



# Cypress Creek Exposure Investigation Report Summary

## Health Investigation Looks for Pesticides

The Cypress Creek Exposure Investigation was conducted by your state and local health departments. The Tennessee Department of Health's Environmental Epidemiology Program (EEP) tested house dust for pesticides. EEP also tested people's blood for pesticides. The pesticides were aldrin, dieldrin, and endrin. This is a summary of what was written in the

e x p o s u r e investigation report that was released in October 2008.



In July 2006, EEP published a Health Consultation

for Cypress Creek Sub-Area III. All government regulatory agencies, the State Department of Health, and the Memphis and Shelby County Health Department agreed that soil with more than 2.5 ppm dieldrin needed to be cleaned up.

EEP decided that more information was needed to find out if pesticides in soil had gotten into the bodies of people living adjacent to Cypress Creek. To try and answer this question, EEP did an Exposure Investigation.

People in nineteen homes in Cypress Creek Sub-Area III had the most likelihood for exposure to pesticides. Each of these households was asked to participate in the Exposure Investigation. Seven households chose to participate. People in these homes who were at least 12 years old were asked to give a blood sample. Eleven people in five households agreed to give a blood sample. We asked each of the twenty total participants standard questions to better understand how they could have been exposed to pesticides.

We did not find any aldrin in indoor dust. Indoor

dust concentrations of dieldrin and endrin were below levels that would need any cleanup. There was no connection between the concentrations of dieldrin in outdoor soil and indoor dust.

We did not find any aldrin or endrin in anyone's blood. The youngest participants had no detectable amount of dieldrin in their blood. Participants 20 years and older were within the typical range for dieldrin reported in the *National Health and Nutrition Examination Survey* (NHANES) in 2001-2002.

There was no connection between the soil and dust concentrations of dieldrin and the concentrations in blood. We concluded there was no health hazard from exposure to dieldrin in household dust.

We could not draw any conclusions about the safety of eating home-grown vegetables. Our recommendations included general food and safety guidelines such as washing hands before preparing and eating foods and thoroughly washing and peeling vegetables. If you want to garden, we recommend raised beds or containers for fruits and vegetables.

EEP will continue to work with the environmental regulatory agencies to make sure that any remaining pesticide pollution is cleaned up. EEP will continue

to work with the Memphis and Shelby County Health



Department and the Mid-Town North Health Committee to educate the public about environmental public health issues near Cypress Creek.

# Testing People's House Dust for Pesticides

In 2006, governmental regulatory agencies, the State Department of Health, and the Memphis and Shelby County Health Department all agreed that properties with soil dieldrin concentrations greater than 2.5 ppm needed to be cleaned up. EEP wanted to know if the pesticides in these yards had gotten into people's homes adjacent to Cypress Creek.

In order to collect house dust from homes, EEP bought a special vacuum made of high-grade aluminum. The vacuum could be taken apart and cleaned between each use. This allowed it to be used for environmental sampling. Common areas such as living rooms, bedrooms, and dens, were vacuumed. Vacuumed house dust was collected in a special glass bottle. EEP took the house dust back to the laboratory at the Memphis and Shelby County Health Department.



At the laboratory, each house dust sample was shaken and sifted. The larger items, such as pet hair, lint, leaves, and pebbles, were sorted out. The fine dust, which would contain the pesticides, was collected. EEP sent the fine dust to the federal Environmental Protection Agency (EPA). The EPA then measured the amount of pesticides in each house dust sample.

EEP vacuumed seven houses adjacent to Cypress Creek to collect house dust. All house dust samples had less than the dieldrin cleanup value of 2.5 ppm. We compared the house dust to the amount of pesticides measured in the outside yards. Houses with lots of dieldrin in the outside soil did not have

more dieldrin inside the house. In other words, the amount of dieldrin in soils outside did not predict the amount of dieldrin in house dust. Our exposure investigation found no health hazard from pesticides in house dust.

# Testing People's Blood for Pesticides

EEP wanted to know if the pesticides in the soil got into people's bodies. At each household that agreed to dust sampling, EEP asked each person who was at least 12 years old to give a blood sample. A total of 11 people from 5 different households had their blood tested. A nurse from the Memphis and Shelby County Health Department drew the blood samples. The nurse prepared the blood samples for laboratory testing. The Centers for Disease Control and Prevention (CDC) tested all blood samples for the pesticides aldrin, endrin, and dieldrin.

The sample results showed that no one had detectable amounts of aldrin or endrin in their blood. The results of the blood testing for dieldrin were more variable. Some people had dieldrin in their blood and some did not. Both of these results are normal. The youngest people tested had no dieldrin

in their blood. This means that the younger people have not had a recent exposure to the pesticide dieldrin.

The older persons tested tended to have more dieldrin in their blood. We know that the pesticides can be stored in fat within the human body. It is possible that the older people were exposed to dieldrin many years ago. The amount of dieldrin found in all participants' blood was typical of the amount found in other people in the United States. There was no

relationship between the amount of dieldrin measured in house dust and the amount measured in people's blood. Also, there was no relationship between the amount of dieldrin measured outdoors in soil and the amount measured in people's blood.



# Comparing the Blood Test Results

We wanted to know if the people living near Cypress Creek had too much dieldrin in their blood. If people living near Cypress Creek had a lot of dieldrin in their blood, that would not be typical. As it turned out, the blood dieldrin concentrations of the people tested were typical of the amount found in other Americans.

We compared the amounts of dieldrin measured in each person's blood to values in the *Third National Health and Nutrition Examination Survey* or NHANES. This project randomly tested communities in the United States to find out what amounts of many different chemicals are in the bodies of Americans.

## Exposure Investigation Conclusions

1. Dieldrin in the blood of participants was typical of the U.S. population.
2. There was no relationship between dieldrin in soil, dust, and blood.
3. Older participants had more dieldrin in their blood.
4. The youngest participants had no dieldrin in their blood.
5. It is impossible to know if past exposures caused any harm.
6. There is no health hazard from exposure to household dust.
7. It was impossible to say if eating home-grown vegetables was safe or unsafe.

## Is it Safe to Eat Home-Grown Vegetables?

EEP wanted to answer this question definitively. However, EEP could not answer it. EEP had responses about eating home-grown vegetables from 20 participants. Ten reported never eating home-grown vegetables. Three people reported eating them a long time ago. Five people reported eating them from two to four years ago. Two people reported still eating home-grown vegetables. Eleven people allowed EEP to take a blood sample. Only one person who gave a blood sample reported still eating home-grown vegetables. Five people who gave a blood sample reported never eating home-grown vegetables. This small amount of data did not allow us to make any valid conclusions.

Several years ago, Velsicol sampled vegetables

grown in one yard near Cypress Creek. Some vegetables had no dieldrin in them. Kale, turnip greens, and sweet potatoes had small amounts of dieldrin in them. In 2003, the federal Food and Drug Administration (FDA) found dieldrin in about 6% of food tested.

EEP can say nothing about the relationship between eating home-grown vegetables and dieldrin in blood of people who took part in this exposure investigation. That lack of knowledge combined with the fact that some vegetables take up dieldrin from soil makes it impossible to say definitely that

eating home-grown vegetables is either safe or unsafe. If you want to grow fruits or vegetables use raised beds or container gardens. Wash and peel your produce before eating them.



# Frequently Asked Questions with Answers

## *Has the neighborhood been cleaned up?*

Yes. Several properties were found to have high levels of pesticides in the soil. All of these properties have been cleaned up. Contaminated soil was replaced with new clean soil and grass.

## *Did the pesticides harm anybody?*

An exposure investigation cannot determine harm. We do not believe there is any remaining health risk near Cypress Creek in Sub-Area III.

We do not know if past exposures caused any harm. If we knew of a way, we would try to find out if past exposures caused any harm.



## *Did younger people have pesticides in their blood?*

No pesticides were detected in the blood of the younger people in the exposure investigation.

## *Did anybody have a lot of pesticides in their blood?*

No one had any aldrin or endrin in their blood. The amount of dieldrin was within the typical range of other people tested in the United States.

## *Can I safely eat home-grown vegetables?*

Our exposure investigation could not tell whether eating home-grown vegetables would be safe or unsafe. Some vegetables, such as kale, turnip greens, and sweet potatoes, may take up dieldrin. We do not have any data that suggests eating home-grown vegetables would cause harm. About 6% of food tested nationally by the FDA contains some dieldrin.

## *What should I do with home-grown vegetables?*

Before you eat home-grown vegetables, you should wash and peel them. You should also wash your hands after gardening and before eating.

## *Will any more investigating be done?*

At this time, we have no plans for further investigations. If methods become available that allow us to tell if past exposures caused any harm, then we will try to get funding for another investigation.

## *What took so long to write the report?*

We apologize for the amount of time it took to complete the exposure investigation. We collected the dust and blood samples in May 2007. It took several months for the laboratories to return the test results. Next, we had to prepare the written report. The longest part was the federal government review of the complex data. The pesticides under review have not been used in about 30 years. Plus, the exposure investigation had a small number of participants. It was harder to analyze the small data set. To make sure the report was accurate, it took extra time.

## Have Questions about the Exposure Investigation?

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**A special "Thank You" to all those people who volunteered their house dust and blood samples to make this exposure investigation possible.**