GR

THE EPPLEY INSTITUTE
for
RESEARCH IN CANCER

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Toxicologist
Monsanto Company
800 N. Lindbergh Blvd.
St. Louis, MO 63166

Dear Dr. Johannsen:

Please recall our discussion concerning the risk of cancer acquisition among the employees with occupational exposure to PCB's. Regarding this possible effect, the information you made available to me is about the ages, work histories, race, duration of time at Krummrich Plant (KP) and the cause of death for the deceased employees over the past 25 years. I have reviewed these data myself and also have consulted with another epidemiologist and a biostatistician. My preliminary interpretation of the data is as follows: 1950-1975

1. From 1950 to mid-1975, there are 48 known deaths (there is no death report from 1950-1954) among 222 persons who worked in the KP. Proportional percentages of these deaths are:

24 cases of cardiovascular heart disease (CVHD)	50.0%
12 cases of cancer - all sites	25.0%
3 cases of accidents	6.2%
2 cases of infectious diseases	4.2%
7 cases of all other causes	14.6%

The proportional percentage of deaths for CVHD (50% and cancer (25%) are comparable to those for the nation. However, we are only looking at data for deceased employees. In order to arrive at the correct picture of the situation, we have to consider also those who are alive and the proportion of those which are lost to follow up. I hope to clarify this point in #6 below.

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2. Out of the 12 cancer deaths, 6 are due to lung cancer. Nationally, the percentage of lung cancer deaths among white males relative to all cancer deaths is between 22-33%. In our situation, this percentage (50%) is slightly higher, but not significantly, than the expected rate.

3. The average age of lung cancer victims in our situation is 62 years with a range of 57 to 70 years. This does not indicate a strikingly abnormal pattern of any significance.

4. Four of the lung cancer victims had worked for less than two years at the KP. Of these, one had worked 2 months and the other less than one month. The remaining two had worked for 2 years and 4 months, (28 months). Thus, the 6 lung cancer cases had been working for an average of 16 months, ranging from 1 to 28 months. There are 11 employees who worked at KP from 2½ years to 11 years and did not acquire lung cancer nor any other cancer (3 employees who worked for 11 years in the KP died from myocardial infarction and rheumatic heart disease and one who worked for 7½ years died from meningitis). This tentatively indicates to me, that while a more detailed analysis is necessary, it is unlikely to exhibit any form of a dose-response relationship. The proposed detailed analysis will take into account the exact duration of work at KP for all employees and their smoking history, if possible. The smoking history of the cases is particularly pertinent.

5. To the best of my knowledge, valid information on the biological effect of PCB's is incomplete at this time. The available experimental data leads one to suspect liver lesions and malignancies. In this investigation, since there is only one death caused by cirrhosis and performation of duodenal ulcer, even this one is not likely to be a result of PCB exposure.

6. To compare appropriately the mortality experience of these employees with that for the county, state and the nation, I need the following information for every person who worked in KP in the time period 1950 through mid-1975:

- birth date, place of birth, race;
- date employment began at KP and date employment terminated KP (to find the exposure time and the latent period);
- present health status (morbidity rate);
- whether lost to follow up (individuals who left the plant without leaving any trace of their situation), in case of these employees, the last year they were known to be alive;

- the smoking history (if possible);

- the name of county where KP is located (St. Louis, Jefferson or St. Charles);

Please do not hesitate to contact me for further consultations. Be kind enough to convey my warmest regards to Drs. Roush, Levinskas and Wright.

Yours sincerely,

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Professor and Head Epidemiology

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