

David J. Lampert, EIT, PhD Candidate

Graduate Research Assistant

Environmental and Water Resources, C1786, University of Texas, Austin, TX 78712

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EDUCATION

Doctor of Philosophy in Civil Engineering, University of Texas at Austin, anticipated 2009

- Ph.D. Dissertation: *Evaluation of Active Capping of Contaminated Sediments in the Anacostia River*
- Advisor: Dr. Danny Reible; Committee: Dr. Robert Gilbert, Dr. Lynn Katz, Dr. Kerry Kinney, Dr. Paul Montagna
- Cumulative GPA: 3.95/4.0

Master of Science in Environmental and Water Resources Engineering, University of Texas at Austin, 2003

- M.S. Thesis: *Removal of Perfluorooctanoic Acid and Perfluorooctane Sulfonate from AMD Wastewater by Ion Exchange*
- Advisor: Dr. Gerald E. Speitel Jr.
- Cumulative GPA: 4.0/4.0

Bachelor of Science in Civil Engineering, *Magna cum Laude*, Oklahoma State University, 2001

- Cumulative GPA: 3.87/4.0
- Minor in Mathematics

RESEARCH EXPERIENCE

- *Graduate Research Assistant*, Civil, Architectural, and Environmental Engineering, University of Texas, Austin, TX 08/05 to present
- *Modeling Consultant*, Parsons Corporation and Maul Foster & Alongi Inc. 07/08 to present
- *Graduate Student Co-Operative*, Advanced Micro Devices, Austin, TX 01/02 to 12/02
- *Undergraduate Research Assistant*, Oklahoma State University, Stillwater, OK 05/00 to 05/01

TEACHING EXPERIENCE

- *Statics Consultant*, Sapling Learning 12/08 to present
- *Teaching Assistant*, CE 365K: Hydraulic Engineering Design University of Texas, Austin, TX 01/03 to 05/03
- *Teaching Assistant*, ENSC 2113: Statics Oklahoma State University, Stillwater, OK 01/00 to 05/01
- *Mathematics Tutor*, Mathematics Learning Resource Center Oklahoma State University, Stillwater, OK 08/97 to 12/99

PROFESSIONAL EXPERIENCE

- *Project Engineer*, Greeley and Hansen LLC, Las Vegas, NV 02/04 to 04/05
 - Reviewed submittals and shop drawings
 - Performed hydraulics calculations
 - Designed wastewater treatment facilities and pipelines
 - Developed spreadsheets for cost analysis and project scheduling
- *Environmental Engineer*, RMT, Inc., Houston, TX 08/03 to 02/04
 - Participated in Title V air permitting work
 - Assisted in preparation of industrial wastewater treatment proposals
 - Assessed groundwater remediation
 - Performed an analysis of an emission modeling from wastewater treatment plant

HONORS, AWARDS, AND CERTIFICATIONS

- University of Texas Thrust 2000 Fellowship Award Recipient, 2001, 2005-2008
- United States National Science Foundation East Asia and Pacific Summer Institute Fellowship Recipient, China, 2007
- Walter L. and Reta Mae Moore Graduate Fellowship in Water Resources, 2002-2003
- Oklahoma State University Presidential Scholarship Recipient, 1996-2000
- Oklahoma State University Lew Wentz Undergraduate Research Project Recipient, 2000-2001
- Oklahoma State University Undergraduate Tuition Waiver Recipient, 1996-2000
- Oklahoma Associated General Contractors Scholarship Recipient, 1998-1999
- Engineering Intern Oklahoma No. 11772
- 40-Hour HAZWOPER Certification

PROFESSIONAL AND ACADEMIC AFFILIATIONS

- Tau Beta Pi Engineering Honor Society – Oklahoma Gamma Chapter Cataloger, 1999
- Chi Epsilon Civil Engineering Honor Society – Chapter 19 Secretary, 1999-2000
- Phi Kappa Phi National Honor Society
- American Society of Civil Engineers
- Golden Key National Honor Society

JOURNAL PUBLICATIONS:

1. Lampert, D.J., Yang, W., Chen, W., and Reible, D.D. 2008. “Effects of Black Carbon on Desorption Resistance in Soil and Sediment,” (in preparation).
2. Lampert, D.J. and Reible, D.D. 2008. “A Numerical Model for Evaluation of Capping of Contaminated Sediments,” (in preparation).
3. Go, J.G., Lampert, D.J., Stegemann, J.A., and Reible, D.D. 2008. “Predicting Contaminant Fate and Transport in Sediment Caps: Mathematical Modeling Approaches,” *Chemosphere* (under review).
4. Lampert, D.J. and Reible, D.D. 2008. “An Analytical Modeling Approach for Evaluation of Capping of Contaminated Sediments,” *Soil & Sediment Contamination: an International Journal* (in press).
5. Reible, D.D., Lampert, D.J., Constant, D., Mutch, R.D., and Zhu, Y. 2007. “Active Capping Demonstration in the Anacostia River in Washington DC,” *Remediation Journal*, 17(1), 39-53.
6. Lampert, D.J., Frisch, M.A., and Speitel, G.E. 2007. “Removal of Perfluorooctanoic Acid and Perfluorooctane Sulfonate from Wastewater by Ion Exchange,” *Practice Periodical of Hazardous, Toxic, and Radioactive Waste Management*, 11(1), 60-68.

CONFERENCE PRESENTATIONS/POSTERS:

1. Lampert, D.J. and Reible, D.D. Scheduled 2009. “Design Models for Sediment Capping,” Poster Presentation, Fifth International Conference on Remediation of Contaminated Sediments, Jacksonville, FL, February 2-5.
2. Reible, D.D. and Lampert, D.J. 2008. “Effectively Managing the Risks of Contaminated Sediments,” Platform Presentation, Waste Management Conference, Phoenix, AZ, February 24-28.
3. Lampert, D.J., Reible, D.D., and Lu, X. 2007. “In Situ Pore Water Profiling Using SPME for Evaluation of Active Capping in the Anacostia River,” Poster Presentation, SERDP Symposium, Washington, D.C., Dec. 4-6.
4. Reible D.D., Lampert, D.J., and Lu, X. 2007. “Monitoring Performance of the Anacostia Active Capping Project,” Platform Presentation, SETAC North America 28th Annual Meeting, Milwaukee, WI, November 11-15.
5. Lampert, D.J. and Reible, D.D. 2007. “Active Capping Demonstration on the Anacostia River,” Platform Presentation, Fourth International Conference on Remediation of Contaminated Sediments, Savannah, GA, January 22–25.

6. Lampert D.J. and Reible, D.D. 2006. "Steady-State Design Model of Concentrations and Fluxes in a Sediment Cap," Platform Presentation, 2006 AIChE Annual Meeting, San Francisco, CA, November 11-15.
7. Reible, D.D. Lampert D.J. 2006. "Monitoring of the Active Capping Demonstration Project in the Anacostia River, DC," Platform Presentation, SETAC North America 27th Annual Meeting, Montreal, Canada November 5-9.
8. Lampert D.J., Reible, D.D. 2006. "An Investigation of the Feasibility of Active Capping of Contaminated Sediments in the Anacostia River," Platform Presentation, 7th Marine and Estuarine Shallow Water Science and Management Conference, Atlantic City, NJ, September 25-27.

PROJECT PARTICIPATION AS PRINCIPLE INVESTIGATOR

- *Assessment of Bioavailability of Desorption-Resistant Polycyclic Aromatic Hydrocarbons in Sediments* – NSF East Asia and Pacific Summer Institute, Award Number 0714416, 2007.

PROJECT PARTICIPATION AS GRADUATE STUDENT

- *Monitoring Cap Performance – Anacostia Active Capping Demonstration Washington DC* – District of Columbia, 2004-2008.
- *Demonstration and Evaluation of Solid Phase Microextraction for the Assessment of Bioavailability and Contaminant Mobility* – Environmental Security Technology Certification Program, 2006-2009.
- *Semiconductor Wastewater Treatment Process Design* – Advanced Micro Devices, 2002.

SHORT COURSES TAUGHT

- Reible, D.D. and Lampert, D.J. Scheduled 2009. "Active Cap Approaches and Modeling," Fifth International Conference on Remediation of Contaminated Sediments, Jacksonville, FL, February 2-5.

STUDENT SUPERVISION

- *Graduates Linked to Undergraduates* – Advisor for May Sun – "Partitioning of Polycyclic Aromatic Hydrocarbons in Sediment Cap Systems," 2007.
- *Graduates Linked to Undergraduates* – Advisor for Sameer Kamal – "Modeling Transport of Polycyclic Aromatic Hydrocarbons through a Sand Cap," 2006.
- *Intellectual Entrepreneurship Program* – Advisor for Ashley Tallent – "Measuring Sand-Water Partition Coefficients for Polycyclic Aromatic Hydrocarbons," 2006.

COLLABORATIVE ACTIVITIES

- *Dr. Wei Chen, Tianjin Key Laboratory of Environmental Remediation and Pollution Control/College of Environmental Science and Engineering, Nankai University, Tianjin China* – Performed research at Nankai University in China for a two month period studying desorption resistance in sediments.
- *Jason Go, Department of Civil and Environmental Engineering, University College London* – Compared different modeling approaches over a two month span with visiting scholar for contaminant transport in sediment caps.
- *Gunther Rosen, Biologist, Space and Naval Warfare Systems Command, San Diego; Dr. Allen Burton, School of Natural Resources and Environment, University of Michigan* – Performed field scale evaluation of the effects of various potential sediment quality criteria including solid-phase microextraction on biological effects in San Diego Bay, CA and Pensacola Bay, FL.

SUMMARY OF RESEARCH ACTIVITIES

- *Active Capping of Contaminated Sediments in the Anacostia River in Washington DC* – This study is a field-scale demonstration of the ability to cost-effectively place "active" capping materials (materials that sequester or degrade contaminants *in situ*) for remediation of sediments contaminated with toxic organics

and/or heavy metals. The key focus of the work has been measuring and modeling pore water concentrations in the caps and evaluating the effect of caps on biological uptake of contaminants. A novel technique, solid phase microextraction (SPME) has been developed for this purpose. To date, SPME has been able to measure concentration profiles in caps and has shown good correlation with bioaccumulation in benthic organisms.

- *Analytical Models for Contaminated Sediment Capping Design* – Developed steady state and transient analytical design models that incorporate relevant transport mechanisms for evaluation of sediment capping. The resulting equations were placed into spreadsheets for rapid evaluation. This model represents a method for rapid assessment of capping and a check for more complex models.
- *Transient Numerical Model for Evaluation of Sediment Capping* – Developed a transient numerical model in MATLAB capable of capturing relevant transport mechanisms in a multilayered sediment capping system. The model has been tailored for application to sediment cap design/evaluation in Onondaga Lake, NY and for the Willamette River in Portland, OR.
- *Diffusion Model for Estimation of Contaminant Uptake in Solid Phase Microextraction (SPME)* – Developed a radial diffusion model for compounds in solid phase microextraction fibers, which are used to measure *in situ* pore water concentrations in sediments. This model provides an approach for estimating uptake rates in SPME fibers, which are growing in acceptance as a means of estimating bioaccumulation of contaminants.
- *Effects of Black Carbon on Bioavailability of Polycyclic Aromatic Hydrocarbons (PAHs) in Soil and Sediment* – Evaluated biological uptake of PAHs in benthic worms and desorption resistance properties of black carbon (carbon combusted at temperatures above 375°C) in sediments and developed a conceptual model for sorption onto black carbon phases. This work has important implications for contaminant fate and transport modeling and regulation in soils and sediments.
- *Screening Study and Process Development for Removal of Perfluorinated Surfactants from Semiconductor Wastewater* – Developed a treatment process for management of a semiconductor waste stream using ion exchange through laboratory-scale experiments and modeling. Various treatment technologies, including ion exchange, activated carbon adsorption, co-precipitation with calcium fluoride, reverse osmosis, evaporation, and liquid-liquid extraction were assessed for managing the waste stream. Ion exchange was ultimately selected as the best alternative and was then investigated further to develop data for a full-scale treatment process design.
- *Laboratory Scale Study of Degradation of Explosive Organic Compounds from Contaminated Soils* – Performed batch experiments to study the degradation and degradation by-products of trinitrotoluene (TNT) and hexahydro-1,3,5-trinitro-1,3,5 triazine (RDX). The study showed degradation of RDX under anaerobic conditions.

SUMMARY OF TEACHING ACTIVITIES

- *Substitute Instructor for CE 397: Chemodynamics and CE 385J: Hazardous Waste Management* – Taught lectures in these graduate-level fate and transport courses. The lectures covered solution of differential equations for contaminant transport models and field studies for sediment remediation.
- *Statics Consultant, Sapling Learning* – Developed an on-line module to serve as a course supplement for Statics, including force and moment analysis, truss analysis, shear and moment diagrams, etc.
- *Teaching Assistant, CE 365K: Hydraulic Engineering Design* – Conducted laboratory sections that illustrated hydraulic phenomena such as the hydraulic jump and substituted for instructor on lectures regarding open-channel hydraulic flow problems.

- *Teaching Assistant, ENSC 2113: Statics* – Worked problems weekly on topics such as shear and moment diagrams, moment calculation, and truss analysis. Graded weekly homework assignments and conducted office hours sessions to assist student learning.
- *Tutor, Mathematics Learning Resource Center* – Tutored students from a variety of mathematics courses on a drop-in basis and performed review sessions before exams. Courses tutored included college algebra, trigonometry, business calculus, calculus, sequences and series, and multivariable calculus.