning of farmworkers and their families by pesticide chemicals. In the summer of 1969, Senator Mondale's Subcommittee on Migratory Labor held a series of hearings on "Pesticides and the Farmworker." Each issue raised here today - the incidents of death and acute poisonings from pesticides; lack of information about chronic effects; drift of pesticides onto workers; failure ot the health care community to diagnose and treat poisoning cases; lack of reasonable standards, and enforcement of those standards by government agencies - each of these issues was aired at those hearings 10 years ago. The primary difference, between then and now, is that the problem has become worse. Pesticide use has more than doubled. A multitude of new pesticides are now in use. The banning of a handful of pesticides, notably DDT and certain other chlorinated hydrocarbons, has shifted insecticide sales to the more toxic organophosphates and carbamate compounds. Acute pesticide poisonings remain largely uncounted. Chronic poisonings remain undiagnosed. And, the loss of crops to pests appears to have significantly increased, as well. (See Pimentel, et. al, BioScience Vol. 28, No. 12, Dec. 1978.)

Identification of the Problem: Acute and Chronic Poisonings.

The first step toward solving the problem of pesticide poisonings of humans is to identify the problem; that is, to determine the nature and extent of acute and chronic pesticide poisoning in the United States. In 1969, that had not been done by USDA. In 1979, it has still not been done. Following years of requests for a systematic illness monitoring program, farmworkers petitioned EPA this April to undertake this essential first step. I am submitting a copy of the petition to the Committee. (Attachment A). The petition calls for a mandatory pesticide illness reporting system, as well as comprehensive epidemeological studies of the farmworker population. Unless EPA has a clear picture of which pesticides are poisoning people, the extent of the poisoning, and the basic causes, it cannot develop adequate protections. It certainly cannot make reasoned judgments about the risks posed by use of a particular pesticide.

A limited amount of information about levels of acute pesticide poisoning is available from the state of California, which has a unique occupational injury reporting system. That system, which does not work well for farmworkers, produced the following occupational pesticide poisoning reports:

1977:	1,518	1976:	1,452
1975:	1,343	1974:	1,157
1973:	1,474	(See Attachment B).	

California officials, relying on this system, told the Mondale Committee that in 1964, 1,347 acute occupational pesticide poisonings had been reported.

The official occupational disease rate for 1964 was 11.9 per 1000 for workers in agriculture, but only 4.5 per 1000 for industrial workers. In 1975, it was 12.6 per 1000 for workers for agriculture, and 4.3 per 1000 for industrial workers. (Calif. Dept. of Industrial Relations)

The reported pesticide poisonings, and occupational disease rates, which were high 15 years ago, have not improved. Furthermore, they grossly understate the actual incidence of poisoning in California. The poisoning of 118 workers in Madera, California in 1976 illustrates the under-reporting. The State has admitted that it only counted 6 of 118 victims there, because only 6 were officially reported. (See Exhibit B 1976 data sheet.)

Although the California reporting system is defective, it is better than no system at all. It enables officials to identify some pesticide problems and to adjust state regulations accordingly. Without similar information, EPA is operating in the dark.

The California pesticide poisoning reporting system detects acute, rather than chronic pesticide poisoning cases. The need for more understanding of the chronic effects of pesticides is even greater than the need for information about acute effects. In 1977-78, California

assigned a task force to study its pesticide regulatory system. The task force's report "Report on Environmental Assessment of Pesticide Regulatory Programs" commented at length on the need for information about chronic effects:

> The long-term effects of low dose repeated pesticide exposure are less well understood than acute effects. Studies have shown that some pesticides can cause cancer, neurotoxicity, mutations, birth defects and other reproductive disorders in lab animals. Many of these effects can take months or years to manifest themselves. It should be understood that a relatively small proportion of pesticides will eventually be proven to cause cancer or birth defects in humans, but the full range of potential problems from pesticide-induced carcinogenicity, teratogenicity, mutagenicity, and chronic behavioral and neurotoxic effects is difficult to assess at present and even more difficult to predict for the future. Little epidemiological information is available. California's monitoring and regulatory programs concentrate on the detection and prevention of acute poisonings and have not addressed themselves to the admittedly difficult problems of collecting information on long-term impacts. (S-16)

Farmworker Regulations are totally inadequate.

Although the full magnitude of acute and chronic pesticide poisoning has not been identified, some information is available from sources such as California. Unfortunately, the available information has not been applied by EPA to develop adequate protection for farmworkers. In fact, EPA's farmworker regulations are so inadequate, that serious doubts should be raised as to whether EPA would move toward adequately

protecting farmworkers, even if it had the necessary information. Examination of EPA's so-called farmworker protection regulations compared with OSHA's regulations illustrate this point.

OSHA does not have jurisdiction over pesticide safety for farmworkers, according to a court ruling. However, OSHA does have jurisdiction over protecting factory-workers from toxic substances including pesticides. The OSHA approach to protecting factory workers from the effects of toxic substances is to set maximum exposure limits, which are legally binding on the employer. Congress has mandated that these maximum exposure limits or standards be set to prevent harm to an employee who is regularly exposed to the toxic substance over his or her working lifetime. 29 U.S.C. 655 Put another way, the OSHA standard, if complied with, is designed to avoid both acute and chronic effects on the worker during his or her entire career.

EPA has taken a different approach to setting pesticide exposure standards for farmworkers-it doesn't. The current case of DBCP offers a vivid illustration of EPA's attitude about farmworker exposure to pesticides. In 1977, it was discovered that DBCP had caused sterility among male factory workers in California, Alabama and Arkansas. It was also discovered that DBCP was a highly potent carcinogen; it produced cancer very early and at very high rates among animals tested at low doses.

OSHA adopted a DBCP standard for the protection of factory workers. The standard was initially 10 ppb (parts per billion) inhalation and zero dermal exposure allowed. OSHA subsequently lower the inhalation standard to 1 ppb. See 29 C.F.R. 1910. 1044.

EPA, which currently allows use of DBCP in the fields, has not set an exposure standard. It does not intend to do so. When asked why not, the General Counsel's office has given an astonishing explanation: We don't have the authority. Through its twisted logic, EPA has narrowed its broad Congressional grant of authority to the point where it may allow the use of a pesticide, but not set a limit on worker exposure to it.

In addition to refusing to set an exposure standard for DBCP, EPA has proposed no regulations governing its use, other than label modifications, which do not even address basic considerations in protecting worker health. For example, OSHA requires impermeable full body clothing at all times when DBCP exposure may occur. EPA requires full body DBCP-resistent clothing, and does not require that it be worn during the application process (despite California reports showing that massive exposure occurs during application). OSHA requires daily change of clothes, daily showers, and special facilities for disposal of used work clothes in closed containers. It even requires warnings for workers who launder the clothes. EPA does not require any such facilities; it

suggests that contaminated clothing be either cleaned or buried. OSHA requires factory workers to be trained about DBCP hazards, standard routes of exposure, symptoms, emergency procedures; equipment requirements, storage and handling. EPA requires no training for a DBCP applicator, other than how to reach a licensed applicator who is supervising him, (although the licensed applicator need not be present). The licensed applicator, himself, need not be tested. OSHA requires an extensive program of medical surveillance of factory workers working with DBCP. EPA requires none for applicators.

Perhaps the most important distinction in the handling of DBCP is the allocation of responsibility. OSHA places the responsibility for exposure, training, facilities, and use of propoer equipment squarely on the employer. Each standard begins "The employer shall..." EPA has completely failed in this regard. Its label is not directed to the employer, and makes no clear statement of responsibility.

The DBCP case is merely one example of EPA's lack of worker protection standards. Another example may be found by contrasting EPA's worker protection regulations with those adopted by California. I am providing the Committee with a copy of both for comparison purposes.

EPA's longest worker re-entry interval (the time during which workers must be kept out of a sprayed field) is 48 hours. It allows re-entry into fields sprayed with such substances as ethyl parathion after 48 hours. California,

has set minimum re-entry times for the same pesticide between 30 and 60 days, depending on the crop and area. (Guthion: California 14 to 30 days, EPA 24 hours.) The pattern continues that way. The California regulations require applicator training for all pesticides, as well as medical surveillance, washing facilities, change clothes areas, etc. for workers who have substantial work with pesticides in the fields. EPA requires none of this. In short, the EPA worker regulations do not even constitute a good faith effort on EPA's part. They do not protect farmworkers.

ENFORCEMENT NOT ADEQUATE.

Even if EPA has adopted adequate worker protection standards, its enforcement program is too weak to obtain compliance. In most areas of the country, EPA has delegated primary enforcement to the states. In most states, EPA has given the enforcement responsibility to agricultural departments. The agriculture departments see themselves as promoting agriculture, and have a difficult time finding the interest and will to enforce worker protection laws. California, which is supposed to be a model state, is an excellent example of this.

The largest penalty levied in California for violating pesticide safety laws and poisoning workers came in the Madera poisoning of 118 workers (1976). The total penalty, $1,750 equals $14.83 per victim. The grower, who had violated numerous

laws, was able to harvest the wine grape crop (the poisoning occurred during harvest) and presumably made a handsome profit. The following year, workers were taken into an orange grove in Tulare county prior to the expiration of the safety interval for parathion, which had been sprayed. It was a clear case of the "smoking gun." However, in California, the Agriculture department and the legislature have further delegated pesticide enforcement to County Agricultural Officials. In the Tulare case, there were no penalties at all. Such actions do not create a deterrant to violating pesticide laws.

EPA has not totally abdicated responsibility for enforcement in delegate states, however. At least one criminal action for pesticide misuse has been brought by EPA and the U.S. Attorney in California. It was for the killing of ducks in Glenn County.

STATEMENT OF FELIPA GONZALEZ

I, FELIPA GONZALEZ, under penalty of perjury do hereby declare that:

1. I am a citizen of the United States and reside in Delray Beach, Florida.

2. I am the widow of the late LUIS GONZALEZ.

3. During the course of his life, my husband was employed as a farmworker.

4. The last job he had before his untimely death was with J & N Farms in Delray Beach, Florida.

5. In addition to several other tasks, my husband was asked from time to time to spray pesticides in various fields.

6. During the first week of April 1979, my husband was requested to spray parathion poisoning on several occasions.

7. Specifically, he sprayed all day on April 4th, 5th, and 6th.

8. Because he sprayed continuously for a few days, his clothes as well as his body smelled like the pesticide. Even after he took a bath, he still had a slight odor of the pesticide.

9. During the course of the week, my husband complained to me about feeling ill. In particular, he stated that he felt weak and dizzy, he complained about headaches and nausea and the fact that he had lost his appetite. His chief complaint, however, was that he was having difficulty breathing and had developed a strange cough.

10. On Friday, April 6th, my husband consulted a physician in Delray because of his breathing problems. The doctor prescribed duracillin for the respiratory problem and periactin tablets for his loss of appetite.

11. That weekend, my husband elected not to work, since he wasn't feeling well.

12. On Monday, April 9th, my husband reported to work and was told to spray another field with parathion.

13. He was gone all day, presumably spraying the fields. At about 4:30 in the afternoon, his brother (my brother-in-law)

GUADALUPE GONZALEZ, went to look for LUIS since he had not returned for lunch. GUADALUPE and his son found my husband face down on the ground behind the sprayer. According to GUADALUPE, LUIS' body was twitching even though he was unconscious. When he picked up his brother, he noted that my husband was foaming at the mouth. They rushed him home and then to the hospital. The grower's son called the hospital and reported that my husband had been spraying parathion.

14. After the initial observation at the hospital, the doctor diagnosed parathion poisoning and also stated that my husband may have also suffered a mild stroke. I was told that he may not make it through the night.

15. Later that night, he was transferred to the Intensive Care Unit. He was in the ICU for approximately two weeks, after which he was transferred to a semi-private room.

16. During the course of his stay in the hospital, my husband was in a state of semi-consciousness and he could not speak. I visited him everyday and although I felt he recognized me, he could not speak to me.

17. He was released on April 28th and although he was conscious, he could not use the right-side of his body and had to remain in bed.

18. On May 2nd, we took him to the hospital for his first physical therapy session. When we arrived at home, my husband went into convulsions. We rushed him back to the hospital. A short time after our arrival, he was pronounced dead. On may 8th we buried my husband in Texas.

19. The last three weeks prior to my husband's death were the most painful and difficult days of my life. I felt hopeless knowing that my husband was in pain and could not speak out.

20. I am left alone now with my two sons. I have no skills and cannot work.

21. I present my situation to this committee in the hopes that something could be done to prevent this from happening to someone else.

22. Since I cannot read nor write, I was assisted in preparing this statement by Mr. Sosa of Florida Rural Legal Services, Inc. This statement was read to me and I signed it.

23. While I cannot travel to Washington, I stand prepared to answer any questions regarding my husband's death.

Witnessed by:

Jose M. Sosa

Sworn to and subscribed before me this 26th day of June, 1979.

Ruth Dickinson
Notary Public, State of Florida

My commission expires: NOTARY PUBLIC STATE OF FLORIDA AT LARGE MY COMMISSION EXPIRES JAN. 16 1987 BONDED THRU GENERAL INS. UNDERWRITERS

Respectfully submitted,

X
FELIPA GONZALEZ

Jose M. Sosa
JOSE M. SOSA, ESQ.
Florida Rural Legal Services, Inc.
Citizens Building - Room 408
105 South Narcissus Avenue
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"A"

BEFORE THE UNITED STATES
ENVIRONMENTAL PROTECTION AGENCY

In the Matter of an Effective Pesticide Incident Reporting System	)	Docket No.

I. INTRODUCTION

This is a petition to the United States Environmental Protection Agency (hereafter EPA) to protect farmworkers from work-related pesticide injuries. Towards this end petitioners request that EPA adopt a mandatory pesticide incident reporting system, initiate a comprehensive demonstration monitoring project, require new labelling instructions on all registered pesticide products, and provide funds to educate farmworkers about pesticide hazards. The petition is submitted pursuant to the Federal Insecticide, Fungicide and Rodenticide Act (hereafter FIFRA), 7 U.S.C. § 136w(a) and the Administrative Procedure Act, 5 U.S.C. § 553(e) and 555(e).

II. THE PETITIONERS

A. The individual petitioners, Frank Leyva, Jose C. Gonzalez, Ofelia Vegas, and Jerry Y. Contreras are migrant and seasonal farmworkers who pick crops in Illinois and Texas. Because the fields in which they work are treated frequently with toxic pesticides, petitioners have been and will be threatened with serious injury to their health.

On May 10 and 11, 1977, all individual petitioners were exposed to the pesticide Carbaryl when they were sprayed intermittently by airplane as they harvested asparagus. Similar incidents, harming hundreds of Illinois farmworkers, took place throughout the summer of 1977. These incidents were never reported to EPA by the commercial applicators nor by the farmworkers' employers.

B. The National Association of Farmworker Organizations (NAFO) is a national coalition of farmworker-oriented, community-based organizations and farmworkers committed to protecting the civil and labor rights of farmworkers and to developing activities

and programs benefiting migrant and seasonal farmworkers and their organizations. NAFO members, and farmworkers served by NAFO, have been exposed to toxic pesticides across the United States.

C. The Illinois Migrant Council (IMC) is an advocacy organization committed to protecting farmworkers' civil and labor rights in Illinois. IMC also provides medical and social services to farmworkers who have been exposed to toxic pesticides in Illinois fields.

III. THE STATUTORY AND REGULATORY SCHEME

A. FIFRA Mandates A Monitoring System.

EPA has a legal mandate to effectively monitor, implement and manage the pesticide registration scheme. FIFRA provides:

> The Administrator shall undertake such monitoring activities, including, but not limited to, monitoring in air, soil, water, man, plants, and animals, as may be necessary for the implementation of this Act and of the national pesticide monitoring plan. The Administrator shall establish procedures for the monitoring of man and animals and their environment for incidental pesticide exposure, including, but not limited to, the quantification of incidental human and environmental pesticide pollution and the secular trends thereof, and identification of the sources of contamination and their relationship to human and environmental effects. Such activities shall be carried out in cooperation with other Federal, State, and local agencies. 7 U.S.C. § 136(r)(6). (The second sentence was added to FIFRA in 1978 amendments, P.L. 95-396.)

1. The Pesticide Registration Procedure Depends On Human Effects Data.

The heart of FIFRA is the pesticide registration procedure which depends on human effects data to be effective. Implementation of the Act hinges on a monitoring system that will provide this data. The registration procedure begins with the application for registration by a pesticide producer. If the application is approved, then EPA must classify the pesticide for restricted, experimental, or general use. Whenever human or environmental hazards arise from the use of the pesticide, EPA has authority to suspend its use, reclassify it, or cancel its restriction, 7 U.S.C. § 136d.

Any major decision in the registration process must be based on a determination of whether there will be "any unreasonable adverse effects on the environment" resulting from the use of the pesticide. 7 U.S.C. § 136(a)(d). The statute defines this standard as "any unreasonable risk to man or the environment, taking into account the economic, social, and environmental costs and benefits of the use of any pesticide", 7 U.S.C.§ 136(bb) (emphasis added). Thus, registration of a pesticide must be denied when unreasonable adverse effects to man or the environment are found; if a pesticide is registered for general use and later adverse effects are found, the product must be reclassified for restricted use, suspended or cancelled. 7 U.S.C.§ 136d(b).[1/] A determination of adverse effects requires a monitoring system that measures the impact of pesticides on human beings.

B. FIFRA's Legislative History Also Mandates An Effective Monitoring System

FIFRA's legislative history also supports the assertion that Congress intended a strong human effects monitoring system. The monitoring provision of FIFRA, like that of the enforcement and registration provisions, was "designed to provide for tighter control of pesticide registration and to insure protection to man and to the environment."[2/] In fact, in 1972 Congress adopted the monitoring provision precisely because a Presidential Scientific Advisory Commission concluded that the "monitoring programs, to obtain systematic data on pesticide residues, should be expanded."[3/] In 1978 Congress gave still more human effects monitoring responsibilities to the EPA, supra, p. 2.[4/]

IV. FARMWORKERS ARE OFTEN SEVERELY HARMED BY PESTICIDE MISUSE

Over five million farmworkers labor in agriculture each year in the United States.[5/] When they are in fields they frequently

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1/ See Environmental Defense Fund v. EPA, 548 F. 2d 998 (D.C. Cir. 1976) cert. denied, 431 U.S. 925 (1977).
2/ S. REP. NO. 92-8, 92nd Cong. 2d Sess. reprinted in [1972] U.S. CODE CONG. & AD. NEWS 3998.
3/ Id., at 4000.
4/ H. REP. NO. 95-343, 95th Cong., 2d Sess., reprinted in [1978] U.S. CODE CONG. & AD. NEWS 3414, 3471.
5/ D. Lillesand, et al., An Estimate of Migrant and Seasonal Farmworkers in the U.S. and Puerto Rico, Legal Services Corp. (1977).

are exposed to pesticides by airplane overspray and by dust, soil and crops laden with pesticides.[6/] Since neither protective clothing nor water to wash their hands is generally supplied, these workers often eat their lunch and drink water with hands containing pesticide residue.[7/] In addition, clothing has been found to catch and retain pesticide residues,[8/] greatly increasing the possibility of dermal absorption of chemical residues by farmworkers.

In addition to those injuries to farmworker petitioners described in Part II, supra, the following are typical examples of agriculteral poisoning incidents:

> On March 12, 1979, a farmworker in Homestead, Florida was sprayed with pesticides by a cropdusting airplane and by a field applicator while loading tomatoes. He suffered sores and lesions all over his body and had severe eye problems.
>
> In early March, 1979, about 25 farmworkers in Collier County, Florida were sprayed with nitrogen by a cropdusting airplane and suffered sores and skin irritations.
>
> Seven farmworkers near Pandoro, Ohio were deliberately sprayed with Ethephon (Ethrel) while they were picketing at a tomato farm on August 28, 1978. One worker suffered chest pains and has been unable to work for six months.
>
> During August, 1978, Toxaphene and Orthene sprayed by a cropdusting airplane drifted over a state labor camp near Modesto, California causing nausea, stomach aches, headaches, and eye problems to 14 farmworker children.
>
> In June, 1978, near Alton, Colorado, five farmworkers were sprayed with Toxaphene and Parathion by a cropdusting airplane, causing them nausea and headaches.
>
> In June, 1978, farmworkers near Grand Rapids, Michigan, suffered sores, breathing difficulties and lung congestion arising from the spraying of Captan.
>
> Seven farmworkers were sprayed with Difolatan in fields near Immokalee, Florida in January, 1978. They suffered large sores on their hands for several weeks.
>
> Twelve farmworkers were sprayed in April, 1978 with pesticides by a cropdusting airplane near Edinburg, Texas causing them skin rashes and breathing difficulties.

6/ Hearing, on Migrant and Seasonal Farmworker Powerlessness; Before the Subcommittee on Migratory Labor of the House Comm. on Labor and Public Welfare, 91st Cong. 1st and 2d Session (1969), vol. 6B, 3495; Occupational Exposure to Pesticides, Report to the Federal Working Group on Pest Management From the Task Group on Occupational Exposure to Pesticides, (1974).

7/ Id.

8/ E.L. Finley and J.R.B. Rogillio, "DDT and Methyl Parathion Residues Found in Cotton and Cotton-Polyester Fabrics Worn in Cotton Fields", Bulletin of Environmental Contamination and Toxicology, 4:343-351 (1969).

In mid-June, 1976, farmworkers and their children in Berrien, Cass and Van Buren counties, Michigan were exposed to Captan and Benlate and suffered severe skin rashes.

A California farmworker pesticide applicator died in December, 1976 after suffering swelling and pains in his mouth and face after a leak in a tractor hose and valve sprayed Telone onto his face.

The overspray of Tordan 101 by an airplane caused members of a farm family in Clark County, Washington to suffer numbness in their limbs, double vision, dizziness and headaches in 1972. A daughter still reports difficulty with mental concentration seven years after the incident.

The precise number of pesticide injuries suffered by this nation's five million farmworkers is unknown. However, California offers some idea of the extent of the problem; it is the only state which requires the reporting of pesticide injuries. 9/ The following incidents were reported to the California State Department of Health and Department of Food and Agriculture:

	1973	1974	1975	1976	1977
All occupations	1,474	1,157	1,343	1,401	1,518
Field workers exposed to residue or drift	183	134	198	178	214

Source: California, Department of Health and Department of Food and Agriculture, "Illnesses of Employed Persons Reported by Physicians to the State as Due to Exposure to Pesticides or Their Residues in California in the Years 1973, 1974, 1975 and 1976 According to Job and Type of Illness," Sacramento, November 1976, April, 1978.

Although indicative of widespread pesticide exposure, the California figures have been criticized as underreporting the problem. For example, a 1976 report by the California Health Department described a major field worker exposure incident involving 118 persons with systematic illness. Only six of these cases were recorded because no physician filed a report on the remaining 112.

9/ California law requires employers, physicians and insurance companies to report pesticide injuries to state authorities. California Administrative Code, Title 8, $ 140,000 et seq.

Ephraim Kahn, M.D., Chief of the Epidemiological Laboratory of the California State Department of Health, estimated that the reported California cases are no more than one percent of the actual number.[10/] If Kahn is correct, then the California figures must be multiplied by 100 for each year to arrive at an accurate estimate of injuries in that state. Thus, for 1976, the total injury rate for fieldworkers in California would be 21,400 (184 + 30 = 214 x 100).

In 1970, an official of the U.S. Department of Health, Education and Welfare estimated, for the nation as a whole, that 800 persons are killed and 80,000 are injured annually as a result of the improper use of agricultural pesticides. Many of these victims are farmworkers.[11/] By comparison, EPA's voluntary reporting system listed few agricultural and farmworker incidents.[12/]

	1974	1975	1976	1977	1978
All human incidents in agriculture	Not available		1089	968	571
Farmworker incidents	13	25	109	97	57

V. EXISTING AND PLANNED MONITORING SYSTEMS FAIL TO MEET THESE STATUTORY OBLIGATIONS

The EPA presently has three main mechanisms to monitor the effects of pesticides on man: laboratory testing of human tissue samples, voluntary reporting of pesticide poisonings and occasional epidemiological field studies. None of these methods have enabled EPA to satisfy its statutory monitoring obligations under FIFRA.

10/ "Pesticide Residue Hazards to Farm Workers", Proceedings: Western Area Laboratory For Occupational Safety and Health, 175, 177. (May, 1976). The reasons why more farmworker incidents are not reported are set forth at 176 et seq.

11/ S. REP. NO. 91-1282, 91st Cong., 2d Sess., reprinted in [1970] U.S. Code Cong. & Ad. News, 5179-5180.

12/ Job-Related Episodes in Agricultural Area by State of Occurence of Victim, Pesticide, Pesticide Episode Review System Reports (1973-74). The 1976-78 data was obtained from interviews with EPA Pesticide Incident Monitoring System (PIMS) officials, April 12, 20 and April 23, 1979. The 1976-1978 figures include agriculturally-related pesticide incidents involving employers, foremen, commercial and private applicators, farmworkers, greenhouse and nursery workers and the like. Unlike the California reporting system, EPA does not publish these figures and does not break down farm incidents by occupation. However, PIMS officials estimate that perhaps 10% of all agriculturally-related incidents involved field workers.

A. Laboratory Testing Is Inadequate

To measure pesticide residue levels in man, the EPA relies on laboratory tests based on 1,600 samples of human adipose tissues obtained annually from 40 selected urban locations. A random sampling method is used in selecting the cities from which the tissue samples are collected.[13/] This national human tissue monitoring determines the incidence of pesticide residues in the general urban population,[14/] but fails to adequately monitor the residue levels in farmworkers since they work and reside in rural areas.

The second major deficiency of laboratory testing is its hypothetical nature. Thus, agribusiness can claim that while harm from pesticides is speculative, by contrast the economic injuries resulting from cancellations or use restrictions placed on a given pesticide are very real.

The lack of effective epidemiological field studies has been deplored by many scientists and by public and private scientific bodies.[15/]

A monitoring system should be designed to uncover those cases in which pesticide use endangers human beings and the environment. Laboratory tests may yield theoretically sound human health standards, but an effective field monitoring system is essential to enable EPA to determine whether the standards are sound in fact as well as in theory.

As a supplement to testing, EPA should implement an effective, comprehensive and mandatory monitoring system. This would be a significant step toward effectively protecting the health and safety of farmworkers.

13/ Draft National Pesticide Monitoring Plan, Ecological Monitoring Branch and Field Studies Division, Office of Pesticide Programs, U.S. Environmental Protection Agency, (July, 1978) at A-3. This Plan does not mention farmworkers or take into account considerations peculiar to agricultural employment.

14/ Id. at A-3.

15/ See, for example, Occupational Exposure To Pesticides, Report to the Federal Working Group on Pest Management From the Task Group on Occupational Exposure to Pesticides (1974), 26; E. Kahn, Proceedings: Pesticide Residues to Farmworkers, DHEW Pub. No. (NIOSH) 76-191 (1976).

B. The Current Voluntary Reporting System Does Not Work

Since 1975, when FIFRA was amended to require EPA to monitor pesticide misuse, the agency has failed to promulgate regulations concerning a pesticide reporting or monitoring system. Internal guidelines have been issued by the agency in the form of a Pesticide Inspection Manual which directs the agency's enforcement staff to "conduct investigations of suspected pesticide incidents."[16/] However, this system relies on a purely voluntary reporting system.

For many reasons, a voluntary reporting system does not work. There is little reporting of agricultural health problems by farmworker victims for several reasons. First, because farmworkers lack access to medical care, there is usually no record of their illnesses. Farmworkers' access to medical care is limited by their lack of transportation and funds.[17/] Second, farmworkers are generally unaware of the dangers inherent in their jobs due to pesticides and the nature and extent of how pesticides affect their physical and mental health.[18/] Finally, the pesticide poison control centers, whose function is to record the incidence of pesticide poisonings, are usually inaccessible to the farmworker.[19/]

Even if farmworkers were aware of EPA's voluntary reporting mechanism (or system) they would have to contact an EPA regional office or responsible state agency and persuade the agency that the incident is worthy of investigation. It should come as no surprise that EPA's monitoring system reports so few farmworker poisonings.

16/ EPA Pesticide Inspection Manual, § 16, p. 1.

17/ S. REP. NO. 699, 87th Cong. 2d Sess., reprinted in [1962] U.S. CODE CONG. & AD. NEWS, 2632, 2637. Also, see Kahn, supra, n. 15.

18/ See notes 10, 15, supra.

19/ Interviews with staff from migrant health clinics, migrant councils, Legal Services attorneys and paralegals (January-April, 1979).

There has been much public criticism of EPA's present ineffective voluntary system. The National Study of Hospital Admitted Pesticide Poisonings stated:

> There is no reliable system capable of reporting, collecting, collating, and disseminating accurate information on the status of pesticide poisonings in the United States today. Not only is the collecting and reporting system confusing, it simply does not work effectively.20/

The authors of Pesticide Residues and Field Workers state:

> If one considers the amount of OP (organosphosphate pesticides) applied to crops in the U.S. since their introduction, the number of reported multiple illness incidents attributed to OP residue exposure is small. However, the relative infrequency of reported incidents does not reflect the degree of concern held by many occupational health specialists who recognize that occupationally related OP illnesses are under-reported among the agricultural work force because of administrative weaknesses in reporting systems. . . (emphasis added). Robert Spear, David L. Jenkins, Thomas H. Milby, 9 Environmental Science and Technology 308, 311 (April, 1975).21/

This study reported that the lack of technical data and occupational illness reporting mechanisms in agriculture combined to make it impossible to formulate interim national reentry standards.22/

The National Academy of Sciences, in an exhaustive review of pesticides, concluded that

> It is somewhat alarming that the most carefully studied state (California) turns out to have by far the largest incidence of such problems; one is tempted to conclude that the situation elsewhere looks better than it really is primarily because of ineffective reporting.23/

20/ Epidemiologic Studies Program, Human Effects Monitoring Branch, Office of Pesticide Programs, 4 (April, 1976).

21/ Also, see E. Kahn, M.D., Epidemiology of Field Reentry Poisoning, (unpublished speech presented to the Society for Environmental Health Conference, Wash., D.C., Dec. 12, 1978); S. Epstein, M.D., (unpublished speech to the Society for Environmental Health Conference, Wash., D.C., (Dec. 12, 1978).

22/ Pesticide Residues, p. 310.

23/ Pest Control: An Assessment of Present and Alternative Technologies. Vol. I: Contemporary Pest Control Practices and Prospects. National Academy of Sciences (1975).

A 1978 Presidential Advisory Commission report recommended that

> . . .a mandatory reporting system be developed by EPA for the reporting of pesticide poisoning incidents on a nationwide basis; that the implementation of this system include an investigation of every reported pesticide exposure incident within ten days following receipt of such report; and that mechanisms be developed to facilitate farmworkers' reports of pesticide poisoning through the establishment of nationwide, toll-free telephone numbers.24/

On June 12, 1978, the FIFRA Scientific Advisory Panel, composed of some of the nation's leading scientific pesticide experts, criticized EPA's monitoring activities. It recommended to EPA that

> in the interest of continuing evaluation of the pesticide reentry program, EPA should adjust the pesticide incident monitoring program to better reflect the occurrences and verification of pesticide residue illnesses.25/

An EPA publication admits that

> no accurate [acute pesticide poisoning] statistics exist for the United States as a whole. . .(although) [i]nformation on the acute morbidity of pesticides is of extreme importance, for it is only with this knowledge that decisions can be made on future pesticide management , policies and regulations.26/

C. Conclusion: EPA's Present Voluntary Reporting System Violates FIFRA

The studies and reports mentioned above compel the conclusion that EPA's present voluntary reporting system has failed to effectively enable the agency to monitor "pesticide use and presence in the environment." Thus, EPA has violated the Congressional mandate in FIFRA to "protect man and the environment" from pesticide misuse.

To comply with FIFRA, EPA should implement a mandatory reporting system. Only such a system will enable EPA and state authorities to effectively protect farmworkers by determining

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24/ Report of the Task Panel on Migrant and Seasonal Farmworkers, submitted to the President's Commission on Mental Health, Vol. III, 1248, Feb. 15, 1978.

25/ See Appendix A.

26/ Pesticide Protection, A Training Manual for Health Personnel, EPA and U.S. Dept. of Health, Education and Welfare, at 24-25 (1977).

which pesticides should be cancelled, restricted or studied more intensively. In addition, a mandatory reporting system will enable both state and federal agencies to better enforce the pesticide misuse laws.

VI. PETITIONERS' PROPOSALS

A. Under FIFRA, applicators and employers are subject to penalties at 7 U.S.C. § 136 l if they use a pesticide contrary to label instructions.[27/] 7 U.S.C. § 136j(a)(G). Thus, to protect persons from occupational pesticide misuses, all labelling instructions on registered pesticide products should be significantly revised. Therefore, petitioners propose that EPA promulgate regulations that require manufacturers of all registered pesticides to relabel their products to include the following statements:

> 1. Any private or commercial applicator who knows of any injury or accident caused by this product to any person is required by law to
>
> a) Report this within 24 hours to the Environmental Protection Agency (EPA) at this free phone number: (to be supplied).
>
> b) Immediately inform the victim of the statement of practical treatment which appears on the product's label, refer the victim to a medical doctor, and supply the victim with a copy of the pesticide label.
>
> 2. Use of this product is governed by EPA Worker Protection Standards, 40 C.F.R. Part 170, which require, among other things, that owners or lessees of land not permit the application of a pesticide in such a manner as to directly or through drift expose workers or other persons except those knowingly involved in the application. The area being treated must be vacated by unprotected persons. No owner or lessee shall permit any worker not wearing protective clothing to enter a field treated with pesticides until sprays have dried or dusts have settled, unless exempted from such requirements, or a longer reentry time has been assigned to that pesticide. In any case, workers should not be permitted to enter treated fields if special circumstances exist which would lead a reasonable man to conclude that such entry would be unsafe.

27/ The term "'label' means. . .the printed matter. . .attached to the pesticide or. . .any of its containers. . .and 'labelling' means all labels and all other printed matter accompanying the pesticide. . .or to which reference is made on the label or in literature accompanying the pesticide. . . ." 7 U.S.C. § 136(p).

3. The Occupational Safety and Health Act, 29 C.F.R. § 1904, requires all employers to keep records and make reports of all work-related deaths, injuries or illnesses if they involve medical treatment, loss of consciousness, restriction of work or motion or transfer to another job.

4. Any person who violates these rules may be subject to penalties under the Federal Insecticide, Fungicide and Rodenticide Act, 7 U.S.C. §§ 136j and 136 l, and/or the Occupational Safety and Health Act, 29 U.S.C. § 658.

B. Many farmworkers do not report pesticide injuries to government agencies because they fear retaliation by their employers. Therefore, petitioners propose that EPA promulgate a regulation that states

> No person shall intimidate, threaten, restrain, coerce, blacklist, discharge or in any manner discriminate against any farmworker because such farmworker has filed any complaint or instituted or caused to be instituted any proceeding under or related to FIFRA or to applicable state law or has testified or is about to testify in any such proceedings or because of the exercise by such worker, on behalf of himself or others, of any right or protection afforded by FIFRA or applicable state law.
>
> Any farmworker who believes that he has been discriminated against by a person in violation of this section may, within 180 days after such discrimination becomes known to him, file a complaint with the Administrator alleging such discrimination. The Administrator shall investigate such complaint and, where appropriate, take action to protect the complainant.

C. As a supplement to the mandatory reporting regulation, petitioners propose that EPA establish a one year comprehensive demonstration monitoring project. The project would serve as a laboratory for testing the relative costs and efficacy of various methods for monitoring the effects of pesticides on farmworkers. From the demonstration model, a more successful monitoring program can be formulated. The demonstration project should

1. Focus on at least six climatically different parts of the country where large numbers of farmworkers are employed and where high quantitites of toxic pesticides are used.

2. Monitor actual pesticide usage by growers and applicators.

3. Monitor the quantity and type of pesticide misuse incidents, including violations of pesticide label warning instructions, use restrictions and reentry requirements.

4. Monitor the quantity and type of pesticide injuries and accidents to farmworkers; efforts should be made to persuade farmworkers to undergo physical examinations before and after their employment to determine whether there are any adverse health effects caused by pesticide exposure. Migrant health clinics normally provide these examinations at no costs to the farmworkers. Transportation for the farmworkers to the clinics if necessary, should be provided by EPA. Farmworkers should be asked to sign releases of their medical records to EPA for the purposes of this project.

Costs for this project should be approximately $488,000. See Appendix B.

D. Petitioners also propose that EPA regularly gather patient data collected by the U.S. Department of Health, Education and Welfare's (DHEW) migrant health centers. Any program receiving a grant under the Migrant Health Act, 42 U.S.C. § 247d, is required by DHEW regulations to keep patient records and to compile statistical health data. The migrant health regulations also require cooperation with EPA, 42 C.F.R. § 56.303(a).

EPA should take the initiative in securing a memorandum of understanding with the DHEW migrant health centers to segregate pesticide-related illness reports on a monthly basis. With the farmworker patient's consent, whenever a pesticide injury or accident comes to the attention of a migrant health center, this should be reported to EPA within 24 hours so that a prompt investigation can be made.

E. Petitioners further propose that EPA regularly gather pesticide incident data from the Occupational Safety and Health Administration and other agencies of the U.S. Department of Labor, the Federal Aviation Administration, the Consumer Product Safety Commission, state health and Worker's Compensation offices, state

and federal agricultural officials, and from the DHEW Poison Centers. EPA should take the initiative in securing memoranda of understanding between itself and these agencies to ensure a better intergovernmental voluntary reporting system.[28/]

F. EPA should also provide grant funds on a competitive basis to farmworker organizations to train farmworkers about pesticide hazards. The training should cover

1. The dangers of pesticides and safe ways to use and dispose of them.

2. Prevention, detection, treatment and reporting of pesticide poisoning.

3. State and federal pesticide laws and how they are intended to protect farmworkers from pesticide misuse, and

4. Key public and private information contacts.

Farmworker trainees should be recruited by farmworker organizations such as federally-funded migrant councils, unions and similar organizations. These workers should educate their fellow farmworkers about pesticide hazards. The program should aim to reach all of the country's five million farmworkers. A one year demonstration project should amount to approximately $1,750,000. See Appendix D. The project would enable EPA to ascertain the relative costs and efficacy of training farmworkers about pesticide hazards. From this demonstration model, a more successful training program can be designed.

G. EPA should substantially increase the quantity and quality of its epidemiological pesticide field studies. Before such studies are conducted, EPA should consult with the EPA Scientific Advisory Panel and counsel for petitioners.

28/ A proposed Memorandum between EPA and OSHA has not been signed by these agencies although it was drafted in 1975. See Appendix C. This draft memorandum is cited in OMICA v. Brennan, 520 F.2d at 1170, n. 11.

Petitioners request that EPA strengthen its pesticide reporting system by adopting the proposals set forth in this petition.

Respectfully submitted,

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Appendix A

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

June 12, 1978

OFFICE OF TOXIC SUBSTANCES

MEMORANDUM

SUBJECT: Report on Assessment of Hazards to Farmworkers Reentering Fields Treated with Pesticides

FROM: Dr. H. Wade Fowler, Jr. H. Wade Fowler Jr.
Executive Secretary
FIFRA Scientific Advisory Panel

TO: Deputy Assistant Administrator
for Pesticide Programs

The FIFRA Scientific Advisory Panel has completed assignments relative to provision of guidance to facilitate development of national standards on the farmworker pesticide reentry problem and review of a special report on farmworker exposure to pesticides by Ms. Miriam Daniels of the Migrant Legal Action Program. Attached is a report of findings by the Panel.

Request the report be published in an appropriate manner in the Federal Register.

Enclosure
Report

cc: Mr. Jellinek
Dr. Torgeson
Panel Members
Dr. Murray
Dr. Griffiths
Mr. Conlon
Dr. Chandler
Mr. Brandwein

Federal Insecticide, Fungicide and Rodenticide Act (FIFRA)

Scientific Advisory Panel

Review of Epidemiological Data Requirements
for Assessment of Hazards to Farmworkers
Reentering Fields Treated with Pesticides

The FIFRA Scientific Advisory Panel was asked by the Environmental Protection Agency to collect information on the farmworker reentry problem and provide specific advice to facilitate development of national standards. As a companion task, EPA also requested the Panel to review a report by Ms. Miriam Daniels, esq. of the Migrant Legal Action Program entitled, "The Failure of the Environmental Protection Agency to extend protection to the farmworker from exposure to pesticides".

The Panel held a series of public meetings to collect and evaluate information pertinent to the issues under review. Public notices of meetings were published in the Federal Register on March 1, 1978, March 31, 1978, and May 5 1978, for meetings held in San Francisco, California; Arlington, Virginia; and Miami, Florida; respectively. Additionally, a special meeting was held at the Lake Alfred Experiment Station, University of Florida, on April 17, 1978 to discuss farmworker reentry from the perspective of Florida agriculture.

Maximum public participation was encouraged at all meetings. In addition to notices in the Federal Register, telephonic notices and special mailings were sent to the general public who had previously expressed an interest in assessment of hazards to farmworkers reentering fields treated with pesticides. The meeting in San Francisco was primarily a scientific seminar with invited speakers from various areas of the United States. In addition to speakers form the State of California, the State of Florida, EPA and the pesticide industry, several speakers from the State of Washington presented information from the perspective of agricultural situations in their state. Ms. Daniels of the Migrant Legal Action Program presented a summary of the results of her special study. Comments were also received from the U.S. Department of Agriculture and from organized farm labor groups in California. All written statements and an accounting of comments made during the meeting in California were made part of the official records of the Tenth Meeting of the Panel. Prior to the

Arlington, Virginia meeting (11th Panel meeting), a special meeting was held at the Lake Alfred Citrus Experiment Station, University of Florida, to obtain additional information from the perspective of Florida agriculture. The results of this meeting were made part of the official records of the Eleventh meeting of the Panel. The meeting in Arlington, Virginia, allowed for further discussion by persons unable to attend previous meetings. This meeting consisted primarily of a summation of concerns by the Panel and presentations by Dr. Griffith of the Florida Citrus Mutual; Dr. Owens, of Florida A&M University; and Mr. Horowitz of the Migrant Legal Action Programs.

The Panel completed their assigned tasks during the recent meeting in Miami, Florida. Written and oral statements presented during the meeting were made part of the official documents of the twelfth meeting of the Panel.

In consideration of all matters brought out during Panel meetings, and matters brought out by oral and written statements, the Panel submits the following report:

The Panel is generally supportive of the report by Ms. Miriam Daniels regarding protection of farmworkers from exposure to pesticides. In particular the Panel endorses the spirit and intent of her recommendations relative to appropriate consideration of the frequency of exposure of farmworkers to pesticides; establishment of regulatory priorities based on the hazard potential of pesticides to farmworkers; and provision of extensive support to efforts to implement Integrated Pest Management (IPM).

The Scientific Advisory Panel after three separate opportunities to hear testimony regarding the effects of agricultural pesticide usage upon the health of agricultural workers, has the following recommendations.

1. That EPA proceed promptly to develop suitable guidelines for evaluation of the potential hazard of new pesticides to agricultural workers.

2. That EPA should develop suitable reentry intervals for all new agricultural pesticides utilizing foliar residue decay rates; soil metabolism; soil dissipation; dislodgable residues; volatility; photodegradation, or other appropriate measures of chemical persistence such as air concentrations for soil fumigants.

3. That EPA should require manufacturers to provide the Agency, at the time of registration of a new product, with human exposure indices obtained during the development of the product (e.g. human metabolites, etc.)

4. That EPA recognize the regionality of field worker exposure to and hazard from agricultural pesticides and cooperate actively with and provide assistance to individual States in the development of suitable individual worker reentry times reflecting geographical, climatological, and edaphic characteristics. Current national standards which stipulate 24 or 48 hour reentry intervals for organophosphate insecticides should remain in effect subject to appropriate amendment according to local conditions.

5. That EPA should conduct an active and ongoing monitoring program on both acute and chronic health effects of pesticides on agricultural workers, and of the impact of exposure to pesticides on other health parameters reflective of the life style of the agricultural workers (e.g. obesity, nutrition, alcoholism, sanitation, etc.).

6. In the interest of continuing evaluation of the pesticide reentry program, EPA should adjust the pesticide incident monitoring program to better reflect the occurrence and verification of pesticide residue illnesses.

FOR THE CHAIRMAN:

Certified as an accurate report of findings:

H. Wade Fowler Jr.

H. Wade Fowler, Jr., Ph.D.
Executive Secretary
FIFRA Scientific Advisory Panel

DATE: June 6, 1978

PROPOSED BUDGET

EPA Six Area Demonstration Monitoring Budget

Beginning Date: 7/1/79
Ending Date: 7/1/80

Personnel Costs

	Annualized Salary	Fringe Benefits (15% of Salary)	Total Salary and Fringe Benefits
Investigator	$22,000.00	$3,300.00	$ 25,300.00
Total Salary and Fringe Benefits (Six Investigators)			151,800.00
Investigate Assistants	18,000.00	2,700.00	20,700.00
Total Salary and Fringe Benefits (Six Investigative Assistants)			124,200.00
Clerk-Typist/Receptionist	12,000.00	1,800.00	13,800.00
Total Salary and Fringe Benefits (Six Clerk-Typist/Receptionists)			82,800.00
		Total Personnel Costs	$358,800.00

Non-Personnel Costs

Travel:	
1) Automobile travel (200 miles/day x 300 days = 60,000 miles x .20/mile)	
Total auto travel for six projects ($12,000 x 6)	$ 72,000.00
2) Other travel = $2,000.00	
Total other travel for six projects ($2,000 x 6)	12,000.00
Total Travel	$ 84,000.00
Space Costs:	
$300/mo. x 12 mos = $3,600	
Total, six projects ($3,600 x 6 = $21,600)	
Total Space Costs	$ 21,600.00

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Appendix B
Page 2

Consummable Supplies:
$120/mo x 12 mos = $1,440
Total, six projects ($1,440 x 6 = $8,640)

Purchase, Lease of Equipment:
$500 x 6 projects = $3,000

Other Costs:
$2,000 x 6 projects = $12,000

Total Consummable Supplies	$ 8,640.00
Total Purchase, Lease of Equipment	3,000.00
Total Other Costs	12,000.00
Total Non-Personnel Costs	$129,240.00
Total Personnel Costs	358,800.00
GRAND TOTAL	$488,040.00

Appendix C

ENVIRONMENTAL PROTECTION AGENCY DRAFT MEMORANDUM OF AGREEMENT REGARDING AGRICULTURAL WORKERS PROTECTION STANDARDS FOR PESTICIDES

Pesticides are regulated under the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA), as amended on 21 October 1972. The statute and legislative history confirm that the Environmental Protection Agency (EPA) is mandated by Congress with the primary responsibility for protecting agricultural workers exposed to pesticides.

Although EPA has set field reentry standards on the labels of pesticide products since the mid-1950's, the 1972 amendments to FIFRA gave EPA additional powers sufficient now to fully enforce those standards on all users of pesticides.

Since EPA now has new enforcement authority, it has announced hearings to review the adequacy of its current label standards and to promulgate revised and additional standards as deemed necessary, based upon such hearings, registration data, and written comments.

The Department of Labor (DOL) has general authority under the Occupational Safety and Health Act of 1970 to set or enforce standards concerning occupational hazards in areas for which other federal agencies have not prescribed or enforced standards. (OSHA §4 (b) (1)

The Occupational Safety and Health Administration of DOL has already scheduled four hearings on the protection of agricultural field workers from exposure to one class of pesticides, twenty-one organophosphates as used in five crops.

Both agencies have now agreed:

1. DOL will proceed with these hearings already scheduled on the organophosphates for five crops, as published in the Federal Register of 29 June 1973.

2. EPA will cooperate by testifying in at least one of the four hearings and will proceed with its own nine hearings scheduled for immediately following the conclusion of the DOL hearings.

3. EPA's hearings will deal not only with worker reentry periods for the twenty-one organophosphates but will encompass all pesticides and the broad range of issues stated in EPA Federal Register notice of 31 July 1973.

4. EPA will review, set, and promulgate pesticide standards after the completion of its hearings and after consultation with DOL and other relevant federal agencies, on the basis of the combined hearing records. Initial standards to be set prior to the 1974 growing season will at a minimum include the twenty-one organophosphates on five crops which were considered in the OSHA public hearing, as well as any other matters of worker protection deemed necessary by the Administrator of EPA.

5. EPA has the primary responsibility for establishing the standards concerning occupational safety arising from the use of pesticides, and these standards when issued preempt any DOL authority to establish conflicting standards.

6. EPA will enforce these standards in accordance with the FIFRA and applicable regulations thereto. DOL may assist in this enforcement after adopting these standards as DOL standards. While enforcement authority under the FIFRA and the OSHA is not identical, DOL standards and enforcement shall not conflict with those of EPA.

PROPOSED BUDGET
EPA Regional Offices

Farmworker Training

Beginning Date: 9-1-79
Ending Date: 9-1-80

Personnel Costs

	Annual Salary	Fringe Benefits (15% of salary)	Total Salary & Fringe Benefits	
1. Farmworker Trainer	$ 10,000.00	$ 1,500.00	$ 11,500.00	
100 Trainers	1,000,000.00	150,000.00	1,150,000.00	
TOTAL				$1,150,000.00
2. Travel: 25,000 miles per year x $.20/mile = $5,000.00/year x 100 trainers				
TOTAL				$ 500,000.00
3. Space costs, consummable supplies, purchase and lease of equipment should be available in part through existing EPA regional offices. Additional costs to EPA per farmworker should be $1,000.00 per year x 100 trainers.				
TOTAL				$ 100,000.00
GRAND TOTAL				$1,750,000.00

B

ATTN: AGRICULTURAL COMMISSIONERS
FROM: WORKER HEALTH & SAFETY UNIT

STATE OF CALIFORNIA
DEPARTMENT OF FOOD AND AGRICULTURE
DEPARTMENT OF HEALTH

April 1, 1978

ILLNESSES OF EMPLOYED PERSONS REPORTED BY PHYSICIANS
TO THE STATE AS DUE TO EXPOSURE TO PESTICIDES OR THEIR RESIDUES
IN CALIFORNIA - ACCORDING TO JOB AND TYPE OF ILLNESS -
SUMMARY OF REPORTS RECEIVED BETWEEN JANUARY 1 AND DECEMBER 31, 1977

Occupation of Worker	Type of Illness				
	Systemic	Skin	Eye	Skin/Eye	Totals
Aerial Applicator	4	3	0	0	7
Mixer and/or Loader only	93	20	28	2	143
Ground Applicator (Mixer, Loader and Applicator)	90	79	63	4	236
Gardener and/or Maintenance	37	40	73	5	155
Nursery and/or Greenhouse	12	41	18	1	72
Mosquito Abatement	2	1	0	0	3
Structural Pest Control	25	12	21	2	60
Fumigator, Field	5	4	7	0	16
Fumigator, other (not structural or field)	23	5	5	0	33
Creosote Exposure of Worker	3	22	13	2	40
Applicator, other	14	11	13	1	39
Worker Exposed to Pesticide Drift From Outdoor Application Site	17	5	8	0	30
Flagger for Aircraft	11	3	1	0	15
Tractor Driver or Irrigator (not involved in application)	10	14	5	0	29
Field Worker Exposed to Pesticide Residue	57	104	20	3	184***
Fruit and Vegetable Packer or Processor	4	7	1	0	12
Indoor Worker Exposed to Pesticide Residue or Drift	67	7	11	0	85
Warehouse Worker and/or Truck Loader	46	9	10	1	66
Firemen and Policemen Exposed to Pesticide Fires and Spills	90	1	1	0	92
Manufacturing and Formulation Plant Worker	53	5	4	0	62**
Cleaner and/or Repairer of Machinery	12	11	9	1	33
Other	60	24	21	1	111
TOTALS	734	429	332	23	1,518*

*In addition to these reports of illness, 297 other reports from physicians to the State concerning employed persons that mentioned pesticides or other agricultural chemicals were classified as follows:

Employed persons ill from exposure to an agricultural chemical that was not a pesticide - 10

Employed persons initially reported as possibly having a pesticide-related illness:

- Unconfirmed - 94
- Negative - confirmed later that pesticides were not involved - 66

Employed persons exposed to pesticides--no obvious illness observed - 76

Employed persons receiving a routine cholinesterase that was first classified as an illness by mistake - 4

Persons exposed to pesticides--determined to not be job-related - 47

**An incident in a plant involved in the manufacture of the soil fumigant DBCP resulted in 35 reported cases of lowered sperm count.

***There was one field worker incident that resulted in 36 systemic illnesses, 24 of these cases were reported and are included in the above figures.

There were no reported occupational deaths due to pesticides in 1977 in California.

ACF 59-470

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DRAFT

STATE OF CALIFORNIA
DEPARTMENT OF FOOD AND AGRICULTURE
DEPARTMENT OF HEALTH

April 1, 1977

ILLNESSES OF EMPLOYED PERSONS REPORTED BY PHYSICIANS
TO THE STATE AS DUE TO EXPOSURE TO PESTICIDES OR THEIR RESIDUES
IN CALIFORNIA - ACCORDING TO JOB AND TYPE OF ILLNESS -
SUMMARY OF REPORTS RECEIVED BETWEEN JANUARY 1 AND DECEMBER 31, 1976

Occupation of Worker	Type of Illness				
	Systemic	Skin	Eye	Skin/Eye	Totals
Aerial Applicator (Pilot)	4	1	3	0	14
Mixer and/or Loader only	76	19	23	4	122
Ground Applicator (Mixer, Loader, Applicator)	95	80	73	6	254
Gardener and/or Maintenance Worker	41	47	67	4	159
Nursery and Greenhouse Worker	37	55	26	1	119
Mosquito Abatement Worker	2	1	3	0	6
Structural Pest Control Worker	29	18	27	0	74
Fumigator, Field	4	7	2	1	14
Fumigator, other (not structural or field)	29	6	4	1	40
Creosote Exposure of Worker	0	20	7	1	28
Applicator, other	11	11	13	1	36
Worker Exposed to Drift From Application Site	15	2	12	0	29
Flagger for Aircraft	9	4	1	0	14
Tractor Driver or Irrigator (not involved in application)	5	16	8	1	30
Field Worker Exposed to Pesticide Residue	20	107	27	2	156*
Agricultural Commodity Packer or Processor	4	7	1	1	13
Indoor Worker Exposed to Pesticide Residue or Drift	63	10	2	0	75
Warehouse Worker and/or Truck Loader	44	8	11	4	67
Firemen and Policemen Exposed to Pesticide Fires and Spills	37	0	2	0	39
Manufacturing and Formulation Plant Worker	37	55	26	1	119
Cleaner and/or Repairer of Pesticide Handling Machinery	7	5	13	1	26
Other Type of Pesticide Exposure Not Listed Above	46	28	27	0	101
TOTALS	602	461	361	28	1,452**

*There was one sizable field worker exposure incident that resulted in 116 systemic illnesses; only six of these cases were recorded above since only six individual physicians' reports were received.

**In addition to these reports of illness, other reports from physicians to the State concerning employed persons that mentioned pesticides or other agricultural chemicals were classified as follows:

Employed persons ill from exposure to another agricultural chemical that was not a pesticide - 21

Employed persons initially diagnosed as possibly having a pesticide-related illness:

- Unconfirmed - 41
- Negative - confirmed later that pesticides were not involved - 83

Employed persons exposed to pesticides--no obvious illness observed - 120

Employed persons receiving a routine cholinesterase that was first classified as an illness by mistake - 3

Persons exposed to pesticides--later determined not to be job-related - 28

There were no reported occupational deaths due to pesticides in 1976 in California.

ACF 59-295
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y 1, 1976

STATE OF CALIFORNIA
DEPARTMENT OF FOOD AND AGRICULTURE
AND DEPARTMENT OF HEALTH
ILLNESSES OF EMPLOYED PERSONS REPORTED BY PHYSICIANS
TO THE STATE AS DUE TO EXPOSURE TO PESTICIDES OR THEIR RESIDUES
IN CALIFORNIA - ACCORDING TO JOB AND TYPE OF ILLNESS -
SUMMARY OF REPORTS RECEIVED BETWEEN JANUARY 1 AND DECEMBER 31, 1975

REGION IX
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OCCUPATION OF WORKER	TYPE OF ILLNESS				
	SYSTEMIC	SKIN	EYE	EYE/SKIN	TOTALS
Ground Applicator	94	94	64	12	264
Mixer and/or Loader	82	19	39	3	143
Gardener	25	28	40	13	106
Field Worker Exposed to Pesticide Residues	28	115	21	3	167
Formulation Plant Worker	41	5	8	2	56
Nursery or Greenhouse Worker	25	45	18	2	90
Warehouse Worker and/or Truck Loader	18	14	11	2	45
Structural Pest Control Worker	8	14	14	0	36
Fireman Exposed to Pesticide Fires	37	0	0	0	37
Creosote Exposure of Worker	0	12	6	0	18
Field Fumigator	11	4	6	1	22
Tractor Driver or Irrigator	9	10	3	0	22
Cleaner and/or Repairer of Pesticide Handling Machinery	9	11	15	5	40
Worker Exposed to Drift From Application Site	9	9	13	0	31
Aerial Applicator (Pilot)	6	0	1	0	7
Flagger for Aircraft	10	4	2	0	16
Mosquito Abatement Worker	0	0	1	0	1
Indoor Worker Exposed to Pesticides	51	15	12	1	79
Other Type of Pesticide User - Not Listed Above	83	37	40	3	163 *
TOTALS	546	436	314	47	1,343 **

* This includes persons who became ill from exposure to pesticides at spills and fires who were not firemen.

** In addition to these reports of illness, other reports from physicians to the State concerning employed persons that mentioned pesticides or other agricultural chemicals were classified as follows:

Employed persons ill from exposure to another agricultural chemical that was not a pesticide - 18

Employed persons initially diagnosed as possibly having a pesticide-related illness:

- Unconfirmed - probably not due to pesticides - 45
- Negative - confirmed later that pesticides were not involved - 75

Employed persons exposed to pesticides (primarily firemen and policemen) - no obvious illness observed - 240

Employed persons receiving a routine cholinesterase that was first classified as an illness by mistake - 9

Persons exposed to pesticides - later determined not to be job-related - 16
There was one reported occupational death due to pesticides in 1975 in California in an employed structural pest control worker who handled cyanide in a grossly careless manner.

ACP 59-136

NOV. 1, 1976

STATE OF CALIFORNIA
DEPARTMENT OF HEALTH
AND
DEPARTMENT OF FOOD AND AGRICULTURE
ILLNESSES OF EMPLOYED PERSONS REPORTED BY PHYSICIANS TO THE STATE
AS DUE TO EXPOSURE TO PESTICIDES OR THEIR RESIDUES
IN CALIFORNIA IN THE YEARS 1973, 1974, AND 1975
ACCORDING TO JOB AND TYPE OF ILLNESS

JOB CATEGORY	TYPE OF ILLNESS OR INJURY														
	SYSTEMIC			SKIN			EYE			EYE AND SKIN			TOTALS		
YEAR	1973	1974	1975	1973	1974	1975	1973	1974	1975	1973	1974	1975	1973	1974	1975
Ground Applicator	187	80	94	103	66	94	121	66	64	13	13	12	424	225	264
Mixer and/or Loader	121	73	82	19	19	19	22	40	39	3	9	3	165	141	143
Gardener	14	16	25	16	31	28	34	52	40	2	4	13	66	103	106
Field Worker Exposed to Pesticide Residue	45	12	28	94	78	115	18	12	21	0	10	3	157	112	167
Nursery or Greenhouse Worker	18	11	25	71	47	45	22	13	18	1	2	2	112	73	90
Field Fumigator	52	7	11	13	9	4	5	12	6	1	1	1	71	29	22
Tractor Driver or Irrigator*	--	6	9	--	13	10	--	4	3	--	0	0	--	23	22
Cleaner and/or Repairer of Pesticide Handling Machinery	10	10	9	6	7	11	5	5	15	1	6	5	22	28	40
Worker Exposed to Drift From Application Site	10	11	9	5	4	9	11	6	13	0	1	0	26	22	31
Aerial Applicator (Pilot)	10	13	6	0	2	0	3	2	1	1	0	0	14	17	7
Flagger For Aircraft	16	3	10	3	2	4	1	0	2	0	1	0	20	6	16
Subtotal of Illness for Agricultural Workers	463	242	308	330	278	339	242	212	222	22	47	39	1077	779	908
Formulation Plant Worker	41	55	41	15	4	5	5	10	8	2	2	2	63	71	56
Warehouse Worker and/or Truck Loader	33	25	18	8	10	14	9	10	11	1	3	2	51	48	45
Structural Pest Control Worker	11	20	8	5	8	14	8	11	14	0	0	0	24	39	36
Firemen Exposed to Pesticide Fires	41	25	37	0	1	0	1	0	0	0	0	0	42	26	37
Creosote Applicator	1	0	0	24	19	12	9	10	6	2	4	0	36	33	18
Mosquito Abatement Worker*	--	2	0	--	1	0	--	4	1	--	0	0	--	7	1
Indoor Worker Exposed to Pesticides**	--	--	61	--	--	15	--	--	12	--	--	1	--	--	79
Other Type of User -- Not Listed Above	55	67	83	70	46	37	50	39	40	5	2	3	181	154	163
Subtotal of Illness for Non-Agricultural Workers	182	194	238	122	89	97	82	84	92	10	11	8	397	378	435
Total Illnesses for All Job Categories	645	436	546	452	367	436	324	296	314	32	58	47	1474	1157	1343

*In 1973, persons in these job categories were included the other type of pesticide user category.
**In 1973 and 1974, persons in this job category were included the other type of pesticide user category.

ACF 59 3/9

NOV. 1, 1976

STATE OF CALIFORNIA
DEPARTMENT OF HEALTH
AND
DEPARTMENT OF FOOD AND AGRICULTURE
ILLNESSES OF EMPLOYED PERSONS REPORTED BY PHYSICIANS TO THE STATE
AS DUE TO EXPOSURE TO PESTICIDES OR THEIR RESIDUES
IN CALIFORNIA IN THE YEARS 1973, 1974, AND 1975
ACCORDING TO JOB AND TYPE OF ILLNESS

JOB CATEGORY	TYPE OF ILLNESS OR INJURY														
	SYSTEMIC			SKIN			EYE			EYE AND SKIN			TOTALS		
YEAR	1973	1974	1975	1973	1974	1975	1973	1974	1975	1973	1974	1975	1973	1974	1975
Ground Applicator	187	80	94	103	66	94	121	66	64	13	13	12	424	225	264
Mixer and/or Loader	121	73	82	19	19	19	22	40	39	3	9	3	165	141	143
Gardener	14	16	25	16	31	28	34	52	40	2	4	13	66	103	106
Field Worker Exposed to Pesticide Residue	45	12	28	94	78	115	18	12	21	0	10	3	157	112	167
Nursery or Greenhouse Worker	18	11	25	71	47	45	22	13	18	1	2	2	112	73	90
Field Fumigator	52	7	11	13	9	4	5	12	6	1	1	1	71	29	22
Tractor Driver or Irrigator*	--	6	9	--	13	10	--	4	3	--	0	0	--	23	22
Cleaner and/or Repairer of Pesticide Handling Machinery	10	10	9	6	7	11	5	5	15	1	6	5	22	28	40
Worker Exposed to Drift From Application Site	10	11	9	5	4	9	11	6	13	0	1	0	26	22	31
Aerial Applicator (Pilot)	10	13	6	0	2	0	3	2	1	1	0	0	14	17	7
Flagger For Aircraft	16	3	10	3	2	4	1	0	2	0	1	0	20	6	16
Subtotal of Illness for Agricultural Workers	483	242	308	330	278	339	242	212	222	22	47	39	1077	779	908
Formulation Plant Worker	41	55	41	15	4	5	5	10	8	2	2	2	63	71	56
Warehouse Worker and/or Truck Loader	33	25	18	8	10	14	9	10	11	1	3	2	51	48	45
Structural Pest Control Worker	11	20	8	5	8	14	8	11	14	0	0	0	24	39	36
Firemen Exposed to Pesticide Fires	41	25	37	0	1	0	1	0	0	0	0	0	42	26	37
Creosote Applicator	1	0	0	24	19	12	9	10	6	2	4	0	36	33	18
Mosquito Abatement Worker*	--	2	0	--	1	0	--	4	1	--	0	0	--	7	1
Indoor Worker Exposed to Pesticides**	--	--	51	--	--	15	--	--	12	--	--	1	--	--	79
Other Type of User -- Not Listed Above	55	67	83	70	46	37	50	39	40	5	2	3	181	154	163
Subtotal of Illness for Non-Agricultural Workers	182	194	238	122	89	97	82	84	92	10	11	8	397	378	435
Total Illnesses for All Job Categories	665	436	546	452	367	436	324	296	314	32	58	47	1474	1157	1343

*In 1973, persons in these job categories were included the other type of pesticide user category.
**In 1973 and 1974, persons in this job category were included the other type of pesticide user category.

ACP 59-249

Table 1A

REPORTS OF OCCUPATIONAL DISEASE IN AGRICULTURE
AND RATES PER 1,000 WORKERS
California, 1975

	Reports	Rate
All Industries	32,844	4.3
Agriculture	3,187	12.6
Farms	2,705	12.5
Pest Control and Other Agricultural Services	482	13.4

Source: State of California, Division of Labor Statistics and Research, Doctor's First Report of Occupational Injury or Illness: Employment Development Department; employment estimates of workers covered by the California Workers' Compensation Law. Statistics compiled by the State of California, Department of Health.

Article 23. Pesticide Worker Safety

2475. Purpose of Article.

(a) This article specifies work practices for employees who mix, load, apply, store, or otherwise handle pesticides for agricultural uses as defined in Section 11408, through subsection (c), of the Food and Agricultural Code, and for employees who are exposed to residues of these pesticides after application. In general, the work practices and safety requirements stated in this article are designed to reduce risk of exposure and to assure availability of medical services for employees who mix, load, apply or otherwise handle pesticides, and to provide safe working conditions for field and other workers.

(b) It is the express duty of employers to provide a safe workplace for employees and to order employees to follow safe work practices. Employers shall inform employees of pesticide safety hazards and pesticide safety regulations applicable to all activities they may perform. The employer is responsible for ordering that employees handle and use pesticides in accordance with the requirements of law, regulations, and label requirements.

NOTE: Authority cited: Sections 407, 11502, 12005, 12111, 12782, 12979, 12981, and 14005, Food and Agricultural Code. Reference: Sections 11401 through 12121, 12751 through 12994, and 14001 through 14104, Food and Agricultural Code.

HISTORY:

1. Repealer of Article 23 (Sections 2475 through 2488, inclusive) and new Article 23 (Sections 2475 through 2487, inclusive) filed 7-28-76; effective thirtieth day thereafter (Register 76, No. 31). For prior history, see Register 74, No. 15, and Register 75, No. 24.
2. Repealer of Article 23 (Sections 2475 through 2487) and new Article 23 (Sections 2475 through 2487) filed 2-2-77; effective thirtieth day thereafter (Register 77, No. 6).

2476. Definitions.

The following definitions apply to this article, unless otherwise apparent from the context.

(a) "Carbamates" means esters of N-methyl carbamic acid which inhibit cholinesterase.

(b) "Closed system" means a procedure for removing a pesticide from its original container, rinsing the emptied container and transferring the pesticide and rinse solution through connecting hoses, pipes and couplings that are sufficiently tight to prevent exposure of any person to the pesticide concentrate or rinse solution. Rinsing is not required when the pesticide is used without dilution. The system's design and construction shall meet the director's closed system criteria.

(c) "Exposure period" means that period of time that the employee is exposed to pesticides while mixing, loading, applying (including flagging), maintaining or cleaning contaminated equipment, or is in contact with pesticides or their residues following these activities. The exposure period will continue until the employee cleans equipment, changes clothing, and thoroughly washes. Exposure period does not include time spent handling pesticides through a closed system or time spent handling dry pesticides packaged in water-soluble packets; however, this time shall be included as exposure period if prior to it, the employee is exposed to pesticides and does not clean equipment, change into clean clothes, and thoroughly wash.

(d) "Exposure period" means that period of time that the employee is exposed to pesticides while mixing, loading, applying (including flagging), maintaining or cleaning contaminated equipment, or in contact with pesticides or their residues following these activities. The exposure period will continue until the employee cleans equipment, changes clothing, and thoroughly washes. Exposure period does not include time spent mixing liquid pesticides through a closed mixing system or loading liquid pesticides through a closed loading system.

(e) "Employee" means any person hired by the employer or his agent, including a labor contractor.

(f) "Employer" means any person who hires an employee and may include: (1) the farm operator, (2) a labor contractor, (3) a pest control operator, (4) any other independent contractor, or (5) the employer's agent.

(g) "Farm operator" means the person primarily responsible for the control or management of the property.

(h) "Field" means any area upon which one or more crops are grown and includes greenhouses, turf, and similar areas.

(i) "Safety interval" means the period of time that must elapse after a field is treated with a pesticide, and before employees are permitted to enter the field to engage in any activity that will result in substantial and prolonged exposure of skin, eyes, and/or normal wearing apparel to treated plants.

(j) "Medical supervision" means occupational health guidance and necessary associated health care by a physician licensed to practice medicine in California.

(k) "Organophosphates" means organophosphorus esters which inhibit cholinesterase.

(*l*) "Pesticide" means any substance or mixture of substances that is a pesticide as defined in the Food and Agricultural Code and includes mixtures and dilutions of pesticides.

(m) "Pesticides in toxicity category one" means pesticide products which are required to prominently display the signal word "DANGER" on the label and may be required to display the signal word "POISON", and to also show the skull and crossbones symbol on the label.

(n) "Pesticides in toxicity category two" are pesticide products which are required to prominently display the signal word "WARNING" on the label.

(o) "Protective clothing" means clothing which is used to protect the human body from contact with pesticides and is separate from or in addition to normal wearing apparel. Protective clothing may include, but is not limited to, coveralls, waterproof boots, waterproof gloves, waterproof hat, and waterproof apron.

NOTE: Authority cited: Sections 407, 11502, 12005, 12111, 12781, 12979, 12981, and 14005, Food and Agricultural Code. Reference: Sections 11401–12121, 12751–12994, and 14001–14104, Food and Agricultural Code.

HISTORY:

1. Amendment of subsections (b) and (c) filed 1-3-79; effective thirtieth day thereafter (Register 79, No. 1).

2477. Safety of Employed Persons.

The following requirements shall be complied with for the safety of persons working with pesticides as mixers, loaders, flaggers, or ground or aerial applicators.

(a) Age. No employer shall permit an employee under 18 years of age to mix or load a pesticide in toxicity category one or two unless closed mixing and loading systems are used.

(b) **Instruction, Training, and Supervision.**

(1) Each employer shall provide to each employee working with any pesticide adequate instruction and training so that the employee understands the safety procedures required for the pesticides that he will work with, except as provided in (3) below. This instruction and training for the jobs assigned shall be completed within 30 days after the employee is assigned to handle pesticides other than those in toxicity category one. An employee assigned to handle a toxicity category one pesticide shall be given this training before handling such pesticides. This training shall include the safety procedures to be followed, the safety clothing and equipment to be worn, the common symptoms of pesticide poisoning, the dangers of eating, drinking, or smoking while handling pesticides, where to obtain emergency medical treatment, what medical supervision means, and applicable laws and regulations.

(2) At the completion of training, the employer shall record the date and extent of training given to the employee and the job to be assigned. This information shall be verified by the employee's signature or signed initials and be available for examination by the director or commissioner.

(3) Until training is completed, close supervision consisting of personal observation of each employee's work practice by the employer is required at least every hour at night and at least every two hours during the day. Step (1) above may be omitted by an employer if an employee presents written evidence of pertinent prior training, such as an appropriate license, certificate, or a letter from a previous employer documenting previous training and satisfactory job performance and the employee verifies the same by his signature in the employer's records.

(c) **Emergency Medical Care.**

(1) For all activities involving the use of pesticides, the employer shall make prior arrangements for emergency medical care and he shall post in a prominent place at the work site, or on the application vehicle if there is no appropriate designated work site, the name, address and telephone number of the physician, clinic, or hospital emergency room providing care.

(2) When the employer has reasonable grounds to suspect that an employee has a pesticide illness or when an exposure to a pesticide has occurred that might reasonably be expected to lead to an employee's illness, the employer shall take the employee to a physician immediately.

(d) **Medical Supervision.** For any employee whose exposure period exceeds 30 hours in any 30-day period where any pesticide in toxicity category one or two containing an organophosphate or a carbamate is being used, the employer shall engage the service of a licensed physician to provide medical supervision. Medical supervision shall include monitoring of the work force by means of red cell and plasma cholinesterase determinations to be made on each employee before any exposure to such pesticides and as often thereafter as recommended by the physician.

(1) The employer shall have written evidence signed by a physician that the physician has agreed to provide medical supervision as required by this section. The employer shall request the physician to provide to the employer all cholinesterase test results and recommendations applicable to this medical supervision. The employer shall keep a record of all recommendations received from the medical supervisor and all cholinesterase test results obtained on his employees. These records and this evidence shall be maintained for three years and shall be available for inspection by the employee, the director, commissioner, county health official, or state health official.

(2) The employer shall follow the recommendations of the medical supervisor concerning matters of occupational health. When, in the physician's opinion, continued exposure to pesticides is likely to injure an employee's health, such employee shall be removed from exposure until the physician authorizes his return. The physician may also limit the exposure period of any employee to pesticides when cholinesterase test results and/or poisoning incidents indicate such limitations are necessary to protect the health of an employee.

(3) The employer shall post the name, address, and telephone number of this physician in a prominent place at the locale where the employee usually starts the workday or in the application vehicle if there is no locale where the employee usually starts the workday.

(4) The State Department of Health shall furnish physicians providing supervision with guidelines for this medical supervision program. The physician guidelines provided by the State Department of Health shall (A) designate appropriate test methods and will list laboratories that will perform cholinesterase determinations according to these methods; (B) require pre-exposure baseline cholinesterase determinations and follow-up tests at appropriate intervals for each employee covered by the first sentence of (d) above; (C) outline the considerations involved in decisions regarding frequency of cholinesterase testing and circumstances under which workers should be removed from exposure; (D) require that both plasma and red cell determinations be performed on all samples tested; (E) require that baseline and follow-up tests be performed by the same laboratory and by the same method whenever practical; and (F) indicate that if an employee's plasma cholinesterase level decreases 50% below his baseline or if his red cell cholinesterase decreases 40% below his baseline, the employer will be instructed to remove the employee from all work exposure to organophosphates and carbamates until the employee's red cell and plasma cholinesterase both return to his pre-exposure baseline range.

(5) A laboratory performing red cell and plasma cholinesterase tests for occupational health surveillance shall be approved by the State Department of Health and shall have a quality control program and an analytical method acceptable to that department.

(e) **Working Alone with Pesticides in Toxicity Category One.**

(1) An employee may work alone with a pesticide in toxicity category one during daylight hours only when personal, radio, or telephone contact is made to a responsible adult at intervals not exceeding two hours.

(2) An employee may work alone with a pesticide in toxicity category one during nighttime hours only when personal, radio, or telephone contact is made to a responsible adult at intervals not exceeding one hour.

(3) A pilot, mixer-loader, and/or flagger team shall be considered as working together. In the case of two ground applicators working in the same field, no additional person is necessary if they can see each other's application vehicles.

(f) **Change Area.** For any employee whose exposure period exceeds 30 hours in any 30-day period with pesticides in toxicity categories one or two, employers shall provide at the place where employees complete their workday an area where employees may change clothes and wash themselves. Clean towels, soap, and adequate water shall be available to allow for thorough washing. Employers shall order their employees to change into their work clothing and protective equipment at the start of the day's exposure period, and to remove such clothing and equipment and to wash themselves at the end of each day's exposure period. The employer shall provide a clean, pesticide-free place where employees may store any personal clothing not in use while they are at work handling pesticides. The employer shall order employees not to take home contaminated clothing or equipment.

(g) **Personal Washing Facilities at Mixing and Loading Site.** Clean water, soap and towel(s) for routine washing of hands and face, and for emergency washing of the entire body shall be available for all employees at the work site where they mix or load pesticides in toxicity categories one or two. A minimum of ten gallons of water shall be present at the beginning of each workday for one employee and a minimum of 20 gallons for two or more employees. This water shall be stored separate from that used for mixing with pesticides unless the tank holding water for mixing with pesticides is equipped with appropriate valves to prevent back flow of pesticides into the water. Any other easily available supply of clean water within 100 feet of the mixing and loading site is satisfactory for the purposes of this section.

(h) **Protective Clothing.** Each employer shall provide clean outer clothing, such as coveralls, daily for each employee who works as a mixer, loader, flagger, or applicator, with any pesticide in toxicity category one or two and shall provide for its cleaning after any day when the employee handles such pesticides. The person or firm doing the laundry shall be informed by the employer if they receive pesticide-contaminated clothing. There shall be at the mixing and loading site at least one change of outer clothing.

(i) **Safety Equipment.** The employer shall provide all necessary safety equipment and provide for its cleaning when necessary. The employer shall require that any respirator filter pads and cartridges be changed in the manner and with the frequency recommended by the manufacturer. The employer shall require that all personal protective equipment be maintained and kept in a clean, specially designated place or locker when not in use. This clothing and equipment shall remain the property of the employer.

(j) **Safety Procedures.** Based upon the safety procedures specified in the pesticide labeling, the employer shall advise the employee of the protective clothing and equipment he is to use and the safety procedures he is to follow according to the label requirements and hazards of the job or jobs he will perform. The employer shall order that these provisions are followed.

(k) **Adequate Light at Mixing and Loading Site.** Whenever natural light in mixing/loading area is not adquate to allow an employee to read the label and work in a safe manner, artificial light shall be provided in such areas which is sufficient to perform these activities.

2478. Safe Equipment. (a) **Equipment Inspection.** Equipment used for mixing, loading, or applying pesticides shall be kept in good repair and shall be safe to operate. The director or commissioner may inspect at any reasonable time equipment used in mixing, loading, and application of pesticides. Equipment with any safety defect shall be repaired or altered to remove the hazard before further use.

(b) **Equipment Maintenance.** Persons who own or operate pesticide mixing, loading, or application equipment shall inform each employee under their control who may be involved in the cleaning, servicing or repair of that equipment of the hazards of the pesticides that person may encounter and the methods of protecting against personal injury. If such cleaning, servicing or repairing is to be performed by persons not under the control of the owner or operator of the equipment, he shall so notify the person in charge of performing these services. Employees who clean, service, or repair mixing and application equipment shall be provided with any necessary protective equipment or clothing by their employer, and shall be instructed and supervised in the maintenance operation in a manner that will reduce work hazards.

(c) **Equipment Specifications.**

(1) All hatches or doors on aerial or ground applicator vehicle tanks shall be equipped with a cover that will prevent spillage when the vehicle is in motion.

(2) Flexible hoses carrying liquid pesticides in toxicity categories one or two under pressure shall not pass unshielded through the cockpit of an airplane or helicopter.

(3) Shut-off devices shall be installed on the exit end of all hoses carrying liquid pesticides in toxicity categories one or two from mixing tanks that are adequate to prevent splashes onto the employee doing the loading when filling operations are stopped and the filler hose is removed from the inlet to the tank of the application vehicle. As an alternative, a reversing action pump or a similar system may be used that will empty the hose and will eliminate dripping of liquid from the end of the hose when the filling operation is stopped.

(4) Each tank with a capacity of more than 49 gallons that is used to mix or apply any liquid mixture derived from a pesticide in toxicity categories one or two, shall have either, (1) a properly functioning means to indicate externally the internal liquid level in the tank such as a sight gauge; or (2) the tank or the filler hose nozzle shall have a device that will automatically stop the filling operation before the pesticide liquid mixture spills over the top.

(d) Closed Systems. Employers shall provide closed systems for employees that mix or load toxicity category one liquid pesticides. No employee shall transfer, mix, or load such pesticides except through a closed system. The system's design and construction shall meet the director's closed system criteria.

(1) For each employee who mixes or loads liquid pesticides in toxicity category one or two containing an organophosphate or carbamate only through closed systems on five or more days in any consecutive 30 day period, the employer shall engage the services of a licensed physician to provide each employee with a pre-exposure baseline cholinesterase determination.

After the first year, one annual cholinesterase determination shall be sufficient if the plasma and red blood cell values are each within 20% of the original baseline values.

The manner of conducting cholinesterase determination shall be in accordance with guidelines provided by the Department of Health Services under paragraph (4) of subsection (d) of Section 2477. Records of these tests shall be maintained and made available as specified in paragraph (1) of subsection (d) of Section 2477.

(2) The requirements of this subsection do not apply to employees of research units developing and testing new pesticides or new uses of pesticides, if employees handle one gallon or less of such pesticides per day, or to regulatory personnel collecting samples of pesticides according to official sampling procedures.

NOTE: Authority cited: Sections 407, 11502, 12005, 12111, 12781, 12979, 12981, and 14005, Food and Agricultural Code. Reference: Sections 11401–12121, 12751–12994, and 14001–14104, Food and Agricultural Code.

HISTORY:

1. Amendment of subsection (d) filed 1-3-79; effective thirtieth day thereafter (Register 79, No. 1).

2479. *Field Worker Safety.*

Employers shall comply with the following for the safety of employees who may enter areas when exposure to pesticides or their residues may reasonably be expected.

(a) Personal Safety.

(1) Emergency medical care shall be planned for in advance. The employees or their supervisor in the field shall be informed of the name and location of the physician or medical facility that will provide emergency medical care. If an employer expects to have five or more employees working in such areas on any one day, during a year, a growing season or a harvest season, in advance of that date, the employer shall notify such a facility of the possible need for medical care. The employer shall request and obtain a written statement from such a facility that such care will be provided, if requested, and shall present such a statement for examination when requested by the Director.

(2) Handwashing facilities shall be available. Handwashing facilities provided in conjunction with toilet facilities which are required by the provisions of Section 5474.26 et seq. of the Health and Safety Code shall be considered adequate for the purposes of this section.

(3) Field work supervisors shall be informed of the usual symptoms of organophosphate and carbamate poisoning.

(4) When pesticide poisoning is suspected in an employee, the employer or his designated agent shall take the employee to a physician immediately.

(b) Field Work During Pesticide Application. No person shall apply any pesticide in such manner that it contaminates the body or clothing of any employee during the application process, except for employees who are involved in the application process and who are wearing the appropriate protective clothing and/or equipment.

(c) Field Reentry After Pesticide Application.

(1) Employees shall not be permitted to enter any area treated with a pesticide until the pesticide spray has dried or the pesticide dust has settled unless that employee wears the same protective clothing and equipment specified for the applicator in the labeling of that pesticide. In no case does the waiting period for the drying or settling to occur need to exceed 24 hours, unless otherwise required in paragraph (2) of this subsection.

(2) After the Pesticide Spray has Dried or the Pesticide Dust has Settled.

(A) A treated area may be entered by an employee without restriction after the pesticide has dried or the pesticide dust has settled, except (1) when the labeling of the pesticide specifies a longer safety interval or (2) when a longer safety interval is specified in this section. In case of a conflict between the pesticide labeling and that specified in this section, the longer interval shall be followed. When more than one safety interval in this section is applicable in a given situation, the longer interval shall apply.

(B) No employer shall permit an employee to enter any part of a treated area to engage in any activity that may involve substantial and prolonged body contact with the treated plants unless: (1) the applicable safety interval has expired; (2) two inches of rainfall occurs within any seven-day period following the pesticide application; (3) the equivalent of two inches of rainfall has been applied evenly above all plants by sprinkler irrigation equipment within any seven-day period following the pesticide application; (4) for tree crops, at least 50 gallons of water has been applied at one time under pressure and evenly distributed to each tree; (5) the plants have been tested by a procedure acceptable to the director and have been determined to have no residues or residue levels that the director considers not to be hazardous, or (6) the director approves of entry during a safety interval requiring that the employer provide medical supervision for all employees entering the treated area. The employer, or his agent, shall obtain prior authorization from the commissioner before a reentry interval can be shortened by procedures described in (2), (3), (4), (5), and (6).

(C) A 24-hour safety interval applies after each application of a toxicity category one pesticide in the production of an agricultural commodity.

(D) A 48-hour safety interval applies after each application of a pesticide containing one of the following ingredients in the production of an agricultural commodity:

Bidrin
Carbophenothion (Trithion)
Demeton (Systox)
Disulfoton (Di-Syston)
Endosulfan (Thiodan)
Endrin
Ethion
Metasystox (R)
Methidathion (Supracide)
Methomyl (Lannate, Nudrin)
Methyl Parathion
Mevinphos (Phosdrin)
Parathion
Phorate (Thimet)
Phosphamidon
TEPP

(E) Whenever a mixture of two or more organophosphate pesticides having a safety interval is applied, the safety interval shall be prolonged by adding to the longest applicable safety interval either (1) 50 percent of the next shortest applicable safety interval, or (2) 4 days, whichever is longer.

(F) When more than one pound per acre of actual parathion, methyl parathion or EPN is applied singly or in combination to any plant, a 14-day safety interval applies.

(G) When there is no foliage on the plant that has been treated by a pesticide, the safety interval shall be reduced by 50 percent, but in no case shall it be less than 24 hours.

(H) Safety intervals in days.

	Citrus	*Peaches & Nectarines*	*Grapes*	*Apples*
Azinphosmethyl (Guthion)	30	14	21	14
Carbophenothion (Trithion)	14	14	14	–
Demeton (Systox)	5	7	7	–
Diazinon	5	5	5	–
Dimecron (Phosphamidon)	14	–	–	–
Dimethoate (Cygon)	4	–	4	–
Dioxathion (Delnav)	30	30	30	–
EPN	14	14	14	14
Ethion	30	14	14	–
Malathion	1	1	1	–
Methomyl (Lannate, Nudrin)	2	2	2	–
Mevinphos (Phosdrin)	4	4	4	–
Naled (Dibrom)	1	1	1	–
Parathion-ethyl	30(a) (1) 45(a) (2) 60(b)	21	21	14
Parathion-methyl	–	21	14(c)	14
Phosalone (Zolone)	7	7	7	–
Imidan	–	5	5	–
Sulfur	1	1	1	–
TEPP	4	4	–	–
Torak	–	–	75	–
Supracide	30	–	–	–

FOOTNOTES:

(a) For all spray mixtures of more than 400 gallons per acre,

(1) And less than 8 pounds of actual parathion per acre, per application but no more than 10 pounds per acre, in the previous 12 months.

(2) And more than 8 pounds of actual parathion per acre, per application or more than 10 pounds per acre in the previous 12 months.

(b) For all spray mixtures of less than 400 gallons per acre.

(c) The safety interval for methyl parathion on grapes in Monterey County is 6 days. If encapsulated methyl parathion is used on grapes, the safety interval shall be 21 days in all counties.

(I) Persons determined by the director or commissioner to have only limited and intermittent exposure to treated plants, such as licensed pest control advisers, or federal, state, and county employees who need to enter treated areas during safety intervals or are exposed to toxicity category one or two organophosphate or carbamate pesticides in the course of their duties, shall be exempt from the provisions of Section 2477 and this section, except that the employer shall require plasma and red cell cholinesterase baseline determinations to be established for employees.

(d) If a field is suspected as having been a source of a pesticide-related illness, or of having a reasonable possibility of producing a pesticide-related illness, the director or commissioner may prohibit entry of employees into the treated area. If entry is allowed, the director or commissioner may require the employer to provide medical supervision for employees who will enter the treated area to engage in substantial and prolonged body contact with the plants. The director or commissioner may also specify protective clothing and equipment to be worn by employees under such circumstances.

NOTE: Authority cited: Sections 407, 11502, 12005, 12111, 12781, 12979, 12981, and 14005, Food and Agricultural Code. Reference: Sections 11401–12121, 12151–12994, and 14001–14104, Food and Agricultural Code.

HISTORY:

1. Amendment of subsections (a) and (c) filed 1-3-79; effective thirtieth day thereafter (Register 79, No. 1).
2. Editorial correction of subsection (c)(2)(I) (Register 79, No. 5).

2480. Warnings.

(a) Employees who might reasonably be anticipated to enter an area being treated or which has been treated with a pesticide for which the safety interval has not expired shall be orally warned by the employer. Oral warnings shall be given in English. When employees do not understand English such oral warning shall be in a language understood by such employees.

(b) When azinphosmethyl (Guthion), dimecron (Phosphamidon), carbophenothion (Trithion), EPN, ethion, Torak, dioxathion (Delnav), Supracide, parathion, or methyl parathion have been applied and the application results in a safety interval greater than seven days, the posting of warning signs is required.

(1) The farm operator, or his agent shall post warning signs at the usual point or points of entry and or in a manner prescribed by the commissioner. When treated fields requiring posting are adjacent to a public right-of-way and are unfenced, warning signs shall be posted at each corner and at intervals not exceeding 600 feet in addition to the normal points of entry.

(2) Posted warning signs shall be of such durability and construction that they will remain clearly legible for the duration of the safety interval, will be of such size so that the word "DANGER" is readable and two skull and crossbone symbols are clearly visible at a distance of 25 feet, and will read in the English and Spanish languages substantially as follows:

DANGER — PELIGRO

(Name of Pesticide) — PESTICIDA (VENENO)

DO NOT ENTER — NO ENTRE
UNTIL — HASTA
(Date)

(Grower's name) (Field identification, if any.)

The use of a third language on the sign is permissible.

(3) The signs shall not be posted unless a pesticide application has been made or is scheduled within the next 24 hours.

(4) These signs shall not be removed during the safety interval.

(5) Warning signs shall be removed by the farm operator or his agent within 5 days after the end of the safety interval and before employees are allowed to enter to engage in an activity requiring substantial contact with treated plants.

NOTE: Authority cited: Sections 407, 11502, 12005, 12111, 12781, 12979, 12981, and 14005, Food and Agricultural Code. Reference: Sections 11401–12121, 12751–12994, and 14001–14104, Food and Agricultural Code.

HISTORY:

1. Amendment of subsection (b) filed 1-3-79; effective thirtieth day thereafter (Register 79, No. 1).

2481. Records.

(a) A record of each pesticide application involving the crops and pesticides for which there are safety intervals shall be maintained by the farm operator for at least one year from the time of application, and shall be readily available for inspection and copying by the director or commissioner. These records shall contain the following information as to each application, as applicable:

(1) Crop.

(2) Acres or other unit.

(3) Pesticide(s) used.

(4) Dosage, dilution rate, and volume per acre.

(5) Location.

(6) Date application completed (including the hour completed, if the safety interval is 2 days or less).

(b) A copy of the Department of Food and Agriculture Pesticide Use Report, properly completed, shall serve as an adequate record.

2482. Studies on Pesticide Safety.

(a) No person shall conduct any study to establish a safety interval if human subjects are to be exposed, unless the director has approved such study. Each applicant shall give assurance (1) that the health of participants is not likely

to be endangered, (2) that participants shall be informed of the potential risks, and (3) that all persons that might be exposed will be under medical supervision. Any university or medical institution in California which has current approval by the U. S. Department of Health, Education and Welfare to conduct studies on human beings shall be considered to have complied with the above.

(b) The director shall deny approval for studies which do not meet these criteria. He may consult the State Department of Health for advice when he determines this to be necessary.

(c) The State Department of Health shall provide the director with guidelines for assistance in protecting the health of persons who may be exposed during such studies.

(d) The commissioner or director may order any employee exposure in such studies to cease immediately and the director may summarily cancel such approval whenever it is deemed advisable in the interest of employee safety, or public safety.

2483. Inspection Authority.

The director or commissioner shall have authority to enter and inspect at reasonable times, without prior notification, premises where pesticides are stored, mixed, and/or are loaded for application and the fields, structures, areas, and greenhouses where pesticides are being applied, have been applied, or are presumed to have been applied, in order to determine compliance with the provisions of this article. The director or commissioner shall be permitted to examine records concerning pesticide usage, work hours of employees and medical supervision.

2484. Employer-Employee Responsibilities.

Each employer and each employee shall comply with each regulation in this article which is applicable to his own action and conduct.

2485. Rodenticides, Predacides, Avicides and Disinfectants.

For pesticides that are used only as rodenticides, avicides, predacides, or disinfectants, only sections 2475, 2476, 2477(a), (b), (c), (g), (i), and (j), 2478(a) and (b), 2479(a) 3 and 4, 2483, and 2484 of this article shall apply.

2486. Public Agencies.

Subject to the right of the director to revoke this exemption, public agencies or their contractors operating under cooperative agreements with the State Department of Health and applying pesticides approved for this use by that Department and in amounts approved by that Department are not restricted by sections 2479, 2480, and 2481 of this article. Should the director require compliance with these sections, the public agencies shall comply forthwith.

2487. Application of Labor Code.

In order to insure that rights granted to California employees by Chapter 1 of Division 5 of the California Labor Code are adequately provided to agricultural employees, including employee rights (1) to file confidential complaints alleging unsafe work conditions, (2) to have complaints promptly investigated, (3) to talk to inspectors or compliance officers, and to point out hazards during the inspection process, (4) to be notified of any relevant job hazard, and (5) to not be subject to any retaliation or discrimination because such employee has filed any complaint regarding an unsafe work condition, the director, commissioners, and the Department of Industrial Relations shall cooperate in fully implementing any master agreements entered into between these parties which are designed to insure enforcement of employees' rights as well as any inspection protocols adopted pursuant to such master agreements.

PART 170—WORKER PROTECTION STANDARDS FOR AGRICULTURAL PESTICIDES

Sec.
170.1 General.
170.2 Definitions.
170.3 General standard.
170.4 State standards, labels and exemptions.
170.5 Warnings.

AUTHORITY: Sec. 25, 86 Stat. 997; 7 U.S.C. 136w.

SOURCE: 39 FR 16890, May 10, 1974, unless otherwise noted.

§ 170.1 General.

This part contains occupational safety and health standards for farm workers performing hand labor operations in fields after ground (other than those incorporated into the soil), aerial or other type of application of pesticides.

§ 170.2 Definitions.

Terms used in this subpart shall have the meanings set forth for such terms in the Act. In addition, as used in this subpart, the following terms shall have the meanings stated below:

(a) The term "reentry time" means the period of time immediately following the application of a pesticide to a field when unprotected workers should not enter as provided for in § 170.3(b).

(b) The term "farm worker" or "worker" means any person or persons engaged in agricultural hand labor in the field.

(c) The term "field" means any treated land area, or part thereof, upon which one or more pesticides are used for agricultural purposes, all as specified by this part.

(d) The term "protective clothing" means at least a hat or other suitable head covering, a long sleeved shirt and long legged trousers or a coverall type garment (all of closely woven fabric covering the body, including arms and legs), shoes and socks.

§ 170.3 General standard.

(a) *Application.* No owner or lessee shall permit the application of a pesticide in such a manner as to directly or through drift expose workers or other persons except those knowingly involved in the application. The area being treated must be vacated by unprotected persons.

(b) *Reentry times.* (1) No owner or lessee shall permit any worker not wearing protective clothing (under § 170.2(d)) to enter a field treated with pesticides until sprays have dried or dusts have settled, unless exempted from such requirements, or a longer reentry time has been assigned to that pesticide;

(2) Pesticides containing the following active ingredients have a reentry time of at least the interval indicated:

	Hours
(i) Ethyl parathion	48
(ii) Methyl parathion	48
(iii) Guthion	24
(iv) Demeton	48
(v) Azodrin	48
(vi) Phosalone	24
(vii) Carbophenothion	48
(viii) Metasystox-R	48
(ix) EPN	24
(x) Bidrin	48
(xi) Endrin	48
(xii) Ethion	24

(3) The preceding requirements of this part notwithstanding, workers should not be permitted to enter treated fields if special circumstances exist which would lead a reasonable man to conclude that such entry would be unsafe.

§ 170.4 State standards, labels and exemptions.

(a) Nothing herein shall prevent a duly authorized state regulatory agency from setting and enforcing more restrictive standards for workers in fields treated with pesticides.

(b) If the lable for a pesticide bears restrictions against workers entering treated fields which are more stringent than those set forth above, the label restrictions shall apply.

(c) The restrictions set forth in this part shall not apply with respect to:

(1) Mosquito abatement treatments and related public pest control programs;

(2) Greenhouse treatments which are applied in accordance with labeling directions and restrictions;

(3) Livestock and other animal treatments which are applied in accordance with labeling directions and restrictions;

(4) Treatment of golf courses and similar non-agricultural areas which are applied in accordance with labeling directions and restrictions.

§ 170.5 Warnings.

(a) When workers are expected to be working in a field treated or to be treated with a pesticide, appropriate and timely warning to such workers shall be given. The warning may be given orally and/or by posting warning signs at the usual points of entrance to the field, and/or on bulletin boards at points where the workers usually assemble for instructions. Where any person has reason to believe that a farm worker is unable to read, he shall give the farm worker oral warning and make reasonable effort to ensure understanding of such warning. When required, warnings shall be given in appropriate languages other than the English language. Oral warnings should be given in such a manner as to inform workers of areas or fields which should not be entered without protective clothing, the period of time the area or field should be vacated and actions to take in case of accidental exposure.

Table 2.4-1

Aircraft Spray Drop Size, Range, Use and Approximate Recoveries

Spray Atomizer Description	*Atomizer Specifications	Drop Size Range in Microns (Volume mean diameter)	**Percent Estimated Deposit Within 500 Feet of Application Site	General Use
Coarse Aerosols Cone and fan nozzles, and rotary atomizers	80005 90° to A.S. (airstream); D2-13 90° to A.S. 200-300 psi	75-125	< 15	For aerosol applications, vector control and forest insects. Agricultural pathogens, low volume rates, primarily adulticiding use.
Fine Sprays Cone and fan nozzles and rotary atomizers	80005 90° to A.S.; D6-45 90° to A.S. 50-100 psi	100-300	15-45	Primarily for forest pesticides chemicals and large area vector control with low dosages of low toxicity and rapid degradation chemicals. Also for agricultural insect pathogens.
Medium Sprays Cone and fan nozzles and rotary atomizers	8004 90° to A.S.; D6-46 90° to A.S. 30-50 psi	300-400	70-90	Commonly used spray drop size for all low toxicity agricultural chemicals where good coverage is necessary.
Coarse Sprays Cone and fan nozzles Spray additives	8004 with A.S.; D6-46 with A.S. 30-50 psi	400-600 with additives up to 2000	85-95	Recommended for toxic pesticides of restricted classification where thorough plant coverage is not essential.

* Numbers refer to Spraying Systems Co. nozzles.
** Weather conditions: Wind Vel. 3-5 mph., neutral temp. gradient. Material released under 10 feet height.

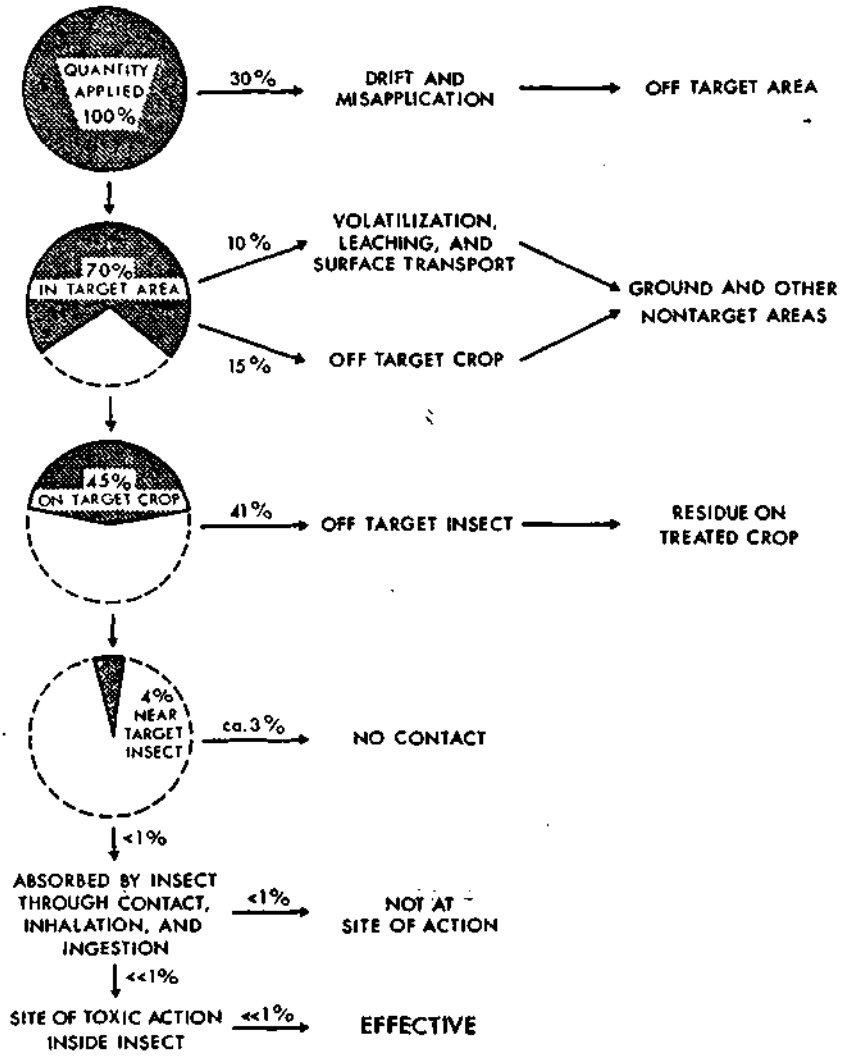
Source: Akesson and Yates, 1974.

Table 2.4-1 (con't)

Spray Atomizer Description	*Atomizer Specifications	Drop Size Range in Microns (Volume mean diameter)	**Percent Estimated Deposit Within 500 Feet of Application Site	General Use
<u>Minimum Drift Sprays</u> Jet nozzles and spray additives	D4 to D8 jets 90° to A.S. at less than 60 mph. With A.S. at over 60 mph. 30-50 psi	800-1000 with additives up to 5000	95-98	Recommended for all toxic, restricted class herbicides such as phenoxy-acids and others within limitations of growing season and nearness to susceptible crops.
<u>Maximum Drift Control</u> Low turbulence nozzles and transducer nozzles	Microfoil[R] with A.S. less than 60 mph airstream, 2-5 psi Transducer 60-125 mph 2-5 psi with A.S.	800-1000	99.+	Actual drift tests show 1/4 the drift residue levels at 500 feet downwind from the Microfoil[R] compared with the D4 to D8 jets used with restricted non-volatile herbicides, phenoxy-acids and others in the area of susceptible crops, but subject to limitations of growing season and crop.

* Numbers refer to Spraying Systems Co. nozzles.

** Weather conditions: Wind Vel. 3-5 mph., neutral temp. gradient. Material released under 10 feet height.



Data from: von Rumker, Lawless and Neiners (1974).

Table 2.4-5
Summary of Findings of Five EPA Pesticide Use Observation Studies

Study No.	Material(s)	Rig Type	Crop Treated	Preapplication	Application	Post Application	Demonstrated Hazard
1.	Azinphosmethyl and dithane (Delaware)	Airplane	Potatoes	Safety apparel not worn by all personnel (not required by state or EPA).	Application rate higher than label allowed. Occasional drift off target field, but no identified harm.	Evidence of post improper disposal of pesticide container.	None observed
2.	Methyl parathion and chlordimeform (Mississippi)	Airplane	Cotton	Safety apparel not worn by personnel (not required by state or EPA).	Application rate higher than label allowed. Unprotected persons in drift area. Irrigation runoff from treated field.	Mislabelled reentry period.	25-35% of the pesticide drifted from the treated field. Drift "at least 100 meters" into a pasture and into a creek also into a soybean field and lake.
3.	Monocrotophos chlordimeform parathion and nudrin (California: Imperial County)	Airplane & helicoper	Cotton	Improper recommendation by advisory firm regarding reentry time, all other aspects adequate.	Adequate	Adequate	Substantial spray drift (up to 30%) during one of two applications. Translocation into metropolitan areas. Fish in bordering ditch suffered AChe inhibition, but not due to the observed treatments.

Table 2.4-5 (Cont.)

Study No.	Material(s)	Rig Type	Crop Treated	Preapplication	Application	Post Application	Demonstrated Hazard
4.	Arsenic acid (Texas)	Ground Rig	Cotton	Inadequate apparel. Contamination of ground during mixing. One of five batches was mixed improperly.	Applied at a rate 240% higher than label. Applied in 15 mph wind. Applicator without adequate safety apparel.	Equipment flushed onto ground. Containers improperly disposed of.	1600 micrograms arsenic 300 ft. downwind in high-volume air sample. Crop residue level pose health hazard. Arsenic contamination and nearby pastures and ponds used for livestock watering.
5.	Mevinphos and Bacillus thuringiensis (California: Monterey County	Helicopter	Lettuce	Adequate	Drift observed onto school yard and farm labor residences. No notice to nearby residents. No signs posted.	Adequate	Off target soil and water samples contaminated (directly attributed to spray drift).

Data drawn from EPA publications 330/2-76-032, 330/2-76-038, 330/2-77-001, 33-/2-77-002, and 330/2-77-018, respectively.

Mr. ECKHARDT. Mr. Gore?

Mr. GORE. Have you seen cases of chronic poisoning as well as these acute cases?

Mr. LIGHTSTONE. Yes, we have. I had been planning to bring a farmworker named Andres Mario with me today. He is suffering from Parkinson's disease. He lives in Stanislaus County, Calif. He was not feeling well enough to come with us today. However, he developed Parkinson's disease and other evidence of degenerative nerve disease following becoming a sprayer.

His physician, in fact a couple of physicians, ascribed his condition to his continous exposure over several years as an applicator for a grower.

I must say there are other cases. One of the basic problems which I think Dr. Davies touched on and others touched on is that these cases are not being diagnosed. They are not being attributed. It is hard enough to discover and identify the fact that DBCP in a factory where there is a union and workers are all there for a number of years and they are all together, it is hard enough to discover a chronic effect over time in those workers with very unusual cases. However, farmworkers travel from farm to farm, State to State, being exposed to thousands of chemicals and dozens of employers. It is extremely difficult to find physicians or experts who can link and make a causal connection between the exposure and the disease.

What is even more disturbing is that we don't even know the disease rates. There is not adequate epidemiological study of the morbidity and mortality of those workers who are exposed in farmwork to pesticides. That is, if the rate for a particular disease right now was triple that for the general population no one would know it.

Mr. GORE. I would like to thank you for your testimony. I have no further questions.

Mr. ECKHARDT. Mr. Maguire?

Mr. MAGUIRE. Mr. Lightstone, you make the point emphatically on page 6 of your statement that EPA has decided that it may allow the use of a pesticide but not set a limit on worker exposure to it.

Is it your reading of the law that EPA does in fact in the current law have the authority to set a limit?

Mr. LIGHTSTONE. Yes. They have broad authority to protect humans from adverse effects of pesticides.

Mr. MAGUIRE. They have in the contacts you have had with them certain conflicts?

Mr. LIGHTSTONE. Yes.

Mr. MAGUIRE. Then we have presumably a legal dispute here as between them and you?

Mr. LIGHTSTONE. It is in part a legal dispute.

Mr. MAGUIRE. Have you thought about taking them to court on that point specifically?

Mr. LIGHTSTONE. We are involved in something of a test case right now over the pesticide DBCP which I referred to earlier. We are in the administrative appeal stage right now.

Something very interesting has happened and you should know about it. EPA issued their proposed DBCP standards last October

to permit the continued use of DBCP in the United States despite all of the cancer and sterility evidenced in it.

We filed on behalf of farmworkers in California an objection to their standards asserting that they were inadequate. Where we stand legally right now—well, first of all the chemical companies objected to our right to object to the adequacy of standards. They said we had under the current law as farmworkers and consumers—the chemical companies' position was—we had no right to participate in such hearings.

EPA took the position we can participate, but all we can do is basically to support their position, which is we can say we support your restrictions but we cannot ask for more restrictions.

We had an administrative hearing on that before an administrative law judge. The administrative law judge said Congress did not intend for farmworkers to have inferior appeal rights within FIFRA, so we were given the right to participate and raise these objections about standards.

Then the chemical companies appealed that ruling by the administrative law judge to Mr. Costle, the Administrator of EPA. The administrative law judge was reversed. EPA's official position right now is that farmworkers, consumers, and others interested in health effects of pesticides do not have a right to object that proposed standards are inadequate.

Mr. MAGUIRE. The administrative law judge decided it did.

Mr. LIGHTSTONE. Yes.

Mr. MAGUIRE. The Administrator decided——

Mr. LIGHTSTONE. His judicial officer reversed.

Mr. MAGUIRE. You have been working on this for a number of years. I am particularly struck by your testimony in that you are arguing that despite all of the work that has been done, the evidence which has been collected, the episodes documented, the discussions which have been held, including congressional hearings 10 years ago, nothing significant has changed. I think probably the implication might well be that in spite of the hearings which have been held here today you would be skeptical as to whether anything significant will change in the future.

I take it you are looking at this from its historical perspective. I would like to know how you see this developing in the future. What specifically are the reasons why nothing that has been done in the last 10 years amounts to anything? Why is the situation as it is and, if you believe it is likely to continue, what are the factors involved? If you think it is likely to change I would certainly like to know about it.

Mr. LIGHTSTONE. I try to maintain a certain optimism about change. However, I think it is important to keep the historical perspective to see where we have come from so we can make that change. I fear if we do not do that the change will not occur.

Mr. MAGUIRE. Why hasn't there been change in the last 10 years? What are the reasons for that?

Mr. LIGHTSTONE. The most fundamental problem as far as workers are concerned is that farmworkers are not under the jurisdiction of an agency which is in the business of protecting workers. OSHA is in the business of protecting workers. It adopts standards, has standards for it, has a tradition of dealing——

Mr. MAGUIRE. EPA is supposed to protect the public, is it not?

Mr. LIGHTSTONE. This is a good question, I think, for the witness from EPA to cover.

Mr. MAGUIRE. EPA is not the Department of Agriculture.

Mr. LIGHTSTONE. I guess it is not. It is a good question for the witness to follow. I think EPA looks at itself as a licensing group. It analyzes its responsibility incorrectly as being in the business of judging the chemical. It looks at the chemical, what goes on the label, what goes in the can. It receives evidence from chemical companies sometimes and analyzes it sometimes, but it does not look at the worker in any kind of meaningful way.

Mr. MAGUIRE. What possible reason could there be for an EPA requirement which you described here on page 6 that full body DBCP resistant clothing should be used, but then you say EPA does not require that it be worn during the application process? What point is there in requiring a certain kind of clothing if you do not require it be worn at the time of possible hazard?

Mr. LIGHTSTONE. One of the times of great hazard is during mixing and loading. That is clear.

Mr. MAGUIRE. Do they require it then?

Mr. LIGHTSTONE. They require it be worn at that time. What they do not require is that it be worn during application. That is an illustration of the fact they do not understand what goes on with workers applying pesticides.

Mr. MAGUIRE. Have you detected any changes in the attitude of EPA with respect to these positions since the new administration came into office in 1977?

Mr. LIGHTSTONE. My main experience has been in the case of DBCP. One, I am astonished they make a twisted interpretation of the standing of rights of farmworkers and consumers even to appear before them.

Second, I am rather astonished at how poorly their DBCP standard is compared to the standard offered for factory workers by OSHA. The comparison is astonishing.

Mr. MAGUIRE. Farmworkers are out of doors and it is supposed to blow away. Is that the assumption?

Mr. LIGHTSTONE. Some farmworkers work with DBCP for months at a time. In addition to that we had some epidemiological work done after the factory workers were found to have been affected. Farmworker applicators were tested for hormone levels and sperm count. They reduced sperm count and chemically altered hormone levels, so we do have strong evidence that farmworkers are vulnerable to DBCP. Yet there is no similar standard Mr. Maguire, I am not saying the standard for farmworkers necessarily, although probably should be but not necessarily, has to be exactly the same as that of the factory worker. However, it is so far away from being adequate.

Mr. MAGUIRE. How about the RPAR process? I myself participated in a number of petitions with respect to certain kinds of pesticides. It takes years for them to work their way through that process. In the interim the stuff is being used and people are exposed to it. What do you think of that process and how would you change it?

Mr. LIGHTSTONE. That process has been a great disappointment to us. They are supposed to be doing a risk-and-benefit analysis. The risk is the farmworker's benefit to the industry. The risk analysis, the analysis I have looked at, did not consider many of the major risks to the workers adequately. The benefit analysis in the DBCP case is an outrage in my opinion. It is based on data that is extremely faulty that came from the industry which is not analyzed critically. It seems to me that any conscientious economist would not even consider accepting such a document as a measure of benefit. If you are not analyzing the risks adequately the benefit analysis is overblown by the industry and accepted by EPA, and the RPAR process will not work well.

Mr. MAGUIRE. Thank you, Mr. Chairman.

Mr. ECKHARDT. Thank you very much for your testimony.

Next we have Mr. Jellinek.

Mr. JELLINEK. I would like to ask the Deputy Assistant Administrator, Mr. Johnson, to accompany me.

Mr. ECKHARDT. Do you swear to tell the truth, the whole truth, and nothing but the truth, so help you God?

Mr. JELLINEK. I do.

Mr. JOHNSON. I do.

Mr. ECKHARDT. Proceed, gentlemen.

TESTIMONY OF STEVEN D. JELLINEK, ASSISTANT ADMINISTRATOR FOR TOXIC SUBSTANCES, ENVIRONMENTAL PROTECTION AGENCY, ACCOMPANIED BY EDWIN L. JOHNSON, DEPUTY ASSISTANT ADMINISTRATOR

Mr. JELLINEK. Good afternoon, Mr. Chairman and members of the subcommittee. I appreciate this opportunity to discuss recent emergency action taken by the Environmental Protection Agency on the herbicide 2,4,5-T, and the more general problem of involuntary exposure of people to pesticides.

Most people are exposed to pesticides or pesticide residues every day whether they elect to use pesticides or not. Involuntary exposure is therefore a primary concern of EPA in administering our pesticide programs under the Federal Insecticide, Fungicide, and Rodenticide Act and the Federal Food, Drug, and Cosmetic Act.

I think that involuntary exposure falls into three broad categories—first, anticipated, legally sanctioned involuntary exposure, such as through consumption of food containing residues within established tolerances. Congress and the law anticipate that individuals will be exposed to residues in the food they eat, and have thus directed EPA to act as society's "surrogate" in deciding what levels of residues will be acceptable and which ones will not.

Second, there is "unexpected" involuntary exposure, that is, exposure not anticipated by law occurring from misuse of pesticides, accidents, inadvertant contamination, and so forth. How much harm is caused by this kind of involuntary exposure depends on the amount and toxicity of the pesticide involved and the type of exposure. At times, unexpected exposure can be undetected and health effects minimal; at other times, such as in the kepone incident, great personal suffering and environmental harm can occur. Since this type of exposure is outside the approval process of

the law, it is not easy to anticipate, but there are usually enforcement and legal remedies available to redress misuse incidents.

Third, there are planned, deliberate regional pest control programs undertaken in order to bring significant pests under control. Depending on local laws, individual citizens have varying options for participating in these decisions or for declining to participate in the control program. Such programs include areawide mosquito abatement programs and forest pest management programs—the kinds of programs that typically give rise to controversy today. This is a particularly interesting public policy issue—to what extent should local decisionmaking—where both benefits will be realized and the risks borne by the local citizens—complement national decisions made by EPA? The question is often whether the authority of EPA should enter into regional decisions beyond that of evaluating the broad risks and benefits in making registration or cancellation decisions.

You asked that I talk specifically about 2,4,5-T today. Certainly, 2,4,5-T is a good case for discussing the issue of involuntary exposure to pesticides. Nearly 4 months ago, EPA suspended all forestry, rights-of-way, and pasture uses of this herbicide before the spring spraying season. By doing so, we prevented exposure of some estimated 4 million people to the compound and its dioxin contaminant. In fact, exposure is one of the most controversial aspects of this decision, which was, in effect, that the short-term risks outweighed the short-term benefits of the chemical, and that spraying should stop during the 1 to 2 years needed to address its long-term risks and benefits.

Based upon data from animal tests and an epidemiological study initiated in Oregon, which I should add was started because of a letter received by EPA from concerned citizens living in a spray area, EPA concluded that it was likely, though not proven, that exposure occurred. Our action was immediately challenged and upheld in a Federal district court, and the exposure issue will be thoroughly explored in formal cancellation hearings requested by registrants and users, which will probably begin in earnest this fall.

The exposure question has, in fact, been a crucial element throughout the history of 2,4,5-T. 2,4,5-T has been used in this country for almost 30 years to control a variety of broad leaf weeds.

Let me briefly review the history of Federal Government involvement in addressing the hazards of 2,4,5-T use.

In October 1969 the President's Science Advisor announced scientific test results linking 2,4,5-T, and specifically its dioxin contaminant, TCDD, with birth defects in laboratory animals. As a result of this finding, the U.S. Department of Agriculture, EPA's predecessor in pesticide regulation, took action in May 1970 to cancel the registrations of 2,4,5-T products for use on food crops intended for human consumption and for use around homes, which was appealed by the manufacturer.

In 1972, in a court suit brought by Dow Chemical Co., EPA was enjoined by a Federal district court in Arkansas from taking further action on 2,4,5-T. In 1973, after successfully reversing the injunction, EPA initiated public hearings to consider whether to cancel or amend registrations for the remaining uses of 2,4,5-T.

During the course of these proceedings, however, it became apparent that the advanced technology required to detect and quantify the small amounts of dioxin present in the environment was lacking.

While laboratory studies had demonstrated that even such minute quantities of dioxin could produce oncogenic, teratogenic, and other reproductive effects in animals, the exposure link between use of 2,4,5-T and these effects in human beings could not be demonstrated. The inability to generate reliable data relating 2,4,5-T use to a measurable presence of dioxin made it difficult to determine whether the risks associated with the compound's use were unreasonable, and EPA therefore withdrew the proceedings.

While the law requires that the "burden of proof" for demonstrating that a pesticide's risks are "reasonable" remain with the registrant, it also requires EPA to have a reasonable basis for initiating action to take a pesticide off the market.

As you know, in recent years Congress has added more and more procedural requirements to the cancellation process that call for additional layers of agricultural and scientific review, House and Senate committees' review, and economic impact analyses before EPA can take action to remove a pesticide from the market.

In order to find the critical answers on dioxin exposure, EPA established a dioxin implementation plan. This program was created to, first, identify a reliable analytical methodology and then to apply the methodology to monitoring human and environmental samples for the presence of dioxin. Both phases of the DIP are nearing completion; an appropriate methodology with good resolution has been identified, and a number of environmental samples have been taken and have undergone or are undergoing analyses.

The "Alsea II" study was significant because, when considered in conjunction with animal test data, it suggested that people were being exposed. As Administrator Costle stated:

> In my judgment, the information which has recently come to my attention as a result of the Alsea study constitutes a dramatic and troubling new point of departure for analysis of TCDD exposure concerns. In the face of the highly significant relationship which the study showed, and the animal data, I conclude that it is reasonable and in the public interest to assume that the women in the * * * study area were exposed to TCDD.

Since the 2,4,5-T suspension orders are now final, the herbicide may not be used for suspended uses until the end of cancellation hearings. As I indicated earlier, these hearings will consider the question of the long-term risks and benefits of the herbicide, and resolve the question of whether the temporary ban should be made permanent.

There are many facets to the exposure question. I would like to concentrate today on discussing EPA's role in labeling pesticides to mitigate exposure, with special emphasis on aerial application of pesticide products, on the enforcement of labels, and on public participation.

Part of the pre-market clearance for pesticides is the approval of product labeling. Pesticide labels must include a great deal of information, including detailed use directions and precautionary statements. Ideally, pesticides destined for aerial application will carry statements regarding the potential for spray drift, and means

of reducing drift must appear on the product labeling. Use directions may instruct the applicator to apply the pesticide in combination with a suitable drift control agent, to observe buffer zones around streams, ponds, or other bodies of water, crops that are susceptible to damage by the pesticide, and, importantly, areas of human habitation.

Some products designed for forest pest control also carry prohibitions against use in residential areas or specify that the pesticide may only be applied to forests.

Recently registered products for aerial application carry these labeling statements designed to minimize spray drift to the extent possible. Older products often need revision to bring them into accord with more recent and extensive drift precautions. The agency recently began a label improvement program that will address these needed label modifications as well as other areas of label revision.

However, I think, I should stress that pesticide drift is not something which can be labeled out of existence. Drift will occur no matter how careful we are to specify precise conditions to avoid it. It is our job to make sure that pesticide products are labeled for use in ways that will minimize drift and that pesticides which are deposited outside the target area do not pose "unreasonable" risks.

Following testimony last year that aerial application is more economical and energy-efficient than other application methods but has been hindered by label restrictions specifying that certain minimum amounts of water or other diluent be added to pesticide concentrates, Congress directed EPA by law to conduct a study of pesticide application techniques.

The 1978 amendments further provided that unless, consistent with the study, the Administrator took specific regulatory action, users would be free to use pesticides at higher concentrations—such as are used in a technique known as ultra low volume—regardless of label directions. Our study confirmed the higher potential of ULV applications to drift due to smaller droplet size. We have advised the Committee on Agriculture that consistent with this and other findings we will employ the discretion left to us and not sanction user-determined concentrations.

Once approved, pesticide product labels are not recommendations, they are law. Use of a pesticide in a manner inconsistent with its label, except in a few situations that are explicitly described in the statute, is a violation of the law and may subject the user to both civil and criminal penalties. Before 1972, FIFRA was principally designed to protect consumers from ineffective products and misleading claims. As a result of the 1972 amendments, however, the enforcement provisions of the act were considerably strengthened and for the first time it was unlawful for persons to misuse registered pesticides.

As a result of this new authority EPA developed an extensive enforcement program, which was implemented by our regional offices, to make certain that pesticide products being sold in the United States were in fact registered with EPA and otherwise conformed to the labeling requirements of the act. Detailed guidance was provided to the regional offices, instructing them in how to conduct their inspection program and to proceed with civil pen-

alty as well as criminal prosecutions. Additional guidance was provided for the investigation and prosecution of misuse violations, which have always been considered matters of highest priority.

Although EPA was given clear authority to prosecute persons who misuse pesticides, in order to make the best use of our limited resources the agency continued to cooperate with various States that had similar provisions in their State laws.

In 1975 the Office of Enforcement began a pilot enforcement grant program with a small number of States to determine whether or not it would be feasible to implement the enforcement program in cooperation with the individual States.

As a result of the success with the pilot program, in fiscal year 1978 the Office of Enforcement budget included an additional $5 million for the enforcement grant program, and $8.8 million is budgeted for the current fiscal year.

Under these grants the States are required to meet certain goals for conducting various activities that were previously handled by EPA investigators. State inspectors have been delegated authority under FIFRA to conduct inspections and to take samples of pesticides and their labeling, as well as to conduct use investigations. At present 38 States have cooperative enforcement agreements with EPA and we are working to establish similar agreements with the other States.

In the meantime, in 1978 the FIFRA was further amended by Congress to give most States lead responsibility for enforcing pesticide use violations. This means that whenever EPA receives a complaint or other information alleging a significant violation of the pesticide use provisions of FIFRA in such a State, it must turn the information over to the appropriate State agency for investigation and action. If after 30 days the State has not undertaken "appropriate enforcement action," then and only then can EPA undertake action on its own. An exception is reserved for emergency situations where the State is unwilling or unable to respond.

Now that the cooperative enforcement grant program is in its second full year, the Office of Enforcement has begun a wide ranging review of the grant program. We intend to make certain that the program operates smoothly and that we achieve results in the form of increased enforcement of State and Federal pesticide laws.

At the same time, we are in the process of drafting regulations to fully implement the new State primary use enforcement provisions of FIFRA, and EPA's authority to withdraw such responsibility from States who do not carry it out properly.

But recent experience, particularly in the area of forestry use of chemicals, demonstrates yet another decision and appeal process, not under EPA control or under FIFRA, which will operate regardless of EPA's findings. There is increasing public concern from local citizen groups about exposure to pesticides through regional pest control programs. Recent examples include the citizen group actions on herbicide use in western forests, gypsy moth treatments in Virginia and West Virginia, and a spruce budworm control program in Maine.

These local decisions are being pressed by citizens who are asking for assurances of safety—not low risk, but assurances of the

absence of risk—and who are seeking privacy from chemical intrusions in their lives. They are questioning the right of others to expose them and particularly the issue of whether an individual citizen should have the right to refuse participation in regional or public pest control programs.

The agency believes that heightened public knowledge and participation may ultimately be the best response to this new challenge. To encourage informed and early participation EPA will in the future be requiring more and early public notice of broad scale spray programs such as has been done with Dimilin as used in the gypsy moth control program in the Eastern United States this year. We will be implementing this requirement either through labeling or other regulatory restrictions.

Awareness of where and when aerial spraying will take place should allow people who are in the area, and concerned about spraying, an opportunity to take appropriate steps to influence the decision to apply pesticides.

All citizens have the right to ask questions about pesticides to which they may be exposed, and complain when they have reason to believe misuse is occurring. Mechanisms for handling such complaints do exist.

As I discussed earlier, many enforcement activities in this area are currently handled by the States. However, EPA headquarters and regional offices do stand ready to follow up on cases where the State does not exercise its responsibilities.

In the health effects area, we are also working toward better education of medical personnel in identifying pesticide poisoning symptoms in people who may be occupationally exposed.

EPA has recently signed a memorandum of agreement with the U.S. Department of Health, Education, and Welfare which should improve the capability of migrant health centers and other rural clinics to recognize, remedy, and report pesticide-caused illnesses among farm workers. Under the agreement EPA and HEW will hold training sessions for doctors, nurses, and other medical personnel from the Health Services Administration's rural clinics. EPA laboratories will analyze blood and urine samples taken during physical exams of field workers.

In addition, EPA will maintain a toll-free number for physicians to obtain medical advice in diagnosing and treating pesticide-related illnesses. The agreement also commits EPA to investigate next year up to 500 suspect poisonings from clinic reports. These reports are supposed to be made within 48 hours and followup studies within 4 weeks.

I hope, Mr. Chairman, that this discussion will be helpful to the subcommittee in addressing the issues involved in involuntary exposure to pesticides. I will be happy to answer any questions you may have.

Mr. ECKHARDT. Mr. Jellinek, what is the Association of American Pesticide Control Officials?

Mr. JELLINEK. That is an association of State pesticide control officials, it is my understanding.

Mr. ECKHARDT. It is not itself an official agency of either the State or the Federal Government, is it?

Mr. JELLINEK. It is not as I understand it, sir.

56-594 O - 80 -- 16

Mr. ECKHARDT. It is sort of a conventional group of persons who are State enforcers?

Mr. JELLINEK. That is my understanding, sir.

Mr. ECKHARDT. Under the FIFRA, as in the Safe Drinking Water Act and the Clean Water Act and the Air Pollution Act, generally speaking if the State has a plan respecting the administration of a program under any of these acts the authority is largely delegated to the State to carry out that plan without interference as long as it follows the general guideline prescribed in the statute by your Department. Is that correct?

Mr. JELLINEK. Insofar as the enforcement of the pesticide laws is concerned, that is correct.

Mr. ECKHARDT. But you set the general standards or the guidelines; is that correct?

Mr. JELLINEK. We execute agreements with the States which require them to meet certain standards; that is correct.

Mr. ECKHARDT. But to a large extent you must depend on persons within the States, many of whom might belong to the Association of American Pesticide Control Officials, to ultimately enforce the act. Is that correct?

Mr. JELLINEK. That is true.

Mr. ECKHARDT. I have here a resolution No. 1, dated March 26–29, 1979, which disturbs me and disturbed your agency because I have your response to it.

The statement says:

Whereas the order has the effect of indefinitely freezing the distribution and use of huge inventories of the product thereby placing an extreme economic burden on American commerce at all levels; and

Whereas the suspension order was prompted by an epidemiological study which does not establish a cause-and-effect relationship between the lawful use of 2,4,5-T and silvex and the purported deleterious effects on human health and is therefore no more persuasive or compelling than the massive accumulation of information on these matters which is already in the public record; and

Whereas the action was taken without opportunity for review of the study by the general public or the scientific community; and

Whereas reputable scientists have now challenged and/or refuted the conclusion upon which the decision was based; and

Whereas EPA has not exhibited either the intent nor the capability to mount a concerted effort to remove existing stocks of the products from the marketplace in support of their conclusion that an imminent hazard exists; and

Whereas the RPAR process was proceeding in an orderly manner to consider the issues relating to the registration, suspension, or cancellation of 2,4,5-T and silvex and would have been expected to lead to a conclusion of the matter in the near future based on comprehensive data and evidence; and

Whereas AAPCO is concerned over the precedent of abandoning the RPAR process and taking suspension action on the basis of correlative data and that this action will result in an erosion of the credibility of the RPAR process; and

Whereas AAPCO believes the public interest will not be served by the emergency suspension order: Now, therefore be it

Resolved, That AAPCO meeting in session in Washington, D.C., on March 29, 1979, urges EPA to reconsider the emergency provision of its suspension order and allow the RPAR process to determine the registration status of 2,4,5-T and silvex for all uses registered prior to the issuance of the order, and allow the continued use of existing products containing 2,4,5-T and silvex during that process; and be it further

Resolved, That copies of this resolution be sent to the Administrator and Deputy Administrator of EPA, NASDA, and to the parties involved in the expedited hearing with a request that the resolution be made a part of the hearing record.

Is it in fact true that the order has the effect of indefinitely freezing the distribution and use of huge inventories of the product,

thereby placing an extreme economic burden on American commerce at all levels?

Mr. JELLINEK. The first part of that whereas is correct, I think, Mr. Chairman.

Mr. ECKHARDT. I cannot see how that would put a burden on American commerce at all levels. It may prevent the distribution of a substance we have heard in this hearing which seems to have caused, in the view of many, very serious human ailments. I cannot see how it would cause extreme economic burden on American commerce at all levels if you keep it off the market.

Then let's look at the second "whereas."

The suspension order was prompted by an epidemiological study which does not establish a cause-and-effect relationship between the lawful use of 2,4,5-T and the silvex and the purported deleterious effects on human health and is therefore no more persuasive or compelling than the massive accumulation of information on these matters which is already in the public record.

Well, I don't suppose we have the final answer on this question but we certainly have at this hearing, and I presume you had before the order was issued, an indication that there was serious possibility that this was true. Is that correct?

Mr. JELLINEK. That is absolutely correct, Mr. Chairman. This particular "whereas" demonstrates a certain amount of confusion or misunderstanding on the part of people who passed the resolution. We never said that the epidemiological study in Oregon established a cause-and-effect relationship. In fact we acknowledged that it did not.

What we said was that based on all of the evidence we had from laboratory studies, coupled with all the anecdotal personal experience evidence we had over the years, the fact that this epidemiological study did suggest a very clear relationship between the use of 2,4,5-T and miscarriages in a group of women exposed to spraying, gave us no choice but to act on an emergency basis to prevent any further exposure during a period where we could analyze the long-term risks and long-term benefits of the chemical and make a final decision as to its eventual use or nonuse.

Mr. ECKHARDT. And I think you clearly state that in your letter of April 27, 1979, to Mr. Charles Frommer, associate of American Pesticide Control Officials, Inc., where you said, "What we have said is that the correlation between the two events, when considered along with a persuasive body of animal data demonstrating the same effect, is a cause for alarm."

Then you point out that under those circumstances on balance you feel that to permit its continued use does not outweigh the risk involved in using it under the facts that you have at hand if I understand you correctly.

Mr. JELLINEK. That is correct.

Mr. ECKHARDT. I think that is precisely what has been shown in this hearing, if the evidence is not even more strongly in favor of the deleterious effect.

I am very concerned about the attitude of an organization which purports to represent, I assume, a wide body of State enforcement officials. It would seem to me that the theory we have established in many acts of Congress in connection with those things which are intended to be poisonous and also, indeed, in the case of those

things which are intended to be infused internally as in the case of drugs, is that we may not assume that these are innocent until proven guilty. We follow exactly the opposite theory in connection with the Toxic Substances Control Act because in that case we are dealing with some 30,000 commercial chemicals on the market, and in addition about 1,000 per year, including drilling mud, shoe polish, various substances which are not intended to be eaten, and which are not intended to be poisonous. In those cases we do require, as I understand it, that the EPA at least take the labeling as showing that the product should not go on the market.

However, I understand when we are dealing with poisons, things that are known to be poisonous, and which are hoped to be poisons specific in their effect on insects or rats and not on humans, we are much more concerned about possible harm and a danger which is evidenced by the strong possibility, or at least the possibility, of harm than in the other case. Is that generally correct?

Mr. JELLINEK. Mr. Chairman, I think that is generally true, particularly with respect to new pesticides. The burden of proof is clearly on the manufacturer, the registrant, to demonstrate to EPA that the pesticide can be used safely. EPA has the ultimate leverage over the registration of that pesticide. If we do not think it can be used safely we can refuse to register it.

I would like to point out, however, that when it comes to taking an existing pesticide off the market the procedural hoops EPA has been required by Congress to jump through certainly led me to believe when I first started becoming familiar with them that in this case Congress was perhaps providing due process for the pesticide itself. I think this is a matter that complicates our ability to decide rapidly about taking pesticides off the market and makes the cancellation process a lengthy and complicated one.

Mr. ECKHARDT. What has been done? This particular chemical has not been taken off the market?

Mr. JELLINEK. In this case we acted. We acted to suspend it. We took an emergency action. As I pointed out in my testimony, that action was immediately challenged in court. Although our decision was upheld, I might add that the judge in his opinion frankly questioned the advisability of our decision although acknowledging we had the authority to make it and we did not act arbitrarily or capriciously.

We are in the midst of a cancellation proceeding. After 1 or 2 years of, in essence, a trial—the chemical is on trial during this proceeding—during which and the advocates for its continued use as well as the Government have the adversary rights of witness calling and testimony presentation, the administrative law judge will make a recommendation to the Administrator. The Administrator then will make a decision. Following that, his decision will undoubtedly be challenged in court no matter what he decides.

Mr. ECKHARDT. The process you put into effect is roughly equivalent to a temporary restraining order in an ordinary lawsuit where there might be irreparable damage done pending an ultimate decision. Is that not correct?

Mr. JELLINEK. That is correct.

Mr. ECKHARDT. So you are not depriving anyone of due process but a full opportunity ultimately to be heard. However, if you did

not do this you might deprive the public of its rights because the injury would occur before there was an opportunity for a full hearing. Is that not correct?

Mr. JELLINEK. That is absolutely correct.

Mr. ECKHARDT. Therefore, if the whereas in the resolution that says, "The action was taken without opportunity for review of the study by the general public or the scientific community" would be inaccurate in two ways; that is, there was indeed some opportunity for review by a Federal agency considering the facts before it, and, second, there was some publicity which was known by the general public, and indeed you were getting complaints about the product at that time, were you not?

Mr. JELLINEK. That is correct.

Mr. ECKHARDT. That is point No. 1.

However, point No. 2 is your action will not ultimately be taken without a full opportunity for review. Is that not correct?

Mr. JELLINEK. That is also correct. On your first point, though, let me point out that the actual study results themselves were not available for public review prior to our suspension decision. The reason for that is that we were backing right up against onset of the spray season.

As a matter of fact, the day we suspended the pesticide the helicopters were loaded and ready to take off in the Pacific Northwest. Our suspension decision prevented their spraying that day. Our enforcement people were on the ground that morning and stopped the helicopters from taking off. It was that close.

However, the——

Mr. ECKHARDT. That is in accordance with the statute and it provides for in a circumstance of that nature.

Mr. JELLINEK. Yes.

Mr. ECKHARDT. Even in the Toxic Substances Control Act, which of course deals with less identifiably harmful chemicals, even in that act before a product goes on the market there is a process by which the agency may identify the existence of a probable danger which cannot be established one way or another and issue an order withholding the product from the market.

Mr. JELLINEK. That is correct.

Mr. ECKHARDT. As I understand it, that order will hold indefinitely or until final action is taken unless the manufacturer of the product shows their dissent, in which case you can go to court even though you cannot tell positively at the time it would be hazardous to the public.

Mr. JELLINEK. That is correct. You should know. You were one of the authors of that law.

Mr. ECKHARDT. There is another thing that disturbs me a great deal, and that is the general tenor of an agency which purports to protect, or a group which includes agencies purporting to protect, the public.

We have here before us a letter from Mr. Hutton, president of the Association of American Pesticide Control Officials, which states in effect during a period of time we have had a pretty cordial relationship with respect to enforcing pesticide regulations with the USDA when USDA administered it, but now that EPA has come into the field there are some other questions.

While some of the experienced, friendly and knowledgeable faces were still with the program, it took us some time to realize that their wise counsel was being largely disregarded by policymakers not nearly as knowledgeable in the complexities of administering pesticides. However, after a period of stunned disbelief, State officials have begun battling back to try to restore some commonsense to the EPA program.

Frankly, that sounds to me more like an organization of chemical manufacturers writing a letter to the constituents of that organization.

Without objection, I would like to put into the record the letter of October 20, 1977, from which I have read, from the Association of American Pesticide Control Officials.

I also would like to put into the record a registration, a pamphlet, concerning the program of the 1977 annual meeting of the American Association of Pesticide Control Officials which, I think, further makes the organization look like a trade association.

[The letter and document referred to follows:]

ASSOCIATION OF AMERICAN PESTICIDE CONTROL OFFICIALS, INC.

DEPARTMENT OF BIOCHEMISTRY, PURDUE UNIVERSITY, WEST LAFAYETTE, INDIANA 47907

OFFICE OF THE SECRETARY

October 20, 1977

Dear AAPCO Member:

I never realized that our retiring President, Bill Buffaloe, had such big feet. Since the El Paso meeting, I have been trying to fit into his shoes and follow his footsteps, and I now know what NASDA confirmed at their annual meeting when they awarded him the 1977 NASDA Award as the top State Regulatory Official. I am sure every AAPCO member spiritually joins me in a long standing ovation on a fitting tribute to a most deserving AAPCOer. I should add that as an additional dimension of the man, Bill is continuing to contribute his services to AAPCO with the same intensity.

Speaking of El Paso, I would like for this letter to serve to express a few words I intended to say at the El Paso Meeting. Unfortunately, Wednesday, August 3, happened to be my worst day in many years due to a throat and ear infection. Ironically, beginning with the next day I began to feel better until I now feel as good and mean as ever. I do appreciate the concern and assistance shown by many of you at El Paso.

In the few years I have been associated with AAPCO, the whole national scene has changed. As a result the nature of AAPCO has changed too. The realization that pleasant days of mutually agreeable objectives and programs between AAPCO and the Pesticide Registration Division, USDA departed abruptly when EPA came into being. While some of the experienced, friendly and knowledgeable faces were still with the program, it took us some time to realize that their wise counsel was being largely disregarded by policy makers not nearly as knowledgeable in the complexities of administering pesticides. However, after a period of stunned disbelief, state officials have begun battling back to try to restore some common sense to the EPA program. I believe the last two years have given some indication of our potential. To fully realize this potential, it occurs to me that each of us have several questions to consider and to express our views to help me and the Board of Directors do what you want.

1. Are we currently organized to effectively meet today's challenges and responsibilities? Our spring and annual meetings are our only opportunities to discuss our concerns in-depth.

2. Are our committee assignments and structures current? They have remained in somewhat the same structures for several years.

3. Should we continue to expound our relationship with Congress? It will require additional dedicated effort to keep abreast of Congressional actions and provide well studied recommendations.

4. How shall we organize to effectively work with EPA?

SFFIAC, I have been advised, is scheduled to be discontinued by the Office of Management and Budget when the current extension runs out next Spring. Despite what I believe is a sincere effort by EPA to save SFFIAC, the word is that the Office of Management and Budget is still planning to eliminate it. I am also advised that only the President can halt the action. I am enclosing a copy of a most effective expression of support for SFFIAC written by Mr. Thomas T. Irwin (assisted I strongly suspect by Ron Conley). If you have any opportunity to provide similar support, I hope you will do so. I will write similar sentiments on behalf of AAPCO.

One additional thought on this subject; should SFFIAC go, one suggestion has been that AAPCO establish a States Advisory Council and invite Federal participation? One can easily think of several advantages and one big disadvantage on how to provide funding support for such a Council.

5. Finally, and most important of all, can we improve our participation by all States and equivalent governments. For you that have not participated in our meetings, is there anything we can do to make our State participation complete? Now we feel reasonably confident that we speak for the participation of over 40 State governments, but we need to complete this, so all are participating. As indicated above, it appears to be up to us to represent the true referee role regarding pesticides.

Your thoughts are essential to us on the above items, as well as any others that you feel should be included. I know you need another piece of correspondence to answer like a case of plague, but I feel that this one is of sufficient concern to all of us to ask the extra effort. It is my feeling that the future role of AAPCO has never been brighter or more challenging, if we have capability to take charge and effectively speak out. Please take time to give us your thoughts by December 1, 1977. I will reproduce them and send them to our Board of Directors for our guidance. Best regards to each of you.

Sincerely,

George

George L. Hutton
President

GLH/gs

[Enclosure NOT PRINTED]

Program of 1977 annual meeting American Association of Pesticide Control officials

b)

TUESDAY

REGISTRATION .....Charro 1

Typists and Copy Machine Available

8:30 AAFCO Committee Meetings

10:00 TOUR OF JUAREZ .....Buses Depart Holiday Inn
Tour the Glass Factory .....Visit Old City Market
(for info on how to bargain, see section in the back about Other Things To Know.
Enjoy shopping at the exciting new ProNof Shopping Center. You will have time to have lunch while in this area. *We recommend Casa del Sol, Decor and the Fiesta Real.*
What to Wear? COMFORTABLE SHOES. AND VERY COOL CLOTHES.
Estimate time of return to Hotel.....2:00

1:15 AAPCO Meeting.....Ballroom 1

5:30 INDIAN CLIFFS RANCH. . .Buses Depart Holiday Inn
Everyone goes out to the ranch together.....then the young people climb aboard wagons and head for Fort Misery in the desert. There they will have a real "Cowboy" dinner.
Meanwhile, back at the Cantina delicious steaks will be cooked over an open fire. Your dinner is compliments of NACA, CSMA, & NPCA.
By the time you have finished dinner, the young people will have returned and you will all listen to the toe tappin' music of Jake Brooks & The Butterfield Stage, along with a Square Dance Demonstration by the Blue Bell Square Dancers featuring the famous caller Wilson Purcella.
Everyone needs exercise after a big meal, so we hope you will join us in the "Cottoneyed Joe", "Put-your-little foot," and other dances.
For those who want to leave early.....the buses will depart the Indian Cliffs Ranch as they are filled.
What to wear? Levi's and boots....or just anything cool and your dancin' shoes.

National Agricultural Chemicals Association
Chemical Specialty Manufacturers Association
National Pest Control Association

WEDNESDAY

THURSDAY

Mr. ECKHARDT. I note it announces at 5:30 an affair at Indian Cliffs Ranch where it says dinner is compliments of NACA, the National Agricultural Chemical Association; the CSMA, the Chemical Specialty Manufacturers Association; and the NPCA, the National Pest Control Association.

From the testimony we have had here as to the personnel of some of the organizations, or at least one of them in one State, I think it would throw into question the determination of the organization to protect the public interest.

I would like to compliment your agency for the statement and your letter of April 27, 1979, in which you point out that the agency, that is EPA—

> will not hesitate to exercise its enforcement authority under the amendments should we become aware that a State with primary use enforcement authority is unable or unwilling to carry out its enforcement responsibilities.

Then you point out:

> Regulators cannot represent the interests of pesticide producers and distributors and still serve the overall public interest. Your association's emphasis on the "economic burden" to commerce and the "freezing" of the "distribution and use of huge inventories" appears to have prevailed over human health considerations.

I would like at this point to introduce, without objection, the letter from which I have read from you to Mr. Charles Frommer, April 27, 1979, and to introduce in the record, without objection, the resolution No. 1 of the association which I have referred to earlier.

[The letter and resolution referred to follows:]

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

APR 27 1979

OFFICE OF TOXIC SUBSTANCES

Mr. Charles Frommer
President
Association of American Pesticide
Control Officials, Inc.
New York State Department of
Environmental Conservation
50 Wolf Road
Albany, New York 12205

Dear Mr. Frommer:

I recently received a copy of AAPCO's spring meeting resolution concerning the emergency suspension of 2,4,5-T and Silvex and was quite surprised at not only the message but the tone of the resolution.

Compounding the surprise was the apparent failure of the State officials to recognize the essential elements of the decision despite Ed Johnson's thorough briefing. We have not asserted that the study proves a cause-and-effect relationship between forest spraying of 2,4,5-T and the incidence of spontaneous miscarriages in the spray area. What we have said is that the correlation between the two events, when considered along with a persuasive body of animal data demonstrating the same effect, is a cause for alarm. As our decision documents reflect, we then considered the consequences of a temporary ban and found that they did not outweigh the possible risks of continued use. We therefore suspended most uses of 2,4,5-T and Silvex until all the scientific and policy factors can be thoroughly evaluated. The members of AAPCO, as regulatory and policy makers, should of all people understand that it is not always possible -- indeed is usually not possible -- to wait for complete certainty before taking regulatory action.

Though there may not be unanimity of opinion among all experts who have evaluated the information which prompted EPA's action, resolving this uncertainty in the direction of placing the public at risk, as AAPCO suggests, was and is unacceptable

to me. AAPCO does not identify which scientists have either refuted or disputed the evidence in this matter, their credentials, or the specific elements of our decision AAPCO believes have been genuinely "refuted." However, several opponents of EPA's action presented testimony in the District Court in Flint, Michigan, in support of Dow's unsuccessful request to set aside the suspension. I believe a thorough reading of Judge Harvey's opinion in denying Dow's motion will give little comfort to those who attack the scientific basis of the Agency's action.

Further, I must strongly disagree with the members of AAPCO that the suspension of 2,4,5-T constitutes a precedent for the resolution of rebuttable presumption against registration (RPAR) reviews. The regulatory response to pesticide hazards must be based on the severity of the risk and the strength of the evidence, as well as the benefits afforded by the substance. Suspension is appropriate when evidence shows that there is "substantial likelihood", in the words of the courts, of a serious hazard, a hazard to which society should not be exposed while the full risk/benefit issues are being evaluated. To imply that suspension of one pesticide undergoing RPAR review means that we will suspend all or most pesticides subsequently reviewed simply does not make sense. We will consider each pesticide on the basis of the weight of evidence, and take regulatory action accordingly. As you will recall, we suspended many uses of DBCP last year, also because of human epidemiological evidence -- but we did not suspend uses of chlorbenzilate or endrin or pronamide, or any others in the RPAR process.

Your position is particularly disturbing in view of the increasing role Congress wishes the States to take in administering the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA). The 1978 amendments, for instance, convey primary enforcement responsibility to the States. Regardless of whether the States agree or disagree with the suspension action, States with primary enforcement authority have a responsibility to enforce the suspension order. The Agency will not hesitate to exercise its enforcement authority under the amendments should we become aware that a State with primary use enforcement authority is unable or unwilling to carry out its enforcement responsibilities.

The new Federal pesticides law has given major responsibility to the States to protect the public health from the hazards of pesticides, and clearly envisions that EPA and the States will be partners in pesticide regulation. Regulators cannot represent the interests of pesticide producers and distributors and still serve the overall public interest. Your association's emphasis on the "economic burden" to commerce and the "freezing" of the "distribution and use of huge inventories" appears to have prevailed over human health considerations.

While I realize that your department is under considerable pressure from competing concerns, I hope that your membership will reconsider its position, and work with us in the full enforcement of the order.

Sincerely yours,

Steven D. Jellinek
Assistant Administrator
for Toxic Substances

ASSOCIATION OF AMERICAN PESTICIDE CONTROL OFFICIALS, INC.

AAPCO SPRING MEETING
MARCH 26-29, 1979
WASHINGTON, DC

RESOLUTION NO. 1

WHEREAS, THE U.S. EPA HAS ISSUED AN EMERGENCY SUSPENSION ORDER AFFECTING MOST USES OF THE HERBICIDES 2,4,5-T AND SILVEX; AND,

WHEREAS, THE ORDER HAS THE EFFECT OF INDEFINITELY FREEZING THE DISTRIBUTION AND USE OF HUGE INVENTORIES OF THE PRODUCT THEREBY PLACING AN EXTREME ECONOMIC BURDEN ON AMERICAN COMMERCE AT ALL LEVELS; AND,

WHEREAS, THE SUSPENSION ORDER WAS PROMPTED BY AN EPIDEMIOLOGICAL STUDY WHICH DOES NOT ESTABLISH A CAUSE AND EFFECT RELATIONSHIP BETWEEN THE LAWFUL USE OF 2,4,5-T AND SILVEX AND THE PURPORTED DELETERIOUS EFFECTS ON HUMAN HEALTH AND IS THEREFORE NO MORE PERSUASIVE OR COMPELLING THAN THE MASSIVE ACCUMULATION OF INFORMATION ON THESE MATTERS WHICH IS ALREADY IN THE PUBLIC RECORD; AND,

WHEREAS, THE ACTION WAS TAKEN WITHOUT OPPORTUNITY FOR REVIEW OF THE STUDY BY THE GENERAL PUBLIC OR THE SCIENTIFIC COMMUNITY; AND,

WHEREAS, REPUTABLE SCIENTISTS HAVE NOW CHALLENGED AND/OR REFUTED THE CONCLUSION UPON WHICH THE DECISION WAS BASED; AND,

WHEREAS, EPA HAS NOT EXHIBITED EITHER THE INTENT NOR THE CAPABILITY TO MOUNT A CONCERTED EFFORT TO REMOVE EXISTING STOCKS OF THE PRODUCTS FROM THE MARKET PLACE IN SUPPORT OF THEIR CONCLUSION THAT AN IMINENT HAZARD EXISTS; AND,

WHEREAS, THE RPAR PROCESS WAS PROCEEDING IN AN ORDERLY MANNER TO CONSIDER THE ISSUES RELATING TO THE REGISTRATION, SUSPENSION OR CANCELLATION OF 2,4,5-T AND SILVEX AND WOULD HAVE BEEN EXPECTED TO LEAD TO A CONCLUSION OF THE MATTER IN THE NEAR FUTURE BASED ON COMPREHENSIVE DATA AND EVIDENCE; AND,

WHEREAS, AAPCO IS CONCERNED OVER THE PRECEDENT OF ABANDONING THE RPAR PROCESS AND TAKING SUSPENSION ACTION ON THE BASIS OF CORRELATIVE DATA AND THAT THIS ACTION WILL RESULT IN AN EROSION OF THE CREDIBILITY OF THE RPAR PROCESS; AND,

WHEREAS, AAPCO BELIEVES THE PUBLIC INTEREST WILL NOT BE SERVED BY THE EMERGENCY SUSPENSION ORDER; NOW: THEREFORE BE IT

RESOLVED, THAT AAPCO MEETING IN SESSION IN WASHINGTON, DC ON MARCH 29, 1979, URGES EPA TO RECONSIDER THE EMERGENCY PROVISION OF ITS SUSPENSION ORDER AND ALLOW THE RPAR PROCESS TO DETERMINE THE REGISTRATION STATUS OF 2,4,5-T AND SILVEX FOR ALL USES REGISTERED PRIOR TO THE ISSUANCE OF THE ORDER, AND ALLOW THE CONTINUED USE OF EXISTING PRODUCTS CONTAINING 2,4,5-T AND SILVEX DURING THAT PROCESS; AND: BE IT FURTHER

RESOLVED, THAT COPIES OF THIS RESOLUTION BE SENT TO THE ADMINISTRATOR AND DEPUTY ADMINISTRATOR OF EPA, NASDA AND TO THE PARTIES INVOLVED IN THE EXPEDITED HEARING WITH A REQUEST THAT THE RESOLUTION BE MADE A PART OF THE HEARING RECORD.

Mr. ECKHARDT. It is my understanding that there is certain legislation now pending which would provide for congressional veto of actions of your agency. Are you familiar with that legislation?

Mr. JELLINEK. Yes, Mr. Chairman, I am.

Mr. ECKHARDT. And that is presently, I think, out of the Committee on Agriculture, is it not?

Mr. JELLINEK. Yes, sir.

Mr. ECKHARDT. And would be subject to floor action in the House at such time as it should receive a rule?

Mr. JELLINEK. That is correct.

Mr. ECKHARDT. If such legislation were passed, would an action of the type we have referred to here with respect to the temporary suspension of this chemical be subject to such veto?

Mr. JELLINEK. I think that it probably would not be. That is because it was an emergency suspension.

The veto would apply only to regulations.

Mr. ECKHARDT. So after the full review and after you heard the technical facts presented, and after argument had been made and after you ultimately outlaw such products from the market, it would at that time be subject to review, would it not?

Mr. JELLINEK. I don't think so, Mr. Chairman. The language of the amendment speaks only to regulations. In the parlance of FIFRA, actions on chemicals are registration actions, licensing actions, cancellations, suspensions, and are not regulations per se.

Mr. ECKHARDT. What kinds of regulations would be subject to this?

Mr. JELLINEK. We have regulations that will establish, for example, standards for primary use enforcement. That is a very good example of the type of regulation we are working on now and that will set certain standards and critera for States to maintain their primary use enforcement authority. That type of regulation would be subject to congressional veto.

We have some very important and complicated regulations which tell the industry how to test chemicals and what types of tests to conduct in order to provide us with information to make our registration decisions. That type of regulation would be subject to veto by the Congress if this amendment passed.

We have regulations which establish criteria for reviewing and potentially canceling pesticides which pose unreasonable risks. In other words, policy and programmatic frameworks of our decision-making would be subject to congressional review and veto if this amendment passed.

Mr. ECKHARDT. So then if a chemical company becomes very concerned about such a regulation because it ultimately might negatively affect the use of that chemical, and I guess that would be a possibility, would it not——

Mr. JELLINEK. Yes, sir.

Mr. ECKHARDT [continuing]. That chemical company might not only oppose the regulation in its formulating stage, at which point I understand they will have an opportunity to be heard, but they would have another shot at it by seeking to obtain a legislative veto at a political level.

Of course, our body is not very capable of receiving a great amount of technical information in the process of lawmaking, par-

ticularly not on short review period which is usually provided in the legislative review provisions.

Would it not be true, then, that that would give a special interest group a tremendous advantage with respect to negativing action of your agency?

Mr. JELLINEK. That is not an improbable scenario, Mr. Chairman.

Mr. ECKHARDT. We have had a considerable amount of testimony here that goes to the question of the responsiveness of EPA to a certain extent, even to a greater extent with respect to certain other departments of Government and certain individual interests in enforcement of the law.

Inasmuch as the time is relatively short, we have a number of votes on the floor, and inasmuch as you have been here all day, and besides that many of the questions are somewhat technical, might you agree to supply answers to written questions with respect to those specific questions?

Mr. JELLINEK. I would be happy to do so, Mr. Chairman.

Mr. MAGUIRE. You cover in about three pages of your prepared statement the situation with regard to the enforcement program. You describe it from the period of 1972 as an extensive enforcement program. You say misuse violations always have received the highest priority. You say EPA was given clear authority to prosecute persons for misuse of pesticides. You talk about pilot programs for States beginning in 1974 and then you refer to the success of the pilot program.

I would like to know how many enforcement actions have been taken in the period since 1972.

Mr. JELLINEK. Mr. Maguire, I do not have that information right here. I can supply it for you.

Mr. MAGUIRE. It would be helpful if we can have that information and hold the record open for that.

Mr. JELLINEK. Records apparently are kept in the regional offices.

Mr. MAGUIRE. Can you give us any kind of estimate?

Mr. JELLINEK. Mr. Johnson tells me there are probably several thousand or so.

Mr. MAGUIRE. Several thousand.

Mr. JELLINEK. Yes.

Mr. MAGUIRE. Taken by EPA itself?

Mr. JELLINEK. I would not want to hold myself to that estimate without checking records.

Mr. MAGUIRE. How many of those would have been for registration, how many for labeling, how many for misuse?

Mr. JELLINEK. I just cannot answer the question in detail.

Mr. MAGUIRE. Perhaps you can break it down into those categories. Those are the three relevant categories?

Mr. JELLINEK. Misuse is perhaps the major category we would be concerned about.

Mr. MAGUIRE. I would like them broken down by category and also time period.

Mr. JELLINEK. I would be glad to do it.

Mr. MAGUIRE. What happened between 1972 and 1975, under the pilot program since 1975, and what happened since 1978 after the amendments?

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Mr. JELLINEK. Very well.

Mr. MAGUIRE. I also would like them broken down in terms of who took the action, whether it was EPA or the State.

Mr. JELLINEK. We will to the best of our ability get you answers to those questions.

[The following letter was received for the record:]

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

OFFICE OF ENFORCEMENT

0 1 NOV 1979

Honorable Bob Eckhardt
Chairman, Subcommittee on
Oversight and Investigations
Committee on Interstate and Foreign
Commerce
House of Representatives
Washington, D.C. 20515

Dear Mr. Chairman:

At the hearings held by your Subcommittee on June 26 and 27, 1979, in which the general problem of people being involuntarily exposed to pesticides was discussed, Representative Andrew Maguire directed the Agency to provide the Subcommittee with data on the Agency's pesticide investigatory and enforcement activities from 1972 until the present. Mr. Maguire also requested that similar data be furnished with respect to states cooperating with EPA in the enforcement of the Federal Insecticide, Fungicide, and Rodenticide Act.

Accordingly, I have enclosed the requested data. By way of clarification, the data on state investigatory and enforcement activities is limited to work performed by a state under a cooperative enforcement agreement with EPA. Thus the data may not reflect all investigatory and enforcement activities carried out by the state.

Should you have any questions regarding the enclosure, please contact Jack Neylan (755-0997).

Sincerely yours,

Richard D. Wilson
Deputy Assistant Administrator
for General Enforcement

Enclosure

PESTICIDE ENFORCEMENT ACTIVITIES

	EPA	STATES	TOTAL
Product Inspections 1/			
1972	9312	—	9312
1973	9176	—	9176
1974	5425	—	5425
1975	3641	359	4000
1976	6932	307	7233
1977	4677	10499	15176
1978	3474	8450	11924
1979	1320	12352	13672
Use Investigations 2/			
1972	**	—	
1973	**	—	
1974	481	—	481
1975	817	69	886
1976	1963	69	2032
1977	1416	1131	2547
1978	779	4018	4797
1979	198	7327	7525
Enforcement Actions 3/			
1972	860	—	860
1973	1275	—	1275
1974	1387	—	1387
1975	1614	0	1614
1976	2488	0	2488
1977	1219	561	1780
1978	893	1742	2635
1979	623	2645	3268

1/ Includes producer establishment, market place, and import inspections for label, adulteration, and non-registration violations.
2/ Includes use, misuse, and experimental use investigations.
3/ Includes civil complaints, criminal prosecutions, import detentions, recalls, seizures, stop sale, use or removal orders, and warning letters.

** Product inspections and use investigations reported as one number.

— No cooperative enforcement agreement with States in effect.

EPA ENFORCEMENT ACTIVITIES

	Number of Product Inspections 1/	Number of Use Investigations 2/	Number of Enforcement Actions from Product Inspections 3/	Number of Enforcement Actions from Use Investigations 3/
1972	9312	**	860	**
1973	9176	**	1275	**
1974	5425	481	1387	**
1975	3641	817	1557	57
1976	6932	1963	2375	113
1977	4677	1416	1129	90
1978	3474	779	762	131
1979	1320	198	504	119

1/ Includes producer establishment, marketplace/retail, and import inspections for label, adulteration, and non-registration violations.
2/ Includes use, misuse, and experimental use investigations.
3/ Includes civil complaints, criminal prosecutions, import detentions, recalls, seizures, stop sale, use or removal orders, and warning letters.

** Product inspections and use investigations reported as one number.

STATE ENFORCEMENT ACTIVITIES

	Number of Product Inspections 1/	Number of Use Investigations 2/	Number of Enforcement Actions from Product Inspections 3/	Number of Enforcement Actions from Use Investigations 3/
1972	—	—	—	—
1973	—	—	—	—
1974	—	—	—	—
1975	359	69	0	0
1976	307	69	0	0
1977	10499	1131	494	67
1978	8450	4018	855	887
1979	12352	7327	685	1960

1/ Includes producer establishment, marketplace/retail, import inspections for labeling, adulteration, and non-registration violations.
2/ Includes use, misuse, and experimental use investigations.
3/ Includes civil complaints, criminal prosecutions, import detentions, recalls, seizures, stop sale, use or removal orders, and warning letters.

— No cooperative enforcement agreements in effect.

Mr. MAGUIRE. You suspended 2,4,5-T in March for forests and highway rights-of-way and for all crops except rice and rangeland. Why those exceptions? What was the rationale for those exceptions?

Mr. JELLINEK. I think we tried to explain in my testimony, and others have explained today, how important the exposure link is to making a regulatory decision and often how difficult it is.

As I said, we have not demonstrated a cause and effect between the spraying of 2,4,5-T and the problems in forests.

However, the fact that we had a very suggestive study caused us to take an action on forest uses. Since the study was related to forest uses we tried to identify exposure situations that were similar to the uses in the forests in Oregon.

Mr. MAGUIRE. If you live next to a cattle grazing area and you live next to a forest, and they are both sprayed, what is the difference between those two cases and why should a person who lives next to a forest be protected but not someone who lives next to a rangeland or a rice patty farm?

Mr. JELLINEK. The facts as they were available to us are that the number of people potentially exposed in rangeland was very small. You generally don't have people living out in the mesquite where the helicopters are spraying. You have maybe one house within 100,000 acres.

In the forest situation we had very clear evidence of drinking water that was potentially contaminated with the spray, people eating game potentially contaminated with the spray, with helicopters coming over their houses or near the houses and causing drift problems.

The potential hazard in range in our opinion was not that clear and not clear enough, we felt, to sustain what we knew would be the automatic court challenge.

We felt the same way for rice. Let me say we have since acted to include both rice and range in the overall hearing proceedings, so the hearing proceeding now underway and which will begin actively in the fall includes all uses of 2,4,5-T and not just forest rights-of-way.

Mr. MAGUIRE. All the more reason to have included it in the interim action. Are you saying it is the numbers of people which is the basis for the judgment?

Mr. JELLINEK. It was not the numbers as much as the exposure situation.

Mr. MAGUIRE. You are saying the exposure level to individuals in areas where rice is grown or cattle are grazed is likely here to be much less?

Mr. JELLINEK. That was our judgment at the time.

Mr. MAGUIRE. Not that fewer individuals are going to be exposed at the same time?

Mr. JELLINEK. That is correct. I don't like to make decisions on the numbers of people exposed. I like to make decisions on the risk to any individual involved.

Mr. MAGUIRE. I should hope so. Dioxin is one of those things where we have perhaps the clearest kind of case and we are not talking about a discernible threshold. Is that correct?

Mr. JELLINEK. That is true.

Mr. MAGUIRE. Dr. Tessler testified with regard to samples of mothers' milk which were collected by you from 105 women in the Pacific Northwest in 1977. Where are the results of those studies?

Mr. JELLINEK. First of all let me say that I am personally very concerned about the 1½-year wait those women went through. I don't like the wait any more than Dr. Tessler or those women do.

Those samples have been completely analyzed now and we are just completing the final report. The results should be available within a month or so. We will make them public and get them to the women as soon as the report is completed.

Frankly, there is no——

Mr. MAGUIRE. Can you tell us anything about it? It is 1½ years later. What does it show?

Mr. JELLINEK. There is no excuse for at least part of the time it took. There was some administrative foulup which delayed the beginning of the analysis.

Mr. MAGUIRE. Can you tell us anything today? Perhaps the final report has not been written but surely you know what the general outline of the results is, whether it in fact points to a hazard or not.

Mr. JELLINEK. The general outline of the results appears to be mostly negative. We are checking out the last few samples where there is some question. As soon as that is completed we will make all of the results available.

Mr. MAGUIRE. Why has it taken so long?

Mr. JELLINEK. As I said, there are two reasons. First of all, there was just a bureaucratic foulup. I plead guilty. I confess to that. We do these things through contract, primarily. Because of a foulup in our contracting process the contract did not get underway until 6 or 8 months after the samples were taken.

However, the other reason is just that it takes time to do these analyses. We are doing along with the mothers' milk analysis other environmental samples, including some game samples from that area, in order to see whether or not we can bolster the exposure link that we think we made with the epidemiological study.

I might point out that we have found positive evidence of dioxin in certain of the sediments in that area in streams from which some of the people took their drinking water.

Mr. MAGUIRE. Perhaps you can supply further material for the record.

Mr. JELLINEK. As soon as this is available we will be happy to supply it to the committee.

[The following news release was received for the record:]

United States
Environmental Protection
Agency

Press Office (A-107)
Washington DC 20460

EPA

Environmental News

FOR IMMEDIATE RELEASE
MONDAY, JANUARY 14, 1980 Woods (202) 755-0344

DIOXIN NOT DETECTED IN MOTHER'S MILK

The Environmental Protection Agency has found no detectable residues of the chemical dioxin (2,3,7,8 tetrachlorodibenzo-p-dioxin, or TCDD) in 103 milk samples from nursing mothers in three western states. Dioxin, an extremely dangerous chemical, is an unavoidable component of the herbicides 2,4,5-T and Silvex which have been sprayed to control weeds and brush in forest areas, rights-of-way, rangeland and crops for many years.

The samples were obtained from 105 mothers selected from areas in California, Oregon and Washington where the dioxin-containing herbicides were known to have been used for several years. EPA has notified each mother who participated in the survey of the test results.

Dioxin has caused birth defects and miscarriages in laboratory animals, including monkeys, at the lowest possible dosage, and has caused cancer in other laboratory animals at low levels. Most uses of 2,4,5-T and Silvex were temporarily halted by EPA last Spring when scientists found a statistical correlation between the spraying of 2,4,5-T in a forested area of Oregon and an above normal rate of miscarriages in the same area. Hearings to determine whether or not 2,4,5-T and Silvex will be permanently banned from use begin February 13, 1980 in Washington, D.C.

Milk samples from nursing mothers individually selected by the Agency were taken in November, 1977. The number of samples breaks down as follows:

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(more)

2,4,5-T - sprayed areas:

California		20
Humbolt County	(16)	
Mendocino County	(4)	
Oregon		20
Lane County	(6)	
Lincoln County	(8)	
Douglas County	(2)	
Benton County	(2)	
Marion County	(1)	
Polk County	(1)	
Washington		18
Clallam County	(17)	
King County	(1)	
TOTAL		58

Control areas (not sprayed with dioxin-containing herbicides):

California		22
Santa Cruz County	(22)	
Alaska		23
Greater Anchorage Area	(13)	
Kenai Peninsula	(12)	
(Two milk samples from the Alaska control area were lost in transit.)		
TOTAL		45

EPA emphasized that no residues were detected using the most modern scientific equipment. This equipment is capable of measuring residues down to 1 to 4 parts per trillion. At this time, the technology does not exist to measure residues below that level. It is not known whether any dioxin is present below the limit of detection.

A report on the study will be available upon request in late January from the EPA Press Office (A-107), Washington, D.C. 20460.

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# # #

Mr. MAGUIRE. You heard Mr. Lightstone tell us that EPA does not interpret its mandate under the law as permitting it to establish worker exposure standards. Is that correct? Would you explain it, please?

Mr. JELLINEK. I guess I would disagree with Mr. Lightstone on that. The point of contention apparently is whether we have the authority or should have in this case established an ambient standard such as OSHA does in a factory.

We have established a standard we think protects applicators of DBCP. That is in the form of requiring certain protective procedures and requiring the use of protective clothing, the use of respirators, whatever. We have not established an ambient standard in this case because we frankly didn't think it would be practical in an open-air situation.

We do have authority, for example, to set ambient standards and would if the situation merited it.

There are relatively few farm situations that do merit it. OSHA deals with closed buildings and situations where technological-type standards make a lot of sense. The agency and I personally support OSHA's attempt to set technological standards. However, we are dealing with perhaps three or four, at least there were three or four, DBCP factories. There may have been a handful of additional factories in which the pesticide was formulated.

In terms of application sites for the pesticides there may be hundreds or perhaps thousands of them. It is a much different situation and the facts are much different. We think the standards we have set adequately protect the applicator. We have done monitoring of those situations which we believe demonstrate that protection.

Mr. MAGUIRE. How do you account for the fact that California requires 30 to 60 days after the fields are sprayed with some of these substances before workers are permitted in the fields whereas EPA requires 48 hours?

Mr. JELLINEK. First of all I would like to make it clear that I and the agency are concerned and we are sensitive to the situation in which the farmworkers find themselves in this country with respect to pesticide exposure. I think the Agency can do more than it has done in the past. I have directed that the Office of Pesticide Programs begin a complete review of the farmworkers' safety situation.

The standards that Mr. Lightstone talked about were set back in 1973 after a nationwide review of the situation. The agency conducted a dozen or so public hearings.

At those hearings it appears that the general conclusion of the scientists who testified—it was not just farmers or industry people testifying but scientists testified as well—was that EPA should set minimum national standards, and in many areas of the country States, because of specific climatic situations, should set more stringent standards. Apparently California was singled out at that time as having combinations of climate and soil types and weather types generally which required much longer reentry standards than any national maximum. That is the reason there is a difference according to my understanding.

I might say I am not satisfied myself with that answer and we will deal over the next year or so with this problem. We have already begun reviewing the entire farmworker safety issue.

Mr. MAGUIRE. That is not a difference of degree. That is not a marginal difference but 1,500 to 3,000 percent.

Mr. JELLINEK. That is correct, a very significant difference.

Mr. MAGUIRE. I doubt that variations in local conditions can account for that kind of difference, clearly a difference in judgment.

Mr. JELLINEK. That is true. That is one of the judgments we will be reevaluating.

Mr. MAGUIRE. When do you expect the farmworker review to be completed?

Mr. JELLINEK. I learned in this job to be very wary of giving projections of timing. It usually takes longer.

Mr. MAGUIRE. What is the answer, however?

Mr. JELLINEK. We will be spending the next year or so trying to resolve this issue.

Mr. MAGUIRE. Meanwhile the workers will be content with the fact you are reviewing it?

Mr. JELLINEK. I don't have a good answer to that. That unfortunately will have to be the case.

Mr. MAGUIRE. Do you think OSHA might do a better job? Why not put farmworkers under OSHA?

Mr. JELLINEK. I don't think OSHA will do a better job. I have the greatest respect for OSHA and Dr. Bingham. I have worked with her on many issues. The information we provided helped OSHA make its findings on DBCP.

However, I think the problems that we face in adequately protecting farmworkers would be faced by OSHA and I think our commitment to solving those problems is just as great as OSHA's would be. I certainly intend to see that we solve those problems as quickly and as effectively as possible.

Mr. MAGUIRE. Since 1978 when the States took interest with respect to enforcement, can you tell us whether you feel you have any authority or supervision in law for what the States actually do?

Mr. JELLINEK. We do. It is a little early to come to any overall conclusions about any given State performance, although, as I mentioned in my testimony, our Office of Enforcement does intend to review the performance of the States. We do have the authority to withdraw that primary use enforcement authority if we believe the States are not carrying out their responsibilities.

We also have authority to take action in emergencies when we think that the States will not perform adequately.

Mr. MAGUIRE. In your statement you talk about individual citizens having varying options for participating or declining to participate in control programs, forest management programs. This is on page 2,

On page 13 you come back to this theme and say, "there is a key issue now as to whether an individual citizen should have the right to review participation in regional or public pest control programs." This ultimately may be the most important social issue with respect to early use of pesticides.

I find myself quite perplexed as I read this, what it was that an individual was going to do to exempt himself from these hazards. I am thinking, of course, of Mrs. Watkins and Mrs. Prosnier as examples.

Then I came to the bottom of page 13 and found what you apparently had in mind was that residents of proposed treatment areas would have the opportunity to prevent application on their land.

Is that what you are talking about when you talk about individual citizens having the right to refuse participation? You will get to those who own land where this——

Mr. JELLINEK. That has been a problem, such as the gypsy moth control program or the spruce budworm control program. Some people want their areas sprayed and others do not.

The problem in Scottsdale is a different problem. It is a problem where we have to decide, or the appropriate authorities have to decide, whether or not an aerial spraying program can be carried out without presenting unreasonable risk to the people who inadvertently are affected.

Mr. MAGUIRE. That is right.

Mr. JELLINEK. I might say the women who testified today may not be aware of this, but we have initiated a monitoring program in Scottsdale to try to determine whether and how and to what extent people are being exposed by taking blood and urine samples and analyzing them, and also we are taking environmental samples.

Mr. MAGUIRE. That is fine. I want to come back to that in a moment in another way.

Right now I want to be sure I understand that your testimony, when it talks about the rights of individual citizens to refuse participation, that you are talking about a very specific subgroup of individual citizens, namely, those who own land upon which some of these materials might be applied.

You are not talking about the people, and I don't think we can use the words "inadvertently exposed." They are not advertently exposed because the pattern is repeated, so you have to say they are involuntarily exposed. We are not talking about those people having any rights to opt out, are we?

Mr. JELLINEK. Well, we——

Mr. MAGUIRE. Is that so?

Mr. JELLINEK. We are talking about requiring applicators, people applying these pesticides, and theoretically applying them according to the law. We do not register the pesticides if we don't think they can be applied without posing unreasonable risk. We are talking about requiring these people to post notices, give public notices of their intent to apply pesticides, presumably according to the law, and that in turn would give local citizens who may be concerned about drift and who may be just concerned about the fact they will be spraying in their area a chance to influence that decision, to influence that local official, or to take court action if they believe that is necessary.

Sitting here in Washington, when we write a pesticide label we can spell out conditions that if followed will not, we believe, result in an unreasonable risk being presented.

Mr. MAGUIRE. With all due respect, that is gobbledegook. You make the point in your own statement that labeling and application procedures are not adequate to deal with the problem of drift.

These women and their families are living right next to the area being sprayed. It doesn't matter whether your applicators are trained or whether they go out there with the properly labeled bottles of stuff. If they lay it down there the fact of the matter is that these people will be exposed.

Mr. JELLINEK. That is precisely why we are doing this monitoring this year. If we discover and if we can make a case, if we come up with evidence that verifies the complaints these people have made, then we can restrict the application of those pesticides. We can determine buffer zones. We can otherwise require the applicators to perform their jobs in a way that will minimize or eliminate the drift from occurring.

Mr. MAGUIRE. Look, a report was done of the Scottsdale situation, I am advised by staff, in 1972. The report included the following, report by the Arizona community pesticide studies project April 4, 1974:

> In view of the rather high acute toxicity of the nonpersistent pesticides being used it is our opinion that separation of suburban housing areas from agricultural lands, where such pesticides are used, by a county road represents questionable wisdom.

They concluded in 1972 there was a serious problem. You tell us in 1979 that EPA is collecting some information.

I am trying to look at it from the point of view of these women and their families. How can you assist them other than telling them they have to move out?

Mr. JELLINEK. We can assist them by doing exactly what I told you we are going to do. I have been to Scottsdale and I have seen that situation. It is a terrible situation. In one sense it is a land use problem. It is questionable as to whether the community should ever have permitted housing to be built up to the agricultural lands if indeed they were going to continue in agriculture.

You have a further complication of its being an Indian reservation. It is not land under, at least so I am advised, police power of the State.

Mr. MAGUIRE. What do these families do about the Arizona Board of Pesticide Control which we discussed at some length earlier which has 2 public members out of 13? What will you do about the Arizona Board of Pesticide Control?

Mr. JELLINEK. It seems to me that the best way to deal with that is through the local political process in Arizona.

Mr. MAGUIRE. You really think so?

Mr. JELLINEK. There is not much EPA can do about the State agency.

Mr. MAGUIRE. People telling them it is the same as taking an aspirin or the worse it smells the better it is?

Mr. JELLINEK. We certainly do not condone that. I am sure our people never have said that.

Mr. MAGUIRE. Can you blow the whistle on these people under existing law, that is, on the Arizona Pesticide Control Board if the case is made out?

Mr. JELLINEK. I am not sure how we would blow the whistle. I am not sure what we can do about influencing the State of Arizo-

na's Board of Pesticide Control. We can deal with them on individual situations. If, for example, they register a pesticide for use in the State and we believe it was a faulty decision or that there is a pattern of faulty decisions on pesticide registration, we can act against the State in that way.

Mr. MAGUIRE. That is not misuse but registration.

Mr. JELLINEK. That is right. If we believe they are failing to act and failing to enforce a misuse violation we can then move in and enforce it ourselves.

Mr. MAGUIRE. Can you write regulations which would go to the question of the composition of the State board?

Mr. JELLINEK. No.

Mr. MAGUIRE. And then deny certification of their program if they do not meet those minimum requirements and regulations?

Mr. JELLINEK. That we might be able to do. That is a possibility.

Mr. MAGUIRE. I would invite you to look at that possibility.

Mr. JELLINEK. I will.

Mr. MAGUIRE. Because I would think that given the makeup of the decisionmaking bodies and the way power is deployed in such State bodies and the role those State bodies now play under Federal law that we ought to look very, very carefully at that. I would invite you to do that.

Mr. JELLINEK. Yes.

Mr. MAGUIRE. What bothers me after 2 days of hearings and after many previous hearings, is that somehow we are still not at the point where the relevant Federal regulatory bodies are able to take action until years have gone by and the situation becomes highly dramatized in the media and a subject of great public comment.

KRON in San Francisco, did a documentary describing an agent orange situation and then EPA acted in March. I know the television show did not come on until after that, but EPA knew it would come out.

In Scottsdale people are demanding some sort of action and organizing themselves, coming to Washington. Do we always have to have that critical mass of political struggle and years and years of organizing and the most outrageous kinds of cases of people crippled and killed before we can act. Is that the way our decisionmaking process works? That is the impression I have for the last 4 years from this chair.

Mr. JELLINEK. I know you have spent a lot of time thinking about these problems and looking at them. I hope that is not the only way to take action. I think we are beginning to demonstrate we can act without that kind of public outcry.

The public is helpful in bringing problems to our attention. I hope we can also begin to identify problems, and I think we are beginning to do so, on our own.

I might say, though, that part of the problem in coming to decisions on pesticides reflects the political interests in our society. I am using "political" in a small "p" sense and I am using it in a political science sense.

The law we administer requires us to go through a series of very complicated and lengthy processes to take action. If we could make

these problems go away by waving a magic wand we would be hiring magicians and not toxicologists.

There is no magic in FIFRA. Congress required us to look at risks and benefits and in the final analysis to make a substantive balancing decision. It has given the political authorities in the executive branch, the politically appointed representatives appointed by the President and confirmed by the Senate, the final burden of making those judgments. Every one of those judgments is subject to detailed administrative procedural followups and finally court action.

It would be nice to be able to wave a magic wand and make the problems go away, but I seriously doubt whether that will happen in the foreseeable future.

You heard Dr. Davies and a number of other scientists today, and perhaps on previous days, talk about how difficult it is to make cause-and-effect decisions on these questions. We recognize that. We do not go on the basis of proven harm. We make certain assumptions about harm. We try to be reasonable about them.

However, we have to have some basis for acting because if we do not we will get challenged and we will get tossed out of court on our ears. That has happened to us in the past and it will happen to us in the future if we do a sloppy or a poorly prepared job.

It sounds somewhat callous and bureaucratic after hearing some of the testimony that I have heard today, but unfortunately it is a fact of life in pesticide regulation and it reflects the will of the American people as expressed through their congressional representatives.

Mr. MAGUIRE. So you are now doing some information gathering in Scottsdale.

Mr. JELLINEK. That is correct.

Mr. MAGUIRE. Would you be able to tell us when you might have some results and what sort of a report it will be, and whether we should hold the record open to receive it?

Mr. JELLINEK. It will probably be several months before we have completed those analyses. We will be doing the monitoring during the next few months.

Mr. MAGUIRE. Can you do it as quickly as possible and give the committee the results?

Mr. JELLINEK. Yes, sir. We will give you a precise answer on the timing.

Mr. MAGUIRE. As soon as you can?

Mr. JELLINEK. As soon as we can, within days.

[The following statement was received for the record:]

The Scottsdale study referred to is still in the monitoring phase, with monitoring scheduled through this growing season (through October) and in December or January. Then the data gathered will have to be analyzed. Public hearings have been scheduled for early September in Phoenix; you will be sent a copy of the Federal Register Notice of the hearings when it is published.

Mr. MAGUIRE. Thank you for your testimony.

Mr. JELLINEK. Thank you, Mr. Maguire.

Mr. MAGUIRE. The committee is adjourned.

[Whereupon, at 5 p.m., the subcommittee adjourned.

O