

PCBs in Building Materials: New Environmental Challenges for Building Renovation and Restoration Projects

Presenter(s)

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Abstract Text

As part of ongoing capital maintenance planning, the University of Massachusetts (the University) undertook a waterproofing and façade repair project for the Lederle Graduate Research Center. This Center comprises three 17 story high-rise research and office buildings, connected by a common elevator lobby, and a three story low-rise office building that houses the University's science library. During the façade repair project, it was determined that the exterior caulking in the four buildings contained polychlorinated biphenyls (PCBs). In two of the four buildings the concentrations were in excess of the allowable U.S. Environmental Protection Agency's (EPA's) limit of 50 parts per million (ppm) for non-liquid PCBs. Concentrations found in the exterior caulking from these two buildings were as high as 70,000 ppm. In addition, soil concentrations around the two buildings were found to contain PCBs in excess of the state reportable concentration of two ppm. As a result, the University is currently undergoing an extensive exterior caulking and soil remediation program that is mandated and regulated by both federal and state agencies.

The United States through the EPA's Toxic Substances Control Act (TSCA) have banned PCBs since 1977. Historically, PCBs were commonly found in a number of industrial products, including plasticizers, dielectric fluids, and hydraulic fluids. Although production of PCBs in the U.S. ceased by the late seventies, PCBs continue to pose a risk to the environment due to their persistent nature and their ability to bioaccumulate. As colleges and universities perform maintenance, renovation, and demolition of aging structures, it is important that they understand their liability under these TSCA regulations, especially with respect to the presence of previously overlooked sources of PCBs. The University presents a case study in the management of a PCB-contaminated construction site from both the federal and state regulatory perspective. We also will review the applicable regulations, the project progression, and issues encountered to date, such as the analytical methods, emergency response, project planning, risk assessment and management, and reporting requirements. This presentation will also highlight the risk communication strategies employed on the project to address occupant's concerns about the presence of PCB material on the building. The presentation will end with a discussion on the potential financial and operational impacts to institutions or agencies that have a substantial building stock of structures constructed in the 1960s and 1970s. We will also discuss future research needs that can be used to inform policy decisions regarding the regulation of PCB caulking.

Presenter Bio(s)

Brian Fitzpatrick, CHMM - Mr. Fitzpatrick is the Environmental Management Services Program Head for the University of Massachusetts in Amherst, Massachusetts. He has fifteen years experience with hazardous waste, hazardous materials, environmental, health, and safety management. His experience includes six years in private industry working for a large environmental services firm, and nine years in education, working first at Syracuse University and now at the University of Massachusetts. He has participated on projects involving a multitude of regulatory compliance issues.

He has had responsibility for managing and shipping hazardous materials and hazardous waste. He has also performed numerous emergency responses, been involved in AST/UST, SPCC, SWPPP, CAA, NPDES, Industrial Wastewater and Storm water projects and permitting. He currently oversees all of the environmental compliance programs for the University of Massachusetts, which include a Title V air operating permit, CAA, SDWA, SWPP, SPCC, RCRA, TSCA, AST/UST, EPCRA, CERCLA, and Industrial Wastewater. He has also worked with the campus community to develop the University's Sustainability Plan and has worked with the State's Executive Office of Environmental Affairs on their Energy Task Force. He has developed and delivered EHS training programs. He has conducted and overseen various compliance audits, Phase I and Phase II ESA's, and aids in the development and management of the campus environmental management system.

Mr. Fitzpatrick's background includes a B.S. in Environmental Science and a Masters degree in Public Administration. He maintains certifications and professional registrations, which include a Certified Hazardous Materials Manager, Master Level, 40-hour OSHA Hazwoper status and DOT Hazardous Materials and IATA shipping.

Maximilian Chang, MS- Mr. Chang is a senior scientist at Environmental Health and Engineering Inc. in Newton, MA. He is experienced in various indoor air quality projects, including polychlorinated biphenyls (PCBs), mold, and chemical assessments. Other areas of his expertise include work on hazardous air pollutants, environmental health and safety training, and arbitration work for legal cases. Before joining EH&E, Mr. Chang was an equities analyst of real estate investment trusts at The Penobscot Group, a real estate securities research firm. He also served as a teaching assistant for graduate courses in Environmental Management and Ocean Environments at the Harvard University Extension School. Prior to working at The Penobscot Group, Mr. Chang's position as a cancer laboratory technician at Brigham and Women's Hospital involved experiments in tumor eradication and immunotherapy for cancer.

Mr. Chang holds an undergraduate degree in Biology and Classics from Cornell University and a masters degree in Environmental Science and Engineering from the Harvard School of Public Health.