Constance L. Travers

Areas of Qualification

Hydrogeology, contaminant fate and transport, hydrological modeling, geology, impacts of mining on water resources, natural resource damage assessment

Employment History

- Principal, Stratus Consulting Inc., Boulder, CO, 2010-present; Managing Scientist, 2003-2010; Senior Associate, 2002-2003
- Senior Hydrogeologist and Regional Manager, Exponent/PTI, Boulder, CO, 1990-2002
- Hydrogeologist, Aqua Terra Consultants, Mountain View, CA, 1988-1990
- Research/Teaching Assistant, Stanford University, Stanford, CA, 1987-1989
- Laboratory Assistant, United States Geological Survey, Branch of Analytical Chemistry, Menlo Park, CA, 1985-1986

Education

- Stanford University, MS, Applied Hydrogeology, 1990
- Stanford University, BS, Geology, 1987, with distinction

Professional Experience

At Stratus Consulting, Ms. Travers is responsible for hydrologic investigations that address both water quality and quantity. Ms. Travers has 25 years of experience in hydrogeology, water resources, and environmental chemistry. She has extensive experience in the development, testing, and application of models to predict the mobility of water and inorganic and organic contaminants in the vadose zone and groundwater, as well as in surface water. Ms. Travers has worked at more than 50 abandoned, active, and proposed mine sites, working for the mining industry, federal and state agencies, and tribes. Her mining work has encompassed field characterization, modeling, environmental impact studies, natural resource damage assessment, and cost recovery. Ms. Travers has evaluated the water impacts of mining operations, including the assessment of the pre- and post-mine water balance, water quality and ecological risks associated with pit lakes, the effects of tailings impoundments and waste rock storage facilities on receiving waters, and the impact of mine dewatering on groundwater and surface water resources.

Ms. Travers has worked on surface water and groundwater aspects of natural resource damage assessments (NRDAs) at multiple sites throughout the United States over the last 20 years. She prepared a review of tools and methods used to evaluate the impacts of climate change on

groundwater resources, and coauthored an assessment of climate change impacts on U.S. fisheries. She has managed hydrogeological field investigations including river water, sediment, and groundwater sampling; aquifer testing; stream flow measurements; monitoring well installation; and cone-penetrometer and Geoprobe work. Ms. Travers has completed 40-hour OSHA Hazardous Waste Operations and Emergency Response training.

Selected Projects

Hydrological evaluation of contamination from mines

Technical Support on Hydrogeology and ARD: Gilt Edge Mine Superfund Site, Lawrence County, South Dakota
For: U.S. Department of Justice
Provided a technical evaluation of the hydrogeology and hydrology of the Gilt Edge Mine, assessing the interaction between site features and vadose zone, groundwater, and surface water flow in the mine area, and the influence of remediation activities on water quantity and quality at the mine. Assessed historic and current sources of acid and heavy metal contamination at the Mine Site including waste rock and fills, heap leach pads, sludge, underground workings, open pits, and pit lakes, and evaluated the transport of contaminants from source areas to groundwater and surface water in and near the mine.

Course Instructor for "Characterizing, Predicting and Modeling Water from Mine Sites"
For: California Environmental Protection Agency
Mine hydrology instructor for a four-day course sponsored by the California Water Board on characterizing, predicting, and modeling water from hard rock mines sites. Topics included geochemical and hydrologic testing, acid rock drainage (ARD), and predictions of water quality impacts. The course was taught to approximately 60 state regulators in May 2009 in Sacramento, California.

Technical Analysis and Project Management: Hydrologic and Geochemical Studies for Robinson Project Environmental Impact Statement, Ely, Nevada
For: Magma/BHP Copper Company
Project manager and modeler for multidisciplinary hydrologic and geochemical studies for evaluation of impacts associated with the reinitiation of mining in the Robinson Mining District in Nevada. The study, used in the Environmental Impact Statement (EIS) for the project, included the assessment of the environmental effects of the formation of pit lakes, waste rock facilities, a large tailings impoundment, and dewatering activities. Developed a regional groundwater flow model to predict the impact of pumping at the mine on water supply wells and springs in the region and to estimate flux rates into five open pits, and developed a model to evaluate loading of metals and sulfate to groundwater beneath a proposed tailings impoundment.

Watershed Modeling and Water Availability Study: Yanacocha Mining District, Cajamarca Peru
For: Compliance Advisor Ombudsman for International Finance Corporation
Evaluated the potential impacts of development of the Yanacocha Gold Mine in Cajamarca, Peru, on available water in rivers and canals used for domestic supply, irrigation, and livestock watering by the local population. Analyzed existing hydrologic data and identified data gaps, designed a field program to collect additional data to fill data gaps, and implemented the field program. Developed a watershed model to evaluate the impact of mine facilities and interbasin transfers on the quantity of water available for domestic and agricultural use by the local population.

Review and Evaluation of Methods Used to Predict Water Quality at Hardrock Mines
For: Earthworks
Contributing author to a book describing currently available methods to predict and assess water quality impacts from hard rock mining. The book discusses available tools for geochemical characterization and predictive modeling, as well as uncertainty in these predictions. It also provides resources for those undertaking predictive modeling of water quality at hard rock mines, and reviewers of these modeling studies. The project was funded by Earthworks in Washington, DC, with support of the Wilburforce Foundation in Seattle, WA.

Hydrologic and Geochemical Studies, Twin Creeks Mine, Nevada
For: Santa Fe Pacific Gold Corporation
Provided technical oversight of data acquisition and groundwater modeling for a regional hydrologic study of the area surrounding the Twin Creeks Mine in Nevada. Also used MODFLOW and MT3D to simulate the migration of antimony in groundwater near an injection well system. As part of the EIS for the mine, applied an analytical model for pyrite oxidation rates to evaluate oxidation zones to evaluate chemical loading into a future pit-lake at the mine. Evaluated the environmental behavior of mine materials as part of the materials handling plan for the mine.

Groundwater Modeling for Environmental Impact Assessment: Carlin, Nevada
For: Newmont Gold Company
Developed a groundwater flow model using MODFLOW to predict groundwater inflow into the Tara and Bootstrap/Capstone open-pit mines in Carlin Trend, Nevada, following cessation of dewatering activities. The modeling was used to evaluate potential impacts to water resources, and to determine the pit-lake water balance as part of the prediction of water quality in the lake.

Groundwater Model Evaluation: Nevada
For: Newmont Gold Company
Performed a detailed technical evaluation of a numerical groundwater model used to assess dewatering and water disposal practices at a Nevada mine. Evaluated the model representation of the physical hydrogeologic system, implementation, historical predictive capabilities, and accuracy.

Hydrologic Evaluation of Mine Pit Lakes, Big Springs Mine, Nevada
For: U.S. Forest Service
Developed a hydrologic water balance for a mine in northern Nevada, including inflow to open pits and discharge to an adjacent tributary. This study evaluated the potential impacts of the mine on water quality in a tributary of the Humboldt River.

Pit Lake Water Quality and Ecological Risk Assessment, Round Mountain Mine, Nevada
For: Echo Bay Mines
Project manager for a multidisciplinary investigation to predict the chemical evolution of water quality in the pit lake that will form at the Round Mountain Mine, Nevada, and to evaluate ecological risks posed by the planned mining activities.

Tailings and Waste Rock Seepage Evaluation, Battle Mountain, Nevada
For: Battle Mountain Gold Company
Using the SEEP/W model, evaluated the potential seepage from tailings and waste rock facilities at a the Phoenix mine in northeastern Nevada.

Surface water and groundwater resources

Groundwater Sustainability under Climate Change
For: Water Research Foundation
As Principal Investigator, conducted a literature and research review of the state of the science for assessing the sustainability of groundwater resources under climate change and prepared a report for the Water Research Foundation.

Climate Change Impacts on U.S. Freshwater Fisheries
For: U.S. Environmental Protection Agency
Evaluated air/water temperature relationships and predicted climate change impacts to freshwater fisheries in the United States; these data were used to determine economic consequences to the fishing industry.

Sediment Transport Evaluation: Copper River, Alaska
For: State of Alaska
Analyzed streamflow and sediment transport in the Copper River to evaluate potential impacts from road-construction activities along the river bank, and a potential violation of the Clean Water Act.

Evaluation of Groundwater Response to Rainfall, Love Creek, California
For: City of Santa Cruz, California
Modeled the hydrology related to the 1982 Love Creek, California landslide in preparation for litigation. Examined the effect of a recently built reservoir and heavy rainfall on the water table near the slide area.

Study of Hydrologic Conditions Associated with Anopheles Mosquito Breeding and Spread of Malaria
For: Stanford University, NASA-AMES, and the Government of Mexico
Participated in the design and installation of monitoring wells in wetlands in Tapachula, Mexico, for an investigation of regional surface water and groundwater interactions to delineate potential breeding areas for Anopheles mosquitoes.

Groundwater and Thermal Modeling along San Andreas Fault: Cajon Pass, California
For: National Science Foundation Grant
Studied the hydrogeology at Cajon Pass, California, and predicted the effects of groundwater circulation on the observed heat flow along the San Andreas Fault through the use of the coupled groundwater flow and heat transport model GEOTHERM. The study was used to develop an improved understanding of frictional heating and fault mechanics.

Evaluation of Water Resources Impacts, Kingdom of Jordan
For: Hashemite Kingdom of Jordan
Provided technical analysis and litigation support in evaluating the potential impacts of immigrants and refugees from the Gulf War on the country's surface and groundwater resources. Components included analyzing the effects of increased salinity, changes in agricultural practices, and wastewater treatment plant (WWTP) loadings on water quality.

Hydrologic model development and statistical support

Testing and Application of Subsurface Fate and Transport Models
For: U.S. Environmental Protection Agency, Center for Exposure Assessment Modeling
Coauthored a review of mathematical models applied to leachate generation and migration problems at Subtitle D waste disposal facilities. Tested and applied a newly developed model for unsaturated- and saturated-zone flow and solute transport (RUSTIC). Also tested and applied

MULTIMED, a U.S. Environmental Protection Agency (EPA) model used to evaluate subsurface contaminant migration from waste disposal facilities. Participated in the development of a fully interactive preprocessor and user's manual for MULTIMED.

Statistical Guidance Document for Determining Compliance with Site Cleanup Standard
For: Washington State Department of Ecology
Reviewed and revised a statistical guidance document focused on statistical methods for determining whether a site meets the identified cleanup standards for specific constituents. Reviewed statistical methods for determining background concentrations of constituents at the Hanford facility in Washington.

Remedial investigation/feasibility study support and remedial alternative evaluation

Fate and Transport Analysis, Remedial Alternative Evaluation for Feasibility Study for the Avtex Fibers Superfund Site, Front Royal, Virginia
For: FMC Corporation
Lead hydrogeologist for a feasibility study at a former rayon-manufacturing facility in Virginia. Managed and interpreted the results of field investigations, including groundwater sampling in monitoring wells and residential wells, Geoprobe work, well installation, geophysical logging of boreholes, and aquifer testing. Worked closely with the client and EPA Region III to develop a conceptual model for the fate and transport of a dense plume containing carbon disulfide and arsenic in fractured bedrock. The hydrologic conceptual model was used to assess remedial alternatives for the waste disposal basins, groundwater, and the Shenandoah River as part of the Feasibility Study for the site.

Groundwater Fate and Transport Analysis for Remedial Investigation/Feasibility Study, Orlando, Florida
For: Chevron Chemical Company
In support of a remedial investigation and feasibility study, performed numerical modeling of pesticide and petrochemical constituents in groundwater at a former pesticide facility in Orlando, Florida, in accordance with the Superfund Accelerated Cleanup Model (SACM). Evaluated remedial alternatives using the model, and developed a statistically based monitoring plan that was adopted as part of the record of decision.

Groundwater Assessment and Remedial Alternative Evaluation, Jacksonville, Florida
For: FMC Corporation
Evaluated aquifer test data and supervised groundwater modeling conducted to evaluate remedial alternatives at a former pesticide manufacturing facility in Jacksonville, Florida.

Remedial Design Evaluation
For: Elf Atochem
Used MODFLOW and MODPATH to evaluate the effectiveness of various remedial designs involving groundwater extraction at a site along the Willamette River in Oregon.

Fate and Transport of PCBs at Rocky Flats, Golden, Colorado
For: Kaiser-Hill, contractor for Department of Defense
Conducted numerical modeling at the Rocky Flats Environmental Technology Site in Golden, Colorado, to evaluate movement of polychlorinated biphenyls (PCBs) leached from paint in backfilled concrete in the subsurface. This analysis was used to assess the remediation plan.

Natural Resource Damage Assessment

Natural Resource Damage Assessment, *Deepwater Horizon* Oil Spill, Gulf of Mexico
For: National Oceanic and Atmospheric Administration and U.S. Department of Justice.
Currently assisting with aspects of the damage assessment, including identification of subject matter expertise and early restoration planning.

Natural Resource Damage Assessment: Midnite Mine, Washington
For: U.S. Fish and Wildlife Services and Trustee Group
Providing technical support for a preliminary injury determination related to surface water, groundwater, and sediment contamination from metals and other constituents released to the environment from operations at the Midnite Uranium Mine and Dawn Mill in Ford, WA.

Natural Resource Damage Assessment: Tyrone and Chino Mines, New Mexico
For: New Mexico Office of Natural Resource Trustee
For the State of New Mexico, assessed the effects of releases of metals to the environment from two large open pit, solvent extraction/electrowining (SX/EW) leach and flotation mill copper mines. The study involved a review and evaluation of existing data to estimate potential adverse effects of the mine facilities and dewatering operations on surface water and groundwater used in determining and quantifying injuries.

Natural Resource Damage Assessment: Questa Mine, New Mexico
For: New Mexico Office of Natural Resource Trustee
Provided technical support for an injury determination and quantification related to surface water and groundwater contamination resulting from mining and milling operations at the Questa Mine.

Natural Resource Damage Assessment: Confidential Site, Albuquerque, New Mexico
For: New Mexico Office of Natural Resources Trustee
Assessed hydrogeologic conditions and area groundwater use to determine the volume of groundwater injured over time as part of the NRDA claim in New Mexico.

Natural Resource Damage Assessment: Confidential Site, Ohio
For: Trustee Group
Assessed groundwater flow, contaminant migration, and groundwater use in the region to determine the volume of groundwater injured over time as part of injury assessment and NRDA estimate in Ohio.

Fieldwork and Modeling, Natural Resource Damage Assessment, Butte, Montana
For: ARCO
In support of NRDA litigation, designed and implemented a sampling plan for sediments, bank, and mine tailings material for the Clark Fork River and Silver Bow Creek in Montana. Used the surface water quality model WASP4 to simulate the transport of metals in the rivers and remedial alternatives. Used results from laboratory studies on sediments collected in the rivers to determine adsorption coefficients for metals in the creeks.

Fate and transport of petroleum and petrochemicals

Litigation Support, Fate and Transport Analysis, Philadelphia
For: Department of Defense and Department of Justice
Managed a team of technical experts providing support for the *U.S. vs. Sunoco et al.* litigation pertaining to the transport and fate of light non-aqueous phase liquids (LNAPLs) and dissolved petroleum products in groundwater in Philadelphia, PA.

Evaluation of Pipeline Release into Intermittent Stream in Texas
For: U.S. Department of Justice
Following the release of jet fuel from a pipeline rupture to an intermittent stream, evaluated the hydrologic and chemical nexus of the stream to a traditional navigable water as part of a claim filed under the Clean Water Act.

Petrochemical Fate and Transport Assessments, Washington and Alaska
For: Chevron Chemical Company
Applied numerical groundwater flow and transport models to predict the migration of petrochemical constituents [e.g., benzene, toluene, ethylbenzene, and xylenes (BTEX)] at three former bulk fuel distribution facilities in Alaska and Washington. Modeling was used to develop risk-based soil cleanup standards that would be protective of groundwater and human health as part of remedial activities at the sites.

Litigation Support, Fate and Transport Analysis, Fort Worth, Texas
For: Plaintiff against Texaco
Provided litigation support pertaining to the transport and fate of petroleum products in groundwater at a site in Fort Worth, Texas. Evaluated migration from a Texaco service station. Developed a groundwater and solute transport model of the site and an animated video demonstrating the release and migration of BTEX compounds in the subsurface for use at trial.

Petroleum Migration Analysis, Litigation Support, Castle Rock, Colorado
For: City of Castle Rock, Colorado
Evaluated the migration of free-phase petroleum in soils and groundwater to assess the influence of the petroleum releases on municipal water supply wells in Castle Rock.

Litigation support, fate and transport

Chlorinated Solvent Fate and Transport Assessment, Livingston County, Michigan
For: Livingston County Road Commission
Prepared expert reports and provided deposition testimony related to the transport and fate of chlorinated solvents in soils and groundwater at a site in Livingston County, Michigan.

Cost Allocation Assessment and Litigation Support, Florida
For: Lone Star Industries
Developed technical arguments and opinions and allocated costs during a litigation case related to the transport and fate of pentachlorophenol (PCP), metals, and petrochemical constituents in soils and groundwater at a former wood-treating facility in Florida.

Chlorinated Solvent Fate and Transport Assessment, Boulder County, Colorado
For: Confidential
Provided technical support to a litigation team during court actions related to the transport and fate of chlorinated solvents in soils and groundwater at a site used to manufacture circuit boards in Colorado.

Cost Allocation and Litigation Support, Mountain View, California
For: Confidential Client
Performed data analysis, cost apportionment, and groundwater modeling of the transport of chlorinated solvents in groundwater at a site in California. Developed an animated video portraying the predicted results of source control undertaken at the client's site as compared to no source control at the site of the opposing party.

Litigation Testimony

Prepared expert report and provided deposition testimony in the matter of *Gould Electronics Inc., v. Livingston County Road Commission and Livingston County*, United States District Court for the Eastern District of Michigan, Case No. 2:09-cv-12633. (2011)

Prepared expert report and provided deposition testimony in the matter of *Commissioner of the Department of Planning and Natural Resources et al. vs. Century Alumina Company et al.*, United States District Court of the Virgin Islands, Case No. 1:05-cv-00062-HB. (2012)

Selected Publications and Presentations

C. Travers, J. Vogel, R. Raucher, and R. Jones. 2012. Groundwater Sustainability under Climate Change: A Literature and Research Review. Prepared for the Water Research Foundation, Project Number 4325.

Jones, R.W., C. Travers, C. Rodgers, B. Lazar, E. English, J. Lipton, K. Strzepek, J. Vogel, and J. Martinich. 2012. Climate change impacts on freshwater recreational fishing in the United States. *Mitigation and Adaptation Strategies for Global Change*. DOI: 10.1007/s11027-012-9385-3.

C. Travers and R. Raucher. 2011. Groundwater Sustainability under Climate Change: A Summary of Current Research and Guidance for Water Planners. Poster Presented at American Water Resources Association 47th Annual Water Resources Conference in Albuquerque, NM, November 7-10.

Jones, R., C. Travers, C. Rodgers, B. Lazar, E. English, K. Strzepek, and J. Martinich. 2010. Climate Change Impacts on Freshwater Recreational Fishing in the United States. Presented at 3rd U.S.Geological Survey Modeling Conference: Understanding and Predicting for a Changing World, Broomfield, CO. June 7-11.

C. Travers. 2009. Course Instructor for Hydrology Portions of "Characterizing, Predicting and Modeling Water from Mine Sites." 4-Day Short Course for the California Environmental Protection Agency/California Water Resources Control Board, Sacramento, CA. May 18-21.

Jones, R., C. Travers, C. Rodgers, B. Lazar, S. Humphries, and J. Martinich. 2008. Modeling Potential Impacts of Climate Change on Freshwater Fishing Habitat in the United States. Poster Presented at A Conference on Ecosystem Services (ACES), Naples FL. December 7-11.

Ritter, R., C. Travers, and A. Maest. 2007. Methods and Models for the Prediction of Water Quality and Quantity Impacts of Mining: An Introduction. Short course presented at 20th Annual

Meeting of the Rocky Mountain Chapter of The Society of Environmental Toxicology and Chemistry North America, Golden, CO. April 12.

Maest, A.S., J.R. Kuipers, C.L. Travers, and D.A. Atkins. 2005. Predicting Water Quality at Hardrock Mines. Methods and Models, Uncertainties, and State-of-the-Art. Publication funded by Earthworks, Washington DC, with support from the Wilburforce Foundation, Seattle, WA. Kuipers & Associates, Butte, MT, and Buka Environmental, Boulder, CO. (Publication copies may be requested from Stratus Consulting Inc., Boulder, CO.)

Maest, A., J. Kuipers, C. Travers, and D. Atkins. 2005. Evaluation of Methods and Models Used to Predict Water Quality at Hardrock Mine Sites: Sources of Uncertainty and Recommendations for Improvement. Paper presented at the Society for Mining, Metallurgy and Exploration (SME) Annual Meeting, Salt Lake City, UT. February 28-March 2.

Erbe, M., R. Keating, C. Travers, L. Norman, W. Cutler, and T. Martin. 2004. Assessing the Role of Structural Geologic Elements in Aquifer Hydraulics and Plume Migration. Paper accepted for the September 2004 U.S. Environmental Protection Agency/National Groundwater Association Fractured Rock Conference: State of the Science and Measuring Success in Remediation, Portland, ME.

Travers, C., T. Martin, M. Ruby, W. Cutler, and R. Keating. 2001. Geologic controls on DAPL migration in a fractured bedrock system: Avtex Fibers Superfund Site, Part I. In *Proc. Fractured Rock 2001 Conference,* Toronto, Canada. March 26-28.

Venkatakrishan, R., W. Cutler, and C. Travers. 2001. Borehole Geophysics and Development of a Conceptual Hydrogeological Model: Case Study of Plume Migration in Martinsburg Shale at the Avtex Fibers Superfund Site. Geological Society of America Annual Meeting, Boston, MA. November 5-8.

Martin, T., C. Travers, M. Ruby, W. Cutler, and R. Keating. 2001. Fate and remediation alternatives of DAPL in a fractured bedrock system: Avtex Fibers Superfund Site: Part II. In *Proc. at Fractured Rock 2001 Conference.* Toronto, Canada. March 26-28.

Swanson, D.A., J.H. Kempton, C.L. Travers, and D.A. Atkins. 1998. Predicting Long-term Seepage from Waste-Rock Facilities in Dry Climates, Society of Mining Engineers Conference, Orlando, FL. March 9-11.

Peterson, L.D., D.A. Swanson, D.A. Atkins, M.W. Bennett, C.L. Travers, and J.H. Kempton. 1998. Sulfide oxidation in pit-backfilled, waste-rock facilities. In *Proceedings of the 5th Annual Conference on Tailings and Mine Waste, Fort Collins, CO.* ISBN 90 5410 922 X. Balkema, Rotterdam.

Atkins, D.A. and C.L. Travers. 1995. Predicting the temporal variation in water and solute flux to groundwater beneath tailings impoundments. In *Proc. Mine Closure Conference. March 29-31, 1995.* Nevada Mining Association, Reno.

Kempton, H., D. Goode, D. Atkins, A. Nicholson, C. Travers, and A. Davis. 1995. Model for predicting post-closure water quality in mine pit lakes. In *Proc. Mine Closure Conference. March 29–31, 1995.* Nevada Mining Association, Reno.

Travers, C., J. Campbell, M. Bennett, J. Zou, A. Davis, and T. Dyhr. 1994. Determining water quantity impacts of operations in the Robinson Mining District, Ely, Nevada. In *Proc. Groundwater Modeling Conference. August 10-12, 1994.* Colorado State University, Fort Collins.

Davis, A., J. Deen, C. Travers, D. Atkins, H. Kempton, M. Bloom, and T. Dyhr. 1994. A comprehensive assessment of environmental issues at the Robinson Project porphyry copper mine, White Pine County, Nevada. In *Proc. Mining Environmental Management Conference. October 16-19, 1994.* Reno, NV.

Travers, C., J. Campbell, M. Bennett, E. Seedorff, K. Baugh, J. Zou, and A. Davis. 1994. Incorporating complex geology into a groundwater model: Robinson Mining District, Nevada. In *The Mining Environmental Management Conference. October 16-19, 1994.* Sparks, NV.

Travers, C.L. and S. Sharp-Hansen. 1993. *Leachate Generation and Migration at Subtitle D Facilities: A Summary and Review of Processes and Mathematical Models.* EPA/600/R-93/125. Prepared for U.S. Environmental Protection Agency, Environmental Research Laboratory, Athens, GA.

Sharp-Hansen, S., C.L. Travers, P. Hummel, and J. Allison. 1993. *Subtitle D Landfill Application Manual.* EPA/600/R-93/082. U.S. Environmental Protection Agency, Environmental Research Laboratory, Athens, GA.

Travers, C.L. 1990. Description of pathways for transfer of contaminants from hazardous waste treatment sites. In *Available Models for Estimating Emissions Resulting from Bioremediation Processes: A Review*, S. Sharp-Hansen (ed.). EPA/600/3-90/031. U.S. Environmental Protection Agency, Athens, GA. pp. 5-43.

Donigian, A.S., A.S. Patwardhan, S. Sharp-Hansen, C.L. Travers, and C.S. Raju. 1990. Preliminary RUSTIC Application for Atrazine Simulation at Muscatine Island, Iowa. Prepared for U.S. Environmental Protection Agency.

Travers, C.L. and I. Remson. 1989. Hydrogeological Study Using Limited Data: Cajon Pass Region, Southern California (abs.). EOS 70.

Professional Affiliations and Honors

- National Groundwater Association
- American Geophysical Union
- American Water Resources Association
- Phi Beta Kappa, Stanford University