

Curriculum Vitae

Mickel Wireman

EXPERTISE:

- National Groundwater Expert for EPA (retired from EPA 3/2014)
 - Hydrogeologic Site Characterization - Extensive Experience at Hardrock Mines and Uranium Mines
 - Hydrogeologic Aspects of Oil and Gas Development
 - Groundwater Remediation
 - Groundwater Protection / Management
 - Nutrients in Ground Water
 - Hydrology of Mountain Watersheds, Fractured Rock Settings
 - Groundwater Dependent Ecosystems
 - Design of Groundwater Monitoring Programs –characterization, compliance, performance, early warning
 - Groundwater Supply
 - Groundwater Tracer Investigations
 - Expert Witness Testimony
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EDUCATION:

Western Michigan University, BS Geology

Western Michigan University, MS Hydrogeology

Post MS: Advanced Ground-Water Hydrology, Colorado School of Mines, Geochemistry of Ground-Water Systems (USGS advanced short course), numerous ground-water related classes and seminars on various aspects of hydrogeology, ground-water protection, remediation and management

AFFILIATIONS

Colorado Ground-Water Association

Geological Society of America

National Ground Water Association

International Association of Hydrogeologists – Past Chair US National Chapter

Member of the Subcommittee on Ground Water – Advisory Committee on Water Information

Member, Board of Directors, NGWA Science and Engineering Division

Member – Board of Directors – Groundwater Research and Education Foundation (Ground Water Protection Council)

Member – Western Michigan University Geosciences Department Advisory Council

WORK EXPERIENCE:Currently**President – Granite Ridge Groundwater, LLC**

Providing scientific and/ technical consultation to a variety of clients regarding hydrogeologic aspects / issues related to natural resource development of coal, oil /gas, uranium, and precious metals.

Consultant to The World Bank, working on hydrologic restoration project in Cihu River watershed in lower Yangzi River basin.

Key member of Sub-Committee on Groundwater (United States Department of Interior Advisory Committee on Water Information) which is in process of implementing a national ground water monitoring network focused on 85-100 principle aquifers in the USA.

1987 – 2014**US EPA Region VIII**

I served as a staff hydrologist, Regional groundwater expert and National Groundwater Expert where I provided scientific and technical support to EPA programs (including Superfund, RCRA, Enforcement, NEPA and Water programs), other Federal agencies, International programs (EPA OIA, World Bank, US State Department) and ground-water protection / management programs in several western states. Position included working closely with policy makers, decision makers and attorneys.

1981-1986**Leonard Rice Consulting Water Engineers, Inc.**

I was a hydrogeologist responsible for ground-water geology studies including interpretation and evaluation of hydrogeologic systems, aquifer testing, water supply development, water well drilling, ground-water contamination and monitoring and western water rights. Duties required collection and analyses of data, report preparation and expert testimony.

EXPERT TESTIMONY:

Provided expert testimony in federal court, State court, State Water Quality Control Commission and State Water court and before the Nuclear Regulatory Commission. Cases involved water rights issues, violations of and compliance with State and Federal environmental laws / permits and re-licensing of in-situ uranium mining operations.

INTERNATIONAL EXPERIENCE:

Worked extensively in Eastern Europe (Estonia, Ukraine, Romania, and the Republic of Georgia), Russia, the Middle East (Oman, Bahrain and Iraq), and China as a Technical Expert with EPA Office of International Affairs, EPA Office of Research and Development, US AID and The World Bank. Work included project management, scientific diplomacy, capacity building, and scientific consultation.

TEACHING:

Metropolitan State University, Denver, Colorado – Affiliate Faculty
Teaching course on hydrogeology.

Ground-Water Protection Council
Instructor for Basic Principles of Groundwater and Contaminant Transport.

National Ground -Water Association
Have developed and taught multiple day workshops in Eastern Europe and the Middle East.

PROJECT EXPERIENCE

Served as scientific advisor / hydrologist on numerous CERCLA Remedial / Removal sites including NAPL sites, mining sites and industrial sites

Directed site characterization investigations on CERCLA sites

Provided review and comment on groundwater monitoring in oil and gas fields

Provided expert testimony to NRC on proposed re-licensing of in-situ uranium mine

Lead EPA scientist for hydrogeologic characterization, expert testimony and compliance with groundwater standards at RCRA chrome site

Worked on numerous site specific and national issues related to underground injection of waste fluids

Project manager for US EPA OIA / US State Department Bio-Chem Redirect Project in Ukraine and Republic of Georgia project focused on (a) characterization of nature and extent of metals (manganese) contamination in water, air and sediment; (b) assessment of human health and environmental risks associated with mining operations in Tchiatura; and (c) preliminary evaluation of remedial technologies.

Directed applied research projects focused on developing tools for hydrologic characterization of fractured rock settings and hardrock mines

Directed complex monitoring well design and construction

Directed investigations of nutrients in groundwater

Team member on numerous large scale, complex NEPA projects

Lead EPA hydrologist for EPA Region VIII Environmental Impact Study for proposed Refinery at Three Affiliated Tribes, ND

Directed delineation of Source Water Protection areas and development of Source Water protection programs for multiple public water supplies in San Miguel County, CO

EPA project manager on groundwater supply assessment –Turkey Creek watershed, Jefferson County, CO

AWARDS

EPA - Gold Medal for Exceptional Service

EPA – 5 Bronze Medals for Commendable Service

Western Michigan University Geosciences Department - 2013 Alumni Achievement Award

PUBLICATIONS

2015 – Wireman, Mike, *Development and Implementation of a National Groundwater Monitoring Network*, Guest editorial - Groundwater Monitoring and Remediation, NGWA

2014, in press, Cowie, Rory, Williams, Mark W., Wireman, Mike, Runkle, Robert L., *Use of natural and artificial tracers to guide de targeted remediation effort in an acid mine drainage system, Colorado Rockies, USA*, Water 2013

2011, Mirtskhulava, Merab, Wireman, Mike, *Report of Findings –Evaluation of mining-related metals contamination and ecological and human health risks associated with manganese mining and processing in Chiatura, Georgia*

2011, Caruso, Brian S., Mirtskhulava, Merab, Wireman, Mike, Schroeder, William, Griffin, Susan, *Effects of Manganese Mining on Water Quality in the Caucasus Mountains, Republic of Georgia*, Mine Water and Environment, DOI 10.1007/s 10230-011-0163-3, 13p

2011, Wireman, M., Stover, B., *Hard-rock Mining and Water Resources*, Ground Water News and Views, Ground Water, NGWA

- 2011, Moore, J., Wireman, M., Carillo-Rivera, J.J., *Field Hydrogeology –A Guide for Site Investigations and Report Preparation*, CRC Press, Taylor and Francis Group
- 2010, Wireman, Mike., Griffin, S. Mirtskhulava, M., Schroeder, W., *Water Resources Characterization and Risk Assessment: Tchiatura mining district, Republic of Georgia*, Georgia Chemical Journal. V.10.N 4, P-23-29
- 2010, Moore, J., Wireman, M., LaMoreaux, P.E., Summers, P., *A Field Guide For Characterization And Evaluation Of Public Water Supply Springs*, US EPA, in preparation
- 2010, Kornilovich, B., Wireman, M., Caruso, B., Koshik, Y., *The Use of Permeable Reactive Barrier Against Contaminated Groundwater In Ukraine* ,Central European Journal of Occupational and Environmental Medicine 15(1-2)
- 2008, Penoyer, P., Rosenlieb, G, Noon, K., Wireman, M., Thackston, J., *Recommendations for Retoration and Rehabilitation of Turbidity and Sediment Impacts to the Sylan Pass Hydrologic System*, National Park Service, Natural Resource Report NPS/NRPC/NRR – 2008/054, 44p.
- 2007, Wireman, Mike, *United State Department of Agriculture, Forest Service, Technical guide to Managing Ground Water Resources*, Wireman was one of several authors.
- 2005, Hermann, K., Wireman, Mike, editors, *Aquatic Assessment of Willow Creek Watershed – US EPA Region 8*
- 2002, Hazen, J.M., Williams, M.W., Stover, B. and Wireman, Mike, *Characterization of Acid Mine Drainage Using A Combination Of Hydrometric, Chemical And Isotopic Analyses, Mary Murphy Mine, Colorado*, Environmental Geochemistry and Health
- 2001, Wireman, Mike, *Potential Water Quality Impacts of Hardrock Mining*, Summer edition of Ground-Water Monitoring and Remediation, NGWA, Dublin, OH
- 2002, Wireman, Mike, *Tracing Techniques, Section 5.7 in Moore, J.E., Field Hydrogeology - A guide for Site Investigations and Report Preparation*, Lewis Publishers
- 2000, Wireman, Mike, *Effects of Mining on Water Quality, Chapter 18, Hardock Mining and Chapter 19 Coal Mining, in Drinking Water From Forests and Grasslands, A Synthesis of the Scientific Literature*, George E. Dissmeyer, Editor, USDA Forest Service, Southern Research Station, Asheville, North Carolina
- 2000, Wireman, Mike, *South Platte Valley-Fill Aquifer, Chapter 5 - Colorado Ground-Water Atlas*, Andrea Aiken, et.al, Editors, Colorado Ground-Water Association, Lakewood, CO
- 1999, Wireman, Mike, *Wyoming Ground-Water Vulnerability Assessment Handbook: Volume I - Background, Model Development and Aquifer Sensitivity*, University of Wyoming Spacial Data and Visualization Center

- 1999, Wireman, Mike, Wyoming Ground-Water Vulnerability Assessment Handbook: Volume II - Assessing Ground Water Vulnerability to pesticides, University of Wyoming Spacial Data and Visualization Center
- 1998, Wireman, Mike, Land Uses Which Affect Ground-Water Management - Greater Denver Area, USEPA
- 1997, Wireman, Mike, Determining the Risk to Public Water Supply Wells from Infective Microorganisms, NGWA Water Well Journal
- 1997, Wireman, Mike, Investigation of Hydrogeologic Mapping to Delineate protection Zones Around Springs, EPA/600/R-97/023, US EPA ORD, Cincinnati, OH
- 1997, Wireman, Mike, The Use of Ground Water Sensitivity Assessments for Purposes of the Ground Water Disinfection Rule, Ground- Water Monitoring Review, NGWA
- 1997, Wireman, Mike, Chalk Creek Project, Report on Results of Investigation – Mary Murphy Mine – Groundwater Hydrology Characterization Study, Chaffee County, CO, EPA Region VIII Headwaters Initiative Assistance Agreement No. MM998404-01-1
- 1995, Hearne, Glenn, Wireman, Mike, Campbell, Angus, Vulnerability of the Uppermost Aquifer to Contamination in the Greater Denver Area, Colorado, USGS WRI 92-4143
- 1989, Wireman, Mike, Bibliography of Geology and Ground Water Geology for the Denver Basin, Colorado, Colorado Division of Water Resources< Colorado Department of Natural Resources
- 1987, Wireman, Mike, Nitrate Pollution of Ground Water in Glacial Sediments Underlying a Fertigated Site, Master's Thesis, Western Michigan University, Kalamazoo, MI
- 1982, Wireman, Mike, Hydrogeology of the Western Upper Peninsula of Michigan, Western Michigan university Geology Department, EPA Underground Injection Control Program