

## Angela R. Bielefeldt

### Contact Information

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### Education

- Ph.D. University of Washington, Seattle, WA, Civil Engineering, 1996  
Dissertation: Biotreatment of Contaminated Gases in a Sparged Suspended-Growth Bioreactor: Mass Transfer and Biodegradation Model. Advisor: H.D. Stensel
- M.S. University of Washington, Seattle, WA, Civil Engineering, 1994  
Thesis: Cometabolic Degradation of Chlorinated Aliphatics Using a Phenol-Degrading Enrichment. Advisor: H.D. Stensel
- B.S. Iowa State University, Ames, IA, Civil Engineering, 1992  
Top Civil Engineering Senior

**Professional Engineer**, State of Colorado, #38043, Dec. 2003 to present

### Related Experience

Aug. 2003 to present. Associate Professor. Department of Civil, Environmental, and Architectural Engineering (CEAE). University of Colorado at Boulder.  
Research interests: biodegradation and biotransformation of organic and inorganic pollutants in soil, water and air; sustainable water and wastewater treatment for developing communities; engineering education. Teach numerous environmental and civil engineering courses.

January 2008 to present. ABET Assessment Coordinator. Department of Civil, Environmental, and Architectural Engineering (CEAE). University of Colorado at Boulder.  
*Write yearly outcomes report, assist with the self-study reports written each year for the Joint Evaluation Committees, bring FE results and assessment feedback from senior and alumni surveys to attention of faculty for discussion of potential curriculum changes, coordinate outcomes and objectives assessment measures, write CVEN self-study for ABET accreditation (2011-2012).*

May 2009 to June 2010. Associate Director. Mortenson Center in Engineering for Developing Communities (EDC). College of Engineering & Applied Science. University of Colorado at Boulder.  
*Setting requirements for EDC emphasis within the environmental specialty of the graduate degrees in Civil Engineering, taught a required course in the core of this curriculum (under the first version of the program), and leading outcomes assessment.*

Sept. 2006 to June 2010. Director. Environmental Engineering (EVEN) Program. College of Engineering & Applied Science. University of Colorado at Boulder.  
*Multi-disciplinary B.S. degree with participating faculty from 4 different engineering majors.*

*Managed new student recruiting, advised all first year students, evaluated transfer student credits, assessment of curriculum for ABET accreditation, lead faculty meetings, nominated students for awards, coordinated activities for EVEN students in the Engineering Honors program, maintained the EVEN website, and supervised the single staff-person for the program. Under my leadership student enrollment in the program increased from ~50 in fall 2006 to ~160 in fall 2009.*

Aug. 2005 to Mar. 2006. J.S. Braun / Braun Intertec Professorship of Science & Technology (sabbatical). University of Minnesota, Dept. of Civil Engineering. Research: anaerobic and molecular methods to study bioremediation. Assisted university's fledgling *Engineers Without Borders* chapter.

Aug. 1996 to Aug. 2003. Assistant Professor. Department of Civil, Environmental, and Architectural Engineering (CEAE). University of Colorado at Boulder.

Summer 1994. Assistant Engineer, Remediation Technologies, Inc., Seattle, WA.  
*EPA SITE project investigating TCE and DCE gas treatment in packed-bed bioreactors.*

Summer 1992. Assistant Engineer, Montgomery Watson, Hazardous Waste Div., Des Moines, IA.  
*Worked on Superfund 30% Remedial Design; wrote monitoring and quality assurance plans.*

Summer 1991. Intern; Sandia National Laboratories, Environmental Restoration, Albuquerque, NM.  
*Literature review, lab studies, and design for in-situ bioremediation of an oil spill site.*

Summer 1990. Environmental Engineering Intern; CH2M Hill, Municipal Serv. Div., Reston, VA  
*Calculation checks, innovative water treatment literature review, bench scale testing.*

July 1987 to Mar. 1992. Environmental Engineering Research Assistant; Iowa State University, Ames, IA. Supervisor A.D. Levine. *Laboratory studies, data interpretation, contributions to final reports.*

## **Honors & Awards**

Advisor for AECOM Student Design Competition, winning team of 4 EVEN seniors Competed against 15 teams from the U.S. and Canada	2011
Max Peters Faculty Service Award, College of Engineering and Applied Science, University of Colorado - Boulder.	2010
Distinguished Service Award, Department of Civil, Environmental, & Architectural Engineering, University of Colorado - Boulder.	2010
Best Paper Award from American Society for Engineering Education (ASEE) Annual Conference with co-authors K. Paterson and C. Swan. Environmental Division, PIC II, and Best Overall Paper	2009
National Water Environment Federation (WEF) Student Design Competition; Orlando, FL, at WEFTEC in October; team of 6 EVEN students from CVEN 4434 mentored by Bielefeldt won the national competition	2009
Rocky Mountain Water Environment Federation (WEF)/American Water Works Assn (AWWA) Student Design Competition; team of 6 EVEN students from CVEN 4434 mentored by Bielefeldt won the regional competition	2009
Distinguished Service Award, Association of Environmental Engineering & Science Professors, for outstanding service as treasurer and board member	2009
Teaching Award. Department of Civil, Environmental, & Architectural Engineering, University of Colorado - Boulder.	2005
Association of Environmental Engineering and Science Professors (AEESP)/McGraw -Hill Award for Outstanding Teaching in Environmental Engineering & Science	2004

Early Career Award. American Society for Engineering Education (ASEE)	
Based on paper submitted to the Environmental Division for the Annual Conference	2003
Editor's Award for Outstanding Service from the American Society of Civil Engineers	
Journal of Environmental Engineering, Editor Robert G. Arnold	2002
Nominated for the Sullivan-Carlson Innovation in Teaching Award. Engineering Excellence Fund (EEF) Committee, University of Colorado.	Dec. 2002, Dec. 2001
Certificate of Appreciation. Multicultural Engineering Program, LEAD, and Louis Stokes Alliance for Minority Participation. University of Colorado.	Nov. 2001
Karen Morehouse Best Paper Award for Proceedings of the 1999 Conference on Hazardous Waste Research (with Illangasekare and Grant)	2000
Rudolf Hering Medal from the American Society of Civil Engineers for the best paper in the Journal of Environmental Engineering (with Stensel and Strand)	1997
Mercury Seven Foundation Scholarship	1994
National Science Foundation, Graduate Research Fellowship	1992

### **Papers Published in Peer Reviewed Journals**

(underlined authors Bielefeldt's graduate students; \* undergraduate student co-author)

1. Bielefeldt, A.R., M.M. Dewoolkar, K.M. Caves, B.W. Berdanier, and K.G. Paterson. 2011. Diverse Models for Incorporating Service Projects into Engineering Capstone Design Courses. *International Journal of Engineering Education*, 27(6) 1206-1220.
2. Bielefeldt, A.R. 2011. Incorporating a Sustainability Module into First-Year Courses for Civil and Environmental Engineering Students. *ASCE Journal of Professional Issues in Engineering Education and Practice*. 137 (2), 78-85. doi: 10.1061/(ASCE)EI.1943-5541.0000050
3. Bielefeldt, A.R., Ma. G.D. Gutierrez-Padilla, S. Ovtchinnikov, J. Silverstein, and M. Hernandez. 2010. Bacterial kinetics of sulfur oxidizing bacteria and their biodeterioration rates of concrete sewer pipe samples. *ASCE Journal of Environmental Engineering*. 136 (7): 731-738.
4. Bielefeldt, A.R., K.G. Paterson, and C.W. Swan. 2010. Measuring the Value Added from Service Learning in Project-Based Engineering Education. *The International Journal of Engineering Education*. 26 (3): 535-546.
5. Bielefeldt, A.R., K. Kowalski, A. Kohler, C. Schilling\*, S. Schreier\*, and R. Scott Summers. 2010. Removal of Virus to Protozoan Sized Particles in Point-of-Use Ceramic Water Filters. *Water Research*. 44 (5): 1482-1488. doi:10.1016/j.watres.2009.10.043
6. Gutierrez-Padilla, G., A.R. Bielefeldt, S. Ovtchinnikov, M. Hernandez, and J. Silverstein. 2010. Biogenic sulfuric acid attack on different types of commercially produced concrete sewer pipes. *Cement and Concrete Research*. 40 (2): 293-301. doi:10.1016/j.cemconres.2009.10.002
7. Bielefeldt, A.R., K. Kowalski, and R.S. Summers. 2009. Bacterial Treatment Effectiveness of Point-of-Use Ceramic Water Filters. *Water Research*. 43 (14): 3559-3565. doi:10.1016/j.watres.2009.04.047
8. Gutierrez-Padilla, Ma. G., A. Bielefeldt, S. Ovtchinnikov, J. Pellegrino, and J. Silverstein. 2009. Simple scanner-based image analysis for corrosion testing: concrete application. *Journal of Materials Processing Technology*. 209 (1): 51-57. doi: 10.1016/j.jmatprotec.2008.01.043

9. Cort, T., SK Park, C. Wozniak\*, and A.R. Bielefeldt. 2006. Biotreatment of Surfactant Flush Wastewater from Wood Treatment Soil. *ASCE Journal of Environmental Engineering*. 132(1): 112-119. doi: 10.1061/(ASCE)0733-9372(2006)132:1(112)
10. Pfeiffer, P.R., A.R. Bielefeldt, T. Illangasekare, and B. Henry. 2005. Partitioning of Dissolved Chlorinated Ethenes into Vegetable Oil. *Water Research*. 39(18): 4521-4527. doi:10.1016/j.watres.2005.09.016
11. Pfeiffer, P.R., AR Bielefeldt, T. Illangasekare, and B. Henry. 2005. Physical Properties of Vegetable Oil and Chlorinated Ethene Mixtures. *ASCE Journal of Environmental Engineering*. Oct. 131 (10): 1447-1452. doi: 10.1061/(ASCE)0733-9372(2005)131:10(1447)
12. Park, S-K and A.R. Bielefeldt. 2005. Non-ionic Surfactant Flushing of Pentachlorophenol from NAPL-contaminated Soil. *Water Research*, 39: 1388–1396. doi:10.1016/j.watres.2005.01.009
13. Bielefeldt, A.R. and T. Cort. 2005. Dual Substrate Biodegradation of a Non-ionic Surfactant and Pentachlorophenol by *Sphingomonas chlorophenolica* RA2. *Biotechnology and Bioengineering*, 89 (6): 680-689.
14. Bielefeldt, A.R., T. Illangasekare, and R. LaPlante\*. 2004. Biodegradation of Propylene Glycol from Aircraft Deicing Fluid in Laboratory Columns under Variable Loading. *ASCE Journal of Environmental Engineering*. 130 (10): 1147-1153.
15. Park, S-K. and A.R. Bielefeldt. 2003. Aqueous Chemistry and Interactive Effects on Non-ionic Surfactant and Pentachlorophenol Sorption to Soil. *Water Research*. 37: 4663-4672. doi:10.1016/j.watres.2003.08.005
16. Park, S., and A.R. Bielefeldt. 2003. Equilibrium Partitioning of a Non-ionic Surfactant and Pentachlorophenol between Water and a Non-Aqueous Phase Liquid. *Water Research*. 37(14): 3412-3420. doi:10.1016/S0043-1354(03)00237-9
17. Tseng, J. and A.R. Bielefeldt. 2002. Low Temperature Chromium VI Biotransformation in Soil with Varying Electron Acceptors. *Journal of Environmental Quality*. 31(6): 1831-1841.
18. Cort, T.L. and A.R. Bielefeldt. 2002. A Kinetic Model for Surfactant Inhibition of Pentachlorophenol Biodegradation. *Biotechnology and Bioengineering*. 78(6): 606-616.
19. Bielefeldt, A.R., T. Illangasekare, M. Uttecht, and R. LaPlante\*. 2002. Biodegradation of Propylene Glycol and Associated Hydrodynamic Effects in Sand. *Water Research*. 36(7): 1707-1714. doi:10.1016/S0043-1354(03)00237-9
20. Cort, T.L., M. Song and A.R. Bielefeldt. 2002. Nonionic Surfactant Effects on Pentachlorophenol Biodegradation. *Water Research*. 36(5): 1253-1261. doi:10.1016/S0043-1354(01)00320-7
21. Bielefeldt, A., C. McEachern and T. Illangasekare. 2002. Hydrodynamic Changes in Sand due to Biodegradation of Naphthalene and Decane. *ASCE Journal of Environmental Engineering*. 128(1): 51-59.

22. Bielefeldt, A.R., A. Riffel, A. Ramaswami and T. Illangasekare. 2001. Assessing Multicomponent DNAPL Biostabilization: 2. Aroclor 1242. *ASCE Journal of Environmental Engineering*. 127(12): 1073-1079.
23. Ramaswami, A., P.K. Johansen. M. Isleyen, A.R. Bielefeldt, and T. Illangasekare. 2001. Assessing Multicomponent DNAPL Biostabilization: 1. Coal Tar. *ASCE Journal of Environmental Engineering*. 127(12): 1065-1072.
24. Cort, T. and A.R. Bielefeldt. 2000. Effects of surfactants and temperature on pentachlorophenol biodegradation. *ASCE Journal of Environmental Engineering*. 126(7): 635-643.
25. Bielefeldt, A.R. and H.D. Stensel. 1999. Treating VOC-Contaminated Gases in Activated Sludge: Mechanistic Model to Evaluate Design and Performance. *Environmental Science and Technology*. 33(18): 3234-3240.
26. Bielefeldt, A.R. and H.D. Stensel. 1999. Evaluation of biodegradation kinetic testing methods and longterm variability in biokinetics for BTEX metabolism. *Water Research*. 33(3): 733-740.
27. Bielefeldt, A.R. and H.D. Stensel. 1999. Modeling competitive inhibition effects during biodegradation of BTEX mixtures. *Water Research*. 33 (3): 704-714.
28. Bielefeldt, A.R. and H.D. Stensel. 1999. Biodegradation of aromatic compounds and TCE by a filamentous bacteria-dominated consortium. *Biodegradation*. 10: 1-13.
29. Bielefeldt, A.R. and H.D. Stensel. 1998. BTEX contaminated gas treatment in a shallow, sparged, suspended-growth bioreactor. *Bioremediation Journal*. 1 (4): 241-254.
30. Bielefeldt, A.R., H.D. Stensel, and S.E. Strand. 1995. Cometabolic Degradation of TCE and DCE Without Intermediate Toxicity. *ASCE Journal of Environmental Engineering*. 121 (11): 791-797. (1997 Rudolf Hering Medal for best paper in JEE )

### **Published Review Papers**

- Levine, A.D. and A.R. Bielefeldt. 1992. Water Characteristics. *Water Environment Research* (literature review) 64: 333-335.
- Levine, A.D. and A.R. Bielefeldt. 1991. Water Characteristics. *Research Journal of the Water Pollution Control Federation* (literature review) 63 (4): 361-363.

### **Published Book Chapters on Environmental Engineering**

- Bielefeldt, A.R. 2011. Chapter 2 - Appropriate and Sustainable Water Disinfection Methods for Developing Communities. *Water Disinfection*. K.M. Buchanan, Ed. Nova Publishers. Pp. 45-75. ISBN: 978-1-61122-021-6.
- Bielefeldt, A.R. 2011 (in press). Industrial Water Treatment, Industrial. *Topics in Ecological & Environmental Microbiology*. T. Schmidt & M. Schaechter, editors. Elsevier. Addendum to chapter below updating recent information. ISBN: 978-0-12-383878-0.
- Bielefeldt, A.R. 2009. Water Treatment, Industrial. *Encyclopedia of Microbiology, 3<sup>rd</sup> edition*. M. Schaechter, editor, et al. Academic Press. Pp. 569-586. ISBN: 978-0-12-373944-5.

Bielefeldt, A.R. 2001. Part 1. Chapter 9: Activated Sludge and Suspended-Growth Bioreactors. *Bioreactors for Waste Gas Treatment*; editors Christian Kennes and M.C. Veiga, Kluwer Academic Publishers. Dordrecht. 320 pp. (total book) ISBN 0-7923-7190-9.

Bielefeldt, A.R. and H.D. Stensel. 2000. Wastewater Treatment, Industrial. *Encyclopedia of Microbiology, 2<sup>nd</sup> edition*. Volume 4. J. Lederberg, editor-in-chief. Academic Press. Pp. 855-869. ISBN-13: 978-0122268007.

Stensel, H.D. and A.R. Bielefeldt. 1997. Anaerobic and Aerobic Degradation of Chlorinated Aliphatic Compounds. *Bioremediation: Principles and Practice. Volume II: Biodegradation Technology Developments*. S.K. Sikdar and R.L. Irvine, eds. Technomics Publishing Co., Inc. Lancaster, Penn. Pp. 357-402. ISBN-13: 978-1566765305.

### **Published Environmental Engineering Research in Conference Proceedings**

(underlined authors Bielefeldt's graduate students; \* undergraduate student co-author)

1. Ginley, J., A. Bielefeldt, and T. Relph. 2012. Facing the New Normal: The Role of Regional Collaboration. The Utility Management Conference (Water Environment Federation, AWWA). Miami, FL. Jan. 30 – Feb. 2.
2. Panacewicz, L.P., A. Bielefeldt, C. Schulz, R.S. Summers, and T. Relph\*. 2010. Enhanced Ceramic Water Filtration System for Contaminant Removal for Households in Developing Countries. AWWA Water Quality Technology Conference (WQTC). Savannah, GA. Nov. 14-17.
3. Stewart, M.W., A. Bielefeldt, E. Mansfield, R.S. Summers, and J.N. Ryan. 2010. Effects of water quality parameters on the release of silver nanoparticles from a ceramic surface using a quartz crystal microbalance. AWWA Water Quality Technology Conference (WQTC). Savannah, GA. Nov. 14-17.
4. Bielefeldt, A.R., R.S. Summers, A. Kohler, and K. Kowalski. 2009. Bacteria and Virus Removal in Point-Of-Use Ceramic Water Filters. Presentation and paper at the Water Environment Federation Disinfection 2009 – International Ceramic Pot Filter Workshop. March 1. Atlanta, CA.
5. Kowalski, K., Angela R. Bielefeldt, and R. Scott Summers. 2008. Bacterial Growth in Point-of-Use Ceramic Water Filters. Presentation and paper in the *Proceedings of the 2008 Institute for the Environment Environmental Symposium: Sustainable and Safe Drinking Water in Developing and Developed Countries: Where Science Meets Policy*, edited by Phil Singer. Nov. 5 - 6. University of North Carolina – Chapel Hill, NC.
6. Bielefeldt, Angela R., Rajat Srivastay, R. Luhrs, Scott Andrews. 2008. NDMA Oxidation by Permanganate. Presentation and extended abstract at the 6th International Conference on “Oxidation and Reduction Technologies for In-Situ Treatment of Soil and Groundwater (ORTs-6). Sept. 22-25. San Diego, CA.
7. Gutierrez-Padilla, Guadalupe, A. Bielefeldt, M. Hernandez, J. Silverstein. 2007. Monitoring of microbially induced concrete corrosion in pipelines. NACE International Corrosion Conference and Expo. Paper 07514. March 11-15, Nashville, TN.
8. Gutierrez-Padilla, Ma.Guadalupe D., A.R. Bielefeldt, M. Hernandez, J. Silverstein. 2006. Biokinetics of Sulfur Oxidizing Microorganisms and Monitoring of Microbially Induced Concrete

Corrosion in Pipelines. Corrosion NACEExpo 2006, 61<sup>st</sup> Annual Conference and Exposition. San Diego, California. March 12 – 16, 2006

9. Gutierrez-Padilla, Ma.Guadalupe D., A.R. Bielefeldt, M. Hernandez, J. Silverstein. 2005. Biogeochemical Cycling of Sulfur: Biokinetics of the Extremophiles Sulfur Oxidizing Microorganisms. The Joint International Symposia for Subsurface Microbiology (ISSM 2005) and Environmental Biogeochemistry (ISEB XVII). Oral presentation and paper. Jackson Hole, WY. August 14-19.
10. Zamora-Thompson, Xochitl, Angela R. Bielefeldt, Jan Kreider. 2005. Integrating Renewable Energy In Water Systems: Design Case Studies for the Galápagos Islands. Oral presentation at the Solar World Congress. Orlando, Fla. Aug. 6-12.
11. Bielefeldt, A.R. and C. Vos\*. 2004. Chromium-Contaminated Soil Treatment By In-Situ Stabilization. Water Environment Federation Annual Conference and Exposition. New Orleans, LA. October.
12. Pfeiffer, P., A.R. Bielefeldt, T. Illangasekare, and D. Dai. 2002. Vegetable Oil Injection for In Situ Remediation of TCE: Physical/Chemical Effects. Water Environment Federation Annual Conference and Exposition. Chicago, Il. October.
13. Bielefeldt, A., M. Lutz, S. Taylor\*, M. Song, L. Wyeno, and J. Anderson. 2002. Use of Iron Chemicals for Odor Control: Lab Studies and Full Scale Results. Water Environment Federation Annual Conference and Exposition. Chicago, Il. October.
14. Tseng, J. and A.R. Bielefeldt. 2000. Biological Transformation of Cr+6 In Soil Under Varying Redox Conditions. Water Environment Federation Annual Conference and Exposition. Anaheim, CA. October.
15. Bielefeldt, A.R., T. Illangasekare and R. LaPlante\*. 2000. The Impact of Biodegradation of De-Icing Chemicals on the Conductivity and Dispersivity of Porous Media. Proceeding of the 2000 Conference on Hazardous Waste Research. Denver, CO, May 23-25. p. 70-75.
16. Cort, T. and A.R. Bielefeldt. 2000. Mechanism and Kinetics of Nonionic Surfactant Inhibition of Pentachlorophenol Biodegradation". Proceedings of the 2000 Conference on Hazardous Waste Research. Denver, CO, May 23-25. p. 91-98.
17. Bielefeldt, A.R., T. Illangasekare, and M. Grant. 1999. Biodegradation of De-Icing Compounds in Columns Simulating a Range of Natural Conditions. Proceedings of the 1999 Conference on Hazardous Waste Research. St. Louis. May 25-27. p. 186-191 (Karen Morehouse Best Paper Award)
18. Bielefeldt, A.R., H.D. Stensel, and M. Romain. 1997. VOC treatment and odor control using a sparged shallow activated sludge reactor. Water Environment Federation Annual Conference and Exposition. Chicago. October. Vol. 1, Part 1, p. 93-101.
19. Bielefeldt, A.R. and H.D. Stensel. 1997. Biodegradation of BTEX-Contaminated Gas in a Sparged Shallow Liquid Reactor. In Situ and On-Site Bioremediation: Vol. 5. New Orleans. April. Symposium chairs B.C. Alleman and A. Leeson. Battelle Press. Columbus, Ohio. p. 37-42.

20. Bielefeldt, A.R., H.D. Stensel, and S.E. Strand. 1995. Degradation of Chlorinated Aliphatic Compounds by Methane and Phenol-Oxidizing Bacteria. *Bioremediation of Chlorinated Solvents*, Ed. R.E. Hinchee et al. Battelle Press. Columbus, Ohio.

### **Presentations on Environmental Engineering Research at Professional Conferences**

(underlined authors Bielefeldt's graduate students; \* undergraduate student co-author)

1. Bielefeldt, Angela R. 2010. Sustainable Communities: Water and Wastewater Challenges. SACNAS. Anaheim, CA. Sept. 30 – Oct. 3.
2. Amanda Kohler, S. Soundarajan, M. Stewart, R.S. Summers, and Angela R. Bielefeldt. 2009. Impacts of Silver on Long-term Disinfection by Point-of-Use Ceramic Water Filters. OU International WaTER (Water Technologies for Emerging Regions) Conference. Oct. 26-27. Norman, Oklahoma. Oral presentation.
3. Bielefeldt, A.R. 2009. Remediation of NDMA Contaminated Groundwater by In Situ Chemical Oxidation. Alliance of Hazardous Materials Professionals (AHMP) National Conference. Aug. 31 – Sept. 2. San Diego, CA. Oral presentation.
4. Srivastav, R. and A. Bielefeldt. 2008. NDMA Oxidation by Permanganate. 5<sup>th</sup> Annual Rocky Mountain AWWA/WEF student conference. Golden, CO. May. Oral presentation.
5. Bielefeldt, A.R., R. Scott Summers, K. Kowalski, B. Bishop\*, C. Schilling\*, A. Malhotra\*, et al. 2007. Removal of Virus-Sized Particles and E. coli by the Filtron. Presentation and abstract at the Association for Environmental Engineering and Science Professors Biennial Conference – Interactions at the Interface: Making the Connections Between Environments, Disciplines and Nations. July 28 – August 1. Blacksburg, VA.
6. Barr, Stephen C.\* and A. R. Bielefeldt. 2007. Hexavalent Chromium Biotransformation Mechanism that Predominates in Soil under Sulfate-Reducing Bacterial (SRB) Activity 17<sup>th</sup> Annual AEHS West Coast Conference on Soil, Sediments, and Water. Poster. San Diego, CA. March 19-22.
7. Kowalski, K., B. Bishop\*, A. Bielefeldt, and R.S. Summers. 2007. Filtron. 4<sup>th</sup> Annual Rocky Mountain AWWA/WEF student conference. Boulder, CO. May. Poster.
8. Song, M. and A.R. Bielefeldt. 2006. Effect of Nonionic Surfactant on the Biodegradation of Pentachlorophenol. Fifth International Conference on Remediation of Chlorinated and Recalcitrant Compounds. Poster presentation. May 22-25, Monterey, CA. [www.battelle.org/chlorcon](http://www.battelle.org/chlorcon)
9. Song, M. and A.R. Bielefeldt. 2006. Effect of Nonionic Surfactant on the Biodegradation of Pentachlorophenol. 3<sup>rd</sup> Annual Rocky Mountain AWWA/WEF student conference. Fort Collins, CO. May 19.
10. Gutierrez-Padilla, Ma.Guadalupe D., A.R. Bielefeldt, M. Hernandez, J. Silverstein. 2006. Microbially Induced Corrosion of Concrete Sewer Pipelines by Sulfur Oxidizing Microorganisms. 3<sup>rd</sup> Annual Rocky Mountain AWWA/WEF student conference. Fort Collins, CO. May 19.

11. Gutierrez-Padilla, Ma.Guadalupe D., A.R. Bielefeldt, M. Hernandez. 2005. Biokinetics of Sulfur Oxidizing Microorganisms and Modeling Microbially Induced Concrete Corrosion. 2<sup>nd</sup> Annual Rocky Mountain AWWA/WEF student conference. Laramie, WY. May.
12. Song, Myoungsuk and Angela Bielefeldt. 2005. Effect of a Non-Ionic Surfactant on Bacterial Activity During the Biodegradation of a Toxic Substrate. 2nd Annual Rocky Mountain AWWA/WEF student conference. Laramie, WY. May.
13. Bielefeldt, Angela R., R. Scott Summers, Chris Fahlin\*, Suzanne Givler, Kate Kowalski\*, Katie Medina\*, Lucas Hollenkamp\*, Anisha Malhotra\*, Heather Wright\*. 2005. Evaluating the Water Treatment Effectiveness of the Filtrón. Abstract and oral presentation at the Mascaro Engineering Sustainability 2005 conference, Pittsburgh, Pennsylvania. April 10-12.
14. Zamora-Thompson, Xochitl, and Angela R. Bielefeldt. 2005. Integrating Renewable Energy In Water Systems: Design Case Study for the Galápagos Island of Floreana. Mascaro Engineering Sustainability 2005 conference. Pittsburgh, Pennsylvania. April 10-12. Oral presentation and extended abstract in conference proceedings.
15. Bielefeldt, A.R., P.R. Pfeiffer, T. Illangasekare, C. Woodward, and B. Henry. 2004. Vegetable Oil Emplacement for Remediation of Chlorinated Solvent Sites. Remediation of Chlorinated and Recalcitrant Compounds. Battelle. Monterey, CA. May. Poster.
16. Vestal, E.W., T.H. Illangasekare, A. Ramaswami, and A.R. Bielefeldt. 2002. Bioisolation of Non-Aqueous Phase Liquid Pool Mixtures in the Subsurface: The Importance of Non-Ideal Chemical Behavior and Pool Chemical Heterogeneity on Dissolution and Bioavailability. Geological Society of America Annual Meeting and Exposition. Denver, CO. October. Presentation in Session 136.
17. Woodward, C.A., T. Illangasekare, A. Bielefeldt, and D. Dai. 2002. Vegetable Oil Delivery Techniques for Use as a Carbon Source in the Reductive Dechlorination of Chlorinated Solvents in Saturated Porous Media. Geological Society of America Annual Meeting and Exposition. Denver, CO. October. Poster in Session 83.
18. Schakel, S., T. Illangasekare, D. Dai, A. Bielefeldt, and B. Henry. 2002. An Experimental Study of the Behavior of Vegetable Oil Emulsions in Sandy Soils Associated with DNAPL Site Remediation. Geological Society of America Annual Meeting and Exposition. Denver, CO. October. Poster in Session 83.
19. Isleyen, M., K.A. Morrison, A. Ramaswami, A.R. Bielefeldt, and T.H. Illangasekare. 2001. Biodegradation of PAH Mixtures. Environmental Research Conference. Manhattan, KS, May. Oral presentation by Ramaswami.
20. Ramaswami, A., T. Illangasekare, and A.R. Bielefeldt. 2001. Biostabilization of Multicomponent Non-Aqueous Phase Liquids (DNAPLs). International Containment and Remediation Conference. Orlando, FL, June. Oral presentation by Ramaswami.
21. Vestal, E., T. Illangeskare, A.R. Bielefeldt, K. Morrison, and A. Ramaswami. 2000. Estimation of Styrene Inhibition and Induction Kinetic Parameters on a Mixed Consortium of PAH-Degrading Bacteria: Implications for Modeling and Bioisolation Schemes. Hazardous Waste Conference. Denver, CO, May. Oral presentation by Vestal.

22. Richard, R., T. Illangeskare, A.R. Bielefeldt, and A. Ramaswami. 2000. The Effects of Microbial Growth and Transport on Soil Characteristics: A One-Dimensional Analysis. Hazardous Waste Conference. Denver, CO, May. Poster.
23. Bielefeldt, A.R., T. Illanagasekare, M. Grant, and T. Butler. 2000. Biodegradation of Airplane De-Icing Fluids under Simulated Aquifer Conditions. Groundwater 2000: International Conference on Groundwater Research. Copenhagen, Denmark, June. Poster.
24. Riffel, A.M., A.R. Bielefeldt, A. Ramaswami, and T. Illangasekare. 1999. Evaluating the Potential for In-Situ Biostabilization of Aroclor 1242 DNAPL. Geological Society of America Annual Meeting. Denver, CO, October. Oral presentation.
25. Vestal, E., Tissa Illangeskare, Anu Ramaswami, K. Morrison, and A.R. Bielefeldt. 1999. Modeling of net interphase mass exchange in NAPL-Water systems undergoing biodegradation at the spill-site scale. Hazardous Waste Conference. St. Louis, MO, May. Oral presentation by Vestal.
26. Vestal, E., T. Illangeskare, A. Ramaswami, and A.R. Bielefeldt. 1999. Modeling of net interphase mass exchange in NAPL-Water systems undergoing biodegradation at the spill-site scale. American Geophysical Union (AGU) 19<sup>th</sup> Annual Hydrology Days. Ft. Collins, CO, August. Oral presentation.
27. Vestal, E., T. Illangasekare, A.R. Bielefeldt, A. Ramaswami, and T.J. Donahue. 1999. Net Interphase Mass Exchange from NAPL Pools in NAPL-Water Systems Undergoing Biodegradation. Geological Society of America Annual Meeting. Denver, CO, October. Oral presentation.
28. Riffel, A., A.R. Bielefeldt, A. Ramaswami, and T. Illangasekare. 1999. PCB Biostabilization. Air & Waste Management Association Rocky Mountain States Student Poster Session. April. First place student poster.
29. Bielefeldt, A.R., T. Illangasekare, and C. McEachern. 1998. Effect of Biofilm Growth on the Fate of Contaminants in the Subsurface. Conference on Hazardous Waste Research. Snowbird, Utah, May.
30. Bielefeldt, A., T. Illangasekare, and C. McEachern. 1998. Impact of Biofilm Growth in Porous Media on the Fate of Contaminants in the Subsurface. Water Environment Federation Annual Conference and Exposition. Orlando, FL, October. Poster.
31. Bielefeldt, A.R., S.E. Strand, and H.D. Stensel. 1994. Degradation of High Concentrations of TCE and DCE Without Intermediate Toxicity by a Phenol-Degrading Enrichment. American Society of Microbiologists Annual Conference. Las Vegas, Nevada, May. Poster.
32. Bielefeldt, A.R. and G.A. Walter. 1993. Aerobic Cometabolic Degradation of Chlorinated Aliphatic Organic Compounds. Pacific Northwest Pollution Control Association Conference. Sea-Tac, Washington, November. Oral presentation.

### **Environmental Engineering Research Reports**

(underlined authors Bielefeldt's graduate students; \* undergraduate student co-author)

1. Bielefeldt, A.R., R.S. Summers, T. Relph. 2012. National Inventory of Regional Collaboration. Report to the American Water Works Association (AWWA) Strategic Management Practices Committee (SMPC). 128 pp.
2. Berlin, M., Z. Steinbach, G. Ancmon, A. Bielefeldt. 2010. Potential Sulfide Inhibition of Bacterial Dechlorination. Report to Doug Salter (Thornton Dry Cleaning Site) and Brian Olmstead (EOR Resources Corp). May.
3. Bielefeldt, A.R. and E. Krauss\*. 2010. *Thornton Dry Cleaning Site: Bioremediation Bench-Scale Screening Study*. Report to the Colorado Dept. of Public Health and the Environment (CDPHE) on behalf of Doug Salter and Brian Olmstead, EOR Resources Corp. Final report, Feb.
4. Bielefeldt, A.R. 2009. *Thornton Dry Cleaning Site: Bioremediation Bench-Scale Screening Study*. Report to the Colorado Dept. of Public Health and the Environment (CDPHE) on behalf of Doug Salter and Brian Olmstead, EOR Resources Corp. Aug. 11 2<sup>nd</sup> update. Final report due Dec.
5. Srivastav, Rajat and A.R. Bielefeldt. 2008. *Evaluation of Permanganate Oxidation to Remediate NDMA Contaminated Sites: Phase 3 – Bench Scale Feasibility Study*. Report to Robert Luhrs, Raytheon Corp. Aug. 12.
6. Srivastav, Rajat and A.R. Bielefeldt. 2008. *Evaluation of Permanganate Oxidation to Remediate NDMA Contaminated Sites: Phase 2 – Bench Scale Feasibility Study*. Report to Robert Luhrs, Raytheon Corp. Feb. 18.
7. Srivastav, Rajat and A.R. Bielefeldt. 2008. *Ordway Feedlot Manure to Energy: Technical Feasibility Study*. Report to ICAST-USA and Ordway. June 19.
8. Srivastav, Rajat and A.R. Bielefeldt. 2007. *Evaluation of Permanganate Oxidation to Remediate NDMA Contaminated Sites: Literature Review*. Report to Robert Luhrs, Raytheon Corp. Sept. 17.
9. Bielefeldt, A.R., T. Illangasekare, D. Dai. 2005. *Delivery and Behavior of Vegetable Oil for Treating Chlorinated Solvent Contaminated Sites*. A Technical Review based on Laboratory and Field Results Conducted under a Grant from the U.S. Air Force Center for Environmental Excellence (AFCEE) through the Parsons Corporation.
10. Bielefeldt, A.R., M. Song, and S. Taylor\*. 2002. *Use of Iron Chemicals for Odor Control at the Longmont, CO, Wastewater Treatment Plant: Full Scale Results*. Research report to the City of Longmont.
11. Taylor, S.\*, A.R. Bielefeldt, and J. Silverstein. 2001. *The Use and Effects of Iron-Based Compounds on Wastewater Treatment Processes*. Research report to the City of Longmont.
12. Bielefeldt, A.R., T. Cort, and S. Park. 2000. *Enhancing Bioremediation of Toxic Compounds using Surfactants*. Completion report to the Graduate School, Council on Research and Creative Work, at the University of Colorado. The project was funded by a Junior Faculty Development Award (JFDA), July 1999 to June 2000.
13. Bielefeldt, A.R., T. Cort, and S. Park. 1999. *Effect of Surfactants on Bioremediation of Soils Contaminated with Toxic Compounds*. Completion report to the Graduate School, Council on Research and Creative Work, at the University of Colorado. The project was funded by the Summer Session Research Grant (SSRG), July 1998 to June 1999.

14. Levine, A.D., A.R. Bielefeldt, and B.S. Bradley. 1991. *Energy Recovery from Degradable Plastics*. Project completion report submitted to the Iowa State Water Resources Research Institute.
15. Carlson, Haws, Lozier, and Bielefeldt. 1990. *Program of Bench-Scale Testing for Treatability Evaluation of Dismal Swamp Water*. Technical Memo to CH2M Hill PAC members.
16. Levine, A.D., A.L. Spiesman, and A.R. Bielefeldt. 1988. *Study of the Influence of Permanganate Oxidation on Trihalomethane Formation*. Submitted to the City of Sioux City, Iowa.

### **Engineering Education and Teaching Related Conference Papers and Presentations**

(underlined authors Bielefeldt's graduate students; \* undergraduate student co-author)

1. Canney, N., A. Bielefeldt. 2012. "A Model for the Development of Personal and Professional Social Responsibility for Engineers." American Society for Engineering Education (ASEE) Annual Conference and Exposition Proceedings. Educational Research Methods Division. June 10-13. San Antonio, TX. [Abstract accepted, paper in review]
2. Canney, N., A. Bielefeldt. 2012. "Engineering Students' Views of the Role of Engineering in Society." American Society for Engineering Education (ASEE) Annual Conference and Exposition Proceedings. Community Engagement in Engineering Education Constituent Committee Division. June 10-13. San Antonio, TX. [Abstract accepted, paper in review]
3. Zarske, M., J. Sullivan, M. O'Hair, A. Bielefeldt. 2012. "K-12 Engineering for Service: Do project-based service-learning design experiences impact attitudes in high school engineering students?" American Society for Engineering Education (ASEE) Annual Conference and Exposition Proceedings. K-12 Division. June 10-13. San Antonio, TX. [Abstract accepted, paper in review]
4. Zarske, M., D. Reamon, D. Knight, A. Bielefeldt. 2012. "Service-Based First Year Engineering Projects: Do they make a difference?" American Society for Engineering Education (ASEE) Annual Conference and Exposition Proceedings. Community Engagement in Engineering Education Constituent Committee Division. June 10-13. San Antonio, TX. [Abstract accepted, paper in review]
5. Bielefeldt, A. 2012. "Student Learning Outcomes During an Environmental Engineering Summer Research Program." American Society for Engineering Education (ASEE) Annual Conference and Exposition Proceedings. Environmental Engineering Division. June 10-13. San Antonio, TX. [Abstract accepted, paper in review]
6. Bielefeldt, A. 2011. "Growing Student Interest in Renewable Energy." Association for Environmental Engineering and Science Professors (AEESP) Conference: Global Sustainability and Environmental Engineering & Science. University of South Florida, Tampa, FL. July 10-12. Oral presentation.
7. Bielefeldt, A., J. Burken, J. Hughes, S. Jones, K. Paterson, D. Reinhart. 2011. "Workshop: Frontiers in Environmental Education." Association for Environmental Engineering and Science Professors (AEESP) Conference: Global Sustainability and Environmental Engineering & Science. University of South Florida, Tampa, FL. July 10-12.
8. Dvorak, B., A.R. Bielefeldt, C. Just. 2011. "Workshop: Service learning projects and sustainability." Association for Environmental Engineering and Science Professors (AEESP)

Conference: Global Sustainability and Environmental Engineering & Science. University of South Florida, Tampa, FL. July 10-12.

9. Bielefeldt, A.R. 2011. "Sustainability Ethics among First-Year Civil and Environmental Engineering Students." American Society for Engineering Education (ASEE) Annual Conference and Exposition Proceedings. (Paper 2011-1362). Ethics Division. June 26-29, Vancouver, BC Canada. [peer reviewed]
10. Bielefeldt, A.R. 2011. "Global Interests and Experience Among First-Year Civil Engineering Students." American Society for Engineering Education (ASEE) Annual Conference and Exposition Proceedings. (Paper 2011-1348). Civil Engineering Division. June 26-29, Vancouver, BC Canada. [peer reviewed; nominated for best paper]
11. Wiggins, J., M. McCormick, A.R. Bielefeldt, C.W. Swan, K. Paterson, C. Lawyer. 2011. "Students and Sustainability: Assessing Student's Understanding of Sustainability from Service Learning Experiences." American Society for Engineering Education (ASEE) Annual Conference and Exposition Proceedings. (Paper 2011-1335). Environmental Engineering Division. June 26-29, Vancouver, BC Canada. [peer reviewed; student best paper award from Environmental Division]
12. Swan, C., J. Duffy, O. Pierrakos, K. Paterson, A. Bielefeldt. 2011. The EFELTS Project – Engineering Faculty Engagement in Learning Through Service." American Society for Engineering Education (ASEE) Annual Conference and Exposition Proceedings. (Paper 2011-1324). NSF Grantees Poster Session. June 26-29, Vancouver, BC Canada.
13. Swan, C., K. Paterson, A. Bielefeldt, B. Striebig. 2011. "ISES – A Longitudinal Study to Measure the Impacts of Service on Engineering Students." American Society for Engineering Education (ASEE) Annual Conference and Exposition Proceedings. (Paper 2011-1328). NSF Grantees Poster Session. June 26-29, Vancouver, BC Canada.
14. Bielefeldt, A.R. 2011. Research Experience for Undergraduates (REU) Site in Environmental Engineering. NSF Engineering Education Awardees Conference. March 13-15. Reston VA. Poster.
15. Bielefeldt, A.R., C. Swan, K. Paterson, M. McCormick. 2011. Assessing Students' Motivation to Learn and Practice Sustainable Engineering. NSF Engineering Education Awardees Conference. March 13-15. Reston VA. Poster.
16. Bielefeldt, A.R. 2010. "Sustainability in Civil and Environmental Engineering Courses at CU-Boulder." Association for the Advancement of Sustainability in Higher Education (AASHE) Annual Conference. (PAP3460). Denver, CO. Oct. 10-12.
17. Bielefeldt, A.R. 2010. "Evolution of a Sustainability Focused First-Year Environmental Engineering Course." American Society for Engineering Education (ASEE) Annual Conference and Exposition Proceedings. (Paper 2010-353). Environmental Division. June 20-23, Louisville, KY. [peer reviewed]
18. McCormick, M., K. Lawyer, M. Berlin, C. Swan, K. Paterson, A. Bielefeldt, J. Wiggins. 2010. "Evaluation of Sustainable Engineering Education via Service Learning and Community Service Efforts." American Society for Engineering Education (ASEE) Annual Conference and Exposition

- Proceedings. (Paper 2010-1102). Environmental Division. June 20-23, Louisville, KY. [peer reviewed]
19. Bielefeldt, A.R. 2010. "Introducing First-Year Civil Engineering Students to Sustainability." American Society for Engineering Education (ASEE) Annual Conference and Exposition Proceedings. (Paper 2010-352). Civil Engineering Division. June 20-23, Louisville, KY. [peer reviewed]
  20. Bielefeldt, A.R. 2010. "Student Perceptions of the Civil Engineering Body of Knowledge." American Society for Engineering Education (ASEE) Annual Conference and Exposition Proceedings. (Paper 2010-351). Civil Engineering Division. June 20-23, Louisville, KY. [peer reviewed]
  21. Bielefeldt, A.R. 2010. "Diverse Models for Incorporating Service Learning in Capstone Design." Capstone Design Conference. June 7-9, Boulder, CO. [peer reviewed]
  22. Swan, C., A. Bielefeldt, and K. Paterson. 2010. "Global Education: Potential Impacts of Service-Based Projects in Global Engineering Education." World Environmental & Water Resources Congress. May 16-20. Providence, Rhode Island.
  23. Swan, C., A. Bielefeldt, and K. Paterson. 2010. "Evaluation of Sustainable Engineering Education via Service Learning." NSF Engineering Education Awardees Conference. Feb. 1-2. Washington DC. Poster.
  24. Bielefeldt, Angela R., K. Paterson, and C. Swan. 2009. "An Interactive Workshop Session on Measuring the Impacts of Project-Based Service Learning on Engineering Education." 12<sup>th</sup> Annual Colloquium on International Engineering Education. Oct. 22-25. Ames, IA.
  25. Bielefeldt, Angela R., B. Amadei, R. Sandekian, R.S. Summers, and K. Linden. 2009. "Engineering for Developing Communities Program: Education for Sustainable Development." 12<sup>th</sup> Annual Colloquium on International Engineering Education. Oct. 22-25. Ames, IA. Poster.
  26. Swan, C. W., K.G. Paterson, and A.R. Bielefeldt. 2009. "Panel – Measuring the Impacts of Project-Based Service Learning in Engineering Education." Session M3B. Frontiers in Education (FIE). Oct. 18-21. San Antonio, TX. [peer reviewed]
  27. Paterson, K., A. Bielefeldt, and C. Swan. 2009. "International Project Based Service Learning." Association of Environmental Engineering and Science Professors (AEESP) Biennial Conference, University of Iowa, July 27-28. Platform presentation.
  28. Bielefeldt, A.R. 2009. "Mapping an Undergraduate Curriculum onto the Environmental Engineering Body of Knowledge." American Society for Engineering Education (ASEE) Annual Conference and Exposition Proceedings. (Paper 2009-684). Environmental Division. June 24-17, Austin, TX. [peer reviewed]
  29. Bielefeldt, A.R., K. Paterson, and C. Swan. 2009. "Measuring the Impacts of Project-Based Service Learning." American Society for Engineering Education (ASEE) Annual Conference and Exposition Proceedings. (Paper 2009-1972). Environmental Engineering Division. June 24-17, Austin, TX. [peer reviewed] Best Environmental Engineering Division Paper, Best Paper PIC II, and Best Overall Paper.

30. Bielefeldt, A.R. 2009. "Gender Differences in the Attitudes of Students in Freshmen Engineering Courses." American Society for Engineering Education (ASEE) Annual Conference and Exposition Proceedings. (Paper 2009-685). Women in Engineering Division. June 24-17, Austin, TX. [peer reviewed]
31. Bielefeldt, A.R. 2009. "Cognitive Diversity and the Performance of Freshmen Engineering Teams." American Society for Engineering Education (ASEE) Annual Conference and Exposition Proceedings. (Paper 2009-683). Environmental Division. June 24-17, Austin, TX. [peer reviewed]
32. Bielefeldt, A.R. 2009. "Perceptions of Cheating Behaviors by Freshmen Engineering Students." American Society for Engineering Education (ASEE) Annual Conference and Exposition Proceedings. (Paper 2009-1384). Engineering Ethics Division. June 24-17, Austin, TX. [peer reviewed]
33. Bielefeldt, A.R. 2009. "Retaining Students Interested in Energy in Environmental Engineering." American Society for Engineering Education (ASEE) Annual Conference and Exposition Proceedings. (Paper 2009-681). Environmental Division. June 24-17, Austin, TX. [peer reviewed]
34. K. Paterson, A. Bielefeldt, and C. Swan. 2009. "An Interactive Panel Session on Measuring the Impacts of Project-Based Service Learning on Engineering Education." American Society for Engineering Education (ASEE) Annual Conference and Exposition Proceedings. (Paper 2009-2034). International Division. June 24-17, Austin, TX. [peer reviewed]
35. Silver, D., B. Amadei, R. Scott Summers, R. Klees, R. Sandekian, B. Bialek, and A. Bielefeldt. 2008. Program to Education Environmental Engineers to Work Toward Sustainable Development. Poster at the *2008 Institute for the Environment Environmental Symposium: Sustainable and Safe Drinking Water in Developing and Developed Countries: Where Science Meets Policy*. Nov. 5 - 6. University of North Carolina – Chapel Hill, NC.
36. Bielefeldt, A. R. 2008. "Cultural Competency Assessment." American Society for Engineering Education (ASEE) Annual Conference and Exposition Proceedings. (Paper 2008-2313). Environmental Division. June 23-25, Pittsburgh, PA. [peer reviewed]
37. Bielefeldt, A. R. 2008. "Incorporating Energy Issues into Environmental Engineering." American Society for Engineering Education (ASEE) Annual Conference and Exposition Proceedings. (Paper 2008-2289). Environmental Division. June 23-25, Pittsburgh, PA. [peer reviewed]
38. Bielefeldt, A. R., B. Amadei, and R. Sandekian. 2008. "Community Service Attitudes of Engineering Students Engaged in Service Learning Projects." American Society for Engineering Education (ASEE) Annual Conference and Exposition Proceedings. (Paper 2008-2430). International Division. June 23-25, Pittsburgh, PA. [peer reviewed]
39. Bielefeldt, A. R. 2008. "Drinking Water Activity for High School Outreach Program." American Society for Engineering Education (ASEE) Annual Conference and Exposition Proceedings. (Paper 2008-2327). K-12 & Pre College Engineering Division. June 23-25, Pittsburgh, PA. [peer reviewed]
40. Bielefeldt, A.R. and K. High. 2007. Paper and presentation at the 10<sup>th</sup> Annual Colloquium on International Engineering Education: Curricular Innovations for Global Engineering Competency.

"Cultural Competency Assessment Tool Development for Engineering Students." November 1 – 4. Purdue University, West Lafayette, Indiana.

41. Bielefeldt, A.R. and K. High. 2007. Presentation and paper at the Frontiers in Education (FIE) Conference. "Work in Progress: Assessing the Cultural Competency of Engineering Students." Oct. 10-13. [peer reviewed]
42. Bielefeldt, A.R. 2007. Poster and abstract at the Association for Environmental Engineering and Science Professors Biennial Conference – Interactions at the Interface: Making the Connections Between Environments, Disciplines and Nations. "Community Service Attitudes of First-Year Students and Senior Students Working on Service Learning Design Projects." July 28 – August 1. Blacksburg, VA.
43. Mihelcic, J., A. Bielefeldt, J. Zimmerman, S. Jones, K. Patterson, and A. Ramaswami. 2007. Workshop at the Association for Environmental Engineering and Science Professors Biennial Conference – Interactions at the Interface: Making the Connections Between Environments, Disciplines and Nations. "Sustainability Workshop." July 28 – August 1. Blacksburg, VA.
44. Bielefeldt, A. R. 2007. "Solid And Hazardous Waste Course Targeted To The Developing World." American Society for Engineering Education (ASEE) Annual Conference and Exposition Proceedings. (Paper 2007-812). Environmental Division. June 25-27, Honolulu, Hawaii. [peer reviewed]
45. Bielefeldt, A. R. 2007. "Introduction to Environmental Engineering Course Aimed at Recruiting and Retaining Students." American Society for Engineering Education (ASEE) Annual Conference and Exposition Proceedings. (Paper 2007-805). Environmental Division. June 25-27, Honolulu, Hawaii. [peer reviewed]
46. Bielefeldt, A. R., B. Amadei, R. Sandekian. 2007. "Engineering For The Developing World Course Gives Students International Experience." American Society for Engineering Education (ASEE) Annual Conference and Exposition Proceedings. (Paper 2007-799). International Division. June 25-27, Honolulu, Hawaii. [peer reviewed]
47. Bielefeldt, A.R. 2007. Presentation and paper at the National Capstone Design Conference. "Environmental Engineering Service Learning Projects for Developing Communities." (Paper 12183). June 10-12, University of Colorado – Boulder, CO.
48. Sandekian, R., B. Amadei, A. Bielefeldt, and R.S. Summers. 2007. Presentation and paper at the Fifth LACCEI International Latin American and Caribbean Conference for Engineering and Technology (LACCEI'2007) – Developing Entrepreneurial Engineers for the Sustainable Growth of Latin America and the Caribbean: Education, Innovation, Technology and Practice. "Engineering for Poverty Reduction: Challenges and Opportunities." May 29 – June 1. Tampico, Mexico.
49. Amadei, B., R.E. Sandekian, R.S Summers, and A.R. Bielefeldt. 2006. "Engineering for Developing Communities: Integrating Education, Research and Development, and Service/Outreach into Engineering Education." American Society for Engineering Education (ASEE) Annual Conference and Exposition Proceedings. (Paper 2006-220). International Division. June 19-21, Chicago, IL. [peer reviewed]

50. Bielefeldt, A.R. 2006. "Undergraduate Research on Appropriate and Sustainable Technology." American Society for Engineering Education (ASEE) Annual Conference and Exposition Proceedings. Environmental Division. June 19-21, Chicago, IL. [peer reviewed]
51. Bielefeldt, A.R., D. Shannon, J. Ruttenber, J. Shah, R.S. Summers. 2006. "Environmental Health for Developing Communities Pilot Course." American Society for Engineering Education (ASEE) Annual Conference and Exposition Proceedings. Environmental Division. June 19-21, Chicago, IL. [peer reviewed]
52. Bielefeldt, A.R. 2006. "Attracting Women to Engineering that Serves Developing Communities." American Society for Engineering Education (ASEE) Annual Conference and Exposition Proceedings. Women in Engineering Division. June 19-21, Chicago, IL. [peer reviewed]
53. Bielefeldt, A.R. 2006. Presentation at the American Society of Engineering Education (ASEE) Annual Conference and Exposition Proceedings. "Increasing the International Awareness of Engineering Students." Emerging Trends poster session. June 19-21, Chicago, IL. [peer reviewed]
54. Bielefeldt, A.R. 2006. Upgrade of a Wastewater Treatment Facility to Meet Capacity and Nutrient Removal Requirements. In: Case Studies in Environmental Engineering and Science. Ed. Alok Bhandari and Michael A. Butkus. Published by the AEESP Education Committee. <http://www.aeespfoundation.org/publications.html#CaseStudies>
55. Bielefeldt, A.R. and R. Malhotra. 2006. Wastewater Treatment Facilities for a Native American Tribe. In: Case Studies in Environmental Engineering and Science. Ed. Alok Bhandari and Michael A. Butkus. Published by the AEESP Education Committee. <http://www.aeespfoundation.org/publications.html#CaseStudies>
56. Bielefeldt, A.R., B. Amadei, R.S. Summers, K.M. Strzepek, P.S. Chinowsky and K.R. Molenaar. 2006. Presentation at the Working Commission W107 Construction in Developing Economies, International Symposium on Construction in Developing Economies: New Issues and Challenges. "An Educational Initiative to Address Earth Systems Engineering for Developing Communities." January 18-20, 2006. Santiago, Chile.
57. Sandekian, R, B. Amadei, A. Bielefeldt, and R.S. Summers. 2006. Presentation and paper at the 3rd African Regional Conference on Engineering Education (ARCEE 2006) and 4th South African Conference on Engineering Education (SACEE 2006) – "Engineering for Developing Communities: Integrating Education, Research and Development, and Service/Outreach into Engineering Education." September 26-29, 2006. Pretoria, South Africa.
58. Bielefeldt, A.R., B. Amadei, R.S. Summers, R. Sandekian. Presentation at the 2005 Association of Environmental Engineering and Science Professors (AEESP) Research and Education Conference. "Engineering for Developing Communities Theme Attracts Diverse Student Interest." Potsdam, NY. July. Abstract in conference proceedings.
59. Katz, L., B. Allenby, A. Bielefeldt, C. Davidson, J. Mihelcic, K. Jahan, A. Zander. Presentation at the 2005 Association of Environmental Engineering and Science Professors (AEESP) Research and Education Conference. "Introducing Sustainability Into Engineering Curriculum: Has the Wheel Finally Been Created?" Session: Sustainability in Education. Clarkson University, New York. July 26, 2005. Abstract in conference proceedings.

60. Katz, L., B. Allenby, A. Bielefeldt, C. Davidson, J. Mihelcic, K. Jahan, A. Zander. 2005 Association of Environmental Engineering and Science Professors (AEESP) Research and Education Conference. Workshop. W2: Environmental Sustainability: Educating Students, Colleagues and Ourselves. July 24, 2005. Clarkson University, New York.
61. Bielefeldt, A.R. 2005 “Challenges and Rewards of On-Campus Projects in Capstone Design.” American Society for Engineering Education (ASEE) Annual Conference and Exposition Proceedings. Design in Engineering Education Division. Portland, OR. June. [peer reviewed]
62. Bielefeldt, A.R., R. Scott Summers and Bernard Amadei. 2005 “Incorporating Earth Systems Engineering Concepts throughout the Civil Engineering Degree to Create the Engineer of the 21st Century.” American Society for Engineering Education (ASEE) Annual Conference and Exposition Proceedings. Civil Engineering Division. Portland, OR. June. [peer reviewed]
63. Bielefeldt, A.R., R. Scott Summers, Bernard Amadei, Robyn Sandekian, Jay Shah, Margaret Pinnell, William Moeller. 2005. “Creating an Engineering for Developing Communities Emphasis in Environmental Engineering.” American Society of Engineering Education (ASEE) Annual Conference and Exposition Proceedings. Environmental Engineering Division. Portland, OR. June. [peer reviewed]. Nominated for best paper award.
64. Pinnell, M., B. Amadei, A.R. Bielefeldt, W. Moeller, R. Sandekian. Poster at the 2005 American Society for Engineering Education (ASEE) Conference and Exposition. “Service-Learning in Engineering: Summary of Findings from a Pre-Conference Workshop.” Session: Emerging Trends in Engineering Education. Portland, OR. June 13.
65. Bielefeldt, A.R., B. Amadei, R.S. Summers. Poster at the National Science Foundation (NSF) 2005 Engineering and Computing Education Grantee Meeting. “Department Level Reform Grant: Engineering for Developing Communities (EDC) and Earth Systems Engineering (ESE).” February. Washington, D.C.
66. Bielefeldt, A.R. 2003. “Capstone Environmental Design Course Incorporating Sustainable Projects.” American Society of Engineering Education (ASEE) Annual Conference and Exposition Proceedings. Environmental Engineering Division. Nashville, TN. [peer reviewed]
67. Bielefeldt, A.R. and J. Silverstein. Presentation at the 2002 Association of Environmental Engineering and Science Professors (AEESP) Education Conference, Aug., Toronto. “A Successful Model for Integrating Sustainable Development Projects into a Capstone Design.”

### **Invited Lectures**

- Bielefeldt, Angela R. (co-authors Guadalupe Gutierrez-Padilla, M. Hernandez, J. Silverstein) 2011. Microbial Induced Concrete Corrosion (MICC) in Sewer Pipes. University of Wyoming, graduate seminar, April 4, Laramie.
- Bielefeldt, Angela R., R. Scott Summers, A. Kohler, K. Kowalski. 2009. Performance Evaluation of Point-of-Use Ceramic Water Filters. AWWA Water Quality Technology Conference (WQTC). Seattle, WA. Nov. 15-18. (invited presentation)
- Bielefeldt, A.R., B. Amadei, R. Scott Summers, R. Sandekian 2007. Engineering for Developing Communities (EDC): Education for the 21st Century. Water Technologies for Emerging Regions

(WaTER) Center. School of Civil Engineering and Environmental Science. University of Oklahoma. Feb. 12, 2007.

Bielefeldt, A.R., B. Amadei, R. Scott Summers, R. Sandekian. 2005. Engineering for Developing Communities (EDC) Program at the University of Colorado. Sustainable Futures Institute. Michigan Technological University. Oct. 21.

Bielefeldt, A.R. and T. Illangasekare. 2002. Bioclogging Effects Relevant to In-Situ Bioremediation of Organic Contaminants. American Geophysical Union Spring Meeting. Washington D.C. May. [Invited presentation by Bielefeldt]

### **Patents**

Bielefeldt, A.R., and H.D. Stensel, S.E. Strand, and R. Herwig. US. Patent No. 5,874,291, Issued Feb. 1999. Degradation of Environmental Toxins by a Filamentous Bacterium.

Bielefeldt, A.R., and H.D. Stensel. U.S. Patent No. 5985649, Issued Nov. 16, 1999. A Device and Method for Removal of Gas Contaminants Through a Shallow Sparged Bioreactor.

### **Grants & Funding**

As Principal Investigator (PI) or Co-PI.

PI. "Assessing Engineering Students' Understanding of Social Responsibility from Undergraduate and Graduate Education into Professional Life." National Science Foundation (EEC). \$346,190. 6/1/12 – 5/31/15. [granting in process per email from Program Director Alan Cheville]

PI. "National Inventory of Regional Collaboration." American Water Works Association. \$15,000. 5/16/2011 – 12/31/2011. Co-PI R. Scott Summers.

PI. "Collaborative Research: Engineering Faculty Engagement in Learning Through Service." National Science Foundation. \$174,996. 9/15/10 – 8/31/13. Co-PIs at collaborating universities: Chris Swan (Tufts University), John Duffy (Univ. of Massachusetts-Lowell), Kurt Paterson (Michigan Technological University), Olga Pierrakos (James Madison University); each university has a separate budget.

LEAP Associate Professor Growth Grant. University of Colorado. \$2000. 6/1/10 – 5/30/11.

PI. "REU Site in Environmental Engineering." National Science Foundation. \$299,995. 5/15/10 – 4/30/13. co-PI Fernando Rosario-Ortiz.

Co-PI. "New GK-12: Engineering for Society – An Energy and Environmental Sustainability Research Pathway to Cultivate Engineering Leaders and Enrich Education for Disadvantaged Youth." National Science Foundation. \$2,834,349. 6/1/10-5/30/15. PI Jacquelyn Sullivan, co-PIs Fernando Rosario-Ortiz, Malinda Zarske.

PI. Enhanced Ceramic Water Filter. CDM. \$15,000. 10/1/09 – 8/31/10.

PI. "Collaborative Proposal: Evaluation of Sustainable Engineering Education via Service Learning Efforts in Engineering." National Science Foundation. \$58,634. 9/1/2009 – 2/28/2011. co PIs at

collaborating universities: Chris Swan (Tufts University, lead) and Kurt Paterson (Michigan Technological University); each university has a separate budget.

- Co-PI. PI Kurt Paterson (Michigan Tech) and co-PI Chris Swan (Tufts University). "A Summit on Measuring the Impacts of Project-Based Service Learning on Engineering Education." National Science Foundation. \$66,806. 10/01/08 – 12/31/09.
- PI. "Evaluation of Permanganate Oxidation to Remediate NDMA Contaminated Sites." EMS Corp., Evergreen, CO. \$13,000. 6/08 – 12/08.
- PI. "Remediation of NDMA Contaminated Groundwater by In Situ Chemical Oxidation." IHMM John J. McCambridge Research Grant. \$10,000. 9/1/08 – 8/31/09.
- PI. "Evaluation of Permanganate Oxidation to Remediate NDMA Contaminated Sites." EMS Corp., Evergreen, CO. \$12,000. 8/07 – 2/08.
- PI. "Evaluation of In Situ Treatment Methods for NDMA Contaminated Sites in Colorado" and "Remediation of Sites Contaminated by Dry Cleaning Activities in Colorado." Outreach Committee. University of Colorado - Boulder. \$5000. 8/07 – 7/08. No cost extension through 12/09.
- PI. Co-PI R. Scott Summers. "Determining the Importance of Silver in Home Filters used to Disinfect Drinking Water in Developing Countries" Lindbergh Foundation. \$10,580. 7/1/07 – 6/31/08.
- PI. Co-PI R. Scott Summers. "REU Site in Environmental Fluids - Science, Assessment, and Treatment." National Science Foundation. \$285,822. 3/1/06 – 2/28/09.  
*Participants: 30 students; 73% female, 27% minority, 33% from non-PhD granting institutions.*
- Co-PI. PI R. Scott Summers. "Sustainability of the Filtron for Microbial Disinfection." Environmental Protection Agency (EPA). P3 Program. \$10,000. 8/2005 - 6/2006.
- Co-PI. PI B. Amadei; additional coPIs R.S. Summers, R. Sandekian. "A Course in Appropriate Technologies for the Developing World." NCIIA. \$37,500. 7/2005 - 6/2008.
- PI. Co-PIs Bernard Amadei and R. Scott Summers. "Engineering for Developing Communities and Earth Systems Engineering as a Catalyst for Enhancing Learning in Environmental and Civil Engineering." Funded by the National Science Foundation. 8/1/04-7/30/05; no cost extension to 1/31/06. \$99,755.
- PI. "Integration of Service-Learning into a Capstone Engineering Course." Service Learning Center, University of Colorado at Boulder. 1/1/04-12/30/04. \$3900.
- PI. "Pathogen Removal by the Filtron Water Filter." Mini Proposal to the Engineering Excellence Fund (EEF), College of Engineering and Applied Science, University of Colorado at Boulder. Oct. 15, 2003. Co-Investigators: Scott Summers, Katie Medina. 10/15/03-5/1/04. \$998.
- Co-Principal Investigator with T. Illangasekare (PI) and Dongping Dai (Co-PI). "Selection of Molasses or Vegetable Oil for Enhanced Bioremediation of Chlorinated Solvents." Funded by the U.S. Air Force through Parsons Engineering to Colorado School of Mines. 9/01 - 1/03. \$207,033 (30% to ARB).
- PI. "Wastewater Treatment Plant Ferric and Ferrous Chloride Investigation (full scale)." City of Longmont, Colorado. Oct. 2001-June 2002. \$22,026.

- PI. "Wastewater Treatment Plant Ferric and Ferrous Chloride Investigation (lab scale)." City of Longmont, Colorado. Dec. 2000-Feb. 2001. \$6,405.
- Co-Principal Investigator with A. Ramaswami and T. Illangasekare. "Bioavailability and Biostabilization of Multicomponent Dense Non-Aqueous Phase Liquids (DNAPLs) in the Subsurface." US EPA, National Center for Environmental Research and Quality Assurance. 10/1/97 - 9/30/00 (no cost extension to 12/01). \$433,441 (20% to ARB).
- Co-Principal Investigator with Tissa Illgangasekare. "Upscaling of flow and transport of de-icing compounds and JP-8 under conditions of bioactivity." US Air Force Office for Scientific Research through the EPA Hazardous Substances Research Center. 10/1/98 to 5/30/99 (no cost extension to 9/00). \$70,000 (50% to ARB).
- PI. "Enhancing Bioremediation of Toxic Compounds using Surfactants." University of Colorado Council on Research and Creative Work Junior Faculty Development Award. 7/1/99 to 6/30/00. \$5,000.
- PI. "Effect of surfactants of bioremediation of soils contaminated with Toxic Compounds." University of Colorado Council on Research and Creative Work (CRCW) Summer Session Research Grant. 7/1/98 to 5/31/99. \$4,000.
- Co-Principal Investigator with Mark Hernandez. "Modernizing Engineering Curricula by Integrating Applied Microbiology." From the Engineering Excellence Fund at the University of Colorado. 7/1/98 to 6/31/99. \$16,225 (50% to ARB).

## Student Research Supervision

### *Ph.D. Students*

- Cort, Todd. 2000. Effects of Surfactants on Pentachlorophenol Biodegradation by *Sphingomonas chlorophenolicum* sp. Strain RA2. Five papers published in peer reviewed journals. Currently: Two Tomorrows (North America) Inc., Chief Executive Officer; P.E.
- Park, Sung-kil. 2002. Impacts of a Non-ionic Surfactant on the Remediation of NAPL-Associated and Soil Sorbed Pentachlorophenol. Four papers published in peer reviewed journals. Currently: POSCO, Section Manager, Environment Planning Team, Korea
- Gutierrez-Padilla, Guadalupe. 2007. Activity of sulfur oxidizing microorganisms and impacts on concrete pipe corrosion. WEF/AWWA Rocky Mountain Student Section 1<sup>st</sup> Conference, 2004, first place poster. 3 papers published. Currently: post-doc at CU-Boulder
- Song, Myoungsuk. 2008. Surfactant Effects on Microbial Activity during Pentachlorophenol Degradation by *Sphingomonas Chlorophenolicum* strain RA2. Co-author on 1 paper; 2 in review. Currently: post-doc at CU-Boulder
- Zarske, Malinda Schaefer. 2011 (in progress). Impacts of service-learning projects on high school and first year engineering students attitudes, efficacy, and persistence. Passed comprehensive examination 2010.
- Canney, Nathan. 2011 (in progress). Assessing Engineering Students' Understanding of Social Responsibility from Undergraduate and Graduate Education into Professional Life. Received

Chancellor's Award for Excellence in STEM Education – Graduate Award, University of Colorado Boulder, 2011-2012.

*M.S. thesis students*

McEachern, Camille [Buehler]. 1998. Effect of Bacterial Growth by Means of Jet Fuel Constituents on the Hydraulic Conductivity and Dispersivity of Porous Media in One- and Two-Dimensional Systems. Best MS poster, Hydrology Days, Colorado State University, 1998. One paper published in peer reviewed journal. Currently: CB Consulting, Owner, Redding, CA

Riffel, Allison. 1999. Aerobic Biostabilization of Polychlorinated Biphenyl DNAPLs by a Pure Bacterial Culture. One paper published in peer reviewed journal. Currently: Trihydro, Laramie

Pfeiffer, Patricia. 2003. Physical/Chemical Interactions of Vegetable Oil with Chlorinated Ethenes. One paper in conference proceedings; 2 journal papers published in peer reviewed journals. Currently: US Environmental Protection Agency, UST/LUST and UIC program, Region 8, Denver, CO

Zamora-Thompson, Xochitl. 2004. Integrating Renewable Energy in Water Systems: Technology, Sustainability, and Design Case Studies in the Galápagos Islands. Two presentations at technical conferences.

Kowalski, Kate. 2008. Removal of Virus-Sized Particles and E. coli by the Potters for Peace Ceramic Water Filter. Two papers presented at technical conferences; one journal paper published and one under review. Currently: Black & Veatch, Portland, OR.

Srivastav, Rajat. 2008. Kinetics of NDMA Oxidation by Permanganate under Varying pH and Temperature Conditions. Two papers presented at technical conferences; one journal paper planned. Currently: CH2M Hill, Atlanta, GA

Kohler, Amanda. 2009. E. coli removal and washout under long-term loading conditions. Co-author on one journal paper; preparing a second paper for publication. Currently: ARCADIS, Syracuse, NY

Stewart, Michael. 2010. Effects of pH, ionic strength, and dissolved organic matter on the release of silver nanoparticles used in ceramic water filters from representative ceramic surfaces.

Panacewicz, Lauren. 2011. Evaluation of enhanced ceramic water filtration (ECWF) systems for turbidity and bacteria removal for households in developing countries.

Relph, Tamara. 2012. Regional Collaboration in the Water Utility Sector. [in progress]

*M.S. non-thesis student research projects*

Watada, Marianne. May 1997. Natural Denitrification in a Sewage Contaminant Plume, Cape Cod, Massachusetts.

Park, Sung-kil. Dec. 1998. The Sorption of Pentachlorophenol in Soil-Water Systems Containing a Micelle-Forming Surfactant. (obtained PhD, see above)

- Butler, Tamara [Johndrow]. May 1999. Effect of Propylene Glycol Induced Biogrowth on Hydraulic Conductivity and Dispersivity of a Two-Dimensional Homogeneous Porous Media. Currently: Engineering and Hydrosystems, Inc., Senior Engineer; Littleton, CO; P.E.
- Song, Myoungsuk. Dec. 1999. A Study of Surfactant Toxicity Effects on Gram Negative Bacteria. (obtained PhD, see above)
- Grant [Uttecht], Megan. May 2000. Hydrodynamic Effects of Biogrowth on Propylene Glycol in Sand Columns. One paper published in peer reviewed journal. Currently: Environmental Engineer at CH2M Hill
- Tseng, Julia. Dec. 2000. Indigenous Microbial Transformation of Chromium(VI) in Soil under Varying Redox Conditions. One paper published in peer reviewed journal. Currently: Travis Air Force Base Environmental Restoration Program
- Park, Dongchan. Dec. 2001. Effects of Diesel Fuel Biodegradation on Aquifer Properties.
- Givler, Suzanne. 2004. Bioclogging of the Filtron during Water Treatment. Currently: Water Quality Project Manager at City of Boulder
- Straten, Melissa. 2004/5. Bioclogging during Enhanced Bioremediation. Currently: Environmental Engineer at ARCADIS, San Francisco CA
- Hill, Jennifer. 2005. Biodegradation of lecithin and vegetable oil emulsions. Currently: Environmental Engineer at Altamont Environmental, Inc., Asheville NC
- Soundarrajan, Subhashini. 2009. Longterm disinfection of *E. coli* by a full point-of-use ceramic water filter.
- Berlin, Meredith. 2010. Bench scale feasibility of enhanced reductive dechlorination to remediate a dry cleaning site: impacts of high sulfide.

*M.S. non-thesis student independent study projects*

- Rutkowski, Tom. 2002. Wetlands treatment for wastewater in the communities of Guadalupe and Conejos in Conejos County, CO. Currently: Golder Associates, Lakewood CO; P.E.
- Turner, Seth. 2003. Wastewater treatment for agricultural reuse for Jemez Pueblo, New Mexico. Currently: HDR Engineering; P.E.
- Tucker, Hillary. 2003. Environmental Impacts of Airport Deicing Activities.
- Heavner, Ben. 2003. Source water alternatives evaluation for drinking water for Conejos, CO. Currently: pursuing PhD at Cornell University, Dept. Biological & Environmental Engrg.
- Sirakavit, Glen. 2008. Improved Sustainability of the Carpet Washing Process in Afghanistan.

*M.S. student Independent Study courses*

- Herring, Duane. 2003. Bioremediation and Phytoremediation. Currently: Contech Construction Products

*Undergraduate student research*

- Knight, Joshua. 1998. Biodegradation of Monochlorobenzene. Senior thesis. Earned M.S. Univ. South Carolina. Currently: Metro Wastewater Reclamation District and pursuing PhD at CU-Denver.
- Kadrmaz, Korey. May 1998. Attached versus Suspension Bioremediation Kinetics. 3 cr. Earned M.S. University of Colorado at Denver. Currently: RJH Consultants, Inc.
- LaPlante, Rosanna Allen. 1999. Bioclogging effects of Propylene Glycol in Column Studies at Varying Groundwater Velocity. 3 cr. Co-author on two peer reviewed publications. Currently: SCS Engineering; Reston, VA
- Martin, Colleen. 1999. Identifying Hyperaccumulating Plants Growing at Chromium Contaminated Sites in Colorado. McNair Summer Research Program scholar.
- Wozniak, Chenine. May 2000. Surfactant-Aided Bioremediation of Pentachlorophenol in Soil. 3 cr. Co-author on one paper. Earned M.S. Colorado School of Mines. Currently: CH2M Hill
- Fahlin, Chris. 2002. Filtron Assessment for Drinking Water Treatment. Undergraduate Research Opportunities Program (UROP). 3 cr. Currently: Environmental Engineer and EWB Program Manager at CDM
- Medina, Katie. 2003-2004. Filtron. MEP Fellowship and Discovery Learning Center Intern. (co-advised by R. Scott Summers) Currently: stay-at-home mom
- Hollenkamp, Lucas. 2004. Filtron. Discovery Learning Center Intern. (co-advised by R. Scott Summers). Currently: pursuing M.S. at University of Minnesota-Twin Cities; Environmental Protection Specialist Intern at National Institutes of Health
- Malhotra, Anisha. 2004-5. Filtron removal of pathogens. Independent Study. 3 cr.
- Arellano, Jason. 2005. Characterization of particle sizes removed by the Filtron. MEP Fellowship.
- Leech, Kari. 2004-5. UROP: Engineers Without Borders - Haiti Water Project. Undergraduate Research Opportunities Program (UROP). Earned M.S. degree Univ. North Carolina-Chapel Hill
- Bishop, Ben. 2006-7. Filtron: Removal of Fluorescent Microspheres as Viral Surrogates. Discovery Learning Center Intern. (co-advised by R. Scott Summers) Currently: pursuing MS degree at Univ. Florida
- Sparkman, David. 2007. Filtron: Removal of E. coli. Discovery Learning Center Intern. (co-advised by R. Scott Summers); Currently: pursuing PhD at CU-Boulder in EDC program.
- Millspaugh, Robert. 2008. Filtron: Effect of Silver on Removal of Fluorescent Microspheres as Viral Surrogates. Discovery Learning Center Intern. (co-advised by R. Scott Summers)
- Krauss, Eva. 2009. NDMA oxidation by permanganate in the presence of TCE. Paid hourly. Currently: pursuing MS at CU-Denver.

- Pasten, E. Ray. Summer 2009. Biotransformation of arsenic and chromium co-contaminants. McNair Summer Research Program scholar.
- Schmeisser, Lauren. 2009-2010. Filtron: Effect of E. coli concentration on treatment effectiveness. Discovery Learning Center Intern. Currently: pursuing BS/MS at CU.
- Relph, Tamara. 2010-2011. Effect of flow rate on E. coli disinfection by ceramic water filter cores. Discovery Learning Center Intern. Currently: pursuing BS/MS at CU.
- Schmeisser, Lauren. 2011. New dual-ceramic water filter design for water treatment in Ghana. Independent Study. 3 cr. Currently: pursuing BS/MS at CU.
- Brandt, Erica. 2011-2012. The Effect of Dissolved Oxygen on Bacteria Inactivation in Ceramic Water Filters. CU Undergraduate Research Opportunities Program (UROP) grant. Accepted into the BS/MS program at CU.

*Undergraduate REU student independent study research*

- Wozniak, Chenine. 2000. Partitioning of Organic Contaminants into Surfactant Micelles. Completed M.S. at Colorado School of Mines (see above).
- Garcia, Janet. 2000. Biodegradation of Propylene Glycol under Varying Redox Conditions.
- Nguyen, Suzanne. 2001. Laboratory Investigation on the Physical Behavior of Organic Substrates and TCE in the Subsurface. Completed MS SUNY.
- Warren, Jennifer. 2002. Bioclogging in Sand due to Vegetable Oil. Completed MS at University of California – Davis
- Murphy, Jessica. 2002. Effect of Propylene Glycol Induced Biogrowth on the Hydraulic Conductivity and Dispersivity of a Two-Dimensional Heterogeneous Porous Media.
- Vos, Catherine. 2003. Investigation of Enhanced Bioremediation for Chromium Stabilization in Contaminated Field Soil. Co-author on 1 conference paper. Currently: Granite Construction Co.
- Kowalski, Kate. 2003. Filtron. Co-advised with R. Scott Summers. Completed M.S. degree at University of Colorado – Boulder; see further details above
- Wright, Heather. 2004. Disinfection of colloidal silver and the Filtron. Co-advised with R. Scott Summers. Currently: pursuing PhD at University of South Florida
- Colyar, Kendra. 2004. Environmental effects of microbial concrete corrosion. Co-advised with Mark Hernandez. Completed MS University of Colorado-Boulder; currently environmental engineer at Naval Facilities Engineering Command, WA
- Stephen Barr. 2006. Hexavalent chromium biotransformation in soil under sulfate-reducing conditions. Co-author and presented 1 paper at professional conference. Graduated June 2009 with B.S. environmental engineering from Cal Poly-San Luis Obispo. Currently: graduate student at the University of Edinburgh

Cherylynn Schilling. 2007. Removal of fluorescent microspheres and E. coli by the Filtron. Co-advised by R. Scott Summers. Co-author on peer-reviewed paper under review. Currently: GEI Consultants, Sacramento, CA

Caldwell, Adam. 2008. Permanganate oxidation of NDMA. Currently pursuing MS at Carnegie Mellon University

Schreier, Simon. 2008. Effect of flow rate on E. coli removal by the Filtron. Co-advised by R. Scott Summers. Co-author on peer-reviewed paper. Currently: pursuing MS/PhD at Clemson University in Entomology and Soil Sciences.

Relph, Tamara. 2010. Enhanced Ceramic Water Filter for Removal of Pathogens and Inorganics from Water. Co-advised by R. Scott Summers. Currently: pursuing BS/MS at CU (see above)

Stewart, Sydney. 2011. Silver and flowrate effects on bacterial disinfection by ceramic water filter cores. Currently: still an undergraduate student at the University of Montana

*Undergraduate student independent study projects:*

Teets, Hunter. 2003. Foutaka Zambougoo [Mali] Design Alternatives. EWB Project.

Richards, Laura. 2004. Water Quality in Muramba, Rwanda. EWB Project.  
Completed MS at University of North Carolina

Stephens-Hotopp, Brian. 2004. Lagoon and Solar Pump Study for Wastewater from Jemez Pueblo, New Mexico. Currently: Calibre Engineering.

Stevenson, Kitty. 2008/2009. Greenhouse Gas Emissions from Conferences and Events at UCAR. (co-advised by Kimberly Kosmenko, UCAR)

Mathers, Sarah. Fall 2009. Bioremediation Evaluation for Air Force PJKS Site in Colorado.

Served on the Ph.D. committees (final defense) of: Kwan-Hyang Jo (1997), Nayef Al-Mutari (1997), Jiehl Oh (1998), Tarek Saba (1998), Gilbert Barth (1999), Jeff Cornell (2000), Cyndee Gruden (2000), Wendy Cheung (2002), Ivette O'Brien (2002), Ellen Rubin (2003), Muna Abu-Dalo (2003), Azra Bilgin (2003), Mehmet Iselyn (Univ. of CO – Denver; 2004), Miquelito Arias (2005), Hyeoksun Choi (2005), Chad Seidel (2006), Tae Uk Kim (2006), Steve Dutton (2008), Mari Rodriguez (2009), R. Blaine McClesky (2010); Shauna Kocman (University of Colorado – Denver, 2010).

External evaluator for Seema Jilani, University of Karachii – Pakaskan (2005).

Served on Ph.D. committee (comprehensive exam) of: Eric Vestal (Colorado School of Mines, 2001); Yvonne Bogatsu (2001); Susi Marlina (University of Colorado at Denver, 2010); Joshua Knight (University of Colorado at Denver, 2011)

Served on the Master's thesis committees of: Dan Thompson (1996), Cecilia Penarrieta (1998), Jude Grounds (1999), Summer Waters (1999), Kendra Morrison (CU-Denver 1999), Allison Keith (2000 defense; 2002 graduated), Derek Richard (Colorado School of Mines, 2001), Erich Simon (2001), Melissa Anderson (2001), Sybil Sharvelle (2002), Yumiko Abe (2003), Natalie Smith (2003), Shannon Ullmann (Colorado School of Mines, 2004), Lisa Clarke (2004), Ann Kaplan (Colorado

School of Mines, 2004), Gary Vance (2004), April Tumey (2005), Hyukjin Cho (2007), Molly Brodin (2008).

Served on Master's report committee of: Wyatt Kennedy (2011; Building Systems Program).

Mentor for undergraduate student hourly employees assisting with graduate research in the laboratory: Rosanna Allen LaPlante (civil engineering), Dean Rager (chemical engineering), Samantha Illangasekare (engineering student from Stanford), Shannon Taylor (civil engineering), Eva Krauss.

Mentor for high school students working on science fair project: Zachary Steinbach and Greg Ancmon, Monarch High, Sulfide Toxicity Effects on PCE Dechlorination (2009-2010).

## Teaching

Courses taught with number of semesters (between Fall 1996 and Fall 2011) and number of students per semester are listed in the table below.

Course	Total # of Semesters Taught	# of Students/ semester
<b>EVEN 1000 Introduction to Environmental Engineering</b> (1 credit) A required overview course for freshman Environmental Engrg students.	5	28-84
<b>CVEN 1317 Introduction to Civil Engineering</b> (1 credit) A required overview course for freshman Civil Engineering students.	14	16-74
<b>CVEN 3414 Fundamentals of Environmental Engineering</b> (3 credits) Required for all CVEN and EVEN students.	1	43
<b>CVEN 4434/5434/4830 Environmental Engineering Design</b> (3 credits) The capstone course required for senior undergraduate students in the environmental engineering degree, formerly required for civil engineering students in the environmental and water resources emphasis; optional for current CVEN students. A real-world project (e.g. wastewater treatment plant upgrade) is followed from proposal to design. Service learning projects are frequently included. <b>Graduate version is new.</b>	11	10-29
<b>CVEN 4474/5474 Hazardous &amp; Industrial Waste Management</b> (3 cr) Formerly, a required senior undergraduate course for students in the environmental track within civil engineering; currently an undergraduate & graduate elective; covers regulations, risk assessment, and treatment processes. Also taught for distance learning (CATECS) in Spring 2001	12	14-40
<b>CVEN 6834/5834/5514 Bioremediation</b> (3 credits) A graduate-level course covering current in-situ and ex-situ methods for bioremediation of contaminated sites. <b>New course developed.</b>	7	6-12
<b>CVEN 5834/5544 Solid Waste Management</b> (3 credits) A graduate-level course covering waste generation and treatment options. <b>New course developed.</b>	4	8-21
<b>GEEN 1500 Introduction to Engineering</b> (1 credit) Created and taught the five-week module on Civil Engineering and the Engineering Grand Challenges	1	45

2011 in CVEN 4434: Team of 4 students won the AECOM Water/Wastewater National Design Competition. 15 teams from universities around the U.S. and Canada competed.

2010 in CVEN 4434: Team of 5 students reached the semi-finals of the AECOM Water/Wastewater National Design Competition.

2009 in CVEN 4434: Team of 6 students won the Rocky Mountain Regional Water Environment Federation / American Water Works Association student design competition, beating teams from

Colorado State University, Colorado School of Mines, and the University of Wyoming. They will compete in the National competition at WEFTEC in Orlando, FL, in Oct.

Two teams of 4 students each in the Environmental Engineering Design course competed in the Halliburton Environmental Footprint Challenge in the College of Engineering at CU-Boulder. Four total teams competed. The teams in my course won first and fourth place.

Taught part of Solid Waste course at UNESCO-IHE in Delft, Netherlands. July 2006. 21 students.

### **Professional Development**

Engineering Faculty Engagement in Learning Through Service: Summit and Distillery. University of Colorado Boulder. Sept. 22-24, 2011. [Organized by Bielefeldt, Swan, Paterson, Duffy, Pierrakos. 24 invited faculty participants from North America.]

Peak-to-Peak Workshop – Teaching Sustainability. University of Colorado Boulder. Aug. 15-16, 2011.

Exploring how people Learn Engineering, NSF-sponsored workshop at Colorado School of Mines, Aug. 2-4, 2010.

University of Colorado's Emerging Leaders Program Fellow. 2008-2009 academic year.

Frontiers in Environmental Engineering Education Workshop. Jan. 8-10, 2007. Arizona State University.

Selected as a 2006-2007 Institute for Scholarship on Engineering Education (ISEE) scholar. The Institute is part of the Center for the Advancement of Engineering Education which is funded by the National Science Foundation. Attended the 1 week workshop in Washington D.C. July 2006.

Leadership Education for Advancement and Promotion (LEAP) Introductory Leadership Workshop. University of Colorado – Boulder. January 5-8, 2004.

Women's Engineering Leadership Institute (WELI) Conference. Nov. 5-8, 2003. Snowbird, Utah.

National Science Foundation Engineering Education Scholars Workshop. July 1997. Carnegie Mellon University.

### **Professional Organizations and Related Service Activities**

American Society for Engineering Education (ASEE). Member 1999 to 2001; 2003 to present.

Presider of various sessions at the 2005, 2006, 2007, 2008, and 2010 conferences.

Elected as treasurer of Environmental Engineering division, served 2006/2007.

Secretary of Environmental Engineering division, served 2007/2008.

Program Chair of Environmental Engineering division, served 2008/2009.

Division Chair of Environmental Engineering division, 2009/2010.

Director of Environmental Engineering division, 2010/2012.

Chair-Elect of Constituent Committee for Community Engagement in Engineering Education, 2011-2012.

Representative of ASEE on Project Teams as part of the *Mobilizing Disciplinary Societies on Behalf of Our Students ... and our Planet*. Project Kaleidoscope (PKAL), Mobilizing STEM Education

for a Sustainable Future, and Disciplinary Associations Network for Sustainability (DANS), <http://www.aacu.org/pkal/disciplinarysocietypartnerships/mobilizing/index.cfm>, 2011-12.

Association of Environmental Engineering and Science Professors (AEESP). Member 2002 to present.  
Elected to the Board of Directors. Term: Fall 2006 – 2009.  
Elected Treasurer. Term: Fall 2007 – Dec. 2009.  
Audit committee. Term: 2010 – 2014.  
Treasurer of AEESP Foundation. Jan. 2008 – Dec. 2009. Foundation board – Dec. 2010.  
Education committee: 2010 – present, Liaison to ASEE Environmental division: 2010 – present.

American Academy of Environmental Engineers (AAEE), editorial board for Environmental Engineer Magazine. Sept. 2006 to present.

American Society of Civil Engineers (ASCE), Member. 2011 to present.

Engineers Without Borders – USA and EWB-CU. Fall 2003 to present.

International Association of Water Quality (IAWQ). Member 1998 to 2003, 2005 to present.

Water Environment Federation (WEF). Member 1998 to present.  
Research Symposium Program Committee. Oct. 1998 to Oct. 2002.  
Presider of various research symposia sessions at the WEF Annual Conference and Exposition in 1996, 1998, 1999, 2001, 2002.  
Judge of oral and poster presentations at the WEF/AWWA Rocky Mountain Regional Student Conference; 2006; Colorado State University.  
Faculty advisor for the CU student chapter of Rocky Mountain WEF/AWWA, 2010 – present.

Reviews in Environmental Science and Biotechnology, publisher Springer Netherlands, ISSN 1569-1705 (print) and 1572-9826 (online); Editorial Board, 2009 – present.

Jim Lehrer NewsHour, Science Team (NSF-funded), technical advisory board. Jan. 2007 to Dec. 2009.  
Yearly meeting. Recommendations for topics for science reports and review of coverage.  
<http://www.pbs.org/newshour/science/>

Graduate Research Fellowship Program, National Science Foundation, Review Panel, 2003, 2004, 2007.

Taught review course for Civil Engineering Professional Engineering (PE) exam, Environmental topics. Spring 2007. ~100 students total. University of Colorado – Denver.

Proposal reviews for: Arkansas Science and Technology Authority  
DoD SERDP Program  
Dutch Technology Foundation STW  
Israel Science Foundation  
National Institutes of Water Resources (NIWR)  
National Science Foundation Small Business Innovation Research (SBIR)  
National Science Foundation REU Program  
National Science Foundation International Research Experience for Students (IRES) Program  
Water Resources Center at the University of Wisconsin  
Western Region's Water Resources Research Competitive Grants Program

Journal paper reviews for:

Advances in Environmental Research  
Biodegradation  
Biologia  
Biotechnology and Bioengineering  
Chemical Engineering Journal  
Environmental Engineer Magazine  
Environmental Engineering Science  
Environmental Monitoring and Assessment Journal  
Environmental Science and Technology  
Environmental Technology  
International Journal of Engineering Education  
International Journal of Environment and Pollution  
International Journal of Environment and Waste Management  
International Journal of Water  
Journal of Contaminant Hydrology  
Journal of Engineering for Sustainable Development: Energy, Environment, and Health  
Journal of Environmental Engineering – ASCE  
Journal of Environmental Engineering and Science  
Journal of Environmental Management  
Journal of Environmental Quality  
Journal of Geotechnical and Geoenvironmental Engineering  
Journal of Hazardous Materials  
Journal of Professional Issues in Engineering Education and Practice  
Journal of Soil and Sediment Contamination  
Journal of Women and Minorities in Science and Engineering  
Reviews in Environmental Science and Biotechnology  
Structure and Infrastructure Engineering: Maint, Mgmt, Life-Cycle Dsn & Perform.  
Waste Management  
Water Environment Research  
Water Research

Book and book chapter reviews for:

Arnold Publishers (Water Technology)  
John Wiley publishers (Introduction to Engineering, 2<sup>nd</sup> edition; Introduction to Infrastructure:  
Civil Engineering, Environmental Engineering, and the Built Environment).  
McGraw-Hill (Environmental Biotechnology; Biology for Environmental Engineers;  
Concepts in Engineering)  
Oxford University Press (Service-Learning: Engineering in Your Community)

**University Service**

Department of Civil, Environmental, and Architectural Engineering (CEAE)

Freshman advisor. Spring 1999 to Fall 2002.

Operations Committee. Fall 2001 to Summer 2002.

Curriculum Committee. Fall 2000/Spring 2001, Fall 2002 to 2003, Chair Fall 2003 to summer  
2005, fall 2006 to summer 2007, fall 2008 to present [Chair fall 2011 to present].

Task force on High School Recruiting for CEAE. Fall 2011 to present.

Undergraduate advising, average 12 undergraduate students and 5 graduate students per term. 1997  
through Spring 2005; Fall 2006 to present.

Search Committee for faculty hire. 2004/2005 and 2006/2007 academic years.

Fundamentals of Engineering (FE) review for environmental. Spring 2008 to present  
ABET assessment and evaluation coordinator. Spring 2008 to present.  
Primary author of ABET self-study for Civil Engineering. 2010/2011

#### Environmental Engineering (EVEN) cross-disciplinary degree program

Program Director. Sept. 2006 to June 2010.

During this time enrollment in the program grew from ~45 students to ~160 students, U.S. News & World Report ranked the program 18<sup>th</sup> among undergraduate environmental engineering specialties at PhD granting universities (11<sup>th</sup> among publics).

Participated in College outreach activities: Engineering Open House Oct. 2006, WIEP Discover Engineering Day Feb. 2007 & 2008, Explore Engineering Day Mar 2007, 2008, 2009

Represented EVEN in freshman orientation August 2007, 2008, 2009

Supervisor for undergraduate Earn Learn Students assisting the program: Anna Herring (fall 2007-spring 2008); Nicole Seminara (fall 2008 – fall 2009); Timothy Mendt (fall 2009).

Web master. Fall 2006 to Spring 2011.

Faculty member. Fall 1998 to present.

Student advisor for 8-15 undergraduate students, Fall 1999 to Spring 2004.

Advisor for all freshmen and transfer students, 20-60/yr, Fall 2006 to Spring 2010.

On Dean's task force to review EVEN degree, May – July, 2006.

High School Honors Institute, Summer 2007 and 2008.

#### College of Engineering at the University of Colorado - Boulder

Member of the group that led the Engineering for Developing Communities (EDC) program. Three key faculty and 1 staff person. Jan. 2004 to May 2009.

Member of the Women in Engineering Program (WIEP) faculty advisory board. Fall 1997 to Spring 2005.

Representative to the Educational Policy and Planning committee (EP&P) for EVEN, College of Engineering, University of Colorado. Aug. 1998 to 2002.

Representative for CVEN to the Strategic Futures Council for the College of Engineering. Spring 1999 to 2000.

Bioengineering Committee. 1998/1999 academic year, Fall 2002 to Spring 2005; Fall 2006 - 2008.

Undergraduate Education Council. Fall 2003 to Spring 2005; Fall 2006 to Summer 2010.

Assessment Committee. Spring 2008 to present.

Scholarship Committee. Spring 2007 to Summer 2010.

First Year Task Force. Spring 2010.

Faculty co-mentor for the Engineers Without Borders (EWB) CU student chapter. Summer 2003 to Summer 2005.

Search committee for Director of Student Engagement & Community Building Programs. Spring 2009.

Guest lectures in GEEN 1500 Introduction to Engineering on behalf of EVEN (2006, 2007, 2008, 2009) and CVEN (2002, 2003, 2004); MEP leadership class (2004); EVEN 1000 class (2002, 2003).

Student interviews for BOLD Gold-Shirt program (spring 2010, 2011).

#### Graduate School at the University of Colorado – Boulder

Beverly Sears Fellowship Committee. 2004. Reviewed graduate student proposals.

### **Community Service**

K-12 Outreach – Provided demonstrations for the following programs:

Engineering Career Day for High School Women sponsored by WIEP. Mar. & Oct. 1997

Expanding Your Horizons for junior high school girls sponsored by AAUW. Mar. 1999; Apr. 2003.

High School Success Institute for Minority Students. July 1999.

Energy Workshops for Middle School Girls sponsored by WIEP. July & Aug. 1999.

Assisted with EWB-University of Minnesota during sabbatical in Fall 2005.

Service learning projects in senior design course. Projects for: San Pablo and Mayapan, Belize (in association with EWB-CU, 2001); Jalapa, Nicaragua (in association with EWB-CU, 2002); Conejos County CO (in association with iCAST, 2002); University of Colorado (2003, 2010, 2011); Jemez Pueblo NM (in association with iCAST 2003); Center and Canon City, CO (in association with iCAST in 2004); a sustainable goat dairy and community-scale biodiesel production near Holyoke, CA (in association with iCAST in 2006); Pesqueira, Mexico (in 2006); Belen, Peru (in association with the CU Engineering for Developing Communities Program in 2010); Delta Timber, Big B's, and microhydro power in CO (as a partner with iCAST in 2011).

Outreach research projects to evaluate remediation feasibility: dry cleaning site in Thornton, CO (2007-2010); NDMA remediation at site north of Boulder (2007-2009); chromium contamination in Denver (2000-2003).