

Warda Drici
Hydrologist

Southern Nevada Water Authority

EXPERIENCE SUMMARY

Ms. Drici has more than 30 years of experience as a hydrologist. She is currently working for the Southern Nevada Water Authority on groundwater development and management projects. Previously, Ms. Drici worked for Parsons Corporation on similar projects. She has been involved in the analysis of groundwater data and modeling activities in support of water-rights applications and water-resource development and management. She previously served as an expert witness at the State's water-right hearings for Spring, Cave, Dry Lake and Delamar valleys; and for Tikaboo and Three Lakes valleys.

Previously, Ms. Drici worked on the Underground Test Area Project (Nevada Test Site), a Department of Energy project for more than 10 years. She led the analysis of groundwater data and preparation of numerous technical documents. Prior to joining the Underground Testing Area Project, Ms. Drici participated in the high-level nuclear waste site selection activities. For the Office of Nuclear Waste Isolation, she developed groundwater models for the salt domes of Mississippi and Cypress Fee and for the bedded salts of Deaf Smith County, Texas.

Her experience includes water-resource assessment and management, site characterization, design of dewatering and landfill leachate collection systems, with an emphasis in data analysis including surface-water and groundwater modeling. She also has experience in well test design and analysis, mapping, computer programming and various data analysis techniques. She has used several groundwater and surface water codes including FEMFLOW3D, MODFLOW, MOC, Fracman, Sutra, Gram, Plasm, Help, QUAL2E, and Aqtsolv. She is also familiar with various other computer applications including PEST, UCODE, ArcGIS and Microsoft Office. She authored and contributed to numerous technical documents.

SPECIAL TRAINING

- Fundamentals of MODFLOW-USG, An Unstructured Grid Version of MODFLOW, Nevada Water Resources Association Annual Conference, Las Vegas, NV, February 29, 2016
- Introduction to ArcGIS I, ESRI, Las Vegas, NV, July 15 and 16, 2004
- Fundamentals of Remote Sensing, Space Imaging, Las Vegas, NV June 22 and 23, 2004
- FRACMAN Software Training, Golder Associates, Denver, CO, 2001
- Myers Briggs Training, IT Corporation, Las Vegas, NV, 2001
- Franklin Time Management, IT Corporation, Las Vegas, NV, 1997
- Covey's Seven Habits of Highly Effective People, IT Corporation, Las Vegas, NV, 1996
- Project Management Training, The Earth Technology Corporation, Long Beach, CA, 1989
- Project Management Training, The Earth Technology Corp., Long Beach, CA, 1989
- Marketing Course, Kay Lenz Marketing Management Associates, Long Beach, CA, 1988
- Technical Writing Training Course, Shipley Associates, Long Beach, CA, 1988

AWARDS AND SPECIAL ACTIVITIES

- Qualified as expert witness in groundwater hydrology, with emphasis on modeling at the Spring, Cave, Dry Lake and Delamar valley Water Hearings held in Carson City, Nevada - 2011.
- Recipient of SNWA Outstanding Performance Award - 2009
- Qualified as expert witness in groundwater hydrology, with emphasis on modeling at the Three Lakes Valley South Water Hearings held in Carson City, Nevada - 2005.
- Member of Quality Assessment Committee, Southern Nevada Water Authority, 2004-2005.
- Recipient of annual Quality Award, Shaw Environmental - 2003
- Recipient of annual Quality Award, Shaw Environmental - 2002
- Recipient of annual Quality Award, IT Corporation - 1996.
- Recipient of Top Achiever Bonus Program, the Earth Technology Corporation - 1990
- Member of Steering Committee, the Earth Technology Corporation - 1988-1989
- Recipient of Key Employee Incentive Program Award, the Earth Technology Corporation - 1988

EMPLOYMENT HISTORY

- 2010 – Present Southern Nevada Water Authority, Las Vegas, NV; Hydrologist
- 2004 – 2010 Parsons Corp., Las Vegas, NV; Senior Hydrologist
- 2003 – 2004 INTERA Inc., Las Vegas, NV; Senior Hydrogeologist
- 2002 – 2003 Shaw Environmental Inc., Las Vegas, NV; Senior Hydrogeologist
- 1985 – 2002 International Technology Corporation, Las Vegas, NV; Senior Hydrogeologist
- 1984 – 1985 GeoTrans Inc., Las Vegas, NV; Senior Hydrogeologist
- 1992 – 1994 Professional Analysis, Inc., Las Vegas, NV; Environmental Engineer
- 1990 – 1992 The Earth Technology Corporation, Las Vegas, NV; Senior Hydrogeologist
- 1986 – 1992 The Earth Technology Corporation, Long Beach, CA; Project Hydrogeologist
- 1985 – 1986 Kansas Geological Survey, Lawrence, KS; Visiting Research Associate
- 1982 – 1985 Kansas Geological Survey, Lawrence, KS; Research Assistant
- 1981 – 1983 Dept. of Chemical and Petroleum Engineering, University of Kansas, Lawrence, KS; Teaching Assistant
- 1981 – 1982 Supportive Educational Services, University of Kansas, Lawrence, KS; Mathematics and French Tutor

EDUCATION

- M.S. Petroleum Engineering, University of Kansas, 1987
- M.S. Petroleum Management, University of Kansas, 1984 (Honors)
- B.S. Mathematics, University of Algiers, 1977

PUBLICATIONS

Drici W., Burns, A., and Watrus J., 2017, Simulation of a Groundwater Production Scenario Related to Southern Nevada Water Authority Groundwater Applications in Spring Valley, Nevada: Presentation to the Office of the Nevada State Engineer: Southern Nevada Water Authority, Las Vegas, Nevada.

Burns, A.G. and **Drici, W.**, 2011, Hydrology and water resources of Spring, Cave, Dry Lake, and Delamar valleys, Nevada and vicinity: Presentation to the Office of the Nevada State Engineer: Southern Nevada Water Authority, Las Vegas, Nevada.

Watrus, J.M. and **Drici, W.**, 2011, Conflicts analysis related to Southern Nevada Water Authority groundwater applications in Spring, Cave, Dry Lake, and Delamar valleys, Nevada and vicinity: Presentation to the Office of the Nevada State Engineer: Southern Nevada Water Authority, Las Vegas, Nevada, 151 p.

Southern Nevada Water Authority, 2010, Simulation of groundwater development scenarios using the transient numerical model of groundwater flow for the Central Carbonate-Rock Province—Clark, Lincoln, and White Pine Counties Groundwater Development Project: Prepared in cooperation with the Bureau of Land Management, Southern Nevada Water Authority, Las Vegas, Nevada, 96 p. - **Co-author**.

Southern Nevada Water Authority, 2010, Addendum to the groundwater flow model for the Central Carbonate-Rock Province—Clark, Lincoln and White Pine Counties Groundwater Development Project: Prepared in cooperation with the Bureau of Land Management, Southern Nevada Water Authority, Las Vegas, Nevada, 48 p. - **Co-author**.

Southern Nevada Water Authority, 2009, Transient numerical model of groundwater flow for the Central Carbonate-Rock Province—Clark, Lincoln, and White Pine Counties Groundwater Development Project, Prepared in cooperation with the Bureau of Land Management: Southern Nevada Water Authority, Las Vegas, Nevada, 394p. Draft Report - **Co-author**.

Southern Nevada Water Authority, 2009, Conceptual model of groundwater flow for the Central Carbonate-Rock Province—Clark, Lincoln and White Pine Counties Groundwater Development Project: Southern Nevada Water Authority, Las Vegas, Nevada, 416 p, Draft Report – **Lead author**.

Southern Nevada Water Authority, 2007, Part A - Regional-Scale Evaluation of Natural Recharge, Discharge, and Interbasin Flow for the White River Flow System in —Water-Resources Assessment and Hydrogeologic Report for Cave, Dry Lake, and Delamar Valleys - Presentation to the Office of the Nevada State Engineer - **Provided technical support to author**.

Southern Nevada Water Authority, 2006, Boundary Fluxes and Predevelopment Steady-State Water Budget for the Spring Valley Model, Volume 7 - Expert report for Spring Valley Hearing - Presentation to the Office of the Nevada State Engineer – **Author**.

Southern Nevada Water Authority, 2006, Derivation of a Spatial Distribution of Areal Recharge from Estimates Based on Estimates Reported in Reconnaissance Investigation Reports for the Spring Valley Area Recharge, Volume 2 - Expert report for Spring Valley Hearing - Presentation to the Office of the Nevada State Engineer - **Co-author**.

Southern Nevada Water Authority, 2006, Aquifer-Properties Data Compilation, Volume 1 - Expert report for Spring Valley Hearing - Presentation to the Office of the Nevada State Engineer - **Co-author**.

Southern Nevada Water Authority, 2005, Hydrogeologic Report in Support of Southern Nevada Water Authority's Proposed Groundwater Development Project in Three Lakes Valley South, Clark County, Nevada - Change in Point-of-Diversion Applications 72787 – 72797 - **Co-author**.

Stoller-Navarro Joint Venture, 2004, Underground Test Area Project, ER-6-1 Multi-Well Aquifer Test - Tracer Test Plan, Rev. 0, S-N/99205--013, Las Vegas, NV - **Co-author**.

Rehfeldt, K., Drici, W., Lester, B., Sloop, D., Watrus, J., Beard, T., Sully, M., Fryer, W. and Benedict, C., 2004, Hydrologic Data for the Groundwater Flow and Contaminant Transport Model of Corrective Action Units 101 and

102: Central and Western Pahute Mesa, Nye County, Nevada, Rev.0, Shaw/13052-204, Las Vegas, NV: Shaw Environmental, Inc.

Rehfeldt, K., **Drici, W.**, Sloop, D., Watrus, J., Beard, T., Sully, M., Benedict, C., Wolfsberg, A. and, Reimus P., 2003, Contaminant Transport Parameters for the Groundwater Flow and Contaminant Transport Model of Corrective Action Units 101 and 102: Central and Western Pahute Mesa, Nye County, Nevada, Shaw/13052-201, Rev. 0. Las Vegas, NV: Shaw Environmental, Inc.

U.S. Department of Energy, National Nuclear Security Administration Nevada Operations Office, 2001, Addendum to Revision 1 of the Corrective Action Investigation Plan for Corrective Action Unit 98: Frenchman Flat, Nevada Test Site, Nevada, Rev. 1, DOE/NV--478-REV 1-ADD, Las Vegas, NV – **Lead author**.

U.S. Department of Energy, Nevada Operations Office, 1999, Corrective Action Investigation Plan for Corrective Action Unit 98: Frenchman Flat, Nevada Test Site, Nevada, Rev. 1, DOE/NV--478, Rev. 1, Las Vegas, NV – **Lead author**.

U.S. Department of Energy, Nevada Operations Office, 1999, Corrective Action Investigation Plan for Corrective Action Units 101 and 102, Central and Western Pahute Mesa, Nevada Test Site, Nevada, DOE/NV--516, Rev. 1. Las Vegas, NV – **Lead author**.

IT Corporation, 1998, Report and Analysis of the BULLION Forced-Gradient Experiment, ITLV/13052-042, DOE/NV-13-52, Las Vegas, NV – **Co-author**.

IT Corporation, 1998, Value of Information Analysis for Corrective Action Units Nos. 101 and 102: Central and Western Pahute Mesa, Nevada Test Site, Nevada, ITLV/13052-041, Prepared for the U.S. Department of Energy, Nevada Operations Office, Las Vegas, NV – **Lead author**.

IT Corporation, 1998, Western Pahute Mesa – Oasis Valley Hydrogeologic Investigation Wells Drilling and Completion Criteria, Rev. 0, Report prepared for the U.S. Department of Energy, Nevada Operations Office, September, ITLV/13052-049, p. 439, Las Vegas, NV – **Co-author**.

IT Corporation, 1998, Corrective Action Unit Modeling Approach, Document prepared for U.S. Department of Energy, No. DOENV-13052-501, Las Vegas, NV – **Lead author**.

U.S. Department of Energy, Nevada Operations Office, 1997, Regional Groundwater Flow and Tritium Transport Modeling and Risk Assessment of the Underground Test Area, Nevada Test Site, Nevada, DOE/NV-477, UC-700, Las Vegas, NV – **Lead author**.

IT Corporation, 1997, Groundwater Flow Model Documentation Package (Phase I Data Analysis Documentation, Volume VI). Prepared for the U.S. Department of Energy, Nevada Operations Office, Las Vegas, NV – **Lead author**.

IT Corporation, 1997, Risk Assessment Documentation Package (Phase I Data Analysis Documentation, Volume VIII). Prepared for the U.S. Department of Energy, Nevada Operations Office, Las Vegas, NV – **Co-author**.

IT Corporation, 1997, Value of Information Analysis for Corrective Action Unit No. 98: Frenchman Flat, ITLV/10972-192, UC-700, Las Vegas, NV – **Lead author**.

IT Corporation, 1996, Groundwater Recharge and Discharge Data Documentation Package (Phase I Data Analysis Documentation, Volume III). Prepared for the U.S. Department of Energy, Nevada Operations Office, Las Vegas, NV – **Lead author**.

IT Corporation, 1996, Hydrologic Parameter Data Documentation Package (Phase 1 Data Analysis Documentation, Volume IV). Prepared for the U.S. Department of Energy, Nevada Operations Office, Las Vegas, NV – **Lead author**.

IT Corporation, 1996, Potentiometric Data Documentation Package (Phase 1 Data Analysis Documentation, Volume II). Prepared for the U.S. Department of Energy, Nevada Operations Office, Las Vegas, NV – **Lead author**.

IT Corporation, 1996, Transport Parameter and Source Term Data Documentation Package (Phase 1 Data Analysis Documentation, Volume V). Prepared for the U.S. Department of Energy, Nevada Operations Office, Las Vegas, NV – **Lead author.**

IT Corporation, 1996, Tritium Transport Model Documentation Package (Phase 1 Data Analysis Documentation, Volume VII). Prepared for the U.S. Department of Energy, Nevada Operations Office, Las Vegas, NV – **Lead author.**

Drici, O., Garey, C. and Buqo, T.S, 1993, Hydrology and Steady-State Ground-Water Model Pahroc Valley, Lincoln and Nye Counties, Nevada: Las Vegas Valley Water District Cooperative Water Project, Series Report No. 10.

Buqo, T.S, **Drici, O.** and Goings, 1992, Hydrology and Steady-State Ground-Water Model Coyote Spring Valley, Clark and Lincoln Counties, Nevada: Las Vegas Valley Water District Cooperative Water Project, Series Report No. 3

Buqo, T.S, **Drici, O.** and Goings, D.B., 1992, Hydrology and Steady-State Ground-Water Model of Three-Lakes Valley South, Clark County, Nevada: Las Vegas Valley Water District Cooperative Water Project, Series Report No. 4.

Garey, C., **Drici, O.** and Buqo, T.S, February 1991, "Cooperative Water Project: Water for Nevada's Future - Pahranaagat Valley", Draft Report prepared by The Earth Technology Corporation for The Las Vegas Valley Water District.

Heidari, M., Sadeghipour, J. and **Drici, O.**, 1987, "Velocity Control as a Tool for Optimal Plume Containment in the Equus Beds Aquifer, Kansas." Water Resources Bulletin, April 1987, Vol. 23, No. 2.

Drici, O., and Vossoughi, S., 1987, "Catalytic Effects of Heavy Metal Oxides on Crude Oil Combustion." Presented at the 92nd National AICHE meeting, Houston, TX, March 1985; published in Journal of Petroleum Technology, November, 1987.

Heidari, M., Sadeghipour, J., and **Drici, O.**, 1987, Velocity control as a tool for optimal plume containment in the Equus beds aquifer, Kansas, Water Resources Bulletin, vol. 23, no. 2, pp. 325-335.

Heidari, M., Sadeghipour, J., and **Drici, O.**, 1986, Development and application of a ground-water quality management model to the Equus beds aquifer, Kansas Geological Survey, Open-file Report, no. 86-9, 165 pages.

Drici, O., Heidari, M., and Sadeghipour, J., 1986, Application of a ground-water quality management model to the Equus beds aquifer in Kansas, pp. 651-668, In, Cook, P.L., (prefacer); Proceedings of the national symposium on aquifer restoration and ground-water monitoring, National Water Well Association, Columbus, OH, 703 pages.

Drici, O. and Vossoughi, S., "Study of the Surface Area Effect on Crude Oil Combustion by Thermal Analysis Techniques." Journal of Petroleum Technology, April, 1985.

Drici, O. and Vossoughi, S., "Study of the Surface Area Effect on Crude Oil Combustion by Thermal Analysis Techniques." Proceedings of the 13th North American Thermal Society Conference, Philadelphia, PA Sept., 1984.

Author and co-author of many other documents including work plans, technical memoranda, well development and testing data analysis reports, data analysis and modeling reports, and presentations.