

TECHNICAL SPECIALTIES

Design and implementation of soil, groundwater and vapor intrusion investigations. Management of Property Transfer/Merger/Acquisition projects. Development of NJDEP ISRA and PADEP Act 2 compliance strategies. Preliminary design and supervision of remediation projects. Regulatory coordination and negotiations. Interpretation of Federal and State regulations. Development and implementation of multisite Phase I and II environmental assessments. Support insurance carriers with the cost and technical review of claims. Served as technical expert on environmental issues related to numerous underground storage tank (UST) closures and remediations projects performed in New Jersey.

EXPERIENCE SUMMARY

32 years of experience: Principal and Senior Hydrogeologist with Roux Associates, Inc.; Supervising Geoscientist with McLaren/Hart Environmental Engineering Corp.; Senior Project Geologist with EEC Environmental Inc.; Senior Geologist with New Jersey Department of Environmental Protection Bureau of Groundwater Pollution Abatement; Geologist with Texas Oil and Gas Corporation.

Conducted state-lead investigative and remedial activities under NJDEP, PADEP, NCDENR, NYSDEC, CTDEP, and IEPA among others. Conducted USEPA-lead investigations under the jurisdiction of RCRA, CERCLA, CWA, and TSCA.

CREDENTIALS

B.A. Geology, Ohio Wesleyan University, 1983
M.S. Geology, Eastern Kentucky University, 1986
Professional Geologist in Delaware, Pennsylvania, Kentucky and Tennessee
Registered Site Manager in North Carolina under the NCDENR's Registered Environmental Consultant program
NJDEP Licensed Site Remediation Professional (LSRP)
40 hour and Supervisors OSHA Health and Safety Training.

KEY PROJECTS**Remedial Investigations New Jersey**

- Project Principal and LSRP for the closure of two USTs with historical releases in Camden, NJ. Completed delineation of soil exceedances and evaluated groundwater quality. Prepared a deed notice for petroleum-impacted soils located at depth beneath a 7-story office building. Site had been identified as a Vapor Concern (VC) due to the presence of chlorinated volatile organic compounds (VOCs). A vapor intrusion (VI) investigation was performed which documented that there was an incomplete pathway for VI such that the NJDEP approved the request to remove the VC and close out the VI investigation. Submitted the Remedial Action Report

and received a Response Action Permit for Soils. Issued a Restricted Use Area of Concern Response Action Outcome (RAO) for the two USTs.

- Project Principal and LSRP of an ISRA triggered Remedial Action of a 24-acre chemical packaging site. VOC impacted soils were excavated as part of the property redevelopment. An in-situ bioremediation pilot test was performed to stimulate remediation of chlorobenzene and dichlorobenzenes in the groundwater using the injection of nutrients to increase bioremediation by indigenous microbes. The results from the pilot test indicated significant increases in microbial activity and degradation of contaminants in the treatment area. The full-scale system included pneumatic fracturing with injections of microbes and nutrients under a NJDEP issued Permit-by-Rule. In a different area of the facility elevated tetrachloroethene (PCE) in soil and groundwater was remediated through soil excavation and the use of Hydrogen Release Compound induced natural attenuation of the groundwater. Concentrations of PCE in groundwater have decreased by an order of magnitude. A VI investigation was performed on the site building as well as three off-site buildings which documented that site-related VOCs were not present in indoor air and no further VI investigation was required. A Preliminary Assessment (PA) Report, Site Investigation Report (SIR) and Remedial Investigation Report (RIR) and Remedial Action Work Plan (RAWP) were completed for the site. Unrestricted Use RAOs were issued to all but two Areas of Concern (AOCs) and groundwater at the Site.
- Project Principal and LSRP for an active bus storage and maintenance garage in Camden where investigation and remediation are ongoing. The investigation included soil and groundwater sampling associated with a benzene, toluene, ethylbenzene, and xylene (BTEX) release from several previously removed USTs. In addition, chlorinated solvents, specifically trichloroethene (TCE), were also delineated in soil and groundwater that were associated with a historical surface release. Roux Associates designed, constructed and operated a soil vapor extraction (SVE) that successfully remediated TCE concentrations in the unsaturated soil of the test area to below the NJDEP soil cleanup criteria (SCC). Monitored natural attenuation (MNA) was approved for the VOCs detected in groundwater. A Classification Exception Area (CEA) was submitted for the Site. A VI investigation was performed which included indoor air sampling within the office building and near slab soil gas sampling adjacent to an off-site building which documented there was no VI issue.

- Project Principal and LSRP on a former chemical manufacturing site in Newark, NJ. The site is in direct oversight after the NJDEP had used public funds to investigate the site and downgradient properties for many years. Completed the RI which delineated the extent of VOCs (chlorinated and petroleum-based) which extends off-site. Prepared a RAWP for the NJDEP approval.
- Hydrogeological support on an ISRA site of a former industrial facility that had significant release of VOCs, specifically PCE. Coordinated the evaluation of bedrock geology using a combination of borehole geophysics, packer testing and discrete groundwater sampling. Assisted the engineering team in the development of a remedial approach to treat the source area bedrock groundwater with monitored natural attenuation monitoring.
- Project Principal and LSRP for the completion of the closure of 25 USTs and seven spill act incidents at a school campus in North Jersey. The Site had been investigated for over 25 years and remediation had been ongoing for 20 years. Issued Unrestricted RAOs for all but two of the USTs. The remediation system was removed and a Remedial Action Permit-Ground Water (RAP-GW) was issued for the limited remaining groundwater impact and a Restricted Use RAO was issued for the two USTs that were the source of the groundwater impact.
- Project Principal and LSRP for the completion of an ISRA investigation at an industrial facility in southern New Jersey. The facility had historical releases of toluene from a former AST. Groundwater had impacted off-site homeowner wells. Soils in the source area were excavated and groundwater monitored was performed until concentrations fell below the NJDEP GWQC. A Remedial Action Report (RAR) was prepared and Unrestricted Use RAO was issued for the entire site.
- Project Principal and LSRP on an ISRA site of a medical device manufacturer in northern New Jersey. Completed the General Information Notice and Preliminary Assessment Report as well as preparing the required LSRP forms – LSRP Retention, PA/SI, Annual Remedial Fee, and Response Action Outcome. The project was completed from Site inspection to RAO in five weeks. Also coordinated with the transfer of the following permits: RCRA EPA ID Number; NJPDES DSW; and local Industrial Wastewater Discharge.
- Project Principal and LSRP on a diesel fuel release at a rail yard in northern New Jersey. Coordinated the following activities: investigation of the release through a series of soil borings and well installation and sampling; well search; baseline ecological evaluation; and public outreach and notification. Coordinated the completion of the Receptor Evaluation and RIR. A RAR was issued and a deed notice placed on the site due to the presence of historic fill material. In addition, a CEA/WRA was placed on groundwater due to the presence of historic fill constituents in groundwater.
- Project Manager of a \$1.5 million ISRA triggered Site Investigation/Remedial Investigation/Remedial Action at a 20-acre former electrical generating plant/battery manufacturing facility/microprocessor manufacturing facility which had 17 areas of concern (AOCs). Significant soil excavation was performed to remediate soils contaminated with metals, VOCs (both chlorinated and petroleum-based), polynuclear aromatic hydrocarbons (PAHs), and total petroleum hydrocarbons (TPH). Where residual concentrations of contaminants were detected, the NJDEP accepted a Deed Notice. Groundwater contamination, primarily VOCs, was detected in the bedrock and overburden aquifers. After a significant groundwater investigation, including use of a Geoprobe and mobile laboratory, the groundwater plume was delineated and an air sparging/soil vapor extraction AS/SVE system was designed. The installation of the AS/SVE system was proposed to eliminate the VOCs from discharging to a small creek which passed through the site. A CEA was submitted for low concentrations of VOCs in the bedrock aquifer.
- RI Manager for a \$6.5 million EPA Region II CERCLA RI at a former oil recycling facility in southern New Jersey. Activities included preparation of an RI Work Plan, Sampling and Analysis Plan (SAP), Quality Assurance Project Plan (QAPP) and Health and Safety Contingency Plan (HASCP). Coordinated technical and administrative activities with the independent Project Coordinator, the PRP Technical Committee, and EPA representatives. Also assisted with community relations activities and property access negotiations for performing RI activities in the area surrounding the initial site. Coordinated the contracting of numerous subcontractors performing specialized technical tasks to be completed during the RI field activities. Worked closely with the analytical laboratory to develop analytical methods to be used during the RI to satisfy the EPA project data quality objectives and detection limits. The RI activities included the installation of 40+ monitoring wells, 100+ soil, sediment and surface water samples, two aquifer tests, and human health and ecological risk assessments. Contaminants of concern included VOCs (chlorinated and petroleum-based), PAHs, polychlorinated biphenyls (PCBs) and metals.

- Managed the field activities associated with the implementation of a \$400K Remedial Investigation (RI) of a CERCLA site in southern New Jersey. The RI included the completion of an extensive soil, groundwater and soil gas sampling effort using a Geoprobe and the installation and sampling of numerous monitoring wells to delineate the source area and groundwater plume. Contaminants of concern included VOCs and PAHs.
- Project Manager for a NJDEP Bureau of State Case Management site investigation and remediation performed in accordance with an ACO. The metal alloy and fabrication facility included a chlorinated solvent groundwater plume and numerous areas of concern including: a landfill, settling ponds and septic system that received industrial waste. The landfill was investigated and found to contain waste ceramic sands which had low levels of radiation. An investigation performed by a radiation physicist determined that normal contact with the landfill posed no adverse health risks. The septic system was excavated and sludges with high concentrations of metals were disposed as hazardous waste. The NJDEP approved no further excavation of soils in the vicinity of the settling ponds and septic systems with groundwater monitoring. Metals were found at a number of NJPDES DSW outfalls on the site. The proposed remedial action was limited hot spot removal with continued groundwater monitoring and a deed notice to allow leaving most of the metal contaminated sediment in place on the site.
- Project Manager for the coordination of environmental and health and safety issues associated with the construction of a cogeneration facility on a former sanitary landfill in a highly industrialized portion of northern New Jersey. A landfill disruption permit was obtained and the landfill was capped, which included a geotextile and methane venting system. A steam pipeline was constructed as part of the plant that crossed several neighboring properties that had significant environmental problems of their own. Stream encroachment and wetlands permits were obtained along with a soil erosion and sedimentation plan for the construction of the pipeline. Because the pipeline crossed several active ISRA and Bureau of State Case Management sites coordination with the property owners, their consultants and counsel, and NJDEP representatives were required. In addition, the construction workers were health and safety trained and health and safety oversight was performed during construction activities. Excavated soils were required to be removed from the sites as part of the access agreements. The excavated soils were sampled to evaluate the disposal options. The soils were classified as ID27 “non-hazardous” and the NJDEP and a local landfill approved its use for intermediate cover at the landfill. Because the landfill accepted the soil at no cost for use as cover, the reuse of the soil saved the client a significant amount of money over typical disposal at a non-hazardous landfill.
- Project Manager of an ISRA triggered \$750K Remedial Investigation of a pharmaceutical manufacturing facility where the client successfully obtained a Negative Declaration satisfying ISRA. Although very low concentrations of VOCs were detected in the site wells, it was documented that the site was not the source and further investigation and remediation was not warranted.
- Project Manager of an ISRA triggered Remedial Investigation/Remedial Action of a ten-acre site formally used to dump manufactured gas waste (including coal tar) and construction debris. Soil was impacted with PAHs, VOCs, metals and cyanide and limited groundwater contamination with low concentrations of VOCs. The NJDEP initially requested removal of the impacted soil and debris and an active groundwater treatment system. However, close coordination with the client and their counsel during negotiations with the NJDEP case manager and technical support team generated a more favorable remedial scenario for the client. The NJDEP approved capping of the site, after removal of only the surface debris, with a deed notice for soils, and a CEA, with no active treatment, was approved for the groundwater.
- Project Manager for a Phase 2 Environmental Site Assessment (ESA) at two properties in northern New Jersey that were purchased for development into commuter parking. One of the properties was used as a maintenance shop for a general contractor and included two out-of-service USTs, containing diesel and gasoline, and a garage with floor drains. As part of the Phase 2 ESA the USTs were registered with the NJDEP in order to remove them in accordance with the UST regulations. Soil sampling was performed during the UST removals and in the former maintenance shop to investigate floor drains and previously identified oil stained areas. A groundwater investigation was initiated after the tanks were determined to have leaked. An out-of-service hand dug water well was also properly abandoned as part of the Phase 2 activities.
- Provided technical support for an UST removal at a former railroad station in New Brunswick, New Jersey. The UST was removed in accordance with the NJDEP Tech Regulations. The fuel oil UST was non-regulated and the site investigation, remediation and

the site closure was performed under a Memorandum of Agreement.

- Project Manager of an ISRA triggered Remedial Investigation/Remedial Action of a former metal tool and die manufacturing facility. Several potential Areas of Concern were identified, and a soil investigation identified elevated metals in soils in one area of the site. The soils exceeding the NJDEP soil cleanup criteria were delineated and excavated. The site was issued a No Further Action letter.
- Project manager for the removal of an UST containing transformer dielectric fluid with elevated PCBs concentrations in northern New Jersey. Coordinated the registration and closure approval with the NJDEP. Upon removal there was visual evidence that the UST had leaked. The NJDEP Spill Hotline was notified and impacted soil was excavated. Post-excavation soil samples confirmed that the impacted soil had been excavated. A UST closure report was submitted to the NJDEP and a No Further Action was issued for the UST.
- Project Manager for a Phase 1 and 2 ESA at the former bus garage in Trenton, NJ that dated back to the 1920s and operated as a bus fueling, maintenance and storage facility. Numerous USTs were identified or were suspected to have been present at the facility. Geophysical techniques, including ground penetrating radar (GPR), was used to evaluate for the presence of the USTs. Three USTs were found and removed. Petroleum impacted soils were excavated and disposed. Six hydraulic bus lifts were also removed. Soil borings were completed around the USTs and at other potential areas of concern (AOCs) including an extensive floor drain system, numerous bus lifts, historical coal bins, and pole-mounted transformers.
- Project Manager for a soil investigation at an active rail yard in New Jersey. Roux Associates, Inc. performed soil sampling to confirm the presence of PCBs in soil at the Site. In addition, soil samples were also analyzed for other parameters to evaluate for the presence of other constituents that may require delineation and/or remediation. Upon completion of the initial soil sampling activities, Roux Associates, Inc. prepared a Remedial Investigation Work Plan (RIWP) for delineation of the constituents identified at the Site and a sampling strategy to minimize the volume of soil disposed as a Toxic Substance Control Act (TSCA) waste. Implementation of the RIWP confirmed that elevated concentrations of PCBs were present to a depth of approximately two feet below ground surface, which were excavated as part of a RAWP. The soils were excavated, and a Remedial Action Report was issued with a deed notice placed on the site for the remaining low-level PCBs in soils which were

capped. The NJDEP issued a NFA determination for the Site.

- Project Manager for an ISRA filing for a chemical manufacturing facility in Rahway, New Jersey. The ISRA related activities included the completion of a General Information Notice, a Preliminary Assessment Report, and Site Investigation Report. The Site Investigation included the soils investigation at 14 areas of concern and a groundwater investigation. A baseline ecological evaluation and well search were completed for the site. Contaminants of concern included EPH, PAHs, PCBs and metals.
- Project Manager for an ISRA filing in Hammonton, New Jersey. The ISRA related activities included the completion of a General Information Notice, a Preliminary Assessment Report, and Site Investigation Report. Several underground storage tanks were required to be registered and removed under the ISRA investigation. Petroleum-impacted soils were excavated and groundwater investigation initiated.
- Completed an extensive VI investigation associated with an ISRA project that was triggered due to dissolved VOCs in groundwater. Prepared detailed VI Investigation Work Plans for two off-site industrial properties that were approved by the NJDEP Case Manager. Worked with the off-site facility managers to gain access to collect sub-slab soil gas samples within the manufacturing areas of the facilities. Completed VI Investigation reports that were submitted to and approved by the NJDEP Case Manager.
- Coordinated the preparation of the NJDEP-required public notices required under the Public Notification and Outreach Act at numerous sites for a single client. The notifications included the posting of signs and distribution of letters, including the required newspaper public notices. Depending on the locations of the facilities several of the notices were also published/posted in the alternate language of the local.
- Project Manager and LSRP to close out an open historical spill case so the property owner could sell the property. Coordinated the investigation of the former release, documenting that there were no exceedances of the NJDEP standards. Issued a Site Investigation Report and prepared the required LSRP forms and issued an Unrestricted RAO-A for the release.

Remedial Investigations Pennsylvania

- Project Manager for a RCRA groundwater investigation in southeastern Pennsylvania. Groundwater was impacted by chlorinated VOCs in

both the overburden and fractured bedrock aquifers. A Consent Order was negotiated with USEPA Region III and an Interim Measures Work Plan (IMWP) and RCRA Facility Investigation Work Plan (RFIWP) were submitted and approved. A groundwater extraction system was proposed for the overburden aquifer in the IMWP. A bedrock monitoring well network was installed which included coring and packer testing to assist with determining the hydrogeology of the site.

- Coordinated the receipt of a Release of Liability through Act 2 associated with the removal of an UST in Reading, Pennsylvania. The UST removal and post-excavation soil sampling was performed by others but reporting was not properly assembled and submitted to PADEP. The available information was assembled and presented in the appropriate Act 2 format with the required Act 2 public notifications and submitted to PADEP. PADEP granted a release of liability with no additional requirements.
- Completed an emergency cleanup of a diesel fuel release in southeastern Pennsylvania and received a release of liability for the release under Act 2. Coordinated the emergency response contractor and collected the post-excavation soil samples.
- Project Manager of a \$1.5 million RI performed under Pennsylvania's Act 2. The RI included the collection of over 250 soil samples and installation and sampling of close to 40 monitoring wells. The groundwater investigation included evaluation of both unconsolidated and bedrock aquifers and their interaction with a nearby major river. The constituents of concern included metals, primarily chromium (total and hexavalent), boron and manganese, PAHs, and conventional parameters including sulfate and sulfide. The field activities were completed with the oversight of PADEP.
- Elevated concentrations of dissolved metals were detected in the bedrock aquifer. A comprehensive fractured bedrock investigation to determine the horizontal and vertical extent of groundwater impacted with inorganic substances. The investigation included bedrock coring, oriented coring, borehole geophysics, borehole television, packer tests, and an aquifer pumping test. The investigation was successful in determining the bedrock geology, including bedding and fracture orientations, and the extent of impact to the aquifer. A non-use aquifer determination was secured resulting in more favorable groundwater standards applied to the site.
- Performed contaminant fate and transport calculations for unconsolidated and bedrock groundwater discharges to an adjacent major river to evaluate the potential concentrations of constituents of concern in the river at low flow conditions (Q₇₋₁₀). Calculated

concentrations of constituents of concern in the river were compared to the applicable PADEP surface water quality standards. An Ecological Assessment was also performed, as required by Act 2, to evaluate the impact of constituents of concern in the environment in and around the site.

- An equivalency demonstration was approved by PADEP for the elevated concentrations of metals in the soil, which was documented not to impact the groundwater at concentrations exceeding the applicable standards. A release of liability was granted to the client by PADEP.
- Project Manager for a soil and groundwater investigation in Chester County, Pennsylvania at property formerly leased as a retail gasoline establishment and other automotive uses. Ten USTs were removed from the site and residual gasoline constituents were encountered in site soils. Based on an extensive site characterization, which included soil and groundwater sampling, the PADEP accepted granted a release of liability under PADEP's Act 2 Program for non-residential soils as limited petroleum constituents remained in site soils.
- Project Manager of a groundwater RI at a specialty metal fabricating facility in southeast Pennsylvania. The project included preparation of a Notice of Intent to Remediate (NIR) under Pennsylvania's Act 2. The facility had a long history of groundwater investigation and remediation of chlorinated solvents (specifically PCE). A groundwater RIWP was submitted to PADEP which included the installation and monitoring of groundwater at the property boundary, the point of compliance. Groundwater was not impacted at the property boundary. Groundwater was being monitoring through a NPDES permit.
- Project Manager for the investigation and remediation of a petroleum release associated with several USTs. A soil and groundwater investigation was completed to document that there were no exceedances of the PADEP residential Statewide Health Standards for the soil, groundwater or vapor media. The Site was granted a release of liability under PADEP's Act 2 program.
- Project Manager coordinating the re-entering a Site that had previously been granted a Release of Liability under Act 2 for non-residential Statewide Health Standards MSCs for soil. The client was transferring the Site to the county government for open space and parking associated with nearby recreational features. The historical sampling data was re-evaluated to the residential soil MSCs and a human health risk assessment (HHRA) was completed for the constituents that did not meet the residential soil MSCs. The HHRA was completed for a recreational

scenario and it documented that there were no risks to recreational users. The required Notice of Intent to Remediate and Final Reports were prepared and public notices placed. The PADEP issued a release of liability under PADEP's Act 2 program for the Site.

Remedial Investigations Other States

- Project Manager for the closure of a former chlorine gas bottling facility in Georgia. Remaining chemicals present at the facility were lab packed and properly disposed. A storm water retention pond was investigated as a former facility employee indicated that chlorine gas cylinders had been buried beneath the retention pond. A geophysical investigation identified several magnetic anomalies beneath the retention pond. In accordance with a negotiated Consent Agreement with the Georgia Department of Natural Resources the retention pond was drained and 183 chlorine cylinders were excavated and removed from beneath the bottom of the pond. The retention pond was closed through regrading and storm water flow was rerouted through a newly constructed drainage swale.
- Performed a RCRA closure of a former wastewater treatment plant (WWTP) in Lowell, Arkansas. The project included the preparation of a RCRA closure plan, coordination and oversight of the removal of the WWTP and excavation of arsenic-impacted soils beneath the former WWTP area. The RCRA closure report was submitted to and approved by the Arkansas Department of Environmental Quality.
- Managed the investigation, preparation of bid specifications and contract documents, and oversight of abatement and air monitoring contractors for a \$100K asbestos abatement of above ground storage tank insulation, piping insulation and floor tiles in North Carolina.

Phase I/Due Diligence/UST Closures/Misc.

- Performed and/or managed approximately 150 Phase I environmental assessments completed as part of property transfer due diligence process. Phase I's were performed in Delaware, New Jersey, Pennsylvania, Connecticut, New York, Illinois, Wisconsin, Texas, Oklahoma, Louisiana, California, Texas, Ohio, and Indiana. The Phase I's were completed in accordance with ASTM standards.
- Supervised the completion of approximately 50 Phase I environmental site assessments in New Jersey for a major national lending institution. The Phase I's were completed as part of the lenders corporate environmental risk management program and followed ASTM guidance as well as the lenders internal requirements.
- Performed and/or managed numerous UST removals in Pennsylvania and New Jersey. The USTs were

removed in accordance with the state and local requirements. The USTs removed included both regulated and unregulated tanks. Several of the USTs were determined to have impacted surrounding soil and/or groundwater and subsequent investigations and remediations were initiated. Negotiations with the state regulators were completed for approval of the site investigations, remediations and ultimately the site closures.

- Managed the completion of two \$100K plus multi-site property transfer environmental assessments at numerous industrial facilities in approximately twenty states. Activities included scheduling personnel from numerous offices having different disciplines (geologist, hydrogeologist, engineer, scientist, etc.), project direction, data review, report preparation, and negotiation assistance between purchaser and owner. In both cases a significant escrow account was negotiated to handle the many environmental issues identified during the assessments.
- Served as client contact for Fortune 50 conglomerate. Managed environmental investigations at manufacturing facilities in Pennsylvania, Connecticut, Ohio, New York, Illinois, Michigan, Texas, California and Baja California, Mexico. Environmental investigations typically included a Phase I environmental assessment and soil and groundwater investigations. Environmental investigations were completed as a corporate policy to determine environmental problems and liabilities at their sites and remediate the problems, if necessary, with the goal to get the state regulatory agencies to issue a "No Further Action Necessary" letter. Remedial activities were performed at several sites. Negotiated project scope and remedial activities with several state regulatory agencies. Worked closely with facility managers, corporate environmental managers and their counsel.
- Performed environmental liability evaluations of manufacturing facilities in New York, Kentucky, Kansas, Arkansas, Pennsylvania, and Massachusetts for a Fortune 100 firm. The environmental liability evaluations were performed to evaluate and quantify liability associated with known and potential environmental issues at each site for SEC reporting under the Sarbanes-Oxley Act.
- Served an environmental expert to support the purchase of several hospitals. Phase Is were performed and several areas of concerns were identified included numerous historical UST locations. Worked with the seller's environmental consultant to develop and implement a mutually acceptable Phase II scope of work. The Phase II

investigation was completed and the sale of the hospitals were successfully completed.

- Supported the divestiture of numerous retail gasoline service stations in the northeast. Phase Is were performed and Phase IIs were completed to evaluate USTs dispensers and other areas of concern identified during the Phase Is. Remedial costs were estimated and used to support the transaction.
- Served as technical expert for an investment group that was selling off a business unit that included several manufacturing sites that had a long industrial history. Two of the manufacturing sites had a short history where PFOAs were used and thus the potential for PFOAs in soil and/or groundwater was a concern. Worked with the buyer's consultant to develop a mutually acceptable due diligence strategy for the environmental issues identified at the sites.

Insurance and Litigation Support

- Served as a technical expert for an insurance carrier on a trial associated with a leaking heating oil UST. The plaintiff's consultant claimed that the investigation and remediation would cost upwards of \$150K. Ultimately, based on an Expert Report and deposition, the plaintiff settled with the insurer for \$30K. The plaintiff and insurance company had Roux Associates complete the remediation, which was completed for less than \$25K.
- Served as a technical expert for an insurance carrier on a trial associated with a leaking gasoline UST at an active gasoline service station. The plaintiff's claimed that the release occurred within the insurance company's coverage period and demanded \$1.3MM to complete the investigation and remediation. Based on review of historical documents, which was subsequently presented in an Expert Report, there was significant evidence of historical releases predating the insurance company's coverage period. Support was given during a mediated settlement for the case.
- Has provided technical support to several insurance companies with respect to releases of heating oil from USTs or aboveground storage tanks (ASTs) at private residences. Evaluated for third party impact through soil and groundwater investigations. Provided oversight and direction manage insured's contractors during the remedial activities. At several sites implemented in-situ remedial approaches for the remediation of fuel oil beneath residences in order to control costs and prevent undermining the structures themselves.

- Assisted with litigation support as representatives of Roux Associates, Inc. prepared for the roles as expert witnesses on several CERCLA sites. The activities included review of historical correspondence, reports, and data to evaluate the possible sources, timing and extent of the release of constituents of concern. Briefs were prepared which outlined the history of the sites, current condition of the impacts to media of concern.
- Performed settlement support in the form of technical and financial review of claims against insurance companies for environmental investigation and remediation of former manufactured gas plants in several eastern states. Reviewed the technical and regulatory basis for the completed and proposed remedial investigations and remediations at 24 separate sites. Prepared a claim review which identified existing regulatory programs and guidance which, if followed, would result in significant savings for site closure over the proposed strategy.
- Provided trial support to an insurance carrier on the technical and financial issues associated with the investigation and remediation of soil and groundwater at an EPA Region IV RCRA driven cleanup at an active manufacturing plant. The support included review of historical environmental reports and facility operational records as well as proposed RCRA Corrective Action Plans. Review of facility's approved scope of work compared with contractors bided costs indicated that these costs, combined with present worth calculations, would result in completion of the cleanup at costs significantly lower than claim request.