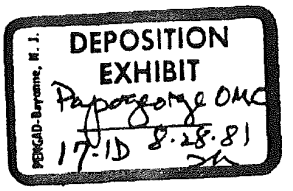
Medical Department

March 24, 1970

M. W. Ferrar, S. Second St.
R. E. Keller, S. Second St.
W. B. Papageorge, WPAPA

PCB Meeting in Duluth



H. S. Bergen, HBERG
J. E. Springgate, JSPRI

Attached is a rather lengthy narrative report which Jack Garrett put together after the meeting in Duluth last week.

I am sure both Bill Papageorge and Bob Keller will want to add their comments.

From discussing the meeting with Jack, Bill and Bob, I believe the following are the principal points of discussion or conclusions from the meeting:

1. The greatest concern shown by the participants related to the establishment or setting of a tolerance level for PCB's in food--fish principally. Representatives of the various agencies anticipated having to do this in the next six to twelve months.

2. Monsanto is not alone in having determined isomeric distribution of the PCB's in Aroclors. Scott Tucker's work has been duplicated by the Bureau of Sport Fisheries, Fish Pesticide Research Laboratory at Columbia, Missouri.

3. The above laboratory feels that 1248 is incriminated as much as 1242, 1254 and 1260.

4. Dr. Street from Utah State University (whom you have met) feels strongly that the residue being reported as 1254 is not from the commercial product 1254 but is actually what remains from 1242 or perhaps even 1221 or 1232.

5. Among the various participants there has been little confirmation of PCB identity by mass spectroscopy.

6. Within six to twelve months the literature will begin to be filled with the results of the research efforts of the many, many laboratories and agencies that are working on the PCB problem.

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Elmer P. Wheeler

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Medical Department

March 23, 1970

Duluth PCB Meeting

R. E. Keller, S. Second St.
W. B. Papageorge, WPAPA

Elmer P. Wheeler

In February Dr. Donald I. Mount, Director, National Water Quality Laboratory, Federal Water Pollution Control Administration, Duluth, Minnesota, sent me a letter and asked if I would attend an informal meeting on the PCB question in Duluth in Dr. Mount's office on the 17th of March, 1970. After several telephone calls to Dr. Mount and discussions with those within Monsanto concerned with the PCB issue, it was decided that Dr. Keller, Mr. Papageorge and myself would attend the meeting.

Two weeks after the initial invitation was received a letter was received from Dr. Mount informing me that the meeting had grown in attendance, apparently by word of mouth, such that there were no facilities at the laboratory large enough to hold it and that it would be held in the Duluth Hotel. Dr. Mount then estimated the attendance to be 27. There were actually 49 attendees at the meeting. Dr. Mount told me that the meeting grew like "topsy" and that he had turned many people down who had asked if they could attend. He said those that he had turned down were largely sanitary engineers from engineering regulatory agencies who he felt could not contribute to the conference. Dr. Mount produced an agenda for the meeting which he said he had not originally intended to have for the informal conference in his office.

I have attached a list of attendees and their affiliations. It is possible that some attendees did not sign the list. The only other industry man present was a Mr. C. E. Hamilton of Dow Chemical Company in Midland, Michigan. It is my opinion that Dr. Mount did not know Mr. Hamilton was coming until he saw his name on the list. The attached list was secured by everyone signing their name and affiliation to a list circulated early in the meeting.

Dr. Mount and other members of his staff at the Water Quality Laboratory thanked Monsanto publicly and privately for its participation in this conference as well as the one held the previous day on nitrilotriacetate (NTA). The thanks Monsanto received at times was embarrassing.

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The conference started with the discussing of principally three areas and they were analytical techniques, monitoring techniques and toxicology. After lunch the group broke into three discussion groups on the above subjects. The final brief session was a report of each of the discussion leaders. Dr. Mount explained to the group, and discussed with me privately, his opinion that a tolerance will be established for PCB's in the near future. A great deal of questioning was in connection with what the attending scientists felt was a proper residue limit. There was no very clear development of such numbers.

There were many bits and pieces of information developed that Monsanto is interested in and since there is no natural sequence of this development, I will mention them as individual subjects:

1. Drs. Schoettger and Stalling of the Fish Pesticide Research Laboratory, Columbia, Missouri, stated that catfish samples taken in the Stuttgart, Arkansas area contain high levels of Aroclor 1254. These same people stated that they found high levels of Aroclor in fish below power generating stations, both steam and hydro electric. They expressed an interest in how this came about. They were particularly insistent about power generating being near most areas where fish samples showed PCB's. I think we should determine if most power companies are using PCB's as turbine lubricants. We should also determine if there is a customer in the Stuttgart, Arkansas area.

2. R. C. Kroner of the FWPCA, Analytical Quality Control Laboratory, Cincinnati, Ohio, stated that the national water quality network sampling program had developed two sample locations where Aroclors were found. They insisted that in both cases this was 1248. The sampling locations in question were below Dayton, Ohio on the Big Miami River and below Massena, New York on the St. Lawrence River. We know that the Massena source is the

   in Massena.

   A great deal of 1248 containing Pydraul 200 has recently been sold to this plant for the die casting machines used in the above mentioned manufacturing.

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3. Dr. Matthew Zabik says that they have isolated chloronaphthalenes in their DDT residue work on coho salmon. Dr. Zabik says that they are not reading PCB contaminants in their DDT levels. He and Dr. Harold E. Johnson of the same Laboratory (Pesticide Research Center, Michigan State University, East Lansing, Michigan) stated rather flatly that when they say there is DDT in the coho salmon, it is DDT.

4. Mr. Sidney Williams of the Food and Drug Administration, Washington, D. C. stated that FDA people felt the same way. He stated that they know about the PCB interference problem but that the DDT residues they are announcing are correct.

5. Dr. G. Fred Lee, Water Chemistry Laboratory, University of Wisconsin, Madison, Wisconsin, cautioned the group about calling everything that is not DDT, PCB. It is his opinion that there are many other contaminants and the group should not be guilty of reporting everything as PCB they cannot otherwise identify. Dr. Lee feels that a great deal of additional work must be done to pin down the exact nature of each contaminant. Dr. Lee is one of the few people at the meeting who had done mass work on the samples containing chlorinated residues. He is still not convinced that all of the material he is working on is PCB.

6. Dr. Stalling of the Fish Pesticide Research Laboratory at Columbia, Missouri, has done work on the separation of isomer peaks without using mass spectroscopy. It is his opinion that this method of gas chromatography will isolate all the peaks to the extent that they can be identified as specific Aroclors. Dr. Stallings also thinks that Aroclor 1248 should be included with any group of Aroclors that are studied in depth. We suggested 1242, 1254 and 1260. Dr. Stallings insisted that 1248 be included.

7. Dr. J. C. Street of the Department of Animal Science, Utah State University, Logan, Utah pointed out on several occasions in the general meeting and in the toxicology study group that what people are saying and reading as 1254 was actually what remained from 1242. He said that in the analysis of animal tissue (mammals) he finds the Aroclor identification is markedly different after metabolism. It is his feeling that what is being seen and read as 1254 is the

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metabolic result of any Aroclor fed, even 1221, 1232 or 1242.

8. Dr. E. H. Dustman, of the Patuxent Wildlife Research Center, Bureau of Sport Fisheries and Wildlife, Laurel, Maryland said that in working with terrestrial birds (ring-necked pheasants), it appeared that the toxicological effect on bird reproduction increases as the number of chlorines increases on the PCB molecule. The general opinion of the group was that the acute toxicity to fish increases as the number of chlorines decreases. The general impression about toxicity left with the group was that acute toxicity increases from the higher chlorinated isomers to the lower chlorinated isomers and that the more chronic effects in higher organisms, such as birds, was the opposite of this. Our own work doesn't bare this out necessarily but only indicates the general confusion that exists. It is possible that individual isomers or contaminants contribute more to the resultant toxicity than does the number of chlorines on individual PCB molecules.

9. Dr. John Sprague of the Fisheries Research Board of Canada, Marine Laboratories, St. Andrews, New Brunswick, Canada could not attend but sent some data in a letter to Dr. Mount. The data Dr. Sprague sent was not unusual and was largely in connection with the species gammarus. However, Dr. Sprague did make some comments about loss to the environment of lower chlorinated isomers. He felt that the loss was sufficiently severe to justify placing exhaust hoods over his research tanks. Dr. Mount asked me what I thought of this and I told him I thought it unnecessary. Dr. Sprague indicated in his letter, however, that loss of the lower chlorinated isomers was quite severe in his testing. This information brings up the fact that we should be determining, using fresh natural water, distilled water and fresh salt water, what does happen to different Aroclors on standing in water. It might be additionally wise to expose tanks containing these water blanks and Aroclors to various sources of light and determine the effect of light on the subsequent analysis.

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10. Dr. Dukes of the Fish and Wildlife Services Bureau of Sport Fisheries and Wildlife, Sea Breeze, Florida also could not come to the meeting but sent a pre-publication copy of an article he has written covering the Aroclor 1254 incident from our Pensacola Plant. Dr. Dukes also reported his toxicity data on Aroclor 1254 and immature shrimp. As you know Jim Lipe has sent us pre-publication copies of this paper provided to him by Dr. Dukes.

Jack T. Garrett

JTG:ju

Attachment

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