

## **MATTHEW M. ULIANA, Ph.D., PG**

### **EDUCATION**

Ph.D. Geological Sciences, The University of Texas at Austin, 2000  
M.A. Geological Sciences, The University of Texas at Austin, 1995  
B.S. Geology/Anthropology, James Madison University, 1991

### **PROFESSIONAL REGISTRATIONS/CERTIFICATIONS**

Professional Geoscientist (Geology), Texas (#2506), 2003

### **AREAS OF EXPERTISE**

Matthew M. Uliana, Ph.D., PG has technical experience in the following general areas:

- Groundwater and surface-water hydrology
- Computer modeling of groundwater flow and geochemical reactions
- Groundwater availability studies
- Use of the Texas Water Development Board Groundwater Availability Models in water resource evaluations.
- Low-temperature aqueous and isotope geochemistry
- Use of naturally-occurring geochemical and isotopic tracers for hydrologic characterization
- Groundwater contamination assessments

### **REPRESENTATIVE EXPERIENCE**

Mr. Uliana has over 15 years of experience and progressive responsibility in hydrogeology and water resource-related consulting. He has experience leading and working on projects including groundwater resource investigations, groundwater modeling, hydrogeologic assessments, site recharge assessments, aquifer test analysis and interpretation, geochemical/water quality investigations, monitoring well installation, and project management. He also has over five years of service as a tenure-track assistant professor, during which time he worked on research projects related to spring discharge, stream gain/loss studies, the influence of desiccation fractures in clay soils on recharge rates, regional flow systems in far West Texas, and the use of naturally-occurring geochemical and isotopic constituents for tracing groundwater flows.

#### **City of Bryan, Well #18 Impact Assessment: Bryan, TX (Project manager: 2006-2007)**

The objective of this project was to evaluate the proposed impact of a new, high-capacity well, recently installed by the City of Bryan, on other wells in the surrounding aquifer. This assessment was performed in conjunction with a groundwater use permit application submitted to the Brazos Valley Groundwater Conservation District by the City of Bryan. The Texas Water Development Board's (TWDB) Central Queen City-Sparta Groundwater Availability Model (GAM) was used to determine the impact of the new well on other wells in the district. The model simulated aquifer response to the well under the maximum pump rate and at 67% of the full pump capacity. Model results were

used to develop a hydrogeologic assessment report that accompanied the permit application.

**Mid East Texas Groundwater Conservation District, Technical Support-Madisonville, TX (District Hydrogeologist: 2008-present)**

Since 2008 Mr. Uliana has served as the district hydrogeologist for the Mid East Texas GCD in Freestone, Leon, and Madison Counties, Texas. Mr. Uliana has represented the district in the Groundwater Management Area (GMA) 12 Joint Planning process, advised the district on technical aspects of water resource management for development and updating of their management plan, developed monitoring strategies and evaluated aquifer conditions in the district, review permit applications, and present information to the district board and the general public. Much of Mr. Uliana's work in the district involved using the appropriate TWDB GAMs to evaluate water resources and determine potential impacts of proposed wells in permit applications.

**Lost Pines Groundwater Conservation District, Technical Support- Smithville, TX (Project Hydrogeologist: 1998-2010)**

Mr. Uliana provided technical support to the district hydrogeologist (Dr. Robert Kier of RS Kier Consulting) for the Lost Pines GCD in Lee and Bastrop Counties, Texas. Mr. Uliana's tasks involved using the TWDB GAMs to determine volumes of water stored in the aquifer, to update the model pumping rates with new water planning region projected estimates in order to predict future drawdowns, to cooperate with consultants from other district in GMA 12 on development of consistent Desired Future Conditions for the GMA, to attend public meetings of the district and its Regional Water Planning Groups, to present the results of our work to the board and the general public

**UNIMIN, Unimin Sand Quarry Dewatering Models – Ottawa and Kasota, MN (Senior hydrogeologist and Chief modeler: 1998-present)**

The general objective of this series of projects was to use aquifer test data, subsurface geologic site data, current and historical water level data, and multi-year mine excavation and backfill plans to develop a series of MODFLOW models that simulate mine drainage and dewatering at the UNIMIN sand quarry operations in Ottawa, Minnesota. The primary goals of the numerical modeling are to predict pump rates necessary for dewatering the quarry and to determine potential impacts of quarry operations on nearby properties. Model results have been used by the operators to determine dewatering pump sizes, to apply for the required operation and discharge permits from the state, and to satisfy state Environmental Impact Statement requirements. To date, three different models have been developed for three separate mining areas..

**PROFESSIONAL AFFILIATIONS**

- National Ground Water Association
- Austin Geological Society

## SELECTED PUBLICATIONS AND PRESENTATIONS

Uliana, M.M., 2009. "The Battle for Groundwater Supremacy – A Dispatch from the Front Lines of the Great Texas Water Wars of the Early 21st Century": Abs. and Presentation, Meeting of the Austin Geological Society, October 5.

Uliana, M.M., 2009. "Groundwater Vistas and the Groundwater Availability Models Part 2: MODFLOW file structure, input modifications, output processing, and TWDB GAMs"; instructional workshop sponsored by Hydrex, Inc., Nacogdoches, TX, June 25-26.

Uliana, M.M., 2009. "Groundwater Vistas and the Groundwater Availability Models Part 1: Introduction to MODFLOW and Groundwater Vistas", instructional workshop sponsored by Hydrex, Inc., Nacogdoches, TX, April 23-24.

Chowdhury, A.H.; Uliana, M.M.; and Wade, S., 2008. Ground water recharge and flow characterization using multiple isotopes: *Ground Water*, vol. 46 (3) p. 426-436.

Uliana, M.M.; Banner, J.L.; and Sharp, J.M., Jr., 2007. Regional groundwater flow paths in Trans-Pecos, Texas inferred from oxygen, hydrogen, and strontium isotopes: *Journal of Hydrology*, vol. 334 (3-4) p. 334-346.

Uliana, M.M. and Roberts, S.V., 2007. "Use to management" policy: establishing factors of effective conjunctive management using groundwater and surface water sources": Abs. and Presentation, National Ground Water Association 2007 Groundwater Summit, Albuquerque, New Mexico, April 30.

Uliana, M.M., 2006. "How Well Do You Know Your Aquifer? Aquifer Testing and Interpretation", Presentation at the Ground Water Management in Texas: A Continuing Challenge in a Changing Environment workshop, National Ground Water Association 2006 Ground Water Summit, San Antonio, Texas, April 27.

Uliana, M.M., 2005. Identifying the source of saline groundwater contamination using geochemical data and modeling: *Environmental & Engineering Geoscience*, vol. 11 (2) p. 107-123.

Uliana, M.M., 2005. Entry GW-1103: Storage Coefficient; Entry GW-486: Hydraulic Head; and Entry GW-979: Regional Flow Systems. In Wiley Encyclopedia of Water (J. Lehr, ed.), John Wiley & Sons, New York

## TEACHING AND ADVISORY POSITIONS

August 2002 to December 2006: Assistant Professor, Geology Program and Aquatic Resources (Department of Biology), Texas State University-San Marcos.

August 2001 to August 2002: Assistant Professor, Department of Geological Sciences, State University of New York at New Paltz