OUTLINE - CMC PRESENTATION

PCB ENVIRONMENTAL PROBLEM

I. INTRODUCTION:

A. Reference made to discussion on November 17, 1969.

B. Continued interest in PCB - Governmental and University laboratories increasingly interested.

II. MAJOR DEVELOPMENTS:

A. Articles in Journals and Newspapers.

B. Meeting with Dr's. Risebrough and Olcutt at Berkeley, California.

C. Participation with regulatory agencies in meeting at Duluth, Minnesota.

D. Presence of PCB in Ohio milk and its impact on FDA action to set limits.

E. Increasing concern in U.K. and intervention of Ministry of Agriculture, Fisheries and Food.

F. Coordination with co-producers in Europe.

G. General Electric reaction to decision to discontinue manufacture of Aroclor 1254 and 1260.

III. ACTIONS:

A. Control effluent from our plants.

B. Working with customers on their disposal and effluent problems.

C. Developing substitute products for those Aroclor uses which cannot be controlled. Schedule for phase-out.

D. Toxicity studies continuing.

E. Developed analytical methodology.

F. Report on degradation studies.

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IV. SUMMARY:

We are making progress in controlling contamination from our plants and our customers' plants, we are now leaders in analytical methodology, we are learning more about PCB's and their effects on the environment, we are aggressively seeking replacement products and removing some Aroclors from uses which cannot be controlled.

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On November 17, 1969 we discussed with you the PCB problem and outlined a program for coping with it. At that time the decision was made to develop a plan to phase out the manufacture of Aroclor 1254 and 1260. Since then, as you well know, the pollution hysteria continues to grow and specifically in the area of PCB's, the number of laboratories, governmental and university involved continues to increase as we predicted.

At this meeting, I wish to bring you up-to-date on the latest developments, the progress we have made, and the need for modifying our strategy.

Since November, the press has been relatively quiet except for the recent flurry following Congressman Ryan's Press Conference. Two publications have appeared which implicate PCB. The January-February, 1970 issue of Environment carried an article by Robert Risebrough and Virginia Brodine. The presence of PCB in samples of human milk is first publicity reported in this article. An article by Dr. David Peakall of Cornell University appeared in the April issue of Scientific American. In this article, the effect of DDT and PCB on egg shell formation and reproduction is described, and emphasizes that problem has been apparent since the introduction of DDT to the environment. Three newspaper articles were noted, one in the Miami Herald, another in the Tampa Tribune, and the third in the Ann Arbor News, again describing the effects of DDT and PCB on the environment.

In March, we held discussions with Dr's. Risebrough and Olcutt at Berkeley, California. They are personally convinced PCB's are harmful and were pleased that Monsanto was concerned and cooperative

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Also in March, we participated with about 50 technical representatives representing State, Federal and Canadian regulatory agencies in an objective discussion in Duluth, Minnesota. Analytical techniques, monitoring and toxicity of PCB were discussed. Absolute identification of PCB and its effect on the environment were identified as requiring considerable research. Concern was expressed by many present that some agency such as the FDA would take precipitous action before adequate information could be gathered which was believed to require at least one year. Monsanto's presence and offer to cooperate was appreciated.

About two weeks ago, we received word from a Dr. Hill, Ohio State Health Department, that his laboratory had found PCB's in milk from an area around Columbus, Ohio. They believed they traced the source of PCB to deteriorating coating applied to silos in 1967. This coating was formulated using Aroclor 1254 and Aroclor 5460. We requested samples which our laboratory could analyze and so far our analytical work has shown chlorinated compounds similar to our Aroclor 1254 in the extract samples. The milk samples were contaminated during shipping and we have requested additional samples.

During our discussions with Dr. Hill, we were told that the FDA was considering establishing a PCB limit of 0.2 ppm in food. Subsequent discussions with FDA personnel indicated that the FDA will in a few weeks advise their offices that PCB contents exceeding 0.5 ppm in milk and 5 ppm in food would subject the milk or food to confiscation.

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In the U.K. we are, of course, also experiencing considerable concern. The Ministry of Agriculture, Fisheries and Food has repeatedly requested Monsanto to divulge our customers. From the U.S. point of view we were reluctant to divulge this information because of adverse consequences worldwide. From the U.K. point of view, divulging the customers' name with assurances that it would be kept in confidence and any information to be released would be cleared with both Monsanto and the customer is considered the wiser approach. We are receiving permission from NCR to divulge their name and will approach the Ministry on a basis.

In Europe, we have assumed worldwide leadership and contacted the respresentatives of the European producers. Initially, their response was indifferent. Subsequently, Bayer, Germany, and Prodelac, France have become more concerned and are cooperating with information exchange. The Italian producer does not believe he has a problem.

During our meeting with General Electric representatives in late January, we discussed our decision to discontinue the manufacture of Aroclor 1254 and 1260. GE immediately challenged the decision on the basis that information available was not adequate to incriminate these Aroclors and that the adverse consequences of fires and explosions far exceed the potential threat to the environment. They also indicated that at the proper time they would be willing to have an officer of their company go on record as stating that the unavailability of these materials would result in serious power blackouts.

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As you can see, we are still very much on the defensive, however, considerable progress has been made. In our plants, control of emissions is progressing well. After initial audits, all plants instituted programs for control of spillage, leaks and disposal. Our Newport plant installed and placed in service an interceptor pit to hold major spills. Anniston has approval and is proceeding with a similar installation. This should be in service by the end of the third quarter. Reduction in PCB contents of our plant streams below the solubility level (50-200 ppb) will be achieved only after research work now underway is completed and plant units are designed and installed. Completion of this work is expected to occur in late 1971.

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PCB CONTENT

PLANT EFFLUENT

Anniston

June, 1969	50 pounds per day	(5,000 ppb)
Present	5 pounds per day	(500 ppb)
October, 1970	2 pounds per day	(200 ppb)
January, 1971	.5 pounds per day	(50 ppb)
September, 1971	.1 pounds per day	(10 ppb)

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April, 1969	700 pounds per day	(3,500 ppb)
March, 1970	200 pounds per day	(1,000 ppb)
Present	65 pounds per day	(325 ppb)
September, 1970	55 pounds per day	(275 ppb)
October, 1970	10 pounds per day	(50 ppb)
September, 1971	2 pounds per day	(10 ppb)

Newport

Present	30 pounds per day	(3,000 ppb)

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We have worked closely with our customers and have offered our technical assistance on their disposal and effluent problems. Arrangements have been made for the return and recovery of some of these fluids. Successful control is possible for those uses which utilize Aroclors in closed, sealed systems. In those instances where control is virtually impossible; e.g. coatings, adhesives, pesticide uses, cutting oils, we must discontinue sales or offer, preferably, an acceptable substitute product. These substitutes must be thoroughly evaluated to determine long term effect on the environment to avoid problems in the future.

In developing product substitutes, we are very hopeful that the NCR applications in the U.S. and U.K. can be met with biodegradable hydrogenated terphenyls or alkylated biphenyls. Testing is active in NCR laboratories and plants. If successful, complete conversion from Aroclor 1242 should be possible within a year to eighteen months. The use of Aroclors to extend pesticide persistence is not one we are recommending of present, but we still have some extremely minor sales through distributors which we are discontinuing. We have recommended to the U. S. Department of Agriculture to reject Aroclors as an approved inert material when pesticide reregistrations occur this year.

We have developed or are making rapid progress in developing acceptable substitutes for sealants, coatings and industrial fluid use. By year end we should have replaced Aroclors in sealants and coatings or have discontinued sales. Also, by year end about 50% of our Pydrauls will have been reformulated with the remainder targeted for early 1971.

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SCHEDULE FOR DISCONTINUING

AROCLOR APPLICATIONS

Application	Sales M Dollars/Year	Target Date
Pesticide Extender	$ 10	Completed
Cutting Oils	50	June, 1970
Coatings	1,000	December, 1970
Sealants	1,000	December, 1970
Hydraulic Fluids		
Pydraul AC	290	September, 1970
Pydraul AC-WG	3	September, 1970
Pydraul 625	250	September, 1970
Pydraul F-9	600	December, 1970
Pydraul A-200	740	December, 1970
Pydraul 540	35	December, 1970
Pydraul 280	130	December, 1970
NCR Paper	2,000	July, 1971
	$6,108	

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Toxicity studies are now in the tenth month. Data to date indicate that Aroclors are mildly toxic to mammals, however, it is highly unlikely that this will be a significant factor in any decision regarding the banning or restricting of the use of Aroclors.

A major development has been achieved by our research department in refining our analytical procedures to the level that we now possess capabilities far exceeding many laboratories and unsurpassed by any. We are actively communicating our methodology to other laboratories to improve the type of information being generated. Our objective is to be considered experts with reliable results.

Biodegradation studies have, thus far, confirmed our initial beliefs that the lower chlorinated biphenyls would degrade easily. We were disappointed in the resistance to degradation of some of the isomers in Aroclor 1242. This would tend to confirm the belief that some of the 5 and 6 chlorinated biphenyls being found in the environment could be residue from degraded Aroclor 1242. We are actively pursuing the possible use of distilled Aroclor 1242 with degradable components as a possible substitute with minimum loss of other favorable characteristics; e.g. fire resistance.

In summary, I recommend that we proceed with the plan as presented and I particularly refer to the change in our strategy regarding the discontinuing the manufacture of Aroclors 1254 and 1260.

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