

Robert S. Lee, P.G.

Education

B.S., Geology, Beloit College, 1978.

Post-baccalaureate course work in geology, mathematics, and civil engineering, University of Houston, 1983 - 1985.

Graduate level course work in hydrogeology, Wright State University, 1988 - 1989.

Professional Background

Vice President - Hydrogeologist, GSI Environmental Inc., Houston, Texas. 1988 to present

Staff Geologist, Cities Service Oil and Gas Corporation, Houston, Texas. 1981 - 1988

Geologist, Dames and Moore, Park Ridge, Illinois. 1980 - 1981

Professional Affiliations

Licensed Professional Geoscientist, Texas Board of Professional Geoscientists, Geology, License No. 1473

National Ground Water Association

Geological Society of America

Representative Project Experience

RCRA Corrective Action Program, Chemical Manufacturer, Ohio River Valley, Ohio. Currently managing RCRA Corrective Action Program (CAP) at chemical manufacturing facility, including all RCRA CAP phases from RCRA Facility Investigation (RFI) through Corrective Measures Implementation (CMI). Project is among first in U.S. EPA Region 5 to incorporate risk-based decision-making approach to RCRA CAP process. Initial phase included risk-based screening at in excess of 100 Solid Waste Management Units (SWMUs) and Areas of Concern (AOCs) identified by U.S. EPA RCRA Facility Assessment, demonstrating need for sampling at fewer than 20% of sites. Designed and implemented focused sampling programs to detect and delineate potentially significant constituent releases. Conducted Corrective Measures Study to identify risk-based remedial measures program, including monitored natural attenuation of constituents in groundwater with removal of soil "hot-spots" in source zone. Corrective Measures Implementation (CMI) currently underway. Remedy Completion Reports for four areas recently approved by U.S. EPA, monitored natural attenuation groundwater remedy on-going.

DNAPL Delineation/Confirmation Study, Chemical and Pesticide Manufacturer, Houston, Texas. Designed and implemented field and laboratory program employing multiple lines of evidence for delineation and confirmation of presence or absence of dense non-aqueous phase liquids (DNAPL) in subsurface underlying facility and adjacent off-site areas. Study conducted in support of litigation, successfully demonstrated validity of several established and developing technologies in identifying DNAPL in soil cores.

RCRA Corrective Measures Study, Chemical Manufacturer, Ohio River Valley, Ohio. Conducted study demonstrating residual LNAPL is not contributing to expansion of groundwater plume and that further source removal is technically impracticable and not needed for environmental protection. CMS approved by U.S. EPA.

Site Characterization Manual – Field Analytics, Developed proprietary manual for major oil company to assist world-wide remediation management staff in identification and application of field analytical methods for soil and groundwater. Manual included matrices for screening potentially applicable testing methods for soil and water based on data quality objectives, cost and practical considerations, hyper-linked to method summary sheets

detailing applicability, detection limits, operating principle, portability, required skill- level, time and cost per sample, etc.

Supplemental Site Investigation and Risk Evaluation, Former Oil & Gas Field, Houston, Texas. Conducted investigation and risk evaluation for major oil company for submittal to Railroad Commission of Texas and affected residential property owners at former producing oil & gas field redeveloped as residential subdivision. Identified locations of former tank batteries, reserve pits and other features using aerial photographs and GPS and conducted sampling program to assess environmental impacts. Evaluated potentially complete exposure pathways following procedures specified for Texas Risk Reduction Program (TRRP).

Groundwater Quality Evaluation, Oil & Gas Field Texas, Utilized existing published data base showing major ion chemistry for >60 wells in three Texas counties in conjunction with Stiff diagrams, Piper plots and other graphical tools, to demonstrate water quality of wells allegedly impacted by oil field brines was not distinguishable from naturally occurring background conditions. Study was presented to plaintiffs in lawsuit and suit was dropped based on data presented.

Monitored Natural Attenuation Demonstration, Gas Processing Plant, Wyoming. Conducted multiple lines of evidence evaluation, including statistical evaluation of historical monitoring data and geochemical data to demonstrate effectiveness on MNA remedy in fractured shallow aquifer.

Environmental Risk Management Plan, Chemical and Pesticide Manufacturer, Houston, Texas. Assisted plant environmental management with development of strategic plan for prioritized risk-based management of affected soil and groundwater zones in coordination with state environmental regulatory requirements.

Voluntary Cleanup Program (VCP) Closure, Former Pesticide Facility, Houston, Texas. Obtained Certificate of Completion for former site of commercial pest control contractor with soils impacted by pesticides and petroleum hydrocarbons. Site was entered into Voluntary Cleanup Program sponsored by Texas Natural Resource Conservation Commission and remediated to TNRCC Risk Reduction Standard 2 residential criteria. Site is currently under redevelopment for medium density residential use.

Monitored Natural Attenuation Study, Oil and Gas Field, Harris County, Texas. Conducted monitored natural attenuation evaluation of drinking water aquifer affected by gas well casing leak, which resulted in detectable concentrations of natural gas constituents in nearby domestic water well. Designed replacement water well incorporating isolation of affected groundwater zone to provide unaffected groundwater to well owner. Final remedy approved by Railroad Commission of Texas.

Hydrogeologic Site Assessment, Chemical Manufacturer, Gulf Coast, Texas. Designed Site Assessment Plan for evaluation of site hydrogeology and extent of hydrocarbon contamination in soil and groundwater for submittal to Texas Natural Resource Conservation Commission (TNRCC). Provided project management for implementation of field and laboratory testing program.

RCRA Facility Investigation, Chemical Manufacturer, Gulf Coast, Texas. Developed RCRA Facility Investigation (RFI) Workplan for multiple Solid Waste Management Units (SWMUs) located on chemical manufacturing facility. Managed implementation of RFI work program, which included use of temporary groundwater sampling points and field screening of groundwater samples for cost-effective delineation of contaminated groundwater zones, followed by installation of permanent wells for confirmation and monitoring of plume concentrations and dimensions.

Recovery Well System Installation, MOTCO Superfund Site, La Marque, Texas. Managed installation of recovery and monitoring well system for containment and removal of dense non-aqueous phase liquids and affected groundwater zone beneath former chemical waste disposal facility. Project involved coordination of 3 drilling rigs in simultaneous operation to install approximately 60 wells to depth up to 265 ft during 3-month period.

Site Investigation, Risk Assessment, and Corrective Action Plan, Former chemical waste disposal site, Gulf Coast Texas. Designed and managed environmental site investigation, base-line risk assessment, and corrective measures study to determine extent of contamination, appropriate site-specific clean-up standards, and cost-effective remedies for currently occupied residential property located over former chemical waste-disposal pit.

Chemical Waste Inventory and Disposal Program, Former hazardous waste treatment testing laboratory, Gulf Coast Texas. Designed and managed chemical inventory and disposal program at facility formerly used for bench-scale treatment and solidification testing of hazardous wastes from numerous facilities nation-wide. Project involved evaluation of unknown chemical inventory, identification of proper waste codes, evaluation/remediation of minor soil contamination, and successful Standard 1 Closure application under Texas Risk Reduction Rules.

Risk Assessment and Corrective Action Plan, Bulk Storage Facility, Pasadena, Texas. Provided site management for environmental risk assessment to determine appropriate site-specific clean-up standards for petrochemical storage terminal.

Recovery Well System Design and Installation, Chemical Manufacturer, Gulf Coast Texas. Designed and directed installation of recovery well system for containment and remediation of affected groundwater zone beneath a chemical manufacturing facility.

RCRA Facility Investigation, Chemical Manufacturer, Gulf Coast Texas. Provided site management and technical oversight for hydrogeologic site assessment to characterize potential waste constituent migration from eight former waste management units.

Aquifer Pumping Test, Electronics Manufacturer, Northeast Texas. Designed and conducted aquifer pumping test to assess rate of groundwater contaminant plume migration to support environmental risk assessment for two former waste management sites.

Hydrogeologic Site Assessment, Bulk Storage Terminal, Pasadena, Texas. Designed and conducted hydrogeologic site assessment of 110-acre tank farm facility. Assessed potential sources of subsurface hydrocarbon migration. Characterized hydrogeologic site conditions. Designed and installed monitoring well array for the detection of groundwater impacts.

MOTCO Migration Management Project, MOTCO Environmental Study, La Marque, Texas. Conducted stratigraphic study of shallow subsurface underlying large Superfund site. Evaluated potentiometric surface data for characterization of groundwater flow regimes. Designed and managed field and laboratory monitoring program to assess long term effectiveness of pilot plant for recovery of dense non-aqueous phase liquids (DNAPLs) from shallow aquifer underlying MOTCO site.

Environmental Site Assessment, Former Manufacturing Facility, Houston, Texas. Conducted detailed historical and regulatory investigation of land use and waste management practices at abandoned manufacturing facility. Designed and conducted field and laboratory program to assess site hydrogeologic characteristics and delineate subsurface contamination.

Publications

Lee, R.S., P. C. de Blanc, and T. M. McGuire, "Case Study of DNAPL Delineation Using Multiple Lines of Evidence," The Fifth International Conference on Remediation of Chlorinated and Recalcitrant Compounds, Monterey, CA, May 2006.

Lee, R.S., "Data Collection Methods," in P.B. Bedient, H.S. Rifai, and C.J. Newell, Ground Water Contamination: Transport and Remediation, 2nd edition. Prentice Hall, Englewood Cliffs, NJ, 1999.

Newell, C.J., R.S. Lee, and A.H. Spexet, "No-Purge Sampling Groundwater: An Approach for Long-Term Monitoring," API Research Bulletin No. 12. American Petroleum Institute, Washington, D.C., October 2000.
