

## C. ANDREW RAMSBURG, PH.D.

Assistant Professor

Department of Civil & Environmental Engineering, Tufts University  
200 College Avenue, 113 Anderson Hall, Medford, Massachusetts 02155  
tel: (617) 627-4286 fax: (617) 627-3994 andrew.ramsburg@tufts.edu

---

### LIST OF PUBLICATIONS

last updated on 07 June 2011

#### Book Chapters (refereed)

(<sup>u</sup> = undergraduate advisee, <sup>g</sup> = graduate advisee, <sup>p</sup> = postdoctoral advisee, \* = corresponding author)

Abriola, L.M.<sup>\*</sup>, J.A. Christ, K.D. Pennell, and C.A. Ramsburg. Chapter 10: Source Zone Remediation Challenges. *In* Delivery and Mixing in the Subsurface: Processes and Design Principles for In Situ Remediation, P.K. Kitanidis and P.L. McCarty (Eds.). in press.

Kibbey, T.C.G.<sup>\*</sup>, C.A. Ramsburg, K.D. Pennell, and K.F. Hayes. 2001. In Situ Density Modification of Entrapped Dense Nonaqueous-Phase Liquids (DNAPLs) using Surfactant/Alcohol Solutions. *In* Physicochemical Groundwater Remediation, J.A. Smith and S.E. Burns (Eds.). Kluwer Academic/Plenum Publishers, New York, pp. 271-284. ISBN: 0-306-46569-8

#### Refereed Journal Articles

(<sup>u</sup> = undergraduate advisee, <sup>g</sup> = graduate advisee, <sup>p</sup> = postdoctoral advisee, \* = corresponding author)

Long, T.<sup>p</sup> and C.A. Ramsburg<sup>\*</sup>. Encapsulation of nZVI Particles Using a Gum Arabic Stabilized Oil-in-Water Emulsion. *Journal of Hazardous Materials*, Vol. 189, no. 3, 801-808. doi: 10.1016/j.jhazmat.2011.02.084

Ramsburg, C.A.<sup>\*</sup>, J.A. Christ, S.R. Douglas<sup>g</sup>, and A. Boroumand<sup>g</sup>. 2011. Analytical Modeling of Degradation Product Partitioning Kinetics in Source Zones Containing Entrapped DNAPL, *Water Resources Research*, Vol. 47, no. 3, W03507, doi:10.1029/2010WR009958

Ramsburg, C.A.<sup>\*</sup>, C.E. Thornton<sup>u</sup>, and J.A. Christ. 2010. Degradation Product Partitioning in Source Zones Containing Chlorinated Ethene DNAPL. *Environmental Science & Technology*. Vol. 44, no. 23, 9105-9111. doi: 10.1021/es102536f

Berge, N.D.<sup>p</sup> and C.A. Ramsburg<sup>\*</sup>. 2010. Iron-Mediated Trichloroethene Reduction within Non-Aqueous Phase Liquid. *Journal of Contaminant Hydrology*. Vol. 118, no. 3-4, 105-116. doi: 10.1016/j.jconhyd.2010.07.006

Christ, J.A.<sup>\*</sup>, C.A. Ramsburg, K.D. Pennell and L.M. Abriola. 2010. Predicting DNAPL Mass Discharge from Pool-Dominated Source Zones. *Journal of Contaminant Hydrology*. Vol. 114, no. 1-4, 18-34. doi: 10.1016/j.jconhyd.2010.02.005

Berge, N.D.<sup>p</sup> and C.A. Ramsburg<sup>\*</sup>. 2009. Oil-in-Water Emulsions for Encapsulated Delivery of Reactive Iron Particles. *Environmental Science & Technology*. Vol. 43, no. 13, 5060-5066. doi: 10.1021/es900358p

Li, Y., L.M. Abriola, T.J. Phelan, C.A. Ramsburg, and K.D. Pennell<sup>\*</sup>. 2007. Experimental and Numerical Validation of the Total Trapping Number for Prediction of Entrapped DNAPL Mobilization. *Environmental Science & Technology*. Vol. 41, no. 23, 8135-8141. doi: 10.1021/es070834i

- Suchomel, E.J., C.A. Ramsburg, and K.D. Pennell\*. 2007. Evaluation of Trichloroethene Recovery Processes in Heterogeneous Aquifer Cells Flushed with Biodegradable Surfactants. *Journal of Contaminant Hydrology*, Vol. 94, no. 3-4, 195-214. doi: 10.1016/j.jconhyd.2007.05.011
- Christ, J.A.\* , C.A. Ramsburg, K.D. Pennell, and L.M. Abriola. 2006. Estimating Mass Discharge from DNAPL Source Zones using Upscaled Mass Transfer Coefficients: An Evaluation using Multiphase Numerical Simulations. *Water Resources Research*, Vol. 42, W11420, doi:10.1029/2006WR004886
- Ramsburg, C.A., K.D. Pennell, L.M. Abriola\* , G. Daniels, C.D. Drummond, M. Gamache, H-L. Hsu, E.A. Petrovskis, K.M. Rathfelder, J.L. Ryder, and T.P. Yavaraski. 2005. A Pilot-Scale Demonstration of Surfactant-Enhanced PCE Solubilization at the Bachman Road Site: (2) System Operation and Evaluation. *Environmental Science & Technology*. Vol. 39, no. 6, 1791-1801. doi: 10.1021/es049563r
- Abriola, L.M.\* , C.D. Drummond, E.J. Hahn, K.F. Hayes, T.C.G. Kibbey, L.D. Lemke, K.D. Pennell, E.A. Petrovskis, C.A. Ramsburg, and K.M. Rathfelder. 2005. A Pilot-Scale Demonstration of Surfactant-Enhanced PCE Solubilization at the Bachman Road Site: (1) Site Characterization and Test Design. *Environmental Science & Technology*. Vol. 39, no. 6, 1778-1790. doi: 10.1021/es0495819
- Christ, J.A., C.A. Ramsburg, L.M. Abriola\* , K.D. Pennell, and F.E. Löffler. 2005. Coupling Aggressive Mass Removal with Microbial Reductive Dechlorination for Remediation of DNAPL Source Zones – A Review and Assessment. *Environmental Health Perspectives*, Vol. 113, no. 4, 465-477. doi:10.1289/ehp.6932
- Ramsburg, C.A.\* , L.M. Abriola, K.D. Pennell, F.E. Löffler, M. Gamache, B.K. Amos, and E.A. Petrovskis. 2004. Stimulated Microbial Reductive Dechlorination following Surfactant Treatment at the Bachman Road Site. *Environmental Science & Technology*, Vol. 38, no. 22, 5902-5914. doi: 10.1021/es049675i
- Ramsburg, C.A.\* , K.D. Pennell, T.C.G. Kibbey, and K.F. Hayes. 2004. Refinement of the Density Modified Displacement Method for Efficient Treatment of Tetrachloroethene (PCE) Source Zones. *Journal of Contaminant Hydrology*. Vol. 74, no. 1-4, 105-131. doi: 10.1016/j.jconhyd.2004.02.008
- Ramsburg, C.A.\* , K.D. Pennell, T.C.G. Kibbey, and K.F. Hayes. 2003. Use of a Surfactant-Stabilized Emulsion to Deliver n-Butanol for Density Modified Displacement of Trichloroethene-NAPL. *Environmental Science & Technology*. Vol. 37, no. 18, 4246-4253. doi: 10.1021/es0210291
- Ramsburg, C.A. and K.D. Pennell\*. 2002. Density-Modified Displacement for DNAPL Source Zone Remediation: Density Conversion and Recovery in Heterogeneous Aquifer Cells. *Environmental Science & Technology*. Vol. 36, no.14, 3176-3187. doi: 10.1021/es011403h
- Ramsburg, C.A. and K.D. Pennell\*. 2002. Density-Modified Displacement for Dense Nonaqueous-Phase Liquid Source-Zone Remediation: Density Conversion Using a Partitioning Alcohol. *Environmental Science & Technology*. Vol. 36, no.9, 2082-2087. doi: 10.1021/es0113571
- Kibbey, T.C.G.\* , C.A. Ramsburg, K.D. Pennell, and K.F. Hayes. 2002. Implications of Alcohol Partitioning Behavior for In Situ Density-Modification of Entrapped Dense Nonaqueous Phase Liquids (DNAPLs). *Environmental Science & Technology*. Vol. 36 no. 1, 104-111. doi: 10.1021/es010966q
- Ramsburg, C.A. and K.D. Pennell\*. 2001. Experimental and Economic Assessment of Two Surfactant Formulations for Source Zone Remediation at a Former Dry Cleaning Facility. *Ground Water Monitoring and Remediation*. Vol. 21 no. 4, 68-82. doi: 10.1111/j.1745-6592.2001.tb00643.x

## Refereed Conference Proceedings

(<sup>u</sup> = undergraduate advisee, <sup>g</sup> = graduate advisee, <sup>p</sup> = postdoctoral advisee, \* = corresponding author)

Crocker, J.J.<sup>u</sup>, N.D. Berge <sup>p</sup>, and C.A. Ramsburg\*. 2008. Encapsulated Delivery of Reactive Iron Particles using Oil-in-Water Emulsions. *In: GQ07: Securing Groundwater Quality in Urban and Industrial Environments*, Ed. Trefry, M.G., IAHS Publication No. 324, pp. 242-249. ISBN:978-1-901502-79-4

Singletary, M.A., K.D. Pennell\*, and C.A. Ramsburg. 1999. Effect of Soil Layering and Interfacial Tension on DNAPL Migration in Subsurface Environments. *In: Environmental Engineering 1999: Proceedings of the ASCE-CSCE National Conference on Environmental Engineering*. G.C. Schafran (Ed.). American Society of Civil Engineers, Reston, VA, pp. 202-211. ISBN: 0-7844-0435-6

## Conference Proceedings

(<sup>u</sup> = undergraduate advisee, <sup>g</sup> = graduate advisee, <sup>p</sup> = postdoctoral advisee, \* = corresponding author)

Ramsburg, C.A.\* , J.K. Almquist<sup>u</sup>, and O.I. Leach<sup>u</sup>. 2011. Exploration of the Mechanisms Controlling Emulsion-Based Alkalinity Release during Subsurface Remediation. *In: Proceedings of the 2011 NSF Engineering Research and Innovation Conference*, 04-07 January 2011, Atlanta, GA.

Ervin, R.E.<sup>g</sup> and C.A. Ramsburg\*. 2009. Exploring the Potential of Nonlinear and Non-Equilibrium Alcohol Partitioning for Assessment of DNAPL Source Zone Architecture. *In: Proceedings of the World Environmental & Water Resources Congress*. 17-21 May 2009, Kansas City, MO.

Abriola, L.M.\* , C.A. Ramsburg, K.D. Pennell, F.E. Löffler, M.Gamache and E.A. Petrovskis. 2003. Post-Treatment Monitoring and Biological Activity at the Bachman Road Surfactant Enhanced Aquifer Remediation Site. *In: Preprints of Extended Abstracts*, 43(1):921-927, Division of Environmental Chemistry, American Chemical Society 225th National Meeting, March 23-27, 2003, New Orleans, LA.

Ramsburg, C.A.\* , E.J. Suchomel and K.D. Pennell. 2003. Comparison of Surfactant-Based DNAPL Source Zone Remediation Approaches. *In: Preprints of Extended Abstracts*, 43(1): 945-950, Division of Environmental Chemistry, American Chemical Society 225th National Meeting, March 23-27, 2003, New Orleans, LA.

Ramsburg, C.A.\* , K.D. Pennell, T.C.G. Kibbey, and K.F. Hayes. 2002. Density Modified Displacement of Trichloroethene Using Partitioning Alcohol and Low-Interfacial Tension Surfactant Floods. *In: Proceedings of the Third International Conference on the Remediation of Chlorinated and Recalcitrant Compounds*. 20-23 May 2002. Monterey, CA. A.R. Gavaskar, and A.S.C. Chen (Eds). Battelle Press, Columbus OH, paper 2C-29. ISBN: 1-57477-132-9

Ramsburg, C.A.\* and K.D. Pennell. 2000. Evaluation of Surfactant Formulations for Treatment of a PCE-Contaminated Field Site. *In: Treating Dense Nonaqueous Phase Liquids (DNAPLs): Remediation of Chlorinated and Recalcitrant Compounds*. G.B. Wickramanayake, A.R. Gavaskar, and N. Gupta (Eds). Battelle Press, Columbus OH, pp. 211-218. ISBN: 1-57477-096-9

## Literature Reviews

Pennell, K.D.\* , J. Costanza, L. Kong, E. Suchomel, and C.A. Ramsburg. 2002. Groundwater Quality. *Water Environment Research*. Vol. 74 no. 5, Literature Review 2002.

Pennell, K.D.\* , J. Costanza, L. Kong, C.A. Martin, C.A. Ramsburg, and T.P. Taylor. 2001. Groundwater Quality. *Water Environment Research*. Vol. 73 no. 5, Literature Review 2001

Pennell, K.D.\* , C.A. Martin, C.A. Ramsburg, and T.P. Taylor. 2000. Groundwater Quality. *Water Environment Research*. Vol. 72 no. 5, 935-1094.

**Book Review**

Ramsburg, C.A.\* and L.M. Abriola. 2005. Review of *Soil and Groundwater Contamination: Nonaqueous Phase Liquids*, A.S. Mayer and S.M. Hassanizadeh Eds. *Ground Water* Vol. 44, no. 2, 134. doi: 10.1111/j.1745-6584.2006.00193.x