Monsanto

Sun Francisco file PCB's

FROM (NAME & LOCATION) W. R. Richard - Research Center

DATE : March 3, 1969

SUBJECT :

REFERENCE :

cc: H. S. Bergen HBERG
R. E. Kelly RKELL
J. Garrett JGARR
J. Springate JSPRI
T. Ford TFORD
P. S. Park PPARK

TO : E. Wheeler - EWHEE

Bob Keller dictated these notes to outline our position as seen by Keller, Dietrich, Emery and Tucker after reviewing our analytical results and the published literature to date. This is our present "legal" position on PCB in wildlife.

It can turn out that Risebrough will be proven to be correct and hence we are not ready for an open challenge in the press if it can be avoided.

This is for background information only, not for publication.

W. R. Richard

ms

Att.

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ROUGH DRAFT

R. E. Keller to W. R. Richard per phone by M. Stanley - 2/28/69

Publications in hand (1,2) show that Risebrough has not made a positive structure identification to presence of chlorinated hydrocarbons (Biphenyls) let alone Aroclor products in material he has worked with. His approach is not an absolute identification procedure. It's based on similar retention times for 10 components eluted through a gas chromatography column. This measurement is not specific for chemical compounds in unknown mixtures. Furthermore, the electron capture detector used to monitor separated component is not specific for chlorine or even halogens. Work in our labs shows at least 13 components in Aroclor 1242, 17 in Aroclor 1254 and 14 in Aroclor 1260 with different retention times than those reported by Risebrough. More information is needed about un-reported experimental chromatographic conditions used by Risebrough to resolve differences between labs.

Risebrough has based his conclusions implicating chlorinated biphenyls on work by Holmes (3), Holden (3a) Widmark (4), and Jensen (5). Holmes and Holt obtained similar gas chromatography containing 11,13 and 7 peaks respectively for commercial polychlorobiphenyl resin. Holmes and Holden also did not make a positive structure identification.

Widmark and Jensen in Europe (Sweden) obtained a similar gas chromatography for eagle extracts. Chromatographic fractions from this work were identified structurally by Mass Spec as higher chlorinated biphenyls. Risebrough, in his reported work has apparently made no positive identification of this type. His implication of chlorinated biphenyls appears to be by reference back to above work through similar chromatograms. To the best of our knowledge, no one has identified components structurally in biological systems as chlorinated biphenyls in U.S.A. Work is underway in our labs on an unequivocal structure identification of unknown organic species in national products using gas chromatography and mass spectroscopy techniques.

REFERENCES:

(1) Risebrough, R. W., Chem. Fall Out, First Rochester Conference on Toxicity, in the Press (1966)

(2) Risebrough, R. W. Nature, Draft of Paper in Press

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ROUGH DRAFT

REFERENCES - Cont'd.

(3) Holmes, D. C. & Simmons, J.H., Tatton, J., Nature 216, 227 (1967).

(3a) Holden, A.V. and Marsden, K., Nature 216, 1274 (1967)

(4) Widmark, G., J. Assoc. Off., Anal. Chem. 50, 1069 (1967)

(5) Jensen, S., New Scientist, 32, 612 (1966)

from R. E. Keller per phone
to M. Stanley
2/28/69