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GeoHydros, LLC
Specialized Geological Modeling
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Education

M.S. – Hydrologic Sciences – University of Nevada, Reno, Nevada 2004
B.A. – Geology – University of Montana, Missoula, Montana 1997
Hydrogeology Field Course – Montana Tech, Butte, Montana 1996

Professional Background

GeoHydros LLC / H2H Associates LLC / Hazlett-Kincaid, Inc., Reno, Nevada – Groundwater Modeler 2004 – Present
Hazlett-Kincaid, Inc. merged with H2H Associates, LLC in August 2007. Responsibilities for both entities have included: groundwater flow modeling using FEFLOW, GIS mapping using ArcGIS, groundwater tracing using fluorescent dyes, geologic solids modeling using EarthVision, and geochemical modeling using MINTEQ. Problems addressed included: complex groundwater flow modeling for water resource protection in fractured and karst aquifers; modeling conduit/matrix exchange in karst aquifers; modeling dissolved-phase transport from a large light non-aqueous phase liquid plume; and spatial data analysis for Greenfield quarry siting.

U.S. Geological Survey (Contractor), Reno, Nevada – Database Designer 2002 – 2003
Designed a MS Access database of changing water chemistry in mining pit lakes located in Nevada and California. Database linked time-series surface and groundwater geochemical data with site specific geologic and mineralogical data and regional climate data.

University of Nevada, Reno, Nevada – Head Laboratory Technician 1999 – 2002
Managed UNR's Geomicrobiology Lab run by Lisa Stillings of the USGS, Reno Branch. Duties included: design and maintenance of an anaerobic geomicrobiology laboratory, culturing of class 1 anaerobic iron reducing bacteria, hazardous waste storage and disposal, and experimental design.

FEFLOW Projects of Note

Woodville Karst Plain Hydrogeologic Characterization – North Florida – Florida Geologic Survey
Currently developing a dual-permeability regional groundwater flow model for the Woodville Karst Plain (WKP) that incorporates all mapped caves and tracer-defined flow paths as well as projected conduit flow pathways. Model is calibrated to spring discharges, tracer-defined groundwater velocities, and groundwater elevations. The model is being used by the FGS to demonstrate that numerical modeling in karst aquifers is feasible provided that sufficient care is taken to articulate known complexities and constrain model parameters by measured or estimated values.

Ginnie Springs Springshed Groundwater Model – North Central Florida – Coca-Cola North America
Currently developing a regional 3-D groundwater flow model for Coca-Cola's water bottling plant near Ginnie Springs, FL. The model region contains the heavily karstified, partially confined limestone aquifer surrounding the Santa Fe River. The model will directly incorporate known karst conduits and be calibrated to static well heads, surface water stage measurements, and measured spring fluxes. The model will be used to assess the groundwater resource of the region, delineate the area of impact for the water bottling plant, and identify previously unmapped karst pathways. Project tasks include; model development using FEFLOW software, basemap and results exports using ArcGIS, and data collection and organization using MS Access.

Pennridge Groundwater Resource Model – Bucks County, PA – Borton Lawson Engineering
Developed a regional scale, 3-D groundwater flow model for the Pennridge Area Coordinating Committee in Bucks County, PA. The flow model incorporated the complex geology of the region including; a sequence of over 25 different dipping geologic formations, an intruded diabase sill, and major faults. Tasks included developing the groundwater flow model using FEFLOW software and exporting results as GIS coverage maps with ArcGIS. The model was calibrated to static and pumping well heads, measured surface water stage (rivers and lakes), and reported quarry fluxes, and successfully simulated flow to municipal production wells. Results of the model were used to delineate wellhead protection zones within the Pennridge area.

Buzzi Regional Mining Feasibility Assessment – Pennsylvania & Georgia – Buzzi Unicem

Collected, organized, and exported data used to identify optimal cement mining locations throughout Pennsylvania and Georgia. The data collected included; state and county scale geology, state and county scale transportation networks, state wide surface mining operations, and regional zoning ordinances in both states. Data was organized into regions containing cement quality limestone near established transportation networks (rail and major highways) in zones allowing surface mining. Project tasks included; exporting site-scale maps showing geology within buffer zones around transportation networks, exporting regional maps showing relationship between geology, zoning ordinances, and existing surface mines, and developing a database for all existing surface mines in Pennsylvania. Maps were developed using ArcGIS software. Database was developed using Microsoft Excel and Microsoft Access software.

Groundwater Tracing Experience

Woodville Karst Plain Hydrogeologic Characterization – North Florida – Florida Geologic Survey

Managed field operations during a dye trace study linking Ames Sink with Wakulla Springs in Northwest Florida. Tasks included daily collection of water samples from ten sampling stations scattered throughout the WKP, maintenance of sampling stations, and sample analyses using a Shimadzu Fluorescence Spectrophotometer. Continue to perform laboratory QA/QC analyses and interpret analytical results and dye recovery curves.

Technical Skills

Computer Software Proficiency

Visual MINTEQ, FEFLOW, ArcView GIS, EarthVision, MS Access, Excel (modeling), MathCad, Adobe Photoshop

Analytical Instrument Proficiency

Atomic Adsorption Spectrometry (hydride generation and flame), X-Ray Diffraction, Ion Chromatography, Colorimetric Spectrometry, Scanning Electron Microscope

Selected Publications & Presentations

Kincaid, T.R. and Meyer, B.A., 2009. Delineating Saturated Conduit Patterns and Dimensions in the Upper Floridan Aquifer through Numerical Groundwater Flow Modeling. American Geophysical Union 2009 Fall Convention, Program with Abstracts, Paper H14A-07.

Meyer, B.A., Kincaid, T.R., and Hazlett, T.J., 2008. Modeling Karstic Controls on watershed-Scale Groundwater Flow in the Floridan Aquifer of North Florida. Sinkholes and the Engineering and Environmental Impacts of Karst; L. Yuhr, E.C. Alexander Jr., and B. Beck eds. Geotechnical Special Publication No. 183, American Society of Civil Engineers, Reston VA.

Meyer, B.A., Kincaid, T.R., and Hazlett, T.J., 2007, A Method for Integrating Detailed Karst Feature Data into Ground Water Flow Models, Program with Abstracts, 4th Conference on Hydrogeology, Ecology, Monitoring, and Management of Ground Water in Karst Terrains, National Ground Water Association, Safety Harbor, Florida.

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.

Meyer, B.A. and Stillings, L.L., 2004, Critical Factors Limiting Microbial Fe(III)- and Mn(IV)-Oxide Reduction: Oxide Surface Area, Dissolved Concentration of Product Ion, and Arsenic Adsorption, Geological Society of America *Abstracts with Programs*, Vol. 36, No. 5, p. 88

Meyer, B.A. and Stillings, L.L., 2003, The Effect of Ion Adsorption on Microbial Dissimilatory Iron-Reduction and the Mobility of Adsorbed As(V), *Eos Trans. AGU*, 84(46), Fall Meet. Suppl., Abstract B32A-0374

Meyer, B.A. and Stillings, L.L., 2002, Release and Co-Reduction of As(V) as a Function of Microbial Reductive Dissolution of Ferrihydrite, Geological Society of America *Abstracts with Programs*, Vol. 34, No. 6, p. 493.