PROFESSIONAL PROFILE

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EDUCATION
BE, Civil Engineering, Cooper Union, 1980
MS, Civil and Environmental Engineering, NYU Tandon School of Engineering (former Polytechnic), 1985

PROFESSIONAL LICENSES
Professional Engineer: New York (1986), New Jersey (2003), and Virginia (2010)

Brian P. Morrissey, PE, BCEE

Principal Engineer

EXPERIENCE SUMMARY
Thirty-seven years of experience working in many areas of the environmental industry under a variety of regulatory programs such as Federal and State Superfund, New Jersey ECRA/ISRA, NYSDEC Voluntary Cleanup, Petroleum and Chemical Bulk Storage, and NYC Brownfields. Principal Engineer and Office Manager at Roux; Senior Engineer and Senior Project Manager at ERM.

TECHNICAL SPECIALTIES
- Development, design and implementation of soil and groundwater remediation systems.
- Optimization of ongoing remedial operations.
- Development of project and regulatory closure strategies.
- Management, support, and oversight of large inter-disciplinary teams for site remediation.
- Cold eye design review and evaluation of process safety.
- Preparation of feasibility studies, engineer's reports, design drawings, specifications, contract documents, permit applications, cost estimates, operations and maintenance plans and construction management for the following:
  - In situ groundwater remedial technologies
  - Sub-slab depressurization systems
  - Industrial and sanitary wastewater treatment systems
  - Floating product recovery systems
  - Ground water pumping and treatment facilities
  - Water supply, treatment, and distribution
  - Underground storage tank (UST) systems
  - Containment systems
  - Air sparging, soil vapor extraction and vapor collection and treatment systems
  - Building decontamination and decommissioning
  - Landfill cap design and permitting
  - Hazardous waste soils removal, transportation, and disposal

REPRESENTATIVE PROJECTS
- Principal Engineer and Project Manager for the remediation and monitoring of over 100 vehicle fueling sites in New York City with UST petroleum releases. The remediation systems at the various sites include multi-phase extraction (MPE), soil vapor extraction (SVE), air sparging, groundwater recovery and treatment, and automated product-only recovery systems. Priorities on this multi-year contract included expediting remedial progress, increasing the effectiveness of operating systems, achieving NFA status, and reducing NYC's overall program costs. The work included conducting soil vapor studies at 9 sites to assess vapor intrusion concerns. Roux Associates also implemented in situ injections at 14 sites to cost-effectively achieve site closure. The in-situ injections utilized chemical oxidation and bioremediation products including sodium percarbonate, oxygen generating compounds, hydrogen peroxide, petroleum-degrading bacteria, and nutrient/enzyme complexes.

- Principal Engineer for design upgrades and expansion of the groundwater depression and separate phase product recovery systems at former petroleum refinery in Brooklyn, New York. The site encompasses one of the nation's largest petroleum releases (18 million gallons). Key components included: the installation of 10 remote dual-pump free-phase product recovery wells, including wellhouse/control components and petroleum storage facilities; the construction of extensive underground utilities to connect remote recovery wells with two

existing treatment systems; and modifications to existing groundwater treatment facilities to add auxiliary equipment to optimize treatment performance and system runtime. The work also involved the integration of control between the two separate groundwater treatment systems and all associated recovery wells into a single SCADA platform to improve operability. Also, redesigned building with new mezzanine and equipment layout to improve flow of the process treatment train.

- Principal Engineer and P.E. of Record for numerous Brownfields projects. Responsibilities include development of Remedial Action Work Plan (RAWP), Community Air Monitoring Program (CAMP) and engineering certification of all remediation activities related to management of contaminated soils and clean fill. Also manage designs of remedial elements including sub-slab depressurization systems (SSDS), vapor barriers and waterproofing, stormwater management, and wastewater treatment and disposal.
- Principal Engineer for evaluation and cost estimates of remedial options at a former electronics manufacturing plant in Taiwan. Prepared Pilot Study Plan and traveled to Taipei for presentation to Taiwanese regulatory officials on use of the in situ technologies of enhanced reductive dechlorination and chemical oxidation.
- Principal Engineer for the design of a vapor mitigation system for a 1.5 million square foot warehouse (former aircraft engine manufacturing plant) in New Jersey. The system design includes eight 40-HP blowers and over 600 vapor extraction wells to mitigate elevated levels of chlorinated solvents and petroleum compounds in the subsurface from migrating into the building.
- Principal Engineer for conducting detailed evaluation of problematic groundwater treatment system in Rensselaer, New York. Primary constituents of concern include heavy metals, chlorinated solvents, and BTEX compounds. Developed performance testing program, diagnosed causes of problems and presented several recommendations with cost estimates for upgrading systems and improving personnel health and safety. Prepared engineering report with key recommendations that included modifying equipment layout, injecting iron deposition and calcium scale control agents into water stream, facilitating carbon change-outs and upgrading the system instrumentation and controls.
- Principal Engineer for remediation of former petroleum terminal in Oceanside, New York. Managed preparation of Remedial Action Plan, community air monitoring plan, detailed design drawings, bid documents and O&M Plan. Conducted discussions/negotiations with NYSDEC and managed the annual budget for capital and operating expenses.
- Principal Engineer for the design of a soil vapor extraction (SVE) system to address elevated concentrations of methane and petroleum hydrocarbons in the shallow subsurface beneath three Operable Units of the project area. The major components of the design included the installation of 21 SVE wells and associated piping and instrumentation, the construction of a new treatment building to house the SVE treatment equipment, as well as office space to support the remediation project; and the installation of a thermal/catalytic oxidation system to treat the soil vapor extracted from the SVE wells, and also the air stripping and aeration process streams from a nearby groundwater treatment facility. The SVE treatment system was designed to accept up to 4,000 cfm of process air to meet the discharge requirements of 6 NYCRR, Part 201 and NYSDEC DAR-1 guidelines. All activities were performed under the oversight of the NYSDEC and in compliance with a strict regulatory milestone schedule.
- Senior Manager for Remedial Design and Construction Oversight at federal Superfund site in Elmira, New York. The 33-acre site included several areas of concern where the soil and groundwater had been contaminated by several types of hazardous wastes. Managed preparation of design submittals to USEPA Region II in accordance with CERCLA guidelines. The soil/sediment remediation design included requirements for materials handling, dewatering and disposal. PCB wastes were required to be segregated and disposed of at a TSCA-permitted facility. The design required stabilization of certain wastes and the installation of a RCRA cap. The design included measures for control and treatment of dewatered fluids and stormwater during construction Groundwater remediation system includes 12 recovery wells, filtration units and two air strippers.
- Principal Engineer and P.E. of Record for the design and construction of a storm drainage and sanitary sewer project located in the area of a former petroleum terminal in Brooklyn, New York. Worked on several design modifications to obtain NYCDEP approvals. Work included construction of approximately 1,600 linear feet of RCP storm sewer and approximately 1,000 feet of ductile iron sanitary sewer with pipe sizes ranging from 12-inch diameter to 54-inch diameter. Also replaced approximately 220 feet of 20-inch cast iron water main. The construction required vibration monitoring during sheeting and operation and maintenance of a temporary dewatering treatment system.
- Project Manager for remediation of several gasoline service station sites in Westchester County and Long Island, New York. Developed design/build approach for fast-track implementation while complying with NYSDEC guidelines. Typical remedial systems include groundwater recovery and treatment, soil vapor extraction and air sparging, and vapor treatment.
- Principal Engineer for an underground utility construction project for the expansion of a large groundwater treatment operation. Project included excavation and installation of over 3,500 linear feet of water main, product pipeline and control conduits within NYC streets.

- Provided engineering evaluation of options for UST repair/replacement at major railroad yard in Sunnyside, Queens, New York, to address relocation needs and comply with NYSDEC tank regulations. Worked on preparation of UST upgrade work plan, cost estimates and contract documents.
- Principal Engineer for a building decommissioning and demolition project at an active railroad facility in Sunnyside, Queens, New York. Project included preparation of demolition specifications, collection of waste characterization soil and water samples, air monitoring, removal and disposal of impacted soil, removal and disposal of asbestos containing material, removal and disposal of demolition debris, and preparation of a demolition completion report.
- Project Manager and Senior Engineer for remediation of industrial airport site in Millville, New Jersey, under ECRA/ISRA programs. Managed planning, detailed design and permitting activities required to replace 1,000-gpm public supply well impacted by extensive chlorinated solvent plume. Also managed the conceptual planning, permitting and final design of the 200-gpm groundwater recovery, treatment and recharge system that includes ultraviolet light/hydrogen peroxide system controlled by PLCs. This project won the annual Honor Award granted by the American Academy of Environmental Engineers and Scientists.
- Project Manager and Senior Engineer for design of wastewater treatment plant (WWTP) upgrades at three separate facilities under the program to protect New York City's watershed. Work included preparing conceptual upgrade plans, facility plans, detailed cost estimates, design drawings and specifications, startup plans, O&M plans, and oversight of construction. Design at one facility included replacement of secondary treatment components and the addition of recirculating sand filters, microfiltration units, emergency generator and telemetry systems.
- Design Manager for groundwater recovery and treatment system at a former manufactured gas plant (MGP) in Atlantic Highlands, New Jersey. Developed specification for implementation of directional drilling under state highway to expand groundwater recovery system to capture off-site contamination. Treatment system design included PLC-based control software that significantly reduced on-site staffing needs. Also, managed construction phase, negotiated/reduced change orders and worked with several subcontractors to meet tight regulatory agency schedule for system start-up. The system removes cyanide, metals, VOCs, and free-phase product.
- Project Manager for upgrading industrial process wastewater treatment system at medical products manufacturing facility in Hancock, New York. The upgraded system removes VOCs and metals, including lead, zinc, and copper, from highly variable waste streams generated by the manufacture of surgical instruments. Prepared design documents for automated system that allows for expected future increase in plant manufacturing capabilities. Also, prepared O&M plan for the treatment system.
- Project Manager and Design Engineer for tank replacement program and automation of fueling system for commuter railroad at sites in NYC and Westchester County. Fueling facilities were designed in compliance with federal and state UST regulations.
- Senior Engineer for preparing and certifying Spill Prevention Control and Countermeasure (SPCC) Plans for 25 U.S. Postal Service facilities.
- Project Manager for remediation of several US Postal Service sites. Prepared site-specific HASP and Work Plans for removal of USTs and characterization of impacted soils. Supervised field personnel during investigative and construction phases of work. Also, prepared designs for new double-walled UST systems.
- Project Engineer for environmental audits at approximately 20 commercial and manufacturing facilities aimed at evaluating compliance with federal, state, and local air, wastewater, and hazardous waste regulations. Audits addressed regulatory areas including RCRA, SARA, CWA, CAA, TSCA, and OSHA.
- Project Manager and Senior Engineer for planning, permitting, design and construction oversight of 12,000-foot sewer system for the collection of sanitary and industrial wastewater in Melville, New York. Sewer design included route selection, sizing of gravity sewers, provisions for utility crossings, solar powered flow meters, grease interceptor, pump station for one branch line, and proper abandonment of leaching facilities. Project also included installation of two 20,000-gallon underground storage tanks and a tanker truck fill area with secondary containment. The final phase of the project consisted of the addition of an industrial waste pretreatment system utilizing pH adjustment, filtration, and a bioreactor tank. This project provided a safe and reliable wastewater disposal system and eliminated a costly 40,000-gallon per day hold and haul system.
- Project Manager for the planning and design of irrigation system using treated wastewater in the Catskills area. Conducted study on acceptable uses of wastewater treated by tertiary methods in accordance with federal and New York State guidance.
- Project Engineer, prepared feasibility study for state Superfund site of former manufacturer of printing inks and ribbons in Glen Cove, New York. Elevated levels of toluene, xylenes, ethylbenzene, and benzene were detected in on-site soils above soil cleanup objectives (SCOs) for the protection of groundwater. Evaluated ground water and soil remediation technologies. After approval of FS by NYSDEC, managed the final design, construction oversight, and startup phases of the project. Remedial system included 30 variable speed controlled recovery pumps, filtration, iron sequestration, tray aeration,

soil vapor extraction, and vapor treatment via catalytic oxidation.

- Principal Engineer for development of innovative approach for remediation and reuse of federal Superfund site in Plaistow, New Hampshire. Prepared cost estimates for approaches aimed at reducing project costs by utilizing alternate treatment technologies and maximizing efficiency of existing system. Phased approach for site includes hot spot soil removal, enhancements of existing remedial system, implementing air sparging with SVE and follow-up with polishing step of in situ bioremediation. This alternative plan would achieve environmental restoration of site and is tailored to anticipated re-development of land.
- Principal Engineer for the design of modifications to an active sub-slab depressurization system (SSDS) to mitigate chlorinated solvent soil vapor contamination beneath an existing occupied shopping mall in the Bronx, New York. Worked on coordination and troubleshooting of construction issues. Managed the system testing and start-up and provided recommendations to improve system operation.

PROFESSIONAL TRAININGS

OSHA 40-hour Health and Safety Training

ExxonMobil Loss Prevention System Certified

NYCOER Gold Certified Professional

Board Certified Environmental Engineer (BCEE) of the American Academy of Environmental Engineers and Scientists - Specialty Certification in Hazardous Waste Management, 1995

PROFESSIONAL AFFILIATIONS

Water Environment Federation