

**STEPHEN G. ZEMBA, Ph.D., P.E.**

EDUCATION:

1989. Ph.D. Mechanical Engineering. Massachusetts Institute of Technology, Cambridge, Massachusetts. Conducted original research on the modeling of time-averaged ozone concentrations in eastern North America, including the effects of transport, deposition and atmospheric chemistry that relate ozone production to concentrations of nitrogen oxides and hydrocarbon precursors.

1985. M.S. Mechanical Engineering. Massachusetts Institute of Technology, Cambridge, Massachusetts. Conducted original research on the modeling of the steady flow of dense (heavier than air) gases released in a turbulent boundary layer.

1983. B.S. with University Honors. Mechanical Engineering. Carnegie-Mellon University, Pittsburgh, Pennsylvania. Research projects included a review of the feasibility of nuclear waste disposal and the development of computer graphics simulations of potential fluid flow.

PROFESSIONAL REGISTRATION:

Professional Engineer, Commonwealth of Massachusetts (License no. 38559).

PROFESSIONAL EXPERIENCE:

1989–Present. Senior Engineer, Cambridge Environmental Inc., Cambridge, Massachusetts.

1995–Present. Adjunct Professor, Tufts University.

1992–2001. Adjunct Professor, University of Massachusetts–Lowell.  
2011–Present.

2000–2008. Lecturer, Massachusetts Institute of Technology.

1989. Visiting Investigator, Woods Hole Oceanographic Institute, Woods Hole, MA

1983–1989. Research Assistant, Massachusetts Institute of Technology, Cambridge, MA

Summer 1988. Guest Student, Woods Hole Oceanographic Institute, Woods Hole, MA

Summers. Engineering Internships, Elliott Company (steam turbine manufacturing) and  
1982–1983 Westinghouse Electric Corporation (breeder reactor design).

PROFESSIONAL ASSOCIATIONS:

Tau Beta Pi

Air and Waste Management Association, Secretary, AT-3, Health and Environmental Effects  
Committee, 2009-2011

Society for Risk Analysis

SELECTED PROJECT EXPERIENCE:

- Conducted numerous risk assessments of hazardous waste disposal sites in accordance with the Massachusetts Contingency Plan and federal Superfund guidance. The contamination at one site — a former jewelry manufacturing facility — included many heavy metals and several volatile organic compounds associated with solvent use. The assessment of a petroleum tank farm required consideration of the ecological consequences of potential discharges to an adjacent river. Another large site required a detailed exposure assessment involving eight age groups (infants through senior citizens) and seven hypothetical receptors (residents, workers, and visitors/trespassers).
- Coordinated and designed multi-pathway risk assessments of stack emissions from waste-to-energy plants, cement kilns, and hazardous waste incinerators in Biddeford, ME, Harrisburg, PA, and Greencastle, IN, and Harriman, NY, as well as proposed facilities in East Bridgewater, MA and Green Island, NY. Provided technical support for the Town of North Kingstown in evaluating the proposed waste-to-energy facility at Quonset Point, RI.
- Conducted Ecological Screening Assessments of emissions of proposed combustion facilities to assist federal consultations pursuant to Section 5 of the Threatened and Endangered Species Act. Diverse endpoints included impacts to soils and vegetation, as well as protected mammals, birds, fish, and crustaceans. Developed models for assessing the likelihood that nitrogen deposition to soil may promote invasive species growth, deposition of dust on plant surfaces to inhibit photosynthesis, and the potential for acid gases to lower the pH of local precipitation.
- Performed fate-and-transport modeling to predict evaporation rates of volatile chemicals from spills and impoundments, with subsequent modeling to predict potential exposure point concentrations in ambient air, indoor air, and confined spaces.
- Designed the scope of the risk assessment of the City of Manchester Municipal Landfill, and performed fate and transport modeling of the volatilization of organic chemicals from surface waters, along with subsequent atmospheric dispersion. Designed and conducted a multi-media risk assessment for the Plainville (MA) Landfill that served as a model for Cumulative Impact Assessment guidance developed by the Massachusetts Department of

Environmental Protection. Conducted Facility Impact Assessment risk characterizations of landfill gas and dust emissions at solid waste management facilities in Massachusetts.

- Evaluated the remedial investigations and feasibility studies of the Sullivan's Ledge site and the Middle Marsh operable unit and proposed alternative interpretation of the data collected during the field studies.
- Provide ongoing technical assistance to three citizen groups – the Aberjona Study Coalition, the Wilmington Environmental Restoration Committee, and the Advocates for Rockland, Abington, Weymouth, and Hingham – who monitor the cleanup of Superfund sites in Massachusetts.
- Provided pro-bono consulting to the Massachusetts Department of Environmental Protection to develop a short-form risk assessment to facilitate hazardous waste site cleanup and in evaluating health risks associated with solid waste management facilities.
- Teach courses in air pollution and air dispersion modeling at Tufts University, the University of Massachusetts Lowell, and (formerly) the Massachusetts Institute of Technology.
- Conducted studies to support toxic tort litigation. Developed emissions and dispersion analyses to estimate neighborhood exposure to asbestos used in local manufacturing facilities. Conducted atmospheric dispersion analyses of toxic chemicals and dense gases in order to evaluate potential exposure to humans in support of toxic tort litigation. Testified as an expert witness in several cases related to these matters.
- Testified at public meetings and hearings on regarding potential impacts of landfills, recycling facilities, biomass-to-energy plants, and hot-mix asphalt plants.
- Evaluated the physical and environmental consequences of deep ocean disposal of carbon dioxide.
- Developed estimates of atmospheric deposition of nitrogen-containing compounds, mercury, and polycyclic aromatic hydrocarbons to the Massachusetts Bays.

#### PROFESSIONAL COURSE AND WORKSHOP INSTRUCTION

Multi-Pathway Exposure Assessment, Full-day workshop co-taught at the International Society of Exposure Science Annual Meeting, Baltimore, MD, October 23, 2011.

Multi-Pathway Risk Assessment, Half-day workshop taught at the Society for Risk Analysis Meeting, Salt Lake City, UT, December 5, 2010.

Stephen G. Zemba, Ph.D., P.E.

Page 4

MCP Risk Management, Full-day workshop (co-taught) sponsored by the MA Licensed Site Professional Association, given each of October 13, 2009, March 15, 2010, and February 16, 2012.

MCP ShortForm Short Course, Half-day-day workshop (co-taught) sponsored by the MA Licensed Site Professional Association, given each of May 7, 2008, November 4, 2008, December 17, 2009, and September 8, 2011.

Method 3 Risk Characterization, Full-day workshop (co-taught) sponsored by the MA Licensed Site Professional Association, given each of December 15, 2004 and April 6, 2006.

#### ACADEMIC PROFESSIONAL EXPERIENCE:

1995-Present. Teach *Air Pollution Control* at Tufts University.

2011-Present. Teach *Air Pollution Phenomenology* at the University of Massachusetts Lowell.

2000–2008. Taught *Air Pollution: Processes and Controls* at the Massachusetts Institute of Technology.

1992-2001. Taught *Air Pollution Modeling* at University of Massachusetts Lowell.

1993–1996. Project Sponsor of students in the Environmental Engineering Clinic, Massachusetts Institute of Technology Course 1.70.

2001–Present. Participant in the *Chase an Engineer* requirement of the Master's of Engineering Program, Civil and Environmental Engineering, Massachusetts Institute of Technology.

2010. Master's thesis committee member, Jeffrey Trull, Civil and Environmental Engineering Department, Tufts University, July 2010.

1999. Master's thesis committee member, Jana Dunbar, Civil and Environmental Engineering Department, Tufts University, July 2010.

1999. Ph.D. thesis committee member, George F. Fisher, Atmospheric Chemistry and Physics, University of Massachusetts–Lowell.

1993. Ph.D. thesis committee member, J.T. Underhill, Environmental Studies Program, University of Massachusetts–Lowell.

INVITED PEER REVIEW:

U.S. Environmental Protection Agency, solicited review of draft guidance on Mercury Exposure Models, Office of Pollution Prevention and Toxics (OPPT), November/December 2010.

U.S. Environmental Protection Agency, Peer Review Panel of Small Business Innovative Research (SBIR) proposals in the area of Air Pollution Monitoring and Control, Solicitation # PR-NC-10-10251, August 25-26, 2010.

U.S. Environmental Protection Agency, Peer Review Panel of “Approaches to Improving Air Pollution Emissions Information (09-D1/D2),” Science to Achieve Results (STAR) solicitation, Baltimore, MD, July 26-28, 2009.

U.S. Environmental Protection Agency, solicited review of draft manuscript "Models to Calculate the Rate of Evaporation from Pure Liquids from Open Surfaces.” Office of Pollution Prevention and Toxics (OPPT), July/August 2003.

BOOK AND BOOK CHAPTERS:

Zemba, S.G. and Green, L.C. (1999). Special topics in risk assessment: models and uncertainties. In: *A Practical Guide to Understanding, Managing and Reviewing Risk Assessment Reports*, D.A. Belluck, and S.L. Benjamin, Chelsea, MI: Lewis Publishers.

Luis, S.J. and Zemba, S.G. (1993). Estimating the impact of source depletion on long-term risk assessments. In: *Hydrocarbon Contaminated Soils, Volume III*. Boca Raton, FL: Lewis Publishers.

Zemba, S.G. and Pilkington, M.B.G. (1992). Estimating risks pose by contaminated soils: A comparison to two exposures routes. In: *Hydrocarbon Contaminated Soils, Volume II*. Boca Raton, FL: Lewis Publishers.

PRESENTATIONS AND SYMPOSIA:

Zemba, S.G. (2012). Health Risk Assessment Perspectives on PCBs in Building Materials and Indoor Air. Presentation at the March 2, 2012 meeting *Managing PCB Contaminated Caulking in Older Buildings*, held at E.L. Harvey & Sons, Westborough, MA.

Zemba, S.G. (2011). Global, Synoptic, and Local Scale Circulation. Guest Lecture at the *1.725 Chemicals in the Environment: Fate and Transport*, Massachusetts Institute of Technology, Cambridge, MA, November 15.

Stephen G. Zemba, Ph.D., P.E.

Page 6

Zemba, S. (2011). Relative Risk of Radionuclide Releases: Nuclear vs. Coal-Fired Power Plants. Presented at the *SETAC North America 32<sup>nd</sup> Annual Meeting*, Hynes, Convention Center, Boston, MA, November 13-17.

Zemba, S.G., Ames, M.A., and Sullivan, D.M. (2011). PCBs Exposure via Indoor Air. Poster presentation at the *21<sup>st</sup> Annual Meeting of The International Society of Exposure Science, Advances Exposure Science for Environmental Health*, Baltimore, MD, October 23-27.

Zemba, S.G. and Lester, R.R. (2011). Vegetable Ingestion Pathway at Contaminated Waste Sites. Podium presentation at the *21<sup>st</sup> Annual Meeting of The International Society of Exposure Science, Advances Exposure Science for Environmental Health*, Baltimore, MD, October 23-27.

Zemba, S.G. and Matthews, B. (2011). Multipathway Exposure Assessment of Hazardous Air Pollutants Emissions Workshop. *21<sup>st</sup> Annual Meeting of The International Society of Exposure Science, Advances Exposure Science for Environmental Health*, Baltimore, MD, October 23-27.

Zemba, S.G. (2011). Relevance of the Vegetable Ingestion Pathway in Contaminated Soil Risk Assessment. Podium presentation at the *27<sup>th</sup> Annual International Conference on Soils, Sediments, Water and Energy*, University of Massachusetts, Amherst, MA, October 17-20.

Campe, L.J. and Zemba, S.G. (2011). Introduction of Short Forms for Human Health Risk Assessment. Poster presented at *LSP Association Continuing Education Seminar*, Westborough, MA, September 8.

Zemba, S., Green, L., Ames, M., Hunt, G., and Sullivan, D. (2011). PCBs in Indoor Environments. Poster presented at *Sustainable Remediation 2011*, Amherst, MA, June 1-3.

von Stackelberg, K., Zemba, S., Lester, R., Yatsalo, B., and Didenko, V. (2011). Use of a Spatial Decision Support System to Integrate GIS, Environmental Models, Decision Analysis Tools, and Stakeholder Preferences. Poster presented at *Sustainable Remediation 2011*, Amherst, MA, June 1-3.

Zemba, S.G., Ames, M.R., and Green, L.C. (2011). Modeling and measuring impacts from ash landfilling: Using data to inform regulatory policy. North American Waste-to-Energy Conference (NAWTEC 19), Lancaster, PA, May 16-18.

Zemba, S. and Ames, M. (2010). Considering potential health risks in the design of novel solid waste management facilities. Poster presentation, Annual Meeting, Society for Risk Analysis, Salt Lake City, UT, December 5-8.

Stephen G. Zemba, Ph.D., P.E.

Page 7

- Zemba, S., Ames, M., Linkov, I., and Palma, J. (2010). Can dioxin sources be differentiated by congener profiles, and does it matter? Poster presentation, Annual Meeting, Society for Risk Analysis, Salt Lake City, UT, December 5–8.
- Zemba, S.G., Ames, M.R., and Green, L.C. (2010). Determining whether landfill gas poses risks to health. In: *Proceedings of the WASTECON 2010 conference*, Solid Waste Association of North America, Boston, MA, August 15-18.
- Green, L., Zemba, S., and Ames, M. (2010). Waste-to-Energy Facilities: MSW and Wood-waste Health Risk Assessments. Environmental Business Council, Westborough, MA, July 21.
- Zemba, S.G., Binder, J.J., Ames, M.R., and Lester, R.R. (2010). A risk assessment framework for evaluating health risks from new and emerging waste management technologies. North American Waste-to-Energy Conference (NAWTEC 18), Orlando, FL, May 11-13.
- Zemba, S.G. (2010). Air Quality Issues: Beyond the Fenceline. Presentation at the Environmental Breakfast Club meeting hosted by Young Sommer LLC, Albany, NY, March 5.
- Zemba, S. (2009). Symposium: Risk Management Application in the Cement Manufacturing Industry. Annual Meeting, Society for Risk Analysis, Baltimore, MD, December 6–9.
- Zemba, S., Ames, M., Bennett, E., and Palma, J. (2009). Risk assessment of hazardous air pollutants from cement kilns: case study of a facility with extensive emission data. Annual Meeting, Society for Risk Analysis, Baltimore, MD, December 6–9.
- Zemba, S., Ames, M., and Green, L. (2009). What's in landfill gas; why does it smell; is it hazardous to breathe? Annual Meeting, Society for Risk Analysis, Baltimore, MD, December 6–9.
- Zemba, S., Crouch, E., and Lester, R. (2009). *Perspectives on Vapor Intrusion*, Brown Bag Seminar Series, Army Corps of Engineers, New England District, Concord, MA, November 6.
- Zemba, S. (2009). Invited panelist, Trends and the Relevancy of Risk Assessment Today. Joint Conference: International Thermal Treatment Technologies (IT3) & Hazardous Waste Combustors (HWC), Air & Waste Management Association, Cincinnati, OH, May 18-21.
- Ames, M.R. and Zemba, S.G. (2009). Landfill Gas Combustion and a Possible 1-hour NAAQS for SO<sub>2</sub>, New York Federation of Solid Waste Associations Conference, Bolton Landing, NY, May 3-6.

- Zemba, S.G. and Green, L.C. (2009). What's in Landfill Gas? Why Does it Smell? How Do We Model its Impacts? New York Federation of Solid Waste Associations Conference, Bolton Landing, NY, May 3-6.
- Campe, L.J. and Zemba, S.G. (2008). Introduction of Short Forms for Human Health Risk Assessment. Posted presented at *LSP Association Continuing Education Seminar*, Waltham, MA, December 17.
- Zemba, S.G. (2008). Symposium: Vapor Intrusion: Challenges, Risks, and Uncertainties. Annual Meeting, Society for Risk Analysis, Boston, MA, December 7-10.
- Zemba, S.G. (2008). Data and decision analysis in the context of vapor intrusion. Annual Meeting, Society for Risk Analysis, Boston, MA, December 7-10.
- Campe, L.J. and Zemba, S.G. (2008). Introduction of Short Forms for Human Health Risk Assessment. Posted presented at *LSP Association Continuing Education Seminar*, Westford, MA, November 4.
- Zemba, S.G. (2008). Health risk assessment perspectives on waste-to-energy. Paper presented at the 101<sup>st</sup> Annual Meeting of the Air & Waste Management Association, Portland, OR, June 24-27.
- Zemba, S., Ames, M., and Hendrix, S. (2008). Recent Observations on Risk Assessments of Combustor Stack Emissions. Air & Waste Management Association International Thermal Treatment Technologies Specialty Conference, Montreal, Quebec, Canada, May 12-16.
- Campe, L.J. and Zemba, S.G. (2008). Introduction of Short Forms for Human Health Risk Assessment. Posted presented at *LSP Association Continuing Education Seminar*, Westborough, MA, May 7.
- Linkov, I. and Zemba, S. (2008). Nanotechnology & Risk Assessment. New York Federation of Solid Waste Associations Conference, Bolton Landing, NY, May 4-7.
- Zemba, S., Linkov, I., Satterstrom, S., Bullister, E., and DiNardi, S. (2007). Health and Environmental Simulation. American Industrial Hygiene Association Conference (AIHce 2007), June 2-7.
- Zemba, S.G. (2005). Indoor Air Pathway: Risk Management and Characterization Issues. Meeting of the Massachusetts Licensed Site Professional Association, March 8.
- Zemba, S.G. (2004). Context-Based Benchmarks for Indoor Air Evaluation. 20<sup>th</sup> Annual International Conference on Soils, Sediments, and Water, Amherst, MA, October 18-21.

- Zemba, S., Green, L., and Ames, M. (2002). Particulate (Composition) Matters. Air and Waste Management Association, Hazardous Waste Combustors Specialty Conference, St. Louis, MO, April 17-19.
- Green, L.C. and Zemba, S.G. (2002). Quantitative health risk assessment: the devil is in the details. Paper presented at the 10<sup>th</sup> Section Fall Meeting of the American Bar Association, Section of Environment, Energy, and Resources. Portland, Oregon.
- Zemba, S.G. (1996). Atmospheric deposition of nitrogen compounds to the Massachusetts Bays. At: *Atmospheric Deposition to the Great Waters* Specialty Conference, Niagara Falls, NY, October 28-30.
- Zemba, S.G., Underhill, J.T., and Sorensen, J.A. (1996). Measurements of mercury in precipitation at Nahant, MA. At: *Atmospheric Deposition to the Great Waters* Specialty Conference, Niagara Falls, NY, October 28-30.
- Zemba, S.G., Underhill, J.T., and Sorensen, J.A. (1994). Measurements of mercury in precipitation at Nahant, Massachusetts. Poster presented at the ninth annual Boston Harbor/Massachusetts Bay Symposium, March 24–25.
- Underhill, J.T., Golomb, D.S., Zemba, S.G., Ryan, D.K., Eby, N., and Wade, T.L. (1994). Atmospheric deposition to Massachusetts Bays. Presented at the ninth annual Boston Harbor/Massachusetts Bay Symposium, March 24–25.
- Zemba, S.G., Golomb, D.S., Underhill, J.T., Ryan, D.K., and Eby, G.N. (1993). Assessing the role of atmospheric deposition of nitrogen compounds. Presented at the eighth annual Boston Harbor/Massachusetts Bay Symposium, March 31-April 1.
- Ryan, D.K., Eby, G.N., Golomb, D.S., Wade, T.L., and Zemba, S.G. (1993). Atmospheric deposition of contaminants onto Massachusetts and Cape Cod Bays. Poster presented at the eighth annual Boston Harbor/Massachusetts Bay Symposium, March 31-April 1.
- Zemba, S.G. (1993). SIMULINK™ applications to indoor air dispersion modeling. Presented at the Matlab User's Conference, Cambridge, MA, October 18–20.
- Green, L.C. and Zemba, S.G. (1993). Incorporating site-specific assumptions in risk-based regulations. Poster presented at Comparative Risk Analysis and Environmental Priority Setting, Keystone, CO, June 6–11.
- Zemba, S.G., Crouch, E.A.C., and Green, L.C. (1993). An integrated approach to meeting risk-based cleanup goals at a lead-contaminated site. At: *86th Annual Meeting of the Air & Waste Management Association*, Denver, CO, June 13–18.

- Zemba, S.G., Crouch, E.A., and Pilkington, M.B.G. (1992). The effect of "hot spots" in determining exposure concentrations in soils. Presented at the Symposium on Superfund Risk Assessment in Soil Contamination Studies Conference, New Orleans, LA, 26-31, January.
- Zemba, S.G., Golomb, D.S., Dacey, J.W., and Michaels, A.F. (1992). Implications of deep sea disposal of CO<sub>2</sub>. Presented at the Ocean Sciences Meeting of the American Geophysical Union, New Orleans, LA, 30, January. Abstract:*EOS 72(51)*.
- Pilkington, M.B.G. and Zemba, S.G. (1992). Deposition modeling of chlorinated dioxins and furans. Presented at the International Symposium on Measurement of Toxic and Related Air Pollutants, Durham, NC, 3-8 May.
- Zemba, S.G., Jaffe, D., Green, L.C., and Robinette, M. (1992). Uncertainty in ecological risk assessment: An alternate interpretation of PCB contamination at a superfund site. Presented at the 85th Annual Meeting of the Air and Waste Management Association, 21-26 June, Paper No. 92-180.29P.
- Pilkington, M.B.G., Zemba, S.G., Crouch, E.A.C., and Green, L.C. (1992). A visual tool for assigning site-related soil contaminants at a superfund site. Presented at the 85th Annual Meeting of the Air and Waste Management Association, 21-26 June, Paper No. 92-180.28P.
- Jaffe, D.H., Zemba, S.G., Parsons, A.H., and Robinette, M. (1992). Ecological risk assessment of a PCB-contaminated marsh: How should wildlife exposures be estimated? Presented at the SETAC 13th Annual Meeting, 8-12 November, Paper No. 27039.
- Zemba, S.G. and Parsons, A.H. (1992). Implications of sediment quality criteria (SQC) as surrogates for ambient water quality criteria (AWQC). Presented at the SETAC 13th Annual Meeting, 8-12 November, Paper No. 27040.
- DeVoto, E., Pilkington, M.B.G., Sundstrom, S., and Zemba, S.G. (1991). Exposures to mercury: The importance of waste-to-energy facilities. Presented at the Measurement of Toxic and Related Air Pollutants conference sponsored by the Air and Waste Management Association, Durham, NC, pages 1077-1082.
- Crouch, E.A.C., Green, L.C., and Zemba, S.G. (1990). Estimation of health risk from landfill gas emission. Presented at the GRCDA 13th Annual International Landfill Gas Symposium, Lincolnshire, IL, pages 87-94.
- Zemba, S.G. and Fay, J.A. (1988). Seasalt contribution to wet cation concentrations in precipitation. Presented at the Fall meeting of the American Geophysical Union, San Francisco, CA, 5 December. Abstract:*EOS 69(44)*.

Fay, J.A. and Zemba, S.G. (1986). A conservative method for estimating gas concentrations in dense gas plumes. Presented at the 79th annual meeting of the Air Pollution Control Association, 22-27 June.

Fay, J.A. and Zemba, S.G. (1984). The lateral extent of a dense gas plume near the source. Presented at the International Conference on Modeling Environmental Flows, American Society of Mechanical Engineers.

#### ORIGINAL REPORTS:

Palma-Oliveira, J., Zemba, S.G., Ames, M.R., Green, L.C., and Linkov, I. (2012). Uncertainty in multi-pathway risk assessment for combustion facilities. *Human and Ecological Risk Assessment* 18(3):501-516.

Lester, R.R. and Zemba, S.G. (2012). Method 3 risk characterization residential property, 244 East Central Street, Franklin, Massachusetts, RTN 2-16890. Cambridge Environmental Inc.

Lester, R.R. and Zemba, S.G. (2012). Special permit application review and categorization of chemicals proposed for potential use at the Minuteman Truck Painting Facility, 2195 Boston Providence Highway, Walpole, MA. Cambridge Environmental Inc.

Ames, M., Zemba, S., Green, L., Botelho, M.J., Gossman, D., Linkov, I., and Palma-Oliveira, J. (2012). Polychlorinated dibenzo(p)dioxin and furan (PCDD/F) congener profiles in cement kiln emissions and impacts. *Science of the Total Environment* 419:37-43.

Lester, R.R. and Zemba, S.G. (2011). Method 3 risk characterization, Former West Boylston Street Xtramart, 323 West Boylston Street, Worcester, Massachusetts, RTN 2-16704 (and linked RTNs 2-17334 & 2-17813). Cambridge Environmental Inc.

Collier, Z.A., Vogel, J.T., Zemba, S.G., Ferguson, E.A., and Linkov, I. (2011). Management tools for managing vapor intrusion. *Environ Sci Technol* 45(20):8611-12.

Lester, R.R. and Zemba, S.G. (2011). Method risk characterization, General Chemical Corporation, 133-135 Leland Street, Framingham, Massachusetts, RTN 3-19174. Cambridge Environmental Inc.

Zemba, S., Ames, M., Green, L., Botelho, M., Gossman, D., Linkov, I., and Palma-Oliveira, J. (2011). Emissions of metals and polychlorinated dibenzo(p)dioxins and furans (PCDD/Fs) from Portland cement manufacturing plants: Inter-kiln variability and dependence on fuel-types. *Science of the Total Environment* 409(20):4198-4205.

- Zemba, S.G., Montgomery, C.R., and Lester, R.R. (2011). Baseline ecological receptor assessment South Channel, Stanadyne Facility. Cambridge Environmental Inc.
- Zemba, S.G. and Ames, M.R. (2011). Universal Cement Facility, Enhanced Soils and Vegetation Analysis and Ecological Screening Assessment. Cambridge Environmental Inc.
- Ames, M.R., Zemba, S.G., and Green, L.C. (2010). Multi-pathway Risk Assessment of Stack Emissions from the SECIL Cement Kilns at Maceira and Pataias. Cambridge Environmental Inc.
- Zemba, S.G. and Armstrong, S.R. (2010). Special permit application review and categorization of chemicals proposed for potential use at the Walpole Park South VIII Development. Cambridge Environmental Inc.
- Zemba, S.G., Lester, R.R., von Stackelberg, K., and Yatsalo, B. (2010). DECERNS a risk management tool integrating a geographic information system (GIS), environmental models, and multi-criteria decision analysis (MCDA). A report submitted in partial fulfillment of the requirements for the Small Business Innovation Research (SBIR) Phase I contract W912HZ-10-C-002. Cambridge Environmental Inc.
- Lester, R.R. and Zemba, S.G. (2009). Method 3 risk characterization, Taunton Tobacco, 15 Mechanics Lane, Taunton, Massachusetts, RTN # 4-15388. Cambridge Environmental Inc.
- Zemba, S., Ames, M., and Green, L. (2009). Waste-to-Energy Combustors: two sets of pollutants; two different stories. Joint Conference: International Thermal Treatment Technologies (IT3) & Hazardous Waste Combustors (HWC), Air & Waste Management Association, Cincinnati, OH, May 18-21.
- Ames, M.R. and Zemba, S.G. (2009). Difficulties Demonstrating Compliance With a Possible One-Hour NAAQS For SO<sub>2</sub>. Joint Conference: International Thermal Treatment Technologies (IT3) & Hazardous Waste Combustors (HWC), Air & Waste Management Association, Cincinnati, OH, May 18-21.
- Zemba, S., Ames, M., and Hendrix, S. (2008). Recent Observations on Risk Assessments of Combustor Stack Emissions. Air & Waste Management Association International Thermal Treatment Technologies Specialty Conference, Montreal, Quebec, Canada, May 12-16.
- Ames, M.R., Zemba, S.G., and Lester, R.R. (2008). Method 3 risk characterization, Penske Truck Leasing Facility, 407 Mystic Avenue, Medford, Massachusetts, RTN 3-18081, 3-18163, 3-23427, 3-22908, and 3-25815. Cambridge Environmental Inc.

Stephen G. Zemba, Ph.D., P.E.

Page 13

Lester, R.R., Hendrix, S.H., and Zemba, S.G. (2008). Method 3 risk characterization 114-116 Water Street, Beverly, Massachusetts, RTN 3-0027244. Cambridge Environmental Inc.

Crouch, E.A.C., Zemba, S.G., and Bullister, E.T. (2008). Source term model for fine particles off indoor surfaces. Cambridge Environmental Inc.

Adilman, D., Ames, M.R., Armstrong, S.R., Copley, L.G., Green, L.C., Hartzel, R., Holmén, B., Klens-Caprio, J., Lester, R.R., Roy, S.P., Swift, R., Tyler, M., Zeeb, P., and Zemba, S.G. (2008). An assessment of the environmental and public health impacts of Omya's operations in Florence, Vermont: Integrated report. Cambridge Environmental Inc. and Geosyntec Consultants, Inc.

Hendrix, S., Lester, R.R., and Zemba, S.G. (2008). Washington Mills Hennepin, Inc. endangered species evaluation. Cambridge Environmental Inc.

Zemba, S.G. and Ames, M.R. (2007). Evaluation of impacts to soils and vegetation due to emissions from the Detroit HOUP. Cambridge Environmental Inc. and Horizon Environmental Corporation.

Zemba, S.G. and Ames, M.R. (2007). Ecological screening evaluation for the Proposed Detroit Heavy Oil Upgrade Project. Cambridge Environmental Inc.

Crouch, E., Zemba, S.G., and Bullister, E. (2007). Source term model for fine particles off indoor surfaces. Cambridge Environmental Inc.

Lester, R.R. and Zemba, S.G. (2007). Method 3 human health risk characterization, Penske Truck Leasing Co., L.P., 1242 Shawmut Avenue, New Bedford, Massachusetts (RTN 4-19988). Cambridge Environmental Inc.

Lester, R.R. and Zemba, S.G. (2007). Human health risk characterization, 250 Universal Drive North, North Haven, Connecticut. Cambridge Environmental Inc.

Ames, M.R., Zemba, S.G., Shifrin, A., Lester, R.R., and Green, L.C. (2007). Risk Assessment for the evaluation of multi-pathway and ecological impacts of emissions from the Harrisburg Materials Energy, Recycling and Recovery Facility, Harrisburg, Pennsylvania. Cambridge Environmental Inc.

Zemba, S.G., Adilman, D., Ames, M.R., Armstrong, S.R., Copley, L.G., Green, L.C., Klens-Caprio, J., Lester, R.R., Roy, S.P., Shifrin, A., and Zeeb, P. (2007). Final phase I report, Omya Verpol Facility - Florence, Vermont. Cambridge Environmental Inc. and Geosyntec Consultants, Inc.

- Zemba, S.G. and Ames, M.R. (2006). Risk assessment perspectives on dispersion modeling. EPA/Air & Waste Management Association Guideline on Air Quality Models Conference, Denver, CO, April 26–28.
- Lester, R.R. and Zemba, S.G. (2006). Method 3 risk characterization, 34 Railroad Avenue, Peabody, Massachusetts. Cambridge Environmental Inc.
- Zemba, S.G., Bullister, E.T., Linkov, I., DiNardi, S., and Satterstrom, F.K. (2006). AF05-316 health and environmental simulation. Cambridge Environmental Inc.
- Lester, R.R. and Zemba, S.G. (2005). Method 3 risk characterization in support of a beneficial use determination application for the use of waste soil as cover material at the Town of Bourne Integrated Solid Waste Management Facility. Cambridge Environmental Inc.
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Stephen G. Zemba, Ph.D., P.E.  
Page 26

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