

## BIOGRAPHICAL SKETCH FOR GAIL MONTGOMERY BRION

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Civil Engineering  
University of Kentucky

### a. Professional Preparation

University of California, California PA,	Environmental Engineering,	B.S., 1978
University of Colorado, Boulder, CO,	Civil/Environ. Engineering,	M.S., 1985
University of NC, Chapel Hill, NC,	Public Health Micro.,	RA, 1989-1991
University of Colorado, Boulder, CO,	Civil/Environ. Engineering,	PhD., 1995

### b. Appointments

2017-2018 Director of Undergraduate Studies, College of Engineering, Univ. of Kentucky  
2015-2018 Chellgren Professor, UK Chellgren Center for Undergraduate Excellence, Univ. of Kentucky  
2006-now Professor, College of Engineering & College of Public Health, Univ. of Kentucky  
2002-now Director Environmental Research and Training Laboratories, Univ. of Kentucky  
2001-2006 Associate Professor, College of Engineering & College of Public Health, UK  
2005-2011 Raymond-Blythe Professor of Civil Engineering  
2000-2001 Assistant Professor, School of Public Health, Univ. of Kentucky, Lexington, KY  
1995-2001 Assistant Professor, College of Engineering, Univ. of Kentucky, Lexington, KY  
1992-1995 Research Assistant, College of Engineering, CU, Boulder, CO  
1989-1991 Research Assistant, School of Public Health, Chapel Hill, NC  
1988-1990 Env. Engineer and NAAQS Policy Analyst, USEPA Air Quality Headquarters-NC  
1984-1988 Env. Engineer-Regional Asbestos Coordinator, USEPA, Region VIII-CO  
1982-1983 Water Chemist and Emergency First Responder for Ft. St. Vrain Nuclear Power Plant, CO  
1979-1981 Sewage Treatment Plant Operator, PA and WY (certified)  
1978-1979 Sewer Field Studies Team Supervisor, Duncan Lagnese and Assocs. Eng., PA

### c. Products

(i) Five publications most closely related to the proposed project; (\*= STUDENT, ^ = POST-DOC)

1. Ward\*, J.W., Warden\*, J.M., Bandy\*, A.M., Fryar, A.E., Brion, G.M., Macko, S.A., Romanek, C.S., and Coyne, M.S. (2016) "Use of Nitrogen-15-Enriched *Escherichia coli* as a Bacterial Tracer in Karst Aquifers" *Groundwater*, doi: 10.1111/gwat.12426.
2. Coakley\*, T., Brion, G.M., and Fryar, A.E. (2015) "Prevalence of, and Relationship between, Two Human-Specific DNA Biomarkers for Bacteroidales in an Urban Watershed" *J. Envir. Qual.*, 44:1694–1698.
3. Coyle\*, E., Ormsbee, L.E., and Brion, G.M. (2014) "Peracetic Acid as an Alternative Disinfection Technology for Wet Weather Flows". *Water Envir. Research*, 86:8:687-697.
4. Fox, J.F, Chandramouli^, V., Brion, G.M. (2009) "Classification of Erodible Soils using Artificial Neural Networks and Biogeochemical Indicators," *Envir. Engineering Science*, 26:3:567-577.
5. Powell\*, T., Brion, G.M., and Jagtoyen, M. (2000) "Comparative Adsorption of a Model Bacteriophage by Novel Forms of Activated Carbon," *Envir. Science and Technology*, Vol. 2000, No. 34, 2779-2783.

(ii). Five other significant publications; (\*= STUDENT, ^ = POST-DOC)

1. Hall\*@, A.M. and Brion, G.M. "Using Anthropogenic Compounds in Sewage to Create New Fecal Source and Age Indicators" *AWWA Annual Conference and Exposition*, Philadelphia PA, June 11, 2017.
2. Zeng\*, L., Viswanathan, C., and Brion, G. (2012) Analyzing the Low Flow Trends in Northwest Indiana Using Neural Networks. pp. 1772-1778. *ASCE-World Environmental and Water Resources Congress*, Albuquerque, New Mexico, 2012.

3. Reed\*, T.M., Fryar, A.E., Brion, G.M., and Ward\*, J.W. (2011) “Differences in Pathogen Indicators Between Proximal Urban and Rural Karst Springs”, *J. Envir. Earth Sci.*, 64:47–55.
4. Wang\*, M. and Brion, G.M. (2007) “Effects of RH on Glass Microfiber Filtration Efficiency for Airborne Bacteria and Bacteriophage Over Time,” *Aerosol Science and Technology*, 41:1-11.
5. Bahr\*, D.E., Aldrich, T.E., Seidu\*, D., Brion, G.M., and Tollerud, D.J. (2011) “Occupational Exposure to Trichloroethylene and Cancer Risk for Workers At the Paducah Gaseous Diffusion Plant”, *International J. of Occupational and Environmental Medicine*, 24:1:1 – 11.

#### **d. Synergistic Activities**

1. Dr. Brion established the Environmental Research and Training Laboratories in 2002 with a grant from NSF. This facility serves 5 colleges on UK campus, several regional universities, local industry and municipalities, and has provided unfettered access to analytic capability to almost 1000 students and other users. She recruited/trained professional staff in molecular genetics to support the emerging research need she foresaw for the municipalities of Kentucky to have capability to respond to fecal source tracking, especially in vulnerable karst systems. She is the current Director and continues to provide vision for future growth to support student and research driven activities.
2. Dr. Brion has provided technical support to several watershed watch citizens groups and KY municipalities seeking to improve surface water quality. She designed and completed 4 separate watershed surveys utilizing indicators and models she has created, to pinpoint reaches where fecal contamination was entering the rivers, creeks, and springs that serve as water sources and recreational areas. An example of this collaborative work can be found at: <http://wolfrunwater.org/monitoring/>
3. Dr. Brion, EPSCoR Senior personnel and Director of the Environmental Research and Training Laboratories, has established a pipeline for summer experiential research-based education with the local HBCU (Dr. Kazi Javed, KSU) that provides undergraduates an opportunity to pursue their research goals, and links them with students attending UK. Joint presentations and paper submissions have resulted.
4. Dr. Brion was a founding member of the 26<sup>th</sup> accredited School of Public Health at the University of Kentucky (established 2000), which has both graduate and undergraduate degree offerings. As part of her activities as joint-appointed faculty for the Preventive Medicine and Environmental Health department, she was the PI for the UK portion of a multi-award, multi-year, multi-university, environmental epidemiological study focused on evaluating the Impact of Environmental/Occupational Contaminants on the Health of the Paducah Gaseous Diffusion Plant Workers; a project that linked UK with Univ. of Cincinnati, Univ. of Louisville, and Eastern Tennessee State University programs in Public Health.
5. Dr. Brion has created videos to promote and support undergraduate and graduate education as part of her expanding interest in promoting research for all students. These can be viewed at: <https://www.youtube.com/watch?v=xvotzqcljMw> and <https://www.youtube.com/watch?v=x4sObqpmTVY>