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7/6/89

Chuck:

malignant melanomas
48 expected
9 found

brain tumors
1.11 expected
5 (possibly 9) found
DSM

MEMORANDUM

TO: Interested Persons

FROM: David McCrea

DATE: June 6, 1989

SUBJECT: Malignant Melanomas in Bloomington Westinghouse Workers Caused by PCBs

The Bloomington Herald-Times published a front-page story on Friday, May 26, 1989, and a second front-page story on Sunday, May 28, 1989, describing the increased incidence of malignant melanomas in Bloomington Westinghouse workers who were exposed to PCBs from 1958 to 1976. The Westinghouse plant was opened in 1958. Westinghouse quit using PCBs in 1976. (See Exhibits A and B)

From 1958 to 1986, my information indicates that there were nine deaths caused by malignant melanomas and only one death was expected.

The mortality study of the Bloomington Westinghouse workers is expected to corroborate and amplify the study by Dr. Anita K. Bahn, M.D., Sc.D., and others, entitled "Melanoma After Exposure to PCBs", published in 295 New England Journal of Medicine 450 (1976). (See Exhibit C)

The 1976 study by Dr. Anita Bahn ended with the following recommendations:

"Further study of this possible carcinogenic association is warranted. Because early detection of malignant melanoma may markedly affect survival rates, surveillance for melanoma among those exposed should be considered. The experience with this small study demonstrates the value of incidence as well as mortality rates in historical prospective studies designed to search for occupational cancers."

To my knowledge, no workers at the Bloomington Westinghouse plant were monitored for possible malignant melanomas by Westinghouse. Many died. As the second newspaper story indicates, between 1970 and 1980 five of the nine deaths (white males) in Monroe County were Westinghouse workers. In 1970 Monroe County had a population of 84,849, and the number of hourly workers at the Bloomington plant totalled approximately 700.

The mortality study of the Bloomington Westinghouse workers will be published in a few weeks.

Westinghouse cancer rate studied

By Julie Creek
H-T Staff Writer

Between 1970 and 1979, nine of the 18 people who died of malignant melanoma in Monroe County had worked at Westinghouse Electric Corp., an Indiana State Board of Health official said Thursday night.

Exposure to high concentrations of PCBs has previously been implicated in an increased incidence of malignant melanoma, a form of skin cancer, in humans.

Westinghouse used PCBs as an

insulating fluid from 1958 until the compound was banned by the federal government in the mid-1970s. PCBs have also been associated with liver, skin and reproductive disorders, and have been found to cause cancer in laboratory animals.

State health board epidemiologist Gregory Steele said the statistic will be included in a study of the disease and death rates among Westinghouse workers to be released in July.

Steele spoke at a public meeting

sponsored by the U.S. Environmental Protection Agency and attended by about 60 people.

In a general study of death rates of all people who worked at the plant for at least six months from 1958 to 1975, 170 people have died. Steele said, about 80 percent of the number that would be expected in the general population.

Three weeks ago, Steele announced that preliminary results of blood tests of 1,000 Monroe County see **Cancer, page A11**

Westinghouse cancer rate studied

Cancer, from page A1

residents reveal high concentrations of PCBs — between 500-800 parts per billion — in the blood of those workers who handled PCBs at the plant from 1958 to the mid-1970s.

Area residents with no known direct exposure to PCBs had concentrations between 2-9 parts per billion in their blood. Nationally, the average concentration for the general population is 2-7 parts per billion.

The meeting was punctuated by angry exchanges between EPA officials and local residents worried about possible exposure to PCB contamination at the Westinghouse plant and a nearby field. The field borders two mobile home parks.

On May 3, the EPA ordered Westinghouse to clean up the property and the field northwest of the plant.

Testing of soil near a drainage ditch that runs through the field revealed PCB concentrations as high as 34,000 parts per million in some areas. Residential areas should contain no more than 10 parts per million to be considered

safe by the EPA. The ditch is about 30 yards east of the Ellettsville Fire Station, and neighbors say children who live in the area frequently play nearby. Westinghouse workers last week completed a fence around the contaminated field.

EPA Remedial Project Manager Dan Hopkins said a soil test taken two weeks ago at the E. and N. Trailer Park revealed non-detectable amounts of PCBs. Tests of wells northwest of the Westinghouse plant also contained no PCBs, Hopkins said. More soil and sediment test results are to be released later, Hopkins said.

EPA officials told residents there was no need for concern about exposure to PCBs in either trailer park. They rejected a request by some members of the audience that the EPA relocate anyone living in the trailer park who wished to move.

Several people criticized EPA officials for delays in ordering the cleanup.

The EPA first tested the company property in October 1981 and found high levels of PCBs on the property and in surrounding drainage

ditches. But the site was not included among those to be cleaned up as part of the federally supervised cleanup agreement negotiated among the city, Monroe County, the state, the EPA and Westinghouse. The EPA blames constantly changing federal regulations for the nine-year delay in ordering the cleanup.

The EPA issued the order under the Comprehensive Environmental Response, Compensation and Liability Action, commonly called the "Superfund law."

The order requires the company to immediately contain any surface water runoff from the site, build a fence around the field, post warning signs around the site and begin monitoring the air.

The company also must present a workplan for removal of soil and other contaminated materials from the site. Because the contamination is near a residential area, the order requires the company to clean up the site to a level of 10 parts per million.

After three weeks of negotiation between the company and the EPA, the order will take effect May 28.

Conclusion delayed on cancer findings

By Julie Creek
Sunday Herald-Times

An Indiana State Board of Health epidemiologist said Friday he is not yet ready to draw any conclusions from preliminary findings which indicate an increased incidence of deaths from malignant melanoma among Westinghouse Electric Corp. workers.

However, epidemiologist Gregory Steele said the health board will draw conclusions and make recommendations when the full report on disease and deaths among Westinghouse Electric Corp. workers is released in July.

Exposure to high concentrations of PCBs has previously been implicated in an increased incidence of malignant melanoma, a form of skin cancer, in humans.

On Thursday night, Steele told about 60 people at a public meeting on PCB contamination that between 1970 and 1979, five of the nine white males in Monroe County who died of malignant melanoma had worked at Westinghouse.

He said he hasn't yet been able to determine if all those workers had direct exposure to PCBs.

Westinghouse used PCBs as an insulating fluid in the manufacture of electrical capacitors from 1958 to the mid-1970s, when the chemical was banned after concerns were raised about safety. PCBs have also been associated with liver, skin and reproductive disorders, and have been found to cause cancer in laboratory animals.

"All I can really say here is that whatever the biological mechanism is at work is unknown and it needs to be investigated," said Steele.

Steele said a 1975 study of work-
see PCBs, page A8

Conclusion delayed on cancer findings

PCBs, from page A1

ers exposed to PCBs at a Mobil Oil plant in Pennsylvania also reported an increased incidence of malignant melanoma. However, Steele said, some researchers raised questions about the role of PCBs in that study because workers were also exposed to significant quantities of other volatile chemicals.

Though the Bloomington Westinghouse plant used other volatile organic chemicals at the plant, Steele said the blood tests indicate that the workers had minimal exposure to them compared with their exposure to PCBs.

In a general study of death rates of all people who worked at the plant for at least six months from 1958 to 1975, 170 people have died, about 80 percent of the number that would be expected among the general population.

Three weeks ago, Steele announced that preliminary results of blood tests of 1,000 Monroe County residents in 1986 indicated an average of 500-800 parts per billion concentration of PCBs in the blood of Westinghouse workers who worked directly with PCBs. Other workers in the plant had average levels of around 80 parts per billion.

Area residents with no known direct exposure to PCBs have between 2-9 parts per billion PCB concentration in the blood. Nationally, the average concentration for the general population is 2-7 parts per billion.

Steele said he also compared the number of reports of birth defects, bone and joint pains and other problems between those workers who had been exposed to PCBs and people who worked in other areas of the plant. He found no greater incidence of reports among those who were exposed to PCBs and those workers who weren't.

However, Steele said he did find that exposure to PCBs caused changes in liver function and a rise in the cholesterol levels at concentrations between 20 and 50 parts per billion.

Though the study will determine disease patterns that might be

linked to PCB exposure, Steele said, no epidemiological study of humans can determine if PCBs actually cause disease.

"One thing people don't understand is that epidemiologists can't determine cause and effect," said Steele. "People ask me if PCBs actually cause disease. And the answer is no. All that epidemiology can show is that if you are exposed, your risk of getting a disease might be two times or three times or whatever greater."

"The only way we could determine if PCBs actually cause cancer would be to take two groups of people and expose one group to PCBs and measure cancer rates," he added. "That's not ethical. That's what they do in animal studies, but you can't do that with humans."

To the Editor: We wish to report a possible new carcinogenic hazard. Arochlor 1254, one of the polychlorinated biphenyls (PCB's), was used by a petrochemical plant in the Northeast in certain processes during a nine-year period ending in the late 1950's. A preliminary analysis of the incidence of malignant neoplasms among workers who handled this compound, based upon information provided by the medical director of the plant, has been made (this preliminary report would not have been possible without the prompt attention to this potential problem and the research co-operation given by the company).

Of a total of 31 men believed to have been heavily exposed to this agent, two malignant melanomas are known. On the basis of a person-year analysis and with use of the Third National Cancer Survey incidence rates as the standard¹ only 0.04 malignant melanomas would be expected. These data are significant at the 0.001 level, given the assumptions of our statistical model. An additional malignant melanoma is also known for one of 41 employees in another group believed to have had less exposure.

Although the data are based on small numbers and the study is still in progress, there are biologic grounds for assuming an association between PCB and malignant melanoma: chloracne dermatitis upon industrial exposure to PCB^{2,3}; and acneform eruptions of Japanese women and pigmentation of the skin of these women and their offspring due to accidental ingestion of rice oil contaminated with a PCB compound (Kanechlor 400).⁴

PCB's have had widespread industrial use in the manufacture of capacitors and transformers. PCB's have been used in industry in fluids for hydraulic and heat transfer systems, fire retardants, plasticizers, wax additives for investment castings, electrical components, adhesives and food-packaging materials. They are a known pollutant of certain water-supply systems, and their persistence in the environment is of widespread concern.^{5,6}

Further study of this possible carcinogenic association is warranted. Because early detection of malignant melanoma may markedly affect survival rates, surveillance for melanoma among those exposed should be considered. The experience with this small study demonstrates the value of incidence as well as mortality rates in historical prospective studies designed to search for occupational cancers.

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