Monsanto

FROM (NAME & LOCATION): H. L. Campbell

DATE: November 16, 1972

CC: G. L. Bratsch
C. F. Buckley
G. A. Hippe

SUBJECT: PCB Residues in Surface Waters

REFERENCE:

TO : E. E. Stewart

COMPANY CONFIDENTIAL

As you know, for some time now we have been evaluating various adsorption systems for the extraction and recovery of very low levels of PCB from surface waters. The Carbowax-Undecane partitioning column of Jensen, and the special decolorizing charcoal technique of Berg have been tried to date. We have just completed the application of the charcoal column filtration to one gallon of Miss. River Water (J.B.Bridge, on 10/30/72) and the absolute quantities of apparent PCB's found are reported below.

Approximately 0.5 gram of sediment was isolated during the filtration of the gallon sample, and was subsequently removed from the charcoal filter and analyzed separately for PCB's. The adsorption of organochlorine pesticides and PCB's on sediment or particulate matter from surface waters is well documented, and in this case the quantity of sediment collected appeared significant.

Analyses	Micrograms (ug) of PCB's	
Miss. River Water 10/30/72, 1 gallon	Equivalent to anal.blank (~0.12 ug)	
Sediment from Water sample (1 gallon)	0.17	$\frac{(0.17+0.12)\times10^{-6}}{3728\ gm} = \frac{x}{10^9}$
Analytical Blank	0.12	$x = \frac{(0.29\times10^{-6})(10^9)}{3728\times10^{-6}} = 0.077$ ppb

We still feel that it is unrealistic to report a positive PCB level unless the quantity found is at least twice the analytical blank level. In the above analyses we would report the apparent PCB level to be less than 0.077 ppb in the combination water-sediment sample. However the implication of the analytical data is apparent. The presence of sediment or particulate matter in water samples must be considered a relevant factor in the analysis and subsequent reporting of PCB contamination.

H. L. Campbell
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IN - 10 REV. 1/72