

# KEVIN E. DAY, M.S., P.G.

[www.geohydros.com](http://www.geohydros.com)  
[day@geohydros.com](mailto:day@geohydros.com)  
phone: (775) 337-8803  
fax: (775) 996-7027

GeoHydros, LLC  
Specialized Geological Modeling  
27 Keystone Ave.  
Reno, NV 89503

## Education

*M.S. – Geology – University of Wyoming, Laramie, Wyoming* 2000  
*B.A. – Geology – Colgate University, Hamilton, New York* 1993  
*California State University at Stanislaus* 1987 – 1989

## Professional Background

*California Registered Geologist* 2005 – Present  
*Florida Professional Geologist* 2008 – Present

*GeoHydros LLC / H2H Associates LLC / Hazlett-Kincaid Inc, Reno, Nevada*

*Groundwater & Geologic Modeler* 2001 – Present

Responsibilities for all entities have included: all phases of geologic and groundwater modeling using EarthVision, MODFLOW-GMS, and FEFLOW; geospatial analysis using GIS; database design and administration; software application development, and computer systems administration. Projects addressed a diverse set of problems, including structural and stratigraphic geologic investigations, geotechnical parameter and soils modeling, and groundwater flow and contaminant transport modeling.

*Integral Development Corporation, Mountain View, California – Release Manager* 2000 – 2001

Responsibilities for Integral included: compiling and packaging frequent releases of a sophisticated, Java-based capital marketplace software system that enables derivative and currency exchange between global financial institutions; scripting in Unix shells and Windows environments; and computer network engineering to administer over eighty Sun machines in both on- and off-site locations. Projects included: product migration from Solaris to Linux operating systems; building a shared Network Information Services environment for Solaris/Linux networks; and system-wide automated operating system upgrades, for an integrated operating environment between Oracle database servers and Java application servers.

*TriHydro Corporation, Laramie, Wyoming – Field Technician, Hydrogeologist* 1997 – 2000

Responsibilities included: remediation of decommissioned and active oil refining facilities; geophysical surveys and data analysis; groundwater modeling, GPS and GIS mapping; groundwater, surface water and air sampling; hydrogeologic surveys; installation of remediation equipment; logging geoprobe, hollow stem auger and air rotary boreholes; and report preparation. The most notable accomplishment was the development of a near-surface geophysics program combining electromagnetic survey equipment with GPS location technology to produce maps depicting the location of buried containers and pipelines.

## EarthVision Projects of Note

*DSCP Hydrogeologic Modeling – Philadelphia, Pennsylvania – Tetra Tech EC, USDOD*

Developed site- and regional-scale 3D geologic framework models (GFM) of a heterogeneous multi-aquifer system beneath the former DSCP facility that has been impacted by more than two million gallons of light non-aqueous phase liquid. Model includes several structural surfaces created from borehole stratigraphic data, geostatistically defined 3D lithologic zones created from borehole lithology data, 3D parameter distributions created from soil contaminant data, and underground structures created from GIS, CAD, and map engineering data. As part of this work, developed a set of software programs to address and capitalize on wells that do not fully penetrate the recognized stratigraphic units that statistically distributes model uncertainty such that all stratigraphic units are more accurately modeled. This software was used to constrain model boundaries and identify discontinuities in the key confining layer. Created a routine for exporting the 2D and 3D components of the GFM from EarthVision into FEFLOW for subsequent groundwater flow and fate and transport modeling currently being performed to support site closure under Pennsylvania Act 2.

*Fairbanks Disposal Pit 3D Conceptual Model – Gainesville, Florida – WRS Inc, FDOT*

Coupled seismic, resistivity and borehole data to build a 3D GFM in a karst setting to identify potential conduits between the surficial and water-supply aquifers. Constructed the model using the EarthVision™ software by

compiling numerous data streams into a central database from which lithologic and seismic data were extracted, correlated, and incorporated into the GFM. Model described the structural surface of key aquifers and confining units, as well as the probable location of karst collapse features thought to be contaminant pathways to the water supply aquifers. Used geophysical and field testing data to delineate hydraulic conductivity distributions within heterogeneous surficial units and evaluate the competency of shallow clay lenses as barriers to vertical contaminant migration.

*Pennridge Water Resource Protection Model – Bucks County, PA – Borton Lawson Engineering*

Generated a GFM of the regional fractured bedrock aquifer that was used as the basis for groundwater flow modeling to support a basin-wide wellhead protection program. The GFM simulated a complex faulted, folded and intruded structural setting consisting of 65 stratigraphic units and 2 fault blocks. The GFM was constructed from a rich set of outcrop structural measurements that were used to project stratigraphic and structural surfaces to depth. The surfaces were then extracted and used to construct the framework for a 35-layer finite-element groundwater flow model using the FEFLOW software.

*Indian Refinery Geologic & Contaminant Characterization Model – Lawrenceville, Illinois – TriHydro Corp.*

Developed a series of 3-D Probability Models for areas of concern within the refinery to predict the location of buried wastes relative to permeable soils and groundwater. Various data sets were incorporated into the model to better characterize the extent of impacted materials, including ground penetrating radar surveys, electrical conductivity surveys and borehole logs.

*Rapid Site Characterization Modeling – Kansas City, Kansas – Delta Environmental Consultants*

Produced volumetric and probability modeling of impacted soils and groundwater correlating geophysical, borehole and analytical data to produce a rapid characterization of the site of a former refinery. This modeling effort was performed to support the EPA Triad approach to Rapid Site Characterization.

### MODFLOW Projects of Note

*Dissolved-phase Contaminant Transport Modeling – High Springs, Florida – The Coca-Cola Company*

Developed 2-D and 3-D groundwater flow and fate-and-transport models using MODFLOW-GMS, PEST, and MT3D to assess the impact on groundwater and surface water quality associated with the infiltration of effluent from a reverse osmosis facility. Several different realizations of the model were developed to predict the possible range in transport pathways and times associated with known but undefined karst conduit pathways. The goal of the modeling effort was to ensure that effluent disposal would not adversely impact water quality at the production well or nearby springs.

*Rapid Infiltration & Water Supply Impact Modeling – Florida – Apex Companies*

Developed numerous 2-D and 3-D groundwater models to address the impacts of both recharge to and withdrawal from the aquifer systems underlying small communities throughout Florida. The models were required for permitting by regulatory agencies to determine whether proposed changes in water usage due to growth would result in unacceptable change to the groundwater system, and were developed using the GMS – MODFLOW software platform in conjunction with EarthVision.

*Dissolved-phase Contaminant Transport Modeling – Pennsylvania – SSM Inc*

Developed several 2-D and 3-D groundwater flow / fate-and-transport models using MODFLOW-GMS, MT3D, and RT3D to characterize the transport of dissolved-phase volatile organic compounds released to surficial aquifers from leaking underground storage tanks at various locations in Pennsylvania. The models were required under Pennsylvania Act 2 as part of the site investigation and closure process.

### Database Projects of Note

*Woodville Karst Plain Hydrogeologic Characterization – Tallahassee, Florida – Florida Geologic Survey*

Developed a web-based interactive database to store, manage, and disseminate hydrologic data being continuously collected in the Woodville Karst Plain by the Florida Geological Survey. The database currently contains flow, temperature, and conductivity data from seven hydraulic meters deployed in large underwater cave systems as well as groundwater level data from 13 transducers deployed in wells, springs, and sinkholes. Developed a user interface that provides for graphical analysis and download of data via the internet.

*FDEP Hazardous Waste Database – Florida – Florida Department of Environmental Protection*

Developed a desktop database application for use by FDEP to store and access historical hazardous waste records. The application was written in Visual Basic and Microsoft Access, and was formatted in compliance

with EPA's STORET database. The primary purpose of the database was to provide better access to data through stored procedures and dynamic queries, and to establish spatial indexing of environmental data.

### *Selected Publications & Presentations*

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- Day, K.E., Kincaid, T.R., 2009, 3-D Solids & Parameter Modeling to Facilitate TRIAD-Compliant Rapid Site Characterization, American Society of Civil Engineers 24<sup>th</sup> Central PA Geotechnical Conference.
- Day, K.E., Kincaid, T.R., 2007, A Web-Based Tool for Analytical Comparison of Hydrologic Data in the Woodville Karst Plain, NGWA 4<sup>th</sup> Conference on Hydrogeology, Monitoring and Management of Ground Water in Karst Terrains.
- Hazlett, T.J., Kincaid, T.R., Meyer, B.A., and Day, K.E., 2006, Innovative Ground Water Supply Protection Modeling, Bucks County, Pennsylvania, Program with Abstracts, NGWA 2006 Focus Conference on Eastern Regional Ground Water Issues, Portland ME, Sep. 18-19, 2006.
- Day, K.E., Hazlett, T.J. and Kincaid, T.R., 2004, The Comprehensive Geologic Framework Model – Basis for Advanced Flow & Transport Modeling, Abstract No: 80575, GSA Abstracts with Programs Vol. 36, No. 5.
- Day, K.E., 1999, Aquifer heterogeneity in groundwater flow modeling, Geological Society of America Annual Meeting, Denver, Colorado, Abstracts with Programs vol.31, no. 7.
- Day, K.E., 1993, Revised structural interpretation of the Sunset Lake Slice, Taconic Allocthon, western Vermont, Northeastern Geologic Society of America Convention, Burlington, VT, Abstracts with Programs, Abstract no. 29411.

### *Technical Skills and Certifications*

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#### *Computer Software Proficiency*

- PC, Unix (Solaris) and Linux environments
- Software proficiency includes: EarthVision, GMS (MODFLOW, MODPATH, MT3D, RT3D, PEST), ArcGIS, WASY FEFLOW, Adobe suite, MS Access (VBA Development), Excel (modeling), MySQL, and Flash
- Programming skills include experience in MATLAB, Visual Basic, perl, php, actionscript , java, c, and bourne shells
- Web Server and web development has included Apache, Flash, PHP/MySQL and Javascript

#### *Certifications*

- February 2008: Florida Professional Geologist Certification received
- May 2005: California Professional Geologist Certification received
- July 2000: Solaris System Administrator I Certification received
- December 1999: Trimble GPS Certification received
- December 1997: ESRI ArcView GIS Certification received
- July 1997 OSHA: 40 hr. HAZWOPPER Certification received