

David G. Angle, PG, CGWP

Registrations

Certified Professional Geologist (No. 09874)
Certified Ground Water Professional (No. 113646)
Louisiana Registered Geologist (No. 69)
Texas Registered Geologist (No. 513)
Mississippi Registered Professional Geologist (No. 808)

Fields of Competence

Superfund RI/FS Program
RCRA RFI Program
Site Investigation/Remediation
Project Management
Hydrogeology
Geochemistry
Litigation Support/Expert Testimony

Experience Summary

Over 27 years of environmental consulting experience. Serves as the Houston Office Manager for Michael Pisani & Associates, Inc. Has served in various consulting positions including principal-in-charge, project manager, and hydrogeologist. Have been involved in over 15 Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) Remedial Investigation/Feasibility Study (RI/FS) projects. Completed over 100 Resource Conservation and Recovery Act (RCRA) projects and other hazardous waste and oilfield site investigations and remedial actions. Has extensive experience conducting multi-media and multi-contaminant investigations, developing cost-effective remedial or risk-based closures, dealing with numerous regulatory agencies, and conducting projects in excess of \$1 million.

Served as expert for sites in Alabama, Arkansas, Georgia, Louisiana, Pennsylvania, and Texas. Provided technical support for sites in Alabama, Arkansas, California, Florida, Georgia, Illinois, Louisiana, Montana, New Jersey, New York, Oklahoma, Pennsylvania, South Carolina, and Texas.

Credentials

B.S. Geology, University of Delaware, 1982
M.S. Geology, North Carolina State University, 1985
Continuing Graduate Studies, Wright State University, 1990, 1993

Professional Affiliations

National Ground Water Association
American Institute of Professional Geologists
American Geophysical Union

Key Projects

Project manager, and/or hydrogeologist for RI/FSs on over 15 CERCLA sites. Managed, performed, or have been involved with over 50 subsurface and ground water assessments at RCRA and other non-regulated facilities. Have conducted investigations of a multitude of different contaminants including, petroleum and chlorinated compounds, NAPL, DNAPL, heavy metals, brine and others.

Served as technical representative to PRP group in mediation with EPA over \$135 million EPA-implemented remedial action at the Sikes Disposal Pits Superfund site in Texas. The ground water portion of the 1986 ROD included a Natural Attenuation (NA) component for chlorinated and other hydrocarbon compounds. Site contaminants included EDC, benzene and PAHs. Conducted detailed review of voluminous TNRCC file and developed technical presentation that demonstrated the inconsistency of the RI/FS with the National Contingency Plan (NCP).

Performed RI of heavy metals, NAPL, subsurface oily waste and affected ground water, soil, and air at a proposed Superfund site (former refinery site) in northwestern Louisiana. Responsibilities included work plan preparation, cost tracking, subcontracting, subcontractor supervision, monitor well design and installation, soil, ground water, surface water, and air monitoring and/or sampling, soil gas surveying, aquifer testing, biodegradation studies, soil vapor extraction testing, agency interaction, and report preparation. Continue to serve as senior technical representative in agency interactions.

Performed numerous soil and groundwater investigations of oil and gas field sites in Louisiana involving produced water, oil, NORM, etc. Served as geology and hydrogeology expert in related litigation.

Key Projects (continued)

Provided technical support and expert testimony on cost allocation involving past and current owner of an operating chlorinated chemical plant. Reviewed over 1,000,000 pages of documents to identify the key issues, including chlorinated compounds release history, DNAPL, and migration rates associated with an offsite plume of affected ground water. Assisted attorneys with depositions of other experts, developed exhibits including a 3-D computer animation, and provided deposition testimony.

Managed Voluntary Cleanup Program (VCP) ground water and soil investigation activities for chlorinated solvents and other chemicals at an operating manufacturing facility in Houston, Texas. Prepared detailed Affected Property Assessment Report (APAR) and Response Action Plan (RAP) for the facility. TCEQ had no comments on the APAR. Design and install groundwater recovery wells, prepare groundwater sampling reports and assist with recovery system.

Managed investigation and successful remediation of Houston, Texas state superfund site including the collection and analysis of soil, water and waste samples, removal of waste, demolition of above-ground tanks, excavation and offsite disposal of affected soils and preparation of reports.

Conducted assessment of former refinery property in Indiana and developed presentation for client on potential for redevelopment of property through Brownfields program. Also evaluated potential for implementing phytoremediation and developed options for future usage of the property.

Project manager for risk-based closure of former underground storage tank (UST) site on a public school property. Successful in negotiating with the TNRCC on a no-further action remedy through the use of the Texas Risk Reduction Standards. Saved the client over \$100,000 by not implementing the excavation and disposal option recommended by the previous consultant.

Managed litigation support activities for numerous sites. Sites contained E&P wastes, heavy metals, refined petroleum products, wood treating wastes, MTBE, NAPL, DNAPL radionuclides and mixed wastes. Helped win court approval of zero contribution allocation for client adjacent to Superfund site. Provided successful expert testimony and litigation support for crude oil and salt-water releases.

Managed preliminary field activities in 32 square mile former lead/zinc mining district (Jasper County, Missouri Superfund Site). Prepared a detailed RI/FS budget, work plan, and sampling and analysis plan. Responsibilities also included cost tracking and client and agency interactions.

Conducted a detailed Hazard Ranking System (HRS) Evaluation of the Los Alamos National Laboratory technical areas in accordance with EPA's HRS guidance to determine if any of the areas might be ranked as Superfund sites.

Investigated and remediated releases from aboveground storage tanks at a Louisiana chemical plant. Included work plan preparation, spill delineation with soil gas surveying, monitoring well design and installation, soil, ground water, surface water, and air monitoring and/or sampling, aquifer testing, recovery system design and installation, and report preparation.

Served as in-house technical expert for a major oil company during the development of a database for more than 100 discontinued operation properties.

Supervised lithologic logging of cores and installation of piezometers and monitor wells for a remedial investigation at the Hardage Superfund site near Criner, Oklahoma. Involved in the installation of telescoping protective casing using pressure-grouting methods, drilling with hollow stem augers and air rotary techniques and supervision of drilling crews. Supervised the hydrological study, which included piezometer installation, stream flow, ground and surface water monitoring, slug and seepage meter testing, and data reduction and analysis. Interfaced with the U.S. Geological Survey and Oklahoma State Water Resources Board on a stream flow-monitoring program.

Project geologist responsible for evaluating heavy metals fixation in a major Texas refinery landfarm. Documented metals fixation to the Texas Water Commission (TWC) with site data and detailed literature review. TWC concurred with findings of evaluation.

Project manager for surface water and sediment sampling and removal action planning for the Vertac Superfund Site in Jacksonville, Arkansas. Developed removal plan approved by EPA and U.S. Army Corps of Engineers on an expedited basis.

Publication Listing
David G. Angle, P.G., CGWP

Angle, D.G., Pisani, M.E., Upthegrove, D.C., Swartz, K.H., 1998. Variability in the Routine Laboratory Measurement of Total Lead in Soils and Potential Remedial Implications, *The Professional Geologist*, April 1998, pp. 9-11.

Angle, D.G., 1994. A horizontal well recovery system to capture LNAPL and Affected Ground Water, Abstract in NGWA 46th Annual Convention Program, October 9-12, 1994.

Showers, W.J. and Angle, D.G., 1987. Stable isotopic characterization of organic carbon accumulation on the Amazon continental margin., In: *Sedimentary Processes on the Amazon Continental Shelf*, C.A. Nittrouer and D.J. DeMaster, editors, Pergamon Press, New York, pp. 227-244.

Showers, W.J., Angle, D.G., Nittrouer, C.A. and DeMaster, D.J., 1985. Carbon isotopic composition of Amazon shelf sediments. AAPG Abstract, presented at AAPG 1985 Annual Meeting.

Angle, D.G., 1985. Organic carbon in Amazon continental margin sediments; A detailed isotopic analysis, Masters Thesis, North Carolina State University.

**2009-2015 List of Cases in Which
David G. Angle, P.G., CGWP has Testified**

<u>Case</u>	<u>Year</u>	<u>Description</u>	<u>Expertise</u>
VPSB v Louisiana Land, et al. (b)(c)	2015	Soil and Groundwater Investigation and Groundwater Remediation	Hydrogeology, site investigation, groundwater classification, groundwater remediation
Tucker, et al. v. Shell, et al. (c)	2014	Soil & Groundwater Investigation & Remediation	Geology, site investigation and soil remediation
Mary Frances Blackard, et al. vs. Hercules, Inc. and Ashland, Inc. (c)	2014	Soil and Groundwater Investigation & Remediation	Site investigation, hydrogeology, groundwater remediation
Texaco Exploration and Production, Inc. vs. Hilcorp Energy Company (c)	2012	Soil and Groundwater Investigation & Remediation	Site investigation, hydrogeology, groundwater classification, groundwater remediation
Ruby Mhire, et al. vs. Total Petrochemicals USA, Inc., et al.(c)	2012	Soil and Groundwater Investigation & Remediation	Site investigation, hydrogeology, groundwater classification, groundwater remediation
Hazel Savoie, et al. vs. Alice T. Richard, Jimmy Mock, Pioneer Exploration, LTD., et al. (c)	2011	Soil and Groundwater Investigation and Groundwater Remediation	Site investigation, hydrogeology, groundwater classification, groundwater remediation
McMurrian, et al. v. Creslenn, Oil Company, et al. (c)	2011	Soil and Groundwater Evaluation	Site investigation, hydrogeology
VPSB v Louisiana Land, et al. (c)	2010	Soil and Groundwater Investigation and Groundwater Remediation	Hydrogeology, site investigation, groundwater classification, groundwater remediation
Sandra Bernard, et al. vs. BP Amoco, et al. (c)	2010	Soil, Sediment & Groundwater Investigation and Groundwater Remediation	Hydrogeology, site investigation, groundwater classification
Tucker, et al. v. Shell, et al. (f)	2010	Soil Investigation & Remediation	Geology, site investigation and soil remediation
Harris et al. v. BP Amoco, et al. (c)	2009	Groundwater Investigation & Remediation	Hydrogeology, geology, groundwater assessment and remediation, fate and transport, groundwater classification
Kling Realty Company, Inc. and Walet Planting Company v. Chevron USA, Inc., et al.(c)	2009	Groundwater Investigation & Remediation	Hydrogeology, geology, groundwater assessment and ground water remediation - groundwater classification
Tensas Poppadoc, Inc v. Chevron U.S.A., et al.(c,e)	2009	Groundwater Investigation & Remediation	Hydrogeology, geology, groundwater assessment and ground water remediation - groundwater classification

Notes

- (a) Descriptive name; may not be actual case name.
- (b) Testified at trial.
- (c) Deposition.
- (d) Testimony at arbitration/mediation only.
- (e) LDNR hearing
- (f) Testified at judge hearing

Michael E. Pisani, P.E.

Registration

Registered Professional Engineer in the States of Louisiana and Texas.

Fields of Competence

Solid and hazardous waste management
Groundwater investigations
Remedial investigations and feasibility studies
Project management
Risk assessments
Remedial design and construction oversight
Interpretation of environmental laws and regulations
Negotiations with regulatory agencies
RCRA Permitting
Impoundment and landfill closures
Air emissions permitting
Environmental auditing
Industrial wastewater treatment
Sediment dredging and dewatering
Sludge dewatering
Water quality modeling

Experience Summary

Thirty-five years of experience in industrial environmental engineering. Manager of numerous solid and hazardous wastes projects for petroleum refineries and petrochemical complexes. Principal-In-Charge of two successful bio-remediation projects for oily wastes. Manager of over three dozen privately funded Superfund-type projects including remedial investigations, feasibility studies, review of hazard ranking scores and critique of proposed NPL listings, risk analysis of baseline conditions and for establishing site cleanup standards, assistance to litigation teams, work plan development, detail design scoping, and treatability studies for solidification and incineration of wastes. Principal-In-Charge of over fifty groundwater assessment and/or remediation projects. Principal-In-Charge on forensic evaluation of construction project including cost over-run evaluation. Principal-In-Charge on subsurface sediment dredging and dewatering projects.

Credentials

Bachelor of Civil Engineering - Auburn University (1975)
Master of Environmental Engineering - Georgia Institute of Technology (1981)

Professional Affiliations

National Society of Professional Engineers
Louisiana Society of Professional Engineers
Water Environmental Federation
National Ground Water Association
American Society of Civil Engineers

Key Projects

Principal-In-Charge of the RI/FS work phases and removal action specifications for the Combustion, Inc. Superfund Site located near Denham Springs, Louisiana.

Developed a remedial design work plan and performance of a risk assessment at the Sand Springs, Oklahoma Superfund site, a 235-acre former refinery site, to evaluate existing health-based risks and to establish target cleanup levels.

Designed and implemented a contaminated soil removal action at a former wood-treating site located in Chicago, Illinois.

Conducted assessments including groundwater investigations for five former wood treating sites and four former petroleum refinery sites.

Developed closure plans including groundwater interception for an inactive 18-acre petroleum waste site.

Performed clean closure design, field supervision and closure certification for two oily waste impoundments at the Marathon Refinery in Garyville, Louisiana.

Developed auditing procedures for determining RCRA compliance at oil refineries, manufacturing plants, research laboratories and commercial facilities.

Conducted two-year investigation into PCB contamination at a General Electric transformer manufacturing plant and development of plans for mitigating migration to plant wastewater streams.

Developed and successfully implemented demonstrations for bioremediation of oily hazardous wastes at the BP Oil Alliance Refinery and Marathon Garyville Refinery.

Performed operation and maintenance of a 3.5 mgd activated sludge treatment plant including trouble shooting and process optimization.

Designed and implemented groundwater hydrocarbon recovery systems for a Shell lube oil manufacturing plant and the Exxon Baton Rouge Refinery.

Key Projects (Continued)

Performed bench scale testing and developed design plans and specifications for an oily waste thickener and holding tank system for two petroleum refineries.

Developed detail design drawings and specifications for a recessed chamber filter press de-oiling/dewatering system at the BP Oil Alliance Refinery.

Designed a groundwater drawdown system making innovative use of agricultural drainage system equipment at the Chevron Pascagoula Refinery, BP Oil Alliance Refinery and Marathon Garyville Refinery.

Principal-In-Charge for development of no migration petitions for two hazardous waste land treatment units.

Conducted solidification and stabilization testing on oily and/or biological sludges and design and construction management of closure of impoundments containing these wastes.

Developed and implemented plans to contain, control, and treat groundwater beneath a pesticide/herbicide formulation plant.

Managed the design, installation, operation, and management of a 1,700-foot subsurface drain for the capture and removal of contaminated groundwater surrounding an E&P produced water pit.

Managed the design, permitting, and construction for closure of over 75 oilfield pits.

Performed soil, groundwater, sediment, and/or surface water assessments at over 100 oilfield sites.

Managed the implementation of ecological risk studies at two oilfields, including the collection and analyses of fish and crab tissue samples.

Participated with General Electric team on technical evaluation of the feasibility of the dredging, dewatering, and disposal of PCB-contaminated sediments from the Hudson River.

Provided expert evaluation on a contractor's claim of Differing Subsurface Conditions on the dredging, dewatering, and disposal of a large hazardous waste sludge impoundment.

Provided expert consultation to Auckland and New Zealand environmental authorities on the measurement and acceptance of dredging sediments from a closed bay area.

Provided consultation on a contractor's failure to dredge and dewater sediments from the Fox River per estimated contract rates.

**Listing of Cases in Which
Michael E. Pisani, P.E. Has Testified or Been Deposed
Last Five Years**

Case ^(a)	Jurisdiction	Year	Description	Expertise
Dore Energy v. Noble Energy	State	2009	Site Assessment, E&P Site	Environmental Engineering
Kling Realty v. Chevron	State	2009	Site Assessment, E&P Site	Environmental Engineering
AFG v. Adams and Reese	State	2009	Site Assessment	Environmental Engineering
M. J. Farms, Ltd. v. ExxonMobil Corporation, et al	State	2009	Site Assessment, E&P Site	Environmental Engineering
Green, et al v. Cities Service Refinery, et al	State	2009	Site Assessment	Environmental Engineering
Belinda Harris, et al vs. BP Amoco, et al	State	2009	Site Assessment, E&P Site	Environmental Engineering
Tensas Poppadoc, Inc. v. Chevron USA, Inc., et al	State	2010	Site Assessment, E&P Site	Environmental Engineering
Noble v. PITCO	State	2010	Site Assessment, E&P Site	Environmental Engineering
Sandra Duhon Bernard, et al v. BP America Production Company, et al	State	2010	Site Assessment, E&P Site	Environmental Engineering
State of Louisiana and the Vermilion Parish School Board v. Louisiana Land and Exploration, et al	State	2010	Site Assessment, E&P Site	Environmental Engineering
LW Matteson v. Severson	State	2011	Dredging, Cost	Sediment Remediation/ Materials Management
Hazel Savoie et al vs. Alice T. Richard, Jimmy Mock, Pioneer Exploration, LTD., et al	State	2011	Site Assessment, E&P Site	Environmental Engineering
The Sweet Lake Land and Oil Company, LLC v. Exxon Mobil Corporation	Federal	2012	Site Assessment, E&P Site	Environmental Engineering
Mhire v. Total Petrochemicals, et al	State	2012	Site Assessment, E&P Site	Environmental Engineering
Texaco Exploration and Production Inc. vs. Hilcorp Energy Company	State	2012	Site Assessment, E&P Site	Environmental Engineering
Del Dean and Ronald Dale David v. Velsicol Chemical Company, et al	State	2013	Site Assessment	Environmental Engineering
Charles Keith Montgomery vs. Citgo Petroleum Corp., et al	State	2013	Site Assessment	Environmental Engineering
Leonard Broussard and Bertha Thibodeaux v. Chevron U.S.A. Inc., et al	Federal	2013	Site Assessment, E&P Site	Environmental Engineering

Notes:

(a) Descriptive name; may not be actual case name.