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

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INTRODUCTION AND HISTORY

Environmental health experts have recently recognized caulking and sealing materials commonly used in the construction of schools in the 1960's and 1970's as a potential toxic source of the man-made chemicals called polychlorinated biphenyls,[1] commonly known as "PCBs."[2] In 1977, in recognition of the adverse health effects of these man-made compounds, Congress banned most uses of PCBs in building construction.[3] Despite the 1977 ban and evidence that PCBs are known animal carcinogens, probable human carcinogens,[4] and have other toxic effects on the human reproductive, immune,

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[1] Robert F. Herrick, Michael D. McClean, John D. Meeker, Lisa K. Baxter, & George A. Weymouth, *An Unrecognized Source of PCB Contamination in Schools and Other Buildings*, 112 ENVTL. HEALTH PERSP. 1051, 1051 (2004); U.S. Envtl. Prot. Agency, Polychlorinated Biphenyls (PCBs), http://www.epa.gov/epawaste/hazard/tsd/pcbs/pubs/about.htm (last visited Mar. 2, 2010) [hereinafter EPA on PCBs].

[2] PCBs are chemical mixtures made up of a variety of individual chlorinated biphenyl components called congeners. "The most common trade name is Aroclor." PCBs have been 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. *Id.* The period when PCBs were most commonly used also coincides with the baby boom era during 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." HARVARD SCH. OF PUB. HEALTH–METLIFE FOUND. INITIATIVE ON RETIREMENT AND CIVIC ENGAGEMENT, REINVENTING AGING: BABY BOOMERS AND CIVIC ENGAGEMENT 5 (Center for Health Comm., Harvard Sch. of Pub. Health 2004), *available at* http://www.hsph.harvard.edu/chc/reinventingaging/Report.pdf.

[3] 15 U.S.C. § 2605(e) et seq. (2010). The U.S. Environmental Protection Agency ("EPA") issued a final rule to implement section 6(e) of the Toxic Substances Control Act ("TSCA") on May 31, 1979. Polychlorinated Biphenyls (PCBs) Manufacturing, Processing, Distribution in Commerce, and Use Prohibitions, 40 C.F.R. pt. 761 (1982). Manufacturing, processing, and distribution of PCBs have been prohibited in almost all industrial countries since the late 1980s. Jan Alexander et al., *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*, 284 EUROPEAN FOOD SAFETY AUTH. J. 1, 89 (2005), *available at* http://www.efsa.europa.eu/en/efsajournal/doc/284.pdf.

[4] In 1996, at the direction of Congress, the EPA completed a reassessment of PCB carcinogenicity, titled "PCBs: Cancer Dose-Response Assessment and Application to Environmental Mixtures." This reassessment concluded that PCBs 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 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

endocrine, and neurological systems, these compounds are still commonly found in school buildings throughout the United States.[5]

This Article asserts that just as regulators acted on lead and asbestos concerns decades ago, regulators must act now to curtail the dangers associated with PCBs in school building materials[6] and develop a plan to remediate contaminated school buildings. This Article proposes a "Model Act" that provides for mandatory PCB testing in schools built between 1940 and 1977. The Model Act also provides for mandatory renovation and remediation protocols for PCB-contaminated building materials in schools.[7]

PCBs, unlike other toxins found in building materials like lead or asbestos, are not harmless when left undisturbed.[8] Rather, PCBs can move from sealants to surrounding materials, to the air, and to the ground, even when no physical changes occur in the building materials.[9] Studies have found contamination of indoor air in buildings containing PCB-contaminated caulking[10] without any physical evidence of decay or alteration of the surrounding building materials.[11]

As this Article will evince, the continued presence of PCBs and the lack of

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> 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.

EPA, Health Effects of PCBs, http://www.epa.gov/epawaste/hazard/tsd/pcbs/pubs/effects.htm (last visited Mar. 2, 2010). Additionally, other organizations have determined that PCBs are human carcinogens or probable human carcinogens. "The International Agency for Research on Cancer has declared PCBs 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." *Id.*

[5] Buildings constructed prior to 1977 (the year in which Congress prohibited the use of PCBs in construction) commonly contained PCBs around windows in masonry buildings. Herrick, *supra* note 1, at 1051.

[6] Letter from Miranda Massie, Senior Staff Attorney, New York Lawyers for the Public Interest, Inc., to Lisa Jackson, Administrator of the EPA, at 1 (Apr. 28, 2009), *available at* http://www.pcbinschools.org/Letter%20to%20EPA%20Jackson.pdf [hereinafter Massie Apr. 28 Letter to EPA] (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* discussion *infra* Part IV.C.3-D.2.

[8] *See* Herrick, *supra* note 1, at 1051.

[9] Maria Ljung, Maria Olsson & Nikolaj Tolstoy, *Research and Development in Sanitation Technology for PCB-Containing Sealants*, BUILDING PHYSICS 2002, 6TH NORDIC SYMP., SESSION 19: BUILDING DESIGN AND TECHN. 1, 823 (citing Jansson et al., 1997, *PCB i fogmassor*, Naturvårdsverket Rapport 4697), *available at* http://www.pcbinschools.org/PCB%20Sanitation.pdf.

[10] H. Fromme, AM Baldauf, O. Klautke, M. Piloty, & L. Bohrer, *Polychlorinated biphenyls (PCB) in Caulking Compounds of Buildings—Assessment of Current Status in Berlin and New Indoor Air Sources*, 58 GESUNDHEITSWESEN 666 (1996). .

[11] *See* N. Weis, M. Kohler & C. Zorn, *Highly PCB-Contaminated Schools due to PCB-containing Roughcast*, BRMER UNWLETINSTITUT 283 (Healthy Buildings 2003, 7th International Conference), Dec. 2003, at 284, *available at* http://www.pcbinschools.org/PCB_kontaminierte_Schulen_2003.pdf (noting that a room was tested for PCB contamination, painted, cleared out and retested, only to find indoor air concentrations had almost tripled).

any regulatory framework to monitor and remediate PCBs provides still another illustration of the choice presented in *Silent Spring*,[12] Rachel Carson's landmark book about the dangers of filling our world with synthetic chemicals. *Silent Spring* offered humanity a choice with serious legal, economic and ethical 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.[13] Indeed, scholars and activists often credit Carson's *Silent Spring*[14] for helping to establish the modern environmental movement.[15] However, in the years since Carson first published her book, society generally has not taken the "other" road. Instead, society has continued indiscriminately to allow the proliferation of synthetic chemicals including PCBs and pesticides.[16] This Article contends that our society must now diverge from this course and take the road necessary to preserve the Earth and humanity. Society must begin the painstaking process of ridding our world of the toxic and synthetic chemicals known as PCBs.

In recent groundbreaking litigation involving PCBs, the Yorktown Central School District ("Yorktown School District") in New York State sued the U.S. makers and distributors of PCBs in federal court, urging that defendants[17] should

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[12] RACHEL CARSON, SILENT SPRING (Paul Brooks ed., Houghton Mifflin 1962).

[13] *Id.* at 277.

[14] *Id.*

[15] *See, e.g.*, Peter Matthiessen, *Environmentalist Rachel Carson*, TIME, Mar. 29, 1999, *available at* http://www.time.com/time/magazine/article/0,9171,990622,00.html (describing Silent Spring as the "cornerstone of the new environmentalism"); Natural Resources Defense Council, The Story of Silent Spring, http://www.nrdc.org/health/pesticides/hcarson.asp (last visited Feb. 28, 2010).

[16] *See* Donald T. Hornstein, *The Road Also Taken: Lessons From Organic Agriculture for Market- and Risk-Based Regulation*, 56 DUKE L.J. 1541, 1543-44 (2007) (noting that with the Organic Foods Production Act emerged a "cause-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."); Valerie J. Watnick, *Our Toxics Regulatory System and Why Risk Assessment Does Not Work: Endocrine Disrupting Chemicals as a Case in Point*, UTAH L. REV. 1305, 1310(2004) (noting that each year we bring to market 1000 new synthetic chemicals) [hereinafter Watnick, *Our Toxics Regulatory System*].

[17] Complaint at 1, Yorktown Central School District v. Monsanto Company, Pharmacia Corporation, and Pecora Corporation and John Does 1-20, No. 07-Civ. 8648 (S.D.N.Y. 2008) (Complaint filed Jan. 14, 2008 and amended Feb. 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"). *Id.* at 3. The Complaint alleges that Old Monsanto spun off the part of the business that made PCBs to create a company called Solutia, Inc. and Old Monsanto then merged with Pharmacia & Upjohn, Inc. and became Pharmacia Corporation. Plaintiffs allege that Pharmacia later created a wholly-owned subsidiary called Monsanto Company ("New Monsanto"). *Id.* at 7-8. *See* Relationships Among Monsanto Company, Pharmacia Corporation, Pfizer, Inc., and Solutia, Inc., http://www.monsanto.com/who_we_are/monsanto_relationships.asp (last visited Mar. 2, 2010) 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. In 2003, Solutia and its United States subsidiaries filed a voluntary petition for reorganization under Chapter 11 of the U.S. Bankruptcy Code. "In connection with Solutia's

bear the burden of required remediation in the School District.[18] Prior to the lawsuit, Yorktown School District discovered high levels of PCBs in school building materials and soil surrounding one of its schools.[19] The School District responded by undertaking remediation of PCB-laden caulk in all of its school buildings, a task it completed shortly before the lawsuit.[20]

On the heels of Yorktown School District's PCB clean-up efforts and its ensuing federal lawsuit, additional serious concerns about PCBs in schools surfaced in New York City in April 2008. These new concerns arose following reports by the *New York Daily News*[21] that its testing revealed dangerously high levels of PCBs in the caulking of eight out of the nine New York City public schools tested.[22] These findings were disturbing on a local level, but even more disturbing because of their national implications. Given that New York City's public school system is the largest in the nation, serving over 1.1 million students and operating over 1500 schools,[23] these PCB findings serve as a "tip of the iceberg" warning to school districts, parents, and lawmakers nationwide.

This Article suggests that the presence of PCBs in our nation's schools is a problem that requires legislative attention. For legal, economic, and policy reasons, courts should hold the corporate manufacturers and distributors of PCBs in the United States liable for remediation and other costs associated with PCBs in schools. The argument is conceived in four Parts. Part I discusses the

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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." *Id.* Throughout this article, "Old Monsanto" refers to the original Monsanto founded in 1901 and "New Monsanto" refers to the Monsanto Company that exists today. *See* Company History, http://www.monsanto.com/who_we_are/history.asp (last visited Mar. 2, 2010). "Monsanto Company" or Defendants refers collectively to all of the defendants in the Yorktown School District.

[18] Yorktown School District Complaint, *supra* note 17, at 1-2.

[19] Yorktown Central School District, Yorktown Heights, New York, Final Report on PCB Wipe Sampling: August 30, 2005, French Hill Elementary School (sampling conducted by Henningson, Durham & Richardson Architecture and Engineering, P.C., in association with HDR Engineering, Inc.), *available at* www.pcbinschools.org/Final.pdf (last visited Mar. 2, 2010).

[20] *Id.*

[21] Bill Egbert, *PCBs Found at Two More City Schools*, N.Y. DAILY NEWS, Apr. 9, 2008, *available at* http://www.nydailynews.com/ny_local/education/2008/04/09/2008-04-09_pcbs_found_at_two_more_city_schools.html [hereinafter Egbert, *PCBs Found*]; Bill Egbert, *Probe Urged After News Finds Toxin in School Buildings*, N.Y. DAILY NEWS, Apr. 8, 2008, *available at* http://www.nydailynews.com/ny_local/education/2008/04/08/2008-04-08_probe_urged_after_news_finds_toxin_in_sc.html [hereinafter Egbert, *Probe Urged*]; Bill Egbert, *Toxin Turns Up in School Buildings, But Officials Say There's No Danger*, N.Y. DAILY NEWS, April 7, 2008, *available at* http://www.nydailynews.com/ny_local/education/2008/04/07/2008-04-07_toxin_turns_up_in_school_buildings_but_o.html [hereinafter Egbert, *Toxin Turns Up*].

[22] Egbert, *PCBs Found*, *supra* note 21. The New York City Department of Education ("DOE") conceded that in New York City alone, PCBs are commonly found in 266 city schools constructed between 1960 and 1979. Demetria Irwin, *New York Department of Education: Toxins in Schools Not Harmful*, ASSOCIATED PRESS, Apr. 16, 2008.

[23] New York City Dept. of Educ., About Our Schools, http://schools.nyc.gov/AboutUs/schools/default.htm (last visited Mar. 2, 2010).

known health risks associated with PCB exposure and the extent of the PCB problem on a national scale. Part II analyzes Yorktown School District's recent lawsuit against Monsanto Company, alleging that the original Monsanto was the exclusive manufacturer of PCBs[24] and that other defendants in the suit were distributors, suppliers, marketers, and sellers of products containing PCBs.[25] This section also charts the New York City public school system's efforts to encourage the federal and local government to properly clean up the city's public schools, an extremely costly and onerous effort for local administrators and lawmakers to tackle without private funding. Part III gives an overview of existing laws and regulations concerning PCBs and proposals for new regulation. Part IV outlines a framework for model federal legislation to address comprehensively the existence of PCBs in our nation's schools.

I. THE CHARACTERISTICS AND DANGERS OF PCBS

A. Characteristics of PCBs

PCBs were first synthesized in 1889 and were mass produced starting in the 1920s. They are chlorinated compounds[26] that "belong to a broad family of artificially-made organic chemicals known as chlorinated hydrocarbons."[27] PCBs are mixtures of up to 209 individual chlorinated compounds that are also known as congeners. [28] The Yorktown School District Complaint alleges that the original Monsanto ("Old Monsanto") [29] manufactured these congeners in the United States from about 1935 to 1971.[30]

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[24] Yorktown School District Complaint, *supra* note 17, at 1-2; Conn. Dep't of Envtl. Prot., PCBs, http://www.ct.gov/dep/pcb (last visited Feb. 28, 2010) (noting that "Monsanto" was the "sole U.S. manufacturer" of PCBs).

[25] *See* Yorktown School District Complaint, *supra* note 17, at 1-2. *See* discussion *infra* Part II.A. The Yorktown litigation is the first major case to involve a public school district's lawsuit against Monsanto Company. However, Monsanto Company and Solutia, Inc. previously have been embroiled in PCB litigation initiated by Burlington Community College. *Maertin v. Armstrong World Indus. Inc.,* No. CIV. A. 95-2849, 2000 WL 554168 (D.N.J. May 3, 2000).

[26] AGENCY FOR TOXIC SUBSTANCES & DISEASE REGISTRY ("ATSDR"), POLYCHLORINATED BIPHENYLS (PCBS), http://www.atsdr.cdc.gov/substances/toxsubstance.asp?toxid=26 (last visited Mar. 2, 2010).

[27] *See* EPA on PCBs, *supra* note 1.

[28] *Id.*

[29] *See* Yorktown School District Complaint, *supra* note 17, at 3, 7 and accompanying text (the Complaint refers to the original Monsanto Company incorporated in 1901 as "Old Monsanto").

[30] Yorktown School District Complaint, *supra* note 17, at 3. Numerous sources also credit Monsanto as the only manufacturer of PCBs in the United States. Michael Schroeder Bloomington, *Did Westinghouse Keep Mum on PCBs? A New Lawsuit Charges that it Knew of Health Risks it Didn't Disclose*, BUSINESSWEEK, Aug. 12, 1991, *available at* http://www.businessweek.com/archives/1991/b322667.arc.htm; Eric Francis, *Conspiracy of Silence, The Story of How Three Corporate Giants – Monsanto, GE and Westinghouse – Covered Their Toxic Trail*, SIERRA CLUB MAG., Sept./Oct. 1994, at 2, *available at* http://www.sierraclub.org/sierra/200103/conspiracy.asp. *See* Conn. Dep't of Envtl. Prot. *supra* note

In the early twentieth century, chemists experimented by mixing chlorine with benzene, a byproduct of the new gasoline age. The chemists 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.[31] Thus, scientists created the first PCB congeners for commercial use.[32] Manufacturers gave PCB congeners the trade name "Aroclor" and designated each with a number indicating the extent of chlorination of the congener[33] (e.g., Aroclor 1254).

Once created, PCBs do not easily break down in the environment.[34] In fact, builders and developers used PCBs in school construction in joints, caulk, and sealants because of their extreme stability and resistance to thermal and oxidative breakdown.[35] PCBs remain in the environment despite exposure to sun and air. Indeed, they can travel long distances in the Earth's water, air, and soil,[36] and are later found far from the areas in which they originated precisely because they do not biodegrade easily.[37]

In the 1970s, despite their widespread use, many researchers concluded that the substances found in PCBs were highly toxic.[38] Humans are exposed to PCBs through the air, food, and water. Researchers realized that because PCBs do not biodegrade, humans that suffered exposure to the chemicals would carry the toxic load in their blood stream indefinitely.[39] This process by which organisms accumulate a substance is called bioaccumulation.[40] PCBs thus accumulate in the cells of plants and smaller animals, which are subsequently eaten by larger animals, and then by humans as food.[41] Therefore, exposure to

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[31] *See* Francis, *supra* note 30, at 2.

[32] *Id.*

[33] STU SPIEGEL, PCBS IN CAULK: MYTH AND REALITY (2006), *available at* www.pcbinschools.org/Spiegel.pdf. *See* Yorktown School District Complaint, *supra* note 17, at 6.

[34] *See* EPA on PCBs, *supra* note 1; Stockholm Convention on Persistent Organic Pollutants (POPs), PCBs Overview, http://chm.pops.int/Programmes/PCBs/Overview/tabid/273/language/en-US/Default.aspx (last visited Mar. 12, 2010) [hereinafter PCBs Overview] (including PCBs on list of chemicals that need to be eliminated).

[35] *See* PCBs Overview, *supra* note 34.

[36] Stockholm Convention on Persistent Organic Pollutants, May 23, 2001, 40 I.L.M. 532, *available at* http://chm.pops.int/Convention/tabid/54/language/en-US/Default.aspx#convtext (last visited Mar. 4, 2010). *See* EPA on PCBs, *supra* note 1; PCBs Overview, *supra* note 34.

[37] Stockholm Convention on Persistent Organic Pollutants, *supra* note 36.

[38] William Fitts Ryan, former New York representative to the U.S. House of Representatives, made the first proposal for a total ban on PCBs in 1970. *See* Francis, *supra* note 30, at 8; Soren Jensen, *New Scientist*, 4 AMBIO, ROYAL SWEDISH ACAD. OF SCI. 123 (Sept. 1972); David Perlman, *A Menacing New Pollutant*, SAN FRANCISCO CHRON., Feb. 24, 1969.

[39] Jensen, *supra* note 38, at 129.

[40] United States Geological Survey, Toxic Substances Hydrology Program, Bioaccumulation, http://toxics.usgs.gov/definitions/bioaccumulation.html (last visited Feb. 28, 2010).

[41] *See* EPA on PCBs, *supra* note 1; Carson, *supra* note 12, at 20-22 (noting that certain persistent chemicals, such as DDT, undergo bioaccumulation in the smallest amounts and then are

PCBs from food is a significant source of exposure.[42]

In addition to studying PCB exposure through food, experts also recently began to recognize the effects of dermal and inhalation[43] exposure. Experts have concluded that these pathways of exposure are equally significant,[44] especially as exposure through food decreases due to increased management of toxic waste containing PCBs.[45] Children and adults can thus also be exposed to PCBs by breathing them in air[46] or by touching contaminated material such as caulking in school buildings. [47]

B. Toxic Effects of PCBs on Children

Although scientists have not exhaustively studied the specific effects of PCB exposure on children, researchers have specifically associated PCBs with neurotoxic[48] and immunologic effects in children.[49] Researchers link exposure to PCBs *in utero* with lower birth weight[50] and decreased head circumference at birth.[51] Additionally, scientists have also linked PCB exposure to a higher incidence of behavioral disorders and lower IQ scores in children. [52] Lastly, PCB exposure may also cause damage to the immune system, liver, skin, reproductive system, gastrointestinal tract, and thyroid gland.[53]

PCBs are particularly dangerous for children, who may be more susceptible to toxins than adults due to their smaller size and developing bodies.[54] The

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magnified as one moves up the food chain). PCBs have been found to be chemically very similar to DDT. *See* Francis, *supra* note 30, at 5.

[42] *See* EPA on PCBs, *supra* note 1.

[43] Ann C. Casey, David F. Berger, John P. Lombardo, Anne Hunt & Fred Quimby, *Aroclor 1242 Inhalation and Ingestion by Sprague-Dawley Rats*, 56 J. TOXICOLOGY & ENVTL. HEALTH, 311, 312-13 (1999); U.S. ENVTL. PROT. AGENCY, PREVENTING EXPOSURE TO PCBS IN CAULKING MATERIAL (2009), *available at* http://www.epa.gov/pcbsincaulk/caulkexposure.pdf.

[44] *Id.*

[45] Herrick, *supra* note 1, at 1051.

[46] *See* PCBs – Mandatory Testing in Schools, http://www.pcbinschools.org (last visited Mar. 2, 2010).

[47] U.S. ENVTL. PROT. AGENCY, FACT SHEET FOR SCHOOLS: CAULK CONTAINING PCBS MAY BE PRESENT IN OLDER SCHOOLS AND BUILDINGS, http://www.epa.gov/pcbsincaulk/caulkschoolkit.pdf (last visited Mar. 2, 2010).

[48] Alexander et al., *supra* note 3, at 89 (noting that PCBs disrupt the human endocrine system).

[49] *Id.* at 91; WORLD HEALTH ORGANIZATION, WHO REGIONAL OFFICE FOR EUROPE, COPENHAGEN, DENMARK, POLYCHLORINATED BIPHENYLS, ch. 5.10 at 10 (2000); AGENCY FOR TOXIC SUBSTANCES AND DISEASE REGISTRY, HEALTH EFFECTS OF PCBS 146, *available at* http://www.atsdr.cdc.gov/toxprofiles/tp17-c3.pdf (last visited Mar. 29, 2010) [hereinafter ATSDR, HEALTH EFFECTS].

[50] ATSDR, HEALTH EFFECTS, *supra* note 49 at 89.

[51] *Id.* at 229.

[52] Alexander et al., *supra* note 3, at 89.

[53] *See* Alexander et al., *supra* note 3, at 3; PCBs Overview, *supra* note 34.

[54] *See* AGENCY FOR TOXIC SUBSTANCES AND DISEASE REGISTRY, TOXICOLOGICAL PROFILE OF PCBS 380-94 (2000), *available at* http://www.atsdr.cdc.gov/toxprofiles/tp17.html (discussing

Agency for Toxic Substances and Disease Registry ("ATSDR") concluded that:

> Younger children may be particularly vulnerable to PCBs 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.[55]

Further, the National Research Council of the National Academy of Sciences determined in 1993 that children are generally more susceptible to the effects of toxins than adults because of the physiologic and biochemical differences between children and adults that influence the quantity absorbed and the effect of toxins on children.[56] The NRC concluded that children have higher metabolic rates and consume more food, air, and water per pound of body weight than adults.[57] All of these factors influence their susceptibility to toxins.

Finally, in adults, PCBs are suspected human carcinogens, known animal carcinogens[58] and neurotoxins, and are commonly considered to be chemicals that disrupt the human endocrine system (Endocrine Disrupting Chemicals or "EDCs").[59] EDCs[60] are synthetic compounds[61] that affect the functioning of the endocrine system in two ways.[62] EDCs can either block or alter the effect of naturally produced hormones in the endocrine system.[63] EDCs also cause a

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various studies of effects of PCBs on fetuses and children).

[55] *Id.* at 381.

[56] NATIONAL RESEARCH COUNCIL, PESTICIDES IN THE DIETS OF INFANTS AND CHILDREN 23-43 (1993) (noting that lipid soluble substances, including PCBs, may be more concentrated in children where the overall proportion of body fat to the rest of the body mass is lower than it is in adulthood).

[57] *Id.* at 38, 43. *See also* Valerie Watnick, *Risk Assessment: Obfuscation of Policy Decisions in Pesticide Regulation and the EPA's Dismantling of the Food Quality Protection Act's Safeguards for Children*, 31 ARIZ. ST. L.J. 1315, 1321-22 (1999) [hereinafter Watnick, *Risk Assessment*].

[58] Alexander et al., *supra* note 3, at 78. *See* discussion *supra* Part I.A-B.

[59] Alexander et al., *supra* note 3, at 86; Herrick, *supra* note 1, at 1051. For a more thorough discussion of the effects of endocrine disrupting chemicals, see Watnick, *Our Toxics Regulatory System*, *supra* note 16.

[60] Robin Fastenau, *EPA's Investigation and Regulation of Endocrine Disrupters*, 14 J. ENVTL. L. & LITIG. 53, 54 (1999).

[61] Cassandra L. Bevan, Anita Prasad & Leslie P. Henderson, *The Effects of Endocrine Disrupting Compounds on the Development of the Nervous System: Use of the Frog,* Xenopus Laevis*, as a Model System*, 2 VT. J. ENVTL. L. 41, 42 (2001).

[62] The endocrine system regulates the body's biological processes from conception to old age, including the development of the brain, nervous system, and reproductive system. EPA, What are Endocrine Disrupters?, http://www.epa.gov/endo/pubs/edspoverview/whatare.htm (last visited Mar. 2, 2010).

[63] Commonly known endocrine disrupting chemicals ("EDCs") include pesticides, PCBs, and dioxins (a byproduct of paper production). *See* Fastenau, *supra* note 60, at 54.
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 both prenatal and postnatal sexual

decrease in fertility rates in wildlife. Strong evidence suggests that EDCs have similarly contributed to decreases in human fertility around the world.[64] Because PCBs mimic estrogen,[65] a vital human hormone, and are chemically similar to DDT,[66] a known EDC and a banned pesticide, they are likely potent EDCs that have toxic effects on developing organisms and children.[67]

C. The National Extent of the Problem

Buildings constructed during the 1950s and 1960s are very likely to contain PCBs in their materials.[68] In a 2004 study, researchers at the Harvard School of Public Health found that thirteen out of twenty-four buildings sampled in the Boston area contained caulking materials with detectable levels of PCBs.[69] Because so many buildings were constructed during this period to accommodate the "baby boom,"[70] many school buildings are likely to contain PCB-contaminated materials.[71] In New York City alone, 260 schools were constructed during the period when PCBs were routinely used in window caulking.[72] Addressing the nationwide impact of PCBs, the *New York Daily News* asserted that any school building constructed in the United States between the 1960s and 1977 likely contains PCBs in its building materials in excess of

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development. *See* Mary O' Brien, *Our Current Toxic Use Framework, Our Stolen Future, and Our Options*, 11 J. ENVTL. L. & LITIG. 331, 332 (1996).

[64] Karen Fassuliotis, *The Science of Endocrine Disruption – Will it Change the Scope of Products Liability Claims?*, 17 PACE ENVTL. L.REV. 351, 357-61 (2000); Don Mayer, *The Precautionary Principle and International Efforts to Ban DDT*, 9 S.C. ENVTL. L.J. 135, 147 (2002) (noting that EDCs can disrupt an animal's reproductive system even when exposure is in infinitesimal amounts). S*ee also* Raphael J. Witorsch, Endocrine Disruption: History, Fact and Fantasy of Gender Bending Chemicals 1, http://www.witorsch.com/ray/seminar.pdf (last visited Mar. 2, 2010) (noting that there has been a fifty percent decrease in sperm production in the developed world in the last fifty years). There is some evidence that EDCs may threaten our overall survival. *See generally* THEO COLBURN ET AL., OUR STOLEN FUTURE, ARE WE THREATENING OUR FERTILITY, INTELLIGENCE AND SURVIVAL?—A SCIENTIFIC DETECTIVE STORY (Penguin Books 1996).

[65] *See* Francis, *supra* note 30, at 5.

[66] Soren Jensen, *The PCB Story*, 4 AMBIO, ROYAL SWEDISH ACAD. OF SCIENCES 123, 124-27 (1972).

[67] *See* discussion *supra* Part I.B.

[68] *See, e.g.*, PCBs – Mandatory Testing in Schools, PCB-Contaminated Caulk Found by the DOE in NYC Schools, www.pcbinschools.org/PCB-CONTAMINATED%20CAULK%20FOUND%20by%20the%20DEPARTMENT%20of%20EDUCATION%20in%20NYC%20SCHOOLS.pdf (last visited Mar. 2, 2010) (New York City Schools were found to be contaminated with PCBs as of November 2009).

[69] Herrick, *supra* note 1, at 1052.

[70] HARVARD SCH. OF PUB. HEALTH–METLIFE FOUND. INITIATIVE ON RETIREMENT AND CIVIC ENGAGEMENT, REINVENTING AGING: BABY BOOMERS AND CIVIC ENGAGEMENT 5 (Center for Health Comm., Harvard Sch. of Pub. Health 2004), *available at* http://www.hsph.harvard.edu/chc/reinventingaging/Report.pdf.

[71] Hashim Rahman, *Pushing to be Free in School From PCBs*, CITY LIMITS, June 22, 2009, *available at* http://www.citylimits.org/news/article.cfm?article_id=3763.

[72] *Id.*

the amount allowed by federal law.[73]

The issue of PCB-contaminated school environments is thus gaining importance. As schools built in the mid-20th century age, PCBs leach into the surrounding materials and indoor air.[74] Alternatively, renovation projects also may result in the release of PCBs into school environments.[75]

Indeed, in 2001, the U.S. Environmental Protection Agency ("EPA") recognized this growing problem and issued a guide for school administrators called "Removing PCBs from Light Fixtures: Protecting Students from Hidden Dangers."[76] In this guide, the EPA noted that many schools' light ballasts contain PCBs, and that the risk of PCB leakage increases as these ballasts age. [77]

II. EMERGENCE OF PCBS IN SCHOOLS AS A NATIONAL ISSUE

A. Pending Litigation

On January 14, 2008, the Yorktown School District filed a federal lawsuit against Monsanto Company, Pharmacia Corporation, and Pecora Corporation seeking remediation and indemnification costs associated with PCBs in its school buildings.[78] The litigation is the first of its kind and is a case of first impression. In the lawsuit, Yorktown School District alleged that Old Monsanto, originally "Monsanto Chemical Company, was the sole U.S. maker of PCBs"[79] and that the other named and unnamed Defendants manufactured, distributed, marketed, and sold PCBs.[80]

In 2005, Yorktown School District responded to the PCB contamination problem by using taxpayer money to clean up tainted caulking in its schools.[81]

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[73] *See* Egbert, *Toxin Turns Up*, *supra* note 21; discussion *infra* Part III.A. *See also* Rahman, *supra* note 71.

[74] *See* Martin Kohler, Josef Tremp, Markus Zennegg, Cornelia Seiler, Salome Minder-Kohler, Marcel Beck, Peter Lienemann, Lukas Wegmann & Peter Schmid, *Joint Sealants: An Overlooked Diffuse Source of Polychlorinated Biphenyls in Buildings*, 39 ENVTL. SCI. & TECHN. 1967, 1967-73 (2005); M. Sundahl, E. Sikander, B. Ek-Olausson, A. Hjorthage, L. Rosell & M. Tornevall J., *Determinations of PCB Within a Project to Develop Cleanup Methods for PCB-Containing Elastic Sealant Used in Outdoor Joints Between Concrete Blocks in Buildings*, J. ENVTL. MONIT., SP SWEDISH NAT'L TESTING AND RESEARCH INST. 383, 383 (1999).

[75] *See* discussion *infra* Part II.C.

[76] U.S. ENVTL. PROT. AGENCY, A GUIDE FOR SCHOOL ADMINISTRATORS: REMOVING PCBS FROM LIGHT FIXTURES: PROTECTING STUDENTS FROM HIDDEN DANGERS 1-2 (2001).

[77] *Id.*

[78] Yorktown School District Complaint, *supra* note 17*,* at 1.

[79] *Id.* at 3.

[80] *Id.* at 1. Plaintiff refers to PCBs as the "now outlawed carcinogen that was used in the construction of their school buildings."

[81] PCBs – Mandatory Testing in Schools, http://www.pcbinschools.org (last visited Mar. 2, 2010). The defendants have sent a letter to the court stating that the parties have "in principle" settled the case between them. Letter from Rafael Vergara, White and Williams, LLP to Judge Stephen C. Robinson, U.S. District Judge for the Southern District of New York, 1 (June 11, 2009).

Through its recent lawsuit, Yorktown School District now seeks remediation costs and expenses from Monsanto Company. It alleges products liability and negligence claims, seeking damages for existing and future school remediation costs and attorneys' fees.[82] The School District also seeks indemnification from Defendants for all past or present lawsuits by third parties, including students, teachers, or employees.[83] The School District also specifically asks the court for a declaratory judgment "that Defendants are responsible for the [School] District's [past and future] damages" and 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.[84]

Plaintiff alleges that Old Monsanto,[85] the sole manufacturer of PCBs, knew the chemicals were dangerous to human health as early as the 1940s and 1950s[86]—long before the public knew of the dangers of PCBs and long before Congress banned the use of PCBs in construction.[87] According to Plaintiff's Complaint, an internal Old Monsanto memorandum from the 1950s reveals the

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Details and formal documents concerning the terms of any such potential settlement are not available to the public at this time.

[82] Yorktown School District Complaint, *supra* note 17, at 1.

[83] *Id.* at 2.

[84] *Id.* On November 10, 2008, the Court decided Monsanto Company's motion to dismiss. *See* Memorandum Decision and Order, *Yorktown Central School District v. Monsanto Company, Pharmacia Corporation, and Pecora Corporation and John Does 1-20*, No. 07-Civ. 8648 (S.D.N.Y. Nov. 10, 2008). The court dismissed as untimely Plaintiff's New York General Business Law claims (claims that Defendants engaged in deceptive practices with regard to the sale of PCBs), Plaintiff's manufacturing design defect claim, and Plaintiff's claim for declaratory relief regarding indemnification. *Id.* at 13, 16, 18-19. The court decided, however, not to dismiss Plaintiff's claims against Monsanto for negligence, recklessness, and strict liability for failure to warn, design defect, and negligent design. The court also decided that if Plaintiff could prove its claims, Monsanto would have to pay punitive damages to Plaintiff. *Id.* at 15-16, 20. Regarding the timeliness of Plaintiff's negligence and strict liability claims, the court noted that latent effects of PCBs (migration and volatilization) at least partially caused the adverse effects from the PCBs and that the New York statute of limitations did not bar these claims. New York's statute of limitations allows a Plaintiff 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 a plaintiff or from the date when through the exercise of reasonable diligence such injury should have been discovered by Plaintiff." *Id.* (citing N.Y. C.P.L.R. s. 214-c(2)). Because Plaintiff School District only discovered the injury in 2005 and filed the complaint in 2007, the complaint was timely. *See* Yorktown School District Complaint, *supra* note 17; Monsanto Memorandum Decision and Order, *supra* note 84, at 12.

[85] Plaintiff alleges that Monsanto Company succeeded Monsanto Chemical Company, the original manufacturer of PCBs. Plaintiff refers to both of these entities collectively as "Old Monsanto." *See* Yorktown School District Complaint, *supra* note 17.

[86] *Id.* at 5.

[87] Polychlorinated Biphenyls (PCBs) Manufacturing, Processing, Distribution in Commerce, and Use Prohibitions, 40 C.F.R. pt. 761 (1982) (banning use of PCBs except in "totally enclosed manner"). *See supra* note 3 and accompanying text. Evidence indicates that Monsanto probably knew of the dangers PCBs posed to humans as early as 1937. S*ee* Francis, *supra* note 30, at 3-4. *See generally* Cecil K. Drinker et al., *The Problem of Possible Systemic Effects From Certain Chlorinated Hydrocarbons*, 19 J. INDUST. HYGIENE & TOXICOLOGY 283 (1937).

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."[88] Further, Plaintiff has referenced other internal memoranda to bolster its allegation that Old Monsanto formed a committee to address concerns of contamination caused by the manufacture and use of PCBs.[89] Plaintiff alleged that the committee's objective was to protect the "continued sales and profits of Aroclors [and] permit continued new development of uses and sales," even while Old Monsanto documents acknowledged contamination from PCBs.[90] According to documents referenced in the Yorktown Complaint, in forming the committee, Old Monsanto acknowledged that PCBs were then "nearly global environmental contaminants leading to contamination of human food (particularly fish), the killing of some marine species (shrimp), and the possible extinction of several species of fish-eating birds."[91]

The Yorktown School District Complaint points to a number of Old Monsanto's internal documents that reveal incriminating statements made by the company. One such statement reads: "[t]here are however, 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."[92] The School District highlights these internal documents that paint a bleak picture of a corporation attempting to maintain a profit center, despite alarming and growing evidence of the negative health effects of PCBs.[93]

Yorktown School District's "test" case is the first in which a public school district has alleged that Monsanto Company should be responsible for all cleanup and remediation costs associated with PCBs in its schools. The case will have important consequences nationally[94] as more schools begin to test for PCBs and undergo remediation of contaminated school buildings.[95]

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[88] Yorktown School District Complaint, *supra* note 17, at 5.

[89] *Id.*

[90] *Id.* at 5.

[91] *See id.* at 6.

[92] *Id.*

[93] *Id.*

[94] According to a document filed in court, the parties have settled the case in principle but the terms have not been disclosed. See Letter from Rafael Vergara, White and Williams, LLP to Judge Stephen C. Robinson, U.S. District Judge forthe Southern District of New York, 1 (June 11, 2009).

[95] To the author's knowledge, Monsanto Company has been previously embroiled in litigation over PCB contamination but not in relation to the cleanup of public schools. *See, e.g.*, *In re Paoli R.R. Yard PCB Litigation*, 35 F.3d 717 (3d Cir. 1994); *United States v. Pharmacia Corp.,* No. 02-C-0749-E, 2003 WL 22319070 (N.D.Ala. Aug. 4, 2003) (order settling litigation brought by the EPA to require Defendants to do a feasibility study to determine the extent and scope of PCB contamination in Anniston, Alabama); *$700 Million Settlement in Alabama PCB Lawsuit*, N.Y. TIMES, Aug. 21, 2003. Another similar, interesting lawsuit involved individual Plaintiffs suing Monsanto Company, the manufacturer of PCBs used in ceiling tiles in the school where they worked, and Armstrong World Industries, the manufacturer and distributor of the ceiling tiles.

Remediation of PCB contamination in just one school building can cost hundreds of thousands of dollars.[96] Therefore, the ultimate outcome in this test case against Monsanto Company will have far-reaching implications for the nation's school districts.

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

The Yorktown School District's lawsuit against Monsanto Company is reminiscent of other past mass tort litigation involving such toxins as asbestos, formaldehyde, tobacco, and lead. These cases tend to hew to a general pattern. The industry at first denies that the product is harmful, denies liability, and claims there is insufficient evidence of human health concerns for it to stop producing or selling the product.[97] In such cases, Congress has been loath to ban the product or mandate a federal warning in the absence of clear, undisputed scientific proof of danger to human health.[98] Because the manufacturers of a potentially toxic product have no immediate incentive to fund studies to definitively prove that their product is dangerous[99] the product remains on the market long after safety concerns are first raised,[100] and the product is later discovered to have been highly toxic.[101] Later, private litigants sue over harm from the toxic product that remained on the market. Historically, various products have thus stayed on the market despite burgeoning evidence of their dangers to human health.[102]

Asbestos is just one example of a substance that the EPA did not heavily regulate until after manufacturers produced asbestos for many years and long after concerns were raised about its safety.[103] In fact, even today asbestos is not

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Maertin v. Armstrong World Indus., Inc., No. 95-2849 (JBS), 2000 WL 554168, at *1 (D.N.J. May 3, 2000). In that case, a fire resulted in the release of a large amount of PCBs. Plaintiffs sued the makers of the ceiling tiles and Monsanto Company, alleging they (Plaintiff employees) contracted cancer while working at the school after the fire. *Id.* In 2000, the district court denied Defendants' motions for summary judgment. The parties reported that the case ultimately settled on Sept. 14, 2000. Maertin v. Armstrong World Indus., Inc. No. 01-5321, 2005 WL 1410858 (D.N.J. June 15, 2005).

[96] Press Release, Schumer Calls on EPA to Drop Backbreaking Fines Against Yorktown School District and to Set Clear National Guidleines for Removal of PCB-Laden Caulk, July 19, 2007 (noting that at a Yorktown School, just remediating PCB laden soil cost over $300,000). *See* PCBs – Mandatory Testing in Schools, http://www.pcbinschools.org/ (last visited Mar. 2, 2010).

[97] *See supra* and *infra* notes 97-127 and accompanying discussion.

[98] *Id*.

[99] William Boyd, *Controlling Toxic Harms: The Struggle Over Dioxin Contamination in the Pulp and Papper Industry*, 21, STAN. ENVTL. L.J. 345, 351-55 (2002) (noting that we lack basic information about the health effects of the "vast [m]ajority" of chemicals that we introduce to market and that chemicals are presumed safe)

[100] *Id.*

[101] *See supra* and *infra* notes 97-127 and accompanying discussion.

[102] *Id*.

[103] *See* Deborah Hensler, *Asbestos Litigation in the United States: Triumph and Failure of the Civil Justice System,* 12 CONN. INS. L.J. 255, 258 (2006).

completely banned.[104] Rather, pursuant to an EPA final rule in 1989,[105] a court decision modifying the EPA rule,[106] and a later administrative modification, the EPA only bans "new uses" and certain limited uses of asbestos[107] pursuant to the Toxic Substances Control Act ("TSCA").[108]

Other highly toxic substances that have similarly remained on the market long after safety concerns about their effects on human health were raised include formaldehyde[109] and tobacco in cigarettes.[110] For example, in 1982, the Reagan Administration decided not to regulate formaldehyde, urging that its decision was based on scientific evidence.[111] 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 the formaldehyde industry.[112] Two years later—based on the same information that it had in 1982[113]—the EPA announced that that it would regulate the use of formaldehyde, stating that the chemical was a potential carcinogen in humans.[114]

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. Although the Journal of the American Medical Association published a

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[104] Charles G. Garlow, *Asbestos – the Long-Lived Mineral*, 19 NAT. RES. & ENV'T 36, 36 (2005).

[105] Asbestos; Manufacturing, Importation, Processing, and Distribution in Commerce Prohibitions, 40 C.F.R. pt. 763 (2007). *See also* U.S. Envtl. Prot. Agency, Asbestos Ban and Phase Out, http://www.epa.gov/asbestos/pubs/ban.html (last visited Mar. 30, 2010).

[106] *Corrosion Proof Fittings v. EPA*, 947 F.2d 1201 (5th Cir. 1991) (asbestos ban lifted because EPA had not found that alternatives were safer than asbestos), *opinion clarified* (Nov. 15, 1991).

[107] *See* Garlow, *supra* note 104, at 36.

[108] *See* 16 C.F.R. § 1145.4 (banning certain new asbestos compounds); 15 U.S.C. § 2605 (2010) (allowing the EPA to ban any substance that presents an unreasonable risk to health or the environment).

[109] *See* Wendy Wagner, *The Science Charade in Toxic Substances Regulation*, 95 COLUM. L. REV. 1613, 1645-46 (Nov. 1995).

[110] *See* Ernest L. Wynder & Evarts A. Graham, *Tobacco Smoking as a Possible Etiologic Factor in Bronchiogenic Carcinoma: A Study of Six Hundred and Eighty-four Proved Cases*, 143 J. AM. MED. ASS'N 329, 329 (May 27, 1950).

[111] Wagner, *supra* note 109, at 1646-48. *See also* Watnick, *Risk Assessment, supra* note 56, at 1332-36, 1350-53.

[112] Nicholas A. Ashford et al., *A Hard Look at Federal Regulation of Formaldehyde: A Departure from Reasoned Decisionmaking*, 7 HARV. ENVTL. L. REV. 297, 313-14 (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 109, at 1648; Watnick, *Risk Assessment*, *supra* note 56, at 1350-53.

[113] Formaldehyde; Determination of Significant Risk, 49 Fed. Reg. 21,870, 21,874 (May 23, 1984) (codified at 40 C.F.R. pt. 765).

[114] *Id.* Formaldehyde continues to surface as a current concern as mobile homes built with pressed wood in the aftermath of Hurricane Katrina may subject occupants to high interior levels of formaldehyde. Symposium, *Harnessing the Power of Information for the Next Generation of Environmental Law*, 86 TEX. L. REV. 1601, 1613 (June 2008).

study in 1950 showing that a link existed between smoking and lung cancer,[115] it was not until 1964 that the Surgeon General first reported on the dangers of smoking.[116] Then it was not until 1965 that Congress first passed mandatory federal cigarette labeling laws.[117] It is even more extraordinary that even in the late 1990's, the tobacco industry still had not openly acknowledged a definitive link between smoking and lung cancer.[118]

The history of lead paint sales offers an additional example of big industry's ability to continue selling toxic products despite safety concerns. The lead paint industry actually funded studies to determine the health effects associated with lead paint.[119] However, lead paint manufacturers still actively promoted the sale of lead paint even after they became aware of the clear dangers associated with its use.[120]

And so a familiar story unfolds in the case of PCBs. Like those before it, these chemicals were presumed innocent until proven guilty[121] and stayed on the market long after safety issues first surfaced.[122] Indeed, as early as 1937, a

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[115] *See generally* Wynder, *supra* note 110.

[116] Press Release, U.S. Dept. of Health and Human Services, Marking 40th Anniversary of Smoking Reports, Secretary Thompson and Surgeon General Carmona Announce Comprehensive New Report and Continually Updating Database (Jan. 10, 2003), *available at* http://www.hhs.gov/news/press/2004pres/20040110.html.

[117] Federal Cigarette Labeling and Advertising Act of 1965, 15 U.S.C. § 1331 et seq. (2010).

[118] *See* David Stout, *Direct Link Found Between Smoking and Lung Cancer*, N.Y. TIMES, Oct. 18, 1996, at A1, *available at* http://www.nytimes.com/1996/10/18/us/direct-link-found-between-smoking-and-lung-cancer.html?pagewanted=1. "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.*

[119] *See* Kenneth Smith, Editorial, *Toxic Lawyers: Lawsuits May Keep the Lead In*, WASH. TIMES, Nov. 18, 1999, at A19.

[120] Joanne Pollak, *The Lead-Based Paint Abatement Repair and Maintenance Study in Baltimore*, **6** J. HEALTH CARE L. & POL'Y 89, 89 (2007). *See* Deborah W. Denno, *Considering Lead Poisoning as a Criminal Offense,* 20 FORDHAM URB. L. J. 377, 391 (1993) (noting it has been estimated that eighty percent of New York City public school buildings contain lead paint); Scott Shane & Caitlin Francke, *Angelos Targets Lead Paint: Lawyer Alleges 60-Year Conspiracy by Manufacturers*, BALTIMORE SUN, Sept. 21, 1999, at A1, *available at* http://articles.baltimoresun.com/1999-09-21/news/9909210180_1_remove-lead-paint-lead-poisoning-paint-manufacturers). *See also* N.R. Kleinfield, *Fear and Fiction: The Furor at P.S. 3 – A Special Report; Lead Threat Exposes and Engulfs a School*, N.Y. TIMES, Sept. 29, 1992, at A1, B6, available at http://www.nytimes.com/1992/09/29/nyregion/fear-fiction-furor-ps-3-special-report-lead-threat-exposes-engulfs-school.html?pagewanted=1.

[121] *See generally* Mary O'Brien, *Our Current Toxics Use Framework, Our Stolen Future, and Our Options*, 11 J. ENVTL. L. & LITIG. 331, 354-58 (1996) (reviewing THEO COLBORN, ET AL., OUR STOLEN FUTURE: ARE WE THREATENING OUR FERTILITY, INTELLIGENCE, AND SURVIVAL?--A SCIENTIFIC DETECTIVE STORY (1996)). Dr. Mary O'Brien is an environmental consultant and an expert on risk assessment alternatives.

[122] In *Transwestern Pipeline Co. v. Monsanto Company*, 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. *See also* Francis, *supra* note 30, at 5.

Harvard University researcher named Dr. Cecil K. Drinker raised concerns about the safety of PCBs[123] Ignoring or minimizing these concerns, businesses in the PCB industry continued to profit from sales.[124] Over the course of the last century, PCB manufacturers either intentionally or negligently deceived the public about the safety of PCBs and continued to profit from their sale.[125] "Although the sale of PCBs has been banned in the United States for eighteen years, billions of pounds are still with us . . . ."[126] 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."[127]

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

Elementary Public School 199 ("Public School 199" or "PS 199") on the Upper West Side of Manhattan was one of the schools that the *New York Daily News ("Daily News")* tested for PCB contamination.[128] Public School 199 (built in 1968 when the use of PCBs in construction was common[129]) had the highest level of PCBs in its outdoor caulking of all of the eight schools tested in New York City by *the Daily News*.[130] These *Daily News* articles announcing the PCB findings in city schools[131] set off a firestorm of events in New York City, as parents demanded governmental action.

In the aftermath of these news stories, parents and teachers at Public School 199 learned that the New York City Department of Education ("DOE") had conducted air sampling tests over the weekend of March 31, 2008 to determine if PCBs had contaminated the air in the school.[132] The DOE conducted the tests after it and the New York City School Construction Authority ("SCA")[133]

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[123] *See generally* Drinker, *supra* note 87.

[124] "For the few extra years of profit for Monsanto . . . , we are all now paying the price." Francis*, supra* note 30, at 9. *See* discussion *infra* Part IV.D.2.

[125] *See* Francis, *supra* note 30, at 5.

[126] *Id.* at 9.

[127] *Id.*

[128] *See* Egbert, *Toxin Turns Up*, *supra* note 21.

[129] *See supra* notes 1-2 and accompanying text.

[130] *See* Egbert, *Toxin Turns Up*, *supra* note 21.

[131] *Id. See* Egbert, *PCBs Found*, *supra* note 21; Egbert, *Probe Urged*, *supra* note 21.

[132] N.Y. CITY DEP'T OF EDUC., CAULKING SURVEY RESULTS, http://pcbinschools.org/NYC%20Survey.pdf (last visited Mar. 23, 2010).

[133] Letter from Sharon Lustig, Co-President, Public School 199 ("P.S. 199") Parent Teacher Association ("PTA"), to Joel Klein, Chancellor, DOE, and Ross Holden, General Counsel, New York School Construction Authority ("SCA") (Apr. 3, 2008) [hereinafter PTA Apr. 3 Letter] (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 Public School 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

completed an extensive and dusty window replacement project at Public School 199 in the period between January and March 2008.[134] Following results that showed elevated levels of PCBs in the air samples taken from the cafeteria at Public School 199,[135] the DOE closed the school for an emergency "custodial"[136] cleaning over the weekend of April 4, 2008.[137]

After this cleaning at Public School 199 and the breaking of the *Daily News* stories, parents in Manhattan mobilized to gather information about the laws and protocols specifying the safe removal and cleanup of PCBs in schools.[138] Parents and community leaders wanted to know how the DOE allowed this PCB release into the school building during the window replacement project—particularly while school was in session—and why the DOE continued to allow these toxins in school buildings throughout New York City.[139]

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replacement project extremely dusty in nature, but that children and teachers had actually been involved in wiping up dust in the school building. *Id.*

[134] Letter from Jerrold Nadler, New York's Eighth Congressional District representative to the U.S. House of Representatives; Scott Stringer, Manhattan Borough President; Thomas Duane, New York State Senator; Linda B. Rosenthal, New York State Assembly Representative; and Gale Brewer, New York City Council Member, to Alan Sternberg, Regional Administrator, EPA Region 2 (May 18, 2008) (on file with author) [hereinafter Representative Jerrold Nadler, May 18 Letter to EPA].

[135] Air sampling results showed concentrations in the air in excess of 500 nanograms per cubic meter ("ng/m3"). N.Y. CITY DEP'T OF EDUC., CAULKING SURVEY RESULTS, *supra* note 132. Experts indicate concentrations in excess of 300 ng/m3 mandate precautions for adults. Fromme, *supra* note 10, at 666. Also, recent EPA pronouncements indicate that Public Health Levels for PCBs in indoor air for school-age children should not exceed 300 ng/m3 and should be as low as is "reasonably achievable." U.S. Envtl. Prot. Agency, Public Health Levels for PCBs in Indoor School Air, www.epa.gov/pcbsincaulk/maxconcentrations.htm (last visited Mar. 2, 2010) [hereinafter EPA Public Health Levels for PCBs].

[136] "Custodial Cleaning" was the description given to the cleaning by the New York City DOE when parents and Representative Jerrold Nadler asked about the process. *See* Representative Jerrold Nadler, May 18 Letter to EPA, *supra* note 134.

[137] The P.S. 199 building was closed to the public over the weekend of April 4, 2008, and the DOE hired cleaning crews to wipe the building clean of dust. The crews did not clean books nor did they clean the heating, air conditioning, or ventilation systems. PTA Apr. 3 Letter, *supra* note 133; Letter from Sharon Lustig, Co-President, P.S. 199 PTA, to Joel Klein, Chancellor, DOE, and Ross Holden, General Counsel, SCA (Apr. 10, 2008) [hereinafter PTA Apr. 10 Letter] (on file with author); Letter from Johnna Hampton and Sharon Lustig, Co-Presidents, P.S. 199 PTA, to Alan Sternberg, Regional Administrator, EPA Region 2, and George Pavlou, Deputy Regional Administrator, EPA, Region 2 (May 5, 2008) [hereinafter PTA May 5 Letter to EPA] (on file with author). The DOE characterized the work as a "full-scale custodial cleanup of the building" by the SCA. Representative Jerrold Nadler, May 18 Letter to EPA, *supra* note 134. PCB indoor air levels at P.S. 199 were elevated to above 500 ng/m3 in the cafeteria. Normal background levels are considered to be less than 50 ng/m3. OSHA prohibits working conditions for adults where the levels of PCBs in the air exceed 1000 ng/m3. Representative Jerrold Nadler, May 18 Letter to EPA, *supra* note 134.

[138] Information about this process on file with author.

[139] Ultimately, the PTA of P.S. 199 sent its own samples (including carpets, filters, and other items from the school) to an independent testing lab and found alarming levels of PCBs in the carpeting and other materials–materials that students used and came into close contact with every day. Testing Results on file with P.S. 199 PTA, school administration and SCA. *See also,* PCBs –

Specifically, parents questioned why the DOE and 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.[140] Parents also demanded to know what the EPA was going to do to correct the contamination at PS 199.[141]

Parents and community leaders took action in a variety of ways. A Parent Teacher Association ("PTA") officer at Public School 199 testified before the New York City Council. Many parents wrote letters to the DOE, the EPA and elected officials. The PTA sought the advice of an attorney and hired an expert environmental consultant.[142] Many more community members participated in a rally and press conference with U.S. Congressman Jerrold Nadler (whose district included Public School 199) and other elected officials outside the school on Sunday, May 18, 2008.[143] On May 18, responding to constituent concerns about Public School 199, Congressman Nadler and other local politicians also wrote to the EPA urging the federal agency to oversee the environmental cleanup of Public School 199.[144]

After receiving the letter, the DOE and the SCA agreed to engage in a full-scale environmental cleanup of the school in consultation with the EPA.[145] Thus, the efforts of parents, teachers, and local and federal politicians resulted in a large-scale remediation of the PCB contamination at Public School 199 over the summer of 2008.[146]

Presently, authorities still do not know the extent of the contamination caused by the DOE's window replacement project, nor the potential harm from

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Mandatory Testing in Schools, PCB Caulk and Soil Sample Reports, http://www.pcbinschools.org/Sampling%20Reports.htm (listing sample results for various schools in New York City school system) (last visited Mar. 2, 2010).

[140] PTA Apr. 10 Letter, *supra* note 137.

[141] PTA May 5 Letter to EPA, *supra* note 137.

[142] Further information about this process is on file with the author. The author served as Co-President of the P.S. 199 PTA during the 2008-09 school year. The P.S. 199 PTA has consulted with Dr. Nancy Rothman, a private consultant and CEO of New Environmental Horizons, Inc., http://www.neh-inc.com/resumes.html (last visited Mar. 2, 2010).

[143] Press Release, Jerrold Nadler, 8th Congressional District of New York, Elected Officials Call for EPA to Supervise Testing and Cleanup at P.S. 199 and Center School on Upper West Side (May 18, 2008), *available at* http://www.house.gov/list/press/ny08_nadler/NadleronPCBs_051808.html. Center School is a middle school that occupied the third floor of the P.S. 199 building and underwent the same window renovation and replacement process.

[144] *See generally* Representative Jerrold Nadler, May 18 Letter to EPA, *supra* note 134.

[145] Letter from George Pavlou, Deputy Regional Administrator, EPA Region 2, to Johnna Hampton and Sharon Lustig, Co-Presidents, P.S. 199 PTA, at 2 [hereinafter EPA Reply Letter to PTA] (on file with author) (undated letter sent in response to PTA May 5 Letter).

[146] *See* Minutes of meeting attended by DOE; SCA; Dept. of Health; P.S. 199 PTA; Stan Alpert, P.S. 199 Legal Advocate; Nancy Rothman, CEO of New Environmental Horizons, Inc., PS 199 Consultant, and Ann Casey, Special Projects, Northeast Analytyical, Inc. (May 27, 2008) (on file with author).

exposure to PCBs at Public School 199.[147] Evidence shows that the old window caulking and/or the window replacement project contaminated both the inside of the school building and the soil on the perimeter of the school building.[148] Soil tests conducted by the New York City DOE and the SCA showed that the soil around the perimeter of the school was in need of remediation.[149] As a result, the DOE and the SCA attempted to remediate the soil around the building during the summer of 2008.[150] The EPA stated that it would monitor the work of the DOE and the SCA on this issue and provide technical assistance to address concerns about PCBs remaining in the school environment.[151]

Despite these efforts toward remediation in one school building in New York City and in the Yorktown School District, hundreds of school buildings across the country still contain PCBs in their building materials.[152] This contamination puts children and staff at risk of exposure to these toxic compounds on a daily basis.

III. EXISTING REGULATION OF PCBS IN SCHOOLS

A. Toxic Substances Control Act

Under TSCA,[153] Congress prohibited the continued use of PCBs in the United States, but made exceptions for uses carried out in a "totally enclosed manner" and other authorized uses.[154] The EPA thus allows the use of PCBs in certain electrical equipment when such uses are carried out in a "totally enclosed manner."[155] The EPA also allows other uses of PCB material that do not present an "unreasonable risk of injury to health or the environment."[156] The EPA generally considers the continued use of exposed physical building materials containing PCBs to be an "unauthorized use" that presents an "unreasonable risk of injury to health."[157] Therefore, the owners of buildings containing PCBs in their caulking or sealants are technically using PCBs in violation of TSCA

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147 See chart of air testing results that SCA provided to P.S. 199 PTA (June 15, 2009) (on file with author).

148 Minutes of meeting attended by DOE; SCA; Dept. of Health; P.S. 199 PTA; Stan Alpert, P.S. 199 Legal Advocate; Nancy Rothman, CEO of New Environmental Horizons, Inc., PS 199 Consultant, and Ann Casey, Special Projects, Northeast Analytical, Inc. (May 27, 2008) (on file with author).

149 *Id.*

150 *Id.*

151 *See* EPA Reply Letter to PTA, *supra* note 145.

152 *See supra* notes 1-5 and accompanying text.

153 TSCA, 15 U.S.C. § 2601 et seq. (2010).

154 *See* 15 U.S.C. § 2605(e) (2010); 40 C.F.R. § 761.30 (2010). There is no federal regulation that specifically addresses existing sources of PCBs in school buildings.

155 40 C.F.R. § 761.30 (2010).

156 15 U.S.C. § 2605(e)(2)(B) (2010).

157 Prohibitions and exceptions, 40 C.F.R. § 761.20 (2010).

regulations.

Under TSCA, EPA has the authority to issue fines and penalties to owners of buildings containing PCBs of greater than 50 parts per million ("ppm") in its construction materials.[158] However, the EPA has not routinely exercised such authority. Enforcement agents for EPA Region 2 (which includes New York City) have indicated that imposing fines on the owners of buildings containing PCBs at levels of 50 ppm or greater would not be administratively feasible nor would it encourage compliance given the vast number of buildings throughout Region 2 that contain PCBs at such a high level.[159] Were it to enforce these regulations and begin fining building owners whose buildings contain PCBs in excess of 50 ppms, it would have to fine so many building owners that the effort would be all encompassing and not effective at reducing exposure to PCBs.[160]

Pursuant to its authority under TSCA, the EPA has, however, issued and enforced regulations that apply to the disposal of materials containing PCBs.[161] Under these regulations, materials containing more than 50 ppm of PCBs present an unreasonable risk of injury to health and must be treated as bulk product waste (hazardous waste).[162] Such waste materials containing PCBs must thus be treated and disposed of at a hazardous waste facility.[163] The protocol for disposal involves carting the materials to a hazardous waste site and disposing of the materials properly to ensure they do not contaminate groundwater or surrounding air.[164] In sum, regulations under TSCA governing the continued presence of PCBs in building materials are limited in scope and not currently being enforced by the EPA.

B. EPA Role in Cleanup

Not only has the EPA failed to strictly enforce TSCA and regulations under

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[158] 15 U.S.C. § 2605(e) (2010). *See* Bill Egbert, *City, Environmental Protection Agency Make Deal to Test Schools for PCB Toxin*, DAILY NEWS, Jan. 20, 2010, *available at* http://www.nydailynews.com/ny_local/education/2010/01/20/2010-01-20_city_feds_agree_on_school_pcb_testing.html#ixzz0ivT5roBL.

[159] Telephone Interview with James Hacklar and Dan Kraft, EPA (Apr. 11, 2008). S*ee also* Herrick, *supra* note 1, at 1052 (indicating that out of twenty-four buildings tested in Boston, eight contained PCBs in building materials and that, therefore, imposing fines on the owners of such buildings would not be feasible).

[160] *Id.*

[161] Prohibitions and exceptions, 40 C.F.R. § 761.20 (2010).

[162] *Id.* Waste material containing more than 50 ppm PCBs must be treated as hazardous waste. Such waste specifically includes materials from the demolition of buildings and other man-made structures, coated or serviced with PCBs. *Id.*

[163] 40 C.F.R. § 761.62 (2010).

[164] Although federal law requires disposal of PCB-containing material at hazardous waste sites, presently there is no systematic plan to permanently destroy existing PCB-containing material once deposited in such waste sites. In contrast, European countries have begun the process of permanently ridding the environment of PCBs by incinerating them in hazardous waste incinerator plants.

the Act with regard to PCBs in school buildings, the EPA has only recently determined a safe threshold level for airborne PCBs in indoor air in schools.[165] While determining these safe "Public Health Levels"[166] is a crucial first step in ascertaining whether indoor air in a given school is safe for children to breathe, the EPA has not gone far enough. Neither federal law nor the EPA requires schools to test and determine if indoor airborne PCB levels fall within these Public Health Levels.[167] Moreover, the EPA does not require testing even in cases where parents or administrators have reason to suspect that PCBs contaminate a school's air. Parents might suspect such contamination where a school was built or renovated in the relevant time period, or has undergone renovation work that could have released PCBs into air, such as the replacement of windows and caulk containing PCBs.[168] Furthermore, even if indoor air contamination is found to exceed the Public Health Levels—as it was at Public School 199[169]—the EPA does not mandate the remediation of the contaminated indoor school air.

To date, the EPA has not to date taken a leadership role in the PCB cleanup efforts in schools.[170] The EPA's response to the situation at Public School 199 in 2008 made apparent its lack of willingness to take a leadership role. Parents, politicians, and community leaders in New York City wrote a letter to the EPA in 2008 asking the EPA to take a leadership role by initiating an emergency remedial response to the PCB contamination in Public School 199.[171] The EPA refused to do so, citing its lack of obligation to initiate an agency response under federal law[172] where another competent agency can take on the role.[173] In the

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[165] Letter from Sharon Lustig and Valerie Watnick, Co-Presidents, P.S. 199 PTA, to Joel Klein, Chancellor, DOE, and Ross Holden, General Counsel, SCA (June 23, 2009) (on file with author) (calling for further remediation efforts at P.S. 199 until airborne PCB levels fall below background levels); PTA May 5 Letter to EPA, *supra* note 137; EPA Reply Letter to PTA, *supra* note 145.

[166] See EPA Public Health Levels for PCBs, *supra* note 135. Similarly, experts in other countries have found that PCB levels in air above 300 ng/m3 present a potential safety hazard to adults. Fromme, *supra* note 10, at 666.

[167] See EPA Public Health Levels for PCBs, *supra* note 135.

[168] *See, e.g.*, Letter from Sharon Lustig and Valerie Watnick, Co-Presidents, P.S. 199 PTA, to Joel Klein, Chancellor, DOE, and Ross Holden, General Counsel, SCA (June 25, 2009) (stating that at that time the EPA had not yet determined safe threshold levels of indoor air contamination for schools) (on file with author).

[169] *See* Letter from Michelle Ciulla Lipkin and Diane Brush, Co-Presidents, P.S. 199 PTA, to Joel Klein, Chancellor, DOE, and Ross Holden, General Counsel, SCA (Oct. 12, 2009) (stating that levels at P.S. 199 are not within acceptable levels for all children) (on file with author); Letter from Michelle Ciulla Lipkin and Diane Brush, Co-Presidents, P.S. 199 PTA, to Joel Klein, Chancellor, DOE, and Ross Holden, General Counsel, SCA (Jan. 26, 2010) (reiterating that PCB levels at P.S. 199 are not within acceptable levels for children under seven years of age, and for those who stay for an extended day) (on file with author).

[170] *See* EPA Reply Letter to PTA, *supra* note 145; Massie Apr. 28 Letter to EPA, *supra* note 6, at 1; PTA May 5 Letter to EPA, *supra* note 137.

[171] *See* PTA May 5 Letter to EPA, *supra* note 137. Mr. Pavlou has since been named the new Regional Administrator for EPA Region 2.

[172] *Id. See* EPA Reply Letter to PTA, *supra* note 145.

case of Public School 199, the EPA determined that the New York City DOE was able to monitor and manage the cleanup. The EPA would not participate, other than in an advisory capacity.[174] The EPA allowed the DOE and the SCA to take on this role even though the agencies themselves had caused the widespread contamination of the school through the window renovation project in early 2008.

The EPA stated that it would supervise the work of the DOE and the SCA and provide technical assistance to address concerns about PCBs remaining in the school.

Similarly, in the Yorktown School District, New York, the EPA did not take an active role in the cleanup of contaminated schools.[175] In Yorktown, the School District chose to clean up the PCB-contaminated soil in accord with the Agency's self-implementing regulations.[176] Subsequently, the EPA stated that the School District had not properly disposed of contaminated soil in compliance with regulations[177] and the EPA threatened to take action against the School District for its continued use of the PCB contaminated caulk in its school buildings in contravention of TSCA.[178] Ultimately, the School District remediated the sources of PCBs in and around its schools, including all of the PCB containing caulk.[179]

C. New Legislative and Regulatory Developments

Although the EPA has not yet taken a proactive stance with regard to the problems that PCBs pose in schools, the EPA finally announced plans to address this issue in October 2008.[180] Amid the controversy over health risks that started when the *Daily News* first disclosed that eight New York City schools were contaminated with PCBs contained in obsolete caulking, the EPA stated that it planned to promulgate new regulations to address the problem of PCBs

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[173] *See* EPA Reply Letter to PTA, *supra* note 145; PTA May 5 Letter to EPA, *supra* note 137.

[174] *See* EPA Reply Letter to PTA, *supra* note 145; PTA May 5 Letter to EPA, *supra* note 137. Representative Nadler specifically asked the EPA to oversee the environmental remediation of the school's PCB contamination. *See* Representative Jerrold Nadler, May 18 Letter to EPA, *supra* note 134.

[175] Letter from Alan Sternberg, Regional Administrator, EPA, Region 2, to U.S. Senator Charles Schumer (July 26, 2007) (on file with author).

[176] *Id.*

[177] 40 C.F.R. § 761.61(a) (2010); Letter from Alan Sternberg, *supra* note 176. *See also* EPA REGION 5, REMEDIATION & REUSE BRANCH, PCB REMEDIATION UNDER TSCA (created by Peter Ramanauskas), *available at* http://www.epa.state.oh.us/portals/30/Brownfield_Conference/docs/USEPAPCBTrainingOHBFConf.pdf (last visited Mar. 2, 2010).

[178] Letter from Alan Sternberg, *supra* note 175.

[179] *See* Yorktown School District Complaint, *supra* note 17, at 11-15.

[180] EPA to Pursue New PCB Regulation Amid Leakage Contamination Concerns, InsideEPA.com [hereinafter EPA to Pursue New PCB Regulation].

leaking from paints and caulks into schools and homes.[181] The EPA recently issued its public health guidance, "Public Health Levels for PCBs in Indoor School Air."[182] Although this guidance is welcome, the EPA has not implemented new rules that require any testing or remediation programs on the part of schools to ensure that their indoor air falls within the recommended safe levels.[183] Given that the EPA rulemaking process can take years to complete, at least one expert has suggested that, in the interim, the EPA should exercise its authority under TSCA and issue an emergency enforcement order requiring schools to test for the presence of PCBs in their buildings.[184]

The EPA's draft strategic plan for 2009-14, issued on September 30, 2008, shows that the EPA is beginning to take initiative regarding PCBs in caulks. In its plan, the EPA promises that it "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."[185]

In May 2009, the U.S. House of Representatives passed legislation that provides federal funding for modernization, renovation, and repair projects as part of a larger effort to help schools clean up PCB contamination.[186] This legislation, known as the "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."[187] The House bill is now in the Senate for consideration.[188] It is worth noting, however, that schools might receive as little as $5,000 to fund a renovation project under the Act.[189] Because remediation can cost hundreds of thousands of dollars,[190] a meager

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[181] *See id*. "As the caulk ages, PCBs are volatilizing into the air or falling off into the building or into the soil around the building, creating health risks." *Id.*

[182] *See* EPA Public Health Levels for PCBs, *supra* note 135.

[183] *Id.*

[184] EPA to Pursue New PCB Regulation, *supra* note 180. Senator Charles Schumer also called for the EPA to issue guidelines for the removal of PCB-laden caulk in school buildings. Press Release, Senator Charles Schumer, Schumer Calls on EPA to Drop Backbreaking Fines Against Yorktown School District and to Set Clear National Guidelines for Removal of PCB-laden Caulk (July 19, 2007), *available at* http://schumer.senate.gov/new_website/record.cfm?id=280411.

[185] 2009-2014 EPA STRATEGIC PLAN CHANGE DOCUMENT 13 (Sept. 30, 2008).

[186] 21st Century Green High-Performing Public School Facilities Act, H.R. 2187 111th Cong. (May 14, 2009).

[187] Press Release, Congressman Joseph Crowley, Crowley-Serrano PCB Cleanup Initiative for Schools Approved by House (May 14, 2009), *available at* http://crowley.house.gov/list/press/ny07_crowley/PressreasePCB.shtml.

[188] *Id.*

[189] H.R. 2187, Title I § 102, *available at* http://thomas.loc.gov/cgi-bin/query/F?c111:4:./temp/~c111HtmDbL:e5458.

[190] Press Release, Senator Charles Schumer, Schumer Calls on EPA to Drop Backbreaking Fines Against Yorktown School District and to Set Clear National Guidelines for Removal of PCB-laden Caulk (July 19, 2007), *available at* http://schumer.senate.gov/new_website/record.cfm?id=280411

$5,000 would not be adequate to fund a comprehensive remediation effort involving PCB-laden caulk.[191]

Finally, New York State Assemblywoman Linda Rosenthal, whose district includes Public School 199, re-introduced a bill that would require schools to test and report PCB levels in school buildings in cities of more that one million people. The bill would also require schools to report test results to the State Department of Health and the commissioner.[192] Light ballasts, transformers, caulking, materials adjacent to caulking, and soil in and around school buildings are examples of the type of materials that schools would test for PCBs.[193] The State would reimburse the schools at a rate of fifty dollars for each test, an inadequate amount to cover the full cost of materials testing,[194] but a step in the right direction.[195] In turn, schools would report testing results to the U.S. Department of Health.[196] The Department of Health would then post results on its website on a school-by-school basis.[197] Unfortunately, the New York State bill does not provide recourse if a school's testing results in discovery of high levels of PCBs.[198] Assemblywoman Rosenthal has reintroduced the bill, but this time with additional support from members of the New York State House and Senate.[199]

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

In June 2007, the New York State Education Department ("Education Department" or "NYSED") officially recognized the dangers associated with the release of PCBs in school buildings that undergo construction or demolition. In recognition of these dangers, the Education Department passed a "Protocol for Addressing Polychlorinated biphenyls (PCBs) in Caulking Materials in School Buildings"[200] ("New York State Protocol" or "Protocol"). The Protocol, which

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(noting that the Yorktwon soil clean-up for one school cost more than $300,000).

[191] *Id.*

[192] N.Y. Assem. B. 11367, 2007 Leg., 230th Sess. (introduced May 27, 2008, amended June 20, 2008).

[193] *Id.*

[194] The P.S. 199 PTA spent less than $100 for each sample that it collected for PCB analysis (notes on file with author).

[195] N.Y. Assem. B. 11367, 2007 Leg., 230th Sess. (introduced May 27, 2008, amended June 20, 2008).

[196] *Id.*

[197] *Id.*

[198] *Id.*

[199] Letter from Miranda Massie, Senior Staff Attorney, New York Lawyers for the Public Interest, Inc., to Lisa Jackson, Administrator, EPA (Mar. 26, 2009), at 2 [hereinafter Massie Mar. 26 Letter to EPA] (on file with author).

[200] N.Y. STATE EDUC. DEPT., FACILITIES PLANNING, PROTOCOL FOR ADDRESSING POLYCHLORINATED BIPHENYLS (PCBS) IN CAULKING MATERIALS IN SCHOOL BUILDINGS (2007), *available at* http://www.emsc.nysed.gov/facplan/HealthSafety/PCBinCaulkProtocol-070615.html

became effective in January 2008, contains guidelines for the removal of PCB-contaminated material from school buildings.[201] The Education Department developed the protocol in consultation with the New York State Department of Health ("NYSDOH"), Division of Environmental Health Assessment, and Bureau of Toxic Substance Assessment.[202] Among other things, the Protocol provides the following:

> 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 PCBs. If so, a plan should be developed to address potential environmental and public health concerns about potential PCB exposure.[203]

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 [the] work."[204] It also calls for caulk and soil sample collection before any construction projects in buildings constructed or renovated between 1950 and 1977.[205] In the event the caulk or soil samples reveal the presence of PCBs, the Protocol calls for a "site specific abatement plan to address potential environmental and public health concerns."[206]

The New York State Protocol[207] refers to instructions in the U.S. Department of Housing and Urban Development's "Guidelines for the Evaluation and Control of Lead-Based Paint Hazards in Housing."[208] For additional authority, the Protocol also references the EPA's regulation of the disposal of caulk. Under those TSCA regulations, caulk containing concentrations of PCB in excess of 50 ppm must be properly disposed of at an approved facility.[209]

The NYSED does not require contractors or the SCA to follow the New York

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[hereinafter N.Y. STATE PROTOCOL].

[201] *Id.*

[202] *Id.* at 1-2.

[203] *Id.*

[204] *Id.* at 1-2.

[205] *Id*. at 2.

[206] *Id*. at 3.

[207] *Id*. at 3.

[208] U.S. DEPT. OF HOUSING AND URBAN DEVEL. ("HUD"), HOMES AND COMMUNITIES, GUIDELINES FOR THE EVALUATION AND CONTROL OF LEAD-BASED PAINT HAZARDS IN HOUSING (2005), *available at* http://www.hud.gov/offices/lead/lbp/hudguidelines/index.cfm [hereinafter HUD GUIDELINES].

[209] 40 C.F.R. 761.62 (2010). *See* discussion *supra* Part III.A.

State Protocol, but merely offers recommendations for addressing PCBs in school buildings.[210] Thus, although the law does not require New York schools or school construction authorities to test for PCBs prior to renovation or construction work, the Protocol recognizes the importance of such testing.[211]

It is important to note that although the Protocol was in effect at the time the DOE and SCA began the window replacement project at Public School 199, the DOE and SCA did not follow it.[212] Although the Protocol calls for the hiring of an environmental consultant to prepare a detailed work plan prior to any work and for the testing of soil and caulk, neither of these occurred at Public School 199.[213] Neither the DOE nor the SCA hired an environmental consultant with expertise in the area of PCB contamination to oversee testing and to prepare a detailed workplan. Also, 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 Public School 199.[214] Moreover, neither the DOE nor the SCA consulted an environmental expert to "develop a plan to minimize health and safety concerns" as the New York State Education Department recommends in its Protocol.[215] The 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. The DOE and SCA spent a tremendous amount of effort and money remediating the PCB contamination at Public School 199.[216] Additionally, hundreds of children were exposed to PCB dust in the air and on school building surfaces prior to the remediation efforts that took place in the summer of 2008.[217]

E. Other Nationwide Developments

In June 2009, the Massachusetts Teachers Association detected high levels of PCBs in the construction materials at area schools in the town of Worcester,

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[210] *See generally* N.Y. STATE PROTOCOL, *supra* note 200, at 1.

[211] *See id.*

[212] Representative Jerrold Nadler, May 18 Letter to EPA, *supra* note 134, at 1. *See generally* N.Y. STATE PROTOCOL, *supra* note 200.

[213] *See id.*; PTA May 5 Letter to EPA, *supra* note 137.

[214] *See* PTA Apr. 10 Letter, *supra* note 137.

[215] N.Y. STATE PROTOCOL, *supra* note 200, at 1-2.

[216] *See* Press Release, Jerrold Nadler, 8th Congressional District of New York, Area Elected Officials Win Remediation of PCBs at P.S. 199 (June 10, 2008); Letter from Ross Holden, General Counsel, SCA, to Sharon Lustig and Valerie Watnick, Co-Presidents, P.S. 199 PTA (Mar. 31, 2009) (discussing prior remediation efforts at the school) (on file with author).

[217] *See* Letter from Sharon Lustig and Valerie Watnick, Co-Presidents, P.S. 199 PTA, to Joel Klein, Chancellor, DOE, and Sharon Greenberger, President, SCA (Mar. 19, 2009) (calling for further remediation efforts at P.S. 199) (on file with author); PTA Apr. 3 Letter, *supra* note 133 (detailing facts surrounding the window replacement project) (on file with author); PTA Apr. 10 Letter, *supra* note 137 (detailing facts surrounding the window replacement project) (on file with author); Representative Jerrold Nadler, May 18 Letter to EPA, *supra* note 134, at 1 (detailing facts surrounding the window replacement project).

Massachusetts.[218] Before the start of school planned for September 2009, the town notified residents of detection of PCBs around the schools and checked with local and state health departments to determine the appropriate next steps.[219] In light of these concerns about toxins in the caulks and sealants in the building materials, the town's schools considered closing to address the problem of PCB contamination in the schools.[220]

In 2008, a University of Iowa study reported that researchers found PCBs in the air outside Chicago schools.[221] Researchers collected samples from more than forty Chicago schools and found concentrations of PCBs in the air outside virtually every school tested.[222] Researchers hypothesized that the PCBs could have come from old paint because the PCB compound found in the air was the same compound previously found in wastewater near paint factories.[223] Representatives from the Chicago public schools stated they were not aware of the study and that they would need to conduct further sampling before deciding on a course of action.[224]

Finally, in September 2009, Naomi Gonzalez, a mother and teacher's assistant from Bronx County, New York, filed suit against the New York City DOE and the SCA for declaratory and injunctive relief[225] under the citizens' action provision of TSCA.[226] The suit alleged that TSCA prohibits the use of PCBs in caulk and that defendants failed to address the "known and undisputed presence" of PCBs in caulk at Public School 178 (attended by plaintiff's children).[227] The suit sought a declaration that the defendants are in violation of TSCA and an order compelling defendants to test, remediate, and confirm the absence of PCB contamination at the school attended by plaintiff's children.[228]

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[218] Video: Growing Concerns Over PCBs in Worcester Schools (New England Cable News June 23, 2009), *available at* http://www.necn.com/Boston/Health/2009/06/23/Growing-concerns-over-PCBs-in/1245796524.html.

[219] *Id.*

[220] *Id.*

[221] Dingfei Hu, Andres Martinez & Keri C. Hornbuckle, *Discovery of Non-Aroclor PCB (3,3'-Dichlorobiphenyl) in Chicago Air*, 42 *ENVTL. SCI. & TECHN.* 7873, 7873 (Sept. 2008). *See* Michael Hawthorne, *Mystery PCB Surfaces in Chicago, Baffling Researchers*, CHICAGO TRIB., Jan. 22, 2009.

[222] *See* Hu, *supra* note 221, at 7873.

[223] *See* Hawthorne, *supra* note 221.

[224] *Id.*

[225] Complaint, Gonzalez v. New York City Dep't. of Educ. and New York City Sch. Constr. Auth., No. 1:09-CV-07787-CM (S.D.N.Y. Sept. 9, 2009) (Gonzalez voluntarily dismissed the suit on Jan. 13, 2010) [hereinafter Gonzalez Complaint].

[226] 15 U.S.C. § 2620 (2010).

[227] Gonzalez Complaint, *supra* note 225, at 7.

[228] Gonzalez Complaint, *supra* note 225, at 7. In March 2009, Gonzalez filed a notice of intent to sue letter with the EPA asking the EPA to intervene to enforce its own TSCA regulations, which prohibit the use of PCBs when such uses are not totally enclosed. Ms. Gonzalez' letter to the EPA asserts that PCBs in the caulk in Ms. Gonzalez children's school are clearly not an "enclosed" use and thus are not permissible in schools under TSCA. Gonzalez' intent to sue letter urges the EPA to enforce TSCA and require the New York City DOE and SCA to test and remediate the caulking at

The parties involved recently settled this federal lawsuit, the first of its kind. In a press release dated January 19, 2010, the New York Lawyers for the Public Interest announced that Gonzalez had provisionally dismissed the suit in light of the DOE's agreement to carry out a PCBs pilot study that will include her children's school and develop a city-wide plan to address the problem of PCB contamination in New York City's schools.[229]

F. The Stockholm Convention and PCBs

In 2001, representatives from all over the world convened to discuss pollution from persistent organic pollutants ("POPs").[230] Persistent organic pollutants are carbon-based toxins that do not break down in the environment, accumulate in the fatty tissue of living things and are toxic to humans and wildlife.[231] The United States signed the Stockholm convention[232] on May 23, 2001, but has not ratified it as a party.[233] PCBs are listed as one of twenty-one ("POPs") in Annex A[234] to the Convention. With regard to POPs, parties to the Convention agree to take "legal and administrative measures necessary to eliminate" the "production and use of the[se] chemicals" and the "import and export of the[se] chemicals."[235] Additionally, according to a special section of the Convention dedicated to PCBs, parties (also known as member countries) must endeavor to eliminate PCBs in equipment such as transformers, capacitors, or other receptacles containing liquid stocks of PCBs, 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 own progress to the "Conference of the Parties" every five years.[236] To date, at least forty-two countries have filed five-year status reports; however, the United

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Ms. Gonzalez' children's school and at other New York City Schools that were built between 1950 and 1980. Massie Mar. 26 Letter to EPA, *supra* note 200, at 3-7. *See also* Gonzalez Complaint, *supra* note 225, at 8.

229 Press Release, New York Lawyers for the Public Interest, Inc., Statement of Miranda Massie, Lead Attorney in Litigation Over PCBs in New York City Schools (Jan. 19, 2010), *available at* http://www.pcbinschools.org/Statement%20of%20Miranda%20Massie%20.pdf.

230 *See* Stockholm Convention, *supra* note 36, at 1.

231 Stockholm Convention on Persistent Organic Pollutants (POPs), What are POPs?, http://chm.pops.int/Convention/ThePOPs/tabid/673/language/en-US/Default.aspx (last visited Mar. 4, 2010).

232 Stockholm Convention on Persistent Organic Pollutants (POPs), Status of Ratifications, http://chm.pops.int/Countries/StatusofRatification/tabid/252/language/en-US/Default.aspx (last visited Mar. 5, 2010). The United States is a signatory but not a party to the Convention.

233 *Id.*

234 Stockholm Convention on Persistent Organic Pollutants (POPs), The POPs, Listing of POPs in the Stockholm Convention, http://chm.pops.int/Convention/ThePOPs/tabid/673/language/en-US/Default.aspx (last visited Mar. 4, 2010). The parties amended Annex A to include an additional nine POPs to increase the total from twelve to twenty-one POPs. *Id.*

235 *See* Stockholm Convention, *supra* note 36, at Art. 3, Annex A.

236 *Id.* at Annex A pt. II.

States remains a non-party to the Convention and thus has not filed such a report.[237]

The Stockholm Convention on Persistent Organic Pollutants brings national and international attention to an important environmental issue and requires member countries to engage in public reporting of their efforts. The fact that countries around the world have signed the Convention signifies recognition of the need to control POPs—specifically PCBs, a particularly toxic class of POPs—and to report back on the status of such efforts. The Convention is thus a step toward eliminating the threat of these man-made toxins.

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

The following section outlines a Model PCB Testing and Remediation Act (the "Model Act") which would call for: 1) a federally mandated program for testing construction materials and soil in and around schools built during the period when PCBs were commonly used in construction; 2) a federally mandated program of indoor air testing in schools where contamination is suspected to ensure that school air levels fall below the "Public Health Levels" for PCBs in indoor air recently established by the EPA;[238] 3) the EPA to take permanent and interim action, including containment and proper removal of PCB-contaminated materials; and 4) federal enforcement of existing law to ensure that those who release PCBs into school environments are held criminally or civilly liable for their actions.

B. Existing Regulatory Frameworks

In considering an effective legal framework for remediation of PCBs in schools, lessons from past legislative frameworks regarding toxic substances are instructive. Initially, any remediation and removal program should be federally mandated so that compliance and enforcement is comprehensive rather than piecemeal. A framework in which certain states continue to operate with PCBs in their school buildings whereas other states, conversely, remove PCBs from their schools pursuant to local regulation, will be ineffective at solving the national problem. A federal regulatory framework, on the other hand, would ensure that efforts to eradicate PCBs from our schools would be uniform from state to state. Also, a federal framework could begin to operate immediately. A

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[237] Stockholm Convention on Persistent Organic Pollutants (POPs), National Reporting, http://chm.pops.int/Countries/NationalReporting/tabid/254/language/en-US/Default.aspx (last visited Mar. 5, 2010).

[238] *See* EPA Public Health Levels for PCBs, *supra* note 135.

federally mandated program of testing and remediation would also ensure that local school districts pursue remediation first. Pursuing remediation as a first step is preferable to that of seeking judicial resolution of liability issues surrounding PCB remediation.[239] Judicial processes can be very lengthy. In the absence of a federal mandate to remediate contamination immediately, the judicial process will result in prolonged exposure of school children currently attending PCB-contaminated schools.

Congress has historically been willing to tackle regulation and remediation of a toxic chemical by first regulating the substances that affect children in schools. Then, as a second step, Congress moves on to regulating the same toxic substances, but in other public buildings.

A new federal testing and remediation program for PCBs could be modeled on the Asbestos Hazard Emergency Response Act ("AHERA") which Congress designed to protect elementary and secondary school children from the hazards of exposure to airborne asbestos. Under TSCA, the EPA first issued its Asbestos-in-Schools rule to deal with the asbestos problem in schools. Later, in 1986, the AHERA established a more comprehensive regulatory framework.[240] Under this comprehensive framework, the EPA manages asbestos and its removal from schools.[241] AHERA requires local agencies to inspect school buildings for asbestos and then develop asbestos management plans in accordance with AHERA. The Act also requires agencies to make these management plans available to the public and follow AHERA accreditation requirements with regard to local contractors and labs.[242] A school that fails to comply with AHERA is potentially subject to both civil and criminal penalties.[243] Fines for violating the Act range from $5,000 per day for negligent failure to comply up to $25,000 per day for willful violations.[244] Although there is no private right of action for damages under the AHERA, parents can sue under the Act in attempts to make a school safer from asbestos.[245]

The requirements that schools inspect their buildings and manage asbestos

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[239] *See, e.g.*, San Francisco Unified Sch. Dist. v. W.R. Grace & Co., 44 Cal.Rptr.2d 305 (Ct. App. 1995) (seeking recovery for costs of remediation of asbestos contamination in school district after having already performed remediation).

[240] James V. Cannizzo, *Asbestos: A Legal Primer for Air Force Installation Attorneys*, 54 A.F.L. REV. 39, 45-46 (2004).

[241] 15 U.S.C. § 2641(b)(1) (2010). The Asbestos School Hazard Abatement Act provided for a loan and grant program for schools to manage asbestos hazards. 20 U.S.C. § 4014 (2010). Congress then passed the Asbestos School Hazard Abatement Reauthorization Act in 1990 refunding asbestos abatement programs in schools and extending the legislation to public and commercial buildings. *See* Garlow, *supra* note 104, at 39.

[242] Sandra Sutak, *Green Schools, Brown Fields: School Siting Legislation Provides a Weak Foundation*, 21 TUL. ENVTL. L.J. 427, 442 (2008).

[243] 15 U.S.C. § 2647 (a)(1) (2010).

[244] *Id.*

[245] Craig T. Liljestrand, *Neglecting Mandatory Asbestos Reinspections Could Lead to Liability for Schools*, 91 ILL. B.J. 571, 572 (2003).

therein have been successful. Ninety-four percent of schools have adopted AHERA implementation programs.[246] As of 2008, thirty-nine states have adopted plans for accreditation of contractors permitted to inspect and manage asbestos in schools.[247] Two years after its original passage, Congress extended the scope of AHERA to include the regulation of asbestos contractors working in public and commercial buildings.[248]

Similarly, Congress first addressed the dangers of lead paint to children by passing the Residential Lead-Based Paint Hazard Reduction Act of 1992.[249] Congress has not crafted specific federal legislation to address the issue of lead paint in schools. However, schools and local agencies can and do reference the U.S. Department of Housing and Urban Development's ("HUD") Technical Guidelines for the Evaluation and Control of Lead-Based Paint Hazards in Housing ("Technical Guidelines for Lead-Based Paint").[250] HUD promulgated the Technical Guidelines for Lead-Based Paint under the Lead-Based Paint Hazard Reduction Act of 1992.[251] When the New York Education Department crafted its New York State Protocol for handling PCBs in the renovation of school buildings, it specifically referred to the HUD's Technical Guidelines for Lead-Based Paint.[252] Although no study has revealed the number of schools that actually contain lead-based paint,[253] Congress was willing to regulate this toxic substance because almost half of the nation's schools were built before 1959 (when lead paint was first regulated),[254] and it is likely that many schools do contain lead paint.[255] Likewise, because of the likelihood that many schools currently in use today contain PCBs in their building materials, Congress should comprehensively regulate testing and remediation of these materials.

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[246] *See* Sutak, *supra* note 242, at 443.

[247] *Id.*

[248] Asbestos in Schools Hazard Abatement Reauthorization Act, Pub. L. No. 1201-637, 100 Stat. 4589 (1990), amending AHERA, 15 U.S.C. §§ 2641-2656 (2010).

[249] 42 U.S.C. § 4851 (2010). 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 a Professor of Environmental Health and Toxicology at the School of Public Health. *See* Institute for the Health and the Environment, University of Albany, http://www.albany.edu/ihe/members.htm *(last visited Mar. 5, 2010).*

[250] HUD GUIDELINES, *supra* note 208. *See* N.Y. STATE PROTOCOL*, supra* note 200.

[251] Residential Lead-Based Paint Hazard Reduction Act of 1992, H.R. 5334, 102nd Cong., 2nd Sess., § 406, amended Apr. 21, 2005.

[252] N.Y. STATE PROTOCOL*, supra* note 200.

[253] Russell James, III, *Requiring Environmental Information Disclosure on the Deed: Shining the Light on Residential Transactions*, 2 MO. ENVTL. L. & POL. REV. 81, 88 (1994).

[254] Kenneth M. Reiss, Note, *Federal Regulation of Lead in Drinking Water*, 11 VA. ENVTL. L.J. 285, 289 (1991/1992) (noting that forty-six percent of the nation's schools were constructed before 1959 when lead paint was still widely used).

[255] *See* Reiss, *supra* note 254, at 289.

C. Components of New Federal Legislation

1. Initial Testing of School Building Materials and Subsequent Testing of Indoor Air in Schools Where PCB Contamination is Found

Congress should draft new legislation that addresses two routes of PCB exposure in schools: (i) building materials containing PCBs that may leach into the air, soil, or surrounding building materials; and (ii) PCBs already present in the indoor air of schools. As an initial step, such a Model Act would require testing of physical construction materials and suspected sources of potential PCB contamination in schools built or renovated between 1940 and 1977. Construction materials that should be tested include caulking,[256] joint sealants,[257] and old light ballasts.[258] Additionally, legislation should require schools to conduct soil sampling if PCB contamination is found in school materials.[259] Soil sampling tests are neither expensive nor time-consuming. Additionally, these soil and material tests would indicate whether individual schools require further testing and remediation. New York State Assemblywoman Linda Rosenthal has introduced legislation that would require such testing and would reimburse schools up to fifty dollars per sample.[260] This legislation would help schools afford at least part of the price associated with these initial tests, which cost around $75 a sample. Requiring this type of initial testing on a federal scale would help identify the magnitude of the national problem by revealing the number of schools in the United States with PCB contamination. Federally mandated testing programs would ensure that schools in different states base their testing procedures on a uniform federal standard and conduct testing in a like manner.[261]

Federally mandated building material testing would not be done to waylay removal of PCBs from school buildings, but would instead be a first step toward the removal of PCBs and toward meeting newly established federal safety

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[256] ENVTL. PROT. AGENCY, CONTRACTORS: HANDLING PCBS IN CAULK DURING RENOVATION (2009), *available at* http://www.epa.gov/osw/hazard/tsd/pcbs/pubs/caulk/caulkcontractors.pdf.

[257] PCBs – Mandatory Testing in Schools, *supra* note 81 (noting that the District removed PCB-containing material from the joint sealants at French Hill elementary in the Yorktown School District).

[258] The EPA recommends replacing older light ballasts in schools as they may contain PCBs. *See* REMOVING PCBS FROM LIGHT FIXTURES, *supra* note 76.

[259] At French Hill Elementary in Yorktown, the soil around the building was tested only after construction materials from the school were found to contain PCBs. PCBs – Mandatory Testing in Schools, How This Started, http://www.pcbinschools.org/How%20this%20started760.htm (last visited Mar. 5, 2010).

[260] N.Y. Assem. B. 11367, 2007 Leg., 230th Sess. (introduced May 27, 2008, amended June 20, 2008).

[261] 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* discussion *supra* Part IV.A-B.

criteria (see discussion of safety criteria in section IV(C)(2) below).[262] Schools constructed in the relevant time period could conduct testing of the physical building materials on a priority basis. For example, schools about to undergo renovations could be required to test first, and then other schools constructed in the relevant time period could be required to test building materials for PCBs. In this manner, schools could determine whether caulking contained PCBs in excess of 50 ppm (a level in excess of federal law).[263] After determining the level of PCBs, schools could then consider whether additional remediation would be necessary and whether TSCA would mandate any treatment of waste generated from a remediation project as hazardous waste.[264]

Schools need not initially perform extensive indoor air sampling and monitoring because such testing is expensive and time-consuming. A federally mandated air quality testing program would only require air quality sampling and monitoring in those schools where building materials contain or contained PCB levels exceeding 50 ppm,[265] and where recent renovation or construction had disturbed PCB-laden materials, or where the school had another reason to suspect contamination of indoor air.[266]

2. Develop Safe Demolition, Renovation, and Removal Requirements

If the mandated testing reveals contaminated materials, the Model Act should require contaminated schools to prioritize and remove PCBs from school buildings over a five-year timeline under the EPA's removal protocols established pursuant to the New Model Act. Remediation plans should also include federally mandated safe removal of contaminated light ballasts because these structures can release PCBs into school environments as they age and because PCBs can spread to contaminate an entire building in the event of a fire.[267]

A New Model Act should also require the EPA to develop mandatory safety protocols for construction work in buildings constructed between the 1940s, when PCBs first began to be commonly used in construction, and 1977,[268] when Congress banned the use of PCBs in construction.[269] Such Model legislation

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[262] *See infra* notes 267-73 and accompanying text.

[263] 15 U.S.C. § 2605(e) (2010)40; C.F.R. § 761.20 (2010).

[264] 40 C.F.R. § 761.20 (2010).

[265] Under 40 C.F.R. § 761.20 (2010), caulk containing greater than 50 parts per million presents an "unreasonable risk of injury to health."

[266] *See* N.Y. STATE PROTOCOL, supra note 200, at pts. I, III.A (explaining that PCBs exist in the caulk of buildings constructed or renovated between 1950 and 1977).

[267] Outdated light ballasts are one source of indoor air PCBs because the ballasts are prone to leakage, deterioration, and an increased risk of fire. *See* REMOVING PCBS FROM LIGHT FIXTURES, *supra* note 76, at 2-3. These ballasts are prone to leakage and deterioration because of their age.

[268] *Cf.* HANDLING PCBS IN CAULK, *supra* note 256 (the guidelines describe a general protocol for removing caulk containing PCBs but are not mandatory).

[269] 15 U.S.C. § 2605(e) (2010).

would require the EPA to develop mandatory safety requirements for renovation, demolition, and waste removal. These EPA-mandated procedures would allow schools to rely on uniform recommended protocols rather than regulations that vary on a state by state basis.[270] Federal lawmakers could use New York State's Protocol[271] and HUD's Technical Guidelines for Lead-Based Paint[272] as starting points in crafting mandatory renovation and remediation rules for the handling of PCBs in schools. At the very least, a Model Act should require material and soil sampling before work begins to determine if PCBs are present. In the event that PCBs are present, the Act should require the hiring of an experienced environmental consultant to prepare a detailed abatement and containment plan tailored to the worksite.[273]

3. Congress Must Make Air Testing in Contaminated Schools Mandatory and Establish Minimum Air Quality Standards

In addition to requiring schools to perform testing and requiring the EPA to develop protocols, a Model Act should immediately require that school air contamination levels fall below the recently established EPA "Public Health Levels for PCBs in Indoor School Air"[274] and require air testing in schools suspected of contamination.[275]

In schools that are determined to be contaminated with airborne PCBs beyond the reference dose level[276] recently set by the EPA, further remediation and testing should be required by federal law on an ongoing basis until airborne PCB levels fall below the level determined by the EPA to be a safe for the particular school population.[277]

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[270] *See*, e.g., N.Y. STATE PROTOCOL, *supra* note 200.

[271] *See generally* N.Y. STATE PROTOCOL, *supra* note 200.

[272] *See generally* HUD GUIDELINES, *supra* note 208.

[273] N.Y. STATE PROTOCOL, *supra* note 200, at pt. III.

[274] *See* EPA Public Health Levels for PCBs, *supra* note 135.

[275] *See id.* (recommending that PCB levels in indoor air be kept as low as possible and that indoor air concentrations for children aged six to twelve years old should be below 300 ng/m3). *See also* discussion *supra* Part I.B (noting that children are not simply "little adults" and have different susceptibilities to toxins than adults).

[276] *See* EPA Public Health Levels for PCBs, *supra* note 135.

[277] The new Public Health Levels for PCBs in Indoor School Air set by the EPA call for maximum threshold limits depending on the age of the children at the school and the length of time spent in the school building. *See* EPA Public Health Levels for PCBs, *supra* note 135. For example, where a school serves children ages six to twelve, the Maximum Public Health Levels for PCBs in Indoor Air should be less than 300 ng/m3 and as low as is "reasonably achievable." Where a school serves a population of children from three to six years of age for a normal six and one half hour school day, the EPA's Public Health Levels call for a maximum indoor air concentration of PCBs of 100 ng/m3. *Id.*

4. Current Remediation Steps

In addition to establishing long-term plans to remove PCB-contaminated materials from schools, the Model Act should require steps to decrease contamination in school buildings immediately.[278] These interim steps should include using sealant to cover existing PCB-contaminated caulk. This would prevent the PCBs from continuing to volatilize into the indoor air or leach into surrounding building materials.[279] Under TSCA, the EPA has the enforcement power to require such interim steps while long-range plans for safe removal and cleanup are implemented.[280]

Additionally, under the Comprehensive Environmental Response, Compensation, and Liability Act, ("CERCLA"),[281] the EPA has promulgated rules that make it a federal crime to release more than a pound of PCB-containing material into the environment without reporting the release to the federal government.[282] The United States previously has prosecuted those who released asbestos in excess of the amounts permitted under CERCLA and the concomitant Code of Federal Regulations provisions.[283] School districts and administrators that release more than a pound of PCB-containing material into the environment violate federal law.[284] Just as CERCLA has been applied to those releasing asbestos, it should similarly be used to hold those who illegally release PCBs accountable for civil liability, criminal penalties, or both.[285]

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

The aging and deterioration of school buildings has exacerbated the problem of PCBs in schools built in or before the 1970s, both in the United States and worldwide.[286] There surely will be costs associated with the Model Act, along with potential harm to those in school buildings from exposure to PCBs. This section proposes that the Monsanto Company should be held liable for the costs of the necessary 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 businesses that profited from the continued, decades long manufacture and distribution of PCBs—despite the

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[278] *See* EPA to Pursue New PCB Regulation, note 180.

[279] *Id.*

[280] 15 U.S.C. § 2605(e) (2010); 40 C.F.R. § 761.20 (2010).

[281] Comprehensive Environmental Response, Compensation, and Liability Act (Superfund), 42 U.S.C. § 9601 et seq. (2010).

[282] 42 U.S.C. §§ 9601-9603, 11004 (2010); 40 C.F.R. § 302.4 (2010).

[283] *See generally* United States v. Con Edison of New York, Inc., No. 93 CR. 1062 (JSM), 1994 WL 414407 (S.D.N.Y. Aug. 5, 1994).

[284] 40 C.F.R. § 302.4 (2010).

[285] 42 U.S.C. § 9601-9603 (2010); 15 U.S.C. § 2615(b) (2010).

[286] *See supra* notes 1-3 and accompanying text. *Cf.* N.Y. STATE PROTOCOL, *supra* note 200.

early evidence that PCBs were toxic to humans.[287]

1. Allocating the Cost of Manufacturing and Selling PCBs

As Yorktown School District alleges in its Complaint, Old Monsanto began to mass-produce PCBs for use in building materials and electrical equipment around 1935.[288] The complaint further alleges that Old Monsanto profited from these sales of PCBs as the only manufacturer of this toxic substance in the United States.[289] If Old Monsanto is indeed the only entity in the United States to have ever manufactured these chemicals and if it benefited economically from selling those chemicals, then Monsanto Company should fund PCB cleanups in schools. Yorktown School District asserts exactly that. It contends that Monsanto Company should be held liable for PCB contamination in its schools and must bear the burden of paying for cleanups and indemnifying the School District for current and future damages.[290]

2. Fairness Dictates that Monsanto Pay for Remediation

The Yorktown School District also alleges that Old Monsanto manufactured PCBs for many years even after knowing that these man-made chemicals presented a threat to human health.[291] Fundamental fairness dictates that Defendants should now bear the burden of remediation associated with PCB cleanups in schools if it is true that Old Monsanto knew of the dangers of PCBs prior to the ban and continued to produce them with this knowledge.

In addition to Yorktown School District, numerous other sources state that Old Monsanto knew of the toxic effects of PCBs prior to their ban.[292] In 1937, a Harvard researcher named Cecil Drinker recognized that PCBs caused possible systemic toxic effects in humans and that test rats suffered severe liver damage in when exposed to PCBs.[293] Drinker presented his results to Old Monsanto on the systemic effects of PCBs that same year.[294] The Yorktown Complaint alleges that an Old Monsanto Memorandum dated September 20, 1955, states, "We know aroclors (PCBs) are toxic but the actual limit has not been precisely

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[287] *See* Francis, *supra* note 30 (asserting that Monsanto is the source of all PCBs in the United States and that they knew of the potential environmental concerns as early as 1969). 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, 53 Cal.Rep.2d 887, 890 (Ct. App. 1996).

[288] *See* Yorktown School District Complaint, *supra* note 17, at 3.

[289] *See id.* at 3, 6 (referencing Monsanto's need to maintain a profit center regarding PCBs); Francis, *supra* note 30.

[290] *See* Yorktown School District Complaint, *supra* note 17, at 15-23.

[291] *Id.* at 5-7.

[292] *See e.g.*, *Transwestern Pipeline Co.*, Cal.Rep.2d at 890. *See* Francis, *supra* note 30, at 2.

[293] Drinker, *supra* note 87.

[294] *See* Francis, *supra* note 30, at 3.

defined."[295] As early as the 1960s, scientists determined that the chemical composition and toxic effects of PCBs are similar to the composition and effects of the highly toxic pesticide DDT,[296] now banned in the United States.[297] And yet, despite all of this earlier evidence that PCBs were likely injurious to human health, Old Monsanto continued to manufacture PCBs until at least 1971.[298]

Allocating the cost of PCB cleanup to Monsanto Company would properly and fairly place responsibility where it belongs. Monsanto Company should be responsible if it profited from the manufacture and sale of PCBs despite knowing for years that they were a danger to human health and the environment. That manufacturers produced PCBs for years after their adverse health effects were publicly known[299] and that these chemicals continue to contaminate school buildings nationwide[300] represent major regulatory and corporate responsibility failures.

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 sued to collect damages for remediation costs incurred in the cleanup of toxic substances. Prior cases suggest that school districts can also seek recovery under tort law for costs associated with remediation of PCB contamination in their schools. [301]

In 1983, for example, multiple school districts filed a class action lawsuit that ultimately involved 30,000 school districts around the country seeking recovery of expenses incurred in removing dangerous asbestos-containing products from their school buildings. Ultimately, the school districts recovered almost $44.4 million for costs incurred in the remediation of asbestos in their school districts.

In 1995, after opting out of the nationwide class action for school districts, the San Francisco School District sued the manufacturer of asbestos found in its

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[295] Yorktown School District Complaint, *supra* note 17, at 5 (citing a Letter from Dr. Emmet Kelly, former Monsanto Medical Director, to Monsanto colleague Dr. Barrett, regarding Aroclor toxicity (Sept. 20, 1955)).

[296] Jensen, *supra* note 38. *See* Francis, *supra* note 30, at 8. *See also* Perlman, *supra* note 38.

[297] Press Release, EPA, DDT Ban Takes Effect, (Dec. 31, 1972), *available at* http://www.epa.gov/history/topics/ddt/01.htm (announcing the "the general use of the pesticide DDT will no longer be legal in the United States after today").

[298] *See* Transwestern Pipeline Co. v. Monsanto Company, 53 Cal.Rep.2d 887, 890 (Ct. App. 1996) (although Monsanto Company discontinued production of Turbinol, a PCB-laden product, in 1972, it was so concerned about the risk from the product that it offered to sell remaining supplies only to those buyers willing to sign an indemnity agreement to hold Monsanto harmless).

[299] *See* Drinker, *supra* note 87.

[300] *See* Francis, *supra* note 30, at 9.

[301] *See, e.g.*, San Francisco Unified Sch. Dist. v. W.R. Grace & Co.-Conn., 44 Cal.Rptr.2d 305 (Ct. App. 1995).

schools.[302] The School District brought negligence and strict liability tort claims against the manufacturer and sought recovery for remediation costs it had incurred due to physical damage to its school buildings and for potential damage to students, staff, and visitors.[303] The court found that the contamination was not merely "economic" damage for which the School District could recover under contract law. Instead, the School district had suffered physical damage to its property and could thus seek recovery under tort law.[304] The court refused the Defendant's motion to dismiss on the grounds that the statute of limitations for such tort claims had run. The court held that, because the School District could not state a cause of action under tort law until contamination from asbestos had actually occurred,[305] the School District could still bring the tort suit against the asbestos manufacturer.[306]

Finally, in *Transwestern Pipeline Co. v. Monsanto Co*,[307] a case of first impression involving PCB contamination, the Plaintiff interstate natural gas transporter sought equitable indemnification from Monsanto Company under strict liability and negligence claims after Plaintiff contaminated a third party's pipelines with gas containing PCBs.[308] Monsanto argued that the PCB damage to the pipelines were economic damages not available under tort law.[309] Specifically referring to the *San Francisco School District* case, the Court rejected Monsanto's argument and analogized the PCB damage to the pipelines to the asbestos damage to school buildings.[310] Similarly, in the case of PCBs in school buildings, schools should be able to recover under theories of negligence and strict liability for physical damage to their property due to PCB contamination.[311]

Other municipalities have also succeeded on tort claims and recovered the costs of abating toxic substances in public buildings.[312] New York City was one of the first such municipalities to sue asbestos manufacturers to recover the costs of abating asbestos in schools and other public buildings.[313] When the

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[302] *Id.* at 306-07.

[303] *Id.*

[304] *Id.* at 311, 315.

[305] *Id.*

[306] *Id.* at 313.

[307] *See generally* Transwestern Pipeline Co. v. Monsanto Company, 53 Cal.Rep.2d 887 (Ct. App. 1996).

[308] *Id.* at 889.

[309] *Id.* at 900-02.

[310] *Id.* at 901-04 (stating, "[i]n this respect at least, we see no distinction between PCB contamination and asbestos contamination").

[311] Plaintiff Yorktown Central School District asserts negligence and strict liability claims as well as claims under New York General Business Law. *See* Yorktown School District Complaint, *supra* note 17, at 15-21.

[312] *See infra* note 317 and accompanying discussion.

[313] Gail Rubin, *Taking the Offensive: New York City's Affirmative Suits*, 53 N.Y.L. REV. 491, 493 (2008/09).

litigation moved to bankruptcy court, New York City's lawyers negotiated to create the first asbestos trust to be used for remediation of public buildings.[314] New York City's lawyers thus far have collected over $130 million from asbestos defendants. New York City is the single largest collector of bankruptcy funds for remediation of asbestos in public buildings.[315]

Many other defendants in asbestos litigation have also argued that Plaintiffs should not be able to recover funds under tort law for asbestos damage to their buildings.[316] However, many courts have rejected this argument.[317] Instead, the courts have carved out an exception that allows recovery in tort for the cost of removal or encapsulation of asbestos.[318] Courts have done this in line with the Court's reasoning in *San Francisco School District.* Courts have held that because the evidence suggests that asbestos may be extremely dangerous to humans when handled improperly, contamination from asbestos is physical damage to property that endangers human health.[319] Further, courts have held that the costs of remediation due to such asbestos contamination are recoverable under tort law.[320] Considering the precedent established by the asbestos cases,[321] as well as the *Transwestern* case involving PCB contamination,[322] it is likely that plaintiffs seeking to recover damages for PCB contamination would succeed under tort law.[323] Thus, it is entirely appropriate for municipalities, school districts, and other entities affected by PCB contamination to seek indemnification from Monsanto Company, whom the Yorktown School District alleges was the sole producer, marketer, and distributor of PCBs in the United States.[324]

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[314] *Id.*

[315] *Id.*

[316] Gennady A. Gorel, *The Economic Loss Doctrine: Arguing For the Intermediate Rule and Taming the Tort-Eating Monster*, 37 RUTGERS L.J. 517, 539 (2006).

[317] *See, e.g.*, Detroit Bd. of Educ. v. Celotex Corp., 493 N.W.2d 513, 518-19 (Mich. Ct. App. 1992) (suit by city school board and several hundred public schools against asbestos manufacturers and sellers); Kershaw County Bd. of Educ. v. U.S. Gypsum Co., 396 S.E.2d 369, 371 (S.C. 1990) (asbestos in school ceiling tile damaging other property of the Plaintiff). *But see* Catasauqua Area Sch. Dist. v. Eagle-Picher Indus., Inc., Civ. A. No. 85-3743, 1988 WL 102689, at *3 (E.D. Pa. Sept. 28, 1988) (asbestos cement in schools); Pearl v. Allied Corp., 566 F. Supp. 400, 403 (E.D. Pa. 1983).

[318] Reeder R. Fox & Patrick J. Loftus, *Riding the Choppy Waters of East River: Economic Loss Doctrine Ten Years Later*, 64 DEF. COUNS. J. 260, 263 (1997). *See also* Gorel, *supra* note 316, at 539.

[319] Bd. of Educ. of Chi. v. A, C & S, Inc., 546 N.E.2d 580, 588 (Ill. 1989). *See also* Gorel, *supra* note 316, at 539.

[320] S*ee* Gorel, *supra* note 316, at 539.

[321] *See* discussion *supra* Part IV.D.3.

[322] Transwestern Pipeline Co. v. Monsanto Company, 53 Cal.Rep.2d 887 (Ct. App. 1996).

[323] *See* discussion *supra* Part IV.D.3.

[324] *See* Yorktown School District Complaint, *supra* note 17, at 3.

E. Compliance under the Stockholm Convention

Under the Stockholm Convention, adopted in 2001 and registered in 2004, the United States and parties to the Convention agreed to work toward achieving environmentally sound management of PCBs by 2028.[325] The parties to the Convention agreed to review the progress towards elimination of PCBs by preparing reports on these efforts every five years.[326] A five-year report from the United States should promptly be furnished to the Convention. The report should state whether efforts to eliminate the chemicals have been made, and explain immediate and future efforts toward these ends.

CONCLUSION

Although we did not initially choose the "other road" so clearly described by Carson in *Silent Spring*–the road that would allow us to avoid polluting our world with synthetically produced chemicals on a massive scale—we now have the opportunity to begin to correct some of our past mistakes with regard to PCBs. We have enough information to follow the "other road" and to act judiciously and cautiously with regard to PCBs in school buildings. We now know that these chemicals are injurious to human health, particularly the health of children, and that they are present in our nation's classrooms on a large scale. Yet, we have not legislatively required testing for their presence in building materials or indoor school air. Indeed, the EPA has not even required that school air be as safe as the recently released "Public Health Levels for PCBs in Indoor School Air." Moreover, there are no mandatory protocols for the safe removal, treatment, or disposal of PCBs. Nor are there mandatory protocols to ensure safe construction standards are used when construction or demolition takes place in PCB-laden school buildings.

We must take stock of the national situation and take the following steps: (1) undertake initial physical material testing to assess the levels of PCBs in classrooms; (2) mandate that schools comply with the EPA's "Public Health Levels" for air; (3) require testing of indoor air where contamination is suspected; (4) establish a timeline for the safe removal of PCBs from schools; (5) establish mandatory protocols for construction and demolition involving PCB-containing material; and (6) comply with international agreements and efforts on PCB handling and reporting.

And if testing and removal of PCBs in our nation's schools is costly, there are legal, economic, and policy reasons for society to hold the entities that manufactured, marketed, and distributed PCBs responsible for bearing the costs. Holding corporate entities liable for required remediation is consistent with past legal precedent and would prevent imposing the costs of remediating PCB

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[325] *See* PCBs Overview, *supra* note 34.

[326] *See* Stockholm Convention, *supra* note 36, at Annex A pt. II(f).

contamination on 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 ensure that the next generation of school children does not suffer adverse consequences from exposure to PCBs in schools.