

No. 143, Original

IN THE
Supreme Court of the United States

STATE OF MISSISSIPPI,

Plaintiff,

v.

STATE OF TENNESSEE, CITY OF MEMPHIS, TENNESSEE,
AND MEMPHIS LIGHT, GAS & WATER DIVISION,

Defendants.

**On Bill of Complaint
Before the Special Master, Hon. Eugene E. Siler, Jr.**

**CREDENTIALS OF EXPERT WITNESSES
SUBMITTED BY DEFENDANT THE STATE OF TENNESSEE**

Pursuant to Section I.A(1) of the Special Master's Corrected Pre-Hearing Scheduling Order (Dkt. No. 69), Defendant the State of Tennessee submits the attached Curricula Vitae of its expert witnesses, Steven P. Larson and Brian Waldron.

Respectfully submitted this 14th day of September, 2018,

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/s/ David C. Frederick
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CERTIFICATE OF SERVICE

Pursuant to Paragraph 3 of the Special Master's Case Management Plan (Dkt. No. 57), I hereby certify that all parties on the Special Master's approved service list (Dkt. No. 26) have been served by electronic mail, this 14th day of September, 2018.

/s/ David C. Frederick

David C. Frederick
*Special Counsel to Defendant
State of Tennessee*

Exhibit A

Curriculum Vitae of Steven P. Larson

STEVEN P. LARSON

Groundwater Hydrologist

AREAS OF EXPERTISE

- Groundwater Hydrology
- Contaminant Fate and Transport
- Site Investigation and Remediation
- Numerical Modeling
- Spatial Interpolation
- Expert Testimony

SUMMARY OF QUALIFICATIONS

Mr. Larson is a recognized authority on numerical simulation models and their application in the analysis of a variety of groundwater problems. He has developed such models for analyzing groundwater flow, mass- and heat-transport in groundwater systems, contaminant migration, recovery of petroleum products from groundwater, saltwater intrusion in coastal aquifers, and thermal energy storage in aquifers. In addition, he has been in the forefront of combining these methods with linear programming techniques to optimize the development of groundwater supplies or the remediation of contaminated groundwater. Mr. Larson has conducted training courses on the use of these models and provided technical support on their application to a variety of hydrologic conditions. He has authored and co-authored publications on the application of aquifer simulation models that are widely used by practicing hydrologists. He has served as an expert witness in numerous judicial forums regarding groundwater issues and the application of simulation models for demonstrating the fate of soil/groundwater contamination and the effect of remediation alternatives

REPRESENTATIVE EXPERIENCE

S.S. Papadopoulos & Associates, Inc., Bethesda, Maryland

As senior principal of the company, Mr. Larson assists in the management of the company and in the conduct and management of projects dealing with a wide variety of environmental and water-resource issues. During his many years at SSP&A, he has been involved in numerous projects covering a wide spectrum of technical, environmental, and legal issues including:

- **Site Evaluations** — Remedial investigations, feasibility studies, engineering evaluation/cost analyses, and remedial action plans at CERCLA and other waste disposal sites including the Stringfellow site in California, the FMC Fridley site in Minnesota, the Chem Dyne site in Ohio, the Conservation Chemical site in Missouri, the Hardage-Criner site in Oklahoma, and the Hastings site in Nebraska.
- **Groundwater Contamination Evaluations, CERCLA and Other Waste-Disposal Sites** — Love Canal, New York; Savannah River Plant, South Carolina; Tucson Airport, Arizona; Ottati & Goss site, New Hampshire; Martin-Marietta site, Colorado; and Western Processing site, Washington State.
- **Environmental Impact Evaluations of the Effects of Water Development**, Wyoming and South Dakota — For proposed coal slurry operations in Wyoming, of in-situ mining for trona minerals in Wyoming, and of groundwater development on the shallow-water-table in South Dakota.

YEARS OF EXPERIENCE: 40+

EDUCATION

MS, Civil Engineering, University of Minnesota – Minneapolis, 1971

BS, Civil Engineering (with high distinction), University of Minnesota – Minneapolis, 1969

REGISTRATIONS

Certified Professional Hydrologist

PROFESSIONAL HISTORY

S.S. Papadopoulos & Associates, Inc., Executive Vice President, 1980 to present

U.S. Geological Survey:

Water Resources Division, Reston, Virginia: Hydrologist, 1975–1980.

Water Resources Division, St. Paul, Minnesota: Hydrologist, 1971–1975

Water Resources Division – National Training Center, Denver, Colorado: Hydrologist, 1971.

St. Anthony Falls Hydraulic

Laboratory, Minneapolis, Minnesota: Research Assistant, 1969–1971.

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- **Water-Supply Development Evaluations** — Potential impacts of salt-water intrusion on water-supply development, in Oman, Portugal and Florida; and analysis of potential impacts of power-plant cooling water on groundwater and surface water in Wyoming.
- **Evaluations of Permitting, Licensing, and Environmental Issues Associated with Mining** — Coal mining in Wyoming, Montana, and Arizona; copper mining in Montana and Utah; trona mining in Wyoming; and uranium mining in New Mexico.
- **Evaluations of the Effects of Discharge on Groundwater from Chemical-Manufacturing Waste Disposal** — Wyoming, Virginia, and New York.
- **Water-Rights Permitting Evaluations and Adjudication** — New Mexico, Texas, Colorado, Kansas, Wyoming, Nebraska, Arizona, and Idaho.
- **Environmental Audits, Groundwater Monitoring Plans, and Other Environmental Investigations** — Oaks Landfill in Maryland, the FMC Carteret facility in Wyoming, the former IBM facility in Indiana, and the Insilco site in Florida.

SPECIFIC PROJECT EXPERIENCE

- **Far-Mar-Co Subsite, Hastings Site, Nebraska** — Supervised the preparation of an engineering evaluation/cost analysis (EE/CA) to support implementation of remediation of groundwater contamination. Worked with regulatory agencies to gain approval of the EE/CA and progress toward design and implementation. Previously, on behalf of Morrison Enterprises, supervised completion of a remedial investigation and a feasibility study involving carbon tetrachloride and ethylene dibromide contamination.
- **Stringfellow Site, near Riverside, California** — Served as the principal technical advisor on groundwater issues to the Pyrite Canyon Group that overviewed investigations and remedial activities sponsored by the responsible parties. Designed and evaluated several investigations and remediation programs. Represented the client as a technical spokesperson in workshops, technical seminars, and meetings with regulatory agencies and other interested parties. Prepared key documents to support the decision-making process toward the final Record of Decision.
- **In the case of *Kansas v. Colorado* before the U.S. Supreme Court** — Served on a team of technical advisors to the State of Kansas in its litigation with Colorado over violations of the Arkansas River Compact. Assisted in obtaining a finding of compact violation regarding the pumping of groundwater from wells along the river valley in Colorado. Continued as a technical expert as the case moves into subsequent phases involving the quantification of depletions of supply, assessments of damage, and future compliance by Colorado.

EXPERT AND FACT WITNESS EXPERIENCE

- Litigation associated with soil and groundwater contamination at CERCLA, RCRA, and other facility sites in California, Kansas, Missouri, Oklahoma, Tennessee, Montana, Florida, Iowa, and Nebraska.
- Toxic tort, property damage, and liability litigation regarding soil and groundwater contamination at sites or facilities in New York, Tennessee, Texas, Virginia, Ohio, and other states.
- Insurance recovery litigation associated with contamination at a variety of sites or facilities for commercial clients such as General Electric, FMC Corporation, Upjohn, AT&T, Rohr Industries, Beazer East/Koppers, North American Phillips, DOW Chemical, Occidental Chemical, and Southern California Edison.
- Water-rights permitting litigation and water adjudication including cases in New Mexico, Colorado, and Arizona, as well as interstate river compact disputes involving the states of Kansas, Colorado, Wyoming, and Nebraska.

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U.S. Geological Survey, Water Resources Division, Reston, Virginia

Originated, planned and conducted research in the development of numerical simulation models and techniques for the analysis of a variety of problems related to groundwater systems. Applied the developed models to actual field situations for verification and further refinement, and documented these models in a manner suitable for use by others. Served as coordinator and instructor for training courses on groundwater simulation models and methodologies conducted by the Division, and provided primary technical assistance to many groundwater projects conducted by District. Participated in and represented the Survey in national and international meetings. Conducted groundwater studies of national and regional interest, and participated in or was detailed to overseas projects conducted or managed by other U.S. agencies and the World Bank.

U.S. Geological Survey, Water Resources Division, St. Paul, Minnesota

Served as Project Chief and participated in studies involving the evaluation of groundwater resources, the assessment of stream-water quality, and the analysis of surface-water/groundwater relationships in various parts of Minnesota.

U.S. Geological Survey, Water Resources Division, National Training Center, Denver

Participated in an extended training program providing in-depth training on both office and field techniques for the collection and the analysis of data and the conduct of surface-water, groundwater, and water-quality studies.

St. Anthony Falls Hydraulic Laboratory, Minneapolis, Minnesota

As a Research Assistant, participated in the development and operation of an urban-runoff model to predict sewer flow distribution for the Minneapolis–St. Paul Sanitary District. Assisted in runoff prediction studies for St. Paul and participated in a project to survey and summarize computer programs used in water resources engineering.

PROFESSIONAL SOCIETIES

Association of Ground Water Scientists and Engineers
American Institute of Hydrology

AWARDS AND HONORS

Civil Servant of the Year, U.S. Geological Survey, 1974
U.S. Geological Survey Incentive Award, 1974
American Society of Civil Engineering Student Award, 1969

PUBLICATIONS AND PRESENTATIONS

- Barth, G., S.P. Larson, G. Lewis, and K. Green, 2011. Prediction Uncertainty of Drawdown in the Seven-Rivers Augmentation Well Field. Presentation at the National Groundwater Association (NGWA) Conference 2011. Baltimore, MD. June 2011, 15.
- Spiliotopoulos, A., M. Karanovic, and S. Larson, 2008. Development of Transient Flow Models for the Solomon River Basin. Presentation at MODFLOW and More 2008: Ground Water and Public Policy Conference, May 18-21, 2008, Golden, CO.
- Papadopoulos, S.S., and S.P. Larson, 2007. The Drawdown Distribution in and Around a Well Pumping from a Two-Region Aquifer. Presentation at the 119th Annual Meeting of the Geological Society of America, Denver, CO, October 27-31, 2007. *in Abstracts and Programs*, v. 39, no. 6. p. 189. Geological Society of America, Boulder, CO.

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- Larson, S.P., 2007. The Use of Complex Computer Modeling of Groundwater Systems. Presentation at the 53rd Annual Rocky Mountain Mineral Law Institute, Vancouver, British Columbia, July 19-21, 2007. 21.
- Larson, S.P., 2006. Simplicity in Modeling — Use of Analytical Models with PEST. Presentation at MODFLOW and More 2006, Managing Ground-Water Systems, International Ground Water Modeling Center, Colorado School of Mines Golden, CO, May 22-24, 2006: v. 2, pp. 579-583.
- Tonkin, M.J., S. Larson, and C. Muffels, 2004. Assessment of Hydraulic Capture through Interpolation of Measured Water Level Data. Presentation at Conference on Accelerating Site Closeout, Improving Performance, and Reducing Costs through Optimization, U.S. Environmental Protection Agency, Federal Remediation Technology Roundtable, June 15-17, 2004, Dallas, TX.
- Tonkin, M.J. and S. Larson, 2002. Kriging Water Levels with a Regional-Linear and Point-Logarithmic Drifts: *Ground Water*, v. 40, no. 2 (March-April), pp. 185-193.
- Blum, V.S., S. Israel, and S.P. Larson, 2001. Adapting MODFLOW to Simulate Water Movement in the Unsaturated Zone. *in Proceedings of MODFLOW 2001 and Other Modeling Odysseys*, International Groundwater Modeling Center (IGWMC), September 11-14, 2001, Colorado School of Mines, Golden, Colorado, pp. 60-65.
- Larson, S.P., C. Andrews, and C. Neville, 1995. Parameter Estimation in Groundwater Modeling: Research, Development, and Application (Abstract). American Geophysical Union (AGU) Spring Meeting, Baltimore, May 30–June 2, 1995, Hydrology Sessions (invited speaker). S145, Abstract H51C-02 0835h.
- Andrews, C.B., and S. Larson, 1988. Evolution of Water Quality in the Lower Rio Grande Valley, New Mexico. *Eos*, v. 69, no. 16, p. 357.
- Larson, S.P., C. Andrews, M. Howland, and D. Feinstein, 1987. Three-Dimensional Modeling Analysis of Groundwater Pumping Schemes for Containment of Shallow Groundwater Contamination. *in Solving Ground Water Problems with Models*. Dublin, OH: National Water Well Association. pp. 517-536.
- Bennett, G.D., A. Kontis, and S. Larson, 1982. Representation of Multi-Aquifer Well Effects in Three-Dimensional Groundwater Flow Simulation. *Ground Water*, v. 20, no. 3, pp. 334-341.
- Helgesen, J.O., S. Larson, and A. Razem, 1982. *Model Modifications for Simulation of Flow Through Stratified Rocks in Eastern Ohio*. U.S. Geological Survey, Water-Resources Investigations 82-4019.
- Larson, S.P., S. Papadopoulos, and J. Kelly, 1981. Simulation Analysis of a Double-Transmissivity Concept for the Madison Aquifer System (abstract). *Proceedings of the 10th Annual Rocky Mountain Ground-Water Conference*, Laramie, Wyoming, April 30-May 2, 1981. p. 76.
- Mercer, J.W., S. Larson, and C. Faust, 1980. *Finite-Difference Model to Simulate the Real Flow of Saltwater and Fresh Water Separated by an Interface*. U.S. Geological Survey, Open-File Report, pp. 80-407.
- Mercer, J.W., S. Larson, and C. Faust, 1980. Simulation of Saltwater Interface Motion. *Ground Water*, v. 18, no. 4, pp. 374-385.
- Larson, S.P., 1978. *Direct Solution Algorithm for the Two-Dimensional Ground-Water Flow Model*. U.S. Geological Survey, Open-File Report 79-202, p. 25.
- Papadopoulos, S.S., and S. Larson, 1978. Aquifer Storage of Heated Water: Part II - Numerical Simulation of Field Results. *Ground Water*, v. 16, no. 4, pp. 242-248.
- Burnham, W.L., S. Larson, and H. Cooper Jr., 1977. *Distribution of Injected Waste-Water in the Saline Lava Aquifer, Wailuku-Kahului Waste-Water Treatment Facility, Kahului, Maui, Hawaii*. U.S. Geological Survey, Open File Report 77-469.
- Larson, S.P., T. Maddock III, and S. Papadopoulos, 1977. Optimization Techniques Applied to Ground-Water Development. Presentation at the Congress of the International Association of Hydrogeologists, Birmingham, England, July 24-30, 1977. *in Memoires*, 13, Part 1. E57-E66.

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- Larson, S.P., S. Papadopoulos, H. Cooper, Jr., and W. Burnham, 1977. Simulation of Wastewater Injection into a Coastal Aquifer System near Kahului, Maui, Hawaii. Presentation at the American Society of Civil Engineers' (ASCE) 25th Annual Hydraulic Division Specialty Conference on the Hydraulics in the Coastal Zone, Texas A&M University, College Station, TX, August 10-12, 1977. in *Proceedings - Hydraulics Division Specialty Conference*, v. 25, pp. 107-116.
- Larson, S.P., and P. Trescott, 1977. Solution of Water-Table and Anisotropic Flow Problems Using the Strongly Implicit Procedure: *Journal of Research of U.S. Geological Survey*, v.5, no. 6, pp. 815-821.
- Trescott, P.C., and S. Larson, 1977. Comparison of Iterative Methods of Solving Two-Dimensional Ground-Water Flow Equations. *Water Resources Research*, v. 13, no. 1, pp. 125-136.
- Trescott, P.C., and S. Larson, 1977. Solution of Three-Dimensional Ground-Water Flow Equations Using the Strongly Implicit Procedure. *Journal of Hydrology*, v. 35, pp. 49-60.
- Larson, S.P., 1976. *An Appraisal of Ground Water for Irrigation in the Appleton Area, West-Central Minnesota*. U.S. Geological Survey, Water Supply Paper 2039-B, p. 34.
- Larson, S.P., W. Mann IV, T. Steele, and R. Susag, 1976. *Graphic and Analytical Methods for Assessment of Stream-Water Quality: Mississippi River in the Minneapolis - St. Paul Metropolitan Area, Minnesota*. U.S. Geological Survey, Water Resources Investigations Open-File Report 76-94. 55.
- Trescott, P.C., and S. Larson, 1976. *Supplement to Open-File Report 75-438 – Documentation of Finite-Difference Model for Simulation of Three-Dimensional Ground-Water Flow*. U.S. Geological Survey, Open-File Report 76-591. 21.
- Trescott, P.C., G. Pinder, and S. Larson, 1976. *Finite Difference Model for Aquifer Simulation in Two Dimensions with Results of Numerical Experiments*. Automated Data Processing and Computations. Techniques of Water-Resources Investigations Book 7. Chapter C1, p.116.
- Larson, S.P., M. McBride, and R. Wolf, 1975. *Digital Models of a Glacial Outwash Aquifer in the Pearl-Sallie Lakes Area, West-Central Minnesota*. U.S. Geological Survey, Water Resources Investigations 75-40. 39.
- Larson-Higdem, D.C., S. Larson, and R. Norvitch, 1975. *Configuration of the Water Table and Distribution of Downward Leakage to the Prairie du Chien/Jordan Aquifer in the Minneapolis -St. Paul Metropolitan Area*. U.S. Geological Survey, Open-File Report 75-342. 33.
- Bowers, C.E., A. Pabst, and S. Larson, 1972. *Computer Programs in Hydrology*. University of Minnesota, Water Resources Research Center Bulletin 44. 172.
- Bowers, C.E., A. Pabst, and S. Larson, 1971. *Computer Program for Statistical Analysis of Annual Flood Data by the Log-Pearson Type III Method*. University of Minnesota, Water Resources Research Center Bulletin 39. 26.

DEPOSITION AND TESTIMONY EXPERIENCE

DEPOSITIONS

- 2018 James Blocker and Jami Blocker, et al. vs. ConocoPhillips Company. U.S. District Court for the Western District of Oklahoma. Case No. CIV-17-248-D. July 10.
- 2017 State of Mississippi vs. State of Tennessee, City of Memphis and Memphis Light, Gas, & Water Division. U.S. Supreme Court. No. 143, Orig. September 19.
- 2017 Albin Family Revocable Living Trust, et al. vs. Halliburton Energy Services, Inc. U.S. District Court for the Western District of Oklahoma. Case No. CIV-16-910-M. July 25.
- 2015 In the Matter of the Application by the City of Gallup for Permit to Appropriate Ground Water within the Gallup Underground Water Basin of New Mexico. Before the New Mexico State Engineer. Hearing No. 99-003. March 11.

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- 2015 Mitchell McCormick, et al. vs. Halliburton Company, et al. U.S. District Court for the Western District of Oklahoma. Case No. 11-CV-01272-M. January 15.
- 2014 Kansas vs. Nebraska and Colorado. U.S. Supreme Court. No. 126, Orig. January 30. (*Arbitration*)
- 2013 Kansas vs. Nebraska and Colorado. U.S. Supreme Court. No. 126, Orig. August 5. (*Arbitration*)
- 2013 Mitchell McCormick, et al. vs. Halliburton Company, et al. U.S. District Court for the Western District of Oklahoma. July 30.
- 2013 Kansas vs. Nebraska and Colorado. U.S. Supreme Court. No. 126, Orig. July 24. (*Arbitration*)
- 2013 State of Montana vs. State of Wyoming and State of North Dakota. Supreme Court of the United States. No. 137, Original. July 16.
- 2013 Kansas vs. Nebraska and Colorado. U.S. Supreme Court. No. 126, Orig. June 11.
- 2013 State of New Mexico ex rel. State Engineer vs Kerr-McGee Corporation et al., State of New Mexico, County of Cibola, Thirteenth Judicial District Court, No. CB-83-190-CV & CB-83-220-CV (Consolidated). April 9 - 11.
- 2013 State of Montana vs. State of Wyoming and State of North Dakota. Supreme Court of the United States. No. 137, Original. February 12.
- 2013 Orange County vs. Sabic Innovative Plastics US, LLC., et al. Superior Court of the State of California for the County of Orange. Case No. 30-2008-00078246-CU-TT-CXC. January 29.
- 2012 State of New Mexico ex rel. State Engineer vs Kerr-McGee Corporation et al., State of New Mexico, County of Cibola, Thirteenth Judicial District Court, No. CB-83-190-CV & CB-83-220-CV (Consolidated). October 10-12.
- 2012 Orange County Water District vs Northrop Corporation, et al., Superior Court of the State of California in and for the County of Orange, No. 04CC00715. July 11 and August 1.
- 2012 Atlantic Richfield vs State of California, et al., Superior Court of the State of California, County of Los Angeles, Central District. No. BC 380474. June 21-22.
- 2012 Michael O. Thomas and Patricia Thomas vs ConocoPhillips, Inc. et al., In the Circuit Court in and for Escambia County, Florida, Case No. 2008 CA 001381. June 12.
- 2012 Kansas vs. Nebraska and Colorado. U.S. Supreme Court. No. 126, Orig. April 9.
- 2012 Ron Block, et al. vs. Daniel and Mary Lou Helix, et al. Superior Court of California, County of Contra Costa. No. CIVMSC05-01725. March 27.
- 2012 Kansas vs. Nebraska and Colorado. U.S. Supreme Court. No. 126, Orig. February 15.
- 2011 OneBeacon America Insurance Company vs. Narragansett Electric Company. Volume I. Commonwealth of Massachusetts, Suffolk County Superior Court. 05-3086-BLS-I. November 15.
- 2010 Kansas vs. Nebraska and Colorado. U.S. Supreme Court. No. 126, Orig. June 29.
- 2010 OneBeacon America Insurance Company vs. Narragansett Electric Company. Volume I. Commonwealth of Massachusetts, Suffolk County Superior Court. 05-3086-BLS-I. March 3.
- 2009 Morrison Enterprises and the City of Hastings, Nebraska vs Dravo Corporation. U.S. District Court for the District of Nebraska. No. 4:08-CV-3142 (Confidential section). July 23.
- 2009 State of Oklahoma vs. Tyson Foods et al. U.S. District Court for the Northern District of Oklahoma. 05-cv-349-TCK-SAJ. April 10.
- 2009 Kansas vs. Nebraska and Colorado. U.S. Supreme Court. No. 126, Orig. February 24.
- 2009 Timm Adams et al. vs. United States of America et al. U.S. District Court for the District of Idaho. CIV 03-0049-E-BLW. January 16.
- 2008 Gloria Ned et al. vs. Union Pacific Railroad. 14th Judicial District Court, Parish of Calcasieu, State of Louisiana. 2003-001100 (Consolidated Cases). August 15.

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- 2008 Jeff Alban et al. vs. ExxonMobil Corporation et al. Circuit Court for Baltimore County. 03-C-06-010932. January 24.
- 2007 City of Neodesha, Kansas et al. vs. BP Corporation North America. District Court of Wilson County, Kansas. 2004-CV-19. July 24.
- 2006 Nikko Materials USA, Inc., dba Gould Electronics v. NavCom Defense Electronics Inc., Ernest Jarvis, and Hyrum Jarvis. United States District Court, Central District of California. CV05-4158-JFW (VBKx). September 25-26.
- 2005 Rodney Montello et al. vs. Alcoa Inc. et al. vs. Whittaker Corporation. United States District Court for the Southern District of Texas, Victoria Division. C.A. No. V-02-84. December 19.
- 2005 Goodrich Corporation vs. Commercial Union Insurance Company et al. In the Court of Common Pleas, Summit County, Ohio. Case No. CV 99 02 0410. September 20.
- 2005 Santa Fe Pacific Gold Corporation vs. United Nuclear Corporation vs. The Travelers Indemnity Company and Century Indemnity Company, Inc. Eleventh Judicial District Court, County of McKinley, State of New Mexico. Case No. CV-97-139II. September 8.
- 2005 Nathaniel Allen et al. vs. Aerojet-General Corporation et al. Superior Court of the State of California for the County of Sacramento. Case No. 98AS01025. August 29.
- 2005 Aerojet-General Corporation vs. Fidelity & Casualty Co. of New York et al., Aerojet-General Corporation vs. Commercial Union Insurance Company, as Successor-In-Interest to Employers' Surplus Lines Insurance Company, etc. et al. Superior Court of the State of California in and for the County of Sacramento. Case No. 527932. July 20.
- 2005 United States of America vs. Jay James Jackson et al. U.S. District Court for the District of Nebraska. Case No. 8:04CV64. June 9.
- 2005 Palmisano vs. Olin Corporation. U.S. District Court, Northern District of California, San Jose Division. Case No. 5:03-cv-01607-RMW. March 7.
- 2005 Cheryl Lanoux et al. vs. Crompton Manufacturing Company et al. 23rd Judicial District Court, Parish of Ascension, State of Louisiana. Suit No. 72,897, Division: "B". February 25.
- 2004 RHI Holdings, Inc. vs. American Employers Insurance Company. Commonwealth of Massachusetts Superior Court Department. Civil Action No. 01-5443-G. December 7.
- 2004 Massachusetts Electric Company et al. vs. Travelers Casualty & Surety Company et al. Commonwealth of Massachusetts Superior Court. Civil Action No. 99-00467B. November 18-19.
- 2004 PECO Energy Company vs. Insurance Company of North America, et al. Court of Common Pleas of Chester County, Pennsylvania. Case No. 99-07386. June 14-15.
- 2004 Kerr-McGee Corporation and Kerr-McGee Chemical, LLC, vs. Hartford Accident and Indemnity Company and Liberty Mutual Insurance Company. Superior Court of New Jersey Law Division: Somerset County. Docket No.: SOM-L-229-01. May 26.
- 2003 American States Water Company et al. vs. State of California et al. Superior Court of the State of California in and for the County of Sacramento. No. 98AS01998. August 14 – 15.
- 2003 Waste Management, Inc. et al. vs. The Admiral Insurance Company et al. Superior Court of New Jersey Law Division: Hudson County. Case No. HUD-L-931-92. May 15.
- 2003 Waste Management, Inc. et al. vs. The Admiral Insurance Company et al. Superior Court of New Jersey Law Division: Hudson County. Case No. HUD-L-931-92. May 6.
- 2003 Landowners, LTD. vs. Litton Industries, Black Copy, Robert Silver, dba Vito's Autobody, West Coast Corporation, doing business as Peabody's Custom Paint and Autobody Specialist, David Mangola, Robert Mangola, David Silver and DOES 1-50, Inclusive. Superior Court of the State of California in and for the County of Los Angeles. Case No.: BC255187. March 25.

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- 2003 Bernice Samples et al. vs. Conoco, Inc.; Agrico Chemical Company, Inc; and Escambia Treating Company, Inc. Circuit Court of the First Judicial Circuit in and for Escambia County, Florida. Case No. 01-631-CA-01. March 20.
- 2002 State of Kansas vs. State of Colorado and United States of America. Supreme Court of the United States. Case No. 105 Original. December.
- 2002 PECO Energy Co. vs. Insurance Company of North America et al. Court of Common Plea Chester County, Pennsylvania. No. 99-07386. September 26 and 27.
- 2002 Associated Indemnity Corporation, and The American Insurance Company, vs. The Dow Chemical Company. U.S. District Court for the Eastern District of Michigan, Northern Division. No. 99 CV 76397. June 11 and 12.
- 2002 Bernice Samples et al. vs. Conoco, Inc.; Agrico Chemical Company, Inc; and Escambia Treating Company, Inc. Circuit Court for the First Judicial Court in and for Escambia County. Case No. 01-631-CA-01. June 7.
- 2002 State of New Mexico et al. vs. General Electric Company et al. The U.S. District Court for the District of New Mexico. Case No. CV 99-1254 BSJ/DJS and CV 99-1118 BSJ/LFG. April.
- 2002 Redlands Tort Litigation. Superior Court of the State of California for the County of San Bernardino. No. RCV 31496. February.
- 2001 State of Kansas vs. State of Colorado and United States of America. Supreme Court of the United States. Case No. 105 Original. August 2 and 3.
- 2001 Pfizer Inc. vs. Employers Insurance of Wausau. Superior Court of New Jersey Chancery Division: Middlesex County. Docket No. MID-C-108-92. July.
- 2001 Unisys Corporation et al. vs. Insurance Company of North America. New Jersey Superior Court, Law Division. Case No. L-1434-94-S. April.
- 2001 Gwendolyn Guillory et al. vs. Union Pacific Corporation et al. 14th Judicial District Court, Parish of Calcasieu, State of Louisiana. Case No. 98-5405. January 18.
- 2000 Chevy Chase Bank FSB vs. Shell Oil Company and Motiva Enterprises, LLC. U.S. District Court for the District of Maryland, Southern Division. Case No. PJM 00-CV-1557. November 22.
- 2000 American Home Products et al. vs. Adriatic Insurance Company et al. Superior Court of New Jersey Law Division: Hudson County. Docket No. HUD-L-5002-92. October.
- 2000 Sherwin-Williams vs. Artra, et al. U.S. District Court for the District of Maryland. Case No. S-91-2744. September.
- 2000 Long Island Lighting Company vs. Allianz Underwriters Insurance Company et al. Supreme Court of the State of New York, County of New York. Index No. 97-604715. August and September.
- 2000 Texaco, Inc. vs. H.T. Olinde, et al. U.S. Bankruptcy Court, Southern District of New York. Case Nos. 87 B 20142 (ASH), 87 B 20143 (ASH), and 87 B 20144 (ASH). August.
- 2000 United States of America, People of California vs. J.B. Stringfellow, Jr. et al. U.S. District Court for the Central District of California. Case No. CV 83-2501 R. March 20.
- 2000 Maurice L. McIntire et al. vs. Motorola, Inc. District of Arizona. Case No. CIV 91-2067 PHX PGR. February 14, 15, and 16.
- 2000 Warner-Lambert and Parke-Davis Company vs. Admiral Insurance et al. Superior Court of New Jersey Law Division: Middlesex County. Docket No. L-10456-94.
- 1999 Consolidated Edison Company of New York, Inc. vs. Allstate Insurance Company et al. Superior Court of the State of New York. Case No. 98/600142. November 4.
- 1999 Merck & Co., Inc. vs. Federal Insurance Company et al. Superior Court of New Jersey Chancery Division: Middlesex County. Docket No. CM-340-96. November.

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- 1999 Aerojet-General Corporation and Cordova Chemical Company vs. Transport Indemnity Insurance Co. et al. Superior Court of the State of California, County of Sacramento. No. 98AS05598. October.
- 1999 Niagara Mohawk Power Corporation vs. Jones Chemicals, Inc., et al. U.S. District Court, Northern District of New York. Case No. 95-CV-717. August 11.
- 1999 Pfizer Inc. vs. Employers Insurance of Wausau. Superior Court of New Jersey Chancery Division: Middlesex County. Docket No. MID-C-108-92. July.
- 1999 Niagara Mohawk Power Corporation. U.S. District Court, Northern District of New York. Case No. 95-CV-717. June 29.
- 1999 Textron, Inc. vs. Ashland, Inc., Archer Daniels Midland Company; and Millenium Petrochemicals, Inc. Superior Court of New Jersey Law Division; Essex County. Docket No. ESX-L-1562-98. June.
- 1999 The Mennen Company vs. Federal Insurance Company. Superior Court of New Jersey Law Division: Union City. Civil Action UNN-L-2031-97 (Consolidated Case Nos. UNN-C-10-97 & MRS-L-4051-96). May.
- 1999 E.I. duPont de Nemours and Company and Conoco Inc. vs. Condea Vista Company. District Court, Harris County, Texas, 55th Judicial District. Case No. 97-23468. April 22.
- 1999 Jersey Central Power & Light Company vs. American Casualty Company of Reading, PA et al. Superior Court of New Jersey, Chancery Division, Middlesex County. Docket No. C-299-94. March 17 and 18.
- 1998 Zurich Insurance Company vs. Joseph Dixon Crucible Company et al. Superior Court of New Jersey Law Division: Hudson County. Docket No. L-4898-96. November.
- 1998 M/A COM, Inc. vs. Liberty Mutual Insurance Company and Employers Insurance of Wausau. Superior Court of New Jersey Law Division: Middlesex County. Docket No. L-874-97. October.
- 1998 Aetna Casualty & Surety Company vs. Dow Chemical Company, and American Guarantee and Liability Company et al. U.S. District Court for the Eastern District of Michigan. Case No. 93 CV 73601 DT. June 23-25.
- 1998 C.E. Bradley Laboratories, Inc. vs. Commercial Union Insurance Company et al. State of Vermont Superior Court of Windham County. No. S427-95 WMC. May.
- 1998 State of Kansas vs. State of Colorado and United States of America. Supreme Court of the United States. Case No. 105 Original. April 30.
- 1998 Kay Bettis et al. vs. Ruetgers-Nease Corporation et al. U.S. District Court for the Northern District of Ohio, Eastern Division. Case No. 4:90 CV 0502. March 17-18.
- 1998 State of Nebraska, vs. State of Wyoming. Supreme Court of the United States. No. 108. March.
- 1998 Sally Comeaux et al. vs. Vista Chemical Company et al. 14th Judicial District, Parish of Calcasieu, State of Louisiana. No. 95-6539. February 6.
- 1997 Harris Corporation vs. Travelers Indemnity Company and Commercial Union Insurance Company. U.S. District Court, Middle District of Florida, Orlando Division. Case No. 96-166-ORL-19. November 6.
- 1997 Morrison Enterprises vs. Aetna Casualty & Surety Company et al. District Court of Adams County, Nebraska. Case No. 94128. October 22.
- 1997 Air Products and Chemicals, Inc. vs. Hartford Accident and Indemnity Co. Superior Court of New Jersey Law Division: Middlesex. Docket No. L-17134-89. October.
- 1997 Dianne Lofgren et al. vs. Motorola, Inc. et al. Superior Court of the State of Arizona in and for the County of Maricopa. Case No. CV 93-05521, CV 93-15612, CV 94-08956, CV 95-05322 (consolidated). October.

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- 1997 Vermont American Corporation vs. American Employers Insurance Company et al. State of Vermont, Washington County, Washington Superior Court. Docket No. S 330-6-95 Wncv. July 7-8 and August.
- 1997 WMX Technologies, Inc. et al. vs. The Admiral Insurance Company et al. Superior Court of New Jersey, Law Division - Hudson County. Docket No. HUD-L-931-92. June, July, October, and November.
- 1997 Morrison Enterprises vs. Aetna Casualty & Surety Company et al. District Court of Adams County, Nebraska. Case No. 94128. June 12.
- 1997 Asarco, Inc. et al. vs. Andalex Resources, Inc. et al. vs. Trammell Crow et al. U.S. District Court for the Western District of Missouri. Case No. 94-0698-CV-W-BB. May 29.
- 1996 Interstate Power Company vs. American Home Assurance et al. Iowa District Court for Clinton County. Case No. LA 21793. December 18 and 19.
- 1996 Interstate Power Company vs. American Home Assurance et al. Iowa District Court for Clinton County. Case No. LA 21793 - Confidential-Protective Order. October 29, 30, 31, and November 4.
- 1996 Quantum Chemical Corporation vs. Royal Indemnity Company et al., In re: Bridge Products Site, Alta Vista, Virginia. Superior Court of the State of California, for the County of San Francisco. Case No. 965527. September 11.
- 1996 Contract Freighters, Inc. vs. International Paper Company. U.S. District Court, District of Missouri. Case No. 95-5022-CV-SW-1. June 19 and 20 and August 9.
- 1996 State of Kansas vs. State of Colorado and United States of America. Supreme Court of the United States. Case No. 105, Original. March 5, July and August.
- 1996 McDonnell Douglas Corporation vs. Allstate Insurance Company et al. February 2.
- 1996 Beazer East, Inc. vs. CSX Transportation, Inc. U.S. District Court, Western District Pennsylvania. Civil Action No. 93-0861.
- 1996 State of Montana vs. Atlantic Richfield Company. U.S. District Court, District of Montana, Helena Division. No. CV-83-317-HLN-PGH.
- 1995 Vermont American Corporation vs. American Employers' Insurance Company et al. State of Vermont, Washington County, Washington Superior Court. Case No. S 330-6-95-Wncv. July 7 and 8.
- 1995 Harry Hendler, Paul Garrett, Tillie Goldring, as Trustees et al. vs. United States Court of Federal Claims. U.S. Court of Federal Claims. Case No. 456-84-L. April 3.
- 1995 Koppers Company, Inc. vs. The Aetna Casualty & Surety Company et al. U.S. District Court for the Western District of Pennsylvania. Civil Action No. 85-2136. January 19.
- 1995 Reichhold Chemicals, Inc. vs. Textron Inc., et al. U.S. District Court, Northern Dist. Florida. Case No. 92-30393RV.
- 1995 Hawks and Meehan vs. City of Coffeyville, et al. U.S. District Court, Kansas. Civil Action No. 93-2555-KHV.
- 1994–1995 North American Philips Corporation vs. Aetna Casualty & Surety Company et al. Superior Court of the State of Delaware, New Castle County. Case No. 88C-JA-155-1-C. December 1 and 2, 1994 and January 3, 1995.
- 1994 Rockwell International vs. Aetna Casualty and Surety Company et al., In re: Stringfellow. Superior Court of the State of California for the County of Los Angeles. Case No. BC 050 767. May 26.
- 1993 American Telephone & Telegraph Company vs. Aetna Casualty & Surety Company et al. Superior Court of New Jersey, Law Division - Essex County. Case No. W-56681-88 - Confidential-Subject to Protective Order. December 10.

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- 1993 Farmland Industries, Inc. vs. Morrison-Quirk Grain Corporation. U.S. District Court, District of Nebraska. Civil Action No. CV88-L-718. November.
- 1993 Aluminum Company of America vs. Beazer East vs. Chicago Bridge & Iron. U.S. District Court for the Western District of Pennsylvania. Civil Action No. 91-0092. October 4.
- 1993 The Upjohn Company et al. vs. Aetna Casualty & Surety Company et al. U.S. District Court for the Western District of Michigan. Case No. K-88-124-CA4. September 13, 14, and 15.
- 1993 United States of America vs. Morrison-Quirk. U.S. District Court, District of Nebraska. Civil Action No. CV88-L-720.
- 1993 FMC Corporation vs. Liberty Mutual Insurance Corporation. California Superior Court, Santa Clara County. No. 643058.
- 1992 State of Kansas vs. State of Colorado and United States of America. Supreme Court of the United States. No. 105, Original. February 5 and 6.
- 1992 Interstate Power Company vs. Kansas City Power & Light et al. U.S. District Court for the Northern District of Iowa, Central Division. Case No. C89-3033. January 24.
- 1992 Tanglewood East Homeowners Association vs. First Federal Savings & Loan Association of Conroe et al. U.S. District Court of Texas, Houston Division. Civil Action No. H-84-4798.
- 1992 Intersil vs. Western Microwave. U.S. District Court Northern District. Case No. C-90-20701-JW.
- 1992 United States of America, People of California vs. J. B. Stringfellow, Jr. et al. U.S. District Court for the Central District of California. No. CV 83-2501 JMI.
- 1991 Farmland Industries, Inc. vs. Morrison-Quirk Grain Corporation. U.S. District Court, District of Nebraska. Civil Action No. CV88-L-718. November.
- 1991 Edwin H. Clark, II vs. Irvin F. Simon; Chem-Solv, Inc. et al. vs. The Aetna Casualty & Surety Company of Hartford et al. vs. Love Controls Corporation. Superior Court of the State of Delaware in and for Kent County. Case No. 85C-MY-1. June 6.
- 1991 United States of America et al. vs. Occidental Chemical Corporation et al. U.S. District Court for the Western District of New York. Civil Action No. 79-990C.
- 1990 State of Kansas vs. State of Colorado and United States of America. Supreme Court of the United States. No. 105, Original. June 13.
- 1990 United States of America et al. vs. Occidental Chemical Corporation et al. U.S. District Court, Western District of New York. Case No. CIV 79-990 (JTC). May 7 and 8, June 4 and 5, August 8, and October 4.
- 1989 United States of America vs. Royal N. Hardage et al., Advance Chemical Company et al. vs. ABCO, Inc. et al. U.S. District Court for the Western District of Oklahoma. Case No. CIV-86-1401. November 7.
- 1989 United States of America, People of the State of California vs. J. B. Stringfellow, Jr. et al. U.S. District Court for the Central District of California. Case No. CV 83-2501 JMI. February 13.
- 1989 United States of America et al. vs. Occidental Chemical Corporation et al. U.S. District Court, Western District of New York. Case No. CIV 79-990 (JTC). January 17 and 18.
- 1988 United States of America vs. Royal N. Hardage et al., Advance Chemical Company et al. vs. ABCO, Inc. et al. U.S. District Court, Western District of Oklahoma. Case No. CIV-86-1401-P. November 30 and December 14.
- 1988 United States of America vs. Royal N. Hardage et al. and Advance Chemical Co. et al., ABCO, Inc. et al. U.S. District Court for the Western District of Oklahoma. Case No. CIV-86-1401-P. July 14.
- 1986 Anne Anderson et al. vs. Cryovac, Inc. et al. 1st Circuit. Case No. 805 F2dl.

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- 1986 Mel Foster Company Properties, Inc. vs. The American Oil Company et al. Iowa District Court for Scott County. Law No. 69134.
- 1986 United States of America vs. Ottati & Goss. U.S. District Court for the District of New Hampshire. Civil Action 80-225-L.
- 1985 State of New Mexico, ex rel. S.E. Reynolds, State Engineer, and Pecos Valley Artesian Conservancy District vs. L. T. Lewis et al. United States of America, Mescalero Apache Tribe and State of New Mexico, ex rel. S.E. Reynolds, State Engineer, and Pecos Valley Artesian Conservancy District vs. Hagerman Canal Company et al. District Court for the County of Chaves, State of New Mexico. Case No. 20294 and 22600 - Consolidated. December 20.
- 1984 United States of America vs. Conservation Chemical Company et al. U.S. District Court for the Western District of Missouri, Western Division. Case No. 82-0983-CV-W-5.

TESTIMONY

- 2016 State of New Mexico ex rel. State Engineer vs. Kerr-McGee Corporation, et al. State of New Mexico, County of Cibola, Thirteenth Judicial District Court, Case Nos. CB-83-190-CV and CB-83-220-CV (consolidated). November 14 – 15.
- 2014 Kansas vs. Nebraska and Colorado. U.S. Supreme Court. No. 126, Orig. March 6. (*Arbitration*)
- 2013 State of Montana vs. State of Wyoming and State of North Dakota. Supreme Court of the United States. No. 137, Original. November 12.
- 2013 Kansas vs. Nebraska and Colorado. U.S. Supreme Court. No. 126, Orig. October 1 - 3. (*Arbitration*)
- 2013 Kansas vs. Nebraska and Colorado. U.S. Supreme Court. No. 126, Orig. August 27. (*Arbitration*)
- 2013 Kansas vs. Nebraska and Colorado. U.S. Supreme Court. No. 126, Orig. August 15.
- 2012 Orange County Water District vs Northrop Corporation, et.al. Superior Court of the State of California in and for the County of Orange, No. 04CC00715. August 23.
- 2012 Kansas vs. Nebraska and Colorado. U.S. Supreme Court. No.126, Orig. August 14.
- 2011 OneBeacon America Insurance Company vs. Narragansett Electric Company. Volume I. Commonwealth of Massachusetts, Suffolk County Superior Court. 05-3086-BLS-I. March 23.
- 2010 OneBeacon America Insurance Company vs. Narragansett Electric Company. Volume I. Commonwealth of Massachusetts, Suffolk County Superior Court. 05-3086-BLS-I. October 7.
- 2010 Kansas vs. Nebraska and Colorado. U.S. Supreme Court. No. 126, Orig. July 12 - 14.
- 2010 State of Oklahoma vs. Tyson Foods et al. U.S. District Court for the Northern District of Oklahoma. 05-cv-349-TCK-SAJ. January 4-5.
- 2009 Timm Adams et al. vs. United States of America and E.I. DuPont de Nemours and Company, a Delaware corporation. U.S. District Court, District of Idaho. Case No. CIV-03-0049-E-BLW. August 6.
- 2009 Kansas vs. Nebraska and Colorado. U.S. Supreme Court. No. 126, Orig. March 9 - 19.
- 2009 Gloria Ned et al. vs. Union Pacific Railroad. 14th Judicial District Court, Parish of Calcasieu, State of Louisiana. 2003-001100 (Consolidated Cases). January 6, March 27.
- 2007 City of Neodesha, Kansas et al. vs. BP Corporation North America. District Court of Wilson County, Kansas. 2004-CV-19. December.
- 2006 Nikko Materials USA, Inc., dba Gould Electronics v. NavCom Defense Electronics Inc., Ernest Jarvis, and Hyrum Jarvis. United States District Court, Central District of California. CV05-4158-JFW (VBKx). December 7.
- 2006 Rules Governing New Withdrawals of Ground Water in Water Division 3 Affecting the Rate or Direction of Movement of Water in the Confined Aquifer System AKA "Confined Aquifer New Use

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- Rules for Division 3" in Alamosa, Conejos, Costilla, Rio Grande, and Saguache Counties. District Court, Water Division No. 3, Colorado. Case No. 2004CW24. March.
- 2005 Goodrich Corporation vs. Commercial Union Insurance Company et al. In the Court of Common Pleas, Summit County, Ohio. Case No. CV 99 02 0410. December.
- 2005 Redlands Tort Litigation. Superior Court of the State of California for the County of San Bernardino. No. RCV 31496. March 21-22.
- 2004 Waste Management, Inc. et al. vs. The Admiral Insurance Company et al. Superior Court of New Jersey Law Division: Hudson County. Case No. HUD-L-931-92. January 6.
- 2003 State of New Mexico et al. vs. General Electric Company et al. The U.S. District Court for the District of New Mexico. Case No. CV 99-1254 BSJ/DJS and CV 99-1118 BSJ/LFG. December 10.
- 2002 State of Kansas vs. State of Colorado and United States of America. Supreme Court of the United States. No. 105 Original. December.
- 2002 State of Kansas vs. State of Colorado and United States of America. Supreme Court of the United States. No. 105 Original. August.
- 2001 Sherwin-Williams vs. Artra et al. U.S. District Court for the District of Maryland. Civil Action No. S-91-2744. November.
- 2001 Gwendolyn Guillory et al. vs. Union Pacific Corporation et al. Fourteenth Judicial District Court, Parish of Calcasieu, State of Louisiana. No. 98-5405. January.
- 2000 Consolidated Edison Company of New York, Inc. vs. Allstate Insurance Company et al. Supreme Court of the State of New York. Index No. 98/600142, Part 27. July.
- 2000 Merck & Co., Inc vs. Federal Insurance Company et al. Superior Court of New Jersey, Chancery Division, Middlesex. Docket No. CM-340-96. June.
- 2000 State of Kansas vs. State of Colorado and United States of America. Supreme Court of the United States. No. 105 Original. January.
- 1999 Aetna Casualty & Surety Company vs. Dow Chemical Corporation, Dow Corning, Inc., and American Guarantee and Liability Company et al. U.S. District Court for the Eastern District of Michigan. Case No. 93 CV 73601 DT. February.
- 1998 Air Products and Chemicals, Inc. vs. Hartford Accident and Indemnity Company. Superior Court of New Jersey Law Division: Middlesex. Docket No. L-17134-89. December.
- 1998 In the Matter of the Waste Management Act (RSBC, 1996, C.482) between Beazer East, Inc. and Atlantic Industries, Ltd. et al. Environmental Appeal Board, Vancouver, British Columbia. August 19 and 20.
- 1998 Texaco Inc., Texaco Capital Inc. et al., Debtor. U.S. Bankruptcy Court, Southern District of New York. Case No. 87-20142 - Chapter 11. January 23.
- 1998 State of Montana vs. Atlantic Richfield Company. U.S. District Court, District of Montana, Helena Division. Case No. CV-83-317-HLN-PGH. January.
- 1997 Asarco, Inc. et al. vs. Andalex Resources, Inc. et al. U.S. District Court for the Western District of Missouri. Civil Action No. 94-0698-CV-W-BB. November.
- 1996 State of Kansas vs. State of Colorado and United States of America. Supreme Court of the United States. No. 105 Original. November.
- 1996 State of Kansas vs. State of Colorado and United States of America. Supreme Court of the United States. No. 105 Original. March.
- 1995 Henry Hendler et al. vs. The United States. U.S. Court of Federal Claims. Case No. 456-84L. October 24.

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- 1995 North American Philips Corporation vs. Aetna Casualty & Surety Company et al. Superior Court of the State of Delaware, New Castle County. Case No. 88C-JA-155-1-C. August 1 and 2.
- 1995 Koppers Company, Inc. vs. Aetna Casualty & Surety Company et al. U.S. District Court, Western District Pennsylvania. Civil Action No. 85-2136. April.
- 1993 Farmland Industries, Inc. vs. Morrison-Quirk Grain Corporation. U.S. District Court, District of Nebraska. Civil Action No. CV88-L-718. November.
- 1992 State of Kansas vs. State of Colorado and United States of America. Supreme Court of the United States. No. 105 Original. March.
- 1991 Farmland Industries, Inc. vs. Morrison-Quirk Grain Corporation. U.S. District Court, District of Nebraska. Civil Action No. CV88-L-718. November.
- 1991 United States of America et al. vs. Occidental Chemical Corporation et al. U.S. District Court for the Western District of New York. Civil Action No. 79-990C. April.
- 1991 United States of America, the State of New York and UDC-Love Canal vs. Hooker Chemicals & Plastics Corp. et al., Volumes XXXX-A and B. U.S. District Court, Western District of New York. Case No. CIV 79-990. February 25.
- 1990 General Electric Company vs. Electric Mutual Liability Insurance Company. New York. Index No. 16774-88. May.
- 1989 United States of America vs. Royal N. Hardage et al., Advance Chemical Company et al. vs. ABCO, Inc. et al. U.S. District Court, Western District of Oklahoma. Case No. CIV 86-1401-p. December 13.
- 1989 United States of America et al. vs. J. B. Stringfellow, Jr. et al. U.S. District Court, Central District of California. Case No. CV-83-2501 JMI (Mcx). April 24 and 25.
- 1987 In the Matter of the City of El Paso, Texas, before the State Engineer of the State of New Mexico. Nos. LRG-92 through LRG-357 and HU-12 through HU-71. June.
- 1986 Mel Foster Company Properties, Inc. vs. The American Oil Company et al. Iowa District Court for Scott County. Law No. 69134. September.
- 1986 State of New Mexico and Pecos Valley Artesian Conservancy District vs. L.T. Lewis et al., United States of America and Mescalero Apache Tribe; and State of New Mexico and Pecos Valley Artesian Conservancy District vs. Hagerman Canal Company et al. U.S. District Court for the County of Chaves, State of New Mexico. Case Nos. 20294 and 22600. March.
- 1986 United States of America vs. Plains Electric Generation and Transmission Cooperative, Inc. District Court for the Thirteenth Judicial District, State of New Mexico, County of Cibola. Application Nos. B-167-A into 1605 and B-17 et al., Comb.; B-1003-AA into B-87-B et al.; 1605 & B-979 into B-87-B et al. January.
- 1985 In the Matter of the Adoption of Rules and Regulations Applying Exclusively to the Withdrawal of Ground Water from the Dawson, Denver, Arapahoe, and Laramie-Fox Hills Aquifers of the Denver Basin. November 4.
- 1985 United States of America vs. Conservation Chemical Company et al. U.S. District Court for the Western District of Missouri, Western Division. Case No. 82-0983-CV-W-5. March.
- 1984 United States of America vs. Conservation Chemical Company et al. U.S. District Court for the Western District of Missouri, Western Division. Case No. 82-0983-CV-W-5. August and October.
- 1984 Hearings before the Environmental Quality Council, State of Wyoming. Permit Application No. TFN-1 2/285. January.
- 1982-1985 Hearings before the State Engineer, State of New Mexico. Application Nos. G-22 through G-22-S-58; G-22 et al.; PR and G-22 through S-9 (November 1982; January and April 1983).

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Application Nos. B-72 into 1605 and B-17 et al. Comb.; B-43-H into 1605 and B-17 et al. Comb.; B-43-F and B-43-I into 1605 and B-17 et al. Comb.; B-87-D into 1605 and B-17 et al. Comb.; B-87-C into 1605 and B-17 et al. Comb. (March 1984).

Application Nos. B-49-B-B into B-44, B-45 and B-45-X; B-1003-A-B into B-44, B-45 and B-45-X; 1605, B-44, B-45 and B-45-X-D (October 1984).

Application No. B-167-A into 1605 and B-17 et al. Comb. (October 1984).

Application Nos. B-1003-AA into B-87-B-S through B-87-B-S-6 and 1605 and B-979 into B-87-B-S through B-87-B-S-6 (February 1985).

1982 County Board of Appeals, Montgomery County, Maryland. Case No. S-836. October.

1982 Woodrow Sterling et al. vs. Velsicol Chemical Corporation. U.S. District Court, Western District of Tennessee, Eastern Division. July.

Exhibit B

Curriculum Vitae of Brian Waldron

Brian Waldron

Associate Professor, Department of Civil Engineering
Herff College of Engineering
University of Memphis

CURRENT ACADEMIC POSITIONS

Associate Professor, Civil Engineering, University of Memphis
Director, Center Applied Earth Science and Engineering Research, University of Memphis

EDUCATION

Aug. 1995 to Aug. 1999	Colorado State University Doctor of Philosophy, Civil Engineering	Fort Collins, Colorado
Jan. 1992 to Aug. 1994	University of Memphis Master of Science, Civil Engineering	Memphis, Tennessee
Aug. 1989 to Dec. 1991	Memphis State University Bachelor of Science, Civil Engineering	Memphis, Tennessee

YEARS OF SERVICE

August 2010 to present	Associate Professor	Memphis, Tennessee University of Memphis
August 2006 to 2010	Assistant Professor	Memphis, Tennessee University of Memphis
Sept. 1999 to August 2006	Research Assistant Professor	Memphis, Tennessee University of Memphis

OTHER EXPERIENCE

Teaching: CIVL 3101 Computational Methods; CIVL 3181 Hydraulics and Hydrology, CIVL 4180-6180 Advanced Hydraulics and Hydrology, CIVL 3180, MECH 3331 Civil Engineering Hydraulics (Fluid Mechanics); CIVL 4111 Engineering Economics; CIVL 4195 Professional Practice; CIVL 7001-8001 Engineering Analysis; CIVL 7170-8170 Ground Water Contaminant Fate and Transport; CIVL 7195-8195 Groundwater Hydraulics; CIVL 7197-8197, GEOL 7197 Ground Water Quality Control, CIVL 7177-8177 Quantitative Hydrogeology; CIVL 7900 Ground Water Modeling; CIVL 7909-8909 Advanced Applications in GIS; CIVL 7001 Engineering Analysis; CIVL 7191 Computer Methods in Hydrology; GEOG 4515-6515, PLAN 6515 Geographic Information Systems

STATE REGISTERED AS PROFESSIONAL ENGINEER

Tennessee

PUBLICATIONS

Refereed Journal Publications:

- Javadnejad, F., **Waldron, B.** and Hill, A., 2017. LITE Flood: Simple GIS-Based Mapping Approach for Real-Time Redelineation of Multifrequency Floods, *Natural Hazards Review*, 13 p., 10.1061/(ASCE)NH.1527-6996.0000238.
- Larsen, D., **Waldron, B.**, Schoefnacker, S., Gallo, H., Koban, J., and Bradshaw, B., 2016. Application of Environmental Tracers in the Memphis Aquifer and Implication for Sustainability of Groundwater Resources in the Memphis Metropolitan Area, Tennessee, *Journal of Contemporary Water Research and Education*, Iss. 159, 27 p.
- Waldron, B.** and Larsen, D., 2015, Predevelopment groundwater conditions surrounding Memphis, TN (USA): Controversy and Unexpected Outcomes, *Journal of American Water Resources Association*, vol. 51 (1), pp. 133-153.
- Waldron, B.**, Larsen, D., Garner, C., and Schoefnacker, S., *in review*. Application of the chloride mass-balance approach for recharge estimation in a humid environment: Pitfalls and promise, *Environmental and Engineering Geoscience*.
- Waldron, B.**, Larsen, D., Vamshi, K., Schoefnacker, S., *in review*. Shallow aquifer water levels, Fall, 2005, Shelby County, TN, USGS Open File Report.

- Hao, Y., Magnani, B., McIntosh, K., **Waldron, B.**, and Guo, L. 2013. Quaternary deformation along the Meeman-Shelby Fault near Memphis, Tennessee imaged by high-resolution marine and land seismic reflection profiles, *Tectonics*, vol. 21, pp. 1-15.
- Larsen, D., Morat, B., **Waldron, B.**, Ivey, S., and Anderson, J., 2013. Stream loss contributions to a municipal water supply aquifer in Memphis, Tennessee. *Environmental and Engineering Geoscience*, vol. 19 (2), pp. 265-287.
- Waldron, B.**, Hill, A. and Nations, B., 2011. Managing response and recovery to Mississippi River flooding: Applying spatial analysis in Memphis/Shelby County, Tennessee, *Applied Geography*, *accepted*.
- Waldron, B.**, 2011. Mapping in Memphis: University students help map city infrastructure, *GeoWorld*, v. 24 (3), pp. 24-27.
- Jiandang, G., Magnani, M. and **Waldron, B.**, 2010. Imaging a shallow aquitard with seismic reflection data in Memphis, Tennessee, USA. Part I: Source comparison, walk-away tests and the plus-minus method, *Near Surface Geophysics*, v. 8, pp. 331-340.
- Jiandang, G., Magnani, M. and **Waldron, B.**, 2010. Imaging a shallow aquitard with seismic reflection data in Memphis, Tennessee, USA. Part II: data analysis, interpretation and travel time tomography, *Near Surface Geophysics*, v. 8, pp. 341-351.
- Waldron, B.**, Larsen, D., Hannigan, R., Csontos, R., Anderson, J., Dowling, C., and Bouldin, J., 2010. Mississippi embayment regional ground water study, Environmental Protection Agency, 220p.
- Waldron, B.**, Harris, J., Larsen, D., and Pell, A., 2009. Mapping an aquitard breach using seismic reflection, *Hydrogeology Journal*, 17, 505-517.
- Csontos, R., Van Arsdale, R., and **Waldron, B.**, 2008. Reelfoot rift and its impact on Quaternary deformation in the central Mississippi River valley, *Geosphere*, 4 (1), p. 145-158.
- Van Arsdale, R., Bresnahan, R., McCallister, N., **Waldron, B.**, 2007. The Upland Complex of the Central Mississippi River Valley: its Origin, Denudation, and Possible Role in Reactivation of the New Madrid Seismic Zone, Geological Society of America books section on Intraplate Earthquakes, Special Paper 425, pp. 177-192.
- Urbano, L., **Waldron, B.**, Garrett, G., 2006. Groundwater-surface water interactions at the transition of an aquifer from unconfined to confined, *Journal of Hydrology*, 321, pp. 200-212.
- Velasco, M., Van Arsdale, R., **Waldron, B.**, Harris, J., and Cox, R., 2005. Quaternary faulting beneath Memphis, Tennessee, *Seismological Research Letters*, 776 (5), p. 598-614.
- Cramer, C. Gomberg, J. Schweg, E., **Waldron, B.**, Tucker, K., 2004. The Memphis, Shelby County, Tennessee, Seismic Hazard Maps, U.S. Geological Survey Open File Report 2004-1294, p. 1-19.
- Van Arsdale, R., **Waldron, B.**, Ramsey, N., Parrish, S., and Yates, R., 2003. Impact of River Channelization on Seismic Risk, Shelby County, Tennessee, *Natural Hazards Review*, 4 (1), p. 2-11.
- Yates, R., **Waldron, B.**, and Van Arsdale, R., 2003. Urban effects on natural hazards in a flood plain: Wolf River, Tennessee, USA, *Engineering Geology*, 70, p. 1-15.
- Gomberg, J., **Waldron, B.**, Schweig, E., Hwang, H., Webbers, A., Van Arsdale, R., Tucker, K., Williams, R., Street, R., Mayne, P., Stephenson, W., Odum, J., Cramer, C., Updike, R., Hutson, S., Bradley, M., 2003. Lithology and Shear Velocity in Memphis, Tennessee, *Bulletin of the Seismology Society of America*, 93(3), pp. 986-997.

Abstracts and Conference proceedings:

- Smith, M., Larsen, D., Schoefnacker, S., Waldron, B., 2018. Evaluating modern recharge to the Memphis aquifer at the Lichterman well field, Memphis, TN, Geological Society of America.
- Javadnejad, F., Waldron, B., Alinia, F., 2013. A GIS-based gold potential mapping in the Muteh deposit area, Iran with respect to a new mineralization concept, 4th International Conference of Computing for Geospatial Research and Applications (COM.Geo), 22-24 July 2013, San Jose, CA, USA.
- Waldron, B., Csontos, R., Robinson, A., Ferguson, N., 2010. Migrating storm and sanitary sewer infrastructure into GIS, ESRI International Users Conference.
- Waldron, B. and Larsen, D., 2010. Did Memphis take Mississippi's ground water? The \$1.3 billion question, 20th TN Water Resources Symposium, TN AWRA.
- L. Guo, M. Magnani, K. McIntosh, B. Waldron, S. Saustrop, X. Fave, 2010. Geometry and deformation history of the New Madrid seismic zone fault system, Central U.S. from high-resolution marine seismic reflection data, and implications for intraplate deformation, American Geophysical Union.
- X. Fave, M. Magnani, B. Waldron, K. McIntosh, S. Saustrop, L. Guo, 2010. Pervasive post-Eocene faulting and folding in unconsolidated sediments of the Mississippi River, Central U.S. as imaged by high-resolution CHIRP seismic data, American Geophysical Union.
- Hill, A. and Waldron, B., 2010. How do urban hazard mapping products find a place in local decision-making?, Seismic Society of America.
- M. Magnani, L. M. Mitchell, K. D. McIntosh, B. A. Waldron, 2009. New insights in partitioning of the long-term deformation in the Mississippi Embayment, Central U.S., American Geophysical Union.
- D. Larsen, K. Hundt, A. Owen, B. Waldron, R. Van Arsdale, D. Lumsden, R. Csontos, 2009. Stratigraphic and tracer evidence for compartmentalization of groundwater flow in the Eocene Memphis aquifer in eastern Arkansas and western Tennessee, Geological Society of America.

- M Magnani, K McIntosh, B Waldron, L Mitchell, S Sastrup, M Towle, 2008. Understanding the Long-Term Deformation in the Mississippi Embayment: the Mississippi River Seismic Survey, American Geophysical Union.
- Waldron, B. and Larsen, D., 2008. Application of the Chloride Mass-balance Approach for Recharge Estimation in a Humid Environment, American Geophysical Union.
- Csontos, R., Waldron, B., and Anderson, J, 2008. Tertiary Aquifer Modeling Within the Mississippi Embayment, American Geophysical Union.
- Mitchell, L., Magnani, B, Waldron, B., and McIntosh, K., 2008. Recent Deformation in the Mississippi Embayment from High-Resolution Reflection, American Geophysical Union.
- Csontos, R. and Waldron, B., 2008. Tertiary Aquifer Recharge Area Mapping and Characterization in West Tennessee, 18th TN Water Resources Symposium - AWRA.
- Lumsden, D. N., Hundt, K. R., Larsen, D., and Waldron, B., 2008. Petrology of the Memphis Sand (Eocene) in the Northern Mississippi Embayment, South-central Geological Society of America.
- Hundt, K. R., Lumsden, D. N., Larsen, D., and Waldron, B., 2008. Lithostratigraphy of the Memphis (Sparta) Sand in the Northern Mississippi Embayment, South-central Geological Society of America.
- Daniel Larsen, Kasey Hundt, Angela Owen, Brian Waldron, Roy Van Arsdale, David N. Lumsden, and Ryan Csontos, 2008. Hydrostratigraphic Relationships of the Wilcox and Claiborne Group in Northwestern Mississippi and Western Tennessee, Mississippi Academy of Sciences.
- Daniel Larsen, Kasey Hundt, Brian Waldron, Roy Van Arsdale, David N. Lumsden, and Ryan Csontos, 2008. Detailed hydrostratigraphy of the Wilcox and Claiborne Group in northeastern Arkansas, northwestern Mississippi, and western Tennessee, NGWA Summit Meeting.
- Ge, J., Magnani, M.B., Waldron, B. and Powell, C., 2008. Use of seismic reflection data and travel time tomography to image the near surface velocity structure in the Mississippi embayment, AGU.
- Waldron, B. and Larsen, D., 2007. Recharge estimation using meteoric chloride as a tracer within the vadose zone, 17th TN Water Resources Symposium, TN AWRA.
- Waldron, B., Larsen, D., Morat, J., 2007. Utility of tracers in modeling ground-water flow in the Sheahan wellfield complicated by inter-aquifer leakage owing to aquitard breaches, 17th TN Water Resources Symposium, TN AWRA.
- Stevens, K., Waldron, B., and Van Arsdale, R., 2007. An assessment of faulting beneath Shelby County, Tennessee, Geologic Society of America Abstracts with Programs, v. 39(2).
- Larsen, D., Waldron, B., Abderson, J., Gentry, R., Ivey, S., Koban, J., Morat, J., and Owen, A., 2007. Noble gas and Tritium-Helium-3 data from municipal well field in Shelby County, Tennessee, USA: Implications for groundwater recharge processes to the Memphis aquifer through windows in the Upper Claiborne confining unit, Geologic Society of America Abstracts with Programs, v. 39(2).
- Pell, A. B., Harris, J. B., and Waldron, B. A., 2005, Seismic reflection imaging of suspected "windows" in the upper confining unit of the Memphis (Tennessee) Aquifer: Proceedings of the 18th Annual Meeting, Symposium on the Application of Geophysics to Engineering and Environmental Problems (SAGEEP 2005), p. 797-805.
- Larsen, D., Morat, J., Waldron, B., Ivey, S., Anderson, J., Owen, A., Garner, C. Hydrologic Assessment of Leakage from Nonconnah Creek to the Shallow Aquifer in the Vicinity of the Sheahan Well Field, Memphis, Tennessee, TN American Water Resources Association, 2005.
- Larsen, D., Waldron, B., Anderson, J., Gentry, R., Ivey, S., Owen, A., Morat, J. Insights into groundwater recharge processes and pathways based on hydrochemical and tritium data from municipal well fields in Shelby County, Tennessee, USA, Geologic Society of America, 2005.
- Urbano, L., Waldron, B. Systematic Groundwater/Stream Interactions Resulting From Regional Hydrogeologic Change, American Geophysical Union, 2004.
- Waldron, B., Anderson, J., Dowling, C., Farris, J., Hannigan, R., Johannesson, K., Lakshmi, V., Larsen, D., Mace, K., Tick, G., Urbano, L., Zheng, C. Boundary and scale: A hydrologic observatory in the Mississippi Embayment, Geologic Society of America, 2004.
- Urbano, L. and Waldron, B. Signature of regional groundwater discharge to surface water at the unconfined/confined aquifer transition: example from the Loosahatchie River in West Tennessee, TN American Water Resources Association Conference Proceedings, 2004.
- Moore, D., Deihl, S., Donatich, A., Van Arsdale, R., Cox, R., Broughton, J., Waldron, B., Hwang, H. New geologic maps in the Memphis, Tennessee area help assess the potential for earthquake-induced ground failure, Geologic Society of America, 2004.
- Waldron, B., Larsen, D. and Garner, C. Preliminary investigation of the use of naturally occurring chloride within the unsaturated zone to determine recharge to the Memphis aquifer, Geological Society of America conference proceedings, 2003.
- Waldron, B. and Larsen, D. Preliminary investigation of the use of naturally occurring chloride within the unsaturated zone to determine recharge to the Memphis aquifer, TN American Water Resources Association Conference Proceedings, 2002.
- Csontos, Ryan, Cox, Randel, and Waldron, Brian. Traverse Topographic drainage basin asymmetry analysis to evaluate faulting in South Carolina, Geological Science of America Abstracts with Programs, Vol. 34, No. 6., 2002.

- Cramer, C.H., Gomberg, J.S., Schweig, E.S., and Waldron, B. Preliminary Ground-motion Seismic Hazard Maps with the Effects of Site Geology for Memphis, Shelby County, Tennessee, Eastern Section of the Seismological Society of America, 2002.
- Waldron, B. Rationale for a database for the hazard mapping process, Eastern Section Seismological Society of America Annual Conference, 2001.
- Schweig, Eugene S., Van Arsdale, Roy B., Moore, David, Cox, Randel T., Waldron, Brian, Updike, Randall G., Hwang, Howard, Diehl, Sharon, Webbers, Ank, and Tucker, Kathleen, The Use of Quaternary Stratigraphy In The Memphis-Shelby County Earthquake Hazard Mapping Project: A Wannabe Glaciated Terrane, Geological Science of America Abstracts with Programs, Vol. 32, No. 6, 2001.
- Waldron, B. Designing of a Centralized Database for Simplifying Ground Water Model Development, TN American Water Resources Association Conference Proceedings, 2001.
- Larsen, D., Gentry, R., Waldron, B., *et al.* Variations in Water Quality and Tritium in the Sheahan and Morton Well Fields, Memphis, Tennessee, USA, TN American Water Resources Association Conference Proceedings, 2001.

GRANTS AND CONTRACTS

- Innovate Memphis Blight – (2018) \$45,582 (PI)
- MLGW GSR full mapping – (2018) \$436,160 (PI)
- Town of Collierville – (2018) \$9,000 (PI)
- Town of Collierville – (2018) \$32,000 (co-PI)
- City of Germantown – (2018) \$45,000 (PI)
- City of Bartlett – (2018) \$16,100 (PI)
- MLGW – (2018) \$250,000 (PI)
- City of Millington – (2018) \$5,000 (PI)
- UTK-USDA – (2018) \$77,309 (co-PI)
- MLGW GSR full mapping – (2017) \$412,000 (PI)
- Town of Collierville – (2017) \$9,000 (PI)
- City of Germantown – (2017) \$16,100 (PI)
- City of Bartlett – (2017) \$16,100 (PI)
- MLGW – (2017) \$250,000 (PI)
- City of Millington – (2017) \$5,000 (PI)
- UTK-USDA – (2017) \$77,309 (co-PI)
- City of Memphis Zoning – (2017) \$200,892 (PI)
- NNIP/Urban Institute/D3 – (2017) \$6,000 (PI)
- City of Memphis ADA ramps – (2017) \$37,000 (PI)
- Mexico Orienta – (2017) \$6,000 (PI)
- UoM FIT Drones – (2017) \$20,000 (PI)
- CFGM Memphis 3.0 – (2017) 15,000 (PI)
- Shelby County Age-dating – (2017) 10,000 (co-PI)
- WTNRBA Sandy Creek – (2017) \$57,156 (co-PI)
- Innovate Memphis Blight – (2017) \$80,000 (PI)
- TDEC water use – (2017) \$48,599 (PI)
- NDRC Flood mitigation – (2017) \$104,525 (PI)
- Shelby County Greenprint – (2017) \$5,239 (PI)
- Shelby County historic imagery – (2016) \$44,675 (PI)
- MLGW Business Districts – (2016) \$6,353 (PI)
- Innovate Memphis – (2016) \$100,100 (PI)
- CFGM WWL Phase 2 – (2016) \$112,095 (PI)
- Town of Collierville water valve – (2016) \$1,500 (PI)
- MLGW GSR full mapping – (2016) \$412,000 (PI)
- MLGW Allen well field – (2016) \$1,042,564 (PI)
- Town of Collierville – (2016) \$9,000 (PI)
- City of Germantown – (2016) \$16,100 (PI)
- City of Bartlett – (2016) \$16,100 (PI)
- MLGW – (2016) \$250,000 (PI)
- City of Millington – (2016) \$5,000 (PI)
- Shelby County (DHS-UASI) – (2016) GIS develop of the Memphis/Shelby County UASI GIS system. \$59,408 (PI)
- WTNRBA Sandy Creek – (2016) \$43,037 (co-PI)
- UTK-USDA – (2016) \$77,309 (co-PI)
- City of Memphis Mayor’s Office: City Assessment – (2016) \$30,000 (PI)
- ETI storm water – (2016) \$25,161 (PI)
- UTK-USDA – (2015) \$77,309 (co-PI)

MLGW GSR full mapping – (2015) \$412,000 (PI)
Non-disclosed – (2015) \$26,542 (PI)
Non-disclosed – (2015) \$15,971 (PI)
Shelby County (DHS-UASI) – (2015) GIS develop of the Memphis/Shelby County UASI GIS system. \$61,000 (PI)
Shelby County Public Works – (2015) \$50,000 (PI)
EDGE – (2015) \$50,000 (PI)
Town of Collierville – (2015) \$15,910 (PI)
Town of Collierville – (2015) \$9,000 (PI)
City of Germantown – (2015) \$16,100 (PI)
City of Bartlett – (2015) \$16,100 (PI)
City of Millington – (2015) \$5,000 (PI)
MLGW – (2015) \$250,000 (PI)
Ecuador groundwater inventory – (2015) \$109,000 (PI)
City of Memphis Mayor’s Office: City Assessment – (2015) \$30,000 (PI)
Pickering storm water – (2015) \$21,400 (PI)
Non-disclosed – (2014) \$148,500 (PI)
Non-disclosed – (2014) \$135,000 (PI)
Alta – (2014) \$21,035 (PI)
Livability: Community Foundation – (2014) \$147,000 (PI)
Hyde Family Foundation – (2014) \$41,925 (PI)
TN WRRC – (2014) \$18,000 (co-PI)
Shelby County Health Department – (2014) Ground water age-dating \$10,000 (co-PI)
City of Germantown – (2014) \$16,100 (PI)
City of Bartlett – (2014) \$16,100 (PI)
City of Millington – (2014) \$5,000 (PI)
MLGW – (2014) \$250,000 (PI)
City of Memphis Mayor’s Office: City Assessment – (2014) \$10,000 (PI)
Town of Collierville – (2014) \$9,000 (PI)
Buchart Horn - City of Memphis Stormwater Control – (2014) \$137,055 (PI)
Pickering – (2014) \$22,500 (PI)
Shelby County (DHS-UASI) – (2014) GIS develop of the Memphis/Shelby County UASI GIS system. \$61,000 (PI)
MPO sidewalks – (2014) \$67,500 (PI)
MLGW GSR full mapping – (2014) \$412,000 (PI)
MLGW MAOP – (2014) 29,200 (PI)
MLGW GSR scanning statistics – (2013) \$6,175 (PI)
Shelby County Health Department – (2013) Ground water age-dating \$10,000 (co-PI)
Geo-Jobe GIS data capture, software and support – (2013) \$30,340 (PI)
Non-disclosed – (2013) \$250,000 (PI)
TN Water Resources Research Center ground water recharge – (2013) \$18,800 (PI)
GDR-911 – (2013) \$417,720 (PI)
State of Tennessee Urban Tree Canopy Study – (2013) \$90,080 (PI)
Memphis Metropolitan Planning Organization Phase 2 – (2013) \$95,000 (PI)
Non-disclosed – (2013) \$250,000 (PI)
Non-disclosed – (2013) \$56,600 (PI)
Shelby County visual stream assessment – (2013) \$376,000 (PI)
MLGW groundwater support – (2013) \$250,000 (PI)
Shelby County (DHS-UASI) – (2013) GIS develop of the Memphis/Shelby County UASI GIS system. \$132,100 (PI)
City of Bartlett groundwater support – (2013) \$16,100 (PI)
City of Germantown groundwater support – (2013) \$16,100 (PI)
City of Millington groundwater support – (2013) \$5,100 (PI)
Town of Collierville groundwater support – (2013) \$9,000 (PI)
Shelby County Greenprint – (2013) \$150,759 (PI)
International Paper Water on Wheels (WOW) Mobile – (2013) \$70,000 (PI)
Mayor’s Initiative for Excellence in Government – (2012) \$120,000 (PI)
Memphis Metropolitan Planning Organization Phase 1 – (2012) \$95,000 (PI)
Shelby County (DHS-UASI) – (2012) GIS develop of the Memphis/Shelby County UASI GIS system. \$750,000 (PI)
City of Bartlett groundwater support – (2012) \$16,100 (PI)
City of Germantown groundwater support – (2012) \$16,100 (PI)
City of Millington groundwater support – (2012) \$5,100 (PI)
Town of Collierville groundwater support – (2012) \$9,000 (PI)
Town of Collierville – (2012) Storm water pilot \$4,300 (PI)
City of Memphis – (2012) Color study for MS River \$290,900 (PI)

MLGW – (2012) Gas Business Districts \$14,800 (PI)
 MLGW – (2012) Right-of-Way \$9,000 (PI)
 MLGW – (2012) GSR and gas service lines \$14,900 (PI)
 Shelby County Health Department – (2012) Ground water age-dating \$10,000 (co-PI)
 International Paper – (2012) Water on Wheels (WOW) Mobile (gift) \$70,000 (PI)
 Non-disclosed – (2012) \$250,000 (PI)
 Non-disclosed – (2011) \$250,000 (PI)
 Urban Land Institute – (2011) \$5,000 (PI)
 Shelby County (DHS-UASI) – (2011) GIS develop of the Memphis/Shelby County UASI GIS system. \$850,000 (PI)
 City of Bartlett – (2011) \$16,100 (PI)
 City of Germantown – (2011) \$16,100 (PI)
 City of Millington – (2011) \$5,100 (PI)
 Town of Collierville – (2011) \$9,000 (PI)
 Shelby County Health Department – (2011) Ground water age-dating \$10,000 (co-PI)
 NSF – (2010) Collaborative research: Toward an understanding of the long-term deformation in the Mississippi Embayment - Phase II. \$316,456 (co-PI)
 Non-disclosed – (2010) \$250,000 (PI)
 Non-disclosed – (2009) \$69,390 (PI)
 Non-disclosed – (2009) \$896,000 (PI)
 City of Memphis – (2009) Sanitary Sewer Area 6 \$50,000 (PI)
 Memphis Police Department – (2009) GIS \$140,000 (PI)
 Non-disclosed – (2009) \$250,000 (PI)
 Non-disclosed – (2009) \$115,000 (PI)
 Non-disclosed – (2008) \$83,000 (PI)
 Non-disclosed – (2008) ADA and GIS data migration \$178,789 (PI)
 NSF – (2007) Collaborative research: Toward an understanding of the long-term deformation in the Mississippi Embayment. \$60,534 (co-PI)
 USGS-NEHRP – (2007) Toward an understanding of the long-term deformation in the Mississippi Embayment: Collaborative research with University of Memphis and University of Texas. \$43,720 (co-PI)
 City of Memphis – (2007) GIS data migration. \$40,000 (PI)
 City of Memphis – (2007) GIS data migration. \$49,900 (PI)
 City of Memphis – (2007) Paving survey, \$33,909 (PI)
 MLGW – (2007) Congressional earmark match: Mississippi Embayment Regional Aquifer Study. \$250,000 (PI)
 EPA – (2007) Congressional earmark: Mississippi Embayment Regional Ground Water Study. \$480,300 (PI)
 TDEC – (2006) GIS services. \$49,034 (PI)
 Shelby County – (2005) Identifying Conduits for Potential Contamination to Enter the Memphis Aquifer. \$125,000 (PI)
 TDEC – (2005) GIS Support of Division of Water Supply. \$12,478 (PI)
 TDEC – (2005) GIS Support to Division of Water Pollution Control. \$3,393 (PI)
 TDEC – (2005) GIS Support to Division of Natural Heritage. \$5,233 (PI)
 TN WRRC – (2004) An Investigation of Surface-Ground Water Connections at Nonconnah Creek: A Source of Recharge to the Memphis Aquifer in Shelby County, Tennessee. \$81,046 (co-PI)
 TDEC – (2004) Identifying Conduits for Potential Contamination to Enter the Memphis Aquifer. \$125,000 (PI)
 Cargill – (2004) Gift. \$10,000
 Coors – (2004) Gift. \$5,000
 City of Memphis – (2004) Update City of Memphis paving database. \$51,600 (PM)
 TDEC – (2004) Educational video on source water protection. \$70,000 (PI)
 TDEC – (2004) Development of TDEC GIS network and GIS training. \$35,420 (PI)
 TDEC – (2003) Produce West Tennessee Ground Water Video (educational). \$50,000 (PI)
 TDEC – (2002) Development of TDEC GIS/GIS network and GIS training. \$92,827 (PI)
 TDEC – (2000) Source Water Assessment – Risk Ranking of ground-water and surface water systems in Tennessee. \$300,000 (PI)
 USGS – Database management and subsurface stratigraphic surface interpolation for the Shelby County Hazard Mapping project. \$11,438 (PI)
 The University of Memphis FRG – Use of Naturally Occurring Chloride as an Inexpensive and Accurate Measure of Water Infiltration Below the Root Zone in West Tennessee. \$4,000 (PI)
 USGS – Unsolicited Proposal for the Continuation of the Creation, Expansion, Maintenance, and Application of a Subsurface Database for Shelby County, Tennessee – A Cooperative Agreement Between the Center for Earthquake Research and Information and the Ground Water Institute at The University of Memphis. \$43,016 (PM)

ORGANIZATIONS

Consortium of Universities for the Advancement of Hydrologic Science (CUAHSI) (member since 2003, Board of Directors 2012 – 2015)

Consortium of Universities for the Advancement of Hydrologic Science (CUAHSI) (member since 2003, treasurer 2008 – 2010)

State of Tennessee: Water Resources Technical Advisory Committee (2007 – 2012)

TN American Water Resources Association – President 2006, Conference Chair 2005 and 2006

Wolf River Conservancy – Board Member (2004 – 2008)

Children's Health Data Consortium – Advisory Council (2002)

National Ground Water Association (member)

AWARDS

Ensafe Professor (2012)

Askew Hargraves Harcourt & Associates, Inc - Junior Faculty Fellow (2009)

Memphis' Top 40 Under 40 (2009)

ROLES

Vice Provost for Research – Research Capacity Analysis team 2014

Information Technology – Teaching and Learning Advisory Committee (UoM) 2013-2014

Provost – New Technology Evaluation Team (UoM) 2014

University of Memphis – Standing Committee on Traffic and Parking 2011-2013

Vice Provost for Research – Faculty Advisory for Research Committee 2012-2013

Herff College of Engineering – Strategic Planning Committee 2014-present