

TECHNICAL SPECIALTIES

Soil and groundwater investigations, delineation of groundwater flow systems, design and implementation of remedial systems, development of regulatory strategy and regulatory negotiations, environmental due diligence, environmental compliance audits.

EXPERIENCE SUMMARY

Twenty-nine years of experience: Principal Hydrogeologist at Roux; Principal at ERM Northeast; Staff Hydrogeologist at Suffolk County, New York Department of Environmental Control.

CREDENTIALS

B.A. Geography, Clark University, 1974
M.A. Geology, SUNY Binghamton, 1978

REGISTRATIONS

Licensed Professional Geologist in New York – No. 000469

KEY PROJECTS**Brownfields/Real Estate Redevelopment**

- Principal-in-Charge for taking the 22-acre Former Avis Headquarters site in Westbury, New York through the NYSDEC Brownfield Cleanup Program (BCP) for Equity One Inc. The project was constructed on an expedited basis to meet the deadlines associated with opening a major new shopping center. The project required very close coordination with all members of the construction team to ensure environmental issues didn't delay the demolition of existing buildings or construction of a 312,000 sq. ft. new retail space. The project included submission of the BCP Application, RI Work Plan, implementation of the RI including soil, groundwater and soil vapor sampling. An IRM was implemented that included the excavation of 40,000 tons of soil in support of a Track 1 cleanup. The NYSDEC-approved Remedial Action Work Plan (RAWP) was implemented including an in-situ chemical oxidation (ISCO) remedy for groundwater and soil vapor monitoring. All remedial work was completed on schedule and the Final Engineering Report (FER) was submitted and a Track 1 Certificate of Completion (COC) was issued before the first tenants took possession of their space.
- Principal-in-Charge of all environmental services for Vornado Realty Trust Rego Mall Expansion. Project included Phase II investigation, preparation of Remedial Action Plan for NYCDEP approval. Preparation of three-dimensional sample grid for in-situ waste characterization, conduct 495 sample in-situ characterization plan, provide environmental support to project team evaluation of disposal strategy for 400,000 tons of soil/urban fill. Provide full time oversight of 9-

month excavation/waste shipment process. Prepare Remedial Action Summary Report and Groundwater Monitoring Report.

- Principal-In-Charge of NYSDEC BCP project in Brooklyn New York. The Site is an auto dealership with petroleum and chlorinated solvent contamination in soil and groundwater. The Site has been accepted in the NYSDEC BCP. The RAWP calls for a remedial soil excavation including over-excavation of the LNAPL body, ISCO treatment of groundwater and the prophylactic installation of passive SSDS piping. Completion of the remediation and issuance of the CO is expected by December 2019.
- Principal-in-Charge for Equity One development of a site in Bronx NY into an urban mall. Project includes entry in the New York City Office of Environmental Remediation (NYCOER) Voluntary Cleanup Program (VCP), implementation of an RI, submittal of an RI Report and RAWP recommending a soil excavation remedy. Remedial activity is expected to begin in late 2012.

Industry Experience

- Principal-in-Charge/Project Manager for ECRA/ISRA project at a major aerospace facility in New Jersey for Fortune 100 client. Project included development of regulatory strategy, on-site delineation of multiple areas of soil contamination including large scale disposal pits, identification of radiological contamination, delineation of free phase oil body containing PCBs, delineation of multi-constituent contaminant plume containing TCE, UST removal, and RCRA storage pad closure. Designed and implemented comprehensive remedial pilot study to evaluate groundwater treatment technologies, feasibility and treatment of SVE/AS system, oil collection technologies. Aquifer test conducted in conjunction with pilot test. Excavation and off-site disposal of 5,000 tons of contaminated soil from waste pits. Investigation of off-site impact of TCE plume migration including health risk assessment.
- Principal/Project Manager for hydrogeologic investigation of largest private landfill in Connecticut. Including installation of multi-aquifer monitoring network, delineation of flow system and leachate plume.
- Site investigation and design of a multi-aquifer groundwater recovery system at a Connecticut NPL site. Extensive off-site contaminant plume contained TCE, PCE, methylene chloride and assorted chlorinated and aromatic hydrocarbons.

Design reviewed and approved by USEPA Region 1.

- Project Manager for investigation of landfill leachate impacts in groundwater/surface water at private landfill in Colchester, Connecticut. Conducted soil and groundwater testing in support of landfill expansion permit.
- Investigation of organic chemical impacts to groundwater associated with industrial landfill at major chemical plant in Naugatuck, Connecticut. Included evaluation of hydraulic and geochemical relationship of aquifer system and Naugatuck River.
- Principal-in-Charge/Project Manager for a soil and groundwater investigation at a tool and die manufacturer in Greenfield, Massachusetts. Project included delineation of TCE contamination in soils surrounding a closed dry well. Soils remediation completed through excavation and off-site disposal. Mapped TCE plume on-site and 4,000 feet off-site. Development of regulatory strategy/regulatory negotiation.
- Principal-in-Charge for a soil investigation/removal action and groundwater investigation at a Hicksville, New York State-lead CERCLA site. Project included delineation of TCE/PCE plume in the Upper Glacial Aquifer. Key issues included differentiation of on-site solvent sources from upgradient and downgradient plumes of similar contaminants.
- Project Manager for a soil and groundwater investigation at a solvent recovery facility in Linden, New Jersey. Project included delineation of significant on-site soil contamination from a wide variety of chlorinated and nonchlorinated solvents.
- Project manager for installation of groundwater monitoring network at Acabonac Road Landfill, East Hampton, New York.
- Project Manager for an expedited investigation of a TCE plume migrating through fractured bedrock toward the only on-site source of potable water at a major industrial facility in western New Jersey.
- Principal-in-Charge/Project Manager for the investigation of TCE contamination in groundwater at a Farmingdale, New York manufacturing facility. Project included development and negotiation of a work plan with NYSDEC. Groundwater modeling of potential off-site plume migration was responsible for delisting of the facility.

- Principal/Project Manager for a soil and groundwater investigation at a chemical distribution facility in Norwalk, Connecticut. Project included removal of buried drums and soil containing solvents and waste oils, identification of on-site source areas, delineation of solvent plume in glacial sediments and shoreline deposits adjacent to Long Island Sound. Negotiation of project scope and approach with CTDEP.
- Principal-in-Charge for investigation of a million gallon gasoline spill in a complex glacial environment. Delineation of free phase gasoline plume and multiple dissolved phase plumes, including the installation of 250 monitoring wells. Design/installation/operation of a remedial pumping system responsible for the recovery of over 460,000 gallons of gasoline. Primary technical representative for regulatory, community and media interaction. Installation and routine sampling of vapor well monitoring network to evaluate residential vapor impacts.
- Principal-in-Charge for detailed baseline assessments of six oil terminals in the northeastern United States prior to divestiture by a major U.S. oil company. Assessments included evaluation of compliance issues and implementation of soil and groundwater sampling plans and development of quantitative remedial cost estimates.
- Principal-in-Charge of detailed pre-acquisition environmental assessments of the Come-by-Chance Refinery in Newfoundland and the BORCO Refinery in Grand Bahama Island. Projects included evaluation of compliance and remedial issues based on both local and U.S. regulations and the development of remedial cost estimates.
- Principal-in-Charge of the remediation and divestiture of 28 service stations in New York for an independent petroleum company. This multi-year project included the design/installation/operation of remedial systems including free product recovery; dissolved phase recovery/treatment; and soil vapor extraction/air sparging. Use of risk-based corrective action (RBCA) and intrinsic bioremediation strategies resulted in No Further Action closures of many stations.
- Principal for the design and construction of a 7-acre impermeable cap over an inactive pharmaceutical waste landfill. Through construction of the cap, the landfill was closed in accordance with CTDEP Solid Waste Management regulations. The cap consisted of a

6-inch gas venting/bedding layer; 40-mil HDPE impermeable layer; 18-inch sand drainage layer and 9-inch vegetative layer. Stormwater runoff was collected in a series of riprap drainage swales and a culvert, discharging to a retention basin. The cap construction was completed within the allotted timeframe and budget.

- Principal-in-Charge for the investigation and remediation of a large gasoline leak at a terminal overlying Long Island's sole source aquifer. Project included the delineation of the 11-acre free phase product plume and the 3,000 foot long dissolved phase plume. Design/construction/operation of a 10 well, 800 gpm recovery system. Over 150,000 gallons of free phase product recovered. Remediation of the dissolved product plume was successfully completed and approved by NYSDEC and the system was dismantled. Design/implementation of a 90-day SVE/AS pilot test. Development of regulatory strategy, regulatory negotiations. Technical representation with the community, media, surrounding landowners and political officials.
- Development and implementation of an underground storage tank management plan for major chemical facilities in West Virginia and New Jersey.
- Principal-in-Charge of a site investigation and remediation project in southern New Jersey conducted under the NJDEP voluntary cleanup program.
- Principal-in-Charge for a groundwater investigation at a major petroleum transshipment terminal on Bonaire. Project included installation of 22 monitoring wells, evaluation of geologic and hydrogeologic setting, determination of groundwater quality and distribution of petroleum in the subsurface.
- Principal-in-Charge for the development of a quantitative environmental baseline assessment at a portion of the former Exxon Lago Refinery in Aruba. Project included installation of monitoring wells, collection and analysis of priority pollutant soil and groundwater samples. Evaluation of contaminant distribution within all environmental media was the basis of establishing remedial responsibility with the Aruban government for new site ownership.
- Principal in Charge of RI/IRM at former dry cleaning facility in Glen Cove, New York. Including negotiation of work plan with NYSDEC and New York State Attorney General's office,

delineation of residual DNAPL, PCE plume in groundwater and PCE in soil

- Management of an ISRA project at a plastic injection molding facility in Randolph, New Jersey. Issues include TCE contamination in soil and groundwater and hydrocarbon contamination from an UST release.
- ISRA project at a former fabric dyeing facility in Haledon, New Jersey Including delineation of chlorinated solvents and petroleum in soils and groundwater. Remediation includes soil removal and engineering controls and deed notice.

Litigation Support/Expert Witness

- Expert witness for Wiley Rein & Fielding and Melito & Adolfsen, PC for Glidden Company v. Aetna Casualty & Surety Company, et al. Included preparation of expert report for three Glidden facilities and deposition testimony. Report and testimony related to timing and nature of contaminant releases and reasonability of past costs.
- Claim evaluation for Mendes & Mount and London Market Insurers for Harsco Corporation facility in Fayetteville, New York. Evaluation related to insured's contribution to contamination at a site with sequential ownership. Also, evaluation of timing of releases, and relative importance of various source areas.
- Expert witness for Cuyler Burk, LLP in Selective Insurance Co. v. Parsippany-Troy Hills (Sharkey Landfill site). Included preparation of expert report related to the timing of contamination and the insured's understanding of environmental conditions.
- Claim evaluation for Mendes & Mount, LLP and London Market Insurers for five sites owned by Federal Pacific Electric Corp. and Cornell Dubilier Electric Company. The report evaluated sources of contamination, reasonability of past costs and potential future costs.
- Claim evaluation for Hardin, Kundla, McKeon, Polletto & Polifroni and the Royal Insurance Company for two Mark IV Industries, Inc. (former Rexon Technology Corp.) facilities in New Jersey. The primary issues evaluated were sources of contamination relative to owned property concerns, critical review of past costs and a projection of future costs.
- Claim evaluation for Jackson & Campbell and AIG for two RSR Corporation sites including a battery recycling/secondary lead smelting facility in West Dallas, Texas and a multiparty site on Harbor

Island in Seattle, Washington. Both sites are on the National Priority List. The evaluation examined contaminant sources, owned property issues and past and future costs.

- Expert witness for Hardin, Kundla, McKeon, Polletto & Polifroni and CNA on a residential petroleum spill in Saddle Brook, New Jersey. The expert report evaluated timing of the release, remedial costs and selection of remedial technologies.
- Expert witness in a tax certiorari case at a service station site in Farmingdale, New York. Provided expert testimony related to petroleum release, groundwater impact and remediation costs.
- Fact witness and Principal-in-Charge for an oil company client being sued by a developer related to diminished property value resulting from dissolved phase migration. Provided court testimony related to the nature of the release, migration of free/dissolved phase contaminants, hydrogeologic setting and remedial strategy and efficacy of remedial system operation.
- Fact witness and Principal-in-Charge for an Insured seeking recovery of costs from insurance company at a site in Bay Shore, New York. Provided deposition testimony related to on-site and off-site hydrogeologic investigation, remedial strategy, and off-site recovery system design.
- Fact witness and Principal-in-Charge for a property owner suing a major oil company relative to unremediated environmental impacts from significant gasoline releases at a long term service station lease site.

- Expert witness for The Hartford and Melito & Adolfsen in Gould Electronics, Inc. v. Aetna. Included preparation of expert report and deposition testimony. Expert opinion offered on trichloroethylene contamination of soils and groundwater, DNAPL mechanics and volume
- Expert witness for London Market and Mendes & Mount in TRW Corp. v. London Market Insurers. Included preparation of expert report and deposition testimony. Expert opinion offered on trichloroethylene disposal procedures and state of knowledge concerning TCE toxicity
- Expert witness for Leodori and Napierkowski in Leisure Time Tours v. Continental Insurance Co., et al. Included preparation of expert report related to investigation and remediation of free phase hydrocarbons.
- Expert witness for Rogers Towers Bailey Jones & Gray in Petroleum Products Corp. v. Insurance Company of North America. Included preparation of expert report and deposition testimony related to investigation and remediation of hydrocarbon and PCB contamination
- Principal in Charge of claim evaluation services for Kodak Insurance Defense Group. Includes review and evaluation of environmental reports and invoices related to \$298 million claim.
- Claim evaluation for Garrity Graham Favetta & Flinn and Utica Insurance Co. related to North Burlington Regional School District claim. Critical evaluation of documentation for the investigation and remediation of a hydrocarbon release from multiple sources.