

Statement of Qualifications



Quantum Environmental &
Engineering Services, LLC

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Statement of Qualifications

Quantum Environmental & Engineering Services, LLC

Quantum Environmental & Engineering Services, LLC (QE²) was established as an independent company in 2003, having operated as a division of its former parent company for the preceding 13 years. QE² has developed a diverse clientele made up of hundreds of clients in all business sectors including federal, state, and local government, private and not-for-profit corporations. We are a full service Civil and Environmental Engineering firm with offices and personnel in Knoxville and Nashville, Tennessee. QE² has a long history of providing comprehensive Civil and Environmental Services in the southeastern United States, particularly. Having originally focused on serving the private environmental compliance market, we have expanded to

cover virtually every existing environmental area through our 18 years of operation.

QE² is headquartered in Knoxville, Tennessee, and has one additional office in Nashville, Tennessee.

Company Headquarters

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THE QE² COMPANY MISSION IS TO:

- Serve our customers in an ethical atmosphere of honest and fair business practices.
- Facilitate economic development, community enhancement and environmental stewardship by combining state and federal funding opportunities with sound technical practice and effective environmental compliance policy.
- Promote a workplace atmosphere that encourages entrepreneurial effort, respect for our peers and their families, and care for our community.

Our goal is to bring together advanced technology, traditional engineering principles, sound business ethics, smart policy development and a superior staff to achieve maximized efficiency and common sense application.

QE² provides environmental engineering, design, cleanup and support services. Our group works in the private and public sectors providing cost-effective, response-oriented problem solving; specialty environmental products; industrial facility support, and development-related services. Services include:

- Air Quality Permitting/Consulting
- Civil Engineering

- Construction Management
- Emergency/Hazardous Materials Response
- Environmental Assessment
- Environmental Compliance
- Environmental Remediation
- Grant applications and funding consulting
- Hazardous Materials Assessments
- Indoor Air Quality Assessment / Abatement
- Licensed Surveying
- National Environmental Policy Act Assessment & Environmental Impact Statements
- Solid and Hazardous Waste Services
- Specialty Engineering/Design
- Specialty Wastewater Treatment System
- Spill Prevention Control and Countermeasures Plans
- Stormwater Permitting
- Underground Storage Tank Compliance

The key to QE² achieving our mission is our staff's ability to provide technically sound professional services to our customers. Our group uses a mixture of traditional and high-tech engineering and environmental skills to attain the smartest possible solutions.

The professional, technical, survey and construction staffs operate a well-outfitted and maintained service fleet and equipment stock for responding to all types of engineering and environmental services needs. Our senior and staff-level participation in public policy and development arenas establish a basis for superior interface with regulating bodies. These relationships are the key to reducing cost-of-compliance and development performance for our clients.

Regulatory Affiliations

Three of QE²'s senior staff volunteer as State Regulatory Board Members and routinely engage in policy, regulatory review and contested case resolution. None of these affiliations violate the ethical interests of the State or general public. These include:

George J. Hyfantis, Jr., P.E., Ph.D.

QE² President serves on the State Petroleum Underground Storage Tank Board.

Patrick J. Mulligan, P.G.

QE² Sr. Vice President serves on the State Water Quality Control Board as an alternate to review contested permit cases.

Helen S. Hennon, P.E.

QE² Vice President of Environmental Services serves on the State Air Pollution Control Board.

Regulatory Board service benefits QE² because it brings the most up-to-date applications and positions to challenging environmental compliance and regulatory developments. State Board service provides consideration for the effort applied to the service but do not represent employment by the State or conflicts of interest. The nominal consideration provided for Regulatory Board service renders the service a voluntary position.

KEY BUSINESS AREAS INCLUDE:

Remediation and Specialty Engineering Design

QE² conducts engineering analysis and design for turnkey environmental assessment and remediation projects as well as specialty engineering applications. QE² is staffed with over 40 engineers and professional personnel representing a range of experience levels. Our engineers and geologist are registered in five states. Our engineers-in-training, CADD operators and technical support staff provide the complementary support necessary for future growth and efficient project performance. Design teams are selected for each project based on the objective of overall design effectiveness and cost efficiency.



Remedial Design

If exposure and/or risk assessment do not eliminate the need. Then air, soil and groundwater corrective action/remediation is conducted to reduce contaminant concentrations at RCRA, CERCLA and UST spill and release sites. QE²'s remedial design background covers the complete spectrum of treatment technologies both insitu and exsitu. Treatment technologies include:

- Vacuum Extraction and Treatment
 - Enhanced Bioremediation
 - Interceptor Walls and Trenches with Treatment
 - Vapor Containment/treatment
 - Soil Venting with Treatment
 - Geologic/Membrane Caps and Liners
 - Containing / Stabilizing
 - Natural Attenuation
 - RCRA Cap
 - Pump and Treatment
-

Facility Design

QE² conducts a wide variety of industrial facility design and operating specifications. Whether the work is a response to regulatory compliance requirements or production enhancement, QE² provides efficient design and operations specifications. Work has been conducted in a wide variety of industrial manufacturing settings and examples of this work include:

- Containment system upgrade and replacement
- Stormwater drainage systems
- Filtration systems

- Waste containment systems
- Process monitoring
- Wastewater treatment systems and piping
- Spill Prevention Controls and Countermeasures
- Fueling systems
- Stack emissions
- Cathodic protection systems
- Piping and instrumentation

Civil Engineering Services

Our Civil Engineering Group provides the following types of services: Wastewater treatment; Drainage and hydraulics analysis; Licensed surveying; Construction management and inspection; Bid document and contract development; Field engineering, soil testing, geosynthetics testing; federal grant application for infrastructure improvement and upgrade; and Licensed professional civil engineering analysis and design.

customers including Spring City, Luttrell, Rhea County, and Union County, just to name a few.

Specialty and Industrial Wastewater Treatment

Wastewater treatment analysis and engineering design is conducted for a variety of clients in both the municipal and private sector market. Residential applications include both traditional on-site disposal and decentralized systems with engineered leachfields. Industrial applications include single process and multi-process designs tailored to meet the specifications and needs of individual manufacturers.

Landfill Design, Permitting and Operations Support

QE² provides full-service permitting, design and bid preparation for municipal governments and private companies operating solid waste management facilities. QE² also manages the contractors who perform site preparation, liner construction, and geomembrane installation. QE² also conducts onsite soil moisture/density analysis and membrane testing for liner compaction verification.



Grant Funding and Project Development

QE² professionals assist municipal governments with project development, planning and consulting. This usually involves an assessment of infrastructure need (sewer, water, wastewater treatment, etc.) and a determination whether state and federal grant funding opportunities exist and are likely candidates to fund a project. QE² has been successful across the state identifying and winning the funding for

Commercial Development

QE² assists private developers with grading, drainage, flood management and site development plans and designs. Once detailed design and bid document preparation results in a construction contract award, QE² provides construction management, payment review/approval, construction survey and soil testing services to facilitate efficient project completion.

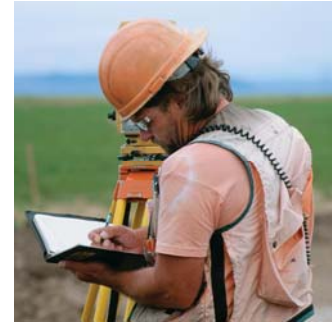
Surveying

QE²'s licensed Surveying Services Group is committed to bringing you the highest quality professional land surveying services available. QE²'s Registered Land Surveyors (RLS) and trained surveying technicians can respond to the most demanding surveying needs.

QE² provides a variety of surveying services including:

- Boundary, as-built, wetland
- Topographic surveys
- Staking of roadway and drainage projects
- Construction layout
- ALTA surveys
- Record platting
- Flood zone delineation
- Aerial control

The latest equipment and survey-related software technologies enable our technical staff to easily generate drawings from field data. We are capable of producing and delivering field-captured data associated with surveying, civil design, and GIS functions. QE² uses the latest surveying tools including Global Positioning System (GPS) and automated data collection and reduction.



Underground Storage Tank Services

QE² has long been a forerunner providing cost effective solutions to Underground Storage Tank (UST) owners. Our staff has over 100 years combined experience in UST regulatory compliance and construction.

QE² has implemented regulatory closure of more leaking UST

remediation sites than any other company in Tennessee. Our ability to develop efficient



closure strategies has resulted in a reputation for effective case management in both Tennessee and surrounding states. Members of our staff have been integral influences in the development of the existing regulations and have held positions on the State Underground Storage Tank Board.

Remediation and Release Response

The UST group is charged with providing environmental consulting services for investigation and remediation of

releases from USTs. QE² uses standard engineering techniques combined with state-of-the-art innovative approaches to maximize effectiveness and efficiency.

- QE² representatives worked with DUST to improve their changing site closure evaluation guidelines and participated in the development of a new, more streamlined and cost effective system.
- Our expertise in Risk Assessment enabled QE² to quickly and effectively implement the Department of Underground Storage Tank Exposure Assessment guidance to achieve closure by site specific standards based on risk.
- Because of our close understanding of the DUST reimbursement guidelines, QE² is often able to assist customers in achieving reimbursement eligibility status. This has been invaluable to tank owners with releases in helping them defray cost and improve cash flow through a period of potentially steep financial liability.
- QE² is currently obtaining 90% reimbursement for investigation and remediation work after the fund entry-level deductible is met. QE² understands the financial strain, which can be inflicted on an owner/operator during the process of a UST investigation and remediation.

The new UST regulatory arena is a challenging one and owner/operators need a consultant who fully understands the complexity of regulatory compliance and trust fund

reimbursement. QE² is committed to providing turnkey services to our clients and to obtaining State trust fund reimbursement for our clients.

Government Services

QE² routinely works in the federal, state and municipal government arenas providing comprehensive engineering, environmental, technical and consulting services. A unique relationship with regulating bodies (serving as board members and policy development advisors) provides opportunities for enhanced performance capability for various interacting government agencies and groups:

- U.S. Department of Energy
- U.S. Department of Defense
- State of Tennessee
- State of Alabama
- Finance and Administration
- Department of Transportation
- Department of Environmental Mgt.
- Union County, TN
- Knox County, TN
- City of Knoxville
- Rhea County, TN
- Development Corp. of Knox County
- City of Maryville
- Knoxville Utilities Board
- Knoxville Area Transportation Authority
- Memphis Area Transportation Authority
- Chattanooga Area Transportation Authority

Special Considerations

Ongoing work in the government marketplace requires flexibility, knowledge of specific labor laws, and accounting procedures, a regimented management approach, and an understanding of the various planning and reporting requirements necessary for the different government concerns. The key to QE²'s success in the government business arena has been our ability to accommodate the specific requirements of the various government entities. QE² uses an automated electronic accounting and project tracking system. It accommodates DCAA accounting

requirements and has proved efficient for all other government contracts providing detailed, auditable records of resource allocation and expenditures.

QE² recognizes the strong emphasis placed on government purchasing protocol, quality assurance, health and safety, and security issues. Purchase orders, subcontracts and other direct charge purchases are all requisitioned under appropriate federal, state and municipal purchasing guidelines. The QE² quality assurance and health and safety systems are developed to be fully comprehensive and adaptive to specific agency and/or contract requirements. Site security issues are also handled as required by the individual location and agency. QE² personnel have worked in a variety of security environments including DOD "Secret" and DOE "Q" levels.

QE² is currently under contract with the State of Tennessee for:

- NEPA Environmental Impact Statements/Environmental Assessments
 - Hazardous Materials Consulting
 - Emergency Response
 - Asbestos Abatement
 - UST Removal and Replacement
 - Site Renovation Design
 - Indoor Air Quality Assessment
 - Radon Abatement
 - UST Tightness Testing
 - CERCLA Compliance
 - RCRA Compliance
 - Phase I Assessments
 - Phase II Assessments
 - Lead Paint Management
 - Public/Staff Relations
-

Air Permitting

QE² offers Title V and major/minor source air quality permitting. Our trained professionals can offer expert advice on emission monitoring, source reduction and regulatory implications.

Specific QE² capabilities in the area of air permitting include:

- Design of air quality monitoring programs
- Risk management planning / toxic release inventory
- Title V Permits
- Construction/Operating Permits

Indoor Air Quality

QE² is one of the preeminent leaders in Indoor Air Quality inspections, investigations and abatement. Work has been performed in the private and public sector, in commercial and industrial settings, in homes and in office buildings. Our experience has included the following contaminants and irritants:

- Mold
- Teargas
- Volatile organics
- Urea Formaldehyde
- Ozone
- Magnesium dust
- Ammonia
- Carbon monoxide
- Lead dust

- Anthrax
- Tuberculosis
- Legionella
- Mercury
- Dry clean solvents
- Dust and particulates
- Pet dander
- Pesticides
- Herbicides

QE² work has included public buildings, laboratories, hotels and recreational facilities, manufacturing complexes and schools. The work is planned in stages so that cost efficiency is balanced against urgency considerations and site-specific needs.

Environmental Site Assessments

QE² conducts environmental site assessments in response to the needs of our clients and the regulatory framework requiring these types of assessments. These assessments range from simple transaction screenings to Environmental Impact Statements conducted in response to the National Environmental Policy Act. QE² is also able to develop a site assessment strategy specifically tailored to meet the needs of the property or project driving the assessment.

apparent historical property uses. QE² takes advantage of this flexibility and adjusts work scopes to make the projects less costly.



Phase I and Phase II Assessments

QE² assists its customers in scoping an assessment that is consistent with the application and requirement. Phase I and Phase II assessments are performed to the standards of the American Society for Testing and Materials (ASTM), which is widely recognized among financial institutions. The ASTM standard allows some flexibility in scope based on the

NEPA Assessments

QE² completes Environmental Assessments (EA) and Environmental Impact Statements (EIS) pursuant to the National Environmental Policy Act of 1969 (NEPA), as amended. Projects are subject to NEPA review when they

are financed, wholly or in part, with federal funding and grant programs. Completion of an EA or EIS is required under NEPA to ensure that the environmental consequences of federal actions are considered as part of the project planning and decision-making process. NEPA implementing procedures are included in the Council on Environmental Quality (CEQ) regulations (40 CFR 1500-1508) and include early and open public coordination to determine what issues are addressed and to identify significant issues. QE²

completes the alternatives analysis, prepares the documentation, and facilitates any required meetings. QE² also coordinates wetlands specialists and other discipline experts, regulatory officials, and local, state, and federal government officials as part of the NEPA process. QE² specializes in tailoring NEPA assessments to meet the requirements of the federal agency to expedite the approval process and end result needed for a project to move forward.

Solid Waste Management Services

The QE² experience in municipal solid waste, preparation of comprehensive solid waste plans and feasibility studies, landfill and transfer station design, recycling programs and a full range of solid waste activities make us a capable turn-key solid waste service provider. Our staff provides top-level services in budget preparation and administrative management consultation. We are experienced in monitoring and remediation efforts such as installation and testing of groundwater monitoring wells and interpretation of test results. We offer:

Audits

QE² will evaluate ongoing operations to identify opportunities to improve solid waste storage, handling, transport or disposal. We also develop waste minimization plans.

Management Assistance

QE² will assist in management audits or evaluation of field activities to identify areas for cost-effective improvements relative to storage, collection, disposal or transport. We also assist in the preparation of operations, specifications or bid documents.

Landfill and Transfer Station Designs

QE² designs sanitary landfills and transfer stations. QE² can determine the feasibility of municipal waste-to-energy projects and



coordinate the completed design. A comprehensive study of waste stream constituents may be an integral part of the process.

Comprehensive Solid Waste Management Plans

QE² recognizes that each solid waste problem is unique. We will prepare integrated plans utilizing various technologies to attain maximum reductions of landfill wastes. Five year Solid Waste Plans are developed for municipalities throughout Tennessee.

Hazardous Materials Services

QE² has completed building evaluations for hazardous materials at literally hundreds of locations. Under the watch of Certified Hazardous Materials Managers (CHMMs), professional engineers, trained industrial hygienists, QE² conducts inspections, investigations, hazardous materials inventories, hazardous materials disposal and compliance reporting. Often these are accomplished for facility demolition and renovation programs for large public

buildings, hospitals and industrial complexes.

Asbestos

Staff members have successfully completed certified Asbestos Hazard Emergency Response Act (AHERA) training courses and can provide turnkey asbestos services, from

inspection to abatement and oversight.

Specific tasks conducted by QE² within our asbestos programs include:

- Pre-inspection review of available documents to gain familiarity with the site and building materials;
- Building inspections conducted by fully trained and qualified personnel;
- Asbestos sampling following AHERA protocol, where appropriate;
- Full report and record-keeping;
- Development of operations and maintenance plans;
- Cost estimating, abatement design approval and abatement oversight.

Lead-Based Paint Services

Members of our staff have completed courses in Commercial and Industrial Lead Abatement, Lead Inspection and Risk Assessment certification. QE² is licensed and fully qualified to inspect buildings for lead-containing building materials (lead-based paints, solder, batteries, etc.) in residential, commercial, and industrial settings, and give recommendations on abatement or maintenance activities.

Radon

QE²'s radon certified professionals evaluate residential, commercial and industrial facilities for radon. Buildings with statistically relevant occurrences of radon above EPA action limits are also subjected to abatement feasibility evaluations and abatement designs. QE² works for the State of Tennessee to evaluate public residences and office buildings for radon occurrence and abatement. These have included the Nashville Environmental Assistance Center and the Governor's Mansion.

Unknown Materials

As the Statewide environmental service contractor for the State of Tennessee, QE² is on call for emergency and non-emergency hazardous materials consulting and response services. With over 7,000 facilities statewide, QE² routinely responds to chemical and hazardous materials inventory identification and removal requests for everything from industrial cleaning materials to hospital wastes and open dumping incidents.

CERTIFICATIONS

QE² maintain all licenses, certifications and professional designations for the company and individual staff members as needed to accomplish a wide range of services including the proposed scope of services. Company Licenses held by QE² include:

- Tennessee Contractor's License (No. 51674)
- Corrective Action Contractor for the TDEC, DUST (C0488)
- Tennessee license for handling Radioactive Material in Tennessee (No. R47165-C18)
- License to conduct lead based paint activities (No. FTN2001-976)

Individual personnel certifications, licenses and training include:

- Professional Engineering in Civil and Environmental Engineering
- Professional Geologist
- Registered Land Surveyors
- Certified Hazardous Materials Managers
- OSHA 29 CFR 1910.120 - 40 Hour HAZWOPER Training
- OSHA 29 CFR 1910.120 - 8 Hour HAZWOPER Refresher Training
- DOT 49 CFR 172.704 – 16 Hour Hazardous Materials and Waste Regulations Training
- OSHA 29 CFR 1910 – 10 Hour General Industry Training
- OSHA 29 CFR 1910 – 30 Hour General Industry Training
- OSHA 29 CFR 1926 – 30 Hour Construction Industry Training
- OSHA 29 CFR 1910.146 – Permit Required Confined Space Entry Training
- OSHA 29 CFR 1910.134 – Respiratory Protection Training
- OSHA 29 CFR 1910.1030 – Bloodborne Pathogens Training
- OSHA 29 CFR 1910.134 – Respiratory Protection Training / Fit Testing
- OSHA 29 CFR 1926.500 – Fall Protection Training
- OSHA 29 CFR 1910.147 – Lockout/Tagout Training
- OSHA 29 CFR 1910.1200 – Hazard Communication Training
- OSHA 29 CFR 1910.178 – Powered Industrial Truck Training
- First Aid and CPR Training
- Certified Mold Inspector
- Mold Assessment, Remediation & Prevention (AIHA)
- Mold Assessment and Remediation in Buildings
- IAQ Mold Inspection and Mitigation Training
- Comprehensive Industrial Hygiene Training
- Mold, Allergens, Sampling and Report Interpretation
- AHERA Asbestos Building Inspectors (40 CFR 763)
- Asbestos Management Planners
- Asbestos Designers
- Asbestos Abatement Project Supervisors
- EPA Model Lead Inspectors TCA 68-131-401 and TSCA 402
- EPA Lead Inspector (EPA TSCA 40 CFR Part 745)
- Lead Risk Assessors
- ASTM E 1527-97 Standard Practice for ESA: Phase I ESA Process
- Visible Emissions Test Training
- NEHA Radon Measurement and Mitigation Training
- UST/AST Product Piping Installer Training
- TNPECA UST/AST Installation
- Commercial Drivers Licenses
- HAZMAT Certification required by U.S. DOT and IATA (Troxler)
- Solving Water Intrusion and Mold Problems
- TDEC Design Principles of Erosion Prevention & Sediment Control for Construction Sites (Levels I & II)



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