November 6, 1970

E. Mastromatteo, M. D.
Director
Environmental Health Services Branch
Department of Health
One St. Clair Avenue West
Toronto 7, Ontario

Dear Dr. Mastromatteo:

In reply to your letter of October 26, I have attached material which I think summarizes the Monsanto position on polychlorinated biphenyls.

The basis for the comment in the New York Times was an article from the New Yorker Magazine that Congressman Ryan had read into the Congressional Record. You may recall that back in January the New Yorker broke the story on the 2,4,5-T defoliation issue and discussed to a limited degree the question of contamination of 2,4,5-T by the dioxins (2,3,6,7-tetrachlorodibenzo-p-dioxin).

I think it was in May that the New Yorker Magazine did a follow-up story and at this time brought up the persistence of polychlorinated biphenyls in the environment. The innuendo then was that the potential teratogenic effects of the dioxins in the chlorinated phenols was related to the polychlorinated biphenyls. The fact is, of course, that there is no relationship unless one assumes that there is a possibility of forming the dioxin during the chlorination of any aromatic hydrocarbons. Further, no one to our knowledge has identified the dioxin contaminant in our polychlorinated biphenyls. Some work done at the University of Utrecht in Holland has found some chloro-furans in the German and French products comparable to Monsanto's 60% chlorinated biphenyl (Aroclor 1260). The Dutch work is to be published but has not yet appeared in print and the report will show that no chlorinated furans were found in the Monsanto material.

Included with the enclosed comments is a summary of the data from chronic toxicity studies which Monsanto is sponsoring at the Industrial Bio-Test Laboratories in Chicago. In addition to these two-year studies on rats and dogs, a three-generation rat reproduction study is underway. Currently it appears that the lower chlorinated polychlorinated biphenyls will have an effect on the mating index. But, Dr. Calandra assures us that there has been no evidence of teratology.

In bird reproduction studies with white leghorns, we have found an effect similar to that reported for some of the persistent chlorinated pesticides. Again, there has been no evidence of deformed offspring. We have recently discussed our results with the scientists at the Patuxent Laboratory of the U. S. Fish and Wildlife Service, where they have not encountered similar egg production effects in several species of wild birds. They, as we, were surprised to see the difference in species sensitivity. Perhaps we should not have been surprised because depending on whether one talks about various species of fish, rats, rabbits, dogs or birds the relative toxicity of the chlorinated biphenyls is not consistent with the degree of chlorination. In some cases the higher chlorinated materials appear to have a greater effect at a particular dose level. In other species the lower chlorinated materials appear to elicit a greater response at a uniform dose level.

Neither our studies on chickens nor the experiments done at Patuxent on wild species of birds have shown any teratogenic effects. Dr. Fitzhugh of the U. S. Food and Drug Administration has told us that in chick embryo studies done by Dr. Verett, the results have not caused any great alarm.

If you have any further questions after reviewing this letter and the enclosed, please let me know.

Best personal regards.

Sincerely,

R. Emmet Kelly, M. D.
Medical Director

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Enclosures