- Bioremediation
- Contaminant Transport
- Hydraulic Shale Fracturing
- Monitored Natural Attenuation
- Natural Organic Carbon

LASHUN KING THOMAS

Assistant Professor
Department of Civil and Environmental Engineering, Syracuse University

151H Link Hall
Phone: 315–443–9599
Email: lkthom02@syr.edu
Website: http://lcs.syr.edu/about-the-college/faculty-and-staff/thomas

Dr. Thomas' research focuses on groundwater and soil remedial technology. The nature of her research includes hydrogeology, groundwater hydrology, and contaminant transport. Her research specifically addresses bioremediation, enhanced biodegradation, and the sustainability of monitored natural attenuation at contaminated sites. Dr. Thomas conducts investigations that address the variation, nature, and composition of potentially bioavailable organic carbon that support microbially-mediated reductive dechlorination in aquifer systems. Currently, Dr. Thomas is investigating the potential environmental impacts of natural gas production from hydraulic shale fracturing. This research evaluates water quality parameters in areas of hydraulic fracturing.

Education:

2011 Ph.D. Civil Engineering, Virginia Tech
2006 M.E. Environmental Engineering, Tennessee State University
2004 B.S. Civil Engineering, Tennessee State University

Recent Research Projects:

Assessment of Groundwater Quality in Areas Near Hydraulic Shale Fracturing, North Central Arkansas. *PIs: Thomas, L. (Syracuse University) and Gandy, J. (University of Arkansas for Medical Sciences).*

With drilling technology improvements, hydraulic fracturing has become a beneficial alternative for natural gas production. However, groundwater contamination has been a well-documented potential environmental concern. In this study, groundwater quality was evaluated in areas near hydraulic shale fracturing in north-central Arkansas. Concentrations of volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs), and fixed gases were measured in groundwater samples using gas chromatography.

Biogeochemical Cycling of Carbon: Biodegradable Natural Organic Carbon in Sediments and Its Impact on Microbial Decomposition. *PI: Thomas, L. (Syracuse University).*

Biodegradable organic carbon in soils and sediments plays a vital role in the biogeochemical cycling of carbon. The biodegradability of organic carbon in soils is often dependent on its chemical composition, growth conditions, and diagenetic state. This study investigates the impact of carbon composition on microbial utilization and CO2 production.

Recent Scholarship:

Thomas, L.K., M.A. Widdowson, F.H. Chapelle, J.T. Novak, J.E. Boncal, and C.A. Lebrón, **"Distribution of potentially bioavailable natural organic carbon in aquifer sediments at a chloroethene-contaminated site,"** *Journal of Environmental Engineering, American Society of Civil Engineers,* vol. 139, pp. 54-60, 2013.

Thomas, L.K., M.A. Widdowson, F.H. Chapelle, J.T. Novak, R. Benner, and K. Kaiser, **"Potentially bioavailable natural organic carbon and hydrolyzable amino acids in aquifer sediments,"** *Ground Water Monitoring & Remediation,* vol. 32, pp. 92-95, 2012.

Chapelle, F.H., L.K. Thomas, P.M. Bradley, H.V. Rectanus, and M.A. Widdowson, **"Threshold amounts of organic carbon needed to initiate reductive dechlorination in groundwater,"** *Remediation,* vol. 22, pp. 19-28, 2012.

Affiliations:

American Society of Civil Engineers
Society of Environmental Toxicology and Chemistry
Association of Environmental Engineering and Science Professors
Academic Consortium for Hydraulic Fracturing

Relevant Consulting Experience:

While receiving her Ph.D., Dr. Thomas worked collaboratively with the U.S. Geological Survey to address remedial strategies for investigating subsurface contamination at chlorinated solvent sites.

SUADVANCE

Syracuse University is driven by its vision, Scholarship in Action—a commitment to forging bold, imaginative, reciprocal, and sustained engagements with partners from all sectors of the economy: public, private, and non-profit. These profiles have been developed to facilitate cross-sector connections and are supported by the SU ADVANCE project with funding from the National Science Foundation under NSF Grant No. HRD-1008643.