

Jane Hamblen

Consultant



Education and Credentials

B.A., Biology, University of Southern Maine, Portland, Maine, 1976

Certificate in Management, University of Southern Maine, Portland, Maine, 1989

Continuing Education and Training

Project Manager Boot Camp Training, PSMJ Resources Inc. (2014)

Managing High Performance Course (2009)

Project Managers Training Course (2002 and 2007)

Professional Affiliations

Member, Product Stewardship Society, 2015–present

Member, International Society of Exposure Science, 2012–present

Member, Society for Risk Analysis, 1995–2007

Member, New England Chapter of Society for Risk Analysis, 1995–2007

Professional Profile

Ms. Jane Hamblen is a consultant with 30 years of experience in risk assessment, environmental health, and biology. She is responsible for managing risk assessment projects, providing senior review of work products, and providing technical assistance on a variety of human health projects. Ms. Hamblen's expertise is in exposure assessment, specializing in both deterministic and probabilistic analyses. She has led projects involving material, use, and exposure assessments of phthalates and other chemicals in consumer products for compliance with California's Proposition 65. She has also evaluated the public health impacts associated with PCBs, chlorinated organic compounds, mercury, resorcinol, pesticides, gasoline spills, and ash generated by power plants. In addition, Ms. Hamblen has developed risk-specific chemical concentrations for deriving cleanup goals, and she has evaluated public health risks associated with remedial alternatives. Her toxicology experience includes assisting in the development of alternative cancer toxicity criteria and tolerable daily intakes for PCBs and a noncancer reference dose for resorcinol.

Ms. Hamblen has co-authored a number of published technical papers, including articles on the use of Monte Carlo methodology in exposure assessment. Her extensive project experience has included human health risk assessments (HHRAs) conducted under CERCLA, RCRA, and the Massachusetts Contingency Plan (MCP). Her project management experience ranges from baseline risk assessments to dose reconstruction projects. She has managed toxic tort cases that allege health effects from chemical exposure and worked in the area of regulatory compliance for worker and community right-to-know legislation.

Relevant Experience

Risk Assessment

Microexposure Risk Model to Assess Wood Treatment Site, Florida—Conducted microexposure event risk modeling that estimates potential human health risks for workers at an active wood treatment facility. Exposure routes included incidental soil ingestion, soil dermal contact, and dust inhalation. Both site-specific and generic exposure assumptions were incorporated into the model. Soil concentrations were based on distributions of potential



spatially-averaged mean concentrations of arsenic, benzo[a]pyrene toxic equivalents, pentachlorophenol, and toxic equivalents of dioxins and furans. This 2-dimensional model concurrently quantifies uncertainty and variability in estimated future risks and also has the flexibility to assess the residual risks from different remedial alternatives.

Human Health Risk Assessment for Koppers Pond, Horseheads, New York—Prepared an HHRA for Koppers Pond, which had received historical treated wastewater discharges from an electrical manufacturing facility and runoff from other adjoining industrial sites. The primary chemicals of concern were heavy metals, PAHs, and PCBs. Exposure pathways included fish consumption and direct contact with sediment and surface water. The HHRA has been submitted to EPA Region 2. Results from the HHRA will be used in conjunction with the ecological risk assessment to develop appropriate remedial measures for this site.

Memorandum on Exposure Scenarios and Assumption and Pathway Analysis Report for Koppers Pond, Horseheads, New York—Prepared a memorandum on exposure scenarios and assumptions (MESA) and a pathway analysis report (PAR) as part of the baseline HHRA for Koppers Pond, which received historical treated wastewater discharges from an electrical manufacturing facility and runoff from other adjoining industrial sites. The primary chemicals of concern are heavy metals, PAHs, and PCBs. The potential exposure pathways include fish consumption and ingestion of and dermal contact with sediment and surface water. The MESA and PAR were submitted to and approved by EPA Region 2. This project is currently at an interim step in the HHRA process. Results from the HHRA will be used in conjunction with the ecological risk assessment to develop an appropriate remedial measure for this site.

Human Health Risk Assessment, Centredale Manor Restoration Project Superfund Site, Rhode Island—Provided HHRA support services to outside counsel. This Superfund site, based in North Providence, has multiple operating units and contemplated actions, including non-time critical removals and an RI/FS process. The site is associated with human health issues and ecological concerns from the presence of dioxins, furans, PCBs, pesticides, herbicides, and volatile organic compounds (VOCs) in all environmental media, but particularly in riverine and aquatic environments, associated biota, and floodplain soils.

Human Health Risk Assessment, Gulf, North Carolina—Prepared an HHRA for a creek at a former wood treatment facility in Gulf, North Carolina. Receptor scenarios of interest included hunter and trespasser. This document was submitted to the North Carolina Department of Environment and Natural Resources and approved in 2009.

Human Health Risk Evaluations to Support an Engineering Evaluation and Cost Analysis of a Former Uranium Mine, New Mexico—Developed an HHRA work plan to support the evaluation of multiple remedial alternatives developed as part of an engineering evaluation and cost analysis (EE/CA) at a former uranium mine in the southwestern U.S. Both radionuclides and non-radionuclides (predominantly metals) were included in these assessments. Potential risks associated with transportation of materials off-site will also be assessed as part of this effort. Results will be used to assess suitability of the remedial alternatives.



Microexposure Probabilistic Human Health Risk Assessment for PCBs Concerning the Fox River PCB Superfund Site, Wisconsin—Assisted in the development of parameters for a microexposure event model, and ran the model to estimate human health risks from the ingestion of fish containing PCBs for a large river system in Wisconsin. The microexposure event model is a 2-dimensional model that concurrently quantifies uncertainty and variability in estimated future risks, and also has the flexibility to assess the residual risks from different remedial alternatives.

Streamlined Human Risk Evaluation, Former Uranium Mine, Grand Canyon, Arizona—Developed a streamlined work plan for human health risk evaluation in support of the development of an EE/CA work plan for a former copper and uranium mine on the rim of the Grand Canyon. Both radionuclides and non-radionuclides (predominantly metals) were included in these assessments. Human health risk posed by radionuclides will be evaluated using the RESRAD model, while non-radionuclide risks will be evaluated using conventional EPA Superfund approaches.

Human Health Risk Assessment for the Shoreline of a Former Wood-Treating Site, Wauna, Oregon—Managed and conducted the HHRA of potential recreational activities along the shoreline of the Columbia River. Determined that potential risks associated with the Columbia River shoreline adjacent to a former wood-treating site did not pose a potential risk to human health. The Oregon Department of Environmental Quality accepted the risk assessment.

Human Health Risk Assessment of VOCs from Contaminated Groundwater, South Portland, Maine—Prepared an HHRA to assess the potential impacts of VOCs from groundwater originating from an active semiconductor plant. Historical spills and releases of VOCs from prior to the mid-1980s have resulted in the contamination of a portion of the overburden and the bedrock groundwater at the facility. An HHRA was conducted to determine potential exposures and associated risks of VOCs present in the groundwater. The assessment concluded that there were no significant health impacts to workers.

Human Health Risk Assessment of Exposure to Phthalates, Georgia—Project manager for a baseline HHRA for an operating facility in Georgia. Evaluated potential health risks to construction workers, residents, and trespassers from direct contact with phthalates. Presented results to the Georgia Department of Natural Resources, which accepted the risk assessment.

Sydney Tar Ponds Agency, Sydney, Nova Scotia—Project team member on the HHRA of proposed remediation projects at a former coke oven and steel mill site. More than 350 scenarios were considered, based on two different prospective project schedules, 10 project years, and multiple combinations of activities within each project year.

Human Health and Ecological Risk Assessment Work Plan for a Large Floodplain, Massachusetts—Assisted in the development of a detailed work plan outlining an approach for characterizing chemical concentrations and potential risks associated with PCBs in an extended floodplain area. This work plan outlined multiple screening phases to allow the risk assessment to focus on areas of greatest concern within the floodplain. It included the evaluation of potential risks due to both direct and indirect exposures under a number of residential, recreational,



commercial, and agricultural exposure scenarios, and proposed the use of use-weighting, spatial averaging, and probabilistic techniques to ensure realistic and complete evaluation of potential exposures and risks.

Human Health Risk Assessment of River Sediments, New York—Task manager for an HHRA of PCB-contaminated sediments in the Hudson River. Evaluated potential health risks from fish consumption based on site-specific exposure information and a unique microexposure event model. Presented analysis to EPA Region 2 for consideration in likely remedial actions. Developed detailed comments on EPA's HHRA and feasibility study.

Human Health Risk Assessment of Soil and Sediments, New York—Project manager for an HHRA of PCB-contaminated soil and sediments associated with Rogers Island in the Upper Hudson River. Risk assessment performed in parallel with EPA Region 2 Emergency and Remedial Response Division's risk assessment to determine the extent of soil and sediment removal. Developed detailed comments on EPA's risk assessment.

Risk Assessment for Tetrachlorvinphos, Secaucus, New Jersey—Assisted in an assessment of risks from exposure to tetrachlorvinphos (TCVP), a pesticide used in several pet products. The risk assessment was performed in response to EPA's assessment that identified concerns from residential exposure to TCVP. Based on new data generated by a series of studies of exposure to TCVP in pet products, the assessment demonstrated that the products do not pose unacceptable risks to users or their families.

Development of Risk-Based Cleanup Goals, New Jersey—Task manager for the development of risk-based cleanup goals (health based concentration levels, or HBCLs) at an active industrial site. Estimated HBCLs for several compounds, including PCBs and PAHs. Evaluated exposure scenarios including on- and offsite occupational scenarios and construction scenarios. Based on data ranging from employment history to the use of protective clothing, site-specific exposure parameters were developed and used to derive the HBCLs. Results of the analysis provided HBCLs that are health protective but far less stringent than those developed by the state of New Jersey.

Evaluation of Human Health Risks, Gray, Maine—Project manager for the evaluation of human health risks associated with exposures to trichloroethylene present in the Royal River. Estimated risks to recreational users of the river. Evaluated exposures from occasional contact with the surface water and from daily contact via consumption of drinking water. Estimated risks for a no-action alternative and for post-remedial options.

Evaluation of Human Health Risks, Auburn, Maine—Project manager for the evaluation of human health risks associated with exposures to VOCs, cresols, and metals (including arsenic) present in subsurface soils and shallow groundwater. Evaluated exposures from dermal contact, inhalation of vapors, and ingestion of groundwater. Risks were estimated in support of a feasibility study of the facility (active plastic product manufacturing facility).



Human Health Risk Assessment for Exposure to Soils, Bloomington, Indiana—Task manager for an HHRA of PCB-contaminated soil at a site in Bloomington, Indiana (EPA Region 5). Evaluated exposures and associated risks via direct contact with the soil. Developed health-based cleanup goals that were used in negotiation with city, state, and federal agencies.

Human Health Protocol Development, Waterfowl Consumption, Plymouth, North Carolina—Project manager for the development of a human health protocol to estimate risks from consumption of waterfowl contaminated with TCDD. Prepared a methodology describing an approach to estimating site-specific consumption rates for waterfowl and submitted it to the North Carolina Department of Health and Human Services. Proposed an alternative cancer slope factor, which was accepted by the agency.

RCRA Human Health Imminent Hazard Risk Assessment, Floodplain Soils, Massachusetts—Task manager for a RCRA human health imminent hazard risk assessment of PCB-contaminated floodplain soil of the Housatonic River (EPA Region 1 and Massachusetts Department of Environmental Protection). Conducted a land-use study to develop realistic, site-specific exposures that were modeled under the Monte Carlo approach. Evaluated potential human health risks via numerous exposure pathways, including direct contact with soil, consumption of homegrown produce, and consumption of milk. Determined that when the most scientifically sound toxicity criteria were used, PCBs on the floodplain did not pose an imminent hazard.

Potential Health Risk Evaluation, Blueberry Fields, Maine—Health scientist for the evaluation of the potential health risks associated with herbicide application to blueberry fields. Estimated risks from drinking water that contained low levels of the herbicide. Results of the analysis indicated no health hazards posed by the herbicide levels detected in the groundwater. Prepared and participated in the presentation of the results to the Maine Board of Pesticides Control as part of a petition process on the use of the herbicide.

Peer Review of RCRA Facility Investigation Risk Evaluation, Maine—Project manager for a peer review of a public health and environmental risk evaluation report prepared by a local engineering firm as part of a RCRA facility investigation. Supervised and conducted an evaluation of the health risks of metals detected in sediments.

CERCLA Baseline Risk Assessment, Maine—As a health scientist, assisted in preparation of a baseline HHRA for a CERCLA site (EPA Region 1). Evaluated potential exposures to a number of volatile and semivolatile organic compounds and pesticides detected in onsite soil.

Landfill Baseline Risk Assessment, York, Pennsylvania—Project coordinator for a CERCLA municipal landfill site. Conducted baseline HHRA for numerous metals and organic substances in soil, groundwater, surface water, and sediment. Report was accepted by EPA Region 3.

Rail Yard Baseline Risk Assessment, Pennsylvania—Project coordinator for CERCLA rail yard site. Conducted baseline HHRA for PCBs in soil, air, and on indoor surfaces. Determined risks associated with remedial alternatives.



Environmental Clean-Up Responsibility Act Human Health Risk Assessment, Edison, New Jersey—Project manager for Environmental Clean-Up Responsibility Act site. Supervised and conducted an HHRA to characterize baseline risks associated with a no-action alternative. Evaluated potential exposures to metals and several organic compounds detected in onsite soil. Results of analysis were applied in conjunction with site-specific environmental conditions and remedial technology to derive contaminant-specific cleanup objectives for soils.

Massachusetts Contingency Plan Risk Assessment, Reading, Massachusetts—Project manager for an MCP site. Supervised and conducted an HHRA to evaluate impacts associated with a petroleum release at a service station. The risk assessment was done in accordance with MCP requirements. Evaluated future soil exposures to BTEX, 1,2-dichlorobenzene, 1,4-dichlorobenzene, and lead. Concluded that all criteria were met to support a finding of no remedial response action. Report submitted and accepted by the Massachusetts Department of Environmental Protection.

Hydrocarbon Vapor Risk Assessment, Crowley, Texas—As project manager, evaluated potential inhalation risks of BTEX detected in indoor air samples from several residential homes. Participated in the sampling protocol. Also evaluated questionnaires administered to residents to determine background sources of BTEX. Concluded that risks were within acceptable range and comparable to average background concentrations found in residential indoor air.

Right-to-Know Compliance, Major Utility, Salem, Massachusetts—As project manager for a major utility, prepared material safety data sheets on ash generated by coal- and oil-fired power plants. The data sheets were used as part of the utility's compliance with right-to-know regulations.

Product Stewardship

Proposition 65 Regulatory Compliance Evaluation, California—Conducted an evaluation of a carpet tile product to determine if it was in compliance with California's Proposition 65. Determined that exposures to any of the Proposition 65 chemicals present in the carpet tile did not pose a health concern and that the product did not require Proposition 65 labeling.

Litigation Support, New Jersey—Assisted counsel in a case where a food product was allegedly contaminated with ammonia. Determined that no regulatory agency has established an acceptable level of ammonia in food. Also determined that, because odor and taste were not detected in the product, ammonia levels that were present would not pose a health problem.

Dose Reconstruction

Tennessee Department of Health, Oak Ridge, Tennessee—Served as task manager for dose reconstruction project at a U.S. Department of Energy site in Oak Ridge, Tennessee. The overall goal of the task was to determine if offsite historical exposures to PCBs warranted an epidemiology study. Supervised onsite interviews of current and past employees to identify historical uses and releases of PCBs that may have contributed to PCBs detected in surrounding water bodies. Supervised and implemented a preliminary evaluation of potential exposures of PCBs from direct contact with contaminated soil, sediment, and surface water, and exposures from indirect pathways including vegetable, fish, and beef consumption. Supervised and coordinated a refined Monte



Carlo analysis of potential exposures associated with the most significant risks. Determined that fish consumption posed the greatest potential individual and population risks. Supervised and conducted a two-dimensional uncertainty analysis to further characterize the risks from fish consumption. Prepared and participated in presentations to the State of Tennessee oversight panel for the dose reconstruction project.

Toxicology

Reference Dose Development—Project manager for the development of reference dose (RfD) for resorcinol. A component of this project was conducting a statistical analysis of resorcinol toxicity focusing on assessing whether there were any dose-related effects related to thyroid gland hyperplasia and locomotor effects. Standard statistical tools (Fisher's exact test, analysis of variance, Dunnett's test) were originally used by the laboratory to determine the potential presence of a dose-response relationship. The results of the laboratory's assessment were evaluated using unconventional nonparametric tests including Mann-Whitney *U* test and trend tests to verify the conclusion of no effects over the evaluated dose range. The RfD document was submitted for Toxicology Excellence for Risk Assessment peer review and was accepted.

Uncertainties Analysis, Canada—Task manager for analysis of uncertainties in the delineation of a reference exposure level for mercury vapor. As part of a project to re-examine the permissible exposure limit for mercury in Canada, assessed multiple human health studies to develop an uncertainty factor that addresses inter- and intra-individual variability. The effort included review of relevant literature on industrial exposure to mercury (predominantly from former chlor-alkali plant workers).

Assessment of Suitability of Toxicity Equivalency Method for PCBs in Human Health Risk Assessments, Nationwide—Provided technical support in evaluating the suitability of the toxicity equivalency (TEQ) approach for assessing potential human health risks associated with PCB exposures.

Peer Review—Task manager for peer review of EPA's Integrated Risk Information System (IRIS) Uncertainty Review. Provided comments on EPA's characterization of data uncertainty and variability in IRIS assessments. Results of this peer review were submitted to the Science Advisory Board.

Revised Cancer Slope Factor Development, New York—Task manager in the development of a revised cancer slope factor and reference dose for PCBs based on recent human epidemiological studies.

Revised Cancer Toxicity Criteria Development, United States—Developed revised cancer toxicity criteria for PCBs based on recent animal bioassays. A carcinogenic mode-of-action (MOA) for PCB-promoted rat liver tumors was used as the basis for deriving a set of tolerable daily intakes (TDIs) for four different PCB mixtures using a nonlinear dose-response model. In this nonlinear dose-response model for PCBs, conservative toxicological uncertainty factors were applied as the simplest method for extrapolating below the point of departure to a threshold dose, which is consistent with the MOA. This resulted in a set of TDIs, one for each PCB mixture, that was approximately 3,000 to 5,000 times less stringent than the corresponding values derived using



nonthreshold models. This nonlinear dose-response assessment indicates that much higher levels of PCBs can be tolerated without subjecting individuals to unreasonable excess cancer risks. The results have important implications to the setting of allowable tolerances in consumer products and packaging materials, remedial action decisions at hazardous waste sites, and to a number of regulatory determinations involving PCBs.

Maine Board of Pesticides, Augusta, Maine—Project manager for a sole source contract with the Maine Board of Pesticides Control. Developed toxicological and environmental profiles on pesticides registered in the state of Maine.

Various Clients—Project coordinator of an exhaustive analysis of three immunotoxicity studies where PCBs were administered to primates. Results of these studies are the basis of regulatory standards. The analysis identified a number of limitations with the studies and concluded that the results do not form an appropriate basis for establishing regulatory standards for PCB mixtures.

Litigation Support

Arkansas, Litigation Support Regarding Alleged Releases of Dioxins and PAHs from an Active Wood Products Facility, Confidential Client—Prepared expert technical reports and supported the expert testimony for a case in the southern U.S. regarding allegations of chemical trespass, nuisance, negligence, and property damage related to the operation of an active wood products facility. Plaintiffs claimed that historical facility operations had resulted in the presence of elevated levels of dioxin/furans and PAHs in attic dusts of their homes, which they alleged had caused damage to their properties. Efforts included examining assumptions used for the air modeling, review of analytical data quality, and review of plaintiffs' expert reports. The case was tried in federal court and the jury returned a verdict in favor of the client. No compensatory or punitive damages were assessed against the client.

Litigation Support, Preti, Flaherty, Beliveau & Pachios on behalf of Mallinckrodt, LLC and United States Surgical Corporation (Appeal of Designation of Uncontrolled Hazardous Substance Site and Order Concerning Chlor-alkali Manufacturing Facility, Orrington, Penobscot Co., Maine, Proceeding Under MRSA §1365 Uncontrolled Hazardous Substance Sites Law)—Provided assistance on an expert report presenting an opinion as to whether any of the four proposed alternatives for remediating the former HoltraChem chlor-alkali plant site in Orrington is less effective at protecting human health from residual mercury releases into the Penobscot River. In addition, assisted on the evaluation as to whether any of the proposed remedies is associated with greater risks of death, injury, or property damage from transporting contaminated wastes. Conducted microexposure event modeling to quantify hypothetical exposures to anglers and their families under pre-remedial vs. post-remedial site conditions.

Litigation Support, Paper Company—Provided support in dioxin toxicology to assist attorneys in their preparation of expert witnesses in a class action lawsuit where plaintiffs alleged health effects from exposure to dioxin.



Litigation Support, Maine— Assisted in potential case of alleged exposure to dioxin and an increase in brain cancer. Provided support on dioxin toxicology and compiled background information on the case.

Toxic Tort Litigation Support, Vermont— Assisted counsel in a case of alleged exposure to herbicides applied to railroad right-of-way. Counsel represented railroad. The case was heard before a judge and resulted in a decision for the defendant.

Publications

(J. Hamblen also published as J. McCrodden.)

Richardson, G.M., R.W. Brecher, H. Scobie, J. Hamblen, J. Samuelian, and C. Smith. 2009. Mercury vapour (Hg⁰): Continuing toxicological uncertainties, and establishing a Canadian reference exposure level. *Regul. Toxicol. Pharmacol.* 53(1)32–38.

Sellers, K., C. Mackay, L.L. Bergeson, S.R. Clough, M. Hoyt, J. Chen, K. Henry, and J. Hamblen. 2008. *Nanotechnology and the Environment*. CRC Press, Boca Raton, FL.

Keenan, R.E., J.M. Hamblen, J.B. Silkworth, M.N. Gray, P.O. Gwinn, and S.B. Hamilton. 2004. An empirical evaluation of the potency of dioxin toxic equivalents (TEQs) in four PCB mixtures. *Toxicol. Sci. (Suppl.)* 78, Abstract 1783.

Keenan, R.E., J.M. Hamblen, J.B. Silkworth, M.N. Gray, P.O. Gwinn, and S.B. Hamilton. 2003. An empirical evaluation of the potency of dioxin toxic equivalents (TEQs) in several PCB mixtures. *Organohalogen Compounds* 65:312–315.

Price, P.S., R.E. Keenan, B.W. Schwab, J.M. Hamblen, and A.J. Heidorn. 2000. Use of a pharmacokinetic model in dose reconstruction of workers exposed to PCBs. International Society for Exposure Analysis, Annual Meeting, October. Abstract.

Perlberg, W., P.S. Price, C. F. Chaisson, M. Lytwyn, P. Bieler., and J.M. Hamblen. 2000. The “Split-back” methodology for characterizing dislodgability of pesticides. Annual meeting of the International Society for Exposure Analysis October. Abstract.

Price, P.S., R.E. Keenan, B.W. Schwab, J.M. Hamblen, and A.J. Heidorn. 2000. Use of a pharmacokinetic model in dose reconstruction of workers exposed to PCBs. Annual meeting of the International Society for Exposure Analysis, October 2000. Abstract.

Widner, T.E., P.S. Price, J. McCrodden-Hamblen, N. Bonnevie, J. Avantaggio, P. Gwinn, and C. Schmidt. 1999. PCBs in the environment near the Oak Ridge Reservation – A reconstruction of historical doses and health risks. The Report of Project Task 3 of the Oak Ridge Dose Reconstruction. Volume 3. Submitted to the Tennessee Department of Health.



Gillis, C.A., P.S. Price, and J.J. McCrodden-Hamblen. 1998. Use of a probabilistic analysis to characterize the uncertainty in the PCB threshold dose. *Toxicol. Sci. (Suppl.)* 42(1-S):45, Abstract 224.

Keenan, R.E., P.S. Price, J.H. Samuelian, and J.M. Hamblen. 1998. Modeling uncertainty and variability in noncarcinogenic risks from the consumption of fish containing PCBs. Annual meeting of the Society for Risk Analysis, December 7. Abstract.

Muir, W., C.G. Chaisson, P.S. Price, R.E. Keenan, J.A. Rothrock, N.L. Bonnevie, and J.M. Hamblen. 1998. A case study and presentation of relevant issues on aggregate exposure. An ILSI Risk Science Institute Workshop Report, March.

Widner, T.E., P.S. Price, J. McCrodden-Hamblen, and N. Bonnevie. 1997. Historical doses and health risks from PCBs in the environment near Oak Ridge, Tennessee. Society for Risk Analysis/International Society of Exposure Assessment Conference. Washington, DC, December 8.

Keenan, R.E., P.S. Price, J. McCrodden, and E.S. Ebert. 1996. Using a microexposure event analyses to model potential exposures to PCBs through ingestion of fish from the Upper Hudson River. *Organohalogen Compounds* 30:61–65.

Price, P.S., C.L. Curry, P.E. Goodrum, M.N. Gray, J.I. McCrodden, N.W. Harrington, H. Carlson-Lynch, and R.E. Keenan. 1996. Monte Carlo modeling of time-dependent exposures using a MicroExposure Event Approach. *Risk Anal.* 16(3):339–348.

Keenan, R.E., P.S. Price, C.L. Curry, J.I. McCrodden, and J.G. Haggard. 1995. Using a microexposure Monte Carlo analysis to model potential exposures to PCBs through ingestion of fish from the upper Hudson River. In: Society for Risk Analysis and the Japan Section of SRA, Annual Meeting and Exposition, Waikiki, HI. Abstract.

Lawrence, F.H., R.A. Michaels, M. Kitch, and J. McCrodden, et al. 1984. Ethylene dibromide (EDB), a guide for decision makers: Exposure, health effects and risk assessment. *Envirologic Data*, Portland, ME.

Hodgkin, B.C., D.E. Burkett, and J. McCrodden. 1981. Anaerobic myocardial metabolism during CPR. *Crit. Care Med.* 9(5):415–416.

Angelakos, E.T., R.A. Bonner, and J. McCrodden, et al. 1979. Phenoxybenzamine in hemorrhagic shock in the pig. *Circulatory Shock* 6(2).

Bonner, R.A., E.T. Angelakos, J. McCrodden, and R.A. Andrews. 1978. Myocardial depression in irreversible hemorrhagic shock. *Fed. Proc.* 37(3):2938.

Hodgkin, B.C., C.T. Lambrew, F.H. Lawrence, and J. McCrodden, et al. 1978. Improved aortic pressure and oxygenation by modified cardiopulmonary resuscitation. *Circulation* 58(11):203.



Invited Presentations/Panels/Peer Reviews

Toxicology Excellence for Risk Assessment. Participated in the peer review by TERA of the proposed reference dose (RfD) for resorcinol. September 2004; March 2005.

Presentations/Posters

Hamblen, J.M. 2010. Microexposure event (MEE) modeling – Where John left off. Integral Consulting. Annapolis, MD, January 8.

Hamblen, J.M., R.E. Keenan, J.B. Silkworth, M.N. Gray, P.O. Gwinn, E.S. Ebert, and S.B. Hamilton. 2003. An empirical evaluation of the potency of dioxin toxic equivalents (TEQs) in several PCB mixtures. Poster presentation at 13th Annual Conference of the International Society of Exposure Analysis (ISEA). Stresa, Italy, September 22–26.

Keenan, R.E., J.M. Hamblen, J.B. Silkworth, M.N. Gray, P.O. Gwinn, and S.B. Hamilton. 2003. An empirical evaluation of the potency of dioxin toxic equivalents (TEQs) in several PCB mixtures. Dioxin 2003—the 23rd International Symposium on Halogenated Environmental Organic Pollutants and Persistent Organic Pollutants, Boston, MA, August 24–29.

McCrodden, J.I., P.S. Price, N.L. Bonnevie, J.D. Avantaggio, and E.S. Ebert. 1996. Characterizing the uncertainty in estimates of PCB risk from the Clinch and Tennessee Rivers. Society for Risk Analysis and International Society of Exposure Analysis. New Orleans, LA, December 8–12.

Keenan, R.E., P.S. Price, J.I. McCrodden, and J.D. Avantaggio. 1996. Using a microexposure Monte Carlo analysis to model potential exposures to PCBs through ingestion of fish from the upper Hudson River. Eleventh Annual Conference on Contaminated Soils. Amherst, MA.

McCrodden, J., A. Chipperfield, and B. Campbell. 1981. Pesticide risk assessment matrix. Poster presentation at Maine Biological and Medical Sciences Symposium.

