SPECIALTY CHEMICALS DIVISION

PCB STATUS REPORT AND ACTION PLAN

1. THE PROBLEM

The possible, but as yet unproven, carcinogenic effects of PCB's coupled with their known toxicity and bio-accumulation, is perceived as so great a problem by segments of the government, environmentalists and the public that Monsanto, as the sole U.S. producer, must choose an alternative to its current posture of continued production with limited distribution.

2. BACKGROUND

a. Monsanto is the only known U.S. producer of polychlorinated byphenyls (PCB's) which we have supplied to the domestic marketplace for some 45 years.

b. We are one of several European producers.

c. Our worldwide sales peaked at over 90M pounds in 1970 and today are roughly half that volume after our voluntary withdrawal in 1972-73 from all but sealed electrical equipment applications in transformers and capacitors.

d. Additionally, we introduced lower chlorinated homologs which are more rapidly bidegradable plus an incineration service for liquid PCB wastes.

e. Since the late 1960's, PCB's have been the subject of mounting scientific and governmental attention and concern due to their continued presence in the environment and reports of toxicity effects in test animals including interruptions in their reproductive system.

f. Monsanto initiated feeding studies with Industrial Bio-Test which have concluded PCB's to be non-carcinogenic.

g. A feeding study recently concluded by a government researcher claimed apparent liver cancer resulting from PCB's -- an opinion which is not agreed to by at least one other expert in the field observing the same results.

h. The EPA, several large mid-western states, plus New York State, are most concerned about the relatively high PCB level observed in fish. Some informed observers also feel the EPA is attempting to use the PCB issue as an example to illustrate their stated need for a strong toxic substances control act.

3. POTENTIAL IMPACT ON MONSANTO

a. Monsanto's reputation as a responsible member of corporate society could be adversely impacted by the PCB issue. A public relations action group has been formed to better determine this potential impact.

b. Financially, the immediate impact on the corporation, should we precipitously terminate PCB sales, would be approximately $18M in yearly sales and $6M in yearly gross profit, worldwide. Phase-out and write-off costs are estimated to be $2.6M. Additionally, the potential loss to other Monsanto biphenyl-related products could be another $15M in sales and $5-6M in gross profit.

c. Customer relations will likely be severely strained if we cease PCB production before they have proper acceptable alternatives made available to them.

4. POTENTIAL IMPACT ON OUR CUSTOMERS

a. Our capacitor customers have non-PCB options available to them including phthalate esters, mineral base oils and Monsanto's developmental product MCS 1238. A switch from PCB's will force them to forego fire resistance, plus they would have to accept possible major plant investments for process modifications.

b. Our transformer customers could relax fire resistance considerations and substitute mineral oil or high flash point silicones instead of PCB's, although such action would require extensive redesign effort. Some transformer installations are already designed as dry type or gas filled units. Monsanto is in the preliminary developmental state for non-PCB transformer fluids.

c. Known alternate products sacrifice fire resistance and thus would likely require changes in not only our customers' processes but force negotiations with insurance underwriters, possible changes in building codes, an interim disruption in power distribution and delayed new construction.

d. One possible customer reaction to Monsanto unilaterially terminating PCB production in the absence of government regulation could be the large scale importation of European PCB, although this would not be considered to be a probable long-term alternate.

5. ALTERNATIVES OPEN TO MONSANTO

a. Monsanto's meaningful options in the absence of an immediate governmental ban can generally be viewed as three:

(1) Cease production of PCB products as quickly as possible, probably within six months.

(2) Continue PCB production and sales until either legislation prohibits sales or our customers abandon the product. Carry on the above program while working on replacement products of a non-PCB nature.

(3) Plan a program of introducing non-PCB dielectric products which satisfy as many of our customers' performance needs as possible while continuing to supply current PCB products. Concurrent with this action establish a target, probably no more than 24 months away, to be completely out of the PCB business.

b. Alternate #1, a precipitous shutdown, would have serious consequences not only to our credibility with Monsanto's customers as well as with regulatory agencies, but would likely result in some serious disruptions in our nation's power distribution system, which would have complex retrofitting and maintenance problems.

c. Alternative #2, continued indefinite PCB sales, is probably unrealistic in light of the growing political environment surrounding PCB's and Monsanto's concern with continued production of a product which is harmful to the environment.

d. Alternate #3, a planned PCB replacement program to be accomplished over the next few years, is the most reasonable, responsible, economical course of action.

6. SPECIALTY CHEMICALS DIVISION PLANS

We are proceeding to resolve the problem and recommend a PCB program to the corporation by taking the following actions:

a. Established a corporate action group chaired by Pierre R. Wilkins, Director, Eastern Public Relations, to assess the current affect of the PCB issue on Monsanto's public image and the impact of a voluntary PCB withdrawal. Completion by 12/15/75 is targeted.

b. Established a PCB task group chaired by John J. Zeman, Manager, Commercial Development, to further refine and have ready for implementation, the emergency plan to handle a precipitous termination of PCB sales caused by legislation. Plan completion by 12/15/75 is targeted.

c. Arranging appropriate level contacts with our principal customers so we can understand their thinking and planning with regard to future use and replacement of PCB products.

d. Assigned to the same PCB task group mentioned in b. above the responsibility to develop and implement a complete business plan for the earliest feasible replacement of PCB's with non-PCB alternates made by Monsanto which satisfy as many of our customers' needs as possible and protects most of our existing market position and profitability. Plan completion by 2/1/76 is targeted.

e. Undertaken to explain Monsanto's position to elements of the federal government by having appropriate Monsanto personnel visit with the staffs of the various interested federal agencies (NIOSH, FDA, EPA, etc.) in the company of the president of Bio-Test to review with those agencies the accumulated data showing the non-carcinogenic conclusions reached by the Bio-Test feeding studies. Additionally, our overall PCB sales program has been reviewed to help convince these agencies of Monsanto's responsible course of action.

f. Undertaken to explain Monsanto's position to the public by having appropriate Monsanto people participate in the November 19-21, EPA Chicago PCB symposium to review replacement product problems, explain our restricted sales program, and review the Bio-Test data.

7. STATUS OF MONSANTO'S ALTERNATE PRODUCTS

Two replacement product programs are underway.

a. Our major program is to successfully develop economical, non-PCB replacement fluids possessing good dielectric properties which are environmentally acceptable. Currently, our target is to have non-PCB products which can be commercialized within 2-3 years, although the realism of this target date will have to be verified. Multi-drum quantities of two non-PCB replacement fluids for capacitors (MCS-1238 and MCS-1588) are currently undergoing field testing by eight customers with a go/no-go decision expected by mid-1976. Preliminary acute toxicity tests were satisfactory and two-year animal feeding studies have just been initiated. Replacement products for transformer use are still in development (MCS-1838 and 1839) with initial small samples now available for preliminary customer evaluation.

b. Reduced chlorine containing PCB's which are more readily biodegradable have been developed and are currently being sold into the capacitor market (Arochlor 1016). This is not regarded as a long term solution to the PCB issue, despite the fact that these products can be supplied commercially with minor modifications to our existing plant.

8. CONCLUSION

By mid-February, 1976 Specialty Chemicals Division should be ready to recommend to the corporation a plan for the orderly withdrawal of our PCB products from the market and their replacement with more environmentally acceptable products. Until our plans are fully developed, however, there should not be an automatic assumption made that Monsanto either can or will chose to directly replace part or all of its current PCB product line.