

Sharon Squire, Ph.D.

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*Environmental Geochemistry
Experimental Sampling Design
Measurement Uncertainty
Geostatistics*

Education

Doctor of Philosophy, Environmental Geochemistry
Imperial College of Science, Technology and Medicine.
London, United Kingdom

Master of Science, Environmental Geology
University of Wales, College Cardiff.
Wales, United Kingdom

Bachelor of Science, Environmental Science
University of Plymouth, United Kingdom.

Areas of Expertise

Dr. Squire has managed all phases of projects involving geochemistry, sampling design and fate and transport evaluations. Dr. Squire has also provided extensive work in risk characterization and development of cleanup goals for a variety of groundwater, soil-gas and soil samples, and assisted with human health and ecological risk assessments, phase I investigations and report writing.

Project Experience

Conducted statistical analyses of residual pesticides detected in shallow soil to evaluate potential exposure concentrations with respect to regulatory screening criteria for a proposed residential development in Contra Costa County, California.

Performed risk evaluations for evaluating residual concentrations of metals from a release at a former plating shop in Alameda County, California. The evaluations included identifying exposure concentrations and development of clean-up goals for residual metals detected in wipe samples.

Performed pollution prevention training and inspections regarding storm water pollution prevention plan implementation and monitoring for industrial operations and California Department of Transportation construction projects, Contra Costa and Alameda Counties California.

Developed a sampling and analysis plan for characterizing potential releases to groundwater of chlorinated solvents at a former industrial facility in Tehama County, California. Ms. Squire, prepared a conceptual site model to identify potential

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Project Experience *(continued)*

data gaps, developed a scope-of-work to address the data gaps and prepared data quality objectives for evaluating chemical data results.

Conducted ozone sparge system monitoring and data analysis to evaluate the effectiveness of ozone sparging in addressing petroleum hydrocarbons and chlorinated solvents releases to groundwater.

Prepared an evaluation of potential discharges of mercury to wastewater streams from medical facilities for a national association.

Professional Work Experience

UNIVERSITY OF CALIFORNIA, Santa Cruz

Post-Doctoral Researcher: Dr. Squire collected and analyzed San Francisco Bay surface waters as part of the Regional Monitoring Program and developed mathematical models to assess spatial and temporal trends of surface water contaminants. Dr. Squire developed and taught an environmental statistics class offering an insight into experimental sampling design, analytical quality control, probability, regression, inferential statistics, and analysis of variance. Dr. Squire collaborated on projects to assess mercury speciation in San Francisco Bay surface waters, lead

absorption of water within ball valves, risk assessment of lead from keys, and trends of organic and inorganic contaminants in mussels located along the California Coast.

IMPERIAL COLLEGE OF SCIENCE, TECHNOLOGY AND MEDICINE. LONDON, United Kingdom

Doctoral Researcher: Dr. Squire developed sampling, analytical and computational methods to assess sampling and analytical uncertainties for soil and gas monitoring. Dr. Squire devised and conducted 4 inter-organizational sampling trials, analyzed the samples and reported the findings in peer-reviewed journals and international conferences.

Publications and Presentations

Christopher H. Conaway, Sharon Squire, Robert P. Mason, and A. Russell Flegal Mercury Speciation in the San Francisco Bay estuary. *Marine Chemistry* (In Press).

Sharon Squire, Genine H. Scelfo, Justin Revenaugh and A. Russell Flegal (2002) Decadal Trends of Silver and Lead Contamination in San Francisco Bay Surface Waters. *Environmental Science and Technology*, 36, 11, 2379-2386.

Squire, S and Ramsey, M.H. (2001) Inter-organizational sampling trials for the uncertainty estimation of landfill gas measurements. *Journal of Environmental Monitoring*, 3, Issue 3, 288-294.

Squire, S., Ramsey, M.H., Gardner, M.J. and Lister, D. (2000) Sampling proficiency test for the estimation of uncertainty in the spatial delineation of contamination. *Analyst*, 125, Issue 11, 2026-2031.

Squire, S., Ramsey, M.H. and Gardner, M.J. (2000) Collaborative trial in sampling for the estimation of uncertainty in the spatial delineation of hot spot contamination. *Analyst*, 125, 139-145.

Publications and Presentations (continued)

Squire, S., Ramsey, M.H. and Gardner, M.J. (2000) Sampling error: the neglected component of measurement uncertainty in trace element analysis. In: 11th Annual International Conference on Heavy Metals in the Environment (J. Nriagu, Editor), contribution # 1369. University of Michigan, School of Public Health, Ann Arbor, MI (CD-ROM).

Squire, S. (1999) Hunt the hot spot: sampling trials on contaminated land, *Interface*, Winter/Autumn, 5.

Squire, S., Ramsey, M.H. and Gardner, M.J. (1998) Estimation of bias in the measurement of hot spots on contaminated land. *Contaminated Soil '98*, Thomas Telford, London, 861 - 862.

Ramsey, M.H., Argyraki, A, and Squire, S. (1998) Measurement uncertainty arising from sampling contaminated land: a tool for evaluating fitness-for-purpose. *Contaminated Soil '98*, Thomas Telford, London, 221 - 230.

A. Russell Flegal, Sharon Squire, Douglas Steding, Christopher Conaway, Genine, Scelfo (Invited). Diurnal and Decadal Biogeochemical Cycles of Trace Elements in San Francisco Bay: The Urban Estuary. 2002 Ocean Sciences Meeting. Honolulu, Hawaii. 11th-15th February 2002.

Sharon Squire, Genine H. Scelfo, Justin Revenaugh and A. Russell Flegal. Time series models of silver and lead in San Francisco Bay. American Geophysical Union 2001 Fall Meeting, San Francisco, Dec 10th-14th 2001.

Squire, S., Scelfo, G., Revenaugh, J. and Flegal, A.R. San Francisco Bay: Golden gates and silver estuaries. Northern California Regional Chapter, Society of Environmental Toxicology and Chemistry, 11th Annual Meeting, 17th-19th June 2001, University of California, Santa Cruz.

Squire, S., Ramsey, M.H. and Gardner, M.J. Sampling error: the neglected component of measurement uncertainty in trace element analysis. 11th Annual International Conference on Heavy Metals in the Environment, 6th - 10th August, 2000. University of Michigan, School of Public Health, Ann Arbor, Michigan.

Squire, S., Ramsey, M.H. and Gardner, M.J. Inter-organizational sampling trials on gas concentrations from a landfill site for the estimation of measurement uncertainty. 5th International Symposium on Environmental Geochemistry, 24th-29th April, 2000. University of Cape Town, South Africa.

Squire, S. Quantifying uncertainty from environmental sampling of spatially and temporally variable systems (invited speaker). Environmental Toxicology Department, UCSC, 8th March, 2000.

Squire, S. Quantifying uncertainty in contaminated land investigations (invited). Geological Society, Feltham Region, UK. 8th June 1999.

Squire, S, Ramsey, M.H. and Gardner, M.J. Hunt the hot spot: sampling trials on contaminated land. Society for Environment, Geochemistry and Health, 17th European Conference. March 29-31, 1999. University of Glasgow.

Squire, S., Ramsey, M.H. and Gardner, M.J. Use of a synthetic sampling target to estimate bias in contaminated land investigations. Society for Environment, Geochemistry and Health, 16th European Conference. April 6-8, 1998. University of Derby.

Squire, S., Ramsey, M.H. and Gardner, M.J. Estimation of bias in the measurement of hot spots on contaminated land. Consoil '98, International Conference. May 1998. Edinburgh Conference Centre, Scotland.

Squire, S., Ramsey, M.H. and Gardner, M.J. Use of a synthetic sampling target to estimate bias in contaminated land investigations. Graduate School of the Environment Conference, 1998. Imperial College, London.

Squire, S., Ramsey, M.H. and Gardner, M.J. Estimation of bias in the measurement of hot spots on contaminated land. Graduate School of the Environment Conference, 1997. Imperial college, London.