

TECHNICAL SPECIALTIES

CERCLA response actions. Brownfields, state voluntary cleanup and state property transfer programs. Groundwater investigations in fractured bedrock systems. Groundwater remediation system design and implementation. Technical impracticability demonstrations. Aquifer testing. Expert testimony.

EXPERIENCE SUMMARY

Over thirty years of experience: President/CEO at Roux; Principal Hydrogeologist/Vice President at Roux; Senior Hydrogeologist at Dan Raviv Associates; and Staff Hydrogeologist at Geraghty & Miller.

CREDENTIALS

M.S. Geology, West Virginia University, 1983
B.S. Geology, Hofstra University, 1981

PREVIOUS EXTERNAL BOARD DIRECTORSHIPS

Board Member of Lucent Technologies Construction Services, Inc.

Board Member of Solutia Management Company

PROFESSIONAL AFFILIATIONS

Association of Ground Water Scientists and Engineers

KEY PROJECTS

Strategic Consulting

- Board Member of Lucent Technologies Construction Services, Inc. (LTCSE), a joint venture from 2000 to 2006 between Lucent Technologies and Roux Associates, Inc. to manage Lucent's environmental liabilities at 61 sites in the United States. Sites included owned properties, orphan liabilities and other responsible party sites (e.g. Superfund Sites). The goals of this long-term partnership were to continually improve Lucent's environmental remediation management processes, with a focus toward minimizing long-term remediation costs. In addition to Mr. Swanson's role as a Board Director, he also provided strategic consulting services for the project. In this role, Mr. Swanson evaluated and recommended global improvements to the management of the 61-site portfolio. For example, operation and maintenance (O&M) work at the 61 sites was grouped together where possible and bid as part of regional bid packages, in an effort to realize economy-of-scale cost reductions. Also, Mr. Swanson was the primary technical lead in evaluating all aspects of each of the 61 sites. This included an evaluation of budgets, schedule, technical approach, regulatory strategy, and PRP allocation. These "site reviews" resulted in the development of action items intended to enhance/improve the management of each site and move sites toward responsible, cost-effective closure. These value-added strategic consulting services enabled Lucent to reduce its long-term environmental liability costs by over \$100 million.

- Board Member of Solutia Management Company (SMC), established by Solutia (the "old" Monsanto) to manage a portfolio of 52 site environmental liabilities. Roux Associates was a minority shareholder in this company from 1999 to 2005. The SMC site portfolio included some of the largest, oldest and complex Superfund sites in the U.S., including the largest PCB-contaminated sites in the nation (Monsanto was the principal manufacturer of PCBs in the U.S.). Long-term future costs projected for the sites in the portfolio exceeded \$150 MM. Mr. Swanson's primary role was to provide strategy development support, identify areas where meaningful cost savings could be achieved, and provide technical and financial review for each project. As a result of this partnership, Solutia reduced its long-term liability costs by over \$10 million.
- Outside technical lead in connection with performing strategic site reviews for two Fortune 50 companies. The probable long-term future costs for the 13 sites reviewed exceeded \$200 million. The projects included an evaluation of budgets, schedules, technical approaches, regulatory strategy, and PRP allocation.

Superfund

- Project Manager and Principal-In-Charge of the Industri-Plex Superfund site in Woburn, Massachusetts, ranked #5 on the National Priorities List (NPL). Arsenic, chromium, benzene and toluene are present in groundwater in glacial overburden deposits and fractured bedrock, and in surface water and stream sediment. The project was comprised of a large-scale groundwater and surface water RI/FS, a pre-design study, a human health and ecological risk assessment, a metals mobility study, implementation of a groundwater Interim Remedial Measure (IRM), and capping source areas at the site. The RI report submitted to USEPA Region 1 demonstrated that wetlands at the Site were naturally bioremediating (intrinsic remediation) benzene and toluene present in discharging groundwater, and sequestering arsenic and chromium. In 1995, Roux Associates, Inc. demonstrated the technical impracticability of pump and treat (the ROD-selected remedy) to achieve groundwater cleanup goals at the Site.
- Project Manager and Principal-in-Charge of the Pollution Abatement Services Superfund site in Oswego, New York, ranked #7 on the NPL. The project involved a pre-design investigation to further delineate off-site contaminant migration in fractured bedrock, a surface-water and stream sediment investigation to determine the source of pesticides and PCBs present in nearby creeks, and treatability studies to support engineering design of a leachate treatment system at the site. Successfully demonstrated the technical impracticability of bedrock pump and treat to

remediate a plume of VOC-impacted groundwater in fractured bedrock. As a result, Region 2 USEPA and NYSDEC did not require implementation of an approximately \$16 million-dollar bedrock groundwater remedy. Also provided technical support in Consent Decree negotiations between USEPA and the settling PRPs.

- Principal-in-Charge of a post-soil remedy groundwater investigation at the Fulton Terminals Superfund site near Syracuse, New York. The project included an investigation and evaluation of groundwater conditions following implementation of the soil remedy, which consisted of the excavation and thermal desorption of 10,000 cubic yards of contaminated soils. The groundwater investigation included an evaluation of the impact of the removal of source area soils on groundwater quality. In addition, the groundwater investigation included a determination of the potential for an expedited, short duration pump and treat effort, coupled with long-term natural attenuation, to replace the ROD-specified, long-term, permanent groundwater pump-and-treat remedy. Ultimately, Roux Associates, Inc. successfully demonstrated to USEPA that active long-term remediation of site groundwater was not necessary. The acceptance of this alternative remedy for the site resulted in a net long-term savings of \$10 Million. Roux Associates, Inc. also performed a Long-Term Groundwater Monitoring Program and prepared an Interim Close-Out Report for the Groundwater Remedy.
- Principal-in-Charge of an RI/FS at the Bridgeport Rental and Oil Services (BROS) Superfund site in Bridgeport, New Jersey. Site contaminants include PCBs, VOCs, SVOCs and metals present in source areas (former lagoon and former process areas), groundwater, surface water and wetlands sediment. The RI/FS also included comprehensive ecological and human health risks, groundwater and surface-water modeling, and a natural attenuation demonstration. As part of the Site remedy, Roux Associates, Inc. designed and installed a large-scale phytoremediation soil cover remedy to hydraulically control shallow groundwater and assist in treating the VOC groundwater plume in situ.
- Expert witness and Principal-in-Charge of five RIs in Pennsylvania and North Carolina in connection with a National Contingency Plan (NCP) private cost recovery litigation case. Roux Associates represented the buyer of industrial valve, meter and lubrication manufacturing facilities seeking recovery of environmental response costs for contamination caused prior to the purchase of the properties. Contamination at the five industrial sites included

DNAPL, chlorinated solvents, BTEX, PCBs, and heavy metals. An RI was performed at each site to delineate the nature and extent of contamination present in groundwater, surface water, soil and stream sediment and to develop data to support the performance of a human health and ecological risk assessment and an FS. All work was performed consistent with NCP. Mr. Swanson also provided expert witness testimony in this matter.

- Expert witness in connection with the Hudson River Superfund Site. Evaluated all technical documents, including the two Record of Decisions, RI/FS reports, Responsiveness Summaries, remedial design documents and Phase 1 of the dredging remedy. Evaluated the representativeness and accuracy of CS-137 age-dating techniques on high resolution river sediment cores. Also performed historical research, including the analysis of historical aerial photographs to determine the contribution of the deconstruction of the Fort Edward on the migration of PCB contamination downstream in the Hudson River.
- Project Manager of a CERCLA RI to determine the extent and impact of chlorinated solvent contamination in fractured crystalline and sedimentary bedrock aquifers underlying an aerospace manufacturing facility in Denver, Colorado. The project included a source characterization study of buried waste ponds believed to be a major source of groundwater contamination at the site. Soil chemistry, groundwater quality and bench-scale treatability test data were developed to determine impact of source materials on the groundwater system and to identify remedial technology alternatives for site cleanup.
- Principal-in-Charge of an RI/FS at the Sunnyside Yard State Superfund Site in Queens, New York. The project included a large-scale soil and groundwater investigation of a mixed power (electric and fuel) railroad yard, including an approximately 250,000-gallon separate phase petroleum plume. The project also included the risk assessment and evaluation of remedial alternatives, remedy design, installation and long-term performance monitoring.

Brownfields Redevelopment/Voluntary Cleanup Programs

- Principal-in-Charge of a New York State Brownfields Cleanup of a ½ city block in Manhattan in connection with the construction of the new 52 story headquarters building for the New York Times Company. During the performance of environmental due diligence for the site, hazardous waste levels of lead, and non-hazardous levels of PCBs and PAHs were discovered in fill material underlying the site. All of the fill material and a portion of the underlying bedrock surface needed to be removed to allow construction of the

basement and building foundations. Roux Associates provided environmental consulting support for this project, including presentations to the NYSDEC, Brownfields Cleanup Program application support, preparation of IRM, RI, RAWP, H&S and CAMP work plans and reports, comprehensive site characterization, preparation of specifications for the excavation work, and oversight of the remedy.

- Principal-in-Charge of a Brownfields redevelopment of seven city blocks in Brooklyn, New York. The site is the future location of the 800,000 square-foot Brooklyn Arena, and the future home of the Nets NBA basketball franchise. The Arena will be the focal point of a five-billion-dollar redevelopment project in downtown Brooklyn called Brooklyn Atlantic Yards, an urban complex of housing, commercial and retail space, as well as six acres of landscaped public open space. The public open space will include a park on the Arena's roof, ringed by an open-air running track that doubles as a skating rink in winter with panoramic vistas facing Manhattan year-round. The existing properties being redeveloped are residential, commercial, and industrial properties, including a large railroad yard. Roux Associates is currently providing all environmental consulting support for the project, including strategic consulting, site investigation, remediation design and remedy oversight services at over 30 properties impacted with petroleum, BTEX, and metals, particularly lead and arsenic.
- Principal-in-Charge of a Voluntary Cleanup of five city block pharmaceutical and chemical manufacturing plant in the Williamsburg section of Brooklyn, New York. The site has operated as a chemical and pharmaceutical manufacturing plant since 1850. Key contaminants at the site included mercury, lead, benzene, toluene, and chlorinated hydrocarbon and petroleum-related constituents. Provided environmental oversight of a five-year, \$20 million project to decommission and demolish large sections of the facility. A key component of this project was the design and negotiation of one of the first voluntary cleanups in Region 2 under NY State's Voluntary Cleanup Program. The successful negotiation of this voluntary cleanup enabled the client to avoid having the site listed as an Inactive Hazardous Waste Site. Demolition support services included the review of asbestos and lead abatement specifications, waste classification of demolition debris, and removal of process and petroleum underground storage tanks. Following demolition, subsurface investigations were performed to identify and delineate the extent of environmental impacts from historical operations. Shallow groundwater was impacted by heavy metals and VOCs. Soils were impacted by heavy metals (principally mercury and lead), petroleum constituents,

and solvents. Roux Associates, Inc. performed human health risk assessments to evaluate the risk the contamination posed under current and future use scenarios. The voluntary cleanup remedy ultimately consisted of a combination of onsite containment (capping) coupled with limited soil excavation and offsite treatment. Roux Associates, Inc. successfully demonstrated that groundwater remediation was not necessary. The voluntary cleanup was completed within 18 months after site investigations were initiated.

- Principal-in-Charge of a Voluntary Cleanup of a former metals recycling facility in Staten Island, New York. The facility operated since the early 1900's and included a lead and copper smelter. Waste materials from the recycling process were used to fill in low lying areas of the site. Approximately 500,000 cubic yards of lead-hazardous fill are present on the site. Additionally, onsite stream sediment and Arthur Kill sediment have been impacted by lead, zinc and copper. Roux Associates, Inc. became involved with the site in 1997, at a time when the site was being listed as a State Superfund site. Roux Associates, Inc. assisted the client in moving the site from the State Superfund program into the Voluntary Cleanup program. Moreover, the site cleanup cost liability was reduced by over \$50 Million by successfully negotiating a remedy that contained the lead contaminated fill onsite, eliminated the need for groundwater remediation, and limited the amount of sediment remediation (dredging) to localized areas immediately adjacent to the property. Roux Associates, Inc. completed the remedial design in 2004, which included the design of a site cap, dredging of impacted sediment, bulkheading waterfront areas, and decommissioning or rehabilitating site industrial sewers. Implementation of the site remedy began in 2008 and was completed in 2010. Roux Associates, Inc. is also assisting the client in redeveloping the property for use as a commercial office-building complex. These efforts include integrating the site remedy with the redevelopment, and providing environmental oversight during decontamination, demolition, and construction work.
- Project Manager of a large-scale ECRA/ISRA remedy of DNAPL (coal tar) contamination in soil and groundwater at a former manufactured gas plant in Jersey City, New Jersey. This was the first cleanup of an MGP site in the State of New Jersey. The former MGP is part of the Newport City complex, a \$1 billion commercial/residential redevelopment of blighted urban properties located on the Jersey City waterfront. Tasks included the management of a large-scale soil and groundwater RI, the conceptual design of a groundwater remedial system to capture LNAPL and DNAPL in overburden and fractured bedrock

aquifers, and the supervision of an in situ bioremediation program to remediate coal tar wastes.

- Principal-in-Charge of multi-million-dollar ECRA site cleanups at two oil terminals in New Jersey. The projects required the design of groundwater recovery and treatment systems to mitigate separate phase and dissolved groundwater contamination. Also designed on-site bioremediation of 15,000 cubic yards of petroleum-contaminated soils.
- Principal-in-Charge of an investigation to delineate site-wide soil, groundwater and hydrogeologic conditions at a lubricant manufacturing facility in Portland, Connecticut. An LNAPL plume was discovered emanating from a product storage tank farm and migrating offsite. Work was performed on an expedited basis to facilitate the sale of this property.
- Managed an ECRA investigation to delineate and remediate heavy metals contamination in soils and chlorinate solvent contamination in a fractured bedrock aquifer at an industrial site in Somerset, New Jersey. The site included a former pesticide manufacturing facility located within the boundaries of a municipal golf course. Contaminants of concern include mercury, arsenic and chlorinated solvents.

Petroleum

- Principal-in-Charge of the investigation and remediation of a multi-million-gallon plume of separate phase petroleum underlying the Greenpoint section of Brooklyn, New York. The project has been ongoing since 1990 and represents one of the largest remediation projects in New York and the U.S. The project has included plume delineation, groundwater modeling, and the engineering design of a large-scale interceptor well and groundwater treatment system. The groundwater remediation system consists of a multi-well network situated over a several square mile area of a commercial/industrial/residential area of Greenpoint. Additionally, Roux Associates provided maintenance of a surface water boom containment system in Newtown Creek. The groundwater/oil recovery system has been in operation since 1995 and has recovered over ten million gallons of petroleum product to date.

- Principal-in-Charge of a groundwater remediation project in a residential area of Babylon, New York, resulting from a rupture of a large fuel oil underground storage at a condominium complex. The petroleum release resulted in a 500-gallon separate phase product and dissolved BTEX groundwater plume. The project included the design, installation and operation of a groundwater recovery and treatment system to mitigate separate phase and dissolved organics. Roux Associates achieved regulatory closure of this petroleum release within two years after discovery.
- Designed groundwater recovery and treatment systems for unconsolidated and bedrock aquifers for multiple sites in New York, New Jersey and Colorado. Groundwater recovery designs included interceptor trenches, single and multiple recovery well systems, and reinjection trenches. Treatment system designs included oil/water separation, air stripping and carbon adsorption.

TESTIMONY EXPERIENCE

[court testimony indicated by asterisk (*)]

Mr. Swanson has provided testimony in court and in sworn depositions. In several cases Mr. Swanson also submitted affidavits containing data analysis and expert opinions. Mr. Swanson's testimony experience includes:

1. Parker Hannifin Corporation vs. American Motorists Insurance Company et al., United States District Court, D.N.J., No.88-5031, 1991
2. Public Service Electric and Gas vs. Certain Underwriters at Lloyd's of London, United States District Court, D.N.J. No. 88-4811, 1991
3. Schering Corporation vs. Evanston Insurance Company et al., Superior Court of New Jersey Law Division: Union County, No. UNN L-97311-88, 1992
4. Nestle Foods Corporation vs. Aetna Casualty and Surety Company, United States District Court, D. N.J., No. 89-1701, 1992
5. Chemical Leaman Tank Lines vs. Aetna Casualty and Surety et al., United States District Court, D.N.J No 89-1543, 1992, 1994* and 1999
6. Rockwell International Corporation vs BTR, 1994
7. INA vs. Anthony Amadei Sand and Gravel Company, Inc., Superior Court of New Jersey, Law Division: Camden County 1995*
8. General Hose Products, Inc. et al. vs. Atlantic Mutual Insurance Company, et al., 1996
9. Indiana Gas Company vs. Aetna Casualty & Surety Company et al., United States District Court, Northern District of Indiana, Fort Wayne Division, 1996
10. South Jersey Industries, Inc. et al. vs. The Security Insurance Group, et al., 1999
11. WMX Technologies, Inc. vs. Admiral Insurance Co. et al., Superior Court of New Jersey, Law Division – Hudson County, No. HUD-L-931-92, 1997, 2003
12. Aetna Casualty and Surety Company vs. The Dow Chemical Company, United States District Court, Eastern District of Michigan, Southern Division, 1998
13. Liberty Mutual Insurance Company vs. The Black & Decker Corporation, et al., United States District Court, District of Massachusetts C.A. 96-10804-DPW, 1998
14. Merck & Co., Inc. vs. Federal Insurance Company, et al., No. CM-340-96, 1999, 2000*
15. The Glidden Company vs. Aetna Casualty & Surety Company, et al., 2000
16. Home Insurance Company vs. Cornell-Dubilier Electronic, et al, Superior Court of New Jersey Law Division: Mercer County, No. MER-L-5192-96, 2001, 2004*, 2008 and 2016
17. Brian Kahn et al. vs. CSX Transportation, United States District Court, Eastern District of Michigan, No. 03-72652, 2004
18. Bowes Industries, Inc. and Greystoke 5902, LLC as Assignee from Bowes Industries, Inc. vs. Federal Insurance Company, et al., 2007
19. Thomas & Betts Corporation vs. Travelers Insurance Company, et al., Superior Court of New Jersey Law Division: Somerset County, No. MID-L-1997-002007

20. NCH Corporation vs. Hartford Accident & Indemnity Company et al., Superior Court of New Jersey, Law Division – Somerset County, No. SOM-L-1087-04, 2007
21. Pulse Engineering, Inc. vs. The Travelers Indemnity Company et al., United States District Court, Southern District of Indiana, Indianapolis Division, No. 1:06-cv-1237-LJM-JMS, 2008
22. Cornell-Dubilier Electronics, et al. vs. Columbia Casualty, Superior Court of New Jersey Law Division: Mercer County, No. MER-L-000463-05, 2008
23. Wisconsin Electric Power Company vs. Allstate Insurance Company, et al. 2008
24. Warsaw Chemical Co. vs. United States Fidelity & Guaranty Company and Monroe Guaranty, State of Indiana, County of Marion, No. 49D14-0710-CT-044027, 2010
25. General Electric Company vs. David Lines, Christopher Hughes and Peter Mitchell as Joint Liquidators of Electric Mutual Liability Insurance Company, Ltd. (In Liquidation) and OneBeacon America Insurance Co., Commonwealth of Massachusetts Suffolk County Superior Court, No. CA 06-3106-BLSI, 2010
26. ConAgra Grocery Products Company, LLC vs Admiral Insurance Company et al., Superior Court of New Jersey Law Division: Union County, No. UNN-L-000805-08, 2011
27. Cooper Industries, LLC vs Employers Insurance of Wausau et al., Superior Court of New Jersey Law Division: Hudson County, No. HUD-1-2471-13, 2015*
28. Ericsson Inc. vs Ace American Insurance Company, et al., State of Indiana, County of Marion, No. 49DOI-0807-PL-030958, 2015, 2016*
29. Trelleborg Automotive USA, Inc. v. Travelers Casualty and Surety Company, f/k/a The Aetna Casualty and Surety Company, United States District Court, Eastern District of Michigan, Southern Division, No. 2:12-cv-15503-VAR-DRG, 2016
30. New York State Electric & Gas Corporation vs. Century Indemnity Company & OneBeacon America Insurance Company, United States District Court, Northern District of New York, No. 5:13-CV-0976, 2016 and 2017
31. Cooper Industries, LLC vs Employers Insurance of Wausau et al., Superior Court of New Jersey Law Division: Essex County, No. L-9284-11, 2016
32. Brooklyn Union Gas Company vs Century Indemnity Company and Munich Reinsurance America, Inc., Supreme Court of the State of New York, County of New York: Index No. 403087/02, 2017
33. Hexcel Corporation vs Allianz Underwriters Insurance Company, et al., Superior Court of New Jersey Law Division: Essex County, No. ESX-L-7918-12, 2017
34. Plaistow Project, LLC vs Ace Property & Casualty Insurance Company, United States District Court, District of Massachusetts: Civil Action No. 1:16-cv-11385, 2017
35. Laketon Refining Corporation vs The American Insurance Company, et al., State of Indiana, County of Marion, No. 49D02-1410-MI-033659, 2017
36. Keyspan Gas East Corporation vs Munich Reinsurance America, Inc., et al., Supreme Court of the State of New York, County of New York: Index No: 604715/97, 2018
37. Olin Corporation vs Lamorak Insurance Company, United States District Court, Southern District of New York: Index No. 84 Civ. 1968 (JSR) 2018