

PETER J. VIKESLAND

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EDUCATION

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| Ph.D. | University of Iowa | 1998 | Environmental Engineering |
| MSCE | University of Iowa | 1995 | Environmental Engineering |
| BA | Grinnell College | 1993 | Chemistry |

PROFESSIONAL EXPERIENCE

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| 2002 – Present | Assistant Professor, Department of Civil and Environmental Engineering, Virginia Polytechnic Institute and State University |
| 1999 – 2001 | Postdoctoral Associate, Department of Geography and Environmental Engineering, The Johns Hopkins University |
| 1993 – 1998 | Graduate Research Assistant, Department of Civil and Environmental Engineering, The University of Iowa |

HONORS

- Invited Participant at the National Academy of Engineering Japan-America Frontiers of Engineering Symposium (2005)
- Virginia Tech Scholar of the Week (August 22, 2005)
- Invited Participant at the National Academy of Sciences Keck Futures Initiative Conference on Designing Nanostructures at the Interface Between Biomedical and Physical Systems (2004)
- Virginia Tech College of Engineering Dean's Award for Outstanding Assistant Professor (2004)
- National Science Foundation CAREER Award (2004)
- Who's Who in America (2004-2006)
- Invited Participant at the National Academy of Engineering Frontiers of Engineering Symposium (2003)
- ASCE Excellence in Civil Engineering Education (ExCEED) Fellow (2002)
- Alumni Scholar – Grinnell College Department of Chemistry (2001)
- First Place American Water Works Association (AWWA) Dissertation Award (2000)
- Honorable Mention Dissertation Award from the Association of Environmental Engineering and Science Professors (AEESP) (1999)
- American Chemical Society Division of Environmental Chemistry Graduate Student Paper Award (1999)
- American Water Works Association Abel Wolman Doctoral Fellowship (1996-1998)
- Participant in the NSF Engineering Education Scholars Program (EESP) held at the University of Wisconsin-Madison (1998)
- American Chemical Society Division of Environmental Chemistry Graduate Student Award (1997)
- University of Iowa Neil B. Fisher Environmental Engineering Fellowship (1994-1995)

FUNDED RESEARCH PROJECTS

- “Nanotox: Cross-Media Environmental Transport, Transformation, and Fate of Manufactured Carbonaceous Nanomaterials” co—PI, awarded by the *National Science Foundation*, 2005-2008 (\$350,000).
- “CAREER: Formation and Reactivity of Nanoscale Corrosion Products – An Integrated Research and Education Plan” PI, awarded by the *National Science Foundation*, 2004-2009 (\$400,000).
- “Construction of the Environmental BioNanoTechnology Laboratory” PI, awarded by the Virginia Tech A Support Program for Innovative Research Strategies (ASPIRES), 2005 (\$82,030).
- “Magnetite Nanoparticles for Environmental Remediation” PI, subcontract to EPA SBIR grant to Luna Innovations, 2005 (\$20,000 is VT portion).
- “Autogeneous Healing of Concrete in the Drinking Water Industry” PI, awarded by the *American Water Works Association Research Foundation*, 2005-2007 (\$164,969).
- “Upgrading of the Vibrational Spectroscopy Laboratory at Virginia Tech” co-PI, awarded by the *National Science Foundation*, 2004-2005 (\$423,009)
- “Treatability Evaluation for Three Rohm and Haas Company Chemicals of Concern” PI, subcontract to Parsons Engineering Science from Rohm and Haas, 2004 (\$105,000 is VT portion)
- “Assessment of Seasonal Chlorination Practices and Impacts to Chloraminating Utilities” PI, awarded by the *American Water Works Association Research Foundation*, 2002-2005 (\$510,374).
- “Evaluation of Triclosan Reactivity in Chlorinated and Monochloraminated Waters,” PI, awarded by the *American Water Works Association Research Foundation*, 2002-2004 (\$150,000).
- “Effect of Dissimilatory Iron Reducing Bacteria on the Longevity of Iron Permeable Reactive Barriers,” PI, awarded by the *Virginia Water Resources Research Center*, 2003-2004 (\$18,500).

PROFESSIONAL SERVICE AND REGISTRATIONS

- Registered Iowa Engineer Intern # 12964
- Member of Project Advisory Committee (PAC) for AWWARF sponsored projects “Disinfection By-Product Formation and Control During Chloramination” (2000-2003) and “Exploring the Mechanisms of DXAA Formation During Chloramination (2004-2006)
- Reviewer for *Environmental Science and Technology*, *Geochimica et Cosmochimica Acta*, *ASCE Journal of Environmental Engineering*, *Journal of Contaminant Hydrology*, *Water Research*.

PROFESSIONAL AFFILIATIONS

- American Chemical Society (Environmental Chemistry and Geochemistry Divisions)
- American Association for the Advancement of Science (AAAS)
- American Society for Engineering Education (ASEE)
- American Water Works Association (AWWA)
- American Geophysical Union (AGU)
- Association of Environmental Engineering and Science Professors (AEESP)

PUBLICATIONS

1. Vikesland, P.J.; Rule, K.L.; Greynock, A.E.; Ebbett, V.R.; Fiss, E.M. (2006) Triclosan Reactivity in Chlorinated and Monochloraminated Waters. AWWARF Press, Denver, CO.

2. Rule, K.L.; Ebbett, V.R.; Vikesland, P.J. (2005) "Formation of Chloroform and Chlorinated Organics by Free Chlorine Mediated Oxidation of Triclosan." *Environmental Science and Technology*, Vol. 39, pp. 3176-3185.
3. Kohn, T.; Livi, K.J.T.; Roberts, A.L.; Vikesland, P.J. (2005) "Longevity of Granular Iron in Groundwater Treatment Processes: Corrosion Product Development." *Environmental Science and Technology*, Vol. 39, pp. 2867-2879.
4. Aitkin, M.D.; Novak, J.T.; Characklis, G.W.; Jones, K.L.; Vikesland, P.J. (2004). "The Evolution of Environmental Engineering as a Professional Discipline." *Environmental Engineering Science*, Vol. 21, pp. 117-123.
5. McGuire, M. M.; Carlson, D. L.; Vikesland, P. J.; Kohn, T.; Grenier, A.; Langley, L. A.; Roberts, A. L.; D. H. Fairbrother. (2003). "Applications of surface analysis in the environmental sciences: dehalogenation of chlorocarbons with zero-valent iron and iron-containing mineral surfaces." *Analytica Chimica Acta*, Vol. 496, pp. 301-313.
6. Vikesland, P.J., Klausen, J., Zimmermann, H., Roberts, A.L., and Ball, W.P. (2003). "Longevity of Cast Iron in Groundwater Treatment Processes: Characterization of Changes in Column Hydraulic Residence Time Distributions." *Journal of Contaminant Hydrology*, Vol. 64, pp. 3-33.
7. Klausen, J., Vikesland, P.J., Kohn, T., Burris, D.R., Ball, W.P., and Roberts, A.L. (2003). "Longevity of Cast Iron in Groundwater Treatment Processes: Solution Composition Effects on Reactivity Towards Organohalides and Nitroaromatic Compounds." *Environmental Science and Technology*, Vol. 37, pp. 1208-1218.
8. Vikesland, P.J. and Valentine, R.L. (2002). "Iron-Oxide Surface Catalyzed Reduction of Monochloramine by Ferrous Iron: Implications of Oxide Type and Carbonate on Reactivity." *Environmental Science and Technology*, Vol. 36, pp. 512-519.
9. Vikesland, P.J. and Valentine, R.L. (2002). "Ferrous Iron Oxidation by Monochloramine: Reaction and Kinetic Modeling." *Environmental Science and Technology*, Vol. 36, pp. 662-668.
10. Vikesland, P.J., Ozekin, K., and Valentine, R.L. (2001). "Modeling Monochloramine Decay in Model and Collected Distribution System Waters." *Water Research*, Vol. 35, No. 7, pp. 1766-1776.
11. Vikesland, P.J. and Valentine, R.L. (2000). "Reaction Pathways Involved in the Reduction of Monochloramine by Ferrous Iron." *Environmental Science and Technology*, Vol. 34, pp. 83-90.
12. Valentine, R.L, Vikesland, P.J., Angerman, B.D., Hackett, S.A., Shoup, M., and Slattenow, S. (2000). The Role of the Pipe-Water Interface in the Formation of Disinfection By-Products and the Loss of Disinfectants in Drinking Water, AWWARF Press, Denver, CO.
13. Vikesland, P.J., Ozekin, K., and Valentine, R.L. (1998). "Effect of Natural Organic Matter on Monochloramine Decomposition: Pathway Elucidation Through the Use of Mass and Redox Balances." *Environmental Science and Technology*, Vol. 32, pp. 1409-1416.
14. Valentine, R.L., Ozekin, K., and Vikesland, P.J. (1998). Chloramine Decomposition in Distribution System and Model Waters, AWWARF Press, Denver, CO.
15. Vikesland, P.J., Valentine, R.L., and Ozekin, K. (1996). "Application of Product Studies in the Elucidation of Chloramine Reaction Pathways" in *Water Disinfection and Natural Organic Matter*, Eds. R. Minear and G. Amy, ACS Books, Washington D.C. pp. 105-114.
16. Ozekin, K., Valentine, R.L., and Vikesland, P.J. (1996). "Modeling the Decomposition of Disinfecting Residuals of Chloramine" in *Water Disinfection and Natural Organic Matter*, Eds. R. Minear and G. Amy, ACS Books, Washington D.C. pp. 115-125.

ARTICLES SUBMITTED OR IN PREPARATION

17. Greyshock, A.E. and Vikesland, P.J. "Triclosan Reactivity in Chloraminated Waters." Submitted to *Environmental Science and Technology*, September 2005.
18. Makus, K.E. and Vikesland, P.J. "Carbon Tetrachloride Reduction by Magnetite Nanoparticles – Reactivity as a Function of Particle Size" to be submitted to *Environmental Science and Technology*.
19. Mutuc, M. and Vikesland, P.J. "Surface Catalyzed Fenton Treatment of bis(2-chloroethyl) Ether and bis(2-chloroethoxy) Methane" to be submitted to *Water Research*.

PRESENTATIONS

- Edwards, M.; Vikesland, P.; Parks, J.; Dudi, A. "Autogenous Healing of Concrete " American Water Works Association Water Quality and Technology Conference, Quebec City, Quebec, November 6-10, 2005 (Manuscript and Oral Presentation).
- Vikesland, P.J. "Water Quality Impacts of Disinfectant Switching Practices at Pilot and Full Scale" American Water Works Association Annual Conference, San Francisco, CA, June 12-16, 2005 (Manuscript and Oral Presentation).
- Makus, K.E. and Vikesland, P.J. "Reduction of Halogenated Groundwater Contaminants by Nano-Sized Magnetite" 15th V.M. Goldschmidt Conference, Moscow, ID, May 20-25, 2005 (Abstract and Poster Presentation).
- Rebodos, R. and Vikesland, P.J. "Effects of Co-solutes on Bioaugmented Granular Iron Systems" 15th V.M. Goldschmidt Conference, Moscow, ID, May 20-25, 2005 (Abstract and Oral Presentation).
- Vikesland, P.J. and Makus, K.E. "Reduction of Halogenated Groundwater Contaminants at Reduced Iron Surfaces," ACS National Conference, Philadelphia, PA, August 22-26, 2004 (Manuscript and Oral Presentation).
- Vikesland, P.J., Rule, K., Greyshock, A. "Triclosan Fate in Chlorinated and Chloraminated Waters," ACS National Conference, Philadelphia, PA, August 22-26, 2004 (Manuscript and Oral Presentation).
- Rule, K.R., Ebbett, V.R., and Vikesland, P.J. "The Mechanisms, Kinetics and Products of Triclosan-Disinfectant Reactions," American Water Works Association Water Quality and Technology Conference, Philadelphia, PA, November 2-6, 2003 (Manuscript and Oral Presentation).
- Makus, K.E. and Vikesland, P.J., "Iron Corrosion Product Identification Using Micro-Raman Spectroscopy," 13th V.M. Goldschmidt Conference, Kurashiki, Japan, September 7-13, 2003 (Abstract and Oral Presentation).
- Ebbett, V.R. and Vikesland, P.J., "The Kinetics of the Chlorination of Triclosan," American Water Works Association Annual Conference, Anaheim, CA, June 15-19, 2003 (Oral Presentation).
- Vikesland, P.J., "Granular Iron and Bioaugmented Granular Iron: Effects of Co-Solutes," 7th International Battelle In-Situ and On-Site Bioremediation Conference, Orlando, FL, June 2-5, 2003 (Oral Presentation).

- Kohn, T., Livi, K., Vikesland, P., Fairbrother, H., Roberts, A.L., “Characterization of Solution-Dependent Granular Iron Surface Precipitates and Their Influence on Reactivity Towards Trichloroethylene,” ACS National Meeting, New Orleans, LA, March 23-27, 2003 (Extended Abstract and Oral Presentation).
- Vikesland, P.J., “Co-Solute Effects on the Reactivity of Iron with Groundwater Contaminants,” Oak Ridge National Laboratory, Environmental Science Division, January 11, 2003 (Oral Presentation).
- Vikesland, P.J., Klausen, J., Kohn, T., Burriss, D.R., Ball, W.P., Roberts, A.L., “Co-Solute Effects on the Reactivity of Iron with Groundwater Contaminants,” Third International Conference on the Remediation of Chlorinated and Recalcitrant Compounds, Monterey, CA, May 20-23, 2002 (Abstract and Oral Presentation).
- Vikesland, P.J., Kohn, T., Ball, W.P., Fairbrother, D.H., Roberts, A.L., “Evaluation of Changes in Iron Interfacial Composition Using Surface Spectroscopy,” American Geophysical Union Fall Meeting, San Francisco, CA, December 10-14, 2001 (Abstract and Poster Presentation).
- Vikesland, P.J., Klausen, J., Zimmermann, H., Roberts, A.L., and Ball, W.P., “Contaminant Reduction by Cast Iron: Evaluation of Transport Properties,” IWA Second World Water Congress, Berlin, October 15-19, 2001 (Abstract and Oral Presentation)
- Vikesland, P.J., Wilson, E.O., Klausen, J., Zimmermann, H., Roberts, A.L., and Ball, W.P., “Implications of Time Variable Transport Properties on Contaminant Reduction by Cast Iron,” American Geophysical Union Spring Meeting, Boston, MA, May 29 – June 2, 2001 (Abstract and Oral Presentation).
- Vikesland, P.J., “Contaminant Reduction by Cast Iron: Evaluation of Changes in Chemical Reactivity Over Time,” Grinnell College Chemistry Department, April 23, 2001 (Oral Presentation).
- Vikesland, P.J., “Contaminant Reduction by Cast Iron: Evaluation of Transport Properties and Chemical Reactivity Over Time,” The University of Waterloo, Department of Earth Sciences, March 16, 2001 (Oral Presentation).
- Kohn, T., Vikesland, P.J., Ball, W.P., Fairbrother, H., Wagner, A. and Roberts, A.L., “Reduction of Chlorinated Solvents by Cast Iron – Impact of Solution and Surface Composition,” SERDP-ESTCP Partners in Environmental Technology Conference, Washington, D.C., November 28-December 30, 2000 (Poster Presentation).
- Vikesland, P.J., Klausen, J., Zimmermann, H, Roberts, A.L and Ball, W.P., “Contaminant Reduction by Fe(0): Evaluation of Transport Properties and Chemical Reactivity Over Time,” ACS National Conference, Washington, D.C., August 20-24, 2000 (Abstract and Oral Presentation).
- Vikesland, P.J., Klausen, J., Zimmermann, H, Roberts, A.L and Ball, W.P., “Contaminant Reduction by Fe(0): Evaluation of Transport Properties and Chemical Reactivity Over Time,” 2000 Gordon Research Conference - Environmental Sciences: Water, June 20-25, 2000 (Poster Presentation).
- Vikesland, P.J., Klausen, J., Zimmermann, H, Roberts, A.L and Ball, W.P., “Contaminant Reduction by Fe(0): A Physical and Chemical Evaluation of Column Performance Over Time,” EAWAG-ETH, Dübendorf, Switzerland, May 4, 2000 (Oral Presentation).
- Vikesland, P.J., Klausen, J., Zimmermann, H, Roberts, A.L and Ball, W.P., “Contaminant Reduction by Fe(0): A Physical and Chemical Evaluation of Reactivity Over Time,” European Geophysical Society XXV General Assembly, Nice, France, April 25-29, 2000 (Abstract and Poster Presentation).

- Vikesland, P.J. and Valentine, R.L., "Reaction Pathways Involved in the Reduction of Monochloramine by Ferrous Iron," ACS National Conference, New Orleans, LA, August 22-26, 1999 (Extended Abstract and Oral Presentation).
- Vikesland, P.J. and Valentine, R.L., "Mass and Redox Balances as Tools to Examine the Reactions of Fe(II) and NOM with Monochloramine," AWWA Annual Conference, Chicago, IL, June 20-24, 1999 (Manuscript and Oral Presentation).
- Vikesland, P.J., Shoup, M. and Valentine, R.L., "Iron Oxide Surface Catalyzed Reduction of Monochloramine by Ferrous Iron," ACS National Conference, Anaheim, CA, March 21-25, 1999 (Extended Abstract and Oral Presentation).
- Vikesland, P.J. and Valentine, R.L., "Monochloramine Loss in the Presence of Ferrous Iron," AWWA Annual Conference, Dallas, TX, June 21-25, 1998 (Manuscript and Oral Presentation).
- Vikesland, P.J., Valentine, R.L., Hackett, S, and Angerman, B.D., "The Role of the Pipe-Water Interface in DBP Formation and Disinfectant Loss," AWWA Annual Conference, Dallas, TX, June 21-25, 1998 (Poster Presentation).
- Vikesland, P.J. and Valentine, R.L., "The Kinetics of Fe(II) Oxidation by Monochloramine," ACS National Conference, San Francisco, CA, April 13-17, 1997 (Extended Abstract and Poster Presentation).
- Vikesland, P. J., Ozekin, K., and Valentine, R.L., "Monochloramine Decomposition: Pathway Elucidation Through the Use of Mass and Redox Balances," 19th Midwest Environmental Chemistry Workshop, Purdue University, West Lafayette, IN, October 12-13, 1996 (Abstract and Oral Presentation).
- Vikesland, P. J., Valentine, R.L., and Ozekin, K., "Disinfection By-Product Formation in the Presence of Iron and Manganese Oxides," Colloid and Surface Science 70th Annual Conference, Clarkson University, Potsdam, NY, June 17-19, 1996 (Abstract and Oral Presentation).
- Vikesland, P. J., Ozekin, K., and Valentine, R.L., "Determination of Chloramine Decomposition Products," ACS National Conference, Chicago, IL, August 21-26, 1995 (Extended Abstract and Oral Presentation).