

Jeffrey E. Marsh, P.E.

Senior Consultant



Education and Credentials

B.S., Chemical Engineering,
Clarkson University, Potsdam,
New York, 2003

Professional Engineer, New York
(License No. 104688)

Continuing Education and Training

Hazardous Waste Operations and
Emergency Response 40-Hour
Certification (2003; refreshers
annually)

OSHA Confined Space Training
(2015)

First Aid and CPR Certified (2018)

Professional Affiliations

Member of Air and Waste
Management Association

Achievements and Awards

American Council of Engineering
Companies 2018 Diamond Award

Trenchless Technology 2016
Rehabilitation Project of the Year
Honorable Mention

Western Dredging Association
2014 Health and Safety
Excellence Award

Professional Profile

Mr. Jeffrey Marsh has 16 years of experience in the fields of chemical and environmental engineering. He is currently responsible for delegating technical responsibilities to engineers, designers, and drafters on complex and diverse projects. He has an active role in developing project budgets and schedules, preparing reports, managing projects, and maintaining a close relationship with clients, regulatory agencies, and other stakeholders throughout the development of a project.

His experience includes monitoring and management of remedial investigations; design, construction, startup, operation, monitoring, and troubleshooting of remedial systems; development of treatment solutions to remedy contaminated sites; and preparation of feasibility studies, as well as air and water permitting. Mr. Marsh is also experienced in the design, implementation, and troubleshooting of computer control systems. He has experience preparing cost estimates and engineering input for feasibility studies at CERCLA sites and with large-scale groundwater remediation system design, construction, and operation and with habitat restoration within floodplain environments.

Relevant Experience

Remedial Investigation, Design, Construction, and Operation

Groundwater Collection, Conveyance, and Treatment System Design and Construction, Onondaga Lake Superfund Site, Geddes, New York—Managed the design of an interim remedial measure (IRM) and oversaw construction for groundwater collection systems, low permeability lining systems, groundwater pumping systems, and groundwater treatment plant. Project included design and construction of more than 7,000 ft of groundwater collection trench, a treatment plant designed to reduce groundwater pH for direct discharge to publicly owned treatment works, and upgrades to an existing pumping station. Groundwater contamination included primarily metals, volatile organic compounds (VOCs), and semivolatile organic compounds (SVOCs), with a pH of up to 12 and high scalability.



Groundwater Collection System and Storm Sewer Rehabilitation Design and Construction, Onondaga Lake Superfund Site, Geddes, New York—Managed development of IRM design for rehabilitation of existing interstate highway storm sewers, groundwater collection systems, low permeability lining systems, and habitat restoration. Project included mitigation of contaminated seepage affecting a berm proximate to a public highway via low-permeable lining systems and a groundwater collection system, and reduction of existing highway storm sewer infiltration via cured-in-place-pipe. Contamination included high concentrations of VOCs, primarily benzene, chlorobenzene, and dichlorobenzene.

Groundwater Collection System and Storm Sewer Rehabilitation Pre-design Investigation and Design, Onondaga Lake Superfund Site, Geddes, New York—Managed development and implementation of a pre-design investigation program, including topographic survey, geotechnical borings, monitoring well installation, *in situ* hydraulic conductivity testing, groundwater and surface water sampling and level monitoring, culvert inspection and sampling, vegetation survey, geotechnical sample testing, and hydrogeologic investigation. Subsequently, managed development of IRM design for groundwater and seep collection, treatment and conveyance, low permeability lining systems, culvert and manhole rehabilitation, and habitat restoration. Groundwater contamination included primarily metals, VOCs, and SVOCs.

Groundwater Pump Station Pre-design Investigation and Design, Onondaga Lake Superfund Site, Geddes, New York—Managed pre-design investigation and development of IRM design and provided construction oversight for multiple groundwater pump stations. Pump stations were installed to convey collected groundwater to a central treatment facility located more than 2 miles away. Groundwater contamination included primarily metals, VOCs, and SVOCs, with a pH of up to 12 and high scalability.

Stormwater Lift Station and Storm Sewer Rehabilitation Design and Construction, Onondaga Lake Superfund Site, Geddes, New York—Performed and provided oversight for day-to-day design tasks, including development and review of specifications, drawings, and reports, associated with an IRM at a former industrial site. Provided oversight and reviewed submittals during construction. IRM included lining and rehabilitation of existing storm sewers impacted by mercury and VOCs, and installation of a stormwater lift station designed to bypass a 150-year-old, 40-ft-deep, hand-laid, brick storm sewer pipe experiencing heavy infiltration. Peak flows were approximately 5,000 gallons per minute (gpm) with an average flow of approximately 30 gpm.

Groundwater Collection and Conveyance, and Brook Sediment Excavation and Restoration Design and Construction, Onondaga Lake Superfund Site, Geddes, New York—Performed and provided oversight for day-to-day design tasks, including development and review of specifications, drawings, and reports, associated with an IRM at a former industrial site. Provided oversight and reviewed submittals during construction. IRM included low permeability liner systems, groundwater collection and conveyance systems, culvert rehabilitation, sediment removal, and wetland, stream, and habitat restoration. Project included construction of two groundwater pump stations, installation of approximately 4,000 ft of groundwater collection and conveyance, rehabilitation of a former railroad bridge eligible for listing on the National Register of Historic



Places, and sediment removal within a Class C stream. Project included a large permitting effort, because the site was owned by 13 different public and private property owners, including the New York State Department of Transportation and CSX, and was transected by more than 15 different utility rights of way. Groundwater contaminants included primarily metals, VOCs, and SVOCs, with a pH of up to 12, high scalability, and a free product (nonaqueous-phase liquid, NAPL) plume.

Geothermal Testing and Design, New Haven, Connecticut—Designed geothermal pilot testing procedure for standing column geothermal well system. Project included the first use of pilot testing for standing column wells to support geothermal design in the United States. Tasks included full-scale pilot testing followed by design and specification of geothermal system.

Geothermal Design for International Conference Center, New Haven, Connecticut—Designed standing column geothermal well system. Tasks included design and specification of geothermal system developed to achieve high standard of noise reduction and aesthetic improvements for international conference center.

Geothermal Design and Optimization, New Haven, Connecticut—Designed standing column geothermal well system. Tasks included design and specification of geothermal system for conference centers as well as optimization studies to investigate the most cost-effective combination of geothermal and central plant systems.

Dual-Phase Extraction System, Rochester, New York—Performed dual-phase, vacuum-enhanced, pumping pilot test for the removal of petroleum hydrocarbons in a residential neighborhood affected by leaking tanks at a nearby gasoline station. Used pilot test results to design a full-scale remedy consisting of dual-phase extraction with subsequent treatment of water and vapor streams via oxidation and air stripping. Also, managed and coordinated day-to-day operations and maintenance of full-scale remedy.

Pump and Treat System, Defiance, Ohio—Designed a pump and treat system for the removal of PCBs from groundwater at a foundry. The system use ultrafiltration to remove PCBs sorbed to solids. Prepared design drawings and assisted with system startup.

Soil Vapor Extraction/Bioremediation System, North Hollywood, California—Managed source removal activities for an active soil vapor extraction system for the removal of petroleum hydrocarbons from the subsurface. Work included monitoring and evaluating operating conditions to recommend system adjustments to optimize operation. Also worked as project engineer for the design of a hybrid remediation system for the downgradient methyl *tert*-butyl ether plume. The system combines *ex situ* treatment with biologically seeded carbon beds and oxygenation of the groundwater for *in situ* enhanced biological degradation. Work included an IRM design and work plan, preliminary and final design of a full-scale remedy, and system startup and monitoring. Teamed with regulators to become the first site ever in the state of California to reinject treated groundwater back into a drinking water aquifer.



Dual-Phase Extraction System, Lodi, New Jersey—Designed a dual-phase extraction system for the removal of chlorinated solvents from groundwater. The system uses a catalytic oxidizer, scrubber, carbon, resin, and air stripper to remove the contaminants of concern. Prepared design drawings and assisted with system startup and long-term operations. Also coordinated short-term operations and maintenance, such as water and air sampling, well-field data collection, and control loop tuning.

Dual-Phase Extraction System, Boston, Massachusetts—Designed a dual-phase extraction system for the removal of chlorinated solvents and petroleum hydrocarbons from groundwater. The system uses a catalytic oxidizer and air stripper to remove the contaminants of concern. Prepared design drawings, equipment specifications, and procurement quotes.

Vacuum-Enhanced Pumping/Dual-Phase Extraction System at Chemical Plant, Resende, Brazil—Designed a dual-phase extraction and vacuum-enhanced pumping system for the removal of multiple high-concentration contaminants from groundwater at an active chemical plant in Brazil. Prepared design drawings and assisted with system startup. Coordinated short-term operations and maintenance with plant personnel who had very limited understanding of the technologies employed, such as water and air sampling, well-field data collection, system optimization, startup, and control loop tuning.

Dual-Phase Extraction System, Argentina—Designed a dual-phase extraction system for the removal of multiple high-concentration contaminants from groundwater at a site in Argentina. Prepared design drawings and assisted with system startup. Coordinated short-term operations and maintenance with plant personnel who had very limited understanding of the technologies employed, such as water and air sampling, well-field data collection, system optimization, startup, and control loop tuning.

Brownfield Redevelopment Site, Tarrytown, New York—Assisted in the remediation design of a former manufactured gas plant site being redeveloped for use in a residential capacity. Performed and oversaw confirmation testing, with oversight from the New York State Department of Environmental Conservation, to ensure that no vapor intrusion into residential living spaces was occurring.

FERC Permitting Project, Florida-Bahamas—Assisted in the permitting process for a \$550 million installation of a 54-mile liquefied natural gas line from Ocean Cay (near Bimini, Bahamas) to Broward County, Florida. Evaluated impacts to critical habitats of any endangered or at-risk species.

Landfill Closure, Storrs, Connecticut—Designed a leachate collection and pumping system at a former landfill. Work included design of pumping and control systems, review of contractor submittals, assistance with startup and troubleshooting, and confirmation of proper operation.



Soil Vapor Intrusion System, Wampsville, New York—Designed a sub-slab depressurization system to prevent vapor intrusion into an active industrial facility. Oversaw construction activities and subsequent confirmation sampling and testing.

Blasted Bedrock Collection System, Rochester, New York—Designed a blasted bedrock trench and associated groundwater pumping system. Tasks included system design, programmable logic controller (PLC) design, and system startup.

Pump and Treat System at Automotive Plant and Landfill, Farmington, New Hampshire—Assisted in the design of a pump and treat system at an automotive plant and inactive landfill. Tasks included assistance with design decisions, preparation and review of contract drawings, and design of PLC system.

Pump and Treat System at Aerospace Facility, Huntington Beach, California—Designed a pump and treat system to remediate a large groundwater plume with multiple contaminants at an active aerospace facility. Tasks included assistance with design decisions, preparation and review of contract drawings, and design of electrical and PLC system.

Design and Permitting for Research and Development Facility, Canandaigua, New York—Assisted with design and permitting of a multi-purpose research and development facility. Tasks included evaluating materials compatibility for conveyance of multiple highly corrosive, acidic, basic, and explosive chemicals; designing treatment trains for multiple waste streams; and working with permitting lead to ensure a seamless permitting process.

Bottled Water Permitting Application, Ecuador—Provided engineering and permitting support to a large international bottling company seeking a permit to sell bottled water in New York State. Reviewed existing bottling operations to provide engineering recommendations to meet New York State Health Department and U.S. Food and Drug Administration regulations, and reviewed analytical data to evaluate compliance with applicable regulations.

Remediation System Monitoring and Optimization

Groundwater Collection and Habitat Restoration Performance Verification and Monitoring, Onondaga Lake Superfund Site, Geddes, New York—Managed implementation of performance verification and monitoring for several existing IRMs, including groundwater collection and conveyance systems, wetland and habitat restorations, and low permeable lining systems. Performance verification and monitoring activities included collection and analysis of operational data, verification that systems were meeting regulatory compliance requirements, media sampling, development and implementation of corrective actions, and annual reporting.

Dense Nonaqueous-Phase Liquid Recovery System Optimization, Onondaga Lake Superfund Site, Geddes, New York—Managed development, design, and implementation of a performance optimization strategy for an existing dense NAPL recovery system.

Nonaqueous-Phase Liquid Recovery System, Los Angeles, California—Performed operation, maintenance, and monitoring activities for a NAPL recovery system consisting of more than



200 recovery wells, in addition to a groundwater and air treatment system, to evaluate and optimize system operation. Tasks included continuously operating the remediation systems, assisting technicians with system adjustments to improve recovery, and updating and improving the computer control system.

Geothermal Performance Improvement Evaluations, Cambridge, Massachusetts—Performed evaluations to improve performance of existing geothermal well system, including developing recommendations for increased reliability through use of changes in control systems.

Pump and Treat/Soil Vapor Extraction System, Morristown, Tennessee—Oversaw quarterly groundwater sampling events and used data to determine effectiveness of soil vapor extraction and pump and treat systems. Managed site operations and maintenance contractor to maintain maximum system uptime. Monitored system operation, and recommended and designed system upgrades.

Pump and Treat System, Rochester, New York—Coordinated operations, maintenance, and sampling activities for a pump and treat system at a former industrial site. Recommended and designed system upgrades to increase and maintain uptime requirements. Used site groundwater and system data to recommend operational changes.

Feasibility Studies

Focused Feasibility Evaluation, Hinkley, California—Provided highly detailed cost estimates for an array of remedy options related to cleanup of a chromium contaminated groundwater plume approximately 2 mi² in size. Tasks included developing modular cost estimates that could be applied to various remedy options, evaluating proposed remedy effectiveness at meeting project goals, and presenting the data in a manageable and meaningful form to various stakeholder groups.

Environmental Liabilities Portfolio Estimates, Various Locations—Assisted with the development of detailed cost estimates for the environmental liabilities portfolio of a large domestic automobile corporation. Worked with a multi-disciplinary engineering team to develop comprehensive estimates for multiple sites with a multitude of environmental contaminants. Estimates were used to develop a portfolio-wide liability reserve for use in corporate bankruptcy hearings.

Presentations/Posters

Marsh, J. 2017. Overcoming several site-specific challenges to remediate an urban brook and several tributaries. Ninth International Conference on Remediation and Management of Contaminated Sediments, New Orleans, LA.

