New York State Department
of Environmental Conservation

New York State
Department of Health

Information Sheet Autumn 2005

PCBs and the Upper Hudson River Flood Plain

Sediments within the Upper Hudson River are contaminated with polychlorinated biphenyls (PCBs) as a result of industrial discharges known to have occurred between the 1940s and the 1970s. PCBs were discharged to the river from the General Electric plants in Hudson Falls and Fort Edward and were subsequently transported downstream. Once PCBs entered the river, they were deposited and mixed with the sediments at many locations on the river bottom and at some locations along the shoreline. In 2002, the U.S. Environmental Protection Agency (EPA) signed a Record of Decision (ROD) for the cleanup of the Hudson River. The PCB-contaminated sediments on the river bottom are being delineated by the EPA and will be remediated as part of the upcoming Hudson River Dredging Project. The ROD also states that concerns related to possible exposure of residents and ecological receptors to PCBs in the flood plains will also be evaluated. This information sheet is to make you aware of the status of the ongoing flood plains evaluation and to provide you with information about where and how you may want to take steps to minimize your potential exposure to PCB-contaminated sediments while continuing to reside and participate in recreational activities along the Hudson River between Fort Edward and the Troy Dam.

Deposition of PCBs in Flood Plain Areas

The river carries fine grained sediments, some of which contain PCBs, that are picked up from the river bottom. During periods of flooding, these materials typically settle out and form sediment deposits upon the flood plain. Certain areas of the river flood plain are more likely to have accumulations of PCB-contaminated sediment, including low-lying areas right next to the river that are subject to frequent flooding, backwater areas, and the inside of large bends in the river. In many instances the sediments may appear wet and muddy throughout the year. It is within these areas, where flooding occurs and sediments accumulate, that people may be exposed to sediments contaminated with PCBs. Other areas of the river with fast moving water, where the riverbank is steep, or where the river rarely, if ever, rises above its bank are not expected to have flood plain deposits of PCBs.

Exposure to PCBs in Flood Plain Soil

Potential health risks from exposure to the PCBs in flood plain soils depend on PCB concentrations and the extent to which people contact soil PCBs. The extent of contact depends on the types of activities that contribute to exposure and the duration and frequency of these activities. Activities that may contribute to exposure include:

Recreational Uses. Young children may come into direct contact with PCB-contaminated soil while playing or digging in the dirt. During these activities they may incidentally ingest soil through hand-to-mouth activity. For example, this exposure may occur when young children put toys into their mouth or do not properly wash their hands before eating.

Adults and adolescents may walk over the soil with shoes on, which in most cases results in very little exposure.

Gardening. Gardening is not a major exposure concern for most people. This is because PCBs were generally found in low-lying areas next to the river, which are usually not good for residential gardening due to frequent flooding.

Considering that the presence and concentration of PCBs at any given location may not be known without collecting and analyzing soil samples, the following are actions you can take if you wish to further reduce your possibility of PCB exposure.

- Avoid digging in and relocating soil from the areas where frequent flooding occurs. Wash soil from skin whenever possible especially after working or playing in areas where flooding occurs. You can also minimize skin contact with soil during activities such as gardening by wearing gloves, etc.

- Avoid tracking soil and mud from potentially contaminated areas into your home by rinsing off shoes or toys that may have sediment or soil on them.

- Limit pet access to low-lying flooded areas and wash pets that have mud or soil on them.

- Thoroughly wash and/or peel vegetables grown in gardens located in low-lying areas.

Frequently Asked Questions:

What are PCBs?

PCBs, or polychlorinated biphenyls, are a group of chemicals consisting of 209 individual chemicals. PCBs were widely used as a fire preventive and insulator in the manufacture of electrical transformers and capacitors because of their exceptional ability to withstand high temperatures. At the concentrations detected in the sediments and fish, people are unlikely to be aware of PCBs by their smell or taste. Many commercial PCB mixtures are known in the U.S. by the trade name Aroclor.

What are the health effects associated with contact to PCBs?

PCBs have been extensively evaluated for their toxicity in animal studies and human epidemiological studies of workers and the general population. PCBs cause many effects in animals. Skin conditions, such as acne and rashes, have occurred in workers exposed to high levels of PCBs. PCBs are suspected of causing a variety of other effects in humans. Information on the toxicity of PCBs are available at two US EPA websites. (1) Visit http://www.epa.gov/iris/subst/index.html for information on Aroclors and Polychlorinated Biphenyls in the US EPA Integrated Risk Information System. (2) Visit http://www.epa.gov/hudson/faqs.htm at the US EPA Region 2 Hudson River PCBs website for Frequency Asked Questions about PCB Health Risks. Additional information is also found at two websites of the US Agency for Toxic Substances and Disease Registry (ATSDR). (1) Visit http://www.atsdr.cdc.gov/toxpro2.html for the Toxicological Profile for PCBs. (2) Visit http://www.atsdr.cdc.gov/toxfaq.html for the ToxFAQs for PCBs.

As with all chemical exposures, the nature and extent of any health effects from PCBs are related to the amount and duration of chemical exposure. In addition, people differ in their response to the same or similar exposures. This difference in sensitivity is due, in part, to the individual differences among people. People, for example, differ in age, sex, diet, family traits, lifestyle, genetic background, the presence of other chemicals in their body (e.g., alcohol, prescription drugs), and state of health. Differences in sensitivity should be kept in mind when reading the information on the human health effects of any chemical including PCBs.

What sampling has been done in the flood plain by EPA?

The EPA conducted an initial round of sampling in November 2004. Samples were collected from private/residential properties and public lands in areas that have been flooded in the past and that may be subject to frequent flooding by the river. A total of 688 samples (including duplicates) were gathered at depths from 0 to 12 inches in areas where potential exposures are highest. The samples were then analyzed to determine total PCB concentration. Additional sampling has been conducted based on the initial results.

What does the 2004 sampling data show with respect to the levels of PCBs found along the shoreline?

PCBs were generally detected in low-lying areas right next to the river where frequent flooding occurs. PCBs were either not detected or detected below the residential guideline of 1 part per million (ppm) in 70% of the soil samples collected by the EPA. The 1 ppm guideline was developed considering potential exposures of adults and children at their home. PCBs were detected at higher levels in the remaining samples and these areas are being dealt with on an individual property basis to determine the need for further investigation and evaluation for possible cleanup.

What are the next steps in the Flood Plains Investigation?

EPA believes that further investigation of properties where PCB sampling results are 1 ppm or less is not necessary at this time.

For properties where PCB sampling results are between 1 and 10 ppm, EPA will visit and evaluate each parcel individually and determine whether or not the existing sample results and the associated property use indicate a need for further evaluation based on potential exposures. EPA will continue to coordinate all follow-up activities with the property owner.

For a select number of properties and locations, EPA, DOH and GE evaluated each property/location individually to determine whether or not the existing sample results and the associated property use indicate a need for further evaluation. A number of properties have been identified for additional sampling to determine if additional investigations and/or response actions are necessary at these properties. GE began conducting this sampling during the fall of 2005. The EPA will continue to coordinate all follow-up activities with the property owners. Following any additional sampling, the EPA will provide the property owner with the sampling data and discuss what, if any, additional steps may be appropriate. Plans for additional sampling are currently being developed.

Every spring the river floods my yard, does this mean that there are PCBs in my yard?

PCBs may be present in areas that have been flooded in the past and that may be subject to frequent flooding by the river. Residents can reduce the potential for exposure to PCBs by following the precautions indicated above when working, gardening or playing in areas that are frequently flooded by the river.

Can I fish in the river?

Yes, you can fish in the river. Be aware that NYSDEC “Catch-and-Release” regulations require that all fish caught from the Hudson River between Bakers Falls (in Hudson Falls) and the Federal Dam at Troy must be immediately returned to the water unharmed. Equally important, the New York State Department of Health (NYSDOH) has issued extensive fish advisories for most of the Hudson River due to elevated PCB levels in fish. The NYSDOH advisories recommend that no one eat any fish at all caught between South Glens Falls and the Troy Dam. PCB exposures from eating contaminated fish are greater than those arising from contact with contaminated flood plain soil and hence pose a greater health concern. For additional fish advisory information for New York State waters (including

the entire Hudson River) call NYSDOH's toll free information line at 1-800-458-1158 or view the fish advisories online at http://www.nyhealth.gov/nysdoh/fish/fish.htm.

Can I swim in the river?

The Human Health Risk Assessment for the Hudson River evaluated the potential risks from PCB exposure through incidental ingestion of water and dermal contact with water while swimming. The assessment found the calculated risks from PCBs were below or within the risk range used by EPA to determine need for remedial action. In addition, the concentrations of PCBs in the water are below the drinking water standard.

Can PCBs be in the air too?

Although the possibility exists that PCBs can be released into the air from both soil and water, potential exposures from air are much less than those from fish or soil. The NYS Department of Environmental Conservation (NYSDEC) is conducting an air monitoring study along the upper Hudson River prior to dredging and data from this study should provide information on current PCB levels in air near the river.

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