LAND RECYCLING SOLUTIONS, LLC

Mark J. Irani, P.G.
Principal

EDUCATION

B.S. Geology, University of Delaware, 1989

PROFESSIONAL REGISTRATIONS, LICENSES, AND CERTIFICATIONS

- Professional Geologist, Commonwealth of Pennsylvania, No. PG-002108-G, 1995
- UST Closure and Subsurface Evaluation, NJDEP, No. 0011876

PROFESSIONAL SUMMARY

Mr. Irani's responsibilities include providing management and development of the Philadelphia, PA area office location and technical oversight / senior management of remediation, hydrogeologic investigation, due diligence, and industrial hygiene projects for Land Recycling Solutions, LLC. Mr. Irani is the founding principal of LRS and has over 19 years experience in the environmental consulting industry, including extensive experience as a branch manager of regional consulting firm offices and client/project manager for numerous developers, property managers, industrial and major oil companies.

Mr. Irani's specific fields of expertise include planning, implementing, and directing major soil and groundwater remediation projects, Pennsylvania Land Recycling (Act 2) projects, environmental audits, Phase I/II site assessments, RI/FS and RFI/CMS subsurface exploration and sampling programs, complex multi-faceted geologic and hydrogeologic investigations, and preparation of work plans and assessment reports of results for clients and regulatory agencies. His responsibilities include providing project management, budget tracking, scheduling, and coordination as it relates to planning, directing, and coordinating field staff and subcontractors; investigations; costing of remedial site investigations; acting as a liaison with state agencies on project requirements and deliverables.

PROFESSIONAL EXPERIENCE

- **Pennsylvania Land Recycling and Remediation Standards Act (Act 2) Projects.** Completion of numerous Pennsylvania Land Recycling projects incorporating the use of Site Specific and/or Statewide Health Standards, soil/groundwater modeling, fate and transport analysis, and risk assessment for demonstration of selected standard attainment. Projects included undeveloped land with historical impact from dumping/chemical storage activities, shopping center complexes with chlorinated solvent plumes resultant from onsite dry cleaning operations, and retail petroleum service stations with onsite soil and groundwater contamination.

PROFESSIONAL EXPERIENCE (continued)

- **Fenton's Reagent Remediation Project / Wallingford, CT.** Project Director for application of in-situ chemical oxidation technology (Fenton's Reagent Chemistry) to subsurface chlorinated solvent groundwater plume at a manufacturing plant located in Connecticut. Project incorporated multiple injections of reagent and catalyst to remediate source area of plume. Natural processes of biodegradation and attenuation were subsequently monitored during a two-year period to document attainment of statewide risk based standards.

- **Chemical Manufacturing Plant Decommissioning / Conshohocken, PA.** Manager for large-scale Brownfields project that included the decommissioning of a former chemical manufacturing plant for subsequent use as office space. The project included the dismantlement and closure of four large aboveground storage tank farms; demolition of numerous onsite structures; and segregation, characterization, and waste management of demolition debris and excavated materials. All environmental related site activities were detailed in a Facility Decommissioning Plan prior to the commencement of site activities. The project also incorporated the Pennsylvania Land Recycling and Remediation Standards Act (Act 2) process concurrent with site demolition/renovation to obtain a release of liability for historical impact through the use of a Buyer/Seller agreement.

- **Pennsylvania Land Recycling and Remediation Standards Act (Brownfields) Project, Confidential Client, Hatboro, Pennsylvania.** Project Manager for completion of Site Characterization and Remedial Investigation activities at the site completed in accordance with Act 2 regulations for the eventual release of liability afforded by the Act. The site investigative activities were incorporated into a single combined report document for the project, for inclusion in a Buyer-Seller Agreement submitted to the Pennsylvania Department of Environmental Protection (PADEP) for the site contamination. This work was conducted using site-specific, risk-based cleanup standards.

  The site investigation efforts included extensive characterization and delineation of the subsurface soil and groundwater media. Results of site characterization activities indicated that the property had an onsite dissolved chlorinated solvent plume that extended across the entire site and migrated off-site onto the adjacent property, at levels exceeding Statewide Health Standards. The use of pathway elimination coupled with fate and transport analysis allowed for the successful demonstration of attainment of Site Specific Standards for the groundwater plume. Additionally, the use of pathway elimination allowed for the completion and submittal of a single combined report that encompassed all document requirements of Act 2, thus eliminating the need for submission of individual site documents that typically include a remedial investigation report, risk assessment, and cleanup plan. As a result of the use of the Buyer-Seller Agreement, the transaction was allowed to occur prior to the completion of required groundwater attainment demonstration activities, thus resulting in a re-use of the property immediately following the transaction, and prior to the completion of onsite investigative activities.

PROFESSIONAL EXPERIENCE (continued)

- **Program Manager / Major Oil Corporation Statewide Portfolio.** Program Manager for major oil corporation statewide portfolio (120+ project site locations) of retail service station and bulk fuel storage terminal projects located throughout the Commonwealth of Pennsylvania. The portfolio comprised site projects in all phases of regulatory compliance including: Ten remediation sites which incorporated the use of high vacuum extraction (HIVAC), soil vapor extraction (SVE), groundwater pump and treat, and liquid phase hydrocarbon (LPH) recovery systems to address subsurface hydrocarbon plumes; approximately 80 project site locations undergoing quarterly groundwater monitoring for subsequent attainment of a closure standard under The Pennsylvania Land Recycling and Remediation Act (Act 2); preparation of site specific risk assessments using fate and transport analysis and statistical analysis of current and historical soil/groundwater data to petition for Act 2 site closure; completion of subsurface hydrogeologic investigations and environmental assessments of all real estate acquisition and divestment properties; and preparation of comprehensive submission packages for remediation activities subject to reimbursement under the Underground Storage Tank Indemnification Fund (USTIF).

- **Bioremediation Project**, **Coventry House Apartments, Melrose Park, Pennsylvania.** Project manager for a soil and groundwater remediation project for a site was the subject of a fuel oil release that was initially discovered by the Pennsylvania Department of Environmental Protection (PADEP) during inspection of a local stream. Petroleum hydrocarbons were observed by PADEP to be discharging into the stream which traverses along the northern extent of the Site property. Subsequent characterization and investigative activities completed at the Site confirmed the presence of subsurface petroleum hydrocarbon impact and identified the source of the impact to be a leaking underground storage tank (UST) used for the bulk storage of heating oil.

  Remediation efforts at the Site incorporated the initial use of high vacuum extraction (HIVAC) techniques to recover liquid phase hydrocarbons (LPH) in the site subsurface, followed by an in-situ bioremediation injection program to remediate dissolved phase hydrocarbons throughout the extent of the plume. The program utilized an injector array of 58 injection points for the bioremediation program. Subsequent groundwater attainment monitoring was completed to demonstrate attainment of Statewide Health Standards in accordance with Act 2 regulations. The site received 100% funding eligibility and reimbursement under the USTIF program.

- **Petroleum Release Remediation Project / Philadelphia, PA.** Project Manager for petroleum hydrocarbon release at retail service station located in Philadelphia. Release occurred adjacent to subsurface subway tunnel and infiltrated through concrete wall and base of subway tunnel, creating a potentially explosive atmosphere. Emergency remediation activities were implemented that included the installation of two separate systems -- (1) a soil vapor extraction system to address subsurface soil conditions and extract explosive vapors from the subway atmosphere; and (2) a dual phase extraction system to simultaneously extract and treat groundwater/product and vapor from the site subsurface. Daily monitoring (both onsite and via remote data logger) of subway tunnel atmosphere conditions was conducted. The site received 100% funding eligibility and reimbursement under the USTIF program.

PROFESSIONAL EXPERIENCE (continued)

- **Western Sand and Gravel Site Groundwater Natural Attenuation Program / Olin Corporation / Burrillsville, RI.** Project Manager for a 30-year groundwater monitoring program for this CERCLA NPL site. Previous remedial investigation activities included extensive assessment and evaluation of remedial alternatives, which concluded with the selection of natural attenuation as the remedial option, thereby saving the client $5 to $10 million in active pump and treat costs. The program consists of the quarterly monitoring and sampling of a network consisting of 63 groundwater monitoring wells. Statistical evaluation and data validation are performed on a regular basis to demonstrate the continued effectiveness of the natural attenuation to the USEPA and RIDEM.

- **Petroleum Release Remediation Project / Doylestown, PA.** Project Manager for remediation of two subsurface petroleum hydrocarbon plumes at retail service station. Two onsite plumes were present in subsurface which consisted of waste oil and gasoline. Project was under direction of both PADEP and USEPA due to imminent threat to potable water quality of downgradient private domestic wells. Remediation efforts included free product recovery and installation and operation of dual phase extraction system to remediate subsurface contamination in shallow bedrock zones of site subsurface. The site received 100% funding eligibility and reimbursement under the USTIF program.

- **RCRA Facility Investigation (RFI).** Project Manager and field team leader for extensive RFI field program (11-month duration) at a textile finishing plant in Pine Grove, PA. Field efforts included the installation and subsequent geophysical analysis of deep bedrock borings, installation of both shallow and deep aquifer monitoring wells to supplement the existing site well network, test pit investigations, slug testing, and extensive (13 day) pump testing efforts.

- **Deep Aquifer Hydrogeologic Investigations.** Field team leader for separate hydrogeologic investigations at two adjacent petroleum refineries in Philadelphia, PA.

- **Due Diligence/Property Transfer Assessments.** Completed Phase I Environmental Site Assessments of approximately 30 rail parcels located in Pennsylvania and New Jersey. Performed Phase I site assessments at two electric generating facilities owned and operated by the City of Dover. Efforts resulted in the subsequent implementation of comprehensive sampling programs to baseline subsurface conditions at each facility. Completed a Preliminary Assessment (PA) and subsequent Site Investigation (SI), in accordance with New Jersey ISRA requirements, of a corrugated box manufacturing facility located in Trenton.

- **RCRA Investigation Workplan Documents.** Prepared RCRA Facility Investigation Workplan documents for a Mississippi petroleum refinery targeted for investigation. Documents comprising the workplans included a Sampling and Analysis Plan, Project Management Plan, Data Management Plan, and Health and Safety Plan.

PROFESSIONAL EXPERIENCE (continued)

- **RCRA Corrective Action / Explosives Manufacturer / Tamaqua, PA.** Conducted facility file searches, personnel interviews, sampling and analytical data interpretation, review of facility manufacturing processes, and document preparation as part of the RCRA Corrective Action Project at an explosives manufacturing facility located in Tamaqua, Pennsylvania.

- **Groundwater Monitoring.** Project Manager responsible for managing quarterly groundwater monitoring activities associated with 12 former petroleum storage terminals and retail service stations located in New Jersey and Pennsylvania.

- **Hydrogeologic Investigations.** Field team leader for the installation and sampling of approximately 65 groundwater monitoring wells at 12 retail service stations located throughout northern Florida.

- **Storage Tank Closures.** Performed closure assessment sampling and reports for approximately 40 underground storage tank closures in New York, Pennsylvania, and Delaware.

Building Sciences

- **Asbestos Abatement Projects / Various Clients.** Project Manager for numerous turnkey asbestos abatement projects involving removal of asbestos containing building materials. Projects generally included the completion of a hazardous material survey and preparation of abatement specifications prior to the commencement of abatement activities.

- **Asbestos Abatement Project / Resort Hotel and Golf Club.** Project manager for multiple phase asbestos containing material abatement project involving the removal of all types of ACM building materials located throughout the resort hotel and annex restaurant and spa buildings. The turnkey project included abatement management, oversight, air monitoring, and clearance sampling using onsite sample analysis by polarized light microscopy.

- **Lead Based Paint Risk Assessments / Housing Authority of Baltimore City / Maryland.** Performed Lead-Based Paint Risk Assessments for Housing Authority of Baltimore City (HABC).

TRAINING AND CERTIFICATIONS

- National Groundwater Association
- Philadelphia Geological Society
- 40-Hour OSHA Training (29 CFR 1910.120)
- 8-Hour OSHA Refresher Training (29 CFR 1910.120)