Monsanto

COMPANY CONFIDENTIAL

FROM (NAME & LOCATION) H. J. Horner - WGK

DATE October 24, 1972

SUBJECT Visit to EPA Lab at Cincinnati

REFERENCE

TO E. E. Stewart

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On 10/19/72 I visited the Environmental Protection Agency (EPA) Analytical Quality Control Laboratory (AQCL) at 1014 Broadway, Cincinnati, Ohio 45202. The primary purpose of my visit was to discuss Polychlorinated Biphenyl (PCB) methodology and I was also interested in establishing contacts with personnel and obtaining a general knowledge of facilities and capabilities.

My initial contact, through Scott Tucker of Applied Sciences, was Jim Lichtenberg, Group Leader of the Pesticide Analyses Group. Soon after my arrival Jim introduced me to Tom Bellar, Chemist, who has been doing most of the work on PCB methods and analysis. (At this point I wish to interject that the function of the AQCL is not surveillance but method development and special testing.) The three of us discussed PCB analysis and reviewed current methodology, both Monsanto and EPA.

The following, although not arranged in any specific order, is some of the information that resulted from our discussions:

1. This is primarily a lab concerned with water quality. Therefore, most of the work is done on surface water samples. In addition this is a Pesticidal analyses group and as a result all samples are analyzed for pesticides as well as PCB's. The pesticides sometimes cause serious interference problems as far as PCB analysis is concerned.

2. Jim Lichtenberg has submitted a PCB method for ASTM approval and I obtained a copy of this. A copy is being given to Mr. Stewart.

3. I also obtained a copy of a Meeting Manuscript presented at the ACS meeting in N.Y. on 8/29/72. It was written by R. G. Webb and A. C. McCall of the EPA Lab at Athens, Georgia and is titled "Quantitative PCB Standards for Electron Capture Chromatography".

DSW 310831

4. Jim has a complete compilation of Monsanto methodology given him by Dr. Tucker. There are differences in the EPA and Monsanto methods but their feeling is that the Monsanto method is quite satisfactory for our applications.

5. They do not concern themselves with the lower chlorinated species such as the mono- and di-.

6. Samples are taken in glass bottles with plastic lined caps. On doping water samples with PCB and analyzing over increasing time spans they found a very significant loss of PCB after only eight hours (~40%). Recovery from freshly spiked samples ranged from 93-111%. Loss on standing was less when using bottles with aluminum lined caps. They are also considering adding formaldehyde as a preservative. They cannot explain the loss of PCB with time.

7. They have not done much work on PCB's in sediment samples but recovery of doped samples is very poor.

8. They have done a lot of work using urethane foam plugs as a concentrating media. However, until a consistent quality material is available they are discontinuing that effort.

9. Based on their method the lower quantitizing limit is 50 mg/liter. This is 0.05 ppb or 50 ppt. We should be able to achieve this sensitivity with slight modification of our method.

10. The EPA method of calculation stipulates using the total area under the PCB peaks. Tom Bellar is using a sum of the peak heights. We use only the height of the dominant peak. They do not frequently encounter samples containing mixtures of aroclor while this is practically routine with us. When they do encounter a mixture they prepare standards until a combination resembling the sample is obtained.

11. EPA plans to conduct round robin testing on PCB analysis. We shall participate.

12. The Cincinnati Lab has not analyzed water or fish samples from the St. Louis area.

DSW 310832

13. Fish analyzed from other locations generally showed only one aroclor. Tom Bellar said on one or two occasions there were mixtures which he identified by preparing standards until he obtained a match. The fish procedure is similar to Monsanto's. If it is a small fish they use the whole fish. If large they use a fillet taken from behind the dorsal fin.

14. We taked about the apparent prevalence of PCB's in the environment. Jim feels that anyone accustomed to analyzing PCB's would not mistake or measure some interference instead of PCB. However, in many instances the analytical ability of those reporting PCB's is not known. I concur.

15. Their clean-up of equipment is similar to ours. They do muffle at 350°C but comparing blanks indicates our clean-up procedure is sufficient.

After our discussion on PCB's Jim took me on a tour of the lab facilities and attached is a list of technical personnel at that location. Those designated with an (*) I met and talked with. I feel the trip was very rewarding to me and I found all the personnel extremely cooperative.

If anyone wishes to discuss any points in more detail I'll be happy to do so.

H. J. Horner

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attach.

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DSW 310834