

CHRISTOPHER MARTINEAU MILLER

EDUCATION

Ph.D. in Civil and Environmental Engineering, The University of Iowa, 1995
M.S. in Civil and Environmental Engineering, The University of Iowa, 1992
B.S. in Civil and Environmental Engineering, The University of Iowa, 1990

PROFESSIONAL REGISTRATION AND CERTIFICATION

Professional Engineer (License 62882) – Ohio
Quality Matters – APPQMR (Applying the Quality Matters Rubric)

EXPERIENCE

Associate Professor

August 2001 to Present

Assistant Professor

August 1995 to August 2001

The University of Akron, Dept. of Civil Engineering

Undergraduate teaching in environmental engineering-hydraulic engineering-water resources and statics, with graduate courses in data analytics, water quality modeling and management, chemical oxidation processes, aquatic chemistry, and environmental organic chemistry. College of Engineering ABET Coordinator and former Civil Engineering ABET Coordinator. Primary research activity in drinking water projects involving water management, field sampling, data analysis, treatment plant process optimization, hydraulic modeling, water quality modeling, and regulatory compliance assistance. Recent projects also include innovative and collaborative efforts to develop comprehensive transportation maintenance management and sustainability strategies.

Chief Executive Officer and Founder

February 2012 to Present

Fontus Blue, Inc.

Fontus Blue Inc. is a trusted resource and industry leader assisting drinking water treatment plants to provide high quality water to their customers in a cost-effective manner. The Decision Blue® software platform provides advanced water quality data analysis, monitoring, and optimization of source water quality and chemical dose targets for water treatment plants to achieve desired water quality objectives. The company has interacted with more than 25 water treatment plants and impacted the water quality and health of more than 3 million individuals.

Consultant, Expert Witness, and Business Owner

October 1997 to Present

Envital Ltd.

Engineering consulting support for hydraulic-hydrologic-environmental expert witness case work, and projects for international consulting companies, private companies, and governments in New Zealand, Australia, South Korea, Netherlands, and Germany. Other experiences include polymer development for a private company, grout development for the Idaho National Environmental Engineering Laboratory, and technology evaluation for the U.S. Army.

Construction Engineer

August 1986 to February 1999

U.S. Army Reserve, 416th Engineer Support Group

Member of the Akron, Ohio engineering team responsible for environmental and facilities assessment of Reserve Center facilities in Ohio. Work also included design projects and

construction/environmental management assistance. Previous Army Reserve duty included bridge, building, and road construction projects in Indiana, Michigan, Minnesota, Honduras, Guatemala, and Panama.

HONORS AND AWARDS

- American Association of State Highway and Transportation Officials (AASHTO) High Value Research Award for “Evaluation of EPOKE Bulk Spreader for Winter Maintenance,” 2015
- College of Engineering Outstanding Teacher – University of Akron, 2003 and 2012
- Faculty Adviser to Ridgeway Award winner for the best ASCE Student Chapter in the United States (out of 281 chapters) – University of Akron, 2013.
- National Academy of Inventors - University of Akron Patent Chapter, 2011
- Wendell LaDue Civil Engineer – American Society of Civil Engineers, 2008
- The Army Commendation Medal – Department of the Army, 1998
- Raymond C. Firestone Research Initiation Fellowship - University of Akron, 1996
- The Army Achievement Medal – Department of the Army, 1995
- Neil B. Fisher Environmental Engineering Fellowship - University of Iowa, 1991

SCHOLARLY (PEER-REVIEWED) PUBLICATIONS

Journal Articles

1. Rodriguez, A. A., Monty, C. N., Miller, C. M., Cong, H., and Wujcik, E. K. (2016). Laboratory techniques for evaluating the effectiveness of salt neutralizers for the corrosion prevention of winter maintenance equipment. *Anti-Corrosion Methods and Materials*, 63(6), 499-507.
2. C. M. Miller, W. Schneider IV, M. J. Tshimanga, and P. Custer (2016). Winter Maintenance Wash-Water Heavy Metal Removal Pilot Scale Evaluation, *Journal of Chemistry*, 2:1-10.
3. Skeriotis, A. T., Sanchez, N. P., Kennedy, M., Johnstone, D. W., and Miller, C. M. (2016). Long-Term Comparison of Disinfection By-Product Formation Potential in a Full Scale Treatment Plant Utilizing a Multi-Coagulant Drinking Water Treatment Scheme. *Water*, 8(318):1-18.
4. Crow, M., Holik, W., Schneider, W., & Miller, C. (2016). Agent-based Cost Model of Inclement Ambient Weather and Transportation Maintenance Data for Budgetary Decision Making. *Procedia Computer Science*, 83:940-945.
5. Ullinger, H. L., Kennedy, M. J., Schneider IV, W. H., and Miller, C. M. (2016). Exploratory Disposal and Reuse Feasibility Analysis of Winter Maintenance Wash Water. *PloS One*, 11(2):e0149500.
6. C. Miller, Slaga, J., Kennedy, M. J., and Schneider, W. H. (2016). A Probabilistic-Based Approach to Evaluate Winter Maintenance Vehicle Wash Water Management Options. *Public Works Management & Policy*, 21(4):346-367.
7. Kennedy, M., Gandomi, A., and C. Miller (2015). “Coagulation modeling using artificial neural networks to predict both turbidity and DOM-PARAFAC component removal,” *Journal of Environmental Chemical Engineering*, 3(4):2829-2838.
8. Holik, W., Crow, M.M Crow, IV Schneider, H William, and C. Miller (2015). “The Impacts of Winter Maintenance Equipment on Vehicle Delay on Interstates,” *International Journal for Traffic and Transport Engineering*, 5(3):264-277.

9. C. Miller, W. Schneider, and M. Kennedy (2015). "Evaluation of Management Alternatives for Truck Wash Water Generated During Winter Maintenance Activities," *Public Works Management & Policy*, 20(1):80-100.
10. N. Sanchez, Skeriotis, A., and C. Miller (2014). "A PARAFAC-Based Long-Term Assessment of DOM in a Multi-Coagulant Drinking Water Treatment Scheme," *Environmental Science and Technology*, 48(3):1582-1591.
11. N. Sanchez, Skeriotis, A., and C. Miller (2013). "Assessment of Dissolved Organic Matter Fluorescence PARAFAC Components Before and After Coagulation-Filtration in a Full Scale Water Treatment Plant," *Water Research*, 47(4):1679-1690.
12. N. Sanchez, Skeriotis, A., and C. Miller (2013). "Managing Quarterly DBP Stress in Ohio," *Journal AWWA*, 105(10):28-34.
13. Johnstone, D., Miller, C., and N. Sanchez (2009). "Parallel Factor Analysis of Excitation-Emission Matrices to Assess Drinking Water DBP Formation During a Peak Formation Period," *Environmental Engineering Science*, 26(10):1551-1559.
14. Johnstone, D. and C. M. Miller (2009). "Fluorescence Excitation-Emission Matrix Regional Transformation and Chlorine Consumption to Predict THM and HAA Formation," *Environmental Engineering Science*, 26(7):1163-1170.
15. K. Hassan, K. C. Bower, and C. M. Miller (2006). "Iron Oxide Enhanced Chlorine Decay and Disinfection By-Product Formation," *ASCE Journal of Environmental Engineering*, 132(12):1609-1616.
16. K. Hassan, K. C. Bower, and C. M. Miller (2003). "Numerical Simulation of Bromate Formation during Ozonation of Aqueous Bromide," *ASCE Journal of Environmental Engineering*, 129(11):991-998.
17. K. C. Bower and C. M. Miller (2003). "Fenton's Reagent Degradation of 2,4-Dinitrotoluene in Water-Acetone Mixtures," *Environmental Engineering Science*, 21(1):65-69.
18. K. C. Bower and C. M. Miller (2002). "Filter Sand-Phosphate Buffer Effect on DNT Ozonation," *ASCE Journal of Environmental Engineering*, 128(2):131-136.
19. Kevin C. Bower, Kevin H. Gardner, C. M. Miller, and L. Kong (2001). "In-Situ Colloidal MnO₂ Deposition and Ozonation of 2,4-Dinitrotoluene," *Environmental Engineering and Science*, 18(4):259-265.
20. I. D. Sasowsky, A. Foos, and C. M. Miller (2000). "Lithic Controls on the Removal of Metals and Remediation of Acidic Mine Drainage," *Water Research*, 34(10):2742-2746.
21. C. M. Miller, S. E. Duirk, and K. H. Gardner (2000). "Chromium Leaching from Silicone Foam-Encapsulated Mixed Waste," *Environmental Science and Technology*, 34(3):455-460.
22. C. M. Miller and R. L. Valentine (1999). "Mechanistic Studies of Surface-Catalyzed H₂O₂ Decomposition and Contaminant Degradation in the Presence of Sand," *Water Research*, 33(12):2805-2816.
23. C. M. Miller, R. L. Valentine, M. Roehl, and P. J. J. Alvarez (1996). "Chemical and Microbiological Assessment of Pendimethalin Contaminated Soil after Treatment with Fenton's Reagent," *Water Research*, 30(11):2579-2586.
24. C. M. Miller and R. L. Valentine (1995). "Hydrogen Peroxide Decomposition and Quinoline Degradation in the Presence of Aquifer Material," *Water Research*, 29(10):2353-2359.
25. C. M. Miller and R. L. Valentine (1995). "Oxidation Behavior of Aqueous Contaminants in the Presence of Hydrogen Peroxide and Filter Media," *Journal of Hazardous Materials*, 41(1):106-116.

Patents

1. Sasowsky, I. D., C. M. Miller, and A. M. Foos (2006). "Method for removing metals from aqueous solutions using mixed lithic materials." U.S. Patent No. 6,984,328.
2. Miller, C. M. (2004). "Catalytic fixed bed reactor systems for the destruction of contaminants in water by hydrogen peroxide and ozone." U.S. Patent No. 6,767,472. 27.
3. C. M. Miller and R. L. Valentine (1998). "Catalytic fixed bed reactor systems for the destruction of contaminants in water by hydrogen peroxide." U.S. Patent No. 5,817,240.

Book Chapters, Conference Proceedings, and Technical Reports

1. Miller, C. M., Custer, P., Kennedy, M., and Donnelly, S. (2015). "Evaluation of the Viking-Cives Tow Plow for Winter Maintenance," No. FHWA/OH-2015/7.
2. Miller, C. M., Schneider, IV., William, H., Kennedy, M. J., and Sullivan, S. (2014). "Snow Removal Wastewater Disposal Alternatives," No. FHWA/OH-2013/16.
3. Holik, W., W. Schneider IV, C. Miller, "Winter Maintenance Asset Allocation Based on GIS Snowplow Route Optimization Model." Presented at the 93rd Transportation Research Board of the National Academies, Washington, D.C., January 2014
4. Monty, C. N., Rodriguez, A., Miller, C. M., Schneider, W., and W. Holik. (2014). "Evaluation of the Effectiveness of Salt Neutralizers for Washing Snow and Ice Equipment," No. FHWA/OH-2013/18.
5. Schneider, William, H., Miller, C. M., Holik, W., and Crow, M. (2014). "Evaluation of the Viking-Cives Tow Plow for Winter Maintenance," No. FHWA/OH-2014/16.
6. Miller, C. M., Schneider, William, H., Holik, W., and Crow, M. (2014). "Evaluation of EPOKE Bulk Spreader for Winter Maintenance," No. FHWA/OH-2013/17.
7. C. M. Miller (2009). "Field Study for Barberton Water Distribution System Model Validation and Initial Distribution System Evaluation (IDSE)," City of Barberton, Ohio.
8. C. M. Miller (2009). "Chlorine Reduction Evaluation," City of Barberton, Ohio.
9. C. M. Miller (2009). "Field Study for Norwalk Water Distribution System Model Validation and Initial Distribution System Evaluation (IDSE)," City of Norwalk, Ohio.
10. C. M. Miller (2007). "Hydraulic Analysis of Storm Water Inlets during Flood Conditions," City of Warren, Ohio.
11. C. M. Miller (2007). "Metro Parks River Flow and Hydroelectric Plant Feasibility Evaluation," Cuyahoga Falls, Ohio.
12. C. M. Miller (2006). "Barberton Coagulation and Disinfection Byproduct Reduction Assessment," City of Barberton, Ohio.
13. C. M. Miller (2005). "Tracer Study – Hydraulic and Water Quality Modeling of Barberton Water Distributions System – Task 1," City of Barberton, Ohio.
14. C. M. Miller (2003). "Development of Chlorine Decay Model and Deposit Inhibitor Study for the City of Barberton," City of Barberton, Ohio.
15. Bower, K., Timothy Mays, and C. M. Miller (2004). "Small Group, Self-Directed Problem Based Learning Development in a Traditional Engineering Program," FIE 2004 Conference Proceedings, Frontiers in Education Annual Conference, Savannah, Georgia, October 20 -23. Publisher: Stipes Publishing, LLC, Champaign, IL. ISBN: 0-7803-8552-7
16. G. G. Loomis, J. J. Jessmore, J. R. Weidner, C. M. Miller, and A. L. Sehn (2002). "Final Results Report, In Situ Grouting Technology for Application in Buried Transuranic Waste Sites - Volume 1, Technology Description and Treatability Study Results for Operable Unit 7-13/14," Idaho National Engineering and Environmental Laboratory

- report INEEL/EXT-02-00233 prepared for the U.S. Department of Energy under DOE Idaho Operations Office contract DE-ACO7-99ID13727.
17. C. M. Miller and K. C. Bower (2001). "Advanced Chemical Oxidation: Fenton's Reagent Degradation of Organic Compounds," AEESP Environmental Engineering Processes Lab Manual.
 18. K. Bower, S. E. Duirk, and C. M. Miller (2000). "Chapter 14. Development of an Enhanced Ozone-Hydrogen Peroxide Advanced Oxidation Process," Emerging Technologies in Hazardous Waste Management 8, Kluwer Academic/Plenum Publishers, pp. 167-176.
 19. S. E. Duirk, W. Butala, and C. M. Miller (2000). "Chapter 17. Encapsulation of Nitrate Salts Using Vinylmethylpolysiloxane," Emerging Technologies in Hazardous Waste Management 8, Kluwer Academic/Plenum Publishers, pp. 199-206
 20. K. Bower, S. E. Duirk, and C. M. Miller (2000). "Development of an Enhanced Ozone-Hydrogen Peroxide Advanced Oxidation Process," Emerging Technologies in Hazardous Waste Management Symposium, Boston, August 23-27, 1998, pp. 167-176.
 21. G. G. Loomis, C. M. Miller, J. A. Giansiracusa, R. Kimmel, and S. V. Prewett (2000). "Silicone-Polymer Encapsulation of High-Level Calcine Waste for Transportation or Disposal," Idaho National Engineering and Environmental Laboratory report INEEL/EXT-99-01163 prepared for the U.S. Department of Energy under DOE Idaho Operations Office contract DE-ACO7-99ID13727.
 22. G. G. Loomis, C. M. Miller, and R. Kimmel (2000). "Silicone-Polymer Encapsulation of High-Level Calcine Waste for Transportation or Disposal" Proceedings of Waste Management '00 Conference, Tucson, Arizona.
 23. G. G. Loomis, C. M. Miller, and S. W. Prewett (1999). "Mixed Waste Salt Encapsulation Using Polysiloxane" Proceedings of Waste Management '99 Conference, Tucson, Arizona.
 24. G. G. Loomis, C. M. Miller, and S. W. Prewett (1999). "Mixed Waste Salt Encapsulation Using Polysiloxane" Proceedings of Waste Management '98 Conference, Tucson, Arizona.
 25. G. G. Loomis, S. Prewett, and C. M. Miller (1999). "Stabilize High Salt Content Waste Using Polysiloxane Stabilization," Innovative Technology Summary Report (DOE/EM-0474) demonstrated at the Idaho National Engineering and Environmental Laboratory (Idaho Falls, Idaho) and prepared for the U.S. Department of Energy under DOE Idaho Operations Office contract DE-ACO7-94ID13223.
 26. G. G. Loomis and C. M. Miller (1998). "Polysiloxane Encapsulation of the Low-Level Fraction of Calcined Mixed Waste at INETC," Idaho National Engineering and Environmental Laboratory report INEEL/EXT-98-01173 prepared for the U.S. Department of Energy under DOE Idaho Operations Office contract DE-ACO7-94ID13223.
 27. C. M. Miller and C. Ries (1998). "Destruction of Dinitrotoluene in Water and Acetone Mixtures Using Fenton's Reagent," Book of Abstracts, 216th ACS National Meeting, Boston, August 23-27, I&EC-119. Publisher: American Chemical Society, Washington, D. C.
 28. G. G. Loomis and C. M. Miller (1997). "Mixed Waste Salt Encapsulation Using Polysiloxane – Final Report," Idaho National Engineering and Environmental Laboratory report INEEL/EXT-97-01234 prepared for the U.S. Department of Energy under DOE Idaho Operations Office contract DE-ACO7-94ID13223.

29. G. G. Loomis and C. M. Miller (1997). "Test Plan: Salt Encapsulation Using Polysiloxane," Idaho National Engineering and Environmental Laboratory report INEEL/EXT-97-00703 prepared for the U.S. Department of Energy under DOE Idaho Operations Office contract DE-ACO7-94ID13223.
30. T. J. Cutright and C. M. Miller (1997). "Summarizing In-Situ Remediation of Contaminants in the Vadose Zone," in the Air and Waste Management Association Newsletter.
31. J. Hartong and C. M. Miller (1997). "Degradation of TCE with Hydrogen Peroxide in the Presence of Iron-Coated Sand," in Chemical Oxidation: Technologies for the Nineties, Eds. John Roth and Alan R. Bowers, Technomic Publishing Co.
32. C. M. Miller and R. L. Valentine (1996). "Role of Superoxide Anion in Contaminant Degradation by Hydrogen Peroxide in The Presence of Aquifer Material," Book of Abstracts, 212th ACS National Meeting, Orlando, FL, August 25-29, ENVR-101. Publisher: American Chemical Society, Washington, D. C.
33. C. M. Miller, J. Lee, and C. Bores (1996). "Hydrogen Peroxide Reactivity and Degradation Capacity in the Presence of Subsurface Materials and Sediments," Proceedings of the 28th American Chemical Society Central Regional Meeting Division of Environmental Chemistry, Dayton, Ohio.
34. C. M. Miller and R. L. Valentine (1995). "Comparison of Recycle Flow and Batch Reactor Contaminant Oxidation Kinetics Utilizing Hydrogen Peroxide and Aquifer Material," American Institute of Chemical Engineers National Meeting, Miami, Florida, November 1995.
35. C. M. Miller, T. I. Yoon, and R. L. Valentine (1995). "Degradation of Phenol and Quinoline by Hydrogen Peroxide in the Presence of Magnetite and Hematite," Proceedings of the 209th American Chemical Society Spring National Meeting Division of Environmental Chemistry, Anaheim, California, pp. 59-64.
36. C. M. Miller, R. L. Valentine, J. L. Stacy, M. Roehl, and P. J. J. Alvarez (1995). "Chemical Oxidation and Toxicity Reduction of Pesticide Contaminated Soils" in Bioremediation of Recalcitrant Organics, Eds. R. E. Hinchee, R. E. Hoeppe, and D. B. Anderson, Battelle Press, pp. 175-181.
37. C. M. Miller and R. L. Valentine (1995). "Granular Media Surface Catalyzed Hydrogen Peroxide Decomposition and Oxidation of Selected Organics" in Chemical Oxidation: Technologies for the Nineties, Eds. John Roth and Alan R. Bowers, Technomic Publishing Co., pp. 80-90.
38. C. M. Miller and R. L. Valentine (1993). "Kinetics of Quinoline Degradation by Hydrogen Peroxide in the Presence of Aquifer Material," Proceedings of the 205th American Chemical Society Spring National Meeting Division of Environmental Chemistry, Denver, Colorado, pp. 32-34

PRESENTATIONS (ORAL and POSTER)

1. ASDWA invited seminar, December 3, 2018
2. Water Infrastructure Conference, Atlanta, October 29, 2018
3. "Outperform Regulatory Compliance to Produce Exceptional Water", Akron Global Water Alliance in Akron, OH, May 31-June 1, 2018.
4. "Virtual Jar Testing as an Alternative to Conventional Jar Testing", Northeast Ohio District American Water Works Association (AWWA), Niles, Ohio, May 3, 2018.

5. "Monitoring Treated Water Fluorescence Metrics to Model Distribution System Water Quality," American Water Works Association Annual Conference and Exposition (ACE¹⁷), Philadelphia, Pennsylvania, June 11-14, 2017.
6. "Data Analytics and Water Treatment Process Optimization", Akron Global Water Alliance in Akron, OH, May 31-June 1, 2017.
7. "Data Analytics and Water Treatment Process Optimization," 55th Annual Water Workshop for OTCO, Columbus, OH, March 7-8, 2017.
8. "Exceptional Drinking Water for Everyone, Everywhere," Inclusive Innovation 4 Many @ The Bottom of the Pyramid Symposium, Akron, OH, November 30, 2016.
9. PAX seminar in Akron, 2016.
10. PAX seminar in Pittsburgh, 2016
11. "Small System Water Training: Achieving Compliance with the SDWA," AWWA Workshop, Columbus, OH, August 11, 2015.
12. "Managing Multiple Water Quality Challenges and Objectives Using Conventional Water Treatment Processes," Workshop for Solano Irrigation District, CA, June 7, 2015.
13. "Water Treatment Tools To Aid Process Optimization During an Algal Bloom," Workshop for Drinking Water Treatment Challenges Associated with Cyanobacteria In Clear Lake, CA, June 18, 2015.
14. "Full-Scale Water Treatment Process Operations Evaluation for Harmful Algal Bloom Management," US Algal Toxin Conference 2015 and the Akron Global Water Alliance, Akron, OH, April 29-30, 2015.
15. "Evaluation of Box Culvert Maintenance Methods," ODOT-FHWA Final Project Presentation, Columbus, OH, January 27, 2015.
16. "Bridging the Gap from Water Plant Data Collection and Data Analytics to Operational Decision Support for Harmful Algal Blooms," Ohio WEA-AWWA Technical Conference and Expo, Columbus, OH, August 28, 2014.
17. "Wash Water Quality Characterization from Transportation Maintenance Facilities in Ohio During Winter Operations," Ohio WEA-AWWA Technical Conference and Expo, Columbus, OH, August 28, 2014.
18. "Water Plant Fluorescence Data Analytics for Coagulation Operational Decision Support," American Chemical Society Annual Meeting, San Francisco, CA, August 13, 2014.
19. "Managing Wastes from a Non-Traditional MS4," Ohio Stormwater Conference, Akron, OH, June 6, 2014.
20. "Salt Neutralizers for Washing Snow and Ice Equipment," 9th Annual Snow and Ice Technologies Conference, Solon, OH, May 15, 2014.
21. "Evaluation of the Effectiveness of Salt Neutralizers for Washing Snow and Ice Equipment," ODOT-FHWA Final Project Presentation, Columbus, OH, February 2, 2014.
22. "Employing Fluorescence Spectroscopy In Water Plants To Manage Disinfection By-Products While Optimizing Treatment Processes," American Water Works Association Water Quality Technology Conference and Exposition (WQTC), Long Beach, California, November 3-7, 2013.
23. "Using Fluorescence Spectroscopy as Part of an Overall Strategy to Monitor and Manage Water Treatment Plant Operations," Ohio EPA Northeast District Office, Twinsburg, Ohio, October 30, 2013.
24. "The Growing Role and Importance of District Research Projects at ODOT," Ohio Transportation Engineering Conference, Columbus, Ohio, October 22, 2013.

25. "Procedures for Waste Management from Street Sweeping and Stormwater Systems," Ohio Transportation Engineering Conference, Columbus, Ohio, October 22, 2013.
26. "Akron Distribution Water Quality Monitoring," American Water Works Association Northeast District Meeting Ohio Section, Akron, Ohio, October 17, 2013.
27. "Comprehensive Full Scale Coagulation Assessment Using Fluorescence Spectroscopy and Parallel Factor Analysis," American Water Works Association Water Quality Technology Conference and Exposition (WQTC), Toronto, Ontario, Canada, November 4-8, 2012.
28. "Monitoring and Modifying Water Treatment Plant Operations to Manage Disinfection Byproduct Formation in the Distribution System", American Water Works Association Annual Conference and Exposition (ACE¹²), Dallas, Texas, June 10-14, 2012.
29. "Distribution System Flushing Practice Assessment Utilizing Real Time Trihalomethane (THM) and Chlorine Residual Measurements", American Water Works Association Water Quality Technology Conference and Exposition (WQTC), Phoenix, Arizona, November 13-17, 2011.
30. "Use of IDSE and Chlorine Monitoring Data to Predict Chlorine Decay and Trihalomethane Formation", American Water Works Association Annual Conference and Exposition (ACE¹¹), Washington, D.C., June 12-16, 2011.
31. "Fluorescence Spectroscopy as a Tool for the Characterization of Natural Organic Matter and the Control and Optimization of Drinking Water Treatment Processes", American Institute of Chemical Engineers (AIChE), Annual Meeting, Minneapolis, Minnesota, October 16-21, 2011.
32. "New Methods for Source Water Management and Treatment Process Monitoring", Northeast Ohio District American Water Works Association, Canton, Ohio, August 26, 2010.
33. "Source Water Management and Treatment Process Monitoring", Northwest Ohio District American Water Works Association, Norwalk, Ohio, April 22, 2010.
34. "Integrated Watershed Management of Drinking Water Sources", Middle Cuyahoga River Watershed Group Seminar, Kent, Ohio, December 11, 2009.
35. "Normal Plant and Distribution Operation – Unexpected DBP Results", Ohio AWWA Water Distribution Seminar, Columbus, Ohio, July 7, 2009.
36. "Examination of DBP Speciation after Coagulation during a Peak Formation Period", 4th Annual Conference on Undergraduate and Graduate Student Research, March 26, 2009.
37. "PARAFAC Modeling of Fluorescence Excitation-Emission Matrices to Quantify Chlorine Reactivity with Dissolved Organic Matter", 3rd Annual Conference on Undergraduate and Graduate Student Research, March 27, 2008.
38. "In-Situ Chemical Oxidation with Colloidal-Metal Oxides," Poster presentation at Third International Conference on Remediation of Chlorinated and Recalcitrant Compounds, Monterey, California, May 20-23, 2002.
39. "Metal Oxide-Coated Sand-Catalyzed Ozonation of 2,4-Dinitrotoluene," Poster presentation at Second International Conference on Remediation of Chlorinated and Recalcitrant Compounds, Monterey, California, May 22-25, 2000.
40. "Placement of a Colloidal-Catalyst In Situ Reactive Treatment Wall," Second International Conference on Remediation of Chlorinated and Recalcitrant Compounds, Monterey, California May 22-25, 2000 (with Gardner, K.H. and L. Kong).
41. "Development of Small Group, Self-Directed Problem Based Learning," Oral presentation at Teaching Excellence Grant Spotlight Conference, Akron, Ohio, April 2000.

42. "Catalytic Ozonation of 2,4-Dinitrotoluene in the Presence of Sand Supported Transition Metal Oxides," Oral presentation at University of Alabama-Birmingham Civil and Engineering Seminar, Birmingham, Alabama, April, 2000.
43. "Catalytic Ozonation of 2,4-Dinitrotoluene in the Presence of Sand Supported Transition Metal Oxides," Oral presentation at University of Iowa Civil and Environmental Engineering Seminar, Iowa City, Iowa, February, 2000.
44. "Silicone-Polymer Encapsulation of High-Level Calcine Waste for Transportation or Disposal," Oral presentation to Idaho National Engineering and Environmental Laboratory, Idaho Falls, Idaho, February 2000.
45. "Polymer Encapsulation Technology Applications in Korea," Oral presentation to Korea Power Engineering Company, Seoul, Korea, January 2000.
46. "Polymer Encapsulation Technology Projects in the United States," Oral presentation to Korea Electric Power Company Nuclear Environment Technology Institute, Taejon, Korea, January 2000.
47. "Advanced Chemical Oxidation of Recalcitrant Organics in Groundwater Systems," Oral presentation at Case Western Reserve University Civil Engineering Seminar, Cleveland, Ohio, February 1999.
48. "Polysiloxane Encapsulation of Low-Level Waste Solids for Disposal," Oral presentation at 19th U.S. Department of Energy Low-Level Radioactive Waste Management Conference, Salt Lake City, Utah, November 1998.
49. "Encapsulation of Nitrate Salt Waste Using Polysiloxane," Oral presentation at American Chemical Society 214th National Meeting Division of Industrial and Engineering Chemistry, Boston, Massachusetts, August 1998.
50. "Development of an Enhanced Ozone-Hydrogen Peroxide Advanced Oxidation Process," Oral presentation at American Chemical Society 214th National Meeting Division of Industrial and Engineering Chemistry, Boston, Massachusetts, August 1998.
51. "Destruction of Dinitrotoluene in Water and Acetone Mixtures Using Fenton's Reagent," Oral presentation at American Chemical Society 214th National Meeting Division of Industrial and Engineering Chemistry, Boston, Massachusetts, August 1998.
52. "Sand-Catalyzed Hydrogen Peroxide Oxidation and Biodegradation of 2,4-Dichlorophenol," Poster presentation at International Conference on Remediation of Chlorinated and Recalcitrant Compounds, Monterey, California, May 1998.
53. "Role of Superoxide Anion In Contaminant Degradation By Hydrogen Peroxide In The Presence of Aquifer Material," Poster presentation at American Chemical Society 212th National Meeting Division of Environmental Chemistry, Orlando, Florida, August 1996.
54. "Hydrogen Peroxide Reactivity and Degradation Capacity in the Presence of Subsurface Materials and Sediments," Oral presentation at American Chemical Society 28th Central Regional Meeting Division of Environmental Chemistry, Dayton, Ohio, June 1996.
55. "Comparison of Recycle Flow and Batch Reactor Contaminant Oxidation Kinetics Utilizing Hydrogen Peroxide and Aquifer Material," Oral presentation at American Institute of Chemical Engineers National Meeting, Miami, Florida, November 1995.
56. "Chemical Oxidation and Toxicity Reduction of Pesticide Contaminated Soils Found at Agrochemical Dealer Sites," Oral presentation at In Situ and On-Site Bioreclamation International Conference sponsored by Battelle, San Diego, California, April 1995.

FUNDED RESEARCH (PI and project funding >\$15K)

1. I-Corps Ohio, \$15,000.

2. "Akron Water Supply Watershed Monitoring and Treatment Process Optimization for Managing Harmful Algal Blooms and Disinfection By-Product Compliance Assistance," City of Akron, Ohio, February 2017, \$89,000.
3. "Akron Water Supply Watershed Monitoring and Treatment Process Optimization for Managing Harmful Algal Blooms and Disinfection By-Product Compliance Assistance," City of Akron, Ohio, February 2016, \$89,000.
4. "Akron Water Supply Watershed Monitoring and Treatment Process Optimization for Managing Harmful Algal Blooms and Disinfection By-Product Compliance Assistance," City of Akron, Ohio, February 2015, \$89,000.
5. "Implementation and Analysis of Snow Removal Wash Water Reuse," Federal Highway Administration and Ohio Department of Transportation, July 2014, \$59,685.
6. "Evaluation of Cost Effective Protective Coatings for ODOT Snow & Ice Equipment," Federal Highway Administration and Ohio Department of Transportation, July 2014, \$210,805.
7. "Akron Water Supply Watershed Monitoring and Treatment Process Optimization for Managing Harmful Algal Blooms and Disinfection By-Product Compliance Assistance," City of Akron, Ohio, February 2014, \$89,000.
8. "Evaluation of Box Culvert Maintenance Methods," Federal Highway Administration and Ohio Department of Transportation, September 2013, \$229,339.
9. "Akron Drinking Water Treatment Process Optimization and Disinfection By-Product Compliance Assistance," City of Akron, Ohio, February 2013, \$60,000.
10. "Evaluation of the GPS/AVL Systems for Snow and Ice Operations Resource Management," Federal Highway Administration and Ohio Department of Transportation, November 2012, \$1,196,613.
11. "Procedures for Waste Management from Street Sweeping and Stormwater Systems," Federal Highway Administration and Ohio Department of Transportation, October 2012, \$380,258.
12. "Evaluation of the Effectiveness of Salt Neutralizers for Washing Snow and Ice Equipment," Federal Highway Administration and Ohio Department of Transportation," October 2012, \$213,747.
13. "Evaluation of the Viking-Cives® Tow Plow for Winter Maintenance," Federal Highway Administration and Ohio Department of Transportation, August 2012, \$453,653.
14. "Akron Drinking Water Treatment Process Optimization and Disinfection By-Product Compliance Assistance," City of Akron, Ohio, April 2012, \$47,500.
15. "Integrating Engineering Design Challenges into Science Curriculum," Ohio Board of Regents Improving Teacher Quality (ITQ) State Grants Program, January 2012, \$84,150.
16. "Evaluation of Epoke© Bulk Spreader for Winter Maintenance," Federal Highway Administration and Ohio Department of Transportation, December 2011, \$327,438.
17. "Snow Removal Wastewater Disposal Alternatives," Federal Highway Administration and Ohio Department of Transportation, September 2011, \$298,240.
18. "Barberton Reservoir Water Quality Profiling and Drinking Water Source-Treatment Process Monitoring," City of Barberton, Ohio, November 2010, \$21,000.
19. "Lake Rockwell Water Quality Profiling-Monitoring and Water Treatment Process Monitoring," City of Akron, Ohio, November 2010, \$29,000.
20. "Drinking Water Plant and Distribution System Monitoring-Assessment Using Parker-Hannifin Analyzer," Parker-Hannifin Corporation, September 2010, \$40,000.

21. "Drinking Water Issues as a Context for Problem-Based Science Instruction," Ohio Board of Regents Improving Teacher Quality (ITQ) State Grants Program, January 2010, \$88,863.
22. "Drinking Water Issues as a Context for Problem-Based Science Instruction," Ohio Board of Regents Improving Teacher Quality (ITQ) State Grants Program, February 2009, \$121,280.
23. "Field Study for Norwalk Distribution System Model Validation and Initial Distribution System Evaluation," City of Norwalk, Ohio, August 2006, \$24,500.
24. "Barberton Coagulation and Disinfection Byproduct Reduction Assessment," City of Barberton, Ohio, May 2005, \$22,910.
25. "Development of Chlorine Decay Model and Deposit Inhibitor Study for the City of Barberton," City of Barberton, Ohio, July 2002, \$20,780.
26. "The Role of Chemical Interferences in Grouting of Contaminated Soils," Orbit Technologies Inc. as a sub-grant from The Department of Energy (Contract #DE-ACO7-94ID13223), July 2000, \$106,655.
27. "Silicone Foam Encapsulation of Calcined Waste," Orbit Technologies Inc. as a sub-grant from The Department of Energy (Contract #DE-ACO7-94ID13223), June 1999, \$36,755.
28. "Development of Quality Model for Canton Water Distribution System," City of Canton Water Department, November 1997, \$122,000.
29. "Use of Ceramic Silicone Foam (CSF) to Stabilize Nitrate Salt Wastes," Orbit Technologies Inc. as a sub-grant from The Department of Energy (Contract #DE-ACO7-94ID13223), May 1997, \$34,000.
30. OBR/Research Challenge Matching Grant to DOE Award R4238, July 2000, \$20,000.
31. "Post-Doctoral Position for the Microscale Physiochemical Engineering Center," The University of Akron, College of Engineering, December 1999, \$64,000.

FUNDED RESEARCH - OTHER (<\$15K)

1. Corrosion Academy, University of Akron, 2014.
2. "Newton Falls Drinking Water Treatment Process Optimization and Disinfection By-Product Compliance Assistance," City of Newton Falls, Ohio, April 2012.
3. "Ravenna Drinking Water Treatment Process Optimization and Disinfection By-Product Compliance Assistance," City of Ravenna, Ohio, March 2012.
4. "Newton Falls Drinking Water Source-Treatment Process Monitoring," City of Newton Falls, OH, November 2010.
5. "Ravenna Water Treatment Plant (WTP) Rapid Sand Filter Carbon Cap Testing," CT Consultants, Mentor, Ohio, September 2010.
6. "Aqueous Phase Exchange Capacity and Selectivity Evaluation for E3 Materials LLC Solid Capture Materials," E3 Materials LLC, May 2010.
7. "Evaluation of E3 Materials LLC Solid Capture Materials," E3 Materials LLC, May 2010.
8. "Aqueous Phase Exchange Capacity Evaluation for E3 Materials LLC Solid Capture Materials," E3 Materials LLC, January 2010.
9. "Drinking Water Source Characterization and Disinfection Byproduct Formation Modeling Using Land Use and Stream Reach Ecological Properties," Integrated Bioscience Grant Program, University of Akron, Akron, Ohio, August 2008.
10. "Water Distribution System Model Update and Initial Distribution System Evaluation," City of Barberton, Ohio, November 2007.

11. "Disinfection Byproduct Analytical Method Development," Parker Hannifin Corporation, August 2007.
12. "Ravenna Drinking Water Source and Treatment Process Monitoring," City of Ravenna, Ohio, July 2009.
13. "Norwalk Drinking Water Source and Treatment Process Monitoring," City of Norwalk, Ohio, June 2009.
14. "Barberton Chlorine Reduction," City of Barberton, Ohio, August 2006.
15. "Tracer Study – Hydraulic and Water Quality Modeling of Barberton Water Distributions System – Task 1," City of Barberton, Ohio, September 2003.
16. "Tracer Study – Hydraulic and Water Quality Modeling of Barberton Water Distributions System – Task 2," City of Barberton, Ohio, September 2003.
17. "Fenton Reagent Treatment of Organic Solids," Technology Visions Group Inc., June 2001.
18. "Inorganic Binder Research," Technology Visions Group Inc. Australasia Limited, January 2001.
19. "Use of Ceramic Silicone Foam (CSF) to Stabilize Calcine Waste," Orbit Technologies Inc. as a sub-grant from The Department of Energy (Contract #DE-ACO7-94ID13223), August 1998.
20. "Waste Stabilization," Orbit Technologies Inc. Unrestricted Research Support, July 1998.
21. "Field Erosion and Sediment Control," Summit County Unrestricted Research Support, June 1998.
22. "Waste Encapsulation," Krystal Bond Ohio Inc. Unrestricted Research Support, February 1998.
23. "Ozone-H₂O₂-Sand Technology," GPD Associates Inc. Unrestricted Research Support, September 1997.
24. "Use of Ceramic Silicone Foam (CSF) to Stabilize Mixed Wastes," Orbit Technologies Inc. Unrestricted Research Support, September 1997.
25. "TCE Groundwater Treatability and Modeling Study for the Kings Mills Ohio Army Reserve Center," United States Army 88th Regional Support Command Unrestricted Research Support, June 1996.
26. "Aerobic Phthalate Biodegradation in Soil and Groundwater," Environmental Mitigation Group, Inc., Akron, Ohio, Unrestricted Research Support, June 1997.
27. Soil Remediation and Water Quality Evaluation Using Microtox," Microbics Corporation Education/Research and Development Grant, April 1996.
28. "Chlorine Disinfection Byproduct Formation in Drinking Water Distribution Systems," The University of Akron, Faculty Research Grant Program, June 2004.
29. "Development of Small Group, Self-Directed Problem-Based Learning (SGSD-PBL) in Engineering at the University of Akron," The University of Akron, Teaching Academy Summer Grant, June 1999.
30. OBR/Research Challenge Matching Grant to DOE Award R4747, August 1998.
31. "Development of an Enhanced Ozone-Hydrogen Peroxide Advanced Oxidation Process," The University of Akron, Faculty Research Grant Program, February 1998.
32. OBR/Research Challenge Matching Grant to DOE Award R4238, July 1997.
33. "Degradation of Chlorinated Contaminants in the Presence of Chelating Agents and Hydrogen Peroxide," The University of Akron, College of Engineering, Raymond C. Firestone Research Initiation Fellowship, May 1996.

34. "Hydrogen Peroxide Reactivity and Degradation Capacity In The Presence of Subsurface Materials and Sediments," The University of Akron, Faculty Research Grant Program, November 1995.
35. "Government and Private Agency Involvement to Enhance Engineering Design Curriculum," The University of Akron, Educational Research and Development Center Faculty Grant Program, November 1995.
36. "Destruction of Energetics in Acetone-Water Mixtures Using a Novel Sand Reactor and Sonochemical Reactor," (submitted with G. G. Chase, U. of Akron), The University of Akron, College of Engineering Internal Grant, April 1996.

STUDENT ADVISING

- 6 Ph.D. Dissertations Advised (two are faculty members in civil engineering departments with one an Associate Provost and former Department Head)
- 18 M.S. Thesis Advised
- 12 M.S. Engineering Reports Advised
- 15 Undergraduate Honor's Research Projects Advised

Current Advising:

3 Ph.D. (2 expected to graduate in 2019) and 2 M.S. Theses (2 expected to graduate in 2019)

PROFESSIONAL MEMBERSHIP

American Water Works Association (AWWA), Member
National Academy of Inventors (NAI), Member

PROFESSIONAL AND COMMUNITY SERVICE

- *Ohio Northern University Working Group* – Member of group that advises the Department of Civil Engineering regarding their program development and assessment.
- *American Society of Civil Engineers Akron-Canton Section Officer* – Treasurer, Secretary, Vice-President, President, and Past President, September 2004 to 2011.
- *American Society of Civil Engineers National Committee on Student Activities* – Faculty representative for Region 3, 2005 to 2007.
- *Akron Global Water Alliance (AGWA)* - Individual lead academic and partner to assist in the formation (more than 4 years of meetings and international travel) and establishment in 2014. AGWA initiates, implements and commercializes the top water systems and technologies from across the U.S. and the world by forming and developing mutually beneficial partnerships on a local, national and international level. AGWA is also a nationally recognized water cluster, has already hosted (2014-2018) four technical conferences with over 200 attendees, and several international project collaborations. I was an organizer, presenter, and moderator at both conferences. Board member from October 2018 to present.
- *Tinkers Creek Watershed Board* – Board member from August 2011 to 2016.
- *National Science Foundation (NSF) Panel Review* - Innovative Technologies for the Environment solicitation and many others.
- *Akron Incubator Advisory Board and Technology Committee Member* – Small business organization to develop fledgling companies, particularly those in the technology sector. Activities include business-incubator agreements, funding opportunities for small business, and hosting technical, and business development seminars (1998-2000).

- *Ohio AWWA/WEF Student Activities Committee Member* – Committee responsible for student organizations and activities at Ohio Universities involving American Water Works and Water Environment Foundation sponsorship (1998-2000).
- *Paper Reviewer* – Reviewer for the following Journals: Water Research, Environmental Science and Technology, Environmental Engineering Science, and others.
- *Book Reviewer* – Reviewer for Oxford Press (multiple reviews) and Prentice-Hall (now Pearson).

UNIVERSITY SERVICE

ABET (Engineering Accreditation) Coordinator	2006-2018
Civil Engineering	2006-2011
College of Engineering (Lead for All Programs)	2011-2015, 2017-2018
Undergraduate Committee, Department of Civil Engineering	1995-Present
Chair	2007-2011
Honor's College Advisor, Department of Civil Engineering	2009-2011
Faculty Senate, University of Akron	2010-2012
Radiation Safety Committee, University of Akron	2007-Present
Chair	2008-Present
Zip to Engineering	2013-2017
Civil Engineering Department - Statics course lead	2013-2017
College of Engineering (Lead for All Programs)	2015-2017
Higher Learning Commission	2013-2016
University Assessment Committee	2017-2018
Graduate Committee, Department of Civil Engineering	1997-1999, 2000-2006
Library Committee, College of Engineering	1995-1997
Hearing Board Pool, College of Engineering	2001-2010
Dean Search Committee, College of Engineering	2017
Biomimicry Research and Innovation Center, UA	2017-Present
Principal Investigator	2017-Present

- *Engineers Without Borders (EWB) Faculty Advisor 2009 to 2011* – Student chapter organized to promote engineering projects that benefit and support basic human needs such as clean water and power.
- *ASCE Student Chapter Co-Advisor 1999-2000, Faculty Advisor 2001 to 2013* – Student chapter organized to promote the Civil Engineering profession, host student regional competitions, and coordinate meetings with the local parent chapter. The chapter won the Ridgeway Award in 2013 for the best student chapter in the United States.
- *ASCE Graduate Student Chapter Faculty Advisor 2006 to 2010* – Student chapter organized to promote the Civil Engineering profession, host student regional competitions, and coordinate meetings with the local parent chapter.
- *Sigma Xi Scientific National Research Society, University of Akron Chapter Vice-Chair Fall 2000 to 2002* – Scientific research society dedicated to quality research endeavors.
- *Microscale Physiochemical Engineering Center (MPEC) Director Fall 1998 to Fall 2001* – Research center organized to perform collaborative research and enhance technology transfer between industry and the University. Activities also include offering continuing education courses (starting in Spring 2000) and hosting technical meetings.
- *Microscale Physiochemical Engineering Center (MPEC) Director Fall 2005 to Fall 2007* – Research center organized to perform collaborative research and enhance technology

transfer between industry and the University. Activities also include offering continuing education courses.