PCBs in Schools and Corporate Responsibility for Remediation: Yorktown Central School District v. Monsanto Company

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Introduction and History

From 1940 to 1977, thousands of school buildings in the United States were constructed or renovated using materials containing man-made chemicals called poly chlorinated biphenols, commonly known as “PCBs.”2 In 1977, Congress banned most uses of PCBs in construction, recognizing the adverse health effects of these man-made compounds.3

Despite this ban, and the now widely held belief that PCBs are known animal carcinogens, probable human carcinogens4 and have other toxic effects on the human body.

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1 www.epa.gov/epaoswer/hazwaste/pcbs/pubs/about.htm (visited 6/10/08).

2 PCB’s are chemical mixtures made up of a variety of individual chlorinated biphenyl components called congeners. “The most common trade name is Aroclor.” www.epa.gov/epaoswer/hazwaste/pcbs/pubs/about.htm (site visited 6/10/08). PCB’s were used in: transformers and capacitors; electrical equipment including voltage regulators, switches, reclosers, bushings, and electromagnets; oil used in motors and hydraulic systems; electrical devices or appliances containing PCB capacitors; fluorescent light ballasts; cable insulation; thermal insulation material including fiberglass, felt, foam, and cork; adhesives and tapes; oil-based paint; caulking; plastics; carbonless copy paper; and floor finish. www.epa.gov/epaoswer/hazwaste/pcbs/pubs/about.htm (site visited July 9, 2009). The period when PCB’s were most commonly used also coincides with the baby boom era in which schools were constructed at an astounding rate to keep up with increased demand. “Approximately 77 million babies were born in the United States during the boom years of 1946 to 1964.” President and Fellows of Harvard College, Reinventing Aging Harvard School of Public Health–MetLife Foundation, Initiative on Retirement and Civic Engagement, Center for Health Communication, 2004.

3 15 USC 2605(e) et. seq. The EPA issued a final rule to implement the TSCA, section 6(e) on May 31, 1979. 44 FR 31514 (May 31, 1979). The manufacture, processing and distribution of PCB’s have been prohibited in almost all industrial countries since the late 1980’s. The EFSA Journal (2005) 284, 1-137, at 16. (found at http://www.efsa.eu.int).

4 In 1996, at the direction of Congress, EPA completed a reassessment of PCB carcinogenicity, titled "PCBs: Cancer Dose-Response Assessment and Application to Environmental Mixtures" (PDF). This reassessment concluded that PCB’s are probable human carcinogens based on the following information:

“There is clear evidence that PCBs cause cancer in animals. EPA reviewed all of the available literature on the carcinogenicity of PCBs in animals as an important first step in the cancer reassessment. An industry scientist commented that ‘all significant studies have been reviewed and are fairly represented in the document.’ The literature presents overwhelming evidence that PCBs cause cancer in animals. An industry-sponsored peer-reviewed rat study, characterized as the ‘gold standard study’ by one peer reviewer, demonstrated that every commercial PCB mixture tested caused cancer. The new studies reviewed in the..."
reproductive, immune, endocrine and neurological systems, these compounds are still commonly found in school buildings throughout the United States.\(^5\)

This article asserts that just as concerns about lead and asbestos were raised decades ago, regulators must now act to curtail the dangers associated with PCBs in school building materials\(^6\) and develop a broad plan to remediate contaminated school buildings. The article outlines a “Model Act” which would provide for mandatory testing for PCBs in schools built between 1940 and 1977 and mandatory renovation and remediation protocols for PCB-contaminated materials in the nation’s schools.\(^7\)

PCBs, unlike other toxins found in building materials, such as lead or asbestos, are not harmless when undisturbed.\(^8\) Rather, PCBs can move from sealants to surrounding materials, to air and to the ground, even if no physical changes are present in building materials.\(^9\) Indeed, PCB reassessment allowed EPA to develop more accurate potency estimates than previously available for PCBs. The reassessment provided EPA with sufficient information to develop a range of potency estimates for different PCB mixtures, based on the incidence of liver cancer and in consideration of the mobility of PCBs in the environment.” http://www.epa.gov/epawaste/hazard/tsd/pcbs/pubs/effects.htm (site visited July 9, 2009). Additionally, other organizations have also determined that PCB’s are human carcinogens or probable human carcinogens. “The International Agency for Research on Cancer has declared PCB’s to be probably carcinogenic to humans. The National Toxicology Program has stated that it is reasonable to conclude that PCBs are carcinogenic in humans. The National Institute for Occupational Safety and Health has determined that PCBs are a potential occupational carcinogen.” http://www.epa.gov/epawaste/hazard/tsd/pcbs/pubs/effects.htm (site visited July 9, 2009).


\(^6\)Letter from Miranda Massie, New York Lawyers for the Public Interest, Inc., Senior Staff Attorney, to Lisa Jackson, Administrator of the U.S. EPA (April 28, 2009), at 1 (stating that because the risks from PCBs are “far more severe for children,” “PCBs around windows and doors in schools has come to be recognized as a significant public health problem.”).

\(^7\)See infra notes 226 to 248 and accompanying discussion.

\(^8\)Herrick, Contamination in Schools, *supra* note 5, at 1051.
studies have shown contamination of indoor air in buildings containing PCB-contaminated caulking\textsuperscript{10} without any physical evidence that the material has decayed or been altered.\textsuperscript{11}

As will be evident from this article, the continued presence of PCBs and the lack of any regulatory framework to monitor and remediate PCBs provides still another illustration of the choice presented in \textit{Silent Spring} in 1962,\textsuperscript{12} Rachel Carson’s landmark book about the dangers of filling our world with synthetic chemicals. \textit{Silent Spring} offered humanity a choice with serious legal, economic and human implications: to take the “other” less toxic road, the road necessary to preserve the earth and humanity, or to continue on the “superhighway” that would end in contamination of the earth.\textsuperscript{13} Indeed, Carson’s \textit{Silent Spring}\textsuperscript{14} is often credited with the beginning of the modern environmental movement.\textsuperscript{15} However, in the intervening years since Carson’s book was first published, society has not for the most part taken this “other road,” but has instead continued to indiscriminately allow the proliferation of synthetic chemicals including PCBs and

\textsuperscript{9} Maria Ljung, Maria Olsson, Nikolag Tolstoy, \textit{Research and Development in Sanitation Technology for PCB-containing Sealants}, Building Physics 2002, 6\textsuperscript{th} Nordic Symposium, Session 19: Building Design and Technology 1, 823-827, 823 (citing Jansson et al, 1997).


\textsuperscript{11} \textit{See} N. Weis, M. Kohler, C. Zorn, Highly PCB Contaminated Schools due to PCB-containing Roughcast, Brmer Unwletinstitut, D-28203 Bremen, Germany, 283-288, 284 (noting that a room was tested for PCB contamination, painted and cleared out and retested, only to find indoor air concentrations had almost tripled).

\textsuperscript{12} Rachel Carson, \textit{Silent Spring}, 1962.

\textsuperscript{13} \textit{Id.} at 277.

\textsuperscript{14} Rachel Carson, \textit{Silent Spring}, 1962.

\textsuperscript{15} \textit{See} e.g., http://www.nrdc.org/health/pesticides/hearson.asp (site visited June 8, 2009); http://www.time.com/time/time100/scientist/profile/carson.html (calling \textit{Silent Spring} the “cornerstone of the new environmentalism”) (site visited June 8, 2009).
pesticides. As this article will show, our society must now diverge from this course and take the road necessary to preserve the earth and humanity and begin the painstaking process of ridding our world of these toxic and synthetic chemicals known as PCBs.

In recent ground-breaking litigation involving PCBs, the Yorktown Central School District in New York State sued the U.S. makers and distributors of PCBs in federal court, urging that the sole corporate manufacturer of these chemicals, Monsanto Company, should bear the burden of required remediation in the School District. At the time of the suit, the Yorktown Central School District had recently completed remediation of PCB laden caulk in all of its school buildings following the discovery of

16 D. Hornstein, The Road Also Taken: Lessons From Organic Agriculture for Market and Risk-Based Regulation, 56 Duke L.J. 1541 (2007) (noting that with the Organic Foods Production Act emerged a “caused based approach to environmental reform that seeks fundamental changes in production systems or human behavior to prevent such environmental harms from arising in the first place.”).

17 Yorktown Central School District v. Monsanto Company, Pharmacia Corporation, and Pecora Corporation and John Does 1-20, Civ. No. 07-Civ. 8648, U.S. District Court, Southern District of New York (filed Jan. 14, 2008 and amended February 14, 2008)[hereinafter Yorktown School District Complaint]. According to the Yorktown School District Complaint, the company now known as Monsanto Company was formerly known as Monsanto Chemical Company. (“Old Monsanto”). Yorktown School District Complaint, supra note 17, at 3. The Complaint alleges that Old Monsanto spun off the part of the business that made PCB’s into a company called Solutia, Inc. and Old Monsanto then merged with Pharmacia & Upjohn, Inc. and became Pharmacia Corporation. Pharmacia later created a wholly owned subsidiary called Monsanto Company as stated in the complaint (“New Monsanto”). Yorktown School District Complaint supra note 17, at 8; see also http://www.monsanto.com/who we are/monsanto_relationships.asp for a detailed history of the relationships between Pharmacia Corporation, Solutia, Inc., and Monsanto Company. Solutia, Inc. agreed to indemnify Monsanto for claims, expenses and liability relating to its chemical business. See http://www.monsanto.com (site visited 8/30/09)). In 2003, Solutia and its U.S. subsidiaries filed a voluntary petition for reorganization under Chapter 11 of the U.S. Bankruptcy Code. http://www.monsanto.com (site visited 8/30/09)). “In connection with Solutia’s Plan of Reorganization, Solutia, Pharmacia and Monsanto entered into several agreements under which New Monsanto continues to manage and assume financial responsibility for certain tort litigation and environmental remediation related to the Chemicals Business.” http://www.monsanto.com (site visited 8/30/09)). Throughout this article, “Old Monsanto” will refer to the original Monsanto founded in 1901 (see http://www.monsanto.com (site visited 8/30/09)) and “New Monsanto” refers to the Monsanto Company that exists today. See http://www.monsanto.com (site visited 8/30/09)). “Monsanto Company” in this article is meant to refer to both New Monsanto and Old Monsanto collectively.

18 Yorktown Central School District Complaint, supra note 17.
high levels of PCB’s in school building materials and soil surrounding a school in its District.\textsuperscript{19}

On the heels of these PCB clean-up efforts by the Yorktown Central School District and the School District’s federal lawsuit, in April 2008 in New York City, additional serious concerns about PCBs in schools also surfaced. These new concerns were raised following reports by the \textit{New York Daily News}\textsuperscript{20} that it had secretly tested caulking in nine New York City public schools and found dangerously high levels of PCBs in the caulking of eight of the nine schools tested.\textsuperscript{21} These findings were disturbing on a local level, but even more disturbing for their implications nationally. Given that the New York City public school system is the largest public school system in the nation, serving over one point one million students and operating over 1500 schools,\textsuperscript{22} these findings serve as a “tip of the iceberg” warning to school districts, parents and lawmakers nationwide.

This article suggests that PCBs in schools is a problem that should be legislatively addressed, and that there exist legal, economic and policy reasons to hold the corporate manufacturer of PCBs in the United States liable for remediation and other costs associated with PCBs in our nation’s schools. The argument is developed in four Parts. Part I discusses the

\begin{itemize}
\item\textsuperscript{21} The New York City Department of Education has conceded that in New York City alone, PCB’s are commonly found in 266 city schools constructed between 1960 and 1979. Demetria Inwin, New York Department of Education: Toxins in Schools Not Harmful, \textit{Associated Press}, April 16, 2008.
\item\textsuperscript{22} http://schools.nyc.gov/AboutUs/schools/default.htm (site visited 8/24/09).
\end{itemize}
known health risks associated with PCB exposure and discusses the extent of the PCB problem nationally. Part II of this paper analyzes and discusses the recent litigation brought by the Yorktown Central School District, alleging that the sole U.S. maker\textsuperscript{23} of PCBs and distributors and marketers of products containing PCBs, Monsanto Company, should pay all remediation and indemnification costs associated with PCBs in plaintiff’s schools.\textsuperscript{24} This section also charts the ongoing effort in the New York City School system to encourage the federal and local government to take action to properly clean up New York City’s public schools, an extremely costly and onerous effort for local administrators and lawmakers to tackle without private funding. Part III of this article gives an overview of existing laws and regulations concerning PCBs and existing proposals for new regulation. Part IV of this paper outlines a framework for model federal legislation to comprehensively address the existence of PCBs in our nation’s schools.

\textbf{Part I: The Dangers and Characteristics of PCBs}

\textbf{A. Characteristics of PCBs}

PCB’s were first synthesized in 1889 and were mass produced starting in the 1920s. PCBs are chlorinated compounds\textsuperscript{25} that “belong to a broad family of artificially-made organic chemicals known as chlorinated hydrocarbons.”\textsuperscript{26} They are mixtures of up to 209 individual

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\item \textsuperscript{23} Yorktown School District Complaint, \textit{supra} note 17, at 1; http://www.Ct.gov/dep/cwp/view.asp (site visited 8/17/09) (Connecticut Department of Environmental Protection, “PCB’s,” noting that “Monsanto” was the “sole U.S. manufacturer” of PCB’s ).
\item \textsuperscript{24} \textit{See} Yorktown School District Complaint, \textit{supra} note 17, at 1. While the Yorktown Litigation is the first of its kind involving a public school district and Monsanto Company known to this author, Monsanto Company and Solutia, Inc. have been previously embroiled in PCB litigation involving plaintiffs at Burlington Community College. \textit{Maertin v. Armstrong World Indus.}, 2000 WL 554168 (May 3, 2000); \textit{see infra} notes 72 to 87 and accompanying discussion.
\item \textsuperscript{25} http://www.atsdr.cdc.gov/tfacts17 (site visited 4/2/09).
\item \textsuperscript{26} http://www.epa.gov/epaoswer/hazwaste/pcbs/pubs/about.htm (site visited 6/10/08).
\end{enumerate}
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chlorinated compounds that are also known as congeners.\textsuperscript{27} These congeners were alleged to have been manufactured in the U. S. by the original Monsanto Company, (“Old Monsanto”) \textsuperscript{28} from about 1935 to 1971.\textsuperscript{29}

In the early part of the last century, chemists experimented, mixing chlorine with benzene, a byproduct of the new gasoline age, and realized that heating and pressurizing the chlorine and benzene under the right set of conditions could make a heavy syrupy liquid that was stable and conducted heat.\textsuperscript{30} Commercially produced and used PCB congeners were thus made and known by the trade name “Aroclor” and designated with a number, such as Aroclor 1254, for example, which indicated the extent of chlorination of the congener.\textsuperscript{31}

Once these PCBs were manufactured, they did not easily break down in the environment.\textsuperscript{32} Indeed, they were used in school construction in joints, caulk and sealants

\textsuperscript{27} http://www.epa.gov/epaoswer/hazwaste/pcbs/pubs/about.htm (site visited 6/10/08).

\textsuperscript{28} Yorktown School District Complaint, \textit{supra} note 17, at 7; The Complaint refers to the original Monsanto Company incorporated in 1901 as “Old Monsanto.” Yorktown School District Complaint, \textit{supra} note _, at 3; see \textit{supra} note 17 and accompanying discussion..


\textsuperscript{31} Stu Spiegel, \textit{PCB's in Caulk: Myth or Reality}, O’Brien & Gere, October 24, 2006, Report to SEHSA; see Yorktown School District Complaint, \textit{supra} note 17, at 6.

\textsuperscript{32} http://epa.gov/epaoswer/hazwaste/pcbs/pubs/about.htm (site visited 6/10/08); http://chm.pops.int (site visited 1/8/09) (PCBs on list of chemicals in need of elimination in Stockholm Convention on Persistent Organic Pollutants).
because of their extreme stability; and their resistance to thermal and oxidative breakdown.\textsuperscript{33} They remain in the environment even when exposed to sun and air and they move over long distances in the earth’s water, air and soil.\textsuperscript{34} Indeed, PCB’s are transported and are often found far from the areas in which they originated\textsuperscript{35} -- precisely because they do not biodegrade easily.

In the 1970’s, despite their wide-spread use, a broad range of researchers accepted the conclusion that these substances are highly toxic,\textsuperscript{36} and that because they do not biodegrade, once humans are exposed to them, through air, food, and/or water, humans carry the toxic load in their blood stream indefinitely. This process, by which organisms accumulate a substance, is called bioaccumulation.\textsuperscript{37} PCBs thus accumulate in the cells of plants and smaller animals, which are subsequently eaten by larger animals and then by humans as food.\textsuperscript{38} Exposure to PCBs from food is thus a significant source of exposure.\textsuperscript{39}

It is only recently that in addition to exposure to PCBs through food, researchers have begun to study the effect of dermal and inhalation exposure, concluding that these routes of exposure could be significant.

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\item \textsuperscript{33} \url{http://chm.pops.int/Programmes/PCBs/Overview/tabid/273/language/en-US/Default.aspx} (site visited 8/24/09).
\item \textsuperscript{34} \url{http://epa.gov/epaoswer/hazwaste/pcbs/pubs/about.htm} (site visited 6/10/08); \url{http://chm.pops.int} (Stockholm Convention on Persistent Organic Pollutants, (site visited 1/8/09)).
\item \textsuperscript{35} Stockholm Convention on Persistent Organic Pollutants, Appendix II (site visited 1/8/09).
\item \textsuperscript{36} The first proposal for a total ban on PCBs was made by Representative William Fitz Ryan, a democrat from New York in 1970. Eric Francis, Sierra Club Magazine, Conspiracy of Silence, The Story of How Three Corporate Giants – Monsanto, GE and Westinghouse – Covered Their Toxic Trail, at 8 (September/October 1994); see Soren Jensen, New Scientist, 1 Ambio 123 vol. 4 (Sept. 1972); David Perlman, \textit{San Francisco Chronicle}, “A Menacing New Pollutant, February 24, 1969.
\item \textsuperscript{37} \url{http://toxics.usgs.gov/definitions/bioaccumulation.html} (site visited 8/24/09).
\item \textsuperscript{38} \url{www.epa.gov/epaoswer/hazwaste/pcbs/pubs/about.htm} (site visited 6/10/08); see Rachel Carson, \textit{Silent Spring} at 20-22 (noting that persistent certain chemicals such as DDT bioaccumulate in the smallest amounts and then are magnified as one moves up the food chain). Later, PCBs are found to be chemically very similar to DDT. Eric Francis, Sierra Club Magazine, Conspiracy of Silence, The Story of How Three Corporate Giants – Monsanto, GE and Westinghouse – Covered their Toxic Trail, at 5 (September/October 1994).
\item \textsuperscript{39} \url{www.epa.gov/epaoswer/hazwaste/pcbs/pubs/about.htm} (site visited 6/10/08).
\end{itemize}
exposure are equally significant, especially as exposure in food is decreasing due to better management of toxic waste containing PCBs. Children and adults can thus also be exposed to PCBs by breathing them in air or by touching contaminated material such as caulking in school buildings.

B. Effects of PCB’s on Children

While the specific effects of PCB exposure on children have not been exhaustively studied, PCB’s are considered to be immunotoxic and to affect reproduction. They have also specifically been associated with neurotoxic effects and immunologic effects in children. Exposure to PCBs in utero has likewise been associated with lower birth weight and decreased head circumference at birth. Additionally, exposure to PCBs has been linked to a higher

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41 Herrick, Contamination in Schools, supra note 5, at 1051.


44 http://chm.pops.int (Stockholm Convention on Persistent Organic Pollutants, (site visited 1/8/09)).

45 Opinion of the Scientific Panel on Contaminants in the Food Chain on A Request From the Commission Related to the Presence of Non Dioxin-like Polychlorinated Biphenyls (PCB) in Feed and food, Adopted on 8 November 2005, The EFSA Journal (205) 284, 1-137, at 89 (found at http://www.efsa.eu.int)(noting that PCB’s disrupt the human endocrine system) [hereinafter EFSA Journal]

46 EFSA Journal, supra note 45, at 91; World Health Organization, WHO Regional Office for Europe, Copenhagen, Denmark, Polychlorinated biphenyls, PCB’s, Chapter 5.10 at 10 (2000).

47 EFSA Journal, supra note 45, at 89, 229.

48 EFSA Journal, supra note 45, at 229
incidence of Attention Deficit Disorder in children and damage to the immune system, liver, skin, reproductive system, gastrointestinal tract and thyroid gland. PCBs are particularly dangerous for children, who may be more susceptible to toxins than adults due to their smaller size and developing systems. The Agency for Toxic Substances and Disease Registry (ATSDR) concluded that:

Younger children may be particularly vulnerable to PCB’s because, compared to adults, they are growing more rapidly and generally have lower and distinct profiles of biotransformation enzymes, as well as much smaller fat depots for sequestering the …PCBs.

And in general, the National Research Council of the National Academy of Sciences in 1993 determined that children are generally more susceptible to the effects of toxins than adults in that there are physiologic and biochemical difference between children and adults that influence the quantity absorbed and the effect of toxins on children. The NRC concluded that children have higher metabolic rates and consume more food, air and water per pound of body weight than adults, factors that influence their susceptibility to toxins.

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49EFSA Journal, supra note 45, at 89.
50http://chm.pops.int (Stockholm Convention on Persistent Organic Pollutants (site visited 1/8/09); EFSA Journal, supra note _ at 126.
53National Research Council, National Academy of Sciences, Pesticides in the Diets of Infants and Children, at 23-43 (1993)(specifically noting that lipid soluble substances (these includes PCBs) may be more concentrated where the proportion of body fat to the rest of the body mass is lower as it is in infancy)[hereinafter Diets of Children].
54Diets of Children, supra note 53, at 38, 43; see also Valerie Watnick, Risk Assessment: Obfuscation of Policy Decisions in Pesticide Regulation an the EPA’s Dismantling of the Food Quality Protection Act’s Safeguards for Children, 31 Arizona State L. J. 13151321-22 Winter 1999)[hereinafter Watnick, Risk Assessment].
Finally, PCBs are suspected human carcinogens, known animal carcinogens, neurotoxins and are commonly considered to be chemicals that disrupt the human endocrine system (Endocrine Disrupting Chemicals or “EDCs”). EDCs are synthetic compounds that effect the functioning of the endocrine system by either blocking the effect of naturally produced hormones in the endocrine system or by altering the affect of naturally occurring hormones. EDCs have been shown to decrease fertility rates in wildlife and there is strong evidence that they have a similar effect on humans and have contributed to decreases in fertility around the world. Because PCBs mimic estrogen and are chemically similar to DDT, they

55 EFSA Journal, supra note 45, at 78; see supra notes 25 to 54 and accompanying discussion.

56 EFSA Journal, supra note 45, at 86; Herrick, Contamination in Schools, supra note __, at 1051. For a more thorough discussion of the effects of endocrine disrupting chemicals, see Our Toxics Regulatory System and Why Risk Assessment Does Not Work: Endocrine Disrupting Chemicals as a Case in Point, 4 Utah L. Rev. 1305 (2004(4)). The following section, see infra notes 54 to 64, was originally published and is adapted from the Utah Law Review above.

57 Robin Fastenau, EPA’s Investigation and Regulation of Endocrine Disrupters, 14 J. of Envtl. L. and Litig. 53, 54 (1999). This section (footnotes 54 -64) was originally published and is adapted from Watnick, Risk Assessment, supra note 54.


59 The endocrine system regulates the body’s biological processes from conception to old age, including brain development, the nervous system, and the growth and functioning of the reproductive system. U.S. Environmental Protection Agency, Endocrine Disrupters, www.epa.gov/scipoly/oscpedo/edspoverview/whatare.htm (site visited Dec. 16, 2003).

60 Commonly known EDC’s might include pesticides, polychlorinated biphenyls (“PCB’s”), and dioxins (a byproduct of paper production). Robin Fastenau, EPA’s Investigation and Regulation of Endocrine Disrupters, 14 J. of Envtl. L. and Litig. 53, 54 (1999).

The endocrine system consists of glands, organs and tissues that release hormones into the human circulatory system. The hormones carry messages that direct development and function in the animal’s cells and organs. Hormones therefore control sexual development, both prenatally and postnatally. Mary O’ Brien, Our Current Toxic Use Framework, Our Stolen Future, and Our Options, 11 J. Envtl. L.331, 332 (1996).

61 Karen Fassuliotis, The Science of Endocrine Disruption – Will it Change the Scope of Products Liability Claims?, 17 Pace Envlt. L.Rev. 351, 357-61 (2000); Don Mayer, the Precautionary Principle and Int’l Efforts to Ban DDT, 9 S.C. Envlt. L.J. 135, 147 (Spring 2002) (noting that an EDC can disrupt the reproductive system of animals when exposure is in infinitesimal amounts); Endocrine Disruption: History,
can severely disrupt the body’s endocrine system and are likely toxic to developing organisms and children.64

C. The Extent of the Problem Nationally

In a 2004 study, researchers at the Harvard School of Public Health found that out of 24 buildings sampled in the Boston area, 13 contained caulking materials with detectable levels of PCBs.65 PCBs were used in school buildings during the height of the “boom” years when many schools were constructed in the 1950’s and ‘60’s.66 In New York City alone, 260 schools were constructed during the period when PCBs were routinely used in window caulking.67 Nationwide, the New York Daily News has asserted that any school building constructed between the 1960s and 1977 in the United States likely contains PCBs in its building materials in excess of the amount allowed by federal law.68

Fact and Fantasy of Gender Bending Chemicals, www.witorsch.com/ray/seminar.html (site visited Dec. 16, 2002) (noting that there has been a 50% decrease in sperm production in the developed world in the last 50 years). There is some evidence that the presence of EDC’s may be threatening our overall survival. Theo Colburn et. al, Our Stolen Future, Are We Threatening Our Fertility, Intelligence and Survival?—A Scientific Detective Story (1996).


64 See supra notes 55 to 64 and accompanying discussion.

65 Herrick, Contamination in Schools, supra note 5, at 1052.


67 Id.

68 Bill Egbert, Toxin Turns Up in School Buildings, But Officials Say There’s No Danger, New York Daily News, April 7, 2008; see infra notes 139 to 150 and accompanying discussion; see also www.citylimits.org, Hashim Rahman, City Limits, Pushing to be Free in School From PCB’s (June 22, 2009) (site visited June 23, 2009).
Since these school buildings are now aging and deteriorating, necessitating renovations and repairs, the issue of PCB contaminated school environments is gaining importance. As schools built in the mid-20th century age and undergo renovation, PCBs are leaching into surrounding materials and indoor air over time or are being released into school environments as a direct result of renovation projects.

Indeed, as early as 2001, the EPA issued a “Guide for School Administrator’s Removing PCBs from Light Fixtures: Protecting Students from Hidden Dangers,” noting that many schools’ light ballasts contain PCBs and that as these ballasts age, the risk of PCB leakage increases.

Part II - Emergence of PCBs in Schools as a National Issue as History Repeats

A. Pending Litigation

On January 14, 2008, the Yorktown Central School District in New York State filed the first ever federal law suit against Monsanto Company, Pharmacia Corporation, and Pecora Corporation, seeking remediation and indemnification costs associated with PCB’s in its school buildings and alleging that the original Monsanto, “Monsanto Chemical Company” (“Old Monsanto”), was the sole U.S. maker of PCB’s, and that the other defendants, named and unnamed, were makers, distributors, marketers and sellers of PCB’s.


70 See infra notes 122 to 137 and accompanying discussion.

Yorktown School District seeks remediation as a result of contamination of its school buildings from PCB’s in tainted caulking which the school district cleaned up using taxpayer money in 2005.\textsuperscript{74} The Yorktown School District Complaint alleges claims for products liability and negligence; and in addition to seeking damages for existing or future school remediation costs, plaintiff seeks attorneys’ fees for existing and/or future remediation costs.\textsuperscript{75} The School District also seeks indemnification from defendants for all past or present lawsuits by third parties, including students, teachers or employees.\textsuperscript{76} Plaintiff also specifically asks the court for a declaratory judgment “declaring that Defendants are responsible for the [School] District’s [past and future] damages” and declaring that defendants will indemnify the School District for future remediation costs associated with the PCB contamination and claims by any persons associated with the PCB exposure.\textsuperscript{77}

\textsuperscript{72} Yorktown School District Complaint, \textit{supra} note 17.

\textsuperscript{73} Yorktown School District Complaint, \textit{supra} note 17, at 1. Plaintiff calls the PCB’s the “now outlawed carcinogen that was used in the construction of their school buildings.” \textit{Id}.

\textsuperscript{74} \url{http://www.pcbinschools.org} (site visited July 9, 2009).

\textsuperscript{75} Yorktown School District Complaint, \textit{supra} note 17, at 1.

\textsuperscript{76} Yorktown School District Complaint, \textit{supra} note 17, at 2.

\textsuperscript{77} Yorktown School District Complaint, \textit{supra} note 17, at 2. On November 10, 2008, the Court decided a motion to dismiss brought by Monsanto Company. \textit{Yorktown Central School District v. Monsanto Company, Pharmacia Corporation, and Pecora Corporation and John Does 1-20}, Civ. No. 07-Civ. 8648, U.S. District Court, Southern District of New York (November 10, 2008)[Hereinafter Yorktown School District Motion to Dismiss]. The court dismissed plaintiff’s claims under the New York General Business Law as untimely, dismissed plaintiff’s manufacturing design defect claim and dismissed the plaintiff’s claim for declaratory relief regarding indemnification. Yorktown School District Motion to Dismiss, at 16, 18, and 19. The court held however that plaintiff’s negligence, recklessness and strict liability claims for failure to warn, design defect and negligent design would remain intact and that if proven, punitive damages would be available in the case. Yorktown School District Motion to Dismiss, at 15, 16, and 20. In response to claims that plaintiff’s negligence and strict liability claims were untimely, the court noted that the effects from the products were at least in part due to latent effects of the substances (migration and volatization) and that these claims were not time barred under the New York statute of limitations allowing three years to bring claims for “the latent effects of exposure to any substance or combinations of substances, in any form, upon or within the body or upon or within property …..from the date of discovery of the injury by the plaintiff or from the date when through the exercise of reasonable diligence such injury should have been discovered by plaintiff.” Yorktown School District Motion to Dismiss (citing N.Y.
Plaintiff alleges that Old Monsanto, the manufacturer of the PCB’s, knew that PCB’s were dangerous to human health as early as the 1940’s and 1950’s – long before the danger of PCBs was publicly known, and long before PCBs were banned for use in construction. According to the Complaint, an internal Old Monsanto memoranda from the 1950’s states the opinion of the company’s medical department that the “eating of lunches in the manufacturing process departments, including those in which PCBs were manufactured, should not be allowed.” And, referring to other specific internal memorandum by Old Monsanto in its complaint, plaintiffs allege that Old Monsanto formed a committee to assess the situation concerning the contamination caused by the manufacture and use of PCBs. The alleged objective of such committee was to protect the “continued sales and profits of Aroclors and permit continued new development of uses and sales,” even while acknowledging that PCB’s were then “nearly global contaminants of human food (particularly fish)” acknowledging “the

Plaintiffs allege that Monsanto Chemical Company, the original manufacturer of PCBs was succeeded by Monsanto Company. Plaintiffs refer to both of these entities collectively as “Old Monsanto.” See supra note 17.

Yorktown School District Complaint, supra note 17, at 5.

44 FR 31514 (May 31, 1979) (banning use of PCBs except in totally enclosed manner); see supra note 3 and accompanying discussion. There is strong evidence that Monsanto knew of the dangers to humans from PCBs as early as 1937. Cecil K. Drinker et al, "The Problem of Possible Systemic Effects From Certain Chlorinated Hydrocarbons," 19 The Journal of Industrial Hygiene and Toxicology 283 (September, 1937); Eric Francis, Sierra Club Magazine, Conspiracy of Silence, The Story of How Three Corporate Giants – Monsanto, GE and Westinghouse – Covered Their Toxic Trail, at 3-4 (September/October 1994).

Yorktown School District Complaint, supra note 17, at 5.

Yorktown School District Complaint, supra note 17, at 5.
killing of some marine species” and the “possible extinction of several species of fish-eating birds.”

According to the complaint, Old Monsanto stated in documents referenced in the complaint: “[t]here are…a number of actions which must be undertaken in order to prolong the manufacture, sale and use of these particular Aroclors as well to protect the continued use of other members of the Aroclor series.” These internal documents, highlighted in the Complaint, allege a bleak picture of a corporation attempting to maintain a profit center, despite alarming and growing negative health evidence concerning PCB’s.

This “test” case brought by the Yorktown School District is the first to allege that Monsanto Company should be responsible for remediation of PCBs in a public school district. The case will have important consequences nationally as schools begin the process of testing for PCBs and remediating contaminated school buildings. Since remediation as a result of PCB contamination is extremely costly for even one school building, potentially running into the

83 Yorktown School District Complaint, supra note 17, at 6.

84 Yorktown School District Complaint supra note 17, at 6.

85 Yorktown School District Complaint supra note 17, at 6.

86 Monsanto Company has been previously embroiled in litigation over PCB contamination but not to the author’s knowledge in relation to the clean up of public schools. See, e.g., In re Paoli R.R. Yard PCB Litigation, 35 F.3d 717 (3rd Cir. 1994); United States of America v. Pharmacia Corp., f/k/a Monsanto Company, and Solutia, Inc., 2003 WL 22319070 (N.D.Ala. 2003)(settling litigation brought by the United States EPA to require defendants to do a feasibility study to determine the extent and scope of polychlorinated biphenyls contamination in Anniston, Alabama); Associated Press, $700 Million Settlement in Alabama PCB Lawsuit, New York Times, 8/21/03. Another interesting litigation involving PCB’s and schools involved individual plaintiffs suing Monsanto Company, the manufacturer of PCB’s used in ceiling tiles in the school where they worked, and Armstrong World Industries, the manufacturer and distributor of the ceiling tiles. Maertin v. Armstrong World Indus., Inc. v. American Mineral Spirits Co., 2000 WL 554168 (May 3, 2000, D.N.J.). In the case, a fire resulted in a large release of PCBs and plaintiffs sued the makers of the ceiling tiles and Monsanto Company, alleging that they had contracted cancer while working at the school after the fire. Id. In 2000, the district court denied defendants motions for summary judgment. Id. The case was ultimately settled on September 14, 2000.
hundreds of thousands of dollars to the millions;\textsuperscript{87} how the court decides this test case against Monsanto Company will have far-reaching implications.

B. **Brief Overview of Asbestos, Tobacco and Lead Regulation**

The case brought by the Yorktown School District is reminiscent of other past mass tort litigation involving such toxins as tobacco and asbestos. The industry denies that the product is harmful and denies liability, claiming it does not have enough evidence of human health concerns to stop producing or selling a product.\textsuperscript{88} The product is later discovered to have been highly toxic.\textsuperscript{89} In such cases, Congress has consistently been loath to ban or mandate federal warning about the product in the absence of clear undisputed scientific proof of danger to human health.\textsuperscript{90} Since the manufacturers of a potentially toxic product have no obvious incentive to fund studies showing such danger,\textsuperscript{91} the product remains on the market long after safety concerns are first raised.\textsuperscript{92}

Historically, various products have thus stayed on the market in spite of burgeoning evidence that they are dangerous to human health.\textsuperscript{93} Asbestos is just one example of a substance that was not heavily regulated by the EPA until it had been produced for many years and long after concerns about its safety were raised.\textsuperscript{94} Indeed, asbestos is not totally banned today.\textsuperscript{95}

\textsuperscript{87} Remediation of a single school building can cost hundreds of thousands of dollars. www.pcbsinschools.org (site visited July 16, 2009).

\textsuperscript{88} See infra notes 93 to 120 and accompanying discussion.

\textsuperscript{89} See infra notes 93 to 120 and accompanying discussion.

\textsuperscript{90} See infra notes 93 to 120 and accompanying discussion.

\textsuperscript{91} See infra notes 93 to 120 and accompanying discussion.

\textsuperscript{92} See infra notes 93 to 120 and accompanying discussion.

\textsuperscript{93} See infra notes 94 to 120 and accompanying discussion.
Rather, pursuant to a final rule in 1989, a later court decision modifying the rule, and a later administrative modification, only “new uses” and certain limited uses of asbestos are currently banned by the EPA pursuant to the Toxic Substances Control Act in 1989.

Other highly toxic substances that have similarly stayed on the market long after safety concerns about their effects on human health were raised include formaldehyde and tobacco in cigarettes. For example, in 1982, the Reagan Administration decided not to regulate formaldehyde, urging that its decision was based on scientific evidence. In reality, there exists circumstantial evidence that the decision was a premeditated political decision in which the EPA manipulated the scientific results to reach a desired result that would protect a major industry. Two years later -- based on the same information that it had in 1982 -- the U.S.

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94 See Deborah Hensler, Asbestos Litigation in the United States: Triumph and Failure of the Civil Justice System, 12 Conn. Ins. L.J. 255, 268 (2006);
97 Corrosion Proof Fittings v. EPA, 947 F.2d 1201 (5th Cir. 1991)(asbestos ban lifted as EPA had not found that alternatives were safer than asbestos).
98 Garlow, supra note 95, at 36.
99 16 C.F.R. 1145.4 (banning certain new asbestos compounds); 15 U.S.C. 2605 (allowing the EPA to ban any substance that presents an unreasonable risk to health or the environment).
102 Wagner, supra note 100, at 1646-48; see also, Valerie Watnick, Risk Assessment, supra note 54, at 1332-36, 1350-53.
103 Nicholas A. Ashford et al., A Hard Look at Federal Regulation of Formaldehyde: A Departure from Reasoned Decisionmaking, 7 Harv. Envtl. L. Rev. 297, 313, 314 (1983) (“Depending on the available data base, a study may take from two to forty years to complete.... In the many situations where a delay will be inappropriate, the agency will have to treat the question of carcinogenic risk as if it were a trans-scientific issue.”); Wagner, supra note 100, at 1648; Watnick, Risk Assessment, supra note 54, at 1350-53.
EPA decided to regulate the use of formaldehyde, saying that the chemical was a potential carcinogen in humans.\(^{105}\)

And in the case of cigarettes, Congress was also slow to establish federally mandated warnings, let alone an outright ban on the sale of cigarettes or tobacco. While the Journal of the American Medical Association first published a study showing that there existed a link between smoking and lung cancer in 1950,\(^{106}\) it was not until 1963 that the Surgeon General first reported on the dangers of smoking.\(^{107}\) And then it was not until 1965 that Congress first passed mandatory federal cigarette labeling laws.\(^{108}\) It is even more extraordinary that as late as the turn of this century, the tobacco industry still had not openly acknowledged that there is a definitive link between smoking and lung cancer.\(^{109}\)

Additional examples of this ability of big industry to continue to sell toxic products can be found in the history of lead paint sales. While the lead paint industry did ironically fund studies to determine the health effects associated with lead paint,\(^{110}\) many urge that lead point


\(^{106}\) See Wynder, El., supra note 101.


\(^{109}\) David Stout, Direct Link Found Between Smoking and Lung Cancer, New York Times, October 18, 1996. “Tom Lauria, an institute spokesman, said the Tobacco Institute's position has been that 'the causal link remains to be established' between smoking and lung cancer. He said the institute recognized that 'smoking has been shown to be an important risk factor in heart disease, lung cancer and emphysema.'” Id.

manufacturers were *promoting* its use when the dangers associated with its sale were quite clear.\(^{111}\)

And so a familiar story unfolds in the case of PCBs: these chemicals were presumed innocent until proven guilty,\(^{112}\) and stayed on the market long after safety questions\(^{113}\) were raised.\(^{114}\) Indeed, safety concerns about PCBs were raised as early as 1937 by a Harvard University researcher, Dr. Cecil K. Drinker.\(^{115}\) Ignoring or minimizing these concerns, these businesses continued to profit from the sale of PCBs.\(^{116}\) Such practices continued for over fifty years, corporations either intentionally or negligently deceiving the public about the safety of PCBs\(^{117}\) or not actively seeking out the information about harm to human health and in the long


\(^{113}\) In *Transwestern Pipeline Co., v. Monsanto Company*, 46 Cal.App.4th 502, 509, 53 Cal.Rep.2d 887, 890 (Ct. App. 1996), the court stated that Monsanto learned that PCBs were persistent in the environment and that in 1970, it began placing warning labels on some of its products.


\(^{115}\) Cecil K. Drinker et al, *The Problem of Possible Systemic Effects From Certain Chlorinated Hydrocarbons,* 19 The Journal of Industrial Hygiene and Toxicology 283 (September, 1937).

\(^{116}\) “For the few extra years of profit for Monsanto…, we are all now paying the price.” Eric Francis, Sierra Club Magazine, Conspiracy of Silence, The Story of How Three Corporate Giants – Monsanto, GE and Westinghouse – Covered Their Toxic Trail, at 9 (September/October 1994); *see* infra notes 266 to 275 and accompanying discussion.

term,\textsuperscript{118} and human suffering as a consequence.\textsuperscript{119} “Although the sale of PCBs has been banned in the United States for some … years now, billions of pounds are still with us…\textsuperscript{120} These substances are “lodged in the fatty tissues of humans and other animals, passed on to new generations through mother’s milk and contaminated food, causing cancer, birth defects, and sterility.’”\textsuperscript{121}

C. The Current PCB Issue Develops: PCBs in a Manhattan School

Elementary Public School 199 in Manhattan (“Public School 199” or PS 199) on the upper west side of Manhattan, one of the schools tested by the \textit{Daily News} for PCB contamination and built in 1968 when the use of PCBs in construction was common,\textsuperscript{122} was found to have the highest level of PCBs in its outdoor caulking of all of the eight schools tested in New York City.\textsuperscript{123} The \textit{Daily News} articles\textsuperscript{124} set off a firestorm of events in New York City, as parents, particularly those at the Public School 199 in Manhattan, demanded governmental action.

Following information received from a reporter at the \textit{New York Daily News}, parents and teachers at Public School 199 learned that the New York City Department of

\begin{itemize}
\item \textsuperscript{118} See Eric Francis, Sierra Club Magazine, Conspiracy of Silence, The Story of How Three Corporate Giants – Monsanto, GE and Westinghouse – Covered Their Toxic Trail, at 2 (September/October 1994).
\item \textsuperscript{119} See Rachel Carson, \textit{Silent Spring}, supra note 12, at 219-43.
\item \textsuperscript{120} Eric Francis, Sierra Club Magazine, Conspiracy of Silence, The Story of How Three Corporate Giants – Monsanto, GE and Westinghouse – Covered Their Toxic Trail, at 9 (September/October 1994)
\item \textsuperscript{121} Eric Francis, Sierra Club Magazine, Conspiracy of Silence, The Story of How Three Corporate Giants – Monsanto, GE and Westinghouse – Covered Their Toxic Trail, at 9 (September/October 1994)
\item \textsuperscript{122} See \textit{supra} notes 1 to 2 and accompanying discussion.
\item \textsuperscript{123} Bill Egbert, Toxin Turns Up in School Buildings, But Officials Say There’s No Danger, \textit{New York Daily News}, April 7, 2008.
\end{itemize}
Education had conducted air sampling tests over the weekend of March 31, 2008 to determine whether PCBs were present in the school building following an extensive window replacement project by the New York City Department of Education (the “DOE”) and New York City School Construction Authority (the “SCA”)\textsuperscript{125} that had previously occurred during the period from January to March 2008.\textsuperscript{126}

Following results that showed elevated levels of PCBs in the air samples taken from the cafeteria at Public School 199,\textsuperscript{127} the New York City DOE closed the school for an emergency “custodial”\textsuperscript{128} cleaning over the weekend of April 4, 2008.\textsuperscript{129}

\textsuperscript{125} Letter from PS 199 PTA, Co-President, Sharon Lustig, to Chancellor Joel Klein, DOE, and General Counsel, Ross Holden, SCA (April 3, 2008) (on file with author). Parents wrote: “We are particularly concerned because over the course of the last two months, the SCA has undergone an extensive project to replace all the windows in the classrooms of P.S. 199, at times when our children and staff were present in the school. We have first hand knowledge from parents who were present during this process that it was an extremely dusty procedure.” Moreover, multiple witnesses reported to the PTA that not only was the window replacement project extremely dusty in nature, but that children and teachers had actually been involved in wiping up dust in the school building. \textit{See} Letter from PS 199 PTA, Co-President, Sharon Lustig, to Chancellor Joel Klein, DOE, and General Counsel, Ross Holden, SCA (April 3, 2008) (on file with author).

\textsuperscript{126} Letter from United States House of Representative Gerald Nadler, Manhattan Borough President Scott Stringer, New York State Senator, Thomas Duane, New York State Assembly Linda B. Rosenthal and New York City Council Member Gale Brewer to Alan Sternberg, Regional Administrator, United States Environmental Protection Agency, Region 2 (May 18, 2008) (on file with author) [hereinafter, Representative Gerald Nadler, May 18 letter to United States Environmental Protection Agency (the “EPA”)].

\textsuperscript{127} Air sampling results showed concentrations in the air in excess of 500ng/c3. Experts have indicated that concentrations in excess of 300 ng/c3 indicate a need to take precautions for adults. Fromme H., PCB’s in Caulking Compounds, \textit{supra} note 10, at 666.

\textsuperscript{128} “Custodial Cleaning” was the description given to the cleaning by the New York City Department of Education when asked about the process by parents and Representative Gerald Nadler. \textit{See} Representative Gerald Nadler, May 18 letter to EPA, \textit{supra} note 126.

\textsuperscript{129} The PS 199 building was closed to the public over the weekend of April 4, 2008 and cleaning crews were hired by the DOE to wipe the building clean of dust. Books were not cleaned in any manner, nor were the heating, air conditioning or ventilation systems cleaned at this time. The DOE characterized the work as a “full-scale custodial cleanup of the building” by the SCA. Representative Gerald Nadler, May 18 letter to EPA, \textit{supra} note 126.
Subsequent to this cleaning at Public School 199, parents in Manhattan mobilized to find out what laws and protocols existed specifying the safe removal and clean up of PCBs in schools. Parents and community leaders wanted to know how the New York City DOE could have allowed PCBs to be released into the school building during the window replacement project conducted while school was in session and why the DOE continued to allow these toxins in school buildings throughout New York City.  

Specifically, parents asked why the New York City DOE and/or the SCA had not tested to determine the toxicity of the caulking material surrounding the windows prior to the start of the window replacement project at Public School 199. Parents also demanded to know what the United States Environmental Protection Agency (“EPA”) was going to do to correct the contamination that had occurred at PS 199.

One Public School 199 PTA officer testified before the New York City Council, many wrote letters to the DOE, the EPA and other elected officials, and many more participated in a press conference with U.S. Congressman Jerrold Nadler (whose district includes Public School 199), and other elected officials outside the school on Sunday, May 18, 2008. The PTA sought the advice of an attorney and hired an expert

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130 Ultimately, the PTA of PS 199 sent its own samples, including carpets, filters and other items to an independent testing lab, and found extremely elevated levels PCB’s in the carpeting and other materials from the school – materials that students used and came into close contact with every day. Testing Results on file with PS 199 PTA, school administration and SCA. See also, www.pcbsinschools.org/sampling (listing sample results for various schools in New York City School system) (site visited 4/6/2009).


133 Congressman Jerrold Nadler, 8th Congressional District of New York, Press Release, Elected Officials to Call for EPA Testing and Cleanup at P.S 199 and Center School (May 18, 2008). Center School is a
environmental consultant. On May 18, responding to constituent concerns at Public School 199, United States Congressman Nadler and other local politicians wrote to the EPA urging the federal agency to oversee the environmental clean up of Public School 199 in Manhattan.

Subsequent to that letter, the DOE met with the PTA and agreed to engage in a full-scale environmental clean up of the school to be overseen by the EPA and the SCA, in communication with the PTA of the school. The parent body’s efforts and those of local and federal politicians resulted in a large scale, exorbitantly expensive remediation of Public School 199 over the summer of 2008.

As of this writing, the extent of the contamination and damage caused by the DOE’s window replacement process at Public School 199 and the potential for harm from exposure to PCBs is not known. There is evidence that the project contaminated not only the inside of the school building, but the soil on the perimeter of the building. Soil tests conducted by the New York City DOE/SCA showed that the soil around the perimeter of the school was in need of remediation and the DOE/SCA also attempted to remediate the soil around the building during the summer of 2008. The EPA stated that it would monitor the work of the DOE and the SCA.

district DOE middle school that occupied the third floor of the same building as P.S. 199 and underwent the same window renovation/replacement process as P.S. 199 in Manhattan.

134 Information about this process is on file with the author. The author served as Co-President of the Public School 199 PTA during the 2008-09 school year. The Public School 199 PTA has consulted with a private consultant, Dr. Nancy Rothman of New Environmental Horizons, Inc., http://www.neh-inc.com/resumes.html (site visited 8/17/09).

135 Representative Gerald Nadler, May 18 letter to EPA, supra note 126.

136 Information on file with author about the clean up of PS 199.
on this issue and provide technical assistance to address concerns about PCBs remaining in the school.\textsuperscript{137}

Despite these efforts toward remediation in one school building in New York City and in the Yorktown Central School District, hundreds of school buildings around the country\textsuperscript{138} still contain PCBs in their building materials and put children and staff at risk of exposure to these toxic compounds daily.

**Part III: Existing Regulation of PCB’s in Schools**

A. Toxic Substances Control Act

Under the federal Toxic Substances Control Act (“TSCA”),\textsuperscript{139} Congress generally prohibited the continued use of PCBs in the United States, except in a “totally enclosed manner” or unless otherwise authorized for use.\textsuperscript{140} The United States EPA thus allows the use of PCBs in certain electrical equipment when such uses are in a “totally enclosed manner”\textsuperscript{141} and allows other uses of PCB material that do not present an “unreasonable risk of injury to health or the environment.”\textsuperscript{142} The EPA generally considers the continued use of physical building materials containing PCBs to be an “unauthorized use” that presents an “unreasonable risk of injury to

\textsuperscript{137} Letter from United States EPA, Region 2, Deputy Regional Administrator, George Pavlou to PS 199 PTA Co-Presidents, Johnna Hampton and Sharon Lustig at 2(undated letter sent in response to Letter from PS 199 Parent Teacher Association, PTA Co-Presidents, Johnna Hampton and Sharon Lustig to Alan Sternberg, Regional Administrator, U.S. EPA, Region 2, and George Pavlou, Deputy Regional Administrator, U.S. EPA, Region 2 (May 5, 2008) (on file with author)).

\textsuperscript{138} See supra notes 1 to 5 and accompanying discussion.

\textsuperscript{139} Toxic Substances Control Act, 15 U.S.C. 2601 et. seq.

\textsuperscript{140} See 15 USC 2605(e); 44 Fed. Reg. 31514 (May 31, 1979); 40 CFR 761. No specific federal regulation exists with regard to existing sources of PCBs in school buildings.

\textsuperscript{141} 44 Fed. Reg. 31514 (May 31, 1979); 40 CFR 761.

\textsuperscript{142} 15 USC 2605(e).
health." Technically, where buildings contain PCBs in their caulking or sealants, their owners are thus using PCBs in violation of regulations under TSCA. Under TSCA, the EPA thus has the authority to issue fines and penalties to building owners where the building materials contain exposed PCBs of greater than 50 parts per million in construction materials. However, the EPA has not routinely exercised such rights. Enforcement agents for the federal EPA, Region 2, which includes New York City, have indicated that fining buildings with such levels of PCBs would not be feasible as so many buildings contain PCBs at these levels in the Region and in New York City.

Under the TSCA, the EPA has however issued regulations that apply to the disposal of materials containing PCBs. These regulations state that materials containing more than 50 parts per million of PCBs presents an unreasonable risk of injury to health and are to be treated as bulk product waste (hazardous waste). Such materials must thus be treated and disposed of at a hazardous waste facility. The protocol for disposal involves carting the materials to a

143 40 CFR 761.20.
144 40 CFR 761.20; 15 USC 2605(e).
145 40 CFR 761.20; 15 USC 2605(e).
146 Telephone Conf. with James Hacklar and Dan Kraft, United States EPA, April 11, 2008; see also Herrick, Contamination in Schools, supra note 5, at 1052 (indicating that the majority of buildings tested in Boston contained PCB’s in building materials and that therefore, fining such buildings would not be feasible).
147 40 CFR 761.20.
148 40 CFR 761.20. Waste material containing more than 50 parts per million PCB’s must be treated as hazardous waste and such waste specifically includes demolition from buildings and other man-made structures, coated or serviced with PCB’s. 40 CFR 761.20.
149 40 CFR 761.62.
hazardous waste site and disposing of them so that they do not contaminate ground-water or surrounding air.\textsuperscript{150}

\textbf{B. EPA Role in Clean Up}

In addition to not strictly enforcing the TSCA with regard to PCBs in school building materials, the United States Environmental Protection Agency has not yet determined a safe threshold level of airborne PCBs for children in schools.\textsuperscript{151} Yet, this step is crucial in ascertaining whether indoor air in a given school is safe for children to breathe all day long. For example, experts have found that PCB levels in air above 300 nanograms per cubic meter present a potential safety hazard.\textsuperscript{152} The EPA on the other hand, has made no statements about what level of indoor PCB air contamination might be a threshold level that would not pose a safety hazard for children.\textsuperscript{153} Were such a threshold level available from the EPA, it would provide an objective target goal in cases where a school is suspected of indoor air contamination due to existing PCBs leaching into indoor air or where a previous construction project is believed to have contaminated indoor air.

Additionally, the EPA to date has not taken a leadership role in PCB clean up in schools.\textsuperscript{154} This became apparent when parents, politicians and community leaders asked the

\textsuperscript{150} While federal law thus requires disposal of PCB containing material at such hazardous waste sites, presently there is no systematic plan to permanently destroy existing PCB containing material once deposited in such waste sites. In contrast, in Europe, countries have begun the process of permanently ridding the environment of PCB’s by incinerating them in hazardous waste incinerator plants.

\textsuperscript{151} Letter from PS 199 Parent Teacher Association, PTA Co-Presidents, Sharon Lustig and Valerie Watnick, to Chancellor Joel Klein, DOE, and General Counsel, Ross Holden, SCA (June 23, 2009)(calling for further remediation efforts at PS 199 until airborne PCBs fall below background levels).

\textsuperscript{152} Fromme H., PCB’s in Caulking Compounds, \textit{supra} note 10, at 666.

\textsuperscript{153} Letter from PS 199 Parent Teacher Association, PTA Co-Presidents, Sharon Lustig and Valerie Watnick, to Chancellor Joel Klein, DOE, and Ross Holden, General Counsel, SCA (June 25, 2009).

\textsuperscript{154} See Letter from Miranda Massie, New York Lawyers for the Public Interest, Inc., Senior Staff Attorney, to Lisa Jackson, Administrator of the U.S. EPA (April 28, 2009), at 1; Letter from George Pavlou, Deputy
EPA to do just that: to take a leadership role and initiate an emergency and remedial response in the cleanup of Public School 199 in Manhattan. The EPA refused to do so, citing its lack of obligation to initiate an agency response under federal law where there exists another competent agency to take on that role. In the case of Public School 199 in Manhattan, the EPA determined that the New York City DOE could monitor and manage the clean up and that the EPA would not be involved, except to play an advisory role -- even where the DOE/SCA had caused the widespread contamination of the school in the first instance with its window renovation project in early 2008. The EPA stated that it would monitor the work of the DOE and

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155 Letter from PS 199 Parent Teacher Association, PTA Co-Presidents, Johnna Hampton and Sharon Lustig to Alan Sternberg, Regional Administrator, U.S. EPA, Region 2, and George Pavlou, Deputy Regional Administrator, U.S. EPA, Region 2 (May 5, 2008) (on file with author). Mr. Pavlou has since been named the new Regional Administrator for US EPA Region 2.


158 Representative Nadler had specifically asked the EPA to oversee the environmental remediation of the school but the EPA refused to do so. See Representative Gerald Nadler, May 18 letter to EPA, supra note 126.
the SCA on this issue and provide technical assistance to address concerns about PCBs remaining in the school.\textsuperscript{159}

And, similarly in Yorktown Heights, New York, the EPA did not take an active role in the clean up of those schools.\textsuperscript{160} In Yorktown Heights, the United States EPA issued standards for the removal of PCB contaminated caulk,\textsuperscript{161} but the school District chose to clean up the PCB contaminated caulk in accord with the EPA’s self-implementing provisions under the TSCA.\textsuperscript{162}

C. New Legislative and Regulatory Developments

Although the U.S. EPA has thus not taken an active stance with regard to PCBs in schools to date, in October 2008, the EPA finally announced plans to address this issue.\textsuperscript{163} Amid the controversy over health risks that started in the disclosure that New York schools were contaminated with PCBs contained in obsolete caulking, the EPA said that it planned to promulgate new regulations to address the fact that PCB-containing paints and caulks are leaking into schools and homes.\textsuperscript{164} Given that this rulemaking process takes years to complete, at least


\textsuperscript{160} Letter from Alan Sternberg, Regional Administrator, U.S. EPA, Region 2, to U.S. Senator Charles Schumer (7/26/07).

\textsuperscript{161} Id.

\textsuperscript{162} 40 CFR s. 761.61 (a);

\textsuperscript{163} EPA to Pursue New PCB Regulation Amid Leakage Contamination Concerns. InsideEPA.com, site visited October 21, 2008 [hereinafter EPA to Pursue New PCB Regulation].

\textsuperscript{164} See EPA to Pursue New PCB Regulation supra note 163. www.InsideEPA.com, (site visited October 21, 2008). “As the caulk ages, PCB’s are volatizing into the air or falling off into the building or into the soil around the building, creating health risks.” Id.
one expert has suggested that, in the interim, the EPA should issue an emergency enforcement order under the TSCA to require schools to test for the presence of PCBs in schools.\textsuperscript{165}

Additionally, in its September 30, 2008 draft strategic plan for 2009-2014, the U.S. EPA stated that the “EPA will explore more aggressive approaches to address legacy risks and phase out the ongoing use of [PCBs] to address the new concerns about the presence of PCBs in caulks and paints used historically in schools and in gas lines that have leaked into homes.”\textsuperscript{166}

And in May of this year, the U.S. House of Representatives passed legislation that would help schools fund clean up of PCB contamination by providing federal monies for modernization, renovation and repair projects.\textsuperscript{167} The “\textit{21st Century Green High-Performing Public Schools Facilities Act}” would provide grants and low-interest loans to local educational agencies for the “removal, abatement, or interim controls of PCBs during the construction, modernization or repair of public schools.”\textsuperscript{168} The Green High-Performing Schools Facilities Act is now in the Senate for consideration.\textsuperscript{169} It is worth noting, however, that schools might receive as little as $5,000 funding under the act for a renovation project. This amount would not be adequate to fund a properly drawn remediation effort involving PCB laden caulk as such remediation can cost hundreds of thousands of dollars.\textsuperscript{170}


\textsuperscript{168} www.crowley.house.gov/press/ny07_crowley/PressreleasePCB.shtml (site visited June 23, 2009).

\textsuperscript{169} www.crowley.house.gov/press/ny07_crowley/PressreleasePCB.shtml (site visited June 23, 2009).
Finally, in New York State, Assemblywomen Linda Rosenthal, whose district includes Public School 199 in Manhattan, introduced a bill to require mandatory testing of schools in cities of more than one million with required reporting to State Department of Health and the commissioner.171 The Bill would require schools to test for the presence of PCBs in school building materials: including light ballasts; transformers; caulkling; materials adjacent to caulkling; and soil in and around school buildings.172 Schools would be reimbursed by the State: $50 for each test.173 In turn, results would be reported to the U.S. Department of Health and posted on its web site on a school by school basis.174 Unfortunately, the New York State bill does not provide recourse if materials are tested and the results show high levels of PCBs.175 Assemblywomen Rosenthal will shortly reintroduce this bill requiring testing for the presence of PCBs in schools with additional support from members of the New York State House and Senate.176

D. New York State Education Department Protocol for Renovation Involving PCB Containing Materials

In June 2007, the New York State Education Department officially recognized the dangers of PCBs in school buildings about to undergo construction or demolition, and passed a “Protocol for Addressing Polychlorinated biphenyls (PCBs) in Caulking


171 State of New York, Assembly, Committee on Education, May 27, 2008, 11367-A.

172 State of New York, Assembly, Committee on Education, May 27, 2008, 11367-A.

173 State of New York, Assembly, Committee on Education, May 27, 2008, 11367-A.

174 State of New York, Assembly, Committee on Education, May 27, 2008, 11367-A.

175 State of New York, Assembly, Committee on Education, May 27, 2008, 11367-A.

Materials in School Buildings.” 177 This Protocol, effective January 2008, contains detailed guidelines for the removal of PCB material from school buildings.178 The New York State Education Department developed the Protocol in consultation with the New York State Department of Health, Division of Environmental Health Assessment, and Bureau of Toxic Substance Assessment.179 It calls for, among other things:

For any school buildings constructed or renovated between 1950 and 1977 and undergoing current renovation or demolition, NYSED and NYSDOH recommend that the building(s) be evaluated prior to the renovation work to determine whether they contain caulk that is contaminated with PCB’s. If so, a plan should be developed to address potential environmental and public health concerns about potential PCB exposure.180

The Protocol indicates that to adequately characterize PCB contamination, a “professional consultant with appropriate experience in environmental investigation and testing should prepare a detailed workplan to guide this work.”181 It also notes the need for caulk and soil sample collection prior to the beginning of construction for buildings constructed or renovated between 1950 and 1977.182 If testing reveals the presence of PCB contamination, the Protocol calls for a “site specific abatement plan to address potential environmental and public health concerns.”183


178 New York State Protocol, supra note 177.

179 New York State Protocol, supra note 177, at 1-2.

180 See New York State Protocol, supra note 177, at 1.

181 New York State Protocol, supra note 177, at 1-2.

182 Id. at 2.

183 Id. at 3.
As no federal or state guidelines for the evaluation or control of PCB’s in construction yet exist, the New York State Protocol calls for referral to the U.S. Department of Housing and Urban Development’s existing “Technical Guidelines for the Evaluation and Control of Lead-Based Paint Hazards in Housing.” For additional authority, the New York State Protocol also refers to the fact that the United States EPA regulates the disposal of caulk containing concentrations of PCBs in excess of 50 parts per million and that such materials must be properly disposed of at an approved facility under the Toxic Substances Control Act.

While the New York State Education Department does not require contractors or the SCA to follow the State Education Department Protocol, it is recommended practice for all schools in New York State when construction or demolition work is done involving buildings constructed between 1950 and 1977; and thus potentially containing PCB laden building materials. Thus, while New York schools or school construction authorities are not required by existing law to test for PCBs prior to renovation or construction work, the Protocol is the first state government document to recognize the importance of testing for and containing PCB contaminated material prior to beginning a school renovation project.

It is important to note that even though the Protocol was in effect at the time the DOE and SCA commenced the window replacement project at the elementary Public School 199 in New York City, the New York City DOE and SCA did not follow it. While the Protocol called for the hiring of an environmental consultant to prepare a detailed work plan prior to any work,

\[184\] Id. at 3.


\[186\] 40 CFR 761.62; see supra notes 139 to 150 and accompanying discussion.

\[187\] Representative Gerald Nadler, May 18 letter to EPA, at 1, supra note 126.
testing of soil and caulk, none of this occurred at Public School 199. Neither the DOE nor the SCA hired an environmental consultant with expertise in the area of PCB contamination to do testing and to prepare a detailed workplan. And, neither the DOE nor the SCA did any prior testing -- of soil or caulk -- to determine whether PCBs were present in the window caulking at PS 199 in Manhattan. Moreover, neither the SCA nor the DOE consulted an environmental expert to “develop a plan to minimize health and safety concerns” as called for by the New York State Education Department’s Protocol. This failure to consult with an environmental expert and failure to follow the New York State Education Department Protocol proved to be an extremely costly mistake as the DOE and SCA spent a tremendous amount of money remediating the contamination at PS 199. Additionally, hundreds of children were exposed to PCB dust in the air and on the surfaces in the school prior to the summer of 2008 when the remediation took place.

E. Other Nationwide Developments


189 See Letter from PS 199 Parent Teacher Association, PTA Co-President, Johnna Hampton to the Chancellor Joel Klein, DOE, and President, Sharon Greenberger, SCA at 3 (April 10, 2008) (on file with author).

190 New York State Protocol, supra note 177, at 1-2.

191 See Area Elected Officials Win Remediation of PCBs at P.S. 199, Press Release, Congressman Gerald Nadler (June 10, 2008); Letter from Ross Holden, General Counsel, SCA, to PS 199 Parent Teacher Association, PTA Co-Presidents, Sharon Lustig and Valerie Watnick (March 31, 2009)(discussing prior remediation efforts at the school)(on file with author); Representative Gerald Nadler, May 18 letter to EPA, at 1, supra note 126(detailing facts surrounding the window replacement project); Letter from PS 199 Parent Teacher Association, PTA Co-President, Johnna Hampton to the Chancellor Joel Klein, DOE, and President, Sharon Greenberger, SCA at 3 (April 10, 2008)(detailing facts surrounding the window replacement project)(on file with author); Representative Gerald Nadler, May 18 letter to EPA, at 1, supra note 126(detailing facts surrounding the window replacement project); Letter from PS 199 Parent Teacher Association, PTA Co-Presidents, Sharon Lustig and Valerie Watnick, to Chancellor Joel Klein, DOE, and President, Sharon Greenberger, SCA (March 19, 2009)(calling for further remediation efforts at PS 199).
In June 2009, after a survey conducted by the Harvard School of Public Health detected high levels of PCBs in the construction materials at area schools in the town of Worcester, Massachusetts.\(^{193}\) As of this writing, the town had notified its residents of these findings and was checking with local and state health departments to determine next steps.\(^{194}\) Due to concerns about the toxins in the caulks and sealants in the building materials, reports exist indicating that the town’s schools may close to address the problem of PCB contamination.\(^{195}\)

And in 2008, a University of Iowa study reported that PCBs have been found in the air outside Chicago schools.\(^{196}\) Researchers collected samples from more than 40 Chicago schools and found concentrations of PCBs in the air outside virtually every school.\(^{197}\) Researchers hypothesized that the PCBs may have come from old paint as the same PCB compound has previously been found in wastewater near paint factories.\(^{198}\) Representatives from the Chicago


\(^{197}\) Dingfei Hu, Andres Martinez and Keri C. Hornbuckle, Discovery of Non-Aroclor PCB (3,3′-Dichlorobiphenyl) in Chicago Air, Department of Civil and Environmental Engineering, IIHR-Hydroscience and Engineering, University of Iowa, Iowa City, Iowa, 52242 Environ. Sci. Technol., 42 (21), 7873–7877 (September 2008).

Public Schools said they were not aware of the study and that they would need to conduct further sampling before deciding on a course of action.\textsuperscript{199}

And finally, in March 2009, a Bronx County, New York mother and teacher’s assistant, Naomi Gonzalez, filed a letter notice of intent to sue with the United States EPA.\textsuperscript{200} The letter states intent to sue the DOE and the SCA under the Toxic Substances Control Act\textsuperscript{201} for injunctive and declaratory relief under the citizen’s action provision of the TSCA.\textsuperscript{202} The suit asks the EPA to intervene to enforce its own regulations under the TSCA which prohibit the use of PCBs when such uses are not totally enclosed.\textsuperscript{203} The letter to the EPA on behalf of Ms. Gonzalez asserts that PCBs as used in caulk in Ms. Gonzalez children’s school are clearly not an “enclosed” use and are not permissible in schools under the TSCA.\textsuperscript{204} Gonzalez’ intent to sue letter urges the EPA to enforce the TSCA and require the New York City DOE and SCA to test and remediate the caulking at Ms. Gonzalez’ children’s school and at other New York City Schools that were built between 1950 and 1980.\textsuperscript{205}

F. Existing International Law -- Stockholm Convention

\textsuperscript{199} Michael Hawthorne, \textit{Chicago Tribune}: Mystery PCB Surfaces in Chicago, Baffling Researchers, January 22, 2009.

\textsuperscript{200} Massie Letter, \textit{supra} note 154.

\textsuperscript{201} Massie Letter, \textit{supra} note 154.

\textsuperscript{202} 15 USC s. 2601, et. seq.

\textsuperscript{203} Massie Letter, \textit{supra} note 154, at 3-4.

\textsuperscript{204} Massie Letter, \textit{supra} note 154, at 4.

\textsuperscript{205} Massie Letter, \textit{supra} note 154, at 7.
Pursuant to the Stockholm Convention on Persistent Organic Pollutants ("POPs), to which the United States is a signatory,\textsuperscript{206} PCBs are listed as persistent organic pollutants in Annex A to the Convention. For pollutants so listed, parties to the Convention agree to take "legal and administrative measures necessary to eliminate" the "production and use of these chemicals" and the "import and export of the[se] chemicals."\textsuperscript{207} Additionally, parties, or member countries, must also endeavor to eliminate PCBs in equipment, ban imports and exports of PCB containing equipment, "make determined efforts to lead to environmentally sound waste management of liquids containing PCBs," and report on their progress in eliminating PCBs to the "Conference of the Parties" every five years.\textsuperscript{208} To date, 42 countries have filed five year status reports, but the United States has made no such report.\textsuperscript{209}

Nonetheless, the Stockholm Convention on Persistent Organic Pollutants raises awareness and calls for some measure of reporting on an extremely important environmental issue. The fact that countries worldwide have signed the Convention and recognized the need to control POPs, and specifically PCBs as one class of POP, and to report back on the status of such efforts is a step toward eliminating the threat of these man-made toxins in our environment.

Part IV: Proposed Responses: Economic, Legal and Policy Reasons to Hold Monsanto Liable in the Yorktown Litigation

A. Overview and Mandates of a New Federal Remediation Program

In the following section, this article outlines a Model PC B Testing and Remediation Act (the "Model Act") which would call for: i) a federally mandated program of testing of school

\textsuperscript{206} http://chm.pops.int, (site visited 8/19/08 and 1/08/09).

\textsuperscript{207} http://chm.pops.int at 3, Annex A (site visited 1/8/09).

\textsuperscript{208} http://chm.pops.int, Part II, Annex A (f) (site visited 1/8/09).

\textsuperscript{209} http://chm.pops.int (site visited 1/8/09).
construction materials and soil for schools built when PCBs were commonly used in construction; ii) a federally mandated program of indoor air testing in schools where contamination is suspected; iii) the EPA to immediately complete an independent risk assessment and set threshold PCB contaminant levels for indoor air in schools; iv) the EPA to take permanent and interim action to curtail further school contamination, including proper removal of PCB contaminated materials; and v) federal enforcement of existing law ensuring that those who release PCBs into school environments are held criminally and/or civilly liable for their actions.

B. Existing Regulatory Frameworks

In considering an effective legal framework for remediation of PCBs in schools, lessons from remediation frameworks for other toxic substances are instructive. Initially, any remediation and removal program should be federally mandated so that compliance and enforcement is not piecemeal, where certain states continue to operate with PCBs in their school buildings and other states have PCBs removed from their schools under a patchwork of local regulation. A federal regulatory framework would instead ensure that efforts to eradicate PCBs from our schools would be uniform from state to state and would begin immediately. A federally mandated program of testing and remediation would also ensure that local school districts pursue remediation first, rather than first seeking judicial resolution of liability issues surrounding PCB remediation.\textsuperscript{210} Since judicial processes are typically lengthy, in the absence of a federal mandate to remediate contamination immediately, the judicial process will serve to prolong exposure of school children currently attending PCB contaminated schools.

\textsuperscript{210} See, e.g. San Francisco Unified School Dist., 37 Cal.App.4th at 1318, 44 Cal.Rptr.2d at 305(seeking recovery for remediation of asbestos contamination in school district after having performed remediation).
A new federal testing and remediation program could be modeled on the Asbestos Hazard Emergency Response Act (“AHRA” or the Act) which was designed to protect elementary and secondary schools children from the hazards of exposure to airborne asbestos. Indeed, Congress has before shown a willingness to at first regulate toxic chemicals that affect children in homes and schools and then move on to regulation that addresses the same toxic substances in other public buildings.211

For example, under the authority of the TSCA, the federal statute that allows the EPA to regulate a hazardous substance whenever it determines that a toxic substance presents an unreasonable threat to human health or the environment,212 the EPA first issued its “Asbestos-in-Schools rule.”213 Later, in 1986, the Asbestos Hazard Emergency Response Act (“AHERA”) established a more comprehensive regulatory framework in which the EPA manages all asbestos management and removal in schools.214 AHERA requires local agencies to inspect school buildings for asbestos, and develop management plans in accordance with AHERA for asbestos, to make such management plans available to the public and to follow AHERA accreditation requirements with regard to local contractors and labs.215 A school that fails to comply with

211 See infra notes 212 to 218 and accompanying discussion.

212 Toxic Substances Control Act, 15 U.S.C, 2601 et. seq.


AHERA is potentially subject to both civil and criminal penalties.\textsuperscript{216} Fines for willful violation of the Act can be up to $25,000 per day and $5,000 per day for negligent failure to comply with the act.\textsuperscript{217} Although there is no private right of action for damages under the AHERA, parents can sue under the Act to make a school safer from asbestos.\textsuperscript{218}

These requirements to make schools inspect for and manage asbestos in their school buildings have been successful. Ninety four percent of schools have adopted AHERA implementation programs.\textsuperscript{219} As of 2008, 39 states had adopted plans for accreditation of contractors permitted to inspect and manage asbestos in schools.\textsuperscript{220} And later, Congress extended the law to the regulation of asbestos contractors working in public and commercial buildings.\textsuperscript{221}

Similarly, Congress first addressed the dangers of lead paint to children by passing the Residential Lead-Based Point Hazard Reduction Act of 1992.\textsuperscript{222} While Congress has not since crafted specific federal legislation to address the issue of lead paint in schools, schools and local agencies can and do reference the United States Department of Housing and Urban

\begin{footnotes}
\item[216] 15 U.S.C. 2647 (a) (1).
\item[217] 15 U.S.C. 2647 (a) (1).
\item[220] Sutak, \textit{Brown Fields, supra} note 215, at 443.
\item[222] 42 U.S.C.A. s. 4851. According to Dr. David Carpenter, M.D.," PCBs do the same things that exposure to lead does, causing a reduction of IQ by some 5-7 IQ points, creating a shorten attention span and an increase in disruptive behavior". Dr. Carpenter is Director of the Institute for Health and the Environment at the University at Albany and Professor of Environmental Health and Toxicology at the School of Public Health. http://www.albany.edu/ihe/members.htm (site visited 7/9/09).
\end{footnotes}
Development’s Technical Guidelines for the Evaluation and Control of Lead-Based Paint Hazards in Housing promulgated 223 under the Authority of the Lead based Point Hazard Reduction Act of 1992.224 Indeed, when New York State crafted its first ever New York State Protocol for handling of PCBs in renovation in school buildings, it specifically referred to these Technical Guidelines for lead paint.225 While no study has been done to identify how many schools actually contain lead-based point,226 almost half of all of the nation’s schools were built before 1959 when lead paint was first regulated,227 and thus many schools do likely contain lead paint.228

C. Components of New Federal Legislation

1. Initially Test School Building Materials and Test Indoor Air in Schools Where PCB Contamination is Found

Congress should draft new legislation that addresses two routes of exposure to PCBs in schools: (i) PCBs in existing building materials that may leach into air, soil or surrounding materials; and (ii) PCBs that already exist in indoor school air. As an initial step, federal legislation should routinely require testing of physical construction materials and suspected sources of potential PCB contamination in schools built or renovated between 1940 and 1977, such as caulking, joint sealants and old light ballasts. Additionally, schools should be required to

223 www.hud.gov/offices/lead (site visited 6/16/09); see New York State Protocol, supra note 177, at 3.


225 New York State Protocol, supra note 177, at 3.


227 Kenneth M. Reiss, Note, Federal Regulation of Lead in Drinking Water, 11 Va. Envtl. L.J. 285, 285 (1991/1992)(noting that 46% of the nation’s schools were constructed before 1959 when lead paint was still widely used).

228 See Reiss, supra note 227, at 285.
conduct minor soil sampling if PCB contamination is found in school materials. These tests are not expensive or time-consuming to perform and would indicate whether further testing and remediation is needed in individual schools. Indeed, New York State Assemblywoman Linda Rosenthal has introduced legislation that would require such testing and would allow schools up to $50 reimbursement per test.\textsuperscript{229} This type of initial testing, if required on a federal scale, would help determine how many schools in the United States have PCBs in their school buildings (and potentially in the inside air) and the magnitude of the national problem. Federally mandated testing programs would ensure that testing was based on a uniform standard and that it would be carried out in a like manner from state to state.\textsuperscript{230}

Such testing would not be done to waylay removal of PCBs in school buildings, but rather it should be a first step toward removal and meeting newly established safety criteria (see below for a discussion of the need for such new criteria).\textsuperscript{231} Schools constructed in the relevant time period could conduct testing of these physical materials, for example, prior to renovations, to see if a school’s caulking contained PCBs and whether the caulking contains greater than 50 parts per million and should be treated as hazardous waste under the TSCA.\textsuperscript{232}

Extended air sampling and monitoring need not necessarily be done as indoor air testing programs are inordinately expensive and time-consuming.\textsuperscript{233} A legislatively mandated air quality testing program would only require air quality sampling and monitoring in schools where

\begin{quote}
\textsuperscript{229} State of New York, Assembly, Committee on Education, May 27, 2008, 11367-A.

\textsuperscript{230} As discussed above, the federal government has in the past spearheaded such efforts with regard to other toxic materials affecting children: asbestos in schools and lead paint in housing and public buildings. See supra notes 211 to 225 and accompanying discussion.

\textsuperscript{231} See infra notes 244 to 248 and accompanying discussion.

\textsuperscript{232} 40 CFR 761.20.

\textsuperscript{233} Information on file with author about the process and results of air sampling at Public School 199 in Manhattan.
\end{quote}
building materials contained greater than 50 parts per million\textsuperscript{234} or where PCB laden materials had previously and recently been disturbed through renovation or construction or where there is another reason to suspect contamination of indoor air.\textsuperscript{235}

2. Develop Safe Demolition, Renovation and Removal Requirements

Once initial screening tests have been done, a Model Act should require schools to prioritize and remove PCBs from school buildings over a five-year timeline following removal protocols established by the EPA pursuant to federal legislation.\textsuperscript{236} Any remediation plans should also include federally mandated safe removal of contaminated light ballasts\textsuperscript{237} as these structures can become very dangerous as they age and can contaminate an entire building in the event of a fire.\textsuperscript{238}

A New Model Act would also require the EPA to develop mandatory safe protocols for construction work in buildings constructed between the 1940s, when PCB’s were commonly used in construction, and 1977, when PCBs were banned for use in construction.\textsuperscript{239} Such legislation would require the EPA to develop mandatory safe renovation, demolition and waste removal requirements for schools rather than having schools rely on recommended state by state protocols for construction work involving PCBs.\textsuperscript{240} Federal law could set the standard for

\textsuperscript{234} 40 CFR 761.20.

\textsuperscript{235} See infra notes 244 to 248 and accompanying discussion.

\textsuperscript{236} See infra notes 239 to 243 and accompanying discussion.

\textsuperscript{237} See infra note 238 and accompanying discussion.

\textsuperscript{238} One source of PCBs in indoor air can be outdated light ballasts. See A Guide for School Administrators, Removing PCBs from Light Fixtures: Protecting Students from Hidden Dangers, United States EPA, May 2001. These ballasts are prone to leakage and deterioration because of their age. Id. at 2; Maertin v. Armstrong World Indus., 2000 WL 554168 (May 3, 2000).

\textsuperscript{239} 15 USC 2605(e).
renovation and remediation protocols – using New York State’s Protocol\textsuperscript{241} and the HUD Technical Guidelines for the Evaluation and Control of Lead-Based Point Hazards in Housing\textsuperscript{242} as starting points – for crafting a federal renovation and remediation protocols for PCBs. At the very least, a Model Act would require soil and caulk sampling first to determine if PCBs are present and if so, the hiring of an experienced environmental consultant to prepare a detailed abatement and containment plan tailored to the worksite.\textsuperscript{243}

3. Congress must make air testing in contaminated schools mandatory and establish minimum air quality standards

In addition to requiring the EPA to develop renovation and remediation protocols and requiring bulk testing of school building materials, a Model Act would immediately require the EPA to characterize maximum safe exposure levels for air that take into account the special susceptibility of children to toxins and that require air testing in schools suspected of contamination.\textsuperscript{244}

Currently, the EPA has not completed a risk assessment to determine safe levels of exposure to airborne PCBs for children.\textsuperscript{245} The EPA should prioritize and immediately complete this process. Indeed, this step is extremely important for schools that have already undergone renovation involving PCB contaminated materials or that have been found to have PCBs in

\textsuperscript{240} See, e.g., the New York State Protocol, \textit{supra} note 177.

\textsuperscript{241} New York State Protocol, \textit{supra} note 177.

\textsuperscript{242} www.hud.gov/offices/lead/lbp/hudguidelines/index.cfm (site visited July 16, 2009).

\textsuperscript{243} New York State Protocol, \textit{supra} note 177, at 2-3.

\textsuperscript{244} See \textit{supra} and \textit{infra} notes 44 to 64 and 244 to 248 and accompanying discussion (noting that children are not simply “little adults” and have different susceptibilities to toxins than adults).

\textsuperscript{245} See Letter from PS 199 Parent Teacher Association, PTA Co-Presidents, Valerie Watnick and Sharon Lustig to Chancellor Joel Klein, DOE, and Ross Holden, General Counsel, SCA(June 23, 2009) (on file with author).
indoor air.\textsuperscript{246} Of course, any such risk assessment must specifically take into account the developing nature of children’s systems, their small physical size and their potential for increased sensitivity to toxins.\textsuperscript{247}

In schools that are determined to be contaminated with airborne PCBs beyond this threshold safe limit set by the EPA pursuant to the Model Act, further remediation and testing should be required by federal law on an ongoing basis until airborne PCB levels fall below that determined by the EPA to be a safe threshold level.\textsuperscript{248}

4. Current Remediation Steps

At least one expert has suggested that in addition to longer term plans to remove PCB contaminated materials in school buildings, steps should be taken to decrease contamination in school buildings immediately.\textsuperscript{249} These interim steps might include using sealant materials to cover existing PCB containing caulk so that it does not continue to volatize into indoor air and/or leach into surrounding school building material.\textsuperscript{250} Under TSCA, the EPA has the enforcement power to require such interim steps while long-range plans for safe removal and cleanup are being implemented.\textsuperscript{251}

\textsuperscript{246} See Letter from PS 199 Parent Teacher Association, PTA Co-Presidents, Valerie Watnick and Sharon Lustig to Chancellor Joel Klein, DOE, and Ross Holden, General Counsel, SCA(March 19, 2009) (on file with author)(discussing continuing contamination of PS 199).

\textsuperscript{247} See supra notes 44 to 64 and accompanying discussion; Watnick, Risk Assessment, supra note 54 at 1321-22; National Research Council, National Academy of Sciences, Pesticides in the Diets of Infants and Children, at 23-43 (1993).

\textsuperscript{248} See Letter from PS 199 Parent Teacher Association, PTA Co-Presidents, Valerie Watnick and Sharon Lustig to Chancellor Joel Klein, DOE and Ross Holden, General Counsel, SCA(June 23, 2009) (on file with author)(calling for remediation until airborne level of PCBs are at least below background levels of less than 100 nanograms per cubic meter).

\textsuperscript{249} EPA to Pursue New PCB Regulation Amid Leakage Contamination Concerns, www.insideepa.com (10/21/08); Draft Strategic Plan, 2009-14 (September 30, 2008).

\textsuperscript{250} EPA to Pursue New PCB Regulation Amid Leakage Contamination Concerns, www.insideepa.com (10/21/08).
And finally, under the Comprehensive Environmental Response, Compensation and Liability Act, “CERCLA,” the EPA has promulgated rules that make it a federal crime to release more than a pound of PCB containing material into the environment, unless authorized by federal law to do so, without reporting such release to the federal government. These United State code sections and the concomitant code provisions have previously been used to prosecute those who release asbestos in excess of those amounts permitted under the federal code of regulations. School administrators and districts that do not comply with federal law regarding releases of PCBs in schools must similarly be held accountable for civil and/or criminal penalties.

D. Going after the Alleged Profiteer: Holding Monsanto Company Liable for PCB Remediation in Schools

The problem of PCBs in school buildings built in or before the 1970s, both in the United States and worldwide, has now become exacerbated because these schools are aging and beginning to deteriorate. There surely will be costs associated with the Model Act, along with potential harm to those in school buildings from exposure to

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251 40 CFR 761.20; 15 USC 2605(e).
252 42 U.S.C.A. s. 9601-9603.
253 42 U.S.C.A. s. 9603.
254 40 CFR 302.4.
256 42 U.S.C.A. s. 9601-9603.
257 40 CFR 302.4.
260 See supra notes 1 to 3 and accompanying discussion.
PCBs. This section urges that the sole U.S. manufacturer of PCBs should be held liable for the costs of needed removal and remediation efforts in the United States, and for any related liability in tort. Such an allocation would fairly and properly shift the burden of remediation from the taxpayer to the corporation that profited from the continued decades long manufacture of PCBs – even in the face of early evidence that PCBs were injurious to human health.  

1. Allocation of the Cost of Making and Selling PCBs

As alleged in the Yorktown School District Complaint, Old Monsanto began to mass produce PCBs for use in building materials and electrical equipment around 1935. Old Monsanto profited from these sales of PCBs and was the only alleged manufacturer of this toxic substance in the United States. If it is true that Monsanto is the only entity in the United States to manufacture these chemicals, and that it benefited economically from their sale, funding for a PCB clean up in schools should come from Monsanto Company. Indeed, the Yorktown Central School District asserts exactly that: Monsanto Company must be liable for such efforts and must bear the burden of the costs of this cleanup and indemnification for the School District’s current and future damages

2. Fairness Dictates that Monsanto Pay for Remediation

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261 See infra and supra notes 268 to 273. At least one court has noted that Monsanto knew as early as 1966 that PCBs were “turning up in the environment” and that traces of PCBs were being found in plants, animals and humans. Transwestern Pipeline Co., v. Monsanto Company, 46 Cal.App.4th 502, 509, 53 Cal.Rep.2d 887, 890 (Ct. App. 1996).

262 See Yorktown School District Complaint, supra note 17, at 3.

263 See Yorktown School District Complaint, supra note 17, at 6 (referencing Monsanto’s need to maintain a profit center regarding PCBs).

264 See Yorktown School District Complaint, supra note 17, at 3; see supra and infra notes 112 to 120, 261 to 265 noting that numerous other sources identify Monsanto Company as the exclusive manufacturer of PCBs in the United States.

265 Yorktown School District Complaint, supra note 17, at 15-23.
Plaintiff in the Yorktown School District Complaint also alleges that Old Monsanto manufactured PCBs for many years even after knowing that these man-made chemicals presented a threat to human health.\textsuperscript{266} Fundamental fairness dictates that, having allegedly known of the dangers of PCBs prior to their ban,\textsuperscript{267} and having produced them with this knowledge, Monsanto Company should now bear the burden of remediation associated with PCBs in schools.

Numerous sources state that Monsanto Company had knowledge of the toxic effects of PCBs prior to their ban.\textsuperscript{268} In 1937, a Harvard researcher named Cecil Drinker found that PCBs caused systemic toxic effects and that test rats had suffered severe liver damage.\textsuperscript{269} One commentator specifically says that Drinker presented his results to Monsanto Company on the systemic effects of PCBs that same year.\textsuperscript{270} And as early as the 1960s, it was determined that PCBs were similar in chemical make up and had similar toxic effects to the highly toxic pesticide DDT,\textsuperscript{271} now banned for use in the United States.\textsuperscript{272} And yet, Monsanto manufactured PCBs until at least 1971.\textsuperscript{273}

\textsuperscript{266} Yorktown School District Complaint, \textit{supra} note _, at 5-7.
\textsuperscript{267} See \textit{supra} note – and accompanying discussion.
\textsuperscript{268} See \textit{e.g.}, \textit{Transwestern}, 46 Cal. App. at 509, 53 Cal.Rep.2d at 890; Eric Francis, Sierra Club Magazine, Conspiracy of Silence, The Story of How Three Corporate Giants – Monsanto, GE and Westinghouse – Covered Their Toxic Trail, at 2 (September/October 1994).
\textsuperscript{269} Drinker, \textit{supra} note 115.
\textsuperscript{270} Eric Francis, Sierra Club Magazine, Conspiracy of Silence, The Story of How Three Corporate Giants – Monsanto, GE and Westinghouse – Covered Their Toxic Trail, at 3 (September/October 1994).
\textsuperscript{271} See \textit{supra} note _ and accompanying discussion.
\textsuperscript{273} \textit{See Transwestern}, 46 Cal. App. at 509, 53 Cal.Rep.2d at 890 (while Monsanto Company was going to stop making PCB laden “Turbinol” in 1972, it was so concerned about the risk from the product that it
Allocating the cost of the clean up of these PCBs would properly and fairly place responsibility for this remediation where it belongs: on the corporation that allegedly profited from the manufacturer and sale of PCBs and was on notice that they were a danger to human health and the environment long before it stopped manufacturing them. If held liable, Monsanto Company’s owners would fairly bear the cost through potentially decreased earnings, share prices and dividends.

It remains a major regulatory failure and a failure of corporate responsibility that PCBs were produced for years after their adverse health effects were publicly reported around the world\(^{274}\) and that these chemicals continue to contaminate school buildings worldwide.\(^{275}\)

### 3. Schools Can and Do Seek Recovery in Court for Remediation Costs due to Contamination of their Property From Toxic Substances

School Districts, municipalities, and other private and public entities have successfully sued for remediation costs due to contamination from toxic substances.\(^{276}\) These prior cases suggest that School Districts seeking recovery in tort for remediation costs associated with contamination from PCBs in their schools will also be successful.

In 1983, for example, multiple school districts filed a nationwide class action that finally involved some 30,000 school districts around the country seeking expenses incurred in eliminating the alleged danger of asbestos containing products in their school buildings.\(^{277}\)

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\(^{275}\) See supra notes 120 to 121 and accompanying discussion.


\(^{277}\) In Re Asbestos Litigation, 977 F.2d 764, 769, 771 (3rd Cir. 1992).
Ultimately, the school districts recovered almost 100 million dollars for remediation of the dangers of asbestos in their school districts.\(^{278}\)

And in 1995, opting out of the nationwide class action for school districts,\(^{279}\) the San Francisco School District sued the manufacturer of asbestos found in its schools.\(^{280}\) The School District sought recovery in tort for remediation costs it had incurred due to physical damage to its school buildings and for potential damage to students, staff and visitors.\(^{281}\) The court refused to dismiss the case on statute of limitations grounds, holding that the contamination was not merely “economic” damage recoverable in contract, but was physical damage that the School District could recover in tort.\(^{282}\) The court held that the School District’s strict liability claim would accrue in tort when contamination from asbestos occurred,\(^{283}\) and that plaintiff could properly maintain a suit in tort for remediation costs associated with the asbestos contamination.\(^{284}\)

Finally, in a case of first impression involving contamination from PCBs, in *Transwestern Pipeline Co. v. Monsanto Co.*,\(^{285}\) plaintiff, an interstate transporter of natural gas that had used defendant’s PCB laden product in its turbines, sought equitable indemnification from Monsanto Company for damage caused to Southern California Gas Company’s pipeline

\(^{278}\) *In Re Asbestos Litigation*, 1995 WL 1435387 (Sept. 27, 1995).

\(^{279}\) *San Francisco Unified School Dist.*, 37 Cal.App.4th at 1323, 44 Cal.Rptr.2d at 307.

\(^{280}\) *San Francisco Unified School Dist.*, 37 Cal.App.4th at 1318, 44 Cal.Rptr.2d at 305.

\(^{281}\) *San Francisco Unified School Dist.*, 37 Cal.App. at. 1323, 44 Cal.Rptr. at 307.

\(^{282}\) *San Francisco Unified School Dist.*, 7 Cal.App. at. 1330, 1335, 44 Cal.Rptr. at 311, 315.

\(^{283}\) *San Francisco Unified School Dist.*, 7 Cal.App. at. 1330, 1335, 44 Cal.Rptr. at 311 315.

\(^{284}\) *San Francisco Unified School Dist.*, 37 Cal.App. at. 1332, 44 Cal.Rptr. at 313.

from defendant’s product. Transwestern sought recovery in strict liability and negligence for physical damage to Southern California Gas Company’s property from PCBs, damages it had already agreed to pay. Monsanto urged that damage to plaintiff’s pipelines from PCBs in defendant’s product was economic recovery that was not recoverable in tort. Specifically referring to the San Francisco School District case, the court rejected this argument, likening damage to the pipelines to damage to buildings from asbestos, and holding that, like damage from asbestos contamination, the harm to Southern California Gas Company’s pipelines was property damage akin to asbestos contamination. The court stated: “In this respect at least, we see no distinction between PCB contamination and asbestos contamination.” Similarly in the case of PCBs in school buildings, it seems that schools can and should seek and win recovery under theories of negligence and strict liability for the physical damage to their property due to PCB contamination.

Other municipalities have also successfully sued in tort over the costs of abating toxic substances in public buildings. Indeed, New York City was one of the first municipalities to sue asbestos manufacturers to recover the costs of abating asbestos in schools and other public

292 See Yorktown School District Complaint, supra note 17. Plaintiff asserts claims in negligence and strict liability as well as claims under New York General Business Law. Id at 15 – 21.
buildings.\textsuperscript{294} When the litigation moved to bankruptcy court, City lawyers negotiated to create the first asbestos trust to be used for remediation of public buildings.\textsuperscript{295} New York City’s lawyers went on to challenge trustee actions and have thus far have collected over $130 million from defendants related to asbestos and New York City is the single largest collector of bankruptcy funds for remediation of asbestos in public buildings.\textsuperscript{296}

It bears noting that while many other defendants have also argued in asbestos litigation that there should be no recovery in tort for damage to buildings from asbestos,\textsuperscript{297} the vast majority of courts have rejected this argument.\textsuperscript{298} Instead the courts, have carved out an exception that allows recovery in tort for the cost of removal or encapsulation of asbestos.\textsuperscript{299} Courts have done this in line with the reasoning in \textit{San Francisco School District}\textsuperscript{300} case, holding that because the evidence suggests that asbestos may be extremely dangerous to humans when handled improperly, contamination from asbestos is damage to the physical building that


\textsuperscript{295} \textit{Id.} at 493.

\textsuperscript{296} \textit{Id.} at 493.


\textsuperscript{300} \textit{See San Francisco Unified School Dist.}, 7 Cal.App. at 1330, 44 Cal.Rptr. at 311.
endangers human health\(^{301}\) and can be recovered in tort.\(^{302}\) Bearing in mind the scope and quantity of these precedents,\(^{303}\) along with the *Transwestern*\(^{304}\) case which specifically involved PCB contamination, it seems likely that liability from PCB contamination would rest well on tort theories of law.\(^{305}\) It is entirely appropriate for affected municipalities, school districts and other entities to seek indemnification for these costs from the private corporation that was the alleged sole producer of PCBs in the United States: Monsanto Company.\(^{306}\)

E. Compliance under the Stockholm Convention

Under the Stockholm Convention, adopted in 2001 and registered in 2004, the United States agreed to work toward environmentally sound management of PCBs by 2028.\(^{307}\) The parties to the Convention agreed to review at five year intervals the progress towards elimination of PCBs by preparing five year reports.\(^{308}\) The five-year report from the United States is overdue and must promptly be furnished to the Convention, stating whether efforts to eliminate the chemicals have been sufficiently made, and promptly stating immediate and future efforts toward these ends.


\(^{303}\) See supra notes 278 to 304 and accompanying discussion.


\(^{305}\) See supra notes 278 to 304 and accompanying discussion.

\(^{306}\) See supra notes 278 to 304 and accompanying discussion.

\(^{307}\) http://chm.pops.int (site visited 1/8/09).

Conclusion

Although we did not initially choose the “other road” so clearly described by Carson in *Silent Spring* – avoiding pollution of our world with synthetically produced chemicals on a massive scale, the effects of which were and are in many respects unknown and unknowable to us; we are offered the opportunity to correct our past direction at this juncture with regard to PCBs. We have enough information now to follow the “other road” and to act judiciously and cautiously with regard to PCB’s in school buildings. We now know that these chemicals are injurious to human health, particularly the health of children, and that they are likely present in our nation’s classrooms on a large scale. And yet, we have not legislatively or administratively required testing for their presence in building materials or in indoor school air. Indeed, the EPA has not even completed its risk assessment to establish national air quality standards and threshold levels for PCBs in schools. Moreover, there are no mandatory protocols for the safe removal, waste treatment or safe construction standards when construction or demolition takes place in PCB laden school buildings.

We must take stock of the national situation and take the following steps: undertake initial physical material testing to assess the level of PCBs in our nation’s classrooms; set indoor ambient air quality standards and threshold action levels; require testing of indoor air where contamination is suspected; establish a timeline for the safe removal of PCBs from schools; establish mandatory protocols for construction and demolition when PCB containing material is involved; and comply with international law on PCB handling and reporting.

And if testing and removal of PCBs’ in our nation’s schools costs money, there are legal, economic, and policy reasons why the corporation that is responsible for their sole United States production must bear the cost. Holding the corporate manufacturer liable for required
remediation is consistent with past legal precedent and would allocate the cost of manufacturing these toxins fairly and avoid imposing it on the taxpayers. Taking these steps to protect the public against further PCB contamination in schools will bring us one step closer to the “other road.” It will help to ensure that the next generation of school children does not suffer the consequences of our past pollution from the road initially so poorly chosen.