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PCBs: Widespread use, long life pose dangers

By TOM HORTON

The toxic chemical compounds known as PCBs that recently leaked onto an East Baltimore school yard and turned up in an abandoned tank on the Nanticoke River are more familiar to Marylanders than most would like to think.

Traces of PCBs are common in the fish they eat and also in eggs, poultry, milk, butter and cheese. PCBs have been detected in the ice of Antarctica and in air samples taken halfway across the Atlantic Ocean.

They are in the breast milk of nursing mothers and in the fatty tissues of practically all of our bodies. PCBs do not break down into harmless by-products, either in the environment or in animal tissues. The body can absorb PCBs through the lungs, the gastrointestinal tract and the skin. It eliminates them only over periods of years.

In animal tests, PCBs cause liver cancer and are associated with birth defects. Scientists simply do not know what health effects may come from the low levels of PCBs—usually measured in parts per million—to which humans are exposed from so many facets of their environment.

But it is certain that the current exposure will persist for centuries, and possibly increase; and that alarms such as the two experienced recently in Baltimore and Sharptown will be repeated.

The reason is that at least 95 percent of the more than one billion pounds of PCBs ever made are still either in use or in the environment.

PCBs, or polychlorinated biphenyls, were first manufactured in 1929. Their extreme resistance to heat and to breaking down under any circumstances suited them ideally for use as insulating fluids in electrical transformers and other heavy industrial electrical equipment.

Close to 90,000 of the distribution transformers used by the Baltimore Gas & Electric Company contain PCBs as a coolant. The amount of PCB is minuscule and the transformers are self-contained sealed units, which by and large makes them safe, according to an official of the utility.

About 750 million pounds of PCBs still are employed in such uses. Another 150 million pounds are estimated to be in the air and water and in the tissues of living creatures. About 290 million pounds are in landfills and dumps, where they may or may not leak out someday.

Only about 50 million pounds are known to have been destroyed by incineration at 1,200 to 1,600 degrees Centigrade. This is the only sure way to destroy PCBs, according to the U.S. Environmental Protection Agency.

The facilities that can perform this extreme high temperature incineration still have to be built. Industry has disputed whether such extreme heat is needed to do the job. In the meantime, PCBs can be stored legally.

The dangers of PCBs came to light in 1968 with the severe poisoning of several thousand people in Yusho, Japan, where rice oil used in their diet had become contaminated with massive amounts of PCBs. In 1973, the EPA began to regulate ways by which the chemicals were getting into the water.

The federal Food and Drug Administration has for several years set limits on the levels of PCB in food for human consumption. The limits apply only to food sold interstate.

Last summer the FDA announced that the levels which officially were safe for health last year were not going to be safe this year. On the basis of new evidence that PCBs were more toxic than previously thought, the agency lowered allowable levels as follows:

- Fish and shellfish—from 5 parts per million (ppm) to 2 ppm.
- Milk and dairy products—from 2.5 ppm to 1.5 ppm.
- Poultry products—from 3 ppm to 3 ppm.
- Eggs—from .5 ppm to .3 ppm.

The lower standards have not gone into effect for fish and shellfish because of appeals to the FDA from several fisheries trade groups that said the economic impact would be insufferable.

Already commercial fishing has been disrupted by PCB contamination in the Great Lakes and the Hudson River. The cleanup of the chemicals from the sediments of the Hudson may cost more than $25 million.

In Maryland, most samples of fish and shellfish from the bay that have been tested for PCBs have shown levels well below even the 2 ppm level. Rockfish samples have shown consistent levels in the .3 ppm to .6 ppm range and oysters have shown levels no higher than .07 ppm.

There is hot debate among environmentalists as to whether the PCB problem is likely to worsen. The Environmental Defense Fund is suing EPA in federal appeals court in Washington to make the agency ban most of the hundreds of millions of pounds of PCBs still in use in transformers and other equipment.

EPA is allowing the PCBs to be used for the life of the equipment, which can be 40 years. At that time, the agency feels, the disposal of the PCBs can be adequately controlled by regulation. Meanwhile, the chemicals are contained in what is effectively a sealed circuit within the machinery, EPA explains.

The EPA says that since Monsanto stopped making PCBs, an effective substitute has been discovered—mineral oil.

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