



creating solutions for today's environment

Relevant Experience

Mr. Bayer has more than three decades of experience in the environmental and minerals industries. He is a founder, shareholder, and Managing Principal of JBR Environmental Consultants, Inc. and is responsible for overall management of the company. His environmental industry experience includes the following: management of multimedia permitting projects for coal, ferrous and non-ferrous metallic and non-metallic mining operations, as well as for industrial facilities; managing and conducting environmental investigations, and management and technical review of environmental due diligence and audit projects. In addition, he is currently involved in permitting projects for both oil shale and tar sand projects on the Colorado Plateau. His due diligence experience includes: mine and mills; roasters, smelters, and refineries; oil and gas fields, gathering systems, and natural gas plants; and land disturbed and affected by abandoned mines and related facilities.

His environmental investigation experience has included investigations of sites contaminated by heavy metals; PCBs; fuels and lubricants; solvents; and asbestos. He has conducted geochemical investigations of contaminated soils, fill, and related media as well as hydrogeochemical investigations of contaminated groundwater and surface water. Subsequent to investigations, Mr. Bayer has managed remediation planning, design and cost estimate preparation for numerous facilities in the western U.S. He has extensive regulatory permitting and compliance experience involving state programs authorized under federal legislation including the Clean Air Act (CAA), the Clean Water Act (CWA), the National Environmental Policy Action (NEPA) and the Resource Conservation and Recovery Act (RCRA). He has provided expert witness services to private and public sector clients, including the U.S. Department of Justice and the U.S. Attorney for the State of Utah.

MINE & INDUSTRIAL PERMITTING & COMPLIANCE

Mr. Bayer managed and participated in more than a dozen mine and industrial permitting projects in multiple states, including Utah and Nevada. Mine projects have included coal; gold; copper; lead/zinc and non-metallic minerals aggregate mining; base metal smelting; precious metals roasting; chemical manufacturing; and fabricating plants. Permitting experience in Utah and Nevada includes participation in and management of the preparation of permit application packages for the Cyanco Winnemucca Sodium Cyanide Plant; Barrick Mercur Gold Mine; Barrick Bullfrog & Goldstrike Mines;

Areas of Expertise

- Mine & Industrial Permitting & Compliance
- Geochemical & Hydrogeochemical Investigations
- Ground Water Studies
- Oil & Gas Exploration & Development Impact Assessment
- Oil Shale & Tar Sands Permitting & Pre-Feasibility
- Site Investigation, Remediation & Closure Planning
- Auditing & Due Diligence

Education

- M.S., Geology, University of Tennessee, 1974
- B.S., Geology, Marietta College, 1971

Professional History

- JBR Environmental Consultants, Inc., Managing Principal, Vice President, Geologist-Geochemist, 1985 - Present
- Getty Mining Company, Exploration Geologist, 1975 - 1985
- Division of Water Quality Control, Geologist, 1973 - 1974
- Conoco Minerals, Geologist, 1973 - 1973
- University of Tennessee, Geology Department, Research Assistant, 1972 - 1973

Licenses

- Professional Geologist, UT
- Professional Geologist, WY

Certifications

- Asbestos Inspector/Management Planner, UT

Supplemental Training

- Climate Change Science & Policy
- Human Health and Ecological Risk Assessment
- Ground Water Geochemistry
- Oil and Gas Law and Regulation
- Geochemical Modeling (PHREEQE)
- NEPA and Federal Land Development
- Advanced Business Mgmt. Education

Affiliations

- Advisory Board, KUER Public Radio Station (University of Utah)
- Association of Ground Water Scientists and Engineers
- Board of Directors, Utah Mining Association
- Chair, Environmental Committee, Utah Mining Association (UMA)
- Member, UMA Oil Shale & Tar Sands Committee
- Rocky Mountain Mineral Law Foundation
- Society for Mining Metallurgy and Exploration, past section chair
- Society of Petroleum Engineers
- Utah Board of Oil, Gas, and Mining (completed 2nd and final 4-year term in February)

SF Phosphates Vernal Phosphate Mine; Barneys Canyon Gold Mine; Tenneco/USMX Goldstrike Mine; Inspiration Gold; Topaz Beryllium Project; Brush Resources/Topaz Beryllium Mine; 6 Utah coal mines; and ongoing projects involving copper, precious metals, oil shale, and tar sands in operation or in development. Services provided on these projects have included: preparation of mining and reclamation plans; ground water, construction permits, and storm water permits; air quality emission inventories and construction permits; and various other state agency and local government permits. He has assisted clients with compliance issues related to air quality permits, ground water discharges, applicability of storm water regulations to mining sites, discharge limitations, site-specific ground water protection limits, and interpretation of water quality data collected in permit-required monitoring activities.

GEOCHEMICAL & HYDROGEOCHEMICAL INVESTIGATIONS

Mr. Bayer has conducted geochemical and hydrogeochemical investigations at contaminated sites, sites with suspected contamination, and predictive studies for assessment of impacts by proposed mining operations. Types of sites investigated have included: undeveloped property where past contamination was suspected or mobilization of naturally occurring metals in soils and alluvium by future industrial activities was a concern; evaluation of potential impacts to soil and ground water from proposed phosphate mining operations, former landfill sites contaminated by volatile and semi-volatile organic compounds and metals with potential impacts to surface and ground water; former and active industrial sites where contamination of soils by metals, solvents and fuels was a concern; and abandoned metallic mining and milling sites with concerns for contamination by acid-rock drainage, metals, cyanides, and milling reagents. The types of investigations that Mr. Bayer has planned, conducted, and directed include: numerous geochemical and hydrogeological sampling projects in soil, bedrock, and ground water; evaluations of geochemical and hydrogeochemical data, including interpretation using various statistical applications; and, pathway and fate evaluations for metallic and organic chemicals in soils and ground water.

GROUND WATER STUDIES

Mr. Bayer has directed and carried out ground water investigations involving contaminant source identification, determination of surface water and ground water interactions, investigation of complex bedrock ground water systems, identification and evaluation of compartmentalized ground water systems, and contaminant fate and transport. Investigational methods have included installation of monitor wells, piezometers, seep and spring measurements, and geologic mapping. He has experience with most drilling methods including conventional and reverse rotary, auger, wire line coring, and direct push.

OIL & GAS EXPLORATION AND DEVELOPMENT IMPACT ASSESSMENT

Mr. Bayer was a member of the technical team preparing the Environmental Impact Statement (EIS) for oil and gas leasing in the Uinta National Forest in Utah. JBR and Shipley Group were awarded this project in fall 2005. As part of the project management team, his role includes taking the lead in determining reasonably foreseeable development scenarios (RFDSs); impacts to mineral and geologic resources other than oil and gas; and directing the compilation of geologic information for the EIS. Mr. Bayer's 6-8 years of experience on the Utah Board of Oil Gas and Mining have provided him with a unique understanding of the environmental challenges faced by both the oil and gas industry and the agencies that regulate them.

OIL SHALE & TAR SANDS PERMITTING & FEASIBILITY

Mr. Bayer is the currently managing the environmental component of a major pre-feasibility study for a potential large oil shale project located in eastern Utah. This confidential project involves assessing the environmental and socioeconomic aspects of a large mine and processing facility and the related operational infrastructure, as well as effects on community infrastructure. Mr. Bayer also participates as a senior advisor on other oil shale and tar sands permitting projects currently underway. He is an active participant in the Utah Mining Association's Oil Shale and Tar Sands Committee as well as being a regular participant in the Uinta Basin Oil and Gas Collaborative Group. Through these activities and his past membership in the Utah Board of Oil Gas and Mining, Mr. Bayer maintains a state-of-the industry understanding of all aspects of oil shale and tar sands, as well as conventional petroleum and natural gas E&P, technological, environmental, and public policy-related issues.

SITE INVESTIGATION, REMEDIATION, & CLOSURE PLANNING

Mr. Bayer has managed or participated in remediation and closure projects for industrial facilities, mines, and other contaminated sites in multiple western states, including Utah and Nevada. He is very experienced at assessing environmental conditions at operating and abandoned mine sites, in defining alternatives for reclamation or remediation, and in developing cost estimates for closure and remediation. He is also experienced in soil and ground water investigations and remediation planning for sites contaminated with hydrocarbons, including gasoline, diesel fuel, and solvents (PCE, TCE). Hydrocarbon-contaminated sites have included automobile service stations; dry cleaning; facilities; automobile and heavy truck service facilities; vehicle-painting facilities; fertilizer plants, and industrial gas production facilities.

Mr. Bayer has directed, managed, or conducted investigations of environmental contamination at numerous mining, milling, mineral processing, industrial, and commercial facilities in Utah, Nevada, California, Oregon, Missouri, Colorado, and Idaho. In addition to sites contaminated by hazardous wastes and petroleum products, Mr. Bayer has directed investigations of sites contaminated by mine waste rock, mine tailings, and metallic smelter wastes. He has planned and directed investigations of acid rock and acid mine drainage for various metallic mining sites and directed the assessment of acid-generating potential for coal mines. He has also managed pre-closure and closure work for an active Utah gold heap leach operation. Mr. Bayer has participated extensively in the evaluation of impacts to soils, surface and ground water, and biota from selenium leaching due to waste rock disposal practices in the Southeast Idaho Phosphate field.

AUDITING & DUE DILIGENCE

Mr. Bayer has managed and participated in environmental compliance audits and pre-acquisition due diligence projects for facilities in Nevada, Utah, Texas, Oklahoma, New Mexico, Colorado, California and Missouri. Facilities types have included surface and underground coal and metals mines; mills; smelters; oil and natural gas fields and gathering systems; natural gas plants; manufacturing operations; and large tracts of land, both undeveloped and tracts having abandoned mines and impacts from other former land uses.