creating solutions for today's environment

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Geology, Hydrogeology, & Groundwater Management

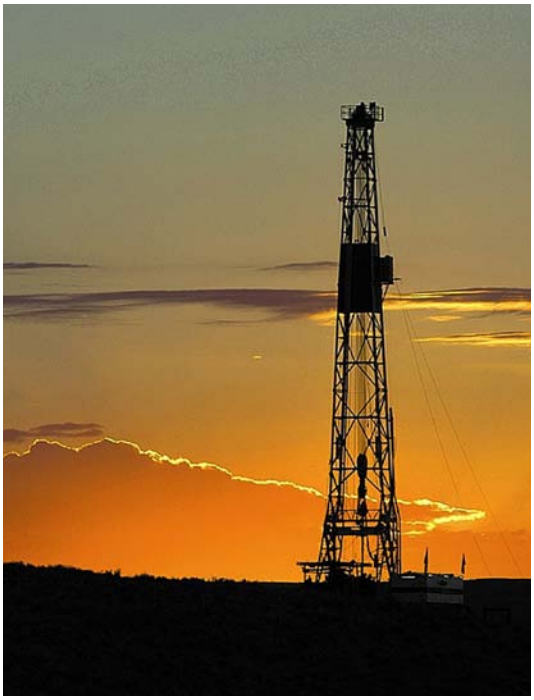
JBR Environmental Consultants, Inc. (JBR) clients consistently express appreciation for our practical approaches to evaluating geologic and hydrogeologic problems and our ability to propose creative and cost-effective solutions for either prevention or remediation of environmental impacts. Domestic and international clients span a wide range of industries including: natural resource development; manufacturing and transportation; thermal, hydro, geothermal, and wind energy generation and transmission; real estate redevelopment; government agencies; and Native American tribes.

JBR services include all technical and management aspects of CERCLA (Superfund), Resource Conservation and Recovery Act (RCRA), and Brownfield/Voluntary regulatory programs. These include permit negotiations, program management, expert witness and litigation support, environmental due diligence, site characterization, risk assessment, remedial design and implementation, and liability and asset management. JBR supports our clients' need for proactive and efficient adaptation to evolving land use and environmental regulations, with our hydrogeologic services supporting sustainable natural resource stewardship and protection, land redevelopment, renewable energy development, low-carbon footprint analysis (CFA), carbon capture and sequestration (CCS), and drinking water and watershed source protection.

Project Experience

Groundwater Discharge Permit Compliance for a Coal-Fired Power Plant, UT

JBR provided regulatory compliance and permitting services to a Utah electrical power plant, related to releases of contaminants from bottom ash ponds covering more than 100 acres. The project entailed development of a hydrogeologic Conceptual Site Model, pump-test analysis of multiple aquifers, groundwater fate and transport modeling, isotope analysis, site characterization, and remedial design.



Geologic Services

- Site-specific and regional geological investigations
- Mine and industrial waste investigations and site characterization (RI/FS, etc.)
- Design of drilling programs
- Mine subsidence evaluations
- Abandoned mine inventories
- Geophysical surveys
- Treatability studies
- Impoundment pond and landfill closure
- Landfill feasibility studies
- GIS and geological mapping
- Erosion and sediment control studies and plans
- Sub-slab, subsurface soil gas, and vapor intrusion analysis and remediation
- Sample, core, and soil logging drill rigs, including JBR-owned, drill rigs and a mobile analytical laboratory

JBR Corporate Headquarters
801.943.4144 - Salt Lake City, UT

Tempe, AZ 480.829.0457
Denver, CO 303.968.6774
Boise, ID 208.853.0883

Butte, MT 406.723.7980
Elko, NV 775.738.8766
Reno, NV 775.747.5777

Medford, OR 541.770.6977
St. George, UT 435.652.8301
Seattle, WA 425.977.4994

Project Experience

Groundwater Resource Development/Water Rights, Rogue Valley Manor, Medford, OR

JBR worked with Quail Point Golf Course to develop a new groundwater supply to be used for irrigation of the golf course and surrounding grounds. JBR conducted aquifer testing to demonstrate that a local stream was not going to be affected by the development of a groundwater source from a deep artesian aquifer beneath the golf course. After conducting a successful test to demonstrate that there was no surface water/groundwater interaction, the Rogue Valley Manor was granted a groundwater permit to develop the resource. JBR has worked with golf course personnel to install three new deep irrigation wells bringing the total number of wells to five as specified in the permit. JBR hydrogeologists have worked with the golf course superintendent on sizing of pumps, design of wellhead installation to allow for monitoring of water levels and chemistry, and equipping the wells with flow meters to accurately monitor production. JBR is working with the golf course to design a large-scale aquifer test to determine actual production rates for each well. The information obtained from testing will also be used to determine optimal well field operation. Once the system is completed a final proof survey will be conducted to determine the maximum amount of water the system is capable of producing. JBR continues to measure water levels annually, and submits reports to the Oregon Water Resources Department consistent with water right permit requirements.

Delineation of Pesticide Contamination at Grain Elevators, MT

Historic seed treatment operations resulted in soil contamination at 4 grain elevator complexes in central Montana. Pesticides including Aldrin, Chlordane, and Heptachlor were present in soils and groundwater in proximity to these locations. JBR personnel provided Geoprobe® and on-site analytical services to identify the vertical and horizontal extent of pesticide contamination in soil and groundwater at these locations. Soil samples at multiple depths and various distances from the suspected spill origins were collected using Geoprobe® direct-push technology. Additionally, groundwater samples were also collected from the borings. The samples were analyzed in the on-board laboratory using a gas chromatograph with an electron capture detector. After the extent of the pesticide soil contamination was defined, confirmation samples were submitted to a commercial laboratory. After the pesticide-contaminated groundwater plume was identified, permanent small-diameter groundwater monitoring wells were installed. Data from these efforts and follow-up monitoring was later used by JBR personnel to design and implement a remedial approach for the sites utilizing soil mixing and groundwater injection, to place amendments in the media to promote degradation of the pesticides.

Hydrogeological Studies & Services

- Regional and site-specific groundwater investigations
- Spring and seep surveys
- Production well feasibility studies, siting, design, installation, and testing
- Drinking water wellhead protection - sensitivity and vulnerability analysis
- Surface water and stormwater management and protection
- Geothermal development support
- Subsurface contaminant fate and transport assessments
- Geochemical modeling
- Groundwater quality sampling and monitoring
- Specialized investigations using environmental isotopes
- Groundwater and vadose zone modeling
- Soil, sediment, groundwater, and surface water remediation
- Subsurface geophysical contaminant plume delineation
- Spill investigations for the Department of Transportation
- PCB inventories, investigations, and disposal (TSCA)
- Environmental impact analysis of proposed actions and alternatives