Teresa S. Bowers, Ph.D.

Principal

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Dr. Bowers has over 30 years of experience in exposure modeling, mathematical and geochemical modeling, and the application of this information to risk-based environmental strategies and development of site-specific cleanup levels. She is the author of more than 50 journal articles on these and other topics. Her areas of expertise include modeling of blood lead and urine arsenic levels resulting from exposure to environmental sources of lead and arsenic. She is the author of an adult blood lead model now being used by US EPA, and she has worked on a number of sediment sites involving PCB contamination, where she developed unique statistical approaches to calculating cleanup levels. She is frequently invited to speak on these topics by both industry and government groups. Prior to joining Gradient, Dr. Bowers held research and visiting faculty positions at the Massachusetts Institute of Technology and Harvard University, where she taught courses in resource geology and applied thermodynamics.

Representative Projects

Hazard Ranking Tool: Led a project assessing a comprehensive relative hazard evaluation approach developed by the client for scoring and ranking its products used in hydraulic fracturing. Provided recommendations for broadening its application to entire hydraulic fracturing fluid systems.

Mining Site, South America: Assessed human health risk for lead and other metals. Developed an approach for interpreting groundwater chemistry data to determine the source of elevated concentrations.

Perchlorate in Drinking Water, Oklahoma: Provided risk communication support at public meetings.

Combined Radionuclide and Non-Radionuclide Risk Assessment, Massachusetts: Assessed human health risks associated with contamination surrounding a nuclear power facility undergoing decommissioning.

Lead Risk Assessment, Missouri: Assessed human health risks to lead in ore concentrate on truck haul routes. Also assessed comprehensive community human health risks to lead. Assisted in communications with agencies and the public.

PCB Risk and Cleanup Strategies: Served as a technical consultant to the mayor's office concerning issues arising from PCB contamination in Pittsfield, Massachusetts. Assisted the mayor during lengthy mediation with GE and multiple agencies, which produced an agreement for cleanup. Provided assistance to the Pittsfield Economic Development Authority in issues associated with redevelopment.

PCB Risk Assessment, Indiana: Led a human health and ecological risk assessment for PCBs in a river and floodplain.

Areas of Expertise

- Lead, Arsenic, & PCBs
- Blood Lead Modeling
- Exposure Modeling
- Statistical Methods
- Cleanup Levels
- Geochemical Modeling
- Risk Communication

Education

Ph.D., Geochemistry, University of California, Berkeley

B.S., Mathematics and Geology, Purdue University

Selected Publications

Bowers, T; Drivas, P; Mattuck, R. 2014. "Prediction of soil lead recontamination trends with decreasing atmospheric deposition." *Soil Sediment Contam*. 23:691-702.

Walsh, WJ; Reible, DD; Haas, CN; Pardue, JH; **Bowers, TS**. 2006. "An evaluation of chemical contamination in the aftermath of Hurricane Katrina." *BNA Environ. Rep*. 37(43):2255-2266.

Bowers, TS; Beck, BD. 2006. "What is the meaning of non-linear dose-response relationships between blood lead concentrations and IQ?" *Neurotoxicol*. 27:520-524.

Saxe, JK; **Bowers, TS**; Reid, KR. 2006. "Arsenic." In *Environmental Forensics: Contaminant Specific Guide*. (Eds.: Morrison, RD; Murphy, BL), Academic Press, Burlington, MA., p279-292.

Bowers, TS; Mattuck, RL. 2001. "Further comparisons of epidemiological data with predictions of the Integrated Exposure Uptake Biokinetic Model for lead in children." *Hum. Ecol. Risk Assess*. 7:1699-1713.

Bowers, TS; Shifrin, NS; Murphy, BL. 1996. "Statistical approach to meeting soil cleanup goals." *Environ. Sci. Technol.* 30(5):1437-1444.

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