

**James T. McCord, Ph.D., P.E.**  
Senior Hydrogeologist

**AMEC Earth and Environmental, Inc.**  
115 West Abeyta Street, Suite A  
PO Box 445, Socorro, New Mexico 87801  
Phone: 575.835.2569 Fax: 575.835.2609  
jim.mccord@amec.com www.amec.com

## Professional Summary

James T. McCord, P.E. has a Ph.D. in Hydrology and 28 years of professional experience in engineering, hydrology, and water resource investigations, with emphasis on characterization of groundwater and surface water systems, contaminant fate and transport, risk assessment of radioactive waste disposal sites, vadose zone hydrology, numerical modeling of hydrologic systems, surface water and groundwater interaction, water rights, and stochastic hydrology and geostatistics. He has been involved in water resource studies in a dozen US states.

He has been the hydrology expert on numerous environmental contamination and water rights litigation cases. In this role, Dr. McCord utilizes published reports and data in conjunction with hydrologic analyses to develop expert opinions in legal cases. As part of these projects, he has been involved in the review and application of numerous site-specific groundwater flow and transport models to evaluate contaminant fate and transport. He has participated in technical discussions related to litigation settlement. He been deposed by opposing counsel on numerous occasions, and has provided trial testimony in California, Colorado, and New Mexico state courts.

Dr. McCord is a recognized expert in groundwater hydrology and contaminant transport modeling, teaching short courses for the Nuclear Regulatory Commission and the International Atomic Energy Authority. He has authored numerous expert reports, and technical peer-reviewed papers, and co-authored the textbook, *Vadose Zone Processes*. He has been Adjunct Professor of Earth Science at New Mexico Tech since 1991, as well as Adjunct Professor of Civil Engineering at University of New Mexico.

## Education

Ph.D., Dissertation in Hydrology, New Mexico Institute of Mining and Technology, 1989  
M.S., Hydrology, New Mexico Institute of Mining and Technology, 1986  
B.S., Civil Engineering, Virginia Polytechnic Institute and State University, 1981

## Relevant Project Experience

### **South Platte River Conjunctive Use Water Rights Expert, Lower South Platte River, Colorado**

Retained by the City of Boulder, Colorado as groundwater hydrology expert, evaluated and critiqued numerous water supply augmentation plans submitted by alluvial aquifer water users / irrigators. The evaluations have focused on assessing the quantity and timing of depletions to South Platte River flows caused by groundwater pumping, and involved preparation of expert reports, and depositions and testimony in Colorado Water Court.

### **Rocky Mountain Arsenal Natural Resource Damage Assessment, Denver, Colorado**

Retained by Colorado Attorney General Office as groundwater expert in development of a natural resource damage assessment claim against the US Army and Shell Oil for resource damages incurred due to operations of Rocky Mountain Arsenal. Performed a variety of hydrologic analyses and modeling to quantify volumes of injured groundwater over time, since the passage of CERCLA.

### **Pueblo of Isleta Hydrology Expert and Technical Support**

Hydrology expert and Project Manager for various water resource issues for the Pueblo of Isleta, New Mexico. In this role, Hydrosphere under Dr. McCord's leadership has address a variety of technical tasks including surface water and groundwater hydrology analyses in support of Rio Grande riverine habitat restoration, and evaluation of potential injury to Pueblo water right due to surface water to groundwater water rights transfers.

### **Zuni Basin (New Mexico) and Little Colorado Basin (Arizona) Adjudications**

For a confidential client, Dr. McCord is serving as hydrology expert on these two adjudications. Tasks include evaluating water claims and demands (including agricultural, M&I, and domestic) by other water users in the basin, developing water rights claims, evaluating surface water and groundwater supplies in the basins, and development of expert reports for adjudication court proceedings. Will provide depositions and expert testimony as required by progress of trial.

### **Aerojet Site, Rancho Cordova, Sacramento County, California**

Groundwater expert for plaintiffs in class action toxic tort litigation related to groundwater contamination from a rocket engine manufacturing and test site. Contaminants included perchlorate, NDMA, and organic solvents and their daughter products. Using site data and information gathered as part of a 20-year regulatory-driven site characterization, we developed a groundwater flow and transport model to simulate historical migration of contaminants from the sources to down-gradient water supplies since the beginning of site operation in 1950. Prepared expert report and deposed twice by opposing counsel, and provided testimony at jury trial.

### **Impairment to Existing Water Rights due to Coal-bed Methane Development in Northern San Juan Basin, La Plata and Archuleta Counties, Colorado**

Hydrologic evaluations and expert witness, (including filing of affidavits in Colorado District Court, Water Division 7, and the Colorado Supreme Court), Tasked to assess potential impairment to senior water rights due to groundwater production that occurs as part of coal bed methane development in southwest Colorado.

### **Carlsbad Project – Lower Pecos Adjudication Settlement**

Groundwater modeling expert in technical support of negotiations over the 2004 Lower Pecos Adjudication Settlement Agreement. Integrated existing MODFLOW model with RiverWare model to evaluate how groundwater pumping operations impact baseflow gains to the Pecos River, water supplies to downstream Carlsbad Project, and stateline deliveries in the context of the Pecos River Compact.

### **Southern Roswell Basin Groundwater Quality Evaluation**

Project Manager and lead hydrologist for NM Interstate Stream Commission (ISC) sponsored hydrogeochemistry studies related to evaluation of an augmentation well field. The well field was installed by the State of New Mexico per the terms of the Lower Pecos Adjudication Settlement Agreement and will be operated on an as-needed basis to supplement surface water supplies to meet Carlsbad Project supply targets and Pecos Compact delivery obligations to Texas. Evaluated historical water quality to establish a baseline, determine past trends, and project possible future evolution in groundwater quality due to well field operations.

### **Pecos River Studies, New Mexico**

Project Manager and lead hydrologist for several NM ISC studies related to the lower Pecos River. Tasks undertaken include: Representing ISC on the NEPA team Hydrology Work Group for developing an EIS for re-operations of Pecos River projects; Analysis of seepage losses from Carlsbad Irrigation District main canal; Disaggregated losses from Brantley Reservoir into three primary components: seepage/bank storage, Major Johnson Springs inflow, and ungaged tributary inflows; Assessed alternative modeling approaches to account for Brantley losses in

Pecos River operations modeling; Developed linear groundwater model to simulate Pecos River losses along critical habitat (Bluntnose Shiner) reach of river.

### **MTBE Contamination in Basin Fill Sole-Source Aquifer, Santa Monica, California**

Groundwater expert on major MTBE contamination case in California working on behalf of Potentially Responsible Party (PRP). Our efforts focused on identifying and characterizing likely sources of contamination, both from our client's properties as well as other potential sources. Application of groundwater flow and transport models to assess potential source histories based on contaminant arrivals at municipal water supply wells.

## **Expert Testimony**

**2009 Application by Santa Fe County and Santa Fe Water Resource Alliance, LLC for Permit to Change Point of Diversion and Place and/or Purpose of Use of Surface Water within the Rio Grande Basin in the State New Mexico. HU No. 07-059 OSE File No. SD-04729 & RG-74141 into SP-4842.** Expert Witness on behalf of Protestant, Pueblo of Isleta (client: Pueblo of Isleta; Sonosky, Chambers, Sachse, Mielke & Brown, LLP)

**2007 Sierra Club and Mineral Policy Center vs. El Paso Gold Mine, Civil Action 01-PC-2163,** Federal District Court of Colorado. Trial testimony as groundwater flow and transport methodology expert on behalf of plaintiffs. (Client: John Barth, Attorney-at-Law)

**2006 Low Line Ditch Well Users, An Application For Water Rights And Approval Of Plan For Augmentation, Colorado District Court, Water Division No. 1 Case NO. 2003CW094.** Deposition testimony in October 2006 on impacts of groundwater pumping aspects of water rights application on senior water rights holder. (Client: City of Boulder, Colorado; Moses, Wittemyer, Harrison, and Woodruff, P.C.)

**2006 Dinsdale Brothers, Inc Well Users, An Application For Water Rights And Approval Of Plan For Augmentation, Colorado District Court Case Nos. 2001CW061 and 2003CW194:, Water Division No. 1.** Deposition testimony in September 2006 on impacts of groundwater pumping aspects of water rights application on senior water rights holder. (Client: City of Boulder, Colorado; Moses, Wittemyer, Harrison, and Woodruff, P.C.)

**2006 Allen et al. vs. Aerojet General et al., Superior Court of the State of California, County of Sacramento, Consolidated Case No. RCV 31496.** Trial testimony in March 2006 regarding the evaluation of historical groundwater contamination at Aerojet Rancho Cordova Plant. (Client: Engstrom, Lipscomb & Lack)

**2006 Well Augmentation Subdistrict of Central Colorado Water Conservancy District, Water Rights Application and Augmentation Plan, Colorado District Court, Water Division No. 1.** Deposition testimony in March 2006 on impacts of groundwater pumping aspects of water rights application on senior water rights holder. (Client: City of Boulder, Colorado; Moses, Wittemyer, Harrison, and Woodruff, P.C.)

**2005 Allen et al. vs. Aerojet General et al., Superior Court of the State of California, County of Sacramento, Consolidated Case No. RCV 31496.** Deposition testimony in June and August 2005 regarding the evaluation of historical groundwater contamination at Aerojet Rancho Cordova Plant. (Client: Engstrom, Lipscomb & Lack)

**2004 Redlands Tort Litigation, Superior Court of the State of California, County of San Bernardino, Consolidated Case No. RCV 31496.** Deposition testimony on August 20, 2004 regarding the probabilistic modeling of contaminant transport through thick unsaturated zones. (Client: Engstrom, Lipscomb & Lack)

**1998 City of Albuquerque et al., v. Sparton Technology, Inc., CIV 97 0206 LH/JHG, Federal District Court of New Mexico.** Unsworn testimony before Federal District Court judge in monthly courtroom sessions as part of court-mediated settlement negotiations in 1998 and 1999. (Client: US Dept. of Justice)

**1997 National Research Council Committee on the Waste Isolation Pilot Plant, Hydrology Subpanel.** Unsworn testimony on February 10-11, 1997 before NRC panel regarding the fate of radioactive contaminants released from the WIPP site. Sandia National Laboratories.

## **Publications/Articles**

### ***Textbooks***

Selker, J.S., C.K. Keller, and J.T. McCord, 1999. Vadose Zone Processes, Lewis / CRC Press, Boca Raton, FLA, 339 pp.

McCord, J.T., and J.S. Selker, 2003. Transport Phenomena and Vulnerability of the Unsaturated Zone, in Encyclopedia of Life Support Systems, UNESCO, [www.eolss.net](http://www.eolss.net).

### ***Refereed Journal Articles***

McCord, J.T., M.A. Ankeny, J. Forbes, 2009. *Liberal behavior of conservative tracers: the impact of non-ideal anion transport on the chloride mass balance approach to recharge estimation*, in revision for *Water Resources Research*.

McCord, J.T., and J.S. Selker, 2003. *Transport Phenomena and Vulnerability of the Unsaturated Zone*, in *Encyclopedia of Life Support Systems*, UNESCO, [www.eolss.net](http://www.eolss.net).

McCord, J.T., C.A. Gotway, and S.H. Conrad. 1997. *Impact of geological heterogeneities on recharge estimation using environmental tracers*. *Water Resources Research*, 33(6):1229-1240.

Goodrich, M.T. and J.T. McCord. 1995. *Quantification of uncertainty in exposure assessments of hazardous waste sites*. *Ground Water*, 33(5):727-732.

Eaton, R.R. and J.T. McCord. 1995. *Monte Carlo stochastic analysis of effective conductivities for unsaturated flow*. *Transport in Porous Media*, 18(3).

McCord, J.T. 1991. *On the application of second-type boundaries in modeling unsaturated flow*. *Water Resources Research*, 27(12):3257-3260.

McCord, J.T., J.L. Wilson, and D.B. Stephens. 1991. *The importance of hysteresis and state-dependent anisotropy in modeling flow through variably saturated soils*. *Water Resources Research*, 27(7):1501-1518.

McCord, J.T., D.B. Stephens, and J.L. Wilson. 1991. *Toward validating macroscopic state-dependent anisotropy in unsaturated soils: Field experiments and modeling considerations*. *Journal of Contaminant Hydrology*, 7:145-175.

McCord, J.T. and D.B. Stephens. 1988. *Comment on "Effective and relative permeabilities of anisotropic porous media" by Jacob Bear, Carol Braester, and Pascal Menier*. *Transport in Porous Media*, 3:207-210.

McCord, J.T. and D.B. Stephens. 1987. *Comment on "Effect of ground-water recharge on configuration of the water table beneath sand dunes and on seepage in lakes in the Sandhills of Nebraska, USA" by Thomas C. Winter*. *Journal of Hydrology*, 95:365-367.

McCord, J.T. and D.B. Stephens. 1987. *Lateral moisture flow beneath a sandy hillslope without an apparent impeding layer*. Hydrological Processes, 1(3):225-238.

### **Conference and Symposia Proceedings**

- Gangopadhyay, S., J.T. McCord, and S. Musleh, 2007. *A Combined Stochastic-Deterministic Approach to Estimating Effective Streambed and Aquifer Properties and Lagged River Depletions due to Alluvial Well Pumping*, Symposium on River, Floodplain, and Terrace Hydrology, New Mexico State University, Las Cruces, NM, Feb 28 – Mar 1, 2007.
- Carron, J.C., J.T. McCord, A. Elhassan, P. Barroll, T. Stockton, and M. Rocha, 2006. *Pecos River Decision Support System: Tools for Managing Conjunctive Use of Surface and Groundwater Resources*, US Committee on Irrigation and Drainage Water Management Conference, October 25-28, Boise, Idaho.
- Hall, L.M., J.T. McCord, and J.L. Smith, 2006. *Pumping Tests Designed for Investigating Surface Water – Groundwater Interactions Along the Lower South Platte River, Northeast Colorado*, NM Water Research Symposium, New Mexico Water Resources Research Institute, August 15, 2006.
- Smith, J.L., J.T. McCord, and L.M. Hall, J.A. Clark, and L.T. Rozaklis, 2006. *Analysis of Pumping Tests to Evaluate Stream-Aquifer Interactions Along the Lower South Platte River, Northeast Colorado*, NM Water Research Symposium, New Mexico Water Resources Research Institute, August 15, 2006.
- McCord, J.T., and J.L. Smith, J.C. Carron, L.T. Rozaklis, A. Elhassan, , and V. Sperling, 2005. *Hydrological Modeling to Support Conjunctive Use and Management: Case Studies from Two Western River Basins*, New Mexico Water Resources Research Institute, Annual Hydrology Conference, August 2005 Las Cruces, NM.
- Smith, J.L., and J.T. McCord, 2005. *Review Of Groundwater Hydrology Associated With Spring Flows At Bitter Lake National Wildlife Refuge, New Mexico*, New Mexico Water Resources Research Institute, Annual Hydrology Conference August 2005, Las Cruces, NM.
- Carron, J.C., and J.T. McCord, J.L. Longworth, and B. Liu, 2004. *Hydrological Model Analysis Of Alternatives For Pecos River Nepa Studies*, New Mexico Water Resources Research Institute, Annual Hydrology Conference August 2004, Las Cruces, NM.
- McCord, J.T., J.C. Carron, B. Liu, S. Rhoton, T.B. Stockton, M. Rocha, and L. Belanger, 2005. *Pecos River Decision Support System: Application for Adjudication Settlement and River Operations EIS*, Annual Conference for University Council on Water Resources, July 2004, Portland, Oregon.
- McCord, J. T., Rozaklis, L., Clark, J. A., Brannon, J., Palumbo, M., and Mulhern, P., 2004, *Linked Groundwater and Surface Water Operations Models to Evaluate Conjunctive Use Management Scenarios, Denver Basin, Colorado*. Groundwater in the West – June 16-18, 2004, 25th Annual Summer Conference, Natural Resources Law Center, University of Colorado School of Law.
- Liu, B., J.C. Carron, and J.T. McCord, 2003. *Evaluating the Consensus / Adjudication Settlement Plan: Application of the Pecos River Decision Support System*, New Mexico Bureau of Geology and Mineral Resources 2003 Decision Maker Conference: Lower Pecos Water Resources, NMBGMR/New Mexico Tech, Socorro.
- Naff, R.L., E.R. Banta, and J.T. McCord, 2003. *Obtaining a steady-state initial solution with elliptic and parabolic equations under dewater conditions: experiences with a basin model*, IGWMC MODFLOW Modeling Conference, Colorado School of Mines, Golden, Colorado.
- McCord, J.T., and J.W. Longworth, 2003. *Application of a Linear Groundwater Reservoir Model to Simulate Losses on the Dunlap to Acme Reach of the Pecos River, New Mexico*

- Hydrological Modeling Symposium, Socorro, New Mexico, August 12, 2003; New Mexico Water Resources Research Institute, NMSU.
- Carron, J.C., J.T. McCord, B. Liu, J. Longworth, P. Barroll, M. Rocha, C. Boroughs, and T. Stockton, 2003. *Pecos River Decision Support System: The Hydrologic Modeling Tools*, New Mexico Hydrological Modeling Symposium, Socorro, New Mexico, August 12, 2003; New Mexico Water Resources Research Institute, NMSU.
- Clark, J.A., J.T. McCord, J.W. Longworth, and B. Liu, 2003. *Development and Application of Unit Response Functions for Groundwater Pumping in the Roswell Basin, New Mexico* Hydrological Modeling Symposium, Socorro, New Mexico, August 12, 2003; New Mexico Water Resources Research Institute, NMSU.
- McCord, J.T., J.W. Longworth, and J.A. Clark, 2001. *Analysis of bank storage and unidentified losses from Brantley Reservoir, Lower Pecos Basin, New Mexico*, American Water Resources Association Annual Meeting, Albuquerque, New Mexico.
- McCord, J.T., and J.N. Winchester, 2001. *Analysis of management alternatives for the Santa Fe Watershed*, Proceedings of New Mexico Decision-Makers Field Conference, Land-Use and Water-Resource Issues in Santa Fe Region, Published by NBMMR/New Mexico Tech, Socorro, New Mexico.
- McCord, J.T., M.A. Palumbo, J.A. Clark, and J.H. Brannon, 2001. *Projecting Local Responses to Pumping Stresses in the Denver Basin Aquifers Using a Regional Flow Model Coupled with Local Well-Field Approximations*, Rocky Mountain Section, Geologic Society of America Annual Meeting, Albuquerque, New Mexico, April 29 through May 2, 2001.
- Winchester, J.N., and J.T. McCord, 2001. *Soil & Water Effects Analysis of Management Alternatives for the Santa Fe Municipal Watershed, Rocky Mountain Section*, Geologic Society of America Annual Meeting, Albuquerque, New Mexico, April 29 through May 2, 2001.
- McCord, J.T. and D.B. Stephens. 1999. *Contrasts in regional and local scale heterogeneity in relation to groundwater supply and contamination in the Albuquerque basin*. In Proceedings NMGS Fall Field Conference.
- Ankeny, M.D., and J.T. McCord, 1999. *Effects of Degassing and Ebullition on infiltration rates in artificial recharge systems*, Proceedings of ASCE 9th Biennial Symposium on Artificial Recharge of Groundwater, Tempe, Arizona, June 10-12.
- McCord, J.T., M. Ankeny, and R. Schmidt-Petersen, 1997. *Variably saturated flow and transport in a heap leach mining operation*, Abstract in EOS, Transactions of the American Geophysical Union, 78(46):F218.
- McCord, J.T., L.C. Meigs, and S.A. McKenna. 1996. *Characterizing transmissivity heterogeneity in a fractured dolomite*. Abstract in EOS, Transactions of the AGU, 77(46):F221.
- Meigs, L.C., J.T. McCord, Y.W. Tsang, and R. Haggerty. 1996. *Flow and transport processes in a fractured dolomite*. Presented at GSA Annual Meeting, Denver Colorado, October 28, 1996.
- Meigs, L.C., J.T. McCord, Y.W. Tsang, and R. Haggerty. 1996. *Design, Modeling, and Current Interpretations of the H-19 and H-11 Tracer Tests at the WIPP site*. In Proceedings of the first GEOTRAP Workshop on Field Tracer Transport Experiments, Cologne, Germany, August 28-30, 1996.
- McCord, J.T., M.D. Ankeny, J.R. Forbes, and J. Leenhouts. 1994. *Flow and transport processes which can contribute to non-ideal environmental tracer profiles in arid regions*. 1994 GSA National Meeting, Seattle, Washington, October 24-28.
- Chapman, R.C., J.T. McCord, W.A. Wills, and R.S. Bowman. 1994. *Using prehistoric middens as a modern day analogue for low-level waste sites*. Materials in Art and Archaeology IV, Cancun, May 16-20, 1994.

- Burck, P.W., and J.T. McCord. 1994. *Probabilistic analysis of vadose zone contaminant transport under ambient fluxes*. AGU 1994 Spring Meeting. Abstract in EOS, Transactions of the AGU, 75(16):171.
- McCord, J.P., R.A. Wolford, L.J. Lacher, and J.T. McCord. 1994. *Integrated data and modeling assessment of a potential ground-water mound to estimate recharge - Albuquerque Basin, New Mexico*. AGU 1994 Spring Meeting. Abstract in EOS, Transactions of the AGU, 75(16):159.
- McCord, J.T. 1993. *Estimation of bulk transport parameters for the vadose zone using environmental tracers*. AGU Fall Meeting. Abstract in EOS, Transactions of the AGU, 74(43):308.
- Parsons, A.M., J.T. McCord, and R.P. Thomas. 1993. *Using a Geographic Information System for vadose zone hydrogeologic characterization planning*. AGU Fall Meeting. Abstract in EOS, Transactions of the AGU, 74(43):287.
- McCord, J.T. and A. Treadway. 1993. *Identifying characterization activities for a regional hydrogeologic study using multiple realization simulations*. Proceedings of Groundwater Quality Management '93, IAHS Symposium, Tallinn, Estonia.
- McCord, J.T., A. Treadway, F. Lauffer, J.P. McCord, R.J. Glass, and A.M. Parsons. 1993. *Sandia National Laboratories Site Wide Hydrogeologic Characterization Project: An overview*. AGU Spring Meeting, EOS, Transactions of the AGU, 74(16):139.
- Crowson, D. and J.T. McCord. 1993. *Detailed mapping and geostatistical analysis of alluvial fan deposits exposed in six miles of trench*. AGU Spring Meeting, EOS, Transactions of the AGU, 74(16):143.
- Eaton, R.R. and J.T. McCord. 1992. *Comparison of numerical and analytical estimates for effective unsaturated conductivities for stratified, heterogeneous media*. AGU Fall Meeting, EOS, Transactions of the AGU, 73(43):197.
- McCord, J.T., and S.H. Conrad. 1992. *Macrodispersive transport through heterogeneous, unsaturated media*. AGU Spring Meeting. Abstract in EOS, Transactions of the AGU, 73(14):133.
- Zimmerman, D.A., J.T. McCord, and A.M. Parsons. 1992. *A comparison of saturated zone models to be used in a probabilistic monitoring well network design methodology*. AGU Spring Meeting. Abstract in EOS, Transactions of the AGU, 73(14):118.
- Rao, R.R., M.W. Kozak, J.T. McCord and N.E. Olague. 1992. *Pathway analysis for alternate low-level waste disposal methods*. In Proceedings of Waste Management '92, University of Arizona, Tucson.
- McCord, J.T., S.H. Conrad, A.M. Parsons, and D.A. Zimmerman. 1991. *Assessing vadose zone models to use in a probabilistic monitoring well network design methodology*. AGU Fall Meeting. Abstract in EOS, Transactions of the AGU, 72(44):192.
- Wahi, K.K. and J.T. McCord. 1991. *Modeling the mechanical/hydrologic effects of a heat source on a greater confinement disposal LLW site*. ASME Conference on Applied Mechanics and Bioengineering, The Ohio State University, Columbus, Ohio, June 17-19.
- Conrad, S.H., and J.T. McCord. 1991. *Evaluating the 1D assumption inherent in using isotopic soil-water tracers as indicators of paleoclimate*. AGU Chapman Conference on Isotopic Indicators of Continental Paleoclimates, Jackson, Wyoming, June 11-14, 1991.
- McCord, J.T., S.H. Conrad, and C.K. Keller. 1991. *Appraising the use of environmental tracers to determine groundwater recharge rates*. AGU Spring Meeting. Abstract in EOS, Transactions of the AGU, 72(17):111.
- McCord, J.T., M.T. Goodrich, N.E. Olague, and M.W. Kozak. 1991. *Application of homogeneous media models to the Las Cruces Trench Experiments*. First INTRAVAL Phase 2 Meeting, Battelle Conference Center, Seattle, Washington, April 22-25.

- McCord, J.T. 1991. *Multidimensional deterministic and stochastic analysis of tracer migration in the Los Alamos caisson experiments. Workshop on Characterization of Transport Phenomena in the Vadose Zone*, The University of Arizona, Tucson, Arizona April 2-5.
- McCord, J.T. and D.A. Zimmerman. 1990. *Using a stochastic variably saturated flow model to simulate tracer migration in the Los Alamos Caisson Experiments*. AGU Spring Meeting. Abstract in EOS, Transactions AGU, 71(17):517.
- McCord, J.T., D.B. Stephens, and J.L. Wilson. 1989. *Implementing state-dependent anisotropy in an unsaturated flow simulator*. AGU Fall Meeting. Abstract in EOS, Transactions AGU 70(43):1118.
- McCord, J.T. and C.C. Searcy. 1989. *Impact of soil heterogeneity on antecedent moisture and runoff generation at an arid site*. AGU Spring Meeting. Abstract in EOS Transactions AGU, 70(15):343.
- Stephens, D.B., J.T. McCord, R.J. Knowlton, Jr., B. Kickham, E. Hicks, and T. Stein. 1988. *Three-dimensional soil-water flow in semi-arid terrain*. In Program with Abstracts International Conference on Advances in Ground-Water Hydrology, No. 16-19, Tampa, Florida, American Institute of Hydrology.
- McCord, J.T. 1988. *The importance of unsaturated soil properties on surficial processes in dry regions*. AGU Fall Meeting. In EOS Transaction AGU, 69(44):1225-1226.
- McCord, J.T., D.B. Stephens, and J.L. Wilson. 1988. *Field-scale variably saturated flow and transport: The roles of hysteresis and state-dependent anisotropy*. In Proceedings of NATO Advanced Study Institute of Recent Advances in Modeling Hydrologic Systems, July 9-22, 1988, Sintra, Portugal.
- McCord, J.T., D.B. Stephens, and J.L. Wilson. 1988. *Field-scale variably saturated flow and transport in a sloping uniform porous media: Field experiments and numerical simulations*. In Proceedings, International Workshop on Validation of Flow and Transport models for the Unsaturated Zone, May 23-26, 1988, New Mexico State University, Las Cruces.
- McCord, J.T. and T.-C. Yeh. 1988. *Modeling the response of lake-aquifer systems to acid precipitation*. In Proceedings, FOCUS on Southwest Ground Water Issues, March 23-25, 1988 National Water Well Association, Dublin, Ohio.
- McCord, J.T. and D.B. Stephens. 1987. *Infiltration and recharge on a sandy hillslope in an arid climate*. In Proceedings, International Conference on Infiltration Developments and Applications, January 6-9, 1987, University of Hawaii, Manoa, pp. 351-364.
- McCord, J.T., B.J. Kickham, and D.B. Stephens. 1987. *Influence of topography and vegetation on soil-water movement on a sand dune*. Second Sevilleta NWR Research Conference, May 20, Technology Application Center, University of New Mexico, Albuquerque.
- McCord, J.T. 1986. *Topographic controls on ground-water recharge at an arid, sandy site*. New Mexico Geological Society Annual Spring Meeting, April 4, 1986 New Mexico Institute of Mining and Technology, Socorro.
- McCord, J.T. 1985. *Review and field study of lateral flow on unsaturated hillslopes*. In Proceedings, Fifth Annual AGU Hydrology Days, April 16-18, Colorado State University, Fort Collins, pp. 1-12.
- Stephens, D.B., R.G. Knowlton, Jr., J.T. McCord, and W. Cox. 1985. *Physical considerations in ground-water recharge*. In Proceedings, Symposium on Water and Science, February 15, New Mexico Water Resources Research Institute, New Mexico State University, Las Cruces, pp. 92-108.



## ***Research and Consulting Reports***

- McCord, J.T., and J.A. Clark, 2003. Brantley Reservoir Unidentified Loss Methodology in Pecos River RiverWare Model, prepared for New Mexico Interstate Stream Commission.
- McCord, J.T., and M. McGuire, 2001. CID Main Canal Seepage Losses: Review of Background Information and Analysis of Existing Data, prepared for New Mexico Interstate Stream Commission.
- McCord, J.T., 2001. Investigation of Surface Water – Groundwater Interactions: Rio Grande Low Flow Conveyance Channel, Socorro County, New Mexico, prepared for US Bureau of Reclamation, 72 pp plus appendices.
- McCord, J.T., and J.N. Winchester, 2000. Santa Fe Municipal Watershed EIS: Soil & Water Resources Impact Analysis, prepared for Santa Fe National Forest.
- McCord, J.T. and M.T. Goodrich. 1994. Benchmark Testing and Independent Verification of the VS2DT Variably Saturated Flow and Transport Computer Code. Sandia National Laboratories Technical Report SAND91-1526, 33 pp.
- Langkopf, B. and J.T. McCord. 1994. Ranking of Septic Tank and Drainfield Sites Using Travel Time to the Groundwater Table., Sandia National Laboratories Technical Report SAND94-0981, 41 pp.
- Parsons, A.M., J.T. McCord, R.P. Thomas, and M. Feraus. 1994. Using a Geographic Information System to Select Vadose Zone Hydrogeologic Settings for Guiding Site Characterization Activities. Sandia National Laboratories Technical Report SAND93-1843, 30 pp.
- Yeh, T.-C., and J.T. McCord. 1994. Review of Stochastic Modeling of Flow and Transport in the Vadose Zone. University of Arizona Department of Hydrology and Water Resources Technical Report HWR94-040, 95 pp.
- McCord, J.T., J.P. McCord, E. Thomas, A. Treadway, R. Wolford, and P. Burck. 1994, Calendar Year 1993 Annual Report for the Sandia National Labs Site Wide Hydrogeologic Characterization Project. Sandia National Laboratories Technical Report.
- McCord, J.P., J.T. McCord, D. Gibson, and H. King. 1993. Calendar Year 1992 Annual Report for the Sandia National Labs Site Wide Hydrogeologic Characterization Project. Sandia National Laboratories Technical Report SAND93-7038, 178 pp.
- Kozak, M.W., N.E. Olague, R.R. Rao, and J.T. McCord. 1992. Evaluation of a Performance Assessment Methodology for Low-Level Radioactive Waste Disposal Facilities, Vol. 1: Evaluation of Modeling Approaches, Nuclear Regulatory Commission Technical Report NUREG/CR-5927, SAND91-2802, Vol. 1, 71 pp.
- Olague, N.E., M.W. Kozak, R.R. Rao, and J.T. McCord. 1992. Evaluation of a Performance Assessment Methodology for Low-Level Radioactive Waste Disposal Facilities, Vol. 2: Validation Needs, Nuclear Regulatory Commission Technical Report NUREG/CR-5927, SAND91-2802, Vol. 2.
- Olague, N.E., J.T. McCord, M.T. Goodrich, P.A. Davis, A.R. Gribble, and C.D. Updegraff. 1991. Sandia National Laboratories Project Team INTRAVAL Phase I Analyses, NRC Technical Report NUREG/CR-5724, SAND91-1027.
- Sandia National Laboratories, 1991. Potential Impacts of Iraqi Use of Oil as a Defensive Weapon, Technical Report SAND91-0184, 130 pp.
- Kozak, M.W., M.S.-Y. Chu, P.A. Mattingly, and J.T. McCord. 1990. Background Information for the Development of a Low-Level Waste Performance Assessment Methodology: Implementation of Codes, NUREG/CR-5453, SAND89-2509, Vol.5.
- McCord, J.T. and D.B. Stephens. 1989. Analysis of Soil-Water Movement on a Sandy Hillslope, Technical Completion Report. U.S. Geological Survey Matching Grant Project No. 1-4-23660, 95 pp.

Stephens, D.B., R.G. Knowlton, Jr., J.T. McCord and W. Cox. 1986. Field Study of Natural Groundwater Recharge in a Semi-Arid Lowland. Technical Completion Report No. 177, New Mexico Water Resources Research Institute, Las Cruces.

F.M. Fox and Associates, Albuquerque, New Mexico. 1981-1984. Principal author on over 75 proprietary consulting reports on geotechnical investigations undertaken for public and private construction projects.

### **Memberships**

American Geophysical Union  
New Mexico Geological Society  
American Water Resources Association  
National Ground Water Association

### **Languages**

English, Spanish

### **Summary of Core Skills**

Hydrogeology, vadose zone hydrology, water rights, water supply planning and management, surface/ground water interaction, computer modeling, expert witness testimony.

### **Employment History**

2007-present Senior Associate, AMEC's Earth & Environmental Division. Responsible for management of engineering studies, consultant on water rights and water resources planning projects, expert witness testimony.

1999-2007 Principal Hydrologist and New Mexico Manager, Hydrosphere Resource Consultants, Inc.(acquired by AMEC in 2007) Socorro, New Mexico.

1998-present Board Member, Rio Grande Agricultural Land Trust, Lemitar, New Mexico.

1991-Present Adjunct Professor, Earth Science Department, New Mexico Institute of Mining and Technology, Socorro, New Mexico.

1997-1999 Senior Hydrologist and Hydrology Group Manager, Daniel B. Stephens & Associates, Inc., Albuquerque, New Mexico

1998-1999 Board Member, Socorro Soil and Water Conservation District, Socorro, New Mexico.

1991-1994 Adjunct Professor, Civil Engineering Department, University of New Mexico, Albuquerque, New Mexico.

1990-1997 Senior Member of the Technical Staff, Geohydrology Department, Sandia National Laboratories, Albuquerque, New Mexico.

1989-1990 Assistant Professor, Geology and Civil and Environmental Engineering Department, Washington State University, Pullman, Washington.

1984-1988 Research and Teaching Assistant, New Mexico Institute of Mining and Technology, Socorro, New Mexico.

1981-1984 Staff Engineer, F.M. Fox and Associates, Albuquerque, New Mexico

1980 Field Hydrologic Assistant, TRW Energy Group, Denver, Colorado.

1979-1980 Engineering Technician, Engineering Science and Mechanics Materials Lab, Virginia Polytechnic Institute, Blacksburg, Virginia.

1979                    Engineering Technician, R.H. Hogrefe Engineering, Albuquerque, New Mexico.

**Personal**

Married 24 years to Cecelia Rosacker McCord. Two college age sons. Own and operate a 28 acre farm. Guitar player and rock band member.