ATTACHMENT B

MINNESOTA POLLUTION CONTROL AGENCY
Division of Water Quality
May 20, 1975

Status Memorandum on Polychlorinated Biphenyl Problem
in the Mississippi River

Introduction

Polychlorinated biphenyls (PCB's) have been used in the United States and elsewhere over the past 40 years. The principal uses for PCB fluids are in the electrical industry. Because of their dielectric properties, they are widely used in various products such as capacitors and transformers where insulation or superior cooling is needed.

Another large use of PCB's had been in carbonless duplicating paper. This use has been discontinued. There is a strong suspicion that PCB's may be contained within inks used in the printing industry.

Recently, adequate data has been accumulated which indicates that PCB's are now widely dispersed throughout the environment.

PCB's are synthetic (man-made) chemicals which do not occur naturally within the environment. Monsanto Corporation, St. Louis, Missouri is the sole manufacturer of PCB's. It is reported that Monsanto has voluntarily taken actions to reduce the production of PCB and to limit its distribution to industries.

Toxicology

Studies have been completed that demonstrate accumulation factors of up to 75,000 in whole organisms. This concept deplicts the uptake of PCB

residues from extremely low environmental concentrations. PCB's like many of the organic insecticides, are fat soluble, and are stored in the lipids of animals. Like insecticides, they are chemically stable, and tend to be concentrated (to an extent) at exceedingly higher levels as they pass through the various members of the food chain.

Current Situation

May 7, 1975

The staff was contacted on May 7, 1975 by the U.S. Food and Drug Administration regarding their confiscation of a shipment of carp from a commercial fisherman from Wisconsin. The fish were taken from Lake Pepin and the flesh when analyzed by the Food and Drug Administration from selected samples exceeded the FDA "Action Limit" of 5 ppm PCB. An estimated 20,000 pounds of carp filets were disposed of due to these concentrations of PCB. Because of the action by the Food and Drug Administration as well as a study completed by the Wisconsin Department of Natural Resources on concentrations of PCB within fish flesh, the staff felt that considerable effort should be implemented to find the source of these compounds within the Mississippi River. The following data summary of the Wisconsin study illustrates the levels of PCB found within selected fish from the Mississippi River.

River Mile - 811 (Below Hastings, Mn.)

No.	Species	Average PCB level	Median PCB level
6	Walleye (1970)	30.1 ppm	28.1 ppm
7	Walleye (1973)	9.0 ppm	9.0 ppm
7	Carp (1970)	12.8 ppm	10.7 ppm
8	Carp (1973)	8.4 ppm	8.1 ppm

River Mile - 765 (At Pepin, Wisconsin)

No.	Species	Average PCB level	Median PCB level
13	Walleye (1970)	32.4 ppm	25.4 ppm

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River Mile - 765 (At Pepin, Wisconsin) cont.

No.	Species	Average PCB level	Median PCB level
7	Walleye (1973)	21.8 ppm	25.4 ppm
5	Carp (1970)	16.2 ppm	16.7 ppm
7	Carp (1973)	7.7 ppm	7.4 ppm

River Mile - 758 (At Wabasha, Mn.)

No.	Species	Average PCB level	Median PCB level
7	Walleye (1970)	7.7 ppm	8.6 ppm
5	Walleye (1973)	5.9 ppm	5.8 ppm
5	Carp (1970)	31.7 ppm	34.8 ppm
7	Carp (1973)	7.8 ppm	8.0 ppm

After looking at the above data, attention is warranted to the median values which more accurately reflect the concentrations that could be expected to be found within the flesh. It is apparent that a significant reduction in the levels of PCB's has occurred during the period from 1970 to 1973 except for walleyes at River Mile - 765 (Lake Pepin) and 758 (Lake Pepin). The Wisconsin study is in disagreement with work completed by the Minnesota Department of Natural Resources from the same reach of the Mississippi River. With this in mind the staff felt that additional studies should be completed to delineate whether the concentrations within the fish have in fact gone up or have decreased or remained the same.

May 16, 1975

Because of the problem indicated previously regarding the Wisconsin and Minnesota Department of Natural Resources studies on the concentrations of PCB's within the fish of the Mississippi River the staff felt that additional fish should be collected from the river and analyzed for PCB levels. With this in mind, fish were collected by the Lake City Area District of the Department of Natural Resources on the 16th of

May. A total of 25 fish were collected and fileted with three separate samples being obtained from each filet. Plans have been made to split the filet samples between the following three laboratories: Minnesota Department of Health, Minnesota Department of Natural Resources, and U.S. EPA Central Regional Laboratory, Chicago. will Conc. vary in fish body. So SPLIT will not have to acct.

Also on the 16th the staff received the latest update of water quality data for PCB's in the Mississippi River from the routine monitoring program. Following is the data from those stations that we currently have on file.

Date	Station	Concentration
3-18-75	UM-840 (Below Wabasha St. Bridge)	25.5 ppb
3-18-75	UM-826 (Above Grey Cloud Island)	35.4 ppb
3-18-75	UM-815 (Lock & Dam #2, Hastings)	20.1 ppb
3-5-75	UM-738 (Lock & Dam #5)	8.1 ppb
3-5-75	UM-698 (Bridge on U.S. 14, LaCrosse)	11.4 ppb
4-2-75	UM-738 (Lock & Dam #5)	6.8 ppb
4-2-75	UM-698 (Bridge, etc.)	12.2 ppb

It should be pointed out that these concentrations are the highest values that the staff has observed in any surface water of the state to this date. Because these values are exceedingly high for surface waters the staff recognized the seriousness of the situation and felt that a more extensive sampling of the river should take place with possible split samples being sent to the U.S. EPA Central Regional Laboratory to ascertain the confirmation as to the presence of these levels of PCB's.

May 19, 1975

Due to the serious nature of this problem, the staff felt that all interested parties should be brought together to discuss all aspects of this particular problem. With this in mind the staff has scheduled a meeting for Friday, May 23 at the Agency at 10:00 a.m. The meeting will involve state agencies from both Minnesota and Wisconsin and federal agencies

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River Mile - 765 (At Pepin, Wisconsin) cont.

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that also have an interest in this matter.

It is hoped that the following items can be accomplished at this meeting.

1) Present all existing background data on PCB's in the Mississippi River.

2) Discuss proposed additional sampling of the Mississippi River and major tributaries.

3) Discuss possible effluent sources of PCB's to the Mississippi River.

Following this meeting and additional work on this problem to identify the source of the PCB's the staff will present to the Agency Board a complete review of this situation at the June Agency Board meeting.

Joel C. Schilling, Head
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Section of Surface & Groundwaters
Division of Water Quality

Attachments

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