Biographical Summary

Catherine Petito Boyce, S.M., Principal Scientist

Ms. Petito Boyce is an environmental health scientist with 25 years of experience in evaluating health effects, analyzing chemical fate and exposure, and assessing risks associated with toxic chemicals. She has applied her technical expertise to developing innovative exposure and risk assessment methods, conducting site- and product-specific exposure and risk analyses, and determining effective risk mitigation measures for contaminated sites (including mining and industrial sites) and other exposure settings. Her diverse experience also includes developing negotiation and litigation strategies; representing clients in public presentations, technical meetings, and negotiating sessions to support regulatory procedures and litigation; and planning and overseeing effective field investigations and remedial design efforts. Ms. Petito Boyce has published numerous articles and made many presentations on exposure and risk assessment topics. She has also actively participated in regulatory policy review processes and has critically reviewed policies addressing issues such as health risks associated with lead exposures, the use of probabilistic risk assessment methods (*e.g.*, Monte Carlo techniques), and approaches for assessing petroleum-contaminated sites.

Representative Projects

Chemical Screening Program Development: Conducted peer reviews of exposure and health effects components of pilot and primary program Screening Health Assessment Documents for several chemicals to assist Health Canada in developing and implementing a sound program for evaluating potential exposures and human health risks posed by existing chemicals in commerce.

Support for Product Screening Programs: Assisted several industrial clients in compiling relevant exposure and toxicity assessment resources to support product safety reviews.

Regulatory Review and Comment: Reviewed regulatory documents issued by US EPA (regarding air quality standards), OSHA (regarding occupational standards), and California EPA (regarding soil in school yards). Prepared written comments, focusing on available information regarding potential health effects associated with low-level lead exposures.

Risk Analyses for Treated Wood Products: Provided strategic and technical support in a suite of inter-related projects addressing regulatory requirements, scientific research needs, and potential risks associated with exposure to wood-treating chemicals and structures built of treated wood.

Exposure Assessment Research: As one component of a long-range exposure assessment research initiative, identified and critically reviewed available information relevant for modeling human exposures to chemicals, identifying data gaps. Research results published in the peer-reviewed literature.

Risk-Based Remediation at Metals Recycling Facility: Provided strategic and technical support in evaluating appropriate cleanup strategies for an industrial facility, including participating in negotiations with PRP group and regulatory agencies, designing and overseeing soil sampling program and site remediation efforts, and analyzing site-specific information, demonstrating lack of mobility of TPH at the site.

Practice Areas & Expertise

- Risk Assessment
- Product Safety
- Chemical Exposure Modeling
- Toxicity Assessment
- Cleanup Strategies
- Probabilistic Methods
- Agency Negotiations
- Regulatory Policy Review

Education

S.M., Environmental Health Management (Toxicology), Harvard School of Public Health

B.S., Biology (high honors), Yale University

Selected Publications

Petito Boyce, C; Sax, SN; Dodge, DG; Pollock, MC; Goodman, JE. 2009. "Human exposure to decabromodiphenyl ether, tetrabromobisphenol A, and decabromodiphenyl ethane in indoor dust." J. Environ. Protect. Sci. 3:75-96.

Petito Boyce, C; Lewis, AS; Sax, SN; Eldan, M; Cohen, SM; Beck BD. 2008. "Probabilistic analysis of human health risks associated with background concentrations of inorganic arsenic: Use of a margin of exposure approach." *Hum. Ecol. Risk Asses.* 14(6):1159-1201.

Dube, EM; Petito Boyce, C; Beck, BD; Lewandowski, T; Schettler, S. 2004. "Assessment of potential human health risks from arsenic in CCA-treated wood." *Hum. Ecol. Risk Assess.* 10:1019-1067.

Petito Boyce, C; Garry, MR. 2003. "Developing risk-based target concentrations for carcinogenic polycyclic aromatic hydrocarbon compounds assuming human consumption of aquatic biota." *J. Toxicol. Environ. Health, Part B.* 6:497-520.

Petito Boyce, C; Garry, MR. 2003. "Review of information resources to support human exposure assessment models." *Hum. Ecol. Risk Assess.* 8(6):1445-1487.

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