

Monsanto

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FROM (NAME & LOCATION)

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SUBJECT MEETING ON PCBs

CC: R. C. Isham
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REFERENCE

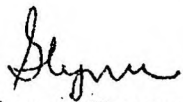
TO D. R. Bishop
J. Ortiz
~~F. A. Provorny~~
J. D. Weber
D. Wood

About 20 people attended the meeting on PCBs, sponsored by the Coalition for the Environment, at Plaza Frontenac last night. The meeting lasted almost two hours. The audience was composed of young people, workers with the coalition and several elderly people.

Overall, the meeting and presentations were balanced and objective for the most part. There appeared to be more concern about the disposal of PCBs than with who to blame for the problem. Occasionally, terms such as toxicity and carcinogenicity were used interchangeably.

The topics covered included PCBs, Agent Orange, the oil tank in Frontenac and the disposal problem in Jefferson County. An official from the St. Louis office of the Missouri Department of Natural Resources spoke on the Frontenac and Jefferson problems. Monsanto's name was mentioned numerous times, in regard to PCB production, incineration and in relation to Bliss Oil Company.

The notes which I took at the meeting are attached.


Glynn Young

GY:smt

Att.

COALITION FOR THE ENVIRONMENT, MEETING 3/20/79 ON PCBs

Notes

Presentation by David Kreibel, research associate at the Center for Biological Research, Washington University (Kreibel is primarily involved in the Center's Carcinogen Information Program).

Kreibel explained the two-carbon ring structure of PCBs with the aid of models, pointing out that the structure was similar to that of PBB, the dioxin in 2,4,5 T and DDT.

About 2.5 ppm of PCBs fed to monkeys causes birth defects and problems in reproduction. (He explained that one ppm is about the equivalent of a fleck of pepper in two pounds of spaghetti.)

PCB was first discovered in 1881; commercial production did not begin until about 1920. Monsanto has always been the leading producer. Quite a bit of production had stopped in 1971; full production stopped in 1977. A total of about 1.4 billion lbs. were produced.

The properties of PCBs include resistance to fire. They were used (and still are, in some cases) in transformers and capacitors. PCBs were also used in a variety of paper products, such as carbonless paper. Recycling of paper had led to continual environmental exposure. PCBs were also used as heat transfer fluids, and in this application led to the contamination and human exposure in Japan. Since 1970, PCBs have only been used in closed cycle systems.

PCBs have the consistency of molasses, and look like a thick, clear oil.

Toxicity and Other Problems

Almost every substance that causes cancer in animals can affect some fraction of the human population as well. But the reverse is not true in all cases.

PCBs do cause cancer, specifically cancer of the liver. Chlorinated ring compounds in general affect the liver because they tend to be soluble in fat and gradually build up in the liver.

PCBs are also teratogenic, causing birth defects in monkeys at feeding levels of 2.5 ppm. It's not clear, but the level could be even lower. Other effects include skin chloracne, loss of hair and swelling of eyelids.

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In Japan, rice oil was contaminated with high levels of PCBs. About 1200 people were exposed: five died, and both fetuses and offspring were affected. The dose was quite heavy -- 800 to 1000 ppm, unlike the much lower exposure levels here in the United States.

PCBs are also an "immuno-depressant" -- they suppress the ability of an immunity system to function. It's not clear what levels will produce such affects -- the thresholds are very difficult to estimate.

PCBs alter enzymes, including those chemicals which help the body to eliminate foreign chemicals. And they alter enzymes in a variety of ways. It is thought that PCBs could alter the ways in which the human body deals with potentially dangerous things such as cigarette smoke, but this is still in a speculative stage.

There is some evidence, not fully accepted yet, that workers in PCB production units might develop malignant melanoma, a skin cancer that is fatal in many cases.

Government contamination standards are a compromise between the human safety level and economic interests (the audience expressed nodding agreement with this point). The levels are 5 ppm in fish and poultry, 2.5 ppm in dairy products and 10 ppm for food packaging materials. This compares unfavorably with the 2.5 ppm level found to cause birth defects in monkeys.

PCBs are stable compounds found pretty much everywhere. They have been found in air, water and soil. They move fairly slowly in the environment.

In biological systems, PCBs tend to "bioaccumulate," that is, the higher up the food chain you go, the higher concentrations of PCBs you find. Often, trout have one million times the concentration than the water they are found in. Babies that are breast-fed can consume up to 50 times the level found in the mother. PCBs have been found in mother's milk, human fat and human blood.

The only known disposal to date is incineration at 2400 degrees Fahrenheit or higher. Monsanto used to do this, but doesn't any more.

Questions and Answers

Q. Why did Monsanto stop incineration?

A. Once other companies appeared that would handle disposal, apparently Monsanto preferred to have them do it.

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Q. Where were PCBs made by Monsanto?

A. Well, I'm not sure, but I don't think it was either the Queeny plant or the Sauget plant. I think it might have been in Alabama, but again I'm not sure.

Q. Does PCB accumulate in vegetable fat?

A. If taken up by a plant, yes. But higher plants, like your garden varieties, don't take them up in any appreciable quantities.

Q. Are there any natural sources of PCBs?

A. Dow Chemical claims that dioxins can be naturally formed. If that's true, then PCBs could also possibly be naturally formed. But I don't know if I can accept Dow's theory; I don't think there's enough evidence for it.

Q. How were PCBs found in the environment?

A. This is a really interesting story. They were found during studies of DDT. At first, it was thought they were variants of DDT. Then there was positive identification of the substance as PCB.

Q. Can you give us a comparison of the levels in mother's milk to the levels found in other foods?

A. PCBs have been found at a level of 1 ppm in mother's milk, which is also the maximum government standard. The level is higher when the woman is first lactating; it is not known why. This may offer some ideas about breast cancer, since women who never have children or don't breast feed their children tend to have higher levels of breast cancer. We think that lactating may somehow cleanse the mother's breast. But in the case of PCBs, you may be cleansing your own breast of PCBs but passing it on to your baby.

Q. Is the controversy over the Vietnam veterans realistic or is it just radical politics?

A. Well, the symptoms of the veterans, at least many of the symptoms, can possibly be attributed to other things. But the concern is that these symptoms tend to be very common among the veterans.

Q. Well, it seems like you have a good control population in the country of Vietnam, at least something you can compare the veterans to.

A. That's true, very true. And that's what is leading many to believe that the symptoms were in fact caused by Agent Orange.

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Q. Can PCBs cause Down's Syndrome?

A. I don't know. Other than in Yusho, Japan, we don't have other examples of massive human exposure. In Yusho, many children were born without toes or fingers, and with heart defects. We know that dioxin is far more toxic than PCBs. Both of these substances were tested at the University of Wisconsin on monkeys, and dioxins were found to cause problems at levels 1000 times less than PCBs.

Q. Have there been any longitudinal studies done on PCBs, specifically with regard to air over time?

A. I don't know of any time studies for air. There are some for ocean water, which show that concentrations decrease over time, particularly after production stopped.

(End of Kreibel presentation)

Moderator: We held the meeting here tonight, at Plaza Frontenac, because of a local problem. Just down the road, less than a mile from here, a tank contaminated with PCBs is sitting. It's been there for a couple of years. There have been a number of efforts to get it moved, and it seems like that now there is an agreement to do so soon. To bring us up to date on the problem, we have Bob Zieman of the Missouri Department of Natural Resources.

Bob Zieman

The tank is just west of Lindbergh, and right off German Blvd. The site has been used by the Bliss Oil Company for 20 years or more as a transfer point. Smaller quantities of waste oil were stored there, until taken to (indicates quotation marks) disposal sites.

We became aware of the PCBs in the tank about two years ago, as an outgrowth of a problem in Jefferson County involving Bliss Oil. There, wastes were dumped into a pit dug in the ground, and some of the material eventually leached into a creek. Local residents began complaining about oily surfaces on the water. This eventually led to a federal clean-up operation involving the EPA and the Coast Guard.

We started looking at other areas that Bliss used, and found the Frontenac site. The tank contains about 8,000 to 10,000 gallons of wastes, most of which is sludge. Latest tests show about 4 ppm of PCBs in the tank.

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The Department of Natural Resources got an injunction; the city of Frontenac started actions to get the tank removed. I'm afraid we sort of ran at cross purposes for a while. Acting on the city's actions, the courts ordered removal by January of 1978. In April of 1977, the DNR got a temporary restraining order, and then the city got another court order for removal.

Finally, Bliss was ordered to remove the tank by February of 1979. He was given 60 days, weather permitting, to remove it. Finally, after it wasn't removed because of the bad weather, the court ordered removal by April 6. Bliss must give us one week's notice. He has made arrangements to have it taken to Baton Rouge, La., for incineration by Rollins Environmental Services. We have verified that the state of Louisiana has issued the necessary permit, and we are still waiting for the one week's notice.

Questions and Answers

Q. Who paid for the clean-up in Jefferson County?

A. The taxpayers. The problem was judged to be an imminent hazard, and nobody had the time to wait years for legal proceedings, which a lot of companies tend to take full advantage of. The Coast Guard is now trying to obtain the funds from Bliss, but I don't think they'll be able to recover the full \$500,000 cost.

Q. You said that a carbon filter was installed on the creek. Will it be able to pick up the PCBs?

A. It might, it's my understanding that it will. (David Kreibel shrugged his shoulders).

Q. What was the source of the oil in Frontenac?

A. We don't know. The contents were too jumbled to determine. Bliss was dealing with companies like Union Electric and Monsanto, and everybody had a lot of waste oil to dispose of. Much of the time there was improper disposal by Bliss. The companies stopped using him when all this was discovered.

Q. What about the Bliss guys who were handling the disposal, like the truckdrivers? Do they face any health problems?

A. (By Kreibel) There is probably a definite occupational hazard with PCBs, as they probably can be absorbed through the skin.

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Q. What can private citizens do to help the Department of Natural Resources in their efforts for proper waste disposal?

A. The problem we have always had is enforcement, being able to move quickly in taking legal action against violators. The situation has improved somewhat, but it's still pretty dismal because of our small staff and the red tape at the state attorney general's office -- there are so many environmental problems that you must convince them that a case has a very high priority.

We also have a difficult time in determining which of the hundreds of violations we should follow through on. As citizens, you can express your concern to your legislators to provide additional funding for more attorneys.

Q. You mean you have to take violators to court to get them to obey the law? (Laughter)

A. A certain percentage have to be taken to court. The problem can go on forever. Our new director is trying to find a means of easing this problem of enforcement. Some say you should go after the big violators. But often the small companies are the worst.

Q. What can be done to dispose of toxic wastes?

A. We don't have enough means of disposal, especially in St. Louis. Like the Frontenac oil must be taken to Louisiana. The material in Jefferson County was taken to a site at Wilsonville, Ill., but because of all the publicity they shut the site down there.

Q. And I think there's been great concern in Kirksville about a proposed disposal site being near the drinking water supply.

A. Right. It's understandable. But I suppose that as long as we want our standard of living that we have, we are going to have problems with waste disposal. And as long as the regulatory agencies in Missouri are underfunded, we're going to have problems with disposal.

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