PCB - Company Correspondence

BIONOMICS, INC.

July 14, 1971

Mr. [illegible] Papageorge
[illegible] Company
[illegible] N. Lindbergh Boulevard
[illegible], Missouri 63166

Dear Mr. Papageorge:

This is in response to our discussions with Jack Garrett of Monsanto regarding fish toxicology studies with three Aerochlor compounds. Indices of relative acute toxicity to fishes can be developed either in static ($280/assay) or dynamic ($600/assay) bioassay systems. Since preliminary data with other aerochlors indicate a cumulative toxic effect I suggest developing Incipient (time-independent) TL_m values for the three materials in question. Assuming such data would be developed in 7-10 days in a dynamic system our fee would remain $600/assay. Should a continuing mortality pattern be observed with any or all of the materials we would continue our dynamic acute toxicity bioassays for a fee of $600/each additional 10 day period until mortality ceases or the study is discontinued.

Concerning the subject of residue accumulation we would be pleased to conduct continuous exposure of fish to each of these materials. I suggest studying the rate of accumulation, maximum levels accumulated, and rate of withdrawal of tissue residues with each material at three different levels (e. g. 1/3, 1/15, 1/75) of the maximum no effect level determined from the acute toxicity investigations. I propose to utilize an eight unit experimental system having replicates of each exposure level and two control units. Assuming a 5-10 gram fish provides sufficient sample for chemical analysis, we would sample 3 specimens from each unit after 1, 3, 7, 14, 21 and 28 days of exposure, and after each ensuing 14 days of exposure until an equilibrium state is reached. Then, the remaining fish will be transferred to an uncontaminated system and three fish sampled from each unit 1, 3, 7, 14, and 28 days after transfer to investigate the rate of residue

MONS 089564

#3600.00 Two species (Bluegills & Channel Cat) 3 Compounds For Dynamic Acute Toxicities

12 200.00 Two species - 8 compounds - 3 Levels Residue Study For 4 wks

[illegible]

clearance. All fish will be frozen, and shipped within 48 hours to Monsanto for chemical analyses. Our fee for such residue studies, based on a per compound basis, would be $2100.00 to set up and run the exposure for the first four week period (this amount is payable upon initiation of a contract) and $1800/each additional 4-week period of investigation.

Several alternatives come to mind in setting up such residue studies. Rather than replicates we could expose each of three units to one of three different levels of material in water, and expose fish in three other units to three different dietary dosages. I believe this approach may be premature unless you have reason to believe that the food chain does in fact play a significant role in residue accumulation in aquatic habitats. However, our fee for such a study would be $3000/ first 4-week period, $2000/each additional 4-week period. The other alternative to replicates is to utilize one system of eight units, and three exposure levels, and two species. Very little is known about the comparitive pharmacodynamics of chemicals in fishes and two common species (e. g. bluegill and channel catfish) might provide valuable data. Our fee for such an alternative would not differ from that for the basic study proposed.

If either of these two alternatives to my basic proposal interest you please do not hesitate to call me to discuss them further. Should you decide to accept my basic proposal, using either bluegill or channel catfish, I feel we could begin the definitive investigation within 3-4 weeks from the time we receive the necessary authorization to proceed.

Thank you again for the opportunity of visiting with you in St. Louis. We at Bionomics look forward to the opportunity of serving Monsanto.

Sincerely,

BIONOMICS, INC.

Kenneth J. Macek

Kenneth J. Macek, Ph. D.
Director

CC: Jack Garrett, Monsanto
St. Louis, Missouri

KJM cm