

Groundwater Contamination and Remediation



Jonathan W. Peterson
Geological & Environmental Sciences
Phone: 616-395-7133
FAX: 616-395-7125
Email: peterson@hope.edu

Education:

Ph.D., Geology, University of Chicago, 1989
A.B., Geology, Hope College, 1984

Experience:

Hope College (1994-present)
Amoco Oil Company (1992-1994)
Amoco Production Company (1989-1992)

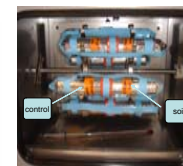
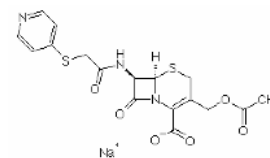
Areas of expertise: Experimental Geochemistry
Environmental Geology

Current project:

Fate and transport of antibiotics in groundwater

Grants and awards:

HHMI, 2005, \$10,000, *Identification, Quantification and Fate of Antibiotics and Estrogens in Surface and Ground Water*, with M.D. Seymour
NSF, 1999, \$132,728, *Evaluation of the Effectiveness of Air Sparging Techniques in Non-homogeneous Natural Sediments*, with K.S. Murray and K. Rathfelder



Dairy operations can be a source of beta lactam antibiotic contamination in groundwater. Batch experiments are currently underway to determine distribution coefficients between geologic materials and water for commonly used antibiotics.

LC/MS is an analytical technique that can quantitatively detect small concentrations of antibiotics in water.



Measured distribution coefficients are an indication of antibiotic mobility in groundwater aquifers.

Key publications and presentations:

- O'Meara, T.A., Seymour, M.D., and Peterson, J.W., (2005), Experimental Investigation of Cephapirin Adsorption to Sands: Implications for Transport of Antibiotics in Groundwater: *Annual Meeting of the Geological Society of America*, Salt Lake City, UT
- Peterson, J.W. and Murray, K.S., (2003), Grain-size heterogeneity and subsurface stratification in air sparging: laboratory experiments-field implications. *Environmental and Engineering Geoscience Journal*, vol IX, No.1, pp.71-82.
- Peterson, J.W., Murray, K.S., Tulu, Y.E., Peuler, B.D. and Wilkens, D.A., (2001), Air-flow geometry in air-sparging of fine-grained sands, *Hydrogeology Journal*, v. 9, p. 168-176.