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UNITED ST[illegible] ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

April 24, 1972

MEMORANDUM

TO: All Regional Administrators

FROM: Assistant Administrator for Enforcement and General Counsel

SUBJECT: Policy on PCB's

Until further notice, the following policy should be followed by the Permit Program with respect to processing of permits for sources of Polychlorinated Biphenyl discharges. It is understood, of course, that by reason of the District Court injunction in Kalur v. Resor, no permit may be actually issued at the presentation.

It is the policy of the Environmental Protection Agency that all discharges to the aquatic environment involving Polychlorinated Biphenyls (PCB's) be restricted to the lowest possible level. The goal of the policy is to achieve levels in the environment sufficiently low that fish and other aquatic organisms will not be damaged, that accumulations in edible fish will not exceed the FDA guidelines of 5 parts per million in the edible portion. To implement this policy, we will restrict knowing discharges to the lowest achievable level by placing all present dischargers on an implementation schedule which will seek to bring about no discharge from known sources of contamination as rapidly as possible. It must be recognized that there are reservoirs of PCB's in sewer systems and in waterways as a consequence of previous use. We should anticipate a decline over the next several months of PCB discharges from these sources as the sources are gradually cleaned out.

At the present time, the Monsanto Company is the sole U.S. manufacturer and the manufacturers of capacitors and transformers are the only users. Monsanto sells to no one else. We believe that there are less than 50 individual plants involved in these uses. In addition to these sources, there are known residues in paper that is recycled, therefore, some residue in waste from pulpmills can be anticipated. These, too, should decline over the next several months. PCB's were used in heat transfer systems,

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as hydraulic fluids, in cutting oils, etc., in the past, but Monsanto has stopped sales for these purposes and has reclaimed as much as possible from these users. It is anticipated that by the end of 1972, amounts reaching the environment from former users should be greatly reduced or near zero.

The desired limit in water is 0.01 parts per billion. Our best indicator of PCB contamination in various waters, however, will be residues in fish or in other aquatic organisms.

Excerpts from two briefing memoranda prepared by the Office of Research are attached. The interagency task force report will be provided to you as soon as it becomes available (it is now at the printers).

John R. Quarles, Jr.

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February 4, 1972

Briefing Memorandum -- PCB's (Prepared by the Office of Research)

For the last several months there has been an interagency task force on PCB's. It is now drawing together a document for publication. While there are many gaps in information about sources, occurrence, and effects of PCB's there is enough known that we probably should consider some actions in EPA at this time. The salient facts follow:

Amounts Manufactured

Monsanto is the sole manufacturer of PCB's in the United States. In 1970 its domestic sales were about 36,000 tons in a number of different grades. That was approximately twice the amount manufactured in 1960. 1971 expected sales were down to about half the 1970 figure. While formerly used as a dielectric fluid in transformers and capacitors, as a hydraulic fluid and lubricant where fire retardant characteristics are important, as a plasticizer, as an additive to paints, pesticides and numerous other products, and in encapsulating for carbonless carbon paper most uses have now been eliminated by Monsanto. Continued use is expected only in some transformers and capacitors.

Sources to the Environment

Air. There are no reliable data on PCB concentrations in air. Four measurements have been made that suggest presence in three different cities. There is also a reference to the presence of PCB's below quantifiable levels in precipitation in Great Britain. In this country, the Geological Survey of Interior has looked for PCB's in precipitation samples in Florida but they are not certain of their results. Certainly PCB's are not present in levels as high as 0.1 of a part per billion (ppb). Through the Pesticide Air Monitoring Program some samples will be combined and analyzed for PCB's and we will have some quantitative information within a month or so. The point for now is that PCB's in air are below levels that would cause us to need to regulate. We do need to learn about PCB's in air as a transport mechanism.

Sources in air probably include open burning at dumps and possibly unburned particulates from incinerators. Vaporization is known to occur from plastics. Complete incineration is not likely to result in PCB residues in air.

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Water. PCB's enter the aquatic environment from both industrial and municipal sewer outfalls. The usual treatment of municipal sewage (including combined industrial-municipal) results in PCB's being present in both sludge and liquid effluent. The total amount of municipal effluent ranges from less than 1 ppb to a few tens of ppb. Some industrial outfalls contain hundreds of ppb. The estimate of the total input to the aquatic environment by Dr. Sarofim of Harvard is 4,000 tons per year. I think that number may be high, particularly with the decreased use of PCB's. Furthermore, Dr. Sarofim's estimate includes accidental discharges.

Dumps. Dr. Sarofim estimates the largest amount of PCB's ends up in dumps -- 20,000 tons in 1970. So long as the dumps are not burned, there probably is relatively little transfer to other parts of the environment.

Effects of PCB's

PCB's have been shown experimentally to kill shrimp and some fish at concentrations as low as 1 ppb in water. The Food and Drug Administration has established a guideline of 5 ppm in fish. Japanese experience with the Yushu incident suggests that a total intake of 1/2 gram was enough to cause overt symptoms in man.

Concentration Factors. Fish, shrimp, and crabs are known to concentrate PCB's from levels in water by factors of up to 75,000 with exposure levels as low as 0.1 ppb for fish and .06 for shrimp.

Recommendations

EPA should establish guidelines for PCB's in water of 0.01 ppb which will be sufficiently low that concentrations in fish should not exceed 5 ppm. 0.01 ppb is 1/500,000 of 5 ppm, and thus this concentration should not result in PCB levels in fish as high as the 5 ppm guideline of FDA. The 0.01 ppb level is sufficiently low that fish and other aquatic organisms should not be damaged.

In operational terms, we should limit PCB discharges under the 1899 permit procedures. The allowable discharge should not be more than an amount that will result in .01 ppb in the receiving water at mean annual flow, assuming uniform mixing. After Monsanto's sales restrictions become fully effective, there will be relatively few plants that discharge PCB's in substantial quantity. These will principally be electrical manufacturing concerns that manufacture capacitors and transformers. Electrical utilities may also be sources if they refill their own transformers. (PCB's are manufactured in other countries. So far as we know, they are not imported, except as components of plastics, electrical equipment, etc. With Monsanto's restrictions on sales in the U.S., there may be a desire to import the materials for uses that Monsanto does not provide for.)

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Monsanto, as the sole U.S. manufacturer, will be another company requiring effluent permits. At least for a while, some paper companies may have relatively high PCB residues from recycled paper, but these concentrations should diminish since PCB's are no longer used in carbonless carbon paper, the principal source in recycled paper.

EPA should encourage reduction in use of PCB's wherever there are acceptable substitutes. When there are no acceptable substitutes, and when it is used in closed systems, we should encourage adequate industrial sanitation to minimize leakage to the environment.

We should sample sewage sludges from time to time now that PCB use is decreasing and should consider prohibiting dumping of such sludges at sea if the PCB levels do not drop. We should also prohibit dumping of PCB-containing industrial wastes in the oceans.

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March 27, 1972

Recommendations on PCB Policy
(Prepared by The Office of Research)

Background

Polychlorinated Biphenyls (PCB's) are chemical compounds that have been widely used--as flame-proof dielectric fluids in transformers and capacitors; as plasticizers in plastics, sealants, caulking compounds, etc.; as pesticide extenders; as lubricants, heat transfer and hydraulic fluids; and even as ingredients in heat shields on air to air missiles. About 1,000,000,000 pounds have been produced in the United States since 1930 by Monsanto. There are no other producers of PCB's in the United States, but PCB's are produced in a number of foreign countries including Great Britain, France, Germany, and Japan.

Adequate replacements for PCB's exist for all uses except for use in fire-proof capacitors and transformer fluids. Monsanto has voluntarily withdrawn PCB's from the market except for the capacitors and transformer uses. These uses are in closed systems, and good industrial practice can prevent PCB's from these uses reaching the environment. Worn out capacitors are disposed of as solid waste, and presumably present only minimal threat to the environment because they are sealed and little if any is believe to leave land fills. There may be a possibility for using other disposal methods with large capacitors.

There is no existing legal authority for control of manufacture, import, or use of PCB's. Passage of the Toxic Substances Control Act would, of course, make such regulation possible. It is possible that Monsanto's voluntary restrictions will result in import of PCB's, or of other companies manufacturing PCB's in this country (patent protection has expired long since).

The intent of the proposed EPA policy is to use the authorities that we do have to regulate the controllable sources of PCB's to the water environment. It is important to note that we do not believe it is necessary to regulate PCB's in air--in fact, we don't have adequate methods for measuring them in air, even if we did want to regulate.

We have already taken some actions to control PCB's; i.e., required pesticide registrants to reformulate their products to eliminate PCB's, either as inert or active ingredients; and included PCB's in our list of hazardous materials in the proposed regulation under section 12a of PL 660 now awaiting OMB "coordination."

Other Federal Agencies are taking or have taken actions to control PCB's. FDA has established interim guidelines of 5 ppm in foods, and these guidelines are monitored by FDA and USDA in the case of poultry products and meats.

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FDA has proposed regulations prohibiting PCB-containing recycled pulp in food packaging materials, and a temporary (one-year) tolerance of PCB's in all packaging materials. FDA has prohibited the use of PCB's in food processing plants.

Specific Questions

1. How will the proposed EPA policy be announced?

The Interagency Task Force report will be released with a news release that includes statements about Federal actions taken and proposed. At present, it includes statements consistent with the proposed EPA policy.

In addition, when the EPA order is issued, an EPA news release should be issued specifying in detail and explaining the EPA actions.

2. How will it be enforced?

Permits for the electrical industry (and PCB manufacturers) will specifically prohibit discharge of PCB's (technically possible to achieve this level of control). The electrical industry is not the sole legitimate user of PCB's.

Monitoring data from fish, shellfish, and water will be examined to reveal locations with high PCB content. These areas can then be subjected to follow up studies to determine sources, and enforcement actions under the Refuse Act initiated where warranted. As noted in the background paper, PCB's will continue to reach the environment (in decreasing amounts) from secondary sources such as recycled pulp, and from undetected or unknown leaks from equipment in which PCB's are used as heat transfer and hydraulic fluid until the change over to replacements is completed. By the end of 1972, there should be drastic reductions in PCB's in use in systems where they would be expected to reach the environment (unless new supplies become available through import or new manufacturers).

Areas with known high levels of PCB discharge can be monitored closely to assure rapid decrease in PCB discharge levels--Dayton, Ohio and Los Angeles are examples of such areas.

3. What are the other options?

The options considered were:

--No action by EPA, assuming that the Monsanto restriction would be sufficient to achieve acceptable environmental levels of PCB.

--Including PCB's as a hazardous air pollutant and a hazardous material under PL 660.

--Enforcement actions under the Refuse Act on the basis

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that no permits now mention PCB's and hence no knowing discharges of PCB's will be permitted.

--Requiring the States to include PCB in the water quality standards as they are revised, and using the usual conference procedures, etc. for enforcement. The revised "Green Book" is expected to include recommendations on allowable levels of PCB's consistent with the proposed policy.

--Using the construction grant program to require municipalities to enact regulations that prohibit discharge of PCB's (and other hazardous materials) to the sewer system of which the grant project is a part.

--Prohibition of discharge of PCB's by users of PCB's.

The policy proposed was based on the following facts:

1. PCB use has been severely restricted by Monsanto (the role U.S. manufacturer), and PCB's reaching the environment will rapidly decrease

2. The electrical industry will be the sole legitimate user of PCB's. It is technologically possible to use PCB's here without contaminating the environment.

3. PCB's are on the list of hazardous materials proposed under the water pollution law.

4. Occurrence of PCB's in air is at very low levels, and is not believed to pose environmental problems. Furthermore, PCB uses that contributed PCB's to the air have been largely eliminated (pesticide use, use in plastics, etc.). Some may reach the air from inadequate incinerati of PCB-containing materials.

5. PCB's are present in some plastics, paints, sealers, carbon-less carbon paper and other manufactured products. As stocks of these materials are used up and disposed of or recycled, some PCB's will reach the environment. The amounts should decrease rapidly, since PCB's are no longer sold for such uses. PCB's have been used in heat transfer systems and as hydraulic fluids, lubricants, and cutting oils. Monsanto has not only withdrawn PCB's for these uses, but has actively worked with users to have the substances replaced immediately. Monsanto accepts the used materials for disposal by high temperature incineration.

The recommended policy was intended to provide immediate action that would "back up" Monsanto's voluntary restrictions, and at the same time would recognize the inevitable nature of some PCB residues. It would

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distinguish between legitimate uses and secondary sources of contamination. It would indicate a goal for allowable levels in water. It will not preclude additional actions later if these appear necessary (for example, dealing with PCB discharges to muncipal systems if PCB levels do not decline as fast as we expect).

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