

Jason A. Heberling, Ph. D., P. G.

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Education:

- **The University of Alabama at Birmingham.** Ph.D. in Civil Engineering, 2014.
- **The University of Alabama at Birmingham.** Master of Science in Civil Engineering, 2003.
- **The University of Alabama.** Bachelors Geology, 1993.

Experience:

- ***Owner, Heberling Environmental Consulting (HEC); Birmingham, Alabama.***

Worked directly with private, academic, and government agencies on several environmental projects. Assisted municipalities, businesses, and individuals who have been negatively affected by another party's intentional or negligent polluting activities. Organized and participated in international workshops on civil and environmental engineering topics.

- ***Volunteer Scholar, University of Alabama at Birmingham Civil Engineering Department, Birmingham, Alabama; 2015 – Present.***

Assisted faculty in writing grants and securing research funding. Wrote and edited technical papers with faculty members as authors and co-authors. Critiqued and edited graduate students' theses and other written work. Participated and assisted in the organization of international workshops sponsored by the University. Wrote white papers and presented research on behalf of the University. Performed literature searches and reviews for university faculty.

- ***Geologist, PRE, Inc., Birmingham, Alabama; 2015 – 2017.***

Managed environmental remediation and risk assessment projects including: stormwater pollution prevention plans, NPDES monitoring and sampling, preliminary and secondary investigations of underground storage tank (UST) sites, corrective action plans, best management practices, UST removal and closure assessments, monitoring reports, and risk-based corrective action plans. Performed soil and groundwater sampling and analysis. Designed and supervised implementation of remediation systems. Supervised drill crews.

- **Engineer**, *Birmingham Water Works Board (BWVB), Birmingham, Alabama; 2003 – 2012.*

Was responsible for projects related to water quality and source water protection. These activities included source water monitoring for constituents detrimental to water quality, algae identification and control, invasive species monitoring, and limiting industrial, mining, and agricultural threats to the watershed. Additional duties included writing standard procedures and manuals for operations and activity throughout the water works. Developed business process maps. Performed research with corrosion inhibitor selection, tank mixing, and investigation of alternative filter media, disinfectants, and coagulants. Wrote trench safety manual/procedures and the BWVB Source Water Management Plan. Trained staff and taught classes in proper sampling techniques. Directly involved in writing backflow manual and procedures. Directly involved with Water Research Foundation Projects including *GAC Biofilters in Retrofit Applications: An Approach for Cost Effective Regulatory Compliance*. Worked with the University of Alabama, University of Alabama at Birmingham, University of Colorado and the University of Alabama in Huntsville on water quality projects. Produced customer relations benchmarking study involving over fifteen utilities. Assisted in Ph. D. and Masters projects supported by the BWVB. Designed the BWVB Cahaba River Pumping Station Ecoscape.

- **Geologist**, *PRE, Inc., Birmingham, Alabama; 2001 – 2003.*

Managed environmental remediation and risk assessment projects, including, Phase I and Phase II Environmental Site Assessments, storm water pollution prevention plans, NPDES monitoring and sampling, preliminary and secondary investigations of underground storage tank (UST) sites, corrective action plans, best management practices, UST removal and closure assessments, brownfields assessment, and risk-based corrective action plans. Performed soil and groundwater sampling and analysis. Supervised drill crews.

- **Laboratory Manager**, *Law Engineering. Birmingham, Alabama; 2000 – 2001.*

Managed asbestos laboratory. Identified asbestos in various media using polarized light microscopy. Performed field surveys and sampling of materials containing asbestos.

- **Geologist**, *CTE, Inc., Montgomery, Alabama, 1999 – 2000.*

Managed UST removal, contaminated site remediation, and geotechnical projects. Supervised drilling crews. Responsible for all projects involving the Alabama Department of Environmental Management (ADEM) and ADEM compliance.

- **Lab/Field Technician**, *TTL, Inc. Tuscaloosa, Alabama; 1997 – 1999.*

Sampled drinking water, for bacteriological and chemical parameters, for over one hundred customers throughout the state of Alabama. Performed stormwater, drinking water, and air quality sampling. Performed biotoxicity and landfill compliance testing. Installed and sampled monitoring wells.

Additional Experience

- **Field Geologist**, *Auburn University, Auburn, Alabama.*

Mapped counties north of Auburn, Alabama for a mining firm involved in gold exploration. Collected panned samples for analysis.

- **Field Geologist**, *City of Huntsville, Huntsville, Alabama.*

Mapped terrain of mountains surrounding the city to collect data related to landslide potential.

- **Geologist**, *University of Alabama, Tuscaloosa, Alabama.*

Performed core logging associated with oil exploration. Prepared and mounted thin sections. Analyzed thin sections with polarized light microscope.

- **Geologist/Engineering Technician**, *Metfuel, Tuscaloosa Alabama.*

Performed core logging associated with oil and natural gas exploration.

- **Engineering Intern**, *Gold Fields of South Africa, Johannesburg, South Africa.*

Trained in several aspects of a major gold mining operation in South Africa including hydroelectric power generation, mine geology, ore production, equipment selection, mining economics, and metallurgical processes.

Additional Skills:

National Voluntary Laboratory Accreditation Program (NVLAP) certified microscopist. Versed in: Microstation, Autocad, SigmaPlot, Systat, Visio, and additional software. Trained in use of several dozen types of field and desktop analytical meters. Trained in arc flash safety. Completed CPN International training course on Radiation Safety and Use of Nuclear Gauges.

Published Work (Primary Author):

Heberling, J. and Peters, R. W. (2019). Statistical Comparison of Lead Residuals in Chlorinated and Chloraminated Drinking Water Treated with a Corrosion Inhibitor: Birmingham Water Works Board (BWVB) Flow-through Study. Publication Pending.

Heberling, J., Adewuyi, Y., Mahmoud, A. S., Mostafa, M. and Peters, R. W. (2018). AOP Performance at Wastewater Treatment Plants. 2018 AIChE Annual Meeting. Pittsburgh, Pennsylvania; October 28 - November 2, 2018.

- Heberling, J. (2017). *Cyanobacteria: Omics and Manipulation*. (Book Review). *Environmental Progress*. 36 (4): 980.
- Heberling, J. and Peters, R. W. (2017). Low Cost, Innovative Approaches to Improving Water Quality in Reservoirs Located in Arid or Drought Prone Regions. National Science Foundation (NSF) Sustainable Smart Cities International Workshop. Alexandria, Egypt; May 9-11, 2017.
- Heberling, J. and Peters, R. W. (2016). An Overview of Environmental Threats to the Nile River in Egypt: White Paper. NSF International Workshop - Sustainable Infrastructure in Egypt: Air and Water (jointly organized by the University of Alabama at Birmingham, Housing and Building National Research Center [HBRC], and Alexandria University). Cairo, Egypt, May, 11th, 2016; Alexandria, Egypt, May 14th, 2016.
- Heberling, J. (2014). *Chloramination and Corrosion: Case Studies, Utility Experience, and Statistical Comparisons with Chlorination*. (Doctoral dissertation). University of Alabama at Birmingham and University of Alabama in Huntsville.
- Heberling, J. and Barron, P. (2012). Measuring Metal Release and Biological Activity in Decades Old Cast Iron Pipes Subjected to a Disinfection Change. *Urban water* (pp. 127-135). Southampton, United Kingdom: Wessex Institute of Technology.
- Heberling, J. (2011). Birmingham Distribution Disinfectant By-Product (DBP) Reduction Strategy. *Proceedings, 14th Annual Alabama Department of Environmental Management (ADEM) Drinking Water Branch Surface Water Meeting*. Auburn University at Montgomery, Montgomery, Alabama; October 17 - 18, 2011.
- Heberling, J. (2010). Water Quality and Temperature Analysis of Drinking Water Storage Tanks to Evaluate Effectiveness of Mixing Devices. *Proceedings, American Water Works Association (AWWA) National Conference on Water System Optimization*. Hershey, Pennsylvania; October 18 - 20, 2010.
- Heberling, J. and Barron, P. (2010). Detailed Water Quality and Temperature Comparison of Two Identical Drinking Water Storage Tanks: One with Passive Mixing and One with No Mixing Device. *Proceedings, American Institute of Chemical Engineers (AIChE) Spring Meeting and 6th Global Congress on Process Safety Conference*. San Antonio, Texas; March 21 - 25, 2010.
- Heberling, J., Barron, P., and Peters, R. (2009). Pipe Flow-Through Investigation: Determining Potential Water Quality Problems Involved with Switching from Chlorine to Chloramines at the Birmingham Water Works Board (BWVB) part II. *Proceedings, AWWA Water Quality Technology Conference*. Seattle, Washington; November 15 - 19, 2009.
- Heberling, J. and Barron, P. (2009). Tracking the Advance of Hydrilla (*Hydrilla verticillata*) in the Mulberry Fork, a Source of Birmingham's Drinking Water. *Proceedings, AWWA Water Quality Technology Conference*. Seattle, Washington; November 15-19, 2009.

Heberling, J., Barron, P., and Peters, R. (2009). Water Quality Analysis Related to Finished Water Mixing and Disinfectant By-product Concentration in Water Storage Tanks. *Proceedings, AWWA Water Quality Technology Conference*. Seattle, Washington; November 15 - 19, 2009.

Heberling, J. and Barron, P. (2009). Pipe Flow Through Investigation: Determining Potential Water Quality Problems Involved with Switching to Chloramines, Part I. *Proceedings, AWWA Distribution Systems Seminar Conference Proceedings*. Reno, Nevada; August 30 - September 2, 2009.

Heberling, J. and Barron, P. (2009). Water Quality Analysis Related to Finished Water Mixing and Disinfectant By-product Concentration in Water Storage Tanks: Preliminary Report. *Proceedings, AWWA Distribution Systems Seminar Conference Proceedings*. Reno, Nevada; August 30 - September 2, 2009.

Heberling J. (2004). Phytoremediation: Transformation and Control of Contaminants (Book Review). *Environmental Progress*. 22 (4): D4.

Published Work (Co-Author):

Salah, S., Heberling, J., and Peters, R. W. (2016). Overview of Air Quality in Egypt and Opportunities for Improvement: White Paper. NSF International Workshop - Sustainable Infrastructure in Egypt: Air and Water (jointly organized by the University of Alabama at Birmingham, Housing and Building National Research Center [HBRC], and Alexandria University). Cairo, Egypt; May, 11, 2016; Alexandria, Egypt, May 14th, 2016.

Nabors, A., Barron P., Heberling, J., and Shotts, J. (2012). A Demonstration-scale Evaluation of GAC as Biologically Removing Total Organic Carbon (TOC) from Drinking Water in Alabama. In S. Mambretti and C. Brebbia (eds.), *Urban Water* (pp. 119-125). Southampton, United Kingdom: Wessex Institute of Technology.

Nabors, A., Barron, P., and Heberling, J. (2011). A Survey of River Versus Lake Water Supplied to a Drinking Water Treatment Plant in Alabama. *River Basin Management VI* (pp. 369-378). Southampton, United Kingdom: Wessex Institute of Technology.

Nabors, A., Barron, P., and Heberling, J. (2011). Taking a Closer Look at Lake Water Supplied to a Treatment Plant to Assess its Effect on Influent Total Organic Carbon (TOC). *Proceedings, American society of Civil Engineers (ASCE) - World Environmental and Water Resources Congress (EWRI)*, Palm Springs, California; May 22 - 26. 2011.

Presentations:

Cape Town Comes to Birmingham: Facing and Mitigating a Crippling Multi-year Drought in Central Alabama. *AL/MS Section AWWA 2018 Annual Conference.* Birmingham, Alabama; October 14-16, 2018.

Consequences of Incompatible Spray Field Wastewater Treatment Applied to Chalk Soils of the Southeastern United States Black Belt. *2018 Air and Waste Management Association (A&WMA) Southern Section Conference.* Huntsville, Alabama; September 26-28, 2018.

Lead Corrosion in Brass Fixtures Exposed to High Turbidity Drinking Water (Chlorinated and Chloraminated) treated with Phosphate Based Corrosion Inhibitors. *3rd International Conference on Environmental Science and Technology.* Budapest, Hungary; October 19-23, 2017.

Common Mistakes in Applying Statistics to Water Quality Data – and How to Avoid Them. *Alabama Water Resources Conference.* Orange Beach, Alabama; September 6-8, 2017.

Selecting Statistical Analyses for Comparing Environmental Data Populations. *Mississippi Water Environment Association 60th Annual Meeting and Technical Conference;* June 6-9, 2017.

Wastewater Treatment Upgrades - Uniontown, Alabama: Failure of Spray Field Technology in Low Permeability, Black Belt Soils. *Mississippi Water Environment Association 60th Annual Meeting and Technical Conference;* June 6-9, 2017.

Lead Corrosion from Brass Plumbing Fixtures. *Alabama Water Resources Conference.* Orange Beach, Alabama; September 7-9, 2016.

An Overview of Environmental Threats to the Nile River in Egypt, *NSF International Workshop - Sustainable Infrastructure in Egypt: Air and Water* (jointly organized by the University of Alabama at Birmingham, Housing and Building National Research Center [HBRC], and Alexandria University). Cairo, Egypt, May, 11th, 2016; Alexandria, Egypt, May 14th, 2016.

Uniontown Wastewater: Addressing Solutions to Current Regulatory Concerns. Presentation to the City of Uniontown Mayor and Council. Uniontown, Alabama; October 9, 2014.

Solar Powered Mixers' Effectiveness in Removing Dissolved Metals from a Drinking Water Reservoir. *ASCE - EWRI World Environmental & Water Resources Congress.* Albuquerque, New Mexico; May 20 - 24, 2012.

Solar Powered Mixers' Effects on Nitrate, Nitrite, Phosphate, and TKN Concentrations in a Drinking Water Reservoir. *National Water Quality Monitoring Council (NWQMC) 8th Annual National Monitoring Conference.* Portland, Oregon; April 30 - May 4, 2012.

Measuring Metals Release and Biological Activity in Decades Old Cast Iron Pipes Subjected to a Disinfectant Change. *Water and Society 2011,* Las Vegas, Nevada; December 5 - 7, 2011.

Birmingham Distribution Disinfectant By-product (DBP) Reduction Strategy. *14th Annual Alabama Department of Environmental Management (ADEM) Drinking Water Branch Surface Water Meeting.* Auburn University at Montgomery. Montgomery, Alabama; October 17 - 18, 2011.

Selecting a Phosphate Based Corrosion Inhibitor Best Suited for Reducing Metal Release in a Distribution System. *AWWA Distribution Systems Seminar.* Nashville, Tennessee; September 11 - 14, 2011.

Water Quality Investigation of Drinking Water Storage Tanks Utilizing Solar Powered Mixing. *Alabama Water Resources Conference.* Orange Beach, Alabama; September 7 - 9, 2011.

Changing Disinfectants: Examining Results from a Large Water Utility's Study and Addressing Potential Consequences Resulting from a Disinfectant Switch. *Third International Conference on Science in Society.* Washington, D.C.; August 5 - 7, 2011.

Examining Potential "Red Water" Problems Associated With Replacing Chlorine with Chloramines for Disinfection By-product (DBP) Control. *Fourth International Water Association (IWA) Specialty Conference on Natural Organic Matter: From Source to Tap and Beyond.* Irvine, California; July 27 - 29, 2011.

Chlorine to Chloramines: The Public Health and Public Relations Implications of Changing Disinfectant at a Large Water Utility. *Sixth International Conference on Interdisciplinary Social Sciences,* New Orleans, Louisiana; July 11 - 13, 2011.

Determining Effects on Active Biofilters Resulting from a Change in Coagulant: From Alum to Ferric Sulfate. *ASCE-EWR World Environmental & Water Resources Congress.* Palm Springs, California; May 22 - 26, 2011.

Pipe Flow Through Investigation of Potential Lead Leaching Associated with Chloraminated Drinking Water. *Association for Environmental Health and Sciences Foundations (AEHS) International Conference on Soils, Sediments, Water, and Energy.* San Diego, California; March 14 - 17, 2011.

Water Quality and Temperature Analysis of Drinking Water Storage Tanks to Evaluate Effectiveness of Mixing Devices. *AWWA National Conference on Water System Optimization.* Hershey Pennsylvania; October 18 - 20, 2010.

Pipe Flow Through Investigation of Potential Water Quality Problems Associated with Chloramines. *Alabama Water Resources Conference.* Orange Beach, Alabama; September 8 -10, 2010.

Water Storage Tank Monitoring, Sampling, and Fluctuation: Improving Water Quality and Reducing Disinfectant By-products (DBP's). *Alabama/Mississippi section AWWA's Education Seminar Series, Session 4: Water Treatment and Distribution.* Montgomery, Alabama; August 26, 2010.

Detailed Water Quality and Temperature Comparison of Two Identical Drinking Water Storage Tanks: One with Passive Mixing and One With No Mixing Device. *American Institute of Chemical Engineers (AIChE) Spring Meeting and 6th Global Congress on Process Safety*. San Antonio, Texas; March 21 - 25, 2010.

Pipe Flow Through Investigation: Determining Potential Water Quality Problems Involved with Switching to Chloramines: Part II. *AWWA Water Quality Technology Conference*. Seattle, Washington; November 15 - 19, 2009.

Water Quality Analysis Related to Finished Water Mixing and Disinfectant By-product Concentration in Water Storage Tanks. *AWWA Water Quality Technology Conference*. Seattle, Washington; November 15 - 19, 2009.

Tracking the Advance of Hydrilla (*Hydrilla verticillata*) in the Mulberry Fork, a Source of Birmingham's Drinking Water. *AWWA Water Quality Technology Conference*. Seattle, Washington; November 15 - 19, 2009.

Water Quality Analysis Related to Finished Water Mixing in Water Storage Tanks. *AIChE Annual Meeting*. Nashville, Tennessee; November 8 - 13, 2009.

Tracking the Advance of Hydrilla (*Hydrilla verticillata*) in the Mulberry Fork, a Source of Birmingham's Drinking Water. *North American Lake Management Society (NALMS) International Symposium*. Hartford, Connecticut; October 24 - 31, 2009.

Pipe Flow Through Investigation: Determining Potential Water Quality Problems Involved with Switching to Chloramines, Part I. *AWWA Distribution Systems Seminar*. Reno, Nevada; August 30 - September 2, 2009.

Water Quality Analysis Related to Finished Water Mixing and Disinfectant By-product Concentration in Water Storage Tanks: Preliminary Report. *AWWA Distribution Systems Seminar*. Reno, Nevada; August 30 - September 2, 2009.

Investigation of Fate and Transport of Organic Contaminants in Soil. *Mississippi Water Environment Association 48th Annual Meeting and Technical Conference*. Gulfport, Mississippi; June 1 - 3, 2005.