Monsanto

FROM (NAME & LOCATION): C. R. Campbell - Pensacola — Textiles Division

DATE: August 13, 1969

SUBJECT: Stream Pollution

REFERENCES:

cc: B. T. Dean
J. E. Lipe
Elmer Wheeler
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TO: D. W. Brubaker - Pensacola

B. T. Dean and I met with Drs. T. S. Hopkins, Chairman, Department of Biology, University of West Florida and Tom Dukes, Head of the Bureau of Commercial Fisheries, U. S. Department of Interior on August 8, 1969 at the University. Dr. Dukes reported finding residues identified as Aroclor 1254 in various marine life in the area and increasing concentrations rising to 41ppB at our outfall. Specifically, PCB residues were reported as follows:

Our Outfall	41 ppB
Highway 90 Bridge	.0.5 ppB
Dead Menhaden (Mulat Bayou)	12 ppm
Escambia Bay Flounder's Liver	76 ppm

He reported finding these residues in oysters in East Bay, and, in fact, this was where PCB was originally found in this area on February 4, 1969 although a monitoring program has been in effect since January 5, 1968. Dr. Dukes further stated that he did not believe that PCB was involved in any of the recent fish-kills but that he was concerned with its possible effect on shrimp's breeding and migratory habits.

His people had conducted a 96-hour test on shrimp at the 42 ppb level of PCB in which they experienced a mortality rate of 50%. Dr. Dukes invited us to visit his lab and to observe their techniques and data and also requested that we analyze one of their samples as a cross-check.

J. A. Lubkowitz and I visited Dr. Dukes at the Bureau of Fisheries on August 12, 1969. Again Dr. Dukes expressed his belief that PCB was not a factor in the recent fish-kills. He gave us a personal tour of his facilities which were quite impressive. The analysis of PCB was conducted by Alfred Wilson and the work seemed sound. The procedures on water involved an extraction using petroleum ether-acetonitrile mixtures and concentration of same. Wilson has chromatographed the extract residue using a number of different columns and had available various Arochlor isomer mixes for comparison. His VPC results were superimposable on Archlor 1254 standards. He has some confirmation using thin layer chromatography techniques and had checked for irreversible absorption on the VPC columns by hexane injection between sample analysis. As a non-expert in the field, I would guess that the results are probably valid.

This laboratory is conducting research and analysis on pesticide residues for the Eastern half of the United States. We were shown a test on juvenile shrimp of 18-day duration, evaluating the effect of PCB at the 5 ppb level. Eighteen of twenty-five shrimp were dead in the test batch as of today while all of the twenty-five controls were living. An additional series of samples had been taken in the Escambia River. One from our outfall had been analyzed at 274 ppB. Dr. Dukes gave us a 5-pint bottle of the same sample for a crosscheck. I will forward this sample to Scott Tucker, Organic Division for analysis.

While I believe that Dr. Dukes will proceed cautiously and objectively; I believe that he will continue his close scrutiny of our estuary system and that we should proceed with all haste to determine the validity of his findings and act accordingly.

C. R. Campbell

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