

GRISWOLD EXHIBIT 1

CURRICULUM VITAE OF JIM GRISWOLD

Education

Bachelor of Science in General Studies (major in physics, minor in mathematics),
New Mexico Tech, 1983.

Experience

Project Manager (2020-)
Environmental Bureau Chief (2014-2020)
Senior Hydrologist (2008-2014)
Oil Conservation Division
New Mexico Energy Minerals & Natural Resources Department
Santa Fe, New Mexico

I am responsible for management of the remediation of an unstable brine cavern in Carlsbad with a budget of \$76M, and advising the Division Director on the efficient and competent regulation of the oil and gas industry, including technological advancements and trends and proposed modifications to the regulatory scheme. Previously, I was responsible for management of the Environmental Bureau, which oversees the investigation and remediation of hydrocarbon and produced water releases affecting soil and groundwater, and environmental permitting for oil and gas facilities (and until recently, geothermal facilities), including waste management, discharge permits, underground injection control, hydrogen sulfide contingency plans, and produced water recycling. I served as lead for environmental corrective actions associated with orphan sites utilizing monies from the Oil & Gas Reclamation Fund, including contracting, fiscal management, workplan development, technical review, and intergovernmental coordination.

Associate
Billings & Associates, Inc.
Albuquerque, New Mexico
2004 – 2008

Billings & Associates is an environmental services firm founded in 1974 principally engaged in the investigation and remediation of sites contaminated with refined petroleum hydrocarbons. For these sites, I developed scopes of work, costing and scheduling, managed field activities, including drilling, well installation, sampling, pilot testing, remedial system installation, operations, compliance and performance monitoring, and contractors and agency/client relations; designed and operated remedial systems; analyzed and interpreted data; and prepared reports. I also conducted Phase I environmental site assessments for property transfers.

President (2002-2003)
Vice President for Operations (1999-2001)
Construction Analysis & Management, Inc.
Albuquerque, New Mexico

Construction Analysis & Management, Inc. was a civil, mechanical, and environmental engineering firm and general contractor. As Vice President, I supervised the preparation of surface hydrology studies for facility and residential construction, groundwater resource development and water rights evaluations, including Phase I environmental site assessments, subdivisions, low income housing projects, golf courses, roadways, stormwater conveyances, and commercial HVAC systems. As President, in addition to my executive responsibilities, I managed environmental investigations and remediation projects at hazardous waste sites in New Mexico, Arizona, and Colorado, alternative wastewater treatment projects for Indian tribes and municipalities in New Mexico, and engineering and architecture for an up-scale resort facility in Taos.

Hydrologist
GRAM, Inc.
Albuquerque, New Mexico and Las Vegas, Nevada
1998

I was involved in sensitivity analysis and debugging of hydrogeologic and geographic information related to numeric groundwater flow (MODFLOW) and solute transport models (MOC and PTRACK) for the Frenchman's Flat nuclear weapons underground test area at the Nevada Test Site for the U.S. Department of Energy.

Private Practice
Albuquerque, New Mexico
1997 – 1998

I provided mineral reserve estimation based on borehole assays and computer production simulations; evaluated the value of potash removed from exploitation by the Waste Isolation Pilot Plant in southeastern New Mexico; provided technical support for litigation concerning brine flooding as part of secondary oil recovery; analyzed safety issues related to the development of oil and natural gas situated beneath underground mine workings, and conducted Phase I environmental site assessments, including property on which a small fuel refinery was operated.

Project Manager
Billings & Associates, Inc.
Albuquerque, New Mexico
1989 – 1997

I developed and managed a regional groundwater flow model for the Jemez, Zia, and Santa Ana Pueblos for the U.S. Department of Justice and Bureau of Indian Affairs to estimate the expected tribal usage of surface water from the Jemez River and the diversion of poor quality water from the Rio Salado into the Rio Grande.

I was the primary project manager for the investigation and active remediation of more than 50 leaking underground storage tank sites in New Mexico, Colorado, Oklahoma, Texas, Iowa, Michigan, Minnesota, Florida, Massachusetts, and South Carolina. During this work I developed and patented a remediation method generally known as biosparging, which has become one of the most widely applied methods for the mitigation of organic contaminants; developed one of the first commercially available systems to remotely monitor and control active remedial systems; designed, installed and successfully demonstrated a soil and groundwater remediation system at a Superfund site in southeastern Michigan for the U.S. Environmental Protection Agency that resulted in the reversal of the remediation in the Record of Decision from a soil excavation/ groundwater pumping system to biosparging; developed one of the first practical methods for the gathering free-phase hydrocarbons using hydrophobic filters and a device for abating hydrocarbon vapor emissions using microorganisms; conducted hydrologic testing and analysis, remedial pilot testing, intrinsic bioremediation modeling, and atmospheric dispersion modeling for air emissions from remedial systems; implemented the first “pay-for-performance” environmental remediation contract in the industry; participated in the development of investigation and remediation guidelines for the American Society for the Testing of Materials; and served on several select committees regarding enhanced bioremediation convened by Battelle, American Petroleum Institute, Oregon Graduate Institute, and Air Force Center for Environmental Excellence; and provided technical assistance in toxic tort litigation involving a large chemical manufacturing plant.

Principal and Research Scientist

HDI Research

Albuquerque, New Mexico

1982 – 1989

HDI was a private venture attempting to commercialize various aspects of pulsed power. The most successful of these endeavors involved patented devices to enhance the ignition system of internal combustion engines. HDI undertook cooperative research and testing with General Motors Corporation, Ford Motor Company, Chrysler Corporation, Champion Spark Plugs, and Evinrude Marine, and several Indy car and outboard marine racing teams, which resulted in significant advances in the areas of sub-nanosecond measurement of electrical discharges, high-voltage discoidal feed-through ceramic capacitors, robust triggering of small semiconductor switches allowing high current operation, and photovoltaic power generation.

Junior Field Engineer and Operator

Dresser Atlas Division

Dresser Industries

Sonora, Texas and Hobbs, New Mexico

1981 – 1982

I conducted open-hole geophysical logging of exploratory and production oil wells, including measurement of natural background radiation, electrical resistivity using inductive techniques, bulk porosity using radioactive isotopes, and hydrocarbons using neutron absorption, and participated in completion and workover operations. Additionally, I managed personnel, equipment, client interactions, and performed preliminary log evaluations.

Field Technician
Tecolote Corporation
Albuquerque, New Mexico
1980 – 1981

I conducted radiometric traverses on foot using portable scintillometers and gamma ray spectrometers and geochemical sampling of rock formations and surface water in northern New Mexico in support of the National Uranium Resource Evaluation for the U.S. Department of Energy and the New Mexico Bureau of Mines. Additionally, I assessed private mining claims and conducted cartographic and library research of economic mineral inventories for the federal Bureau of Land Management.

Research Assistant
Irving Langmuir Laboratory for Atmospheric Research
NM Tech
Socorro, New Mexico
1977 – 1980

I designed, fabricated, and deployed instrumentation for the study of atmospheric electricity generated during thunderstorms, including sensors deployed on the ground, free and tethered balloons, solid fuel rockets, and fixed-wing aircraft, the analysis of field data, and the refurbishment and enhancement of scientific equipment.

Publications

Field Data Regarding Air-Based Remediation of Methyl Tertiary Butyl Ether (MTBE). 2001. Proceedings of the 6th International Symposium on In Situ and On-Site Bioremediation.

Method of Potash Reserve Evaluation in “Potash Resources at the Waste Isolation Pilot Plant (WIPP) Site, New Mexico.” 1999. NM Bureau of Mines and Mineral Resources, Circular 207.

Evaluation of Mineral Resources at the WIPP Site. 1996. NM Bureau of Mines and Mineral Resources, Bulletin 155

Biosparging Results: How Clean is the Site? 1995. Proceedings of the 2nd International Symposium on In Situ and On-Site Bioremediation.

Local Charge Concentrations in Thunderclouds. 1980. Proceedings of the 6th International Conference on Atmospheric Electricity.

Case Study of a Thunderstorm over Langmuir Laboratory. 1980. Proceedings of the 6th International Conference on Atmospheric Electricity.

The Cloud Effects Phase of the Laser Induced Lightning Investigation. 1980. Defense Technical Information Center.

Patents

US Patent 5,221,159. *Subsurface contaminant remediation, biodegradation and extraction methods and apparatuses*, filed 1991, issued 1993.

US Patent 5,371,436. *Combustion ignitor*, filed 1990, issued 1994.

US Patent 5,272,415. *Combustion ignitor*, filed 1989, issued 1993.

US Patent 4,589,398. *Combustion initiation system employing hard discharge ignition*, filed 1984, issued 1986.