

Sheryl Law **Managing Scientist**

Professional Profile

Ms. Sheryl Law is a Managing Scientist in Exponent's EcoSciences practice. She has a strong background in environmental chemistry including extensive work in aquatic systems, contaminant modeling and analytical instrumentation (ion chromatography, neutron activation, spectrophotometry, atomic absorption spectrometry, high performance liquid chromatography, gas chromatography, and mass spectrometry). She has experience coordinating with chemical laboratories to develop analytical methods and sample preparation techniques for identification of chemicals that cannot be identified with conventional analyses. Her research with chiral analysis of optical isomers has applications in fields of natural attenuation and fate and transport modelling. She is broadly trained in environmental science and chemistry and provides strong technical support on ecological risk assessments, natural resource damage assessments, litigation projects and site remedial investigations. In addition, she is an experienced technical writer and has prepared a variety of data reports and literature reviews.

She received her MBA with a focus on enterprise risk and sustainability or corporate social responsibility issues. She has researched the value of public companies with respect to their "triple bottom line" and has created decision analysis models that derive additional cash flow from ecological assets, mitigation banks, and carbon credits.

Academic Credentials and Professional Honors

M.B.A., Seattle University, 2006

M.S., Environmental Chemistry, University of Toronto, 2000

B.Sc., Environmental Science, University of Toronto (*honors with distinction*), 1998

University of Toronto Fellowship Award (2000); University of Toronto Open Fellowship Award (1998); Golden Key Honor Society Top 15% Scholar; NSERC Undergraduate Research Award in Industry

Licenses and Certifications

OSHA Hazardous Waste Operations and Emergency Response 40-hour certification

Publications

Menzie CA, Booth P, Law SA, von Stackelberg K. Use of decision support systems to address contaminated coastal sediments: Experience in the United States. In: Decision Support Systems for Risk-Based Management of Contaminated Sites. Marcomini A, Suter II GW, Critto A (eds), Springer Verlag, 439 p, 2009.

Diamond M, Helm P, Semkin R, Law S. Chapter C.2: Mass balance and modelling of contaminants in lakes. In: Canadian Arctic Contaminants Assessment Report II—Sources, Occurrence, Trends and Pathways in the Physical Environment, Indian and Northern Affairs. Bidleman T, Macdonald R, and Stow J (eds), Canada, Ottawa, pp. 191–201, 2003.

Law SA, Bidleman TF, Martin MJ, Ruby MV. Evidence of enantioselective degradation of α -hexachlorocyclohexane in groundwater. Environmental Science and Technology 2004; 38(6):1633–1638.

Law S, Diamond ML, Helm PA, Jantunen JL, Alaei M. Factors affecting the occurrence and enantiomeric degradation of hexachlorocyclohexane isomers in northern and temperate aquatic systems. Environmental Science and Technology 2001; (12):2690–2698.

Law S, Diamond ML. Arsenic toxicity in plants. Prepared for Indian Affairs and Northern Development, Northwest Territories, Canada, 2000.

Law S. Factors influencing the enantioselective degradation and ratio of hexachlorocyclohexane isomers in temperate and northern aquatic systems. Thesis. University of Toronto, Toronto, Canada, 2000.

Law S, Gough W. Validation of the 1995 monitoring acid rain youth program data. Proceedings, The Canadian Association of Geographers, Ontario Chapter '96, Peterborough, Ontario, Canada, 1996.

Presentations

Law SA, Lehmicke L. The evaluation of abiotic degradation of chlorinated ethenes for a natural attenuation remedy. Presented at Battelle Remediation of Chlorinated and Recalcitrant Compounds, Monterey, CA, 2004.

Law S, Bidleman TF, Martin T, Ruby M. Analysis of α -HCH in groundwater: Implications for degradation mechanisms. Presented at SETAC 2001, Baltimore, MD, 2001.

Project Experience

Provided technical and project management support for an agricultural-based litigation project involving multiple defendant teams and potential injunctions to current agricultural waste management practices.

Provided technical research support for existing sediment, soil, and water quality criteria. Coauthored a technical memo critiquing commonly used guidelines and suggestions for General Motor's usage of sediment and soil quality criteria in future media screening and risk assessments.

Provided technical research support for PCB, PCDD/PCDF, and PAH fingerprinting. Analyzed PCDD/PCDF and PAH degradation patterns, congener proportions, spatial distributions and principal component analysis results to determine sources and degradation rates. Coauthored a document that described the possible sources of PCDD/PCDFs and concluded that General Motor's facilities were not implicated as a source of contaminants to the river or floodplain soils.

Provided field support for an epidemiological study in Middleport, New York. Responsible for coordinating the collection of urine and toenail samples from villagers and ensuring legal paperwork and background exposure questionnaires were properly completed and maintained for copying and delivery to project epidemiologists.

Provided technical research support for litigation projects involving secondary lead smelters and landfills. Compiled history of equipment and air releases from historical documents. Responsible for the QA of air dispersion modeling input parameters and input files.

Designed and prepared a field sampling plan to characterize the nature and extent of soil and sediment contamination with metals at a mine port site and adjacent marine site in northwest Alaska. Coauthored two data reports describing fugitive dust study results at the mine port site and haul road. Provided technical research support for historical facility operations at the mine site and coauthored an extensive background report that included a summary of past environmental studies, mine operations, and historical subsistence area use.

Assisted in the assessment of potential environmental impacts of solar panels as a result of their chemical composition. Performed probabilistic food web modeling calculations on hypothetical contaminant releases from the solar panels.

Provided technical support in determining biological degradation in groundwater beneath a pesticide facility by coordinating chiral enantiomer analysis of alpha-hexachlorocyclohexane with an Environment Canada laboratory. Analyzed chiral analysis results and corresponding groundwater parameters. Coauthored a document that described the evidence that natural attenuation was occurring in the groundwater plume and the environmental conditions that were conducive to enantioselective degradation.

Provided technical research support for various litigation and fast-paced projects that required information about a chemical's structure, analysis, toxicology, transport, degradation, and handling. Research included extensive literature reviews, database searches, and information synthesis in short time frames. Examples of researched chemicals include organochlorine compounds, speciated chromium, MTBE metabolites, chlorinated solvents, and steroids. Also provided technical research of technologies such as solar panels, zero-valent iron permeable reactive barriers, abiotic surface-phenomenon degradation of chlorinated solvents, and petrochemical processes that involve MTBE.

Assisted in screening-level ecological risk assessment and a baseline ecological risk assessment for Onondaga Lake and Geddes Brook/Ninemile Creek in New York and Harris Lake in Michigan. Performed deterministic and probabilistic food web modeling calculations.

Prepared quality assurance project plan (QAPP) for fieldwork according to EPA guidance documents and coordinated with laboratory to ensure appropriate and timely sample analyses. Assisted in the validation of Onondaga Lake laboratory results QA/QC.

Performed the analysis of alpha-HCH enantiomers in various media with GC-MS and developed fate and transport models for enantioselective isomers of alpha-HCH and other organochlorine pesticides in cold climates using Level 3 fugacity models.

Responsible for the design and field supervision of an iodine fate and transport project as part of the Nuclear Waste Disposal Plan for Atomic Energy of Canada, Ltd. Conducted the analysis of iodine with ion chromatography, specific ion electrodes, oxygen parr bombs, and neutron activation. Developed a conceptual site model of the waste disposal area and performed human and ecological risk calculations.

Modeled the speciation of metals in the Great Lakes Area of Concern, Hamilton Harbour, Ontario, Canada with MINTEQ.