Braden Hanna

ITASCA

Senior Geochemist

Expertise	Environmental Geochemistry, Geochemical Modeling, Site Characterization, Biogeochemistry
Education	M.S. (Earth Sciences), 2003, Montana State University B.S. (Geology), 2000, Portland State University
Professional Societies	International Mine Water Association, International Association of Geochemistry
Certifications	OSHA, MSHA, Advanced Training Course for the Mining Visualization System and Environmental Visualization System

Professional Experience

2008 - Present	*Itasca Denver, Inc., Colorado* *Senior Geochemist*
2003 - 2008	*Geomega, Inc., Boulder, Colorado* *Geochemist, co-lead Mining Business Unit*
2001 - 2003	*Thermal Biology Institute, Bozeman, Montana* *Graduate Research Assistant*
2000 - 2001	*Montana State University, Dept. of Earth Sciences, Bozeman, Montana* *Graduate Research Assistant, Graduate Teaching Assistant*
1999 - 2000	*NASA-SETI - Portland State University* *Research Assistant/Laboratory Technician*

Project Experience

Performed geochemical characterizations, assessments and predictive geochemical simulations, and prepared numerous technical documents for various mines. Mining geochemistry projects have included Newmont's Tara, Genesis, and Twin Creeks Mines, Placer Dome's Pipeline/South Pipeline Mine, Barrick's Cortez Hills Mine, Goldcorp's Marigold Mine, the Getchell Mine, the Turquoise Ridge Joint Venture Mine, and BHP Billiton's Les Mines Selbaie. Mining work included technical document production in support of: environmental assessments and environmental impact statements; evaluation of remedial and mitigation strategies; water management permitting; and site closure. Worked closely with programmers to develop numerical models integrating site-specific kinetic leach testing, saturated/vadose zone hydrologic model outputs, thermodynamic speciation models, and oxidation model outputs to predict water quality in open-pit and underground mining for pit lakes, waste rock facilities, and underground mines. Developed a numerical oxidation model incorporating both pressure- and temperature-driven advection, diffusion, oxygen consumption and oxidation kinetics. Performed site characterizations and geochemical evaluations in support of litigation and/or remediation at various petrochemical related sites. Determined probable source locations and contaminant plume pathways of chlorinated solvents in a petroleum hydrocarbon contaminated aquifers and distinguished petroleum hydrocarbon influences by multiple contamination sources based on cumulate plume organic geochemistry and geochemical evolution.

Research

Investigated metabolic energy and nutrient sources for archaea from Yellowstone National Park and characterized the geochemical influence on their environment using a combination of microbial and environmental techniques coupled with geochemical modeling.

Evaluated mineralogy of geothermal hot-spring deposits in support of assessment of implications for biological preservation.