

CURRICULUM VITAE

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Education and Professional Experience:

Education:

Doctor of Philosophy in Civil Engineering, The University of Memphis, December 1998; dissertation project: "The development of a genetic algorithm technique to solve the inverse ground water problem associated with accretion to a semi-confined aquifer".

Master of Science in Civil Engineering, The University of Memphis, May 1996; thesis project: "The migration of carbon tetrachloride through an unsaturated porous medium".

Bachelor of Science in Civil Engineering, Memphis State University, December 1991.

Senior Leadership Positions:

1. *June 2014 to Present*, Deputy Division Director, Environmental Science Division, Argonne National Laboratory, Lemont, IL.

In June 2014, I joined the Environmental Science Division at the Argonne National Laboratory. I work with the Division Director to provide strategic planning and leadership across the divisions programmatic and departmental areas, while maintaining an active research program in hydrologic science. In addition to serving as the Deputy Division Director, I serve as the Department Head for Hydrological Sciences within the Division.

2. *April 2012 to June 2014*, Director, Environmental Sciences Division, National Exposure Research Laboratory, Office of Research and Development, U.S. Environmental Protection Agency.

In April 2012, I was appointed Director of the Environmental Sciences Division (ESD) under Title 42 authority by the U.S. EPA's Office of Research and Development. As Director of ESD, I oversee a staff of approximately 60 individuals and provide strategic planning for science programs organized under four thematic branches: (1) the Environmental Chemistry Branch; (2) the Characterization and Monitoring Branch; (3) the Landscape Characterization Branch; and the (4) Landscape Ecology Branch. The division's science projects and products are focused around sustainability science support for needs that engage highly interdisciplinary teams in characterization exposure science.

3. *May 2007 to October 2011*, Director, Institute for a Secure and Sustainable Environment, University of Tennessee.

As Director I managed an approximate \$4M/year research enterprise focused on sustainability science. I led approximately 40 staff or faculty, as well as, associated research centers that report to me on a routine basis. ISSE was classified as a Tennessee Higher Education Commission Center of Excellence. My activities included negotiations and collaborative interactions with department heads, deans and chancellor level senior staff to develop strategic investments in personnel and resources to grow the research enterprise. During my tenure I have also increased overall activity in public-private partnerships with corporate entities, which provided avenues for collaboration beyond the institute at the University System level.

4. *September 2009 to June 2011*, President and CEO, University of Tennessee Research Foundation.

Concurrently while serving as Director of ISSE, I was appointed President and Chief Executive Officer of UTRF. I oversaw an approximate \$3M/year base budget multi-campus technology transfer program and the implementation of a \$58M grant driven solar economic development program. Under my leadership and collaboration with the University of Tennessee System, a strong program in statewide economic development was implemented with positive research program growth and exploration of robust new public-private business models. Much of my initial work was focused on setting goals for the organization to implement large-scale economic development opportunities that would be beneficial to all University of Tennessee campuses within the system. By direction of the Executive Vice-President's office, I interacted with the technology transfer and partnerships directorate at the Oak Ridge National Laboratory pertaining to technologies with shared intellectual property.

5. *January 2009 to September 2009*, Special Assistant to the Executive Vice-President, University of Tennessee.

As Special Assistant I worked with the Executive Vice-President on multiple projects that had a common theme of enhancing public-private partnerships. These activities were also directed towards providing aid to the Executive Vice-President's office for development of a new research campus, known as Cherokee Farm, near the University of Tennessee, Knoxville.

6. *Feb 2007 to May 2007*, Interim Director, Institute for a Secure and Sustainable Environment, University of Tennessee.

ISSE was reorganized from several environmental science and policy related research centers that existed at the University of Tennessee. The organization was in the midst of strong internally driven conflicts and historical budgetary problems that were not productive towards its purpose and mission. My directive was to guide the organization and develop a strong strategic plan that would form the base for moving forward as a cohesive environmental sustainability science drive organization. After a robust strategic planning process I was asked to take the leadership position of permanent Director of the organization.

Other Professional Positions:

1. *August 2006 to April 2012*, Associate Professor (with tenure), Civil & Environmental Engineering, University of Tennessee.
2. *July 2006 to February 2007*, Water Resources Group Leader, Institute for a Secure and Sustainable Environment, University of Tennessee.
3. *November 2003 to October 2011*, Director, Southeastern Water Resources Institute, University of Tennessee.
4. *August 2002 to July 2006*, Assistant Professor, Civil & Environmental Engineering, University of Tennessee.
5. *January 1999 to July 2002*, Associate Director, Ground Water Institute, University of Memphis.
6. *September 2000 to July 2002*, Assistant Professor, Civil Engineering, University of Memphis.

7. *January 1995 to December 1998*, Research Assistant, Ground Water Institute, University of Memphis.
8. *January 1992 to January 1995*, Environmental Engineer, Memphis Environmental Center.

Professional Credentials:

Registered Professional Engineer, TN # 00103874

Professional Affiliations:

American Geophysical Union (AGU)
International Association of Hydrological Sciences (IAHS)

Research and Scholarly Activities:

Honorary Positions:

February 2010 to April 2012, Affiliated Research Faculty, China-US Joint Laboratory of Soil and Water Research, Institute of Applied Ecology, Chinese Academy of Sciences.
October 2008 to April 2012, Honorary Scientist, Institute of Soil and Water conservation, Chinese Academy of Sciences and Ministry of Water Resources.

Editorial Board Service:

1. Associate Editor, Journal of Hydrologic Engineering, American Society of Civil Engineers, November 2004 to June 2008.
2. Member, Journal of Resources and Ecology, Institute of Geographic Sciences and Natural Resources Research, CAS, March 2010 to April 2012.
3. Special Issue Editor with Jardine, P. and Shao, M.-A., "Special Issue on Impacts of Land Use and Climate Change on Hydrological Processes in China", Journal of Hydrologic Engineering, April 2013, Volume 18, Issue 4, pp. 377-479.

Journal Publications:

1. Franklin, S. B., Kupfer, J. A., Pezeshki, S.R., Hanson, R.A, Scheff, T.L., **Gentry, R.W.** 2001. A comparison of hydrology and vegetation between a channelized stream and a nonchannelized stream in western Tennessee, *Physical Geography*, v22, n3, pp. 254-274.

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2. **Gentry, R.W.**, Camp, C.V., Anderson, J.L. 2001. Use of a GA to determine areas of accretion to a semi-confined aquifer, *ASCE Journal of Hydraulic Engineering*, v127, n9, pp. 738 – 746.
3. Larsen, D., Spann, E.W., McClure, D.M., and **Gentry, R.** 2003. Stratigraphic and contaminant hydrology implications of selected sediment properties of Quaternary deposits, Shelby County, Tennessee. *Southeastern Geology*, vol. 42, no. 2, p. 99-110.
4. Larsen, D., **Gentry, R.W.**, and Solomon, D.K. 2003. The geochemistry and mixing of leakage in a semi-confined aquifer at a municipal well field, Memphis, Tennessee USA, *Applied Geochemistry*, v18, n7, pp. 1043-1063.
5. **Gentry, R.W.**, Larsen, D., Ivey, S.S. 2003. Efficacy of genetic algorithm to investigate small scale aquitard leakage, *ASCE Journal of Hydraulic Engineering*, V129, n7, pp. 527-535.
6. Perfect, E., **Gentry, R.W.**, Sukop, M.C., and Lawson, J.L. 2006. Multifractal Sierpinski Carpets: theory and application to modeling reservoir heterogeneity, *Geoderma*, V134, n3-4, pp. 240-252.
7. Goff, K. and **Gentry, R.W.** 2006. A sensitivity analysis of the influence of watershed and development characteristics on the cumulative impacts of storm water detention ponds, *Water Resources Management*, V20, n6, pp. 829-860.
8. Layton, A.C., Williams, D., Garrett, V., McKay, L., **Gentry, R.W.** and Sayler, G.S. 2006. Development of *Bacteroides* 16S rRNA gene TaqMan-based real-time PCR assays for estimation of total, human, and bovine fecal pollution in water, *Applied and Environmental Microbiology*, V72, n6, pp. 4214-4224.
9. **Gentry, R.W.**, Ku, T-L., Luo, S., Todd, V., Larsen, D., and McCarthy, J.F. 2006. Resolving aquifer behavior near a focused recharge feature based upon synoptic wellfield hydrogeochemical tracer results, *Journal of Hydrology*, V323, n1-4, pp387-403.
10. **Gentry, R.W.**, McCarthy, J., Layton, A., McKay, L., Williams, D., Koirala, S.R., and Sayler, G.S. 2006. *Escherichia coli* loading at or near baseflow in a mixed-use watershed, *Journal of Environmental Quality*, V35, n6, pp. 2244-2249.
11. **Gentry, R.W.**, Layton, A., McKay, L., McCarthy, J., Williams, D., Koirala, S.R., and Sayler, G.S. 2007. Efficacy of *Bacteroides* measurements for reducing the statistical uncertainty associated with hydrologic flow and fecal loads in a mixed-use watershed, *Journal of Environmental Quality*, V36, n5, pp. 1324-1330.
12. Koirala, S.R., **Gentry, R.W.**, Perfect, E., Schwartz, J., and Sayler, G.S. 2008. Temporal variation and persistence of bacteria in streams, *Journal of Environmental Quality*, 37(4):1559–1566, doi:10.2134/jeq2007.0310.
13. Koirala, S. R., E. Perfect, **R. W. Gentry**, and J. W. Kim. 2008. Effective saturated hydraulic conductivity of two-dimensional random multifractal fields, *Water Resour. Res.*, 44, W08410, doi:10.1029/2007WR006199.
14. Ivey, S.S., **Gentry, R.W.**, Larsen, D., and Anderson, J.L. 2008. Inverse application of age-distribution modeling using environmental tracers $^3\text{H}/^3\text{He}$, *ASCE Journal of Hydrologic Engineering*, v13, n11, pp1002-1010.
15. Ivey, S.S., **Gentry, R.W.**, Larsen, D., and Anderson, J.L. 2008. Case study of the sheahan wellfield using $^3\text{H}/^3\text{He}$ field data to determine localized leakage areas, *ASCE Journal of Hydrologic Engineering*, v13, n11, pp1011-1020.

16. Franklin, S.B., Kupfer, J.A., Pezeshki, R., **Gentry, R.W.**, and Smith, R.D. 2009. Efficacy of the hydrogeomorphic model (HGM): A case study from western Tennessee, *Ecological Indicators*, v9, n2, pp267-283, doi:10.1016/j.ecolind.2008.05.004.
17. Bell, A., Layton, A., McKay, L.D., Williams, D., **Gentry, R.W.**, and Sayler, G.S. 2009. Factors influencing the persistence of fecal *Bacteroides* in stream water, *Journal of Environmental Quality*, v38, n3, pp1224-1232, doi:10.2134/jeq2008.0258.
18. Franklin, S.B., Kupfer, J.A., Pezeshki, S.R., **Gentry, R.W.**, and Smith, R.D. 2009. Complex effects of channelization and levee construction on western Tennessee floodplain forest function, *Wetlands*, v29, n2, p451-464.
19. Stewart C.N., Shugart L., Liu G.S., Zhuang J., Ma Y.Q., Tuskan G.A., Meilan R., **Gentry R.W.**, Sayler G.S. 2010. China-US workshop on biotechnology of bioenergy plants, *Ecotoxicology*, v19, n1, pp1-3.
20. Koirala, S.R., **Gentry, R.W.**, Mulholland, P.J., Perfect, E., and Schwartz, J.S. 2010. Time and Frequency Domain Analyses of High-frequency Hydrologic and Chloride Data in an East Tennessee Watershed, *Journal of Hydrology*, v387, n3-4, pp256-264.
21. **Gentry, R.W.**, Sayler, G.S. and Zhuang, J. 2010. Towards Sustainable Cellulosic Bioenergy, *Journal of Resources and Ecology*, v 1, n2, pp117-122 (doi:10.3969/j.issn.1674-764x.2010.02.003).
22. Zhuang, J., **Gentry, R.**, Yu, G., Sayler, G., and Bickham, J. 2010. Bioenergy sustainability in China: Potential and impacts. *Environmental Management*, v 46, n4, pp525-530 (doi:10.1007/s00267-010-9555-6).
23. Parker, J.C., Kim, U., Widdowson, M., Kitanidis, P., and **Gentry, R.** 2010. Effects of model formulation and calibration data on uncertainty in DNAPL source dissolution predictions, *Water Resour. Res.*, doi:10.1029/2010WR009361.
24. Leao, T.P. and **Gentry, R.** 2011. Numerical modeling of the effect of variation of boundary conditions on vadose zone hydraulic properties. *Revista Brasileira de Ciencia do Solo*, v35, n1, pp263-272.
25. Koirala, S.R., **Gentry, R.W.**, Mulholland, P.J., Perfect, E., Schwartz, J. and Sayler, G. 2011. Persistence of hydrologic variables and reactive stream solute concentrations in an east Tennessee watershed. *Journal of Hydrology*, v401, n3-4, pp221-230 (doi:10.1016/j.jhydrol.2011.02.022).
26. Zhang, M., Yu, G., Zhuang, J., **Gentry, R.**, Fu, Y., Sun, X., Zhang, L., Wen, X., Wang, Q., Han, S., Yan, J., Zhang, Y., Wang, Y. and Li, Y. 2011. Effects of cloudiness change on net ecosystem exchange, light use efficiency and water use efficiency in typical ecosystems of China. *Agricultural and Forest Meteorology*, v151, n7, pp803-816.
27. Koirala, S.R., **Gentry, R.W.**, Perfect, E., Mulholland, P.J. and Schwartz, J. 2011. Hurst analysis of hydrologic and water quality time series. *Journal of Hydrologic Engineering*, v16, n9, p9 (doi:10.1061/(ASCE)HE.1943-5584.0000357).
28. Jardine, P.M., Mehlhorn, T.L., Bailey, W.B., Brooks, S.C., Fendorf, S.C., **Gentry, R.W.**, Phelps, T.J. and Saiers, J.E. 2011. Geochemical processes governing the fate and transport of Cr(III) and Cr(VI) in soils, *Vadose Zone Journal*, v10, n3, pp1058–1070.
29. Koirala, S.R. and **Gentry, R.W.** 2012. SWAT and Wavelet Analysis for Understanding the Climate Change Impact on Hydrologic Response, *Open Journal of Modern Hydrology*, v2, n2, pp.41-48 (doi: 10.4236/ojmh.2012.22006).

30. **Gentry, R.** 2013. Foreword. Special Issue on Impacts of Land Use and Climate Change on Hydrological Processes in China. *J. Hydrol. Eng.*, 18(4), p.377.
31. **Gentry, R.** 2013. Efficacy of fuzzy *c*-means cluster analysis of naturally occurring radioisotope datasets for improved groundwater resource management under the continued risk of climate change. *British Journal of Environment and Climate Change*, 3(3), pp. 464-479 (doi: 10.9734/BJECC/2013/2505).

Contributions to Edited Volumes:

1. Franklin, S.B., J.A. Kupfer, S.R. Pezeshki, N. van Gestel & **R.W. Gentry**, 2001. Channelization effects on floodplain functions in western Tennessee. Pp. 189-201 In: R.A. Falconer & W.R. Blain (eds.) *River Basin Management*, WIT Press, Southampton, Boston.
2. Larsen, D., **Gentry, R.W.**, Ivey, S., Solomon, D.K., and Harris, J. 2003. Groundwater leakage through a leaky confining unit beneath a municipal well field, Memphis, Tennessee, USA. In Schulz, H.D., and Hadelor, A., eds., *Geochemical Processes in Soil and Groundwater*, Wiley-VCH, Berlin, p. 51-64.
3. **Gentry, R.W.** 2004. Using environmental tracers to verify and investigate conceptual models of highly localized aquitard leakage. pp 1-7 In: G. Sehlke, D.F. Hayes, and D.K. Stevens (Eds.) *Critical Transitions in Water and Environmental Resources Management*, ASCE Press, New York, NY.
4. **Gentry, R.W.** 2004. Assessing ground water and surface water interaction through tracer observation. pp 1-7 In: G. Sehlke, D.F. Hayes, and D.K. Stevens (Eds.) *Critical Transitions in Water and Environmental Resources Management*, ASCE Press, New York, NY.
5. **Gentry, R.W.**, McKay, L., Layton, A., and McCarthy, J. 2005. Development of Novel Tracer Techniques for Better Understanding of Karst Transport Characteristics and Surface Water Influences. pp 1-6 In: R. Walton (Ed.) *Impacts of Global Climate Change*, ASCE Press, New York, NY.
6. **Gentry, R.W.**, McKay, L., Thonnard, N., Anderson, J.L, Larsen, D., Carmichael, J.K., and Solomon, K. 2006. Novel Techniques for Investigating Recharge to the Memphis Aquifer. American Water Works Association. 97pp.
7. **Gentry, R.W.** 2011. Physical and Chemical Characterization of Groundwater Systems. Pp 119-136 in: M. Aral and S. Taylor (Ed.) *Groundwater Quantity and Quality Management*, ASCE Press, New York, NY. 573pp.
8. Zhuang, J., and **Gentry, R.W.** 2011. Environmental Application and Risks of Nanotechnology: A Balanced View. Pp 41-67 in: S. Ripp and T.B. Henry (Ed.) *Biotechnology and Nanotechnology Risk Assessment: Minding and Managing the Potential Threats around Us*, American Chemical Society, Washington, DC. 190pp.

Conference Abstracts & Presentations:

1. **Gentry, R.W.**, Camp, C.V., Anderson, J.L., 1999. The development of a genetic algorithm technique to determine highly probable areas of accretion to a semi-confined aquifer, 9th Annual Tennessee Water Resources Symposium, Nashville, TN, April 12-14, 1999.
2. **Gentry, R.W.**, McKay, L. D., Larsen, D., 1999. A Novel Approach for Investigating the Susceptibility of the Memphis Aquifer to Non-Point Pollution Through Windows in the upper Claiborne confining Layer, NGWA AGWS&E Technical Education Program, Nashville, TN, December 3-6, 1999.
3. Larsen, D., **Gentry, R.**, Ivey, S., 2000. Water Quality Impact and Distribution of Modern Recharge on Municipal Pumpage in the Sheahan Well Field, Memphis, Tennessee, USA, GSA December, 2000.
4. **Gentry, R. W.**, Caldwell, J., 2001. A Collaboration of Informal Science and Formal Science Water Resources Education at the Children's Museum of Memphis, 10th Annual Tennessee Water Resources Symposium, Nashville, April 4-6, 2001.
5. Larsen, D., **Gentry, R. W.**, Waldron, B., Ivey, S., Hudgins, S., and Salyers, M., 2001. Variations in Water Quality and Tritium in the Sheahan and Morton Well Fields, Memphis, Tennessee, USA., TNAWRA, Nashville, April 4-6, 2001.
6. **Gentry, R.W.**, 2002. The Use of Genetic Algorithms as an Inverse Technique to Guide the Design and Implementation of Research at a Test Site in Shelby County, Tennessee, Eos Trans. AGU, 83(47), Fall Meet. Suppl., Abstract H51C-05, 2002.
7. Larsen, D., **Gentry, R.W.**, Ivey, S., Solomon, D.K., and Harris, J. 2002, Groundwater leakage through a leaky confining unit beneath a municipal well field, Memphis, Tennessee, USA. In Proceedings of GeoProc2002, March 4-7, 2002. Bremen, Germany.
8. Garner, C.B., Larsen, D., Carmichael, J., and **Gentry, R.**, 2003. Hydrostratigraphy of a window through the upper Claiborne confining unit, Memphis, Tennessee. Geological Society of America Abstracts with Programs, v. 35, no. 1, p. 20.
9. Embry, M.S., **Gentry, R.W.**, Larsen, D., and Anderson, J.L., 2003. Assessing the susceptibility of the water table to contamination in Tipton County, Tennessee. 13th Annual Tennessee Water Resources Symposium, April 9-11, 2003, Burns, TN.
10. Ivey, S.S., Larsen, D., Anderson, J., **Gentry, R.W.**, 2003. Use of lumped parameter models for wellhead protection delineation. 13th Annual Tennessee Water Resources Symposium, April 9-11, 2003, Burns, TN.
11. Kenst, A., Perfect, E., McCarthy J. and **Gentry, R.W.**, 2003. Movement of Viruses in the vadose zone: a review of transport mechanisms. 13th Annual Tennessee Water Resources Symposium, April 9-11, 2003, Burns, TN.
12. **Gentry, R.W.**, McKay, L.D., Larsen, D., Carmichael, J.K., Solomon, D.K., Thonnard, N. and Anderson, J.L. 2003. Inter-aquifer Dynamics in and near a Confining Unit Window in Shelby County, Tennessee, USA, Eos Trans. AGU, 84(47), Fall Meet. Suppl., Abstract H21D-0868.
13. Layton, A., Williams, D., Garrett, V., McKay, L., **Gentry, R.**, McCarthy, J. and Saylor, G. 2004. Development of real-time PCR assays for the detection of *Bacteroides* sp. as a method to quantify fecal contamination. TN Section American Water Resources

- Association, Thirteenth Annual Tennessee Water Resources Symposium, March 31 – April 2, 2004, Burns, TN.
14. **Gentry, R.W.**, J. McCarthy, A. Layton, L. McKay, and S. Koirala 2004. A Hydrologic Investigation into the Occurrence and Causation of Pathogen Indicators in the Stock Creek Watershed, Knoxville, Tennessee. TN Section American Water Resources Association, Thirteenth Annual Tennessee Water Resources Symposium, March 31 – April 2, 2004, Burns, TN.
 15. Layton, A., L. McKay, D. Williams, V. Garrett, **R. Gentry**, J. McCarthy, G. Saylor, 2004. Development of real-time PCR assays for the detection of *Bacteroides sp.*, KY/TN Water Environment Association, Pollutant Source Identification Specialty Conference, Murfreesboro, TN, May 20, 2004.
 16. **Gentry, R.W.** 2004. Using Environmental Tracers to Verify and Investigate Conceptual Models of Highly Localized Aquitard Leakage. ASCE-EWRI, 2004 World Water & Environmental Resources Congress, June 27 – July 1, 2004, Salt Lake City, Utah.
 17. **Gentry, R.W.** 2004. Assessing Ground Water and Surface Water Interaction through Tracer Observation. ASCE-EWRI, 2004 World Water & Environmental Resources Congress, June 27 – July 1, 2004, Salt Lake City, Utah.
 18. **Gentry, R.W.**, McCarthy, J., Layton, A., McKay, L., and Koirala, S. 2004. Evaluating microbial water quality and potential sources of contamination in a small rural watershed in karstic terrain. Groundwater Quality 2004-4th International Conference, July 19th - 22nd, 2004, University of Waterloo, Ontario, Canada.
 19. Luo, S., Ku, T., Todd, V.M., **Gentry, R.W.**, and McCarthy, J.F. 2004. Radium isotopes as an indicator of microbial activity in a deep aquifer at Memphis, Tennessee, USA, Eos Trans. AGU, 85(47), Fall Meet. Suppl., Abstract H41I-02.
 20. McKay, L.D., Layton, A., and **Gentry, R.W.** 2004. Development and testing of real-time PCR assays for determining fecal loading and source identification (cattle, human, etc.) in surface water and groundwater, Eos Trans. AGU, 85(47), Fall Meet. Suppl., Abstract H43B-0376.
 21. **Gentry, R.W.**, McKay, L., Layton, A., and McCarthy, J. 2005. Development of Novel Tracer Techniques for Better Understanding of karst Transport Characteristics and Surface Water Influences, ASCE-EWRI 2005 World Water and Environmental Resources Congress, May 15-19, 2005, Anchorage, Alaska.
 22. Larsen, D., Waldron, B., Anderson, J., **Gentry, R.W.**, Ivey, S.S., Owen, A., and Morat, J. 2005. Insights Into Groundwater Recharge Processes And Pathways Based On Hydrochemical And Tritium Data From Municipal Well Fields In Shelby County, Tennessee, USA. Southeastern Section of The Geological Society of America, March 17-18, 2005, Biloxi, Mississippi.
 23. Todd, V.M., **Gentry, R.W.**, McCarthy, J., and Ku, T. 2005. Development of a Colloid Sampling Technique for Suboxic Groundwaters in Memphis, TN, Eos Trans. AGU, 86(52), Fall Meet. Suppl., Abstract H23E-1483.
 24. **Gentry, R.W.**, Perfect, E. and Sukop, M. 2005. Scaling of Effective Permeability in a 2-Dimensional Geometrical Multifractal Model for Aquifer Heterogeneity, Eos Trans. AGU, 86(52), Fall Meet. Suppl., Abstract H11D-1289.

25. Layton, A., Williams, D., **Gentry, RW**, and McKay, L. 2006. *Bacteriodes* and an Alternative to *E. coli* as a Fecal Indicator. The Sixteenth Tennessee Water Resources Association Symposium, April 19-21, 2006, Burns, TN.
26. Larsen, D., **Gentry, RW**, Carmichael, J., Thonnard, N., McKay, L., Anderson, JL, Solomon, DK. 2006. Recharge to the Memphis aquifer through a window in the upper Claiborne confining unit near a closed municipal landfill, Shelby County, Tennessee, USA. SE Geological Society of American, March 23-24, 2006, Knoxville, TN.
27. Layton, AC, McKay, L., **Gentry, RW**. 2006. Monitoring Fecal Concentrations and Sources in Streams Using Real-time PCR Assays for *Bacteriodes*. SE Geological Society of American, March 23-24, 2006, Knoxville, TN.
28. **Gentry, RW**, McKay, L., Layton, A., McCarthy, J. 2006. Using Novel Tracers for Better Understanding of GWUDI in Karst. SE Geological Society of American, March 23-24, 2006, Knoxville, TN.
29. **Gentry, RW**, McCarthy, J., Layton, A., McKay, L., and Koirala, S. 2006. Using Hydrologic Tracers as a Risk Assessment Tool in a Karstic Watershed. EWRI 2006 Congress, May 21-25, 2006, Omaha, Nebraska.
30. Koirala, S.R., Perfect, E. and **Gentry, R.W.** 2006. Effective Saturated Hydraulic Conductivity of 2-dimensional Random Multifractional Fields, *Eos Trans. AGU*, 87(52), Fall Meet. Suppl., Abstract H41E-0451.
31. **Gentry, R.W.** 2007. Using Decay Series Isotopic Tracers to Develop Conceptual Models of Aquifer Behavior. Seventeenth Tennessee Water Resources Symposium, Burns, TN, April 17-19, 2007.
32. Koirala, S.R., **R.W. Gentry**, E. Perfect, and J.S. Schwartz. 2007. Spectral analysis of total coliform in a stream in east Tennessee. Proc. World Environmental and Water Resources Congress, ASCE, Tampa Marriott Waterside, Tampa, FL, May 15-19, 2007, pp 1-9.
33. Koirala S.R., **Gentry, R.W.**, Perfect E., Schwartz, J.S. and Mulholland P.J. 2007. Persistence of Water Quality Indicators in an East Tennessee Watershed, 43rd American Water Resources Association Conference, November 12-15, 2007, Albuquerque, New Mexico.
34. **Gentry, R.W.** 2007. Using Watershed Signals as a Means of Evaluating Sustainability and Climate Variability for Natural Resources. Rising to the Challenges of a New Century – 18th Annual SAMAB Conference, October 22-24, 2007, Johnson City, Tennessee.
35. **Gentry, R.W.** 2007. Urgent Requirements for Developing a Secure and Sustainable Environment, U.S. – China Workshop on Environmental Aspects of Bioenergy Production and Sustainability, Knoxville, TN, September 11-14, 2007.
36. **Gentry R.W.**, Using Hydrologic Tracers and Geochemistry to Assess Surface Water and Ground Water Interactions for Ecosystem Sustainability. 2008 China-US Workshop: Bioenergy Consequences for Global Environmental Change, Beijing, China, October 15-17, 2008.
37. Franklin, S.B., Kupfer, J.A., Pezeshki, S.R., **Gentry, R.**, and Smith, R.D. Complex Effects of Channelization and Leveeing on Western Tennessee Floodplain Forest Structure, Composition and Function. Floodplain Ecosystem Symposium: Integrating

- Science into the Restoration and Management of Floodplain Ecosystems of the Southeast, Little Rock, AR, March 4-6, 2008.
38. Donat, R., Perfect, E., **Gentry R.**, McKay, L. and Van den Berg, E. Modeling the Scale-Dependent Relationship between Effective and Slug Test-Determined Saturated Hydraulic Conductivities. 2008 GSA-SSSA-ASA-CSSA-GCAGS Joint Meeting, Houston, TX, October 5-9, 2008.
 39. **Gentry, R.W.** and Koirala, S.R. 2008. Using Wavelets to Evaluate Watershed Signals from Precipitation Extremes at a Localized Temporal Scale, Eos Trans. AGU, 89(53), Fall Meet. Suppl., Abstract H13D-0963.
 40. Koirala, S.R. and **Gentry, R.W.** 2009. Using Wavelets to Evaluate Persistence of High Frequency Hydrologic and Hydrochemistry Signals, Eos Trans. AGU, 90(52), Fall Meet. Suppl., Abstract H51I-0908.
 41. Koirala, S.R. and **Gentry, R.W.** 2010. Hurst Analysis of Hydrologic and Water Quality Signals. World Environmental and Water Resources Congress 2010: Challenges of Change, Providence, Rhode Island, May 16-20, 2010.
 42. Koirala, S.R., Logan, J. and **Gentry, R.W.** 2010. Hydrologic Response to Climate Change in the Clinch River Watershed Using SWAT, Abstract H43F-1320 presented at 2010 Fall Meeting, AGU, San Francisco, Calif., 13-17 Dec.
 43. Gaddis, A., Drake, J., Evans, K.J., and **Gentry, R.W.** 2010. Evaluating Predictability in Nonlinear Climate Systems Using the Mount Pinatubo Eruption, Abstract NG31B-1325 presented at 2010 Fall Meeting, AGU, San Francisco, Calif., 13-17 Dec.
 44. Koirala, S.R. and **Gentry R.W.** 2011. Hydrologic Response to Climate Change in the French Broad River Watershed. World Environmental and Water Resources Congress 2011: Bearing Knowledge for Sustainability, Palm Springs, California, May 22-26, 2011.
 45. Jardine, P.M., C.M. Hansel-Wankel, J.C. Parker, **R.W. Gentry**; K.G. Scheckel, U. Kim, Y. Tang, M. Stewart, and L. Le, R.J. 2011. Assessing the Potential Consequences of Subsurface Bioremediation: Fe-oxide Bioreductive Processes and the Propensity for Secondary Mineral Precipitation, Media Structural Breakdown, and Contaminant–Colloid Co-Transport. Annual SERDP / ESTCP workshop. Nov. 29- Dec. 1, 2011. Washington DC.
 46. Jardine, P. and **Gentry R.W.** 2011. Impact of Scale-Dependent Coupled Processes on Solute Fate and Transport in the Critical Zone: Case Studies Involving Inorganic and Radioactive Contaminants (Invited), Abstract B41H-03 presented at 2011 Fall Meeting, AGU, San Francisco, Calif., 5-9 Dec.
 47. Gaddis, A., Drake, J., Evans, K. and **Gentry R.W.** 2011. Evaluating predictability in nonlinear climate systems using the Mount Pinatubo eruption, Abstract V11F-2578 presented at 2011 Fall Meeting, AGU, San Francisco, Calif., 5-9 Dec.

Seminars and Invited Presentations:

1. *Inverse modeling: A comparison of a genetic algorithm technique with a modified Gauss-Newton technique for predicting accretion to a semi-confined aquifer*, Rhodes College, October 10, 2000.

2. *The use of environmental tracers to better understand inter-aquifer hydraulics in Shelby County, Tennessee*, AwwaRF Technology Transfer Conference, Miami, January 25, 2001.
3. *Concepts behind Contaminant Fate and Transport and the Ground Water Hydrology of the Mississippi Embayment*, Carroll-Gibson County Environmental Group, March, 2001.
4. *An overview of ground water resources and research within the northern Mississippi Embayment*, Arkansas State University, February 15, 2001.
5. *Ground water resources: Some concepts behind the hydraulics and hydrology*, Bethel College, March 20, 2001.
6. *Using Multiple Techniques to Evaluate Aquifer Susceptibility*, CEB-Knoxville, Tennessee, September 13, 2002.
7. *Protecting Ground Water Sources: Quality & Quantity*, Tennessee Clean Water Network Conference Franklin, Tennessee, September 20, 2002.
8. *The Future of Inverse Techniques Within Ground Water Hydrology With Environmental Tracer Data*, ORNL-Oakridge, Tennessee, September 27, 2002.
9. *The Use of Environmental Tracers to Better Understand the Risks to Semi-Confined Aquifers from Abandoned or Proposed Waste Sources*, Air & Waste Management Association - Knoxville, October 2, 2002.
10. *Elevating Ground Water Resources Issues in the Regional Community: Education and New Tools for Decision Makers*, EERC – Knoxville, Tennessee, October 22, 2002.
11. *Research on the Nature of Aquitard Windows*, Engineers Club of Memphis – PDH, July 14, 2003.
12. *Hydrogeology and Implications of Leakage Between Aquifer Units in the Northern Mississippi Embayment*, East Tennessee Geological Society, Pellissippi State Technical Community College, April 12, 2004.
13. *Synoptic Monitoring of Environmental Tracers in and Near Focused Recharge Sites to Better Understand Aquifer Behavior*, Department of Civil Engineering, Auburn University, September 15, 2004.
14. *Using Parameter Estimation Coupled with Environmental Tracers to Explain Aquifer Behavior*, Department of Civil Engineering, Louisiana State University, October 13, 2004.
15. *Using Environmental and Geochemical Tracers for Vulnerability Analysis of Leaky Groundwater Systems*, the University of Vermont, March 17, 2006.
16. *Incorporating Science and Policy: Use of Watershed Signals to Evaluate Sustainability of Natural Systems*, Institute for Geographical and Natural Resources Research, Beijing, China, November 28, 2007.
17. *Sustainability Science: A New Paradigm for Our Common Future*, University of Science and Technology of China, Hefei, China, November 25, 2007.
18. *Urgent Requirements for Developing a Secure and Sustainable Environment*. ISCET 2007 & ISBBE 2007, East China University of Science and Technology, Shanghai, China, November 21, 2007.
19. *Emerging Techniques for Quantifying the Persistence of Water Quality Impacts in Watersheds*, 4th International Symposium on Persistent Toxic Substances, Beijing, China, November 18-21, 2007.

20. *The Connection Between Bacteroides, E. coli and Catchment Hydrology*, ASA-CSSA-SSSA 2007 International Annual Meetings, New Orleans, Louisiana, November 5, 2007.
21. *Using Uranium and Thorium Radioisotopes to Identify Complex Groundwater Flowpaths*, University of Science and Technology of China, Hefei, China, October, 25, 2008.
22. *Sustainability Science: A Review of Hydrologic Perspectives at the Catchment Scale*, Institute of Soil and Water Conservation, Chinese Academy of Sciences, Xi'an, China, October 13, 2008.
23. *Energy and Climate Change: You Can Make a Difference*, League of Women Voter's Fall Conference, Monteagle, TN, November 1, 2008.
24. *Water Resources and Sustainability*, University of Tennessee Science Forum, Knoxville, TN, October 29, 2010.
25. *New Challenges in Water Resources Science Under a Paradigm of Global Change*, Xi'an University of Technology, Xi'an China, May 11, 2011.

Book Reviews:

Gentry, R. W., Review of *Multilayered Aquifer Systems: Fundamentals and Applications* by Alexander H.-D. Cheng. ASCE Journal of Hydraulic Engineering, v127, n5, pp 435-436.

Research Projects and Funding (Prior to April 2012 when I entered public service with the U.S. EPA):

1. U.S. Army Corps of Engineers Waterways Experiment Station, *The Forest Communities and Hydrology of Western Tennessee Floodplains*, S. Franklin (PI), R. Pezeshki (Co-PI), J. Kupfer (Co-PI), and **R.W. Gentry** (Co-PI). \$65,000 Total External Funds, Project Dates: 12/1998 to 12/2000.
2. Shelby County Ground Water Quality Control Board, *Preliminary study to determine whether modern water is entering the Memphis Sand aquifer beneath Memphis and Shelby County, TN.*, J. Anderson (PI), **R.W. Gentry** (Co-PI), and D. Larsen (Co-PI). \$46,500 Total External Funds, Project Dates: 1/1999 to 12/2000.
3. Tennessee Department of Environment and Conservation, *A Proposal for the Development of a Science Based River/Groundwater Education Exhibit at the Children's Museum of Memphis*, 2000-2001, **R.W. Gentry** (PI), \$18,960 Total External Funds, Project Dates: 9/1/1999 to 8/31/2000.
4. Tennessee Water Resources Research Center, *An Investigation to Identify Sources and Quantities of Modern Recharge to the Memphis Aquifer in the Sheahan Well field in Shelby County, Tennessee*, 2000-2001, **R.W. Gentry** (PI), D. Larsen, J. Harris, J. Anderson, K. Solomon. \$24,996 Total External Funds, Project Dates: 3/1/2000 to 2/28/2001.
5. American Water Works Association Research Foundation, *A Novel Approach for Understanding the Recharge Mechanisms to the Memphis Aquifer in Shelby County*,

- Tennessee, 2000-2005, **R.W. Gentry** (Research PI) with L. McKay, N. Thonnard, J. Anderson, D. Larsen, K. Solomon, and J. Carmichael. \$350,000 External Funding, \$494,812 Total Project Funds, Project Dates: 5/1/2000 to 5/1/2005.
6. Tennessee Department of Environment and Conservation, *An evaluation of watershed practices and the occurrence of E. Coli*, **R.W. Gentry** (PI), Alice Layton (Co-PI), John McCarthy (Co-PI) and Larry McKay (Co-PI), \$25,000 Total External Funds, Project Dates: 11/1/2002 to 6/30/2004.
 7. National Park Service, *Little Yellow Creek Planning Level Assessment*, **R.W. Gentry** (PI), R. Robinson (Co-PI), G. Reed (Co-PI), \$35,000 Total External Funds, Project Dates: 9/1/2002 to 12/31/2003.
 8. National Science Foundation, *Collaborative Research (USC and UT): A Study of Naturally Occurring Decay-Series Isotopes as Quantitative Hydro-Geochemical Tracers*, T. Ku (PI), J. McCarthy (Co-PI), **R.W. Gentry** (Co-PI), \$90,000 Federal Funds, \$114,306 Total UT Project Funds, Project Dates: 2/1/2003 to 1/31/2006.
 9. National Park Service, *Cumberland Gap National Historic Park analysis of water monitoring data and recommendations for future activity*, **R.W. Gentry** (PI) and R. B. Robinson (Co-PI), \$2,500 Total External Funds, Project Dates: 3/26/2003 to 9/30/2003.
 10. Tennessee Water Resource Research Center, *Evaluation of pathogen occurrence and causation within the stock creek watershed (Knox County) as a model for watershed restoration*, J. McCarthy (PI), A. Layton (Co-PI), **R.W. Gentry** (Co-PI) and L. McKay (Co-PI), \$34,070 External Funds, \$102,580 Total Project Funds, Project Dates: 6/1/2003 to 5/31/2004.
 11. National Science Foundation, *Acquisition of an Unsaturated Flow Apparatus (UFA) with Technical Support to Investigate Hydrologic Processes in the Vadose Zone*. Perfect, E. (PI), McCarthy, J. (Co-PI), McKay, L. (Co-PI), and **Gentry, R.W.** (Co-PI), \$160,294 Total External Funds, Project Dates: 2/15/2004 to 2/14/2006.
 12. Tennessee Department of Environment and Conservation, *Efficacy of using algae chloroplasts and berillyum-7 to aid in GWUDI determination*. **R.W. Gentry** (PI), L. McKay (Co-PI), J. McCarthy (Co-PI), and A. Layton (Co-PI), \$161,920 External Funds, Project Dates: 6/1/2004 to 5/31/2006.
 13. Tennessee Department of Environment and Conservation, *Determination of Sources and Concentration of Fecal Bacteria in Chatata and Oostanaula Creeks Using Real Time PCR*, McKay, L. (PI), Layton, A. (Co-PI), and **Gentry, R.W.** (Co-PI), \$50,000, Project Dates: 4/14/2005 to 4/30/2007.
 14. University of Tennessee, *SARIF Equipment and Infrastructure Fund, Acquisition of an Ultra Rock-Core Centrifuge for Determining Hydraulic Properties of Variably-Saturated Porous Media*, Perfect, E. (PI), Jardine, P. (Co-PI), **Gentry, R.W.** (Co-PI), McCarthy, J.F. (Co-PI), and McKay, L. (Co-PI), \$51,362, Project Dates: 4/21/2005 to 6/30/2005.
 15. University of Tennessee, *SARIF Equipment and Infrastructure Fund, SARIF Equipment Proposal for Programmable Water Sampling and Monitoring Equipment*, **R.W. Gentry** (PI), McKay, L. (Co-PI), McCarthy, J. (Co-PI), Schwartz, J. (Co-PI), Layton, A. (Co-PI), Sanseverino, J. (Co-PI), Sayler, G. (Co-PI), \$25,650, Project Dates: 4/21/2005 to 6/30/2005.

16. Tennessee Department of Environment and Conservation, *Development And Testing Of Improved Methods For Dye Tracing In The Sub-Visual Range*, McKay, L.D. (PI), **Gentry, R.W.** (Co-PI), and McCarthy, J. (Co-PI), \$150,000, Project Dates: 6/1/2005 to 5/31/2007.
17. State of Tennessee, Centers of Excellence Appropriation FY07, **Gentry, R.W.** (PI), \$773,100, Project Dates: 7/1/2006 to 6/30/2007.
18. State of Tennessee, Centers of Excellence Appropriation FY08, **Gentry, R.W.** (PI), \$787,700, Project Dates: 7/1/2007 to 6/30/2008.
19. North Atlantic Treaty Organization (NATO), *Oil Spill Prevention Science Centre: SFP-982703*, Kryukov, D. (Co-Director), Grimmer, G. (Co-Director), Suvorov, V. (Co-Director), **Gentry, R.W.** (Co-Director), €291,947, Project Dates: 10/1/2007 to 9/30/2010.
20. National Science Foundation (NSF-0757267), *U.S.-China Workshop on Bioenergy Consequences of Global Environmental Change*, Zhuang, J. (PI), Sayler, G.S. (Co-PI), and **Gentry, R.W.** (Co-PI), \$49,500, Project Dates: 1/1/2008 to 12/31/2009.
21. State of Tennessee, Centers of Excellence Appropriation FY09, **Gentry, R.W.** (PI), \$772,300, Project Dates: 7/1/2008 to 6/30/2009.
22. State of Tennessee, Centers of Excellence Appropriation FY10, **Gentry, R.W.** (PI), \$772,300, Project Dates: 7/1/2009 to 6/30/2010.
23. State of Tennessee/DOE, *Tennessee Solar Institute and Solar Farm Implementation*, **Gentry, R.W.** (PI), \$58M, Project Dates: 3/2010 – 6/2011 (Administrative PI for UTRF).

Graduate Students Mentored as Major Professor (From 2002 to 2012 while at University of Tennessee):

1. Buckingham, Richard. University of Tennessee, non-thesis, completed M.S. Civil Engineering August 2003.
2. Goff, Karen Marie. University of Tennessee, *A Sensitivity Analysis of the Influence of Watershed and Development Characteristics on the Cumulative Impacts of Stormwater Detention Ponds*. M.S. thesis, completed M.S. Environmental Engineering May 2003.
3. Johnson, Matthew. University of Tennessee, *A Synoptic Evaluation of Water Quality for Little Yellow Creek in Cumberland Gap National Historic Park*. M.S. thesis, Completed M.S. Environmental Engineering, May 2004.
4. Cavalcanti, Nicole. University of Tennessee, non-thesis, complete M.S. Env. Engineering August 2004.
5. Crouch, Michael. University of Tennessee, non-thesis, completed M.S. Env. Engineering December 2004.
6. McMahan, Patrick. University of Tennessee, *The Inverse Application of Conformal Mapping Techniques to Describe Groundwater Flow-Regimes Through a Window in the Upper Claiborne Confining Layer*. M.S. thesis, Completed M.S. Environmental Engineering, May 2005.
7. McCall, Michael. University of Tennessee, non-thesis, M.S. Env. Engineering, December 2007.

8. Hu, Xiaoting. University of Tennessee, non-thesis, M.S. Env. Engineering, December 2007.
9. Owen, Candice. University of Tennessee, *Using Multivariate Analysis of Geochemical Data to Better Define Hydrologic Interfaces in Surface Water - Groundwater Systems*. M.S. thesis, Completed M.S. Environmental Engineering, December 2007.
10. McKenna, Amanda. University of Tennessee, *Characterizing Groundwater-Surface Water Interactions in Great Smoky Mountains National Park Using Hydrologic, Geochemical & Isotopic Data*. M.S. thesis, Completed M.S. Environmental Engineering, December 2007.
11. Koirala, Shesh. University of Tennessee, *Time and Frequency Domain Analyses of Hydrologic and Stream Water Quality Data*. Ph.D. dissertation, Completed Ph.D. Civil Engineering, December 2007.
12. Ballard, Nathan. University of Tennessee, non-thesis, M.S. Env. Engineering, May 2009.
13. Ruth, Brandin Lee. University of Tennessee, non-thesis, M.S. Env. Engineering, May 2009.