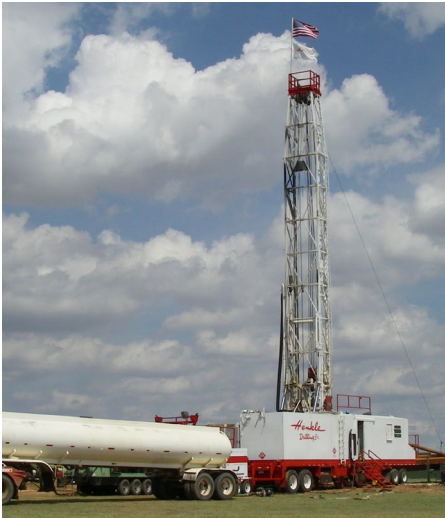


Engineering Services

DBS&A professional engineers provide specialized design expertise to environmental, natural resources, and water infrastructure projects of many kinds.

Our engineers are experienced in all phases of planning, design, and construction including:

- ◆ Planning and feasibility assessments
- ◆ Preliminary engineering reports
- ◆ Cost analysis/assessment
- ◆ Drawings and specifications
- ◆ Bid and contract documents
- ◆ Construction observation



DBS&A helped the City of Amarillo to ensure a long-term sustainable water supply by designing a new well field for maximum production capacity, while limiting depletion impacts. Exceeding project water quality and quantity goals, the project was awarded the National Ground Water Association's Outstanding Ground Water Supply Project.. It was also a recipient of American Council of Engineering Companies, New Mexico chapter Engineering Excellence Award.

Water Infrastructure

Drinking water supplies, flood control, irrigation, and wastewater treatment are based on properly designed and constructed infrastructure systems.

DBS&A combines practical scientific knowledge with standard engineering principles to provide full-scale design and construction services for water infrastructure projects, from conceptual design through completion. Based on our expertise in vadose zone processes, DBS&A has become a national leader in design of managed aquifer recharge systems. Our infrastructure services include:

- ◆ Aquifer storage and recovery (ASR)
- ◆ Managed aquifer recharge (MAR)
- ◆ Desalination engineering
- ◆ Injection well design
- ◆ Supply wells and well field design
- ◆ Water reuse and reclamation
- ◆ Drinking water treatment
- ◆ Water storage, transmission, and distribution

Site Remediation

DBS&A has established a reputation for providing innovative, technically sound, and cost-conscious remediation system design, installation, and operation and maintenance. The firm has successfully designed and implemented more than 100 soil and groundwater remediation systems throughout the Southwest. DBS&A's remediation teams draw on corporate and individual expertise in the investigation and remediation of petroleum hydrocarbons, chlorinated solvents, metals, and mine wastes. Examples of systems installed by DBS&A include:

- ◆ Biovent/biosparge and bioaugmentation
- ◆ Soil excavation and landfarming
- ◆ Soil vapor extraction, including use of horizontal wells and soil heating by hot air injection
- ◆ Groundwater sparging and extraction systems
- ◆ Interceptor/cutoff trenches
- ◆ Pneumatic phase-separated hydrocarbon pumping systems
- ◆ Groundwater treatment by packed column air strippers, low-profile diffusers, in situ amendment application, and granular activated carbon (GAC)
- ◆ Vapor treatment by thermal oxidizer, internal combustion engine, catalytic oxidizer, and GAC



Disposal Facility Support Mining Services

DBS&A supports landfill operators and hazardous waste managers by providing regulatory, scientific, and engineering solutions at hazardous and municipal solid waste landfills, land disposal units, waste isolation facilities, and mine sites. Our experience includes siting, permitting, design, construction oversight, and monitoring for facility expansions, permit modifications, and closures. We have shepherded high-profile sites through all phases of U.S. Environmental Protection Agency approval. We maintain a superior record of providing value when considering clients' expectations of cost, quality, and schedule. Our public and private sector clients include municipalities, counties, private operators, the Department of Energy, and the Department of Defense.

DBS&A is an international leader in the design of alternative covers for arid regions, which provide improved cover performance, erosion control, and long-term maintenance. DBS&A gained regulatory approval of this cost-saving design by demonstrating its success in the U.S. and internationally. DBS&A also has experience in design of waste-to-energy, cogeneration facilities using landfill-produced methane gas to power water treatment facilities.

Mining companies must comply with widely varying environmental regulations and standards while optimizing production for increased profitability—DBS&A can support both of these objectives.

DBS&A has worked with the mining industry since the early 1980s to perform state-of-the-art saturated and vadose zone characterization, monitoring, and computer modeling to evaluate extraction and production, infiltration, seepage, leakage, recharge, and contaminant fate and transport at mine sites. DBS&A has addressed complex challenges at mine sites such as fulfilling closure requirements, optimizing leaching operations to increase metals extraction, evaluating future water quality in pit lakes, designing control systems for leaching solution and process water, and protecting the beneficial uses of water.

“ They give us a practical and pragmatic approach. ”

~ Michael Jacobs
Senior Environmental Coordinator
Pioneer Natural Resources, LLC USA, Inc.

DBS&A has been a part of soil testing, site assessment, modeling, permitting, designing, or provide construction oversight for more than 40 evapotranspiration covers throughout the U.S. and is participating in cover assessment projects in Queensland, New South Wales, and Victoria Australia.

Soil Testing and Research

DBS&A's nationally recognized Soil Testing & Research Laboratory is certified to determine the geotechnical, saturated, and unsaturated properties of soils and geologic materials.

The results of our soil properties testing enable clients to better understand site soil conditions such as infiltration rates, seepage, leakage, and contaminant transport—invaluable knowledge in optimizing designs for recharge, irrigation, groundwater remediation, landfill, and dam projects.

