

**STATEMENT  
OF  
QUALIFICATIONS**

## **What is Web Engineering Associates, Inc.?**

Web Engineering Associates, Inc. was incorporated in 1975 as an engineering firm specializing in design and engineering services for the petroleum and chemical industries. These services included the design of tanks, piping, pumps, delivery systems, containment systems etc- all conducted in compliance with structural and environmental requirements of professional organizations and government.

Over the last 30 years, Web Engineering expertise has grown as the needs of our clients and the requirements of government and business have expanded. Web Engineering has now become a leading expert in:

### **Project Design and Operations**

- Underground/Aboveground Tank Design, Bulk Fueling Facilities, and Terminals
- Chemical Process and Waste Minimization Designs
- Mechanical and Fluid Control Systems
- Storm Water Management and System Designs
- Solvent Recovery Systems
- Waste Water Treatment Designs
- Oil Blending and Separator System Design and Operation

### **Soil / Water Assessment, Remediation, and Disposition**

- Innovative Clean-up Strategies for a Cost Effective Approach to the Problem  
Accenting Bio-Augmentation In-Situ Treatment
- Licensed Site Professional (LSP) Capabilities to Meet All Massachusetts  
Contingency Plan Regulatory Requirements
- Groundwater Recovery and Treatment Systems
- Soil Classification and Least Cost Disposal Options
- Brownfields Investigations and Demolition/Construction Oversight

### **Site Investigations**

- For Re-financing and Expansion
- Buying or Selling Property
- Investigating Releases or Threats of Release under EPA and State Regulations
- Hydrogeologic Studies
- Evaluation and Upgrading of Hazardous Waste Management Strategies

### **Regulatory Compliance**

- Water/Soil/Air Environmental Permitting
- Local Boards/Commissions Presentations and Approval Processes
- Stormwater Compliance Issues
- Expert Testimony

### **Advantages of Utilizing Web Engineering Services**

Web Engineering Staff are dedicated to providing personal service and pride themselves in producing the highest quality work in a cost effective framework. Recent remedial efforts utilizing our own bioremediation products have produced solutions to groundwater and soil contamination, in situ, at a fraction of the cost of more traditional removal and disposal practices.

Providing solutions to engineering/environmental problems requires expertise in many different disciplines. Web Engineering utilizes a team of Engineers (mechanical, chemical, and civil), Hazardous Materials Managers, Environmental Scientists, Geologists, Hydro-Geologists, Surveyors, and Regulation Specialists to provide site specific solutions to unique client problems. This distinguishes Web Engineering from other engineering companies that simply provide “boiler plate” solutions to address individual client needs.

Still a small (under 25 employees) personal Company, Web engineering has and will continue to strive for a level of excellence both in professional expertise and in client relations. Web will continue to grow in the new millennium, however, our approach to professionalism and client service will not be compromised.



## **SELECTED PROJECT SUMMARIES**

**Web Engineering Associates, Inc.**  
**Project Summary**

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**LePage's Inc., Adhesive Tape Manufacturer**  
**Gloucester, Massachusetts**

**Project Elements:**

- Engineering and Design - Resin and Flammable Liquids Processing
  - Regulatory Permitting
  - Town Hearing and Approval
  - Contractor Selection
  - Construction Oversight
- 

LePage's, Inc., located in Gloucester, Massachusetts, is a manufacturer of adhesive tapes and glues. Their manufacturing process combines a specialized resin with various aromatic and aliphatic solvents in a batch reactor to achieve the desired formulation for the tape's adhesive backing.

Prior to Web Engineering's involvement at LePage's, resin was stored in 55 gallon drums. To prepare a batch, the operator was required to manually transport over 15 drums to the manufacturing floor and individually pump the viscous resin from each drum into the various batching tanks. This labor intensive procedure required up to six hours to complete.

Because the existing batching system was not equipped with a means of measuring the volume delivered to the reactor tanks, the operator relied upon the volumetric accuracy of each individual 55 gallon drum to deliver the desired volume. Because residual resin always remained in the bottom of the drum after pumping, losses were extensive. Also, because of the high degree of handling that was required, the opportunity for spillage was always present.

LePage's desired to install a new resin system which would eliminate the handling of 55 gallon drums and would have the capacity to accurately measure individual deliveries. LePage's Inc. retained the services of Web Engineering to design and install the new system in a turn-key operation design/construction operation.

As a result, Web designed a system by which the resin would be stored in two 6,000 gallon aboveground storage tanks. Under the new system, deliveries to the batch reactors were accurately controlled by a weigh cell system. Because of the effect of impurities on the adhesive coloration, the new tanks and piping were fabricated of

special stainless steel. The new tanks and piping also required accurate temperature and mixing controls. The ultimate process required the integration of solenoid valves in order to further control accuracy and to reduce the opportunity for spillage.

The ultimate benefit of the new system was that exposure to the resin and its flammable, noxious vapors was essentially eliminated. Also, a six hour operation was reduced to approximately 15 minutes.

Because of the flammability of the resin, the tanks were enclosed inside a concrete block vault with explosion vapor detection. The new vault conforms to all NFPA and local fire department requirements with respect to fire protection and rating, and emergency and normal ventilation.

Web Engineering also designed a new solvent storage system. The new system included new underground storage tanks that met all recent state and federal upgrade requirements and a new delivery and inventory control system. Because of an extremely shallow bedrock, the new tanks could not be installed below grade. Therefore, a new reinforced concrete vault was installed above grade. The new tanks were installed inside the vault and backfilled with peastone as though they were underground tanks.

Web Engineering represented LePage's at all town hearings and obtained the necessary permits, licenses, and town approvals. Web solicited contractor bids from within the five required disciplines and managed the entire project from ground breaking to closure. Field engineering included a new storm water management system with spill protection.

**Web Engineering Associates, Inc.**  
**Project Summary**

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**Wilkes Passage Lofts**  
**Boston, Massachusetts**

**Project Elements:**

- Brownfields Redevelopment Project
- Sub-surface Assessment/Characterization
- Soil Management Plan (disposal, re-use, stabilization)
- Construction Oversight
- Site De-Watering
- Regulatory Filings and Compliance

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The Wilkes Passage Lofts Project is a large Brownfields urban redevelopment project situated on approximately 1.5 acres in Boston, Massachusetts. Web Engineering Associates (Web) performed historical and subsurface investigations including the drilling of soil borings and the installation of groundwater monitoring wells to help characterize soil and groundwater as well as identify various former site uses. Historical research indicated the possible presence of several underground storage tanks (USTs), hydraulic lifts and reservoir assemblies, aboveground storage tanks (ASTs), and a former gasometer. Web's subsurface investigations indicated widespread contamination of site soils including reportable levels of metals (lead, mercury), polycyclic aromatic hydrocarbons, and total petroleum hydrocarbons. The investigation also confirmed the existence of tanks, hydraulic lifts and the gasometer.

Based on its findings, Web made notification of a release of oil and hazardous materials to the Massachusetts Department of Environmental Protection (MADEP). Shortly thereafter, WEB submitted a Phase I Initial Site Investigation and Tier Classification Package to the MADEP.

A Soil Management Plan was then prepared to determine the various stabilization, reuse and disposal options that would be utilized for the large quantities of soil (>60,000 cy) required to be excavated and removed from the property for the construction of the mixed-use development. Web then prepared and submitted to the MADEP two Release Abatement Measure (RAM) Plans to address contaminated media discovered in association with previously unknown USTs/ASTs and to address the removal, stabilization, re-use, and/or disposal of the identified contaminated soil.

Web also inspected and oversaw demolition activities with responsibility for environmental concerns. This included the removal and disposal of gas cylinders, ASTs with fuel oil, drums of waste oil, and numerous small containers of various paints,



solvents, fuels, oils, etc. Web then directed excavations to locate known and unknown USTs and hydraulic lift reservoirs. Once located, contents were pumped-out and tanks cleaned, with liquid and sludge contents shipped off-site for disposal or recycling, and the tanks themselves removed from the site for reuse as scrap metal.

Earthwork activities then commenced with the stabilization of selected soil areas displaying significantly elevated Toxic Characteristic Leaching Procedure (TCLP) lead concentrations. The stabilization process rendered the soils non-hazardous and thus eligible for re-use as cover at landfill facilities. General excavation and off-site transport of soils then commenced with selected soils being re-used through asphalt batch recycling, other soils being used for daily cover at either lined and unlined landfill facilities, and some soils being disposed of at lined landfill facilities. During the course of excavation, four additional unknown USTs with product were encountered, two of which were disturbed and resulted in releases. Web made notifications and directed Immediate Response Actions (IRAs), ensuring that the tanks and their contents were removed from the site and disposed in compliance with all regulations. Release Notifications and Immediate Response Action Completion Statements were then prepared and submitted to the MADEP.

In order to control groundwater at the site, a dewatering permit was obtained by Web on the client's behalf. Due to the mostly non-impacted groundwater present at the site, sedimentation was the only pre-treatment required by regulatory authorities. Web acted as the compliance monitor for the system's operation and collected effluent samples on a monthly basis, which were then submitted for selected analyses. A final report on de-watering activities was submitted to the EPA and MADEP.

## **Web Engineering Associates Project Summary**

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### **Massachusetts Bay Transit Authority**

#### **Project Elements:**

- Characterization of PCB Site
  - Coordination with EPA to comply with TSCA Regulations
  - Design of PCB Cleanup Plan and Oversight
  - Site Closure with EPA and compilation of EPA Self-Implementation Report
- 

PCBs were detected by the Massachusetts Water Resources Authority (MWRA) in wastewater believed to be originating from an MBTA facility. PCB concentrations were above the limits set forth in the MWRA permit and direction was given to the MBTA to investigate the possible sources of the PCB concentrations in the sewer discharge.

Upon gaining knowledge of these exceedances, the MBTA contracted to perform a PCB Source Evaluation Investigation and Report. The purpose of the report was to evaluate potential PCB sources to the wastewater.

The site was initially investigated to determine if PCB containing substances were in use at the site. Following detailed inspections, interviews with MBTA personnel, and wipe sampling of operational rail cars, it was concluded that PCB containing materials were not presently utilized at the MBTA facility. This lack of identifiable sources led to the development of a sampling plan with the purpose to characterize areas of the site that were within the wastewater collection, flow, and discharge systems. To determine the nature and extent of source contamination, the program consisted of the collection of sediment, wastewater and surface wipe samples from accessible areas within three areas of concern.

The goal for the cleanup plan was to eliminate the bulk PCB remediation waste associated with the historical unknown release to a drainage trench and its associated piping. Moreover, the cleanup plan was intended to remove possible lower PCB sources from other areas in the facility and the PCBs in the sewer discharge water to the MWRA.

Following decontamination of several concrete surfaces, confirmatory samples were collected from the rail car drainage trench, a sedimentation tank, and the MWRA manway. Sample preparation and decontamination of the sampling equipment was overseen by Web Engineering. All samples contained concentrations less than 1 mg/g, below the cleanup standard for EPA “high-occupancy” areas.

Following the decontamination procedures in the sedimentation tank, two concrete confirmatory samples were collected from the base of the sedimentation tank. These samples were submitted for PCB laboratory analysis. The two sedimentation tank samples yielded concentrations below detection limits and 0.1 mg/g, well below the PA 1 mg/g cleanup standard for porous surfaces and concrete in “high occupancy areas.”

Following the findings of significantly lower PCB concentrations illustrated by the confirmatory concrete sampling, the rail car wash area was again operated .In addition, once the compressor room and drainage line decontamination activities were complete, confirmatory water samples were collected from the MWRA manway and submitted for analysis. This sample yielded no detectable concentrations of PCBs. To confirm this result, washing activities were continued and the MWRA manway was resampled and the water sample submitted for laboratory analysis. Again, the sample yielded no detectable concentrations of PCBs, thus achieving the cleanup goal.

**Web Engineering Associates, Inc.**  
**Project Summary**

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**The Central Artery North Area (CANA) Parcel – The Nautica**

**Project Elements:**

- Soil Sampling, Analysis and Characterization
  - Soil Management Plan
  - Soil Removal Oversight
  - NPDES De Watering Permit and Groundwater Bioremediation
  - Sensitive Harbor and Marina Surface Water Protection
- 

The Nautica site is located in Charlestown, MA, adjacent to the USS Constitution berth and the Constitution Marina. The CANA Parcel is the location of a planned large upscale waterfront residential re-development project in Boston (Charlestown), MA. The project area has high visibility and as such, environmental assessment and potential re-development impacts to the Boston Harbor and the Marina must be carefully controlled.

Soils at this location were determined to contain Polynuclear Aromatic Hydrocarbons (PAHs), lead, and petroleum hydrocarbons at concentrations in excess of Reportable Concentrations. According to Charlestown records, the CANA property, was formerly a section of an overall larger state property, which was first developed in the 1700's into one of the largest colonial maritime shipping facilities in the United States.

A comprehensive study of subsurface soil and groundwater conditions was subsequently completed by Web Engineering. The source of the detected contaminants was determined to be urban fill materials typical and ubiquitous throughout Boston, with the exception of an isolated subsurface area where elevated lead concentrations were determined to originate from within a leaded bottom stone cistern used historically to hold water for firefighting.

A Release Abatement Measure was developed and implemented to remove the urban fill material down to the underlying natural marine clay. Removal of the material was physically and structurally necessary to allow construction of the planned residential buildings and associated underground parking structures. All fill material was removed under proper manifests or Bills of Lading from the site, effectively encompassing the entire property.

As part of re-construction, concrete forms were used to construct reinforced concrete walls and floors. Equipment and Form Oil were therefore present and impacted the site. Web devised a microbial treatment program to treat contaminated groundwater in

the frac tanks prior to release to the Harbor. Web also was able to neutralize a high pH (caused by the presence of fresh concrete) with CO<sub>2</sub> in the frac tanks and maintain compliance with the NPDES permit.

A total of 103,000 tons of soil were transported to the Chelmsford Landfill for reuse as daily cover. 3,800 tons of soil were transported to Aggregate Industries in Stoughton, MA for asphalt batch recycling. Ten (10) cubic yards of lead contaminated soil was transported to the Waste Management Turnkey Landfill in New Hampshire. The last was removed from within the confines of the historic cistern. Web personnel categorized and oversaw removal of all soil disposition.

Analysis of the underlying native clay indicated that historical anthropogenic activities have not impacted the clay. Target analytes were present but only at concentrations that would exist in the absence of a release to the environment.

Because the urban fill materials have been removed from the site, Web Engineering concludes that background environmental conditions that would exist at this site in the absence of historic anthropogenic activities have been achieved. Therefore, a condition of no significant risk to health, safety, public welfare, and the environment exists at this site while construction continues.

**Web Engineering Associates, Inc.**  
**Project Summary**

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**U.S. Government/Dept. of Veteran's Affairs**  
**Veteran's Administration Hospital - Boiler Plant/Generator Fuel Storage**  
**Bedford, Massachusetts**

**Project Elements:**

- Engineering and Design – Underground Storage Tanks/Boiler Plant Feed System
  - Federal Specifications
  - Construction Cost Estimation
  - Bid Solicitation
  - Construction Oversight
- 

Web Engineering designed and supervised the removal and replacement of fourteen underground storage tanks at the VA Hospital. The new tanks were ACT 100 double-walled, steel construction with fiberglass cladding. Eleven of the tanks are used to store diesel fuel for the hospital's emergency generators. Three are used to feed the hospital's boiler plant.

Web Engineering prepared plans and specifications in accordance with federal formatting and general requirements.

During removal and replacement of the tanks, Web Engineering handled all environmental issues related to the groundwater and soils such as NPDES permitting and soil management. Web Engineering acted as liaison between the contractor, local, state, and federal agencies and the hospital administration. Web Engineering approved all work prior to payment.

## **Web Engineering Associates, Inc.**

### **Project Summary**

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#### **Residential Underground Storage Tank Release Cohasset, Massachusetts**

##### **Project Elements:**

- Contaminated Soils and Groundwater Present Upon Removal of an Underground Fuel Oil Tank
  - Contamination Extended Under the Residential Structure
  - Soil removal Limited due to Possible Undermining of Home
  - Installation of Injection Points for In-Situ Treatment
  - Periodic Application of Microbes Through Injection Points
  - Site Closure Within Six Months
- 

Oil contaminated soils and groundwater were initially observed at a residential property during the removal of a 275 gallon underground storage tank (UST). The dwelling was constructed on a concrete slab with a shallow footing. The UST was located immediately adjacent to the footing. Excavation of the contaminated soils was limited because of the risk of undermining the footing and the nearby septic system. Analysis of the residual contaminated soils in the sidewalls of the excavation reported an average TPH level of 2,057 ppm. A groundwater sample indicated a TPH level of 880 ppm.

Because residual contaminated soils were present beneath the dwelling and near the septic system, in situ bioremediation was the best method to clean the site. A mixture of microbes, nutrients and oxygen enhancers were applied to the impacted area via four injection points installed with perforated pipe.

The soils and groundwater were re-sampled four months after the applications. The results of these analyses reported no detectable levels of TPH in the groundwater and an average TPH concentration in the soils of 118 ppm. These levels are well below the cleanup standards for residential properties. The cost of the bio-treatment, including all materials and labor was less than \$2,000.00.

**Web Engineering Associates, Inc.**  
**Project Summary**

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**Mission Main Housing Redevelopment Project**  
**Boston, Massachusetts**

**Project Elements:**

- UST Removal Management
  - Urban Soil Management (Removal, Re-use, Disposal)
  - Demolition Material Beneficial Use Determination (BUD) Permitting
  - Gasometer Remediation
- 

The Mission Main Housing Development is located on a 23 acre parcel in the Roxbury section of Boston. This is the largest housing re-development project in the history of Boston. Web Engineering served as Environmental Manager for the comprehensive re-development of this property. The re-development program consisted of the demolition of 33 existing buildings and construction of new multi-family residential buildings. Web Engineering provided consistent support during a five year period to ensure full environmental compliance during the re-development process.

During the course of the re-development program, Web Engineering also identified that a demolition contractor had, prior to Web Engineering's involvement at the subject property, demolished buildings containing asbestos mastics, crushed the material on site, and reused the material as structural backfill. Upon determining this action, Web Engineering halted the construction activities at the site, removing any potential liabilities from Web Engineering's client. Web subsequently provided technical assistance to the responsible public agency's consultant during a \$6 million asbestos cleanup. For future demolition, Web Engineering obtained for the client a Beneficial Use Determination (BUD) and oversaw the program allowing lawful on-site reuse of the non-asbestos building materials. The client estimated cost savings in excess of \$300,000 resulting from the BUD permit.

During demolition and construction, Web Engineering worked closely with the site construction managers and site contractors to ensure ongoing compliance with all applicable environmental regulations including asbestos, hazardous waste, air quality, and water quality. Web Engineering also regulated and oversaw the removal of underground storage tanks as well as a tank closure in place where removal would impact a MBTA power line.

## **Web Engineering, Associates, Inc.**

### **Project Summary**

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**Coan, Inc.**  
**Natick, Massachusetts**

#### **Project Elements:**

- Engineering and Design - 210,000 gallon Bulk Oil Storage and Truck Loading
  - Regulatory Compliance
  - Project Management
  - Construction Cost Estimation
  - Construction Management
  - Fire Protection
  - Spill Prevention, Control, and Countermeasure (SPCC) Report
- 

**Coan, Inc.**, located in Natick, Massachusetts, is a major retail distributor of home heating fuel in the Natick area and its surrounding community. Coan, Inc., in business for over 50 years, was faced with replacing an aging oil storage and delivery system which did not meet current and future regulations associated with Code of Massachusetts Regulations, 527 CMR 9.00, "Tanks and Containers", as well as federal regulations. Coan, Inc. retained the services of web Engineering Associates, Inc., to perform the redesign.

As Project Manager, Web Engineering performed a complete design and construction oversight of a new 235,000 gallon bulk oil storage and distribution system for Coan, Inc. The new facility consisted of seven 35,000 gallon and one 20,000 gallon aboveground storage tanks contained in a steel reinforced, concrete containment dike. The containment dike was covered with a steel canopy for storm water management purposes.

The functions at the facility included loading of household oil delivery trucks at four bays- two with top loading and two with bottom loading.. Each bay was capable of delivering 500 gallons per minute simultaneously from two pumps working in parallel. Also constructed was a state of the art inventory control system which eliminated paperwork, reduced manpower, and increased management control.

The new facility had a complete Spill Prevention, Control, and Countermeasure (SPCC) Plan developed by Web that not only fulfilled Federal requirements, but also combined state of the art controls with best engineering practices to provide a fail safe system. In addition, as part of the development of the bulk plant, 3,000 yards of contaminated soil were generated. Web supervised the development of an on-site biopile utilizing microbes to treat the soil for on-site re-use saving the client disposal costs of approximately \$150,000.

**Web Engineering Associates, Inc.**  
**Project Summary**

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**GE Aircraft Engines**  
**Lynn, Massachusetts**

**Project Elements:**

- Engineering and Design:
    - 1) Hazardous Waste Storage
    - 2) Inventory for multi-million gallon No. 6 Fuel Oil Facility
    - 3) Feasibility Study for Wastewater Treatment System
  - Project Management
  - Emergency Response
  - Tank Testing
  - Application Development - Pilot Study/Scale-up
- 

GE Aircraft Engines, located in Lynn, Massachusetts, has retained the services of Web Engineering Associates, Inc. for numerous projects. These projects included surveying all of their oil and waste oil storage facilities, tank tightness testing, product inventory control, and waste water treatment. Web Engineering has performed as Project Manager on most of these projects. The following descriptions describe the projects in which Web Engineering has served as Project Manager and Project Engineer:

**Hazardous Waste Storage:** Web Engineering supervised the installation of four underground and five aboveground storage tanks for GE Aircraft Engines facilities in Lynn, Massachusetts. All tanks met state and federal standards for the storage of flammable and combustible liquids. Each tank was equipped with state-of-the-art interstitial monitoring devices and inventory control equipment.

**Inventory Control:** Web Engineering was selected to determine the best method to inventory nine underground storage tank contents used to store up to 800,000 gallons of highly viscous No. 6 fuel oil each.

**Application Development:** Web Engineering performed a pilot study to determine the applicability of ultrasonic technology to No. 6 fuel oil. In response to a successful study, Web prepared drawings and specifications for full scale application.

**Wastewater Treatment:** Web Engineering investigated various options for treatment of an oily condensate discharge resulting from their air compressor plant. They reported on the various technologies and their feasibility with respect to the oily condensate. The text of this report is included in this section.

**Web Engineering Associates, Inc.**  
**Project Summary**

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**Rexam Graphics, Solvent Storage and Delivery Facility**  
**South Hadley, Massachusetts**

**Project Elements:**

- Engineering and Design - Underground Storage Tanks, Solvent Delivery
  - Supervise Structural and Geotechnical engineers in concrete, canopy, and pipe bridge work.
  - Construction Cost Estimating
- 

Rexam Graphics, located in South Hadley, Massachusetts, desired to replace all underground storage tanks for their solvent storage facility in order to meet Code of Massachusetts Regulations 527 CMR 9.00, "Tanks and Containers". Rexam Graphics retained the services of Web Engineering Associates, Inc. to perform the design services for the new facility.

The new facility consists of a combination of multi-compartmentalized underground storage tanks containing up to nine solvents and process liquids. The underground storage tanks are contained in a concrete containment vault. The containment vault is covered by a new canopy in order to prevent rainwater from mixing with solvents.

The piping for the tanks travels to 18 locations throughout the plant. The piping required three new piping bridges that transverse an on-site stream. One of the pipe bridges was designed with a walkway to allow a man to cross the stream.

As Project Manager, Web Engineering supervised the design of all phases of the work including mechanical design of the tanks and piping, as well as geotechnical and structural design of the canopy, pipe bridges, and concrete containment work.

**Web Engineering Associates, Inc.**  
**Project Summary**

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**Kerosene Release to a Bordering Vegetated Wetland**  
**Halifax, Massachusetts**

**Project Elements:**

- Pump and Treat System
  - Bio-treatment of Subsurface Soils and Groundwater
  - Bio-treatment of Wetlands Soil and Groundwater
  - Complete Wetlands Restoration
  - Reduction of Biomass in Separator /Carbon Treatment System
- 

In 1991 a local resident first observed the presence of kerosene within Turkey Swamp in Halifax. Initial inspections identified separate phase kerosene impacting approximately ½ acre of swamp. Neither the separate phase kerosene nor the dissolved contaminants had reached the nearby brook. Nevertheless, the volume of kerosene was estimated to be 50,000 to 100,000 gallons which had leaked from an underground heating supply line.

A series of 7 recovery wells were installed along the edge of the wetland and upgradient in the area of highest contamination. Kerosene and water were pumped to an oil/water coalescing separator where the oil was sent to a storage tank and the effluent was sent through a carbon treatment system and discharged back into the swamp per the NPDES Permit. A recharge distribution system was designed to prevent further migration of kerosene into the swamp and to replenish the water in the swamp.

In 1993, a portion of the impacted wetland was treated with microbes and nutrient in order to determine if bioremediation could speed the recovery of the wetland vegetation. Results indicated that after 45 days, the introduced microbial population was present in all of the test areas along with a significant reduction in the levels of petroleum hydrocarbons. A program of inoculating certain monitoring wells was thus instituted. The introduction of microbes increased activated carbon life by four times, from two months turnaround to 8 months turnaround.

The results of recent assessment work indicate that the wetland has fully recovered. Free phase kerosene is no longer present in the wetland and has been vastly reduced upgradient. These results have been achieved with minimal impact on the wetland itself with no excavation or removal of wetland soils and no wetland replication.

**Web Engineering Associates, Inc.**  
**Project Summary**

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**Junior High School- Fuel Oil Leak Under Basement Concrete Floor**  
**Southeastern Massachusetts**

**Project Elements:**

- Contaminated Soil and Groundwater Inaccessible
  - Bioremediation of Groundwater and Soil
  - Circulation System Set Up to Collect and Treat Contaminated Groundwater
  - Huge Cost Savings with No Excavation
- 

Web Engineering was called upon to clean up an oil leak associated with a fuel oil boiler system at a school in Southeastern Massachusetts. The oil had leaked through the floor around the foundation of the boiler. When a sump pump failed during a heavy rainstorm, oil floated up through the floor covering the floor with oil. Oil had also saturated the soil under the boiler room floor.

The oily floor was treated with microbes and a bio-treatment system was set up whereby the discharge from the sump pump was connected to a temporary above ground tank. This contaminated water was treated in the tank with microbes, and nutrients. Air from the boiler room compressor was also piped into the tank to ensure aerobic conditions were present for the microbes. The water from the tank was re-circulated back under the floor to bathe the soil and groundwater with microbes and nutrients.

The oily water in the tank had an average concentration of petroleum hydrocarbons of 750 ppm when entering the tank. After treatment, the petroleum constituents were reduced to 4 ppm and ultimately sent through carbon before discharging to a nearby swamp. The bioremediation process lasted 6 months with no excavation or replacement of the concrete floor. It is estimated that the town saved \$150,000 in cleanup costs by using this in-situ process.

**Web Engineering Associates, Inc.**  
**Project Summary**

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**Peabody and Brown**  
**Boston, Massachusetts**

**Project Elements:**

- Expert Witness
  - Value Engineering
  - Structural Failure Analysis
  - Literature and Code Research
  - Mediation Participation
- 

Web Engineering Associates, Inc. provided expert witness services for a mediation process involving the U.S. Naval Education and Retraining Center, Newport, RI and its contractors. Under a federal contract, two 1,000,000 gallon underground storage tanks were installed in 1994. Before the tanks were placed into service, hydrostatic pressures resulting from a high water table caused structural failure of the tanks. Web Engineering was hired by the contractor's surety company to investigate the failure.

Web Engineering performed a structural analysis and determined that the tanks were not designed to withstand the hydrostatic pressures to which they was subjected. In addition, Web Engineering reviewed the available literature and construction codes in order to determine whether the protective measures incorporated into the design were appropriate to the intended use.

Web Engineering participated in the mediation process. The purpose of the mediation process was to determine degrees of responsibility and develop an equitable settlement. Web Engineering presented the results of the failure analysis and literature research to the Navy mediator on behalf of the surety company. Web Engineering was successful in significantly reducing the contractor's liability through their findings.

In addition, Web Engineering performed "Value Engineering" for the project. Value Engineering is a process by which the involved parties search for a more economical solution to a given project. Web Engineering provided design services which would have resulted in a savings of over \$100,000.

**Web Engineering Associates, Inc.**  
**Project Summary**

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**Boston Autoport/Mystic Marine Refueling Facility**  
**Charlestown, Massachusetts**

**Project Elements:**

- Engineering and Design – Major Marine Refueling Terminal
  - Regulatory Compliance
  - Public Hearings
  - Project Management
  - Construction Management
  - Fire Protection
  - Spill Prevention, Control, and Countermeasure (SPCC) Report
- 

Web Engineering Associates, Inc. designed and oversaw the installation of the largest marine refueling facility in Massachusetts. The marine refueling facility services harbor cruise vessels, small commercial boats, and pleasure crafts. The facility provides an annual throughput of 1.5 million gallons of diesel fuel and .5 million gallons of gasoline. Flow rates at the facility vary from 15 gallons per minute (small craft) to 200 gallons per minute (harbor cruise vessels). The design also included fueling automobiles and car carriers. Fuels stored include 10,000 gallons gasoline, 10,000 gallons road diesel, and 10,000 gallons marine diesel in two tanks under a fueling canopy.

Web Engineering oversaw the installation of all aspects of the project, including 200 feet of docking, fifteen refueling receptacles, over 500 feet of stainless steel piping, multiple septic pumpout facilities. Elements of the project included hydraulic calculations, structural design, spill prevention, sewer permitting, tidal interpretation, open water oil deployment booms, regulatory compliance, and interfacing with public agencies and holding public hearings.

Web Engineering interfaced with the Boston Conservation Commission, the U.S. Department of the Army, the U.S. Coast Guard, the Massachusetts State Fire Marshal, Massachusetts Port Authority Fire and Rescue, Massachusetts Coastal Zone Management, Division of Fisheries and Wildlife, Boston Water and Sewer Commission, Massachusetts Department of Environmental Department (Division of Waterways), and Massachusetts Port Authority Risk Management.

Web Engineering prepared and implemented a federally required Spill Prevention, Control, and Countermeasure (SPCC) Plan.

# **RESUMES**

**WILLIAM E. BAIRD, PE, LSP**  
**President, Web Engineering Associates, Inc.**

Lafayette College 1965

B.S. Mechanical Engineering

Boston College 1973

Masters, Business Administration

Registered Professional Engineer - Commonwealth of Massachusetts

- New Hampshire

Registered Licensed Site Professional - Commonwealth of Massachusetts

Certified Waste Water Treatment Plant Operator - Commonwealth of Massachusetts

LSP Association, Inc. - Member, Education Committee, Board of Directors

American Society of Petroleum Operations Engineers - Member, Past President

American Society Agricultural Engineers

National Association of Environmental Professionals

National Groundwater Association

OSHA Confined Space Entry Certification

OSHA 40 Hour Hazardous Waste Operations Certification

- Lectures and "Critical Papers" - Manuscript - Pollution Engineering, July 1988 - Evaluation of EPA's UST Testing Apparatus"
- American Society of Petroleum Operations Engineers - "Examination of Above Ground Petroleum Storage Tank Bottom/Shell Weldments"

- Article - New England Real Estate Journal, "Proper Control Needed To Keep Tanks An Asset"
- Guest Lecturer - California Association of Health Professionals - Underground Tank Dynamics and Physical Principles Affecting Precision Testing
- Guest Lecturer - USAF Precision UST Testing Methods
- Guest Panelist - American Society of Mechanical Engineers- Physical Principles of Underground Tank Leak Detection

Continuing Education:

University of Wisconsin Professional Courses:

Cathodic Protection of Underground Structures  
 Underground Storage Tank Management  
 Liquid Storage Tank Installation

National Association Corrosion Engineers, Professional Courses:

Cathodic Protection, Corrosion Basics

Second International NACE/MTI Symposium - AST; Design, Inspection, Maintenance

Northeastern University:

Graduate Courses in Environmental Engineering

Government Institutes:

Environmental Laws and Regulations

University of Massachusetts:

Annual Seminars on Petroleum Products in the Environment and Remediation Technologies

Environmental Protection Agency:

Leak Detection Technology Transfer Seminar

Environmental Protection Agency:

Region IV Seminar on Remediation of Petroleum Contaminated Sites

American Petroleum Institute:

1999 Storage Tank Management and Technology Conference

National Groundwater Association/American Petroleum Institute

2000 Petroleum Hydrocarbons and Organic Chemicals in Ground Water

MADEP/LSPA – Design and Present Conceptual Site Model Course

- |                         |   |  |
|-------------------------|---|--|
| Instructor<br>Wisconsin | - | Hartmann Management Services - University of   |
|                         | - | UST Installation Course  |
| Expert Witness          | - | Provided expert witness regarding an explosion and fire during a gasoline delivery   |
|                         | - | Provided expert witness regarding vibration stress failure of 12” diameter LNG pipeline  |
|                         | - | Chapter 21E Site Assessment - US Bankruptcy Court  |
|                         | - | Numerous appearances before Planning Boards, Selectmen, Zoning Board of Appeals, Conservation Commissions regarding Storage Tank Designs/ Operation                  |
| Expert Consultation     | - | Provided report documenting tank installation practices, tank management, petroleum industry practices, regulations and recommended practices regarding tank failure |
|                         | - | Provided a report regarding tank management practices and residual groundwater contamination   |

- Assisted Department of Defense in evaluation of leak testing equipment for a 1,000,000 gallon UST
- Witnessed excavation and provided report regarding failure of cathodically protected UST - 3 Sites
- Provided a report detailing the safety violations which caused an explosion while a gasoline underground storage tank was being abandoned.
- Examined a tank failure of a new tank installation and provided a report detailing the cause of the failure
- Naval Education and Training Center - Investigate Failure of Two-1,000,000 Gallon Underground Storage Tanks, Review Design, Provide Expert Testimony as to Cause of Failure

Invention

- Co-invented and developed the “Tank Auditor” (Patent #4811601). A certified precision underground storage tank testing method. (10,000+ tests have been conducted with this method)
- Co-invented a hydraulic separator pump to condense and remove floating products (Patent #5207897)

Public Service

- Elected Member - Town of Cohasset Board of Health- 7 years, Chairman, Clerk
- Town Committees:  
 Recycling Transfer Station  
 Watershed Protection  
 Sewer Study  
 Hazardous Materials

1975

President of Web Engineering Associates, Inc.

to  
Present

Professional Staff - 5 Engineers, 1 Environmental Scientist,  
4 Geologists,  
1 Land Use Planner, 1 Technician

Petroleum & Chemical Engineering: Included in design experience is tanker and barge terminal facilities, bulk oil plants, hazardous waste storage systems, marinas, service stations, industrial fuel oil storage systems, tank truck and railroad loading and unloading facilities, air pollution control systems, spill prevention control and countermeasure plans, pump and piping systems, tank heaters, tank repair, lube oil storage and drumming facilities, solvent storage, solvent distillation, chemical waste water treatment, piping and process systems.

The products include crude oil, #1 to #6 fuel oils, gasoline, fish oils, flammable solvents, alcohols, chlorinated solvents, heated flammable resins, natural gas, steam, pesticides, and herbicides.

Environmental Engineering: More than 400 site investigations for surface and subsurface contamination. Included in experience is investigation of petroleum, solvents, pesticides, PCB and foundry landfill plumes, design and installation supervision of interceptors and recovery equipment; innovative bioremediation, vacuum educators, air stripping columns, water and vapor carbon systems, landfill capping, monitoring and reports.

Tank Testing: 2 full time crews have precision leak tested 4000+ tanks.

1996  
to  
Present

Founded MicroSorbâEnvironmental Products, Inc. a company to facilitate the use of wastewater treatment systems and insitu bioremediation through design and application of microbes and to distribute microbial remediation and microbial cleaning products.

1983  
to  
Present

Founded Leak Detection Systems, Inc., a company to license and market the "Tank Auditor".

1975  
to  
1981

Construction: Developed a mechanical construction company which employ 20+ people with annual sales of \$1,000,000.00+ Construction projects included a \$225,000.00 tank truck loading facility for gasoline

and distillates with vapor recovery. Installation of 3000' of 14" diameter pipe connecting tanks, pumps and loading facilities; installation of 600' of 6" diameter high pressure natural gas pipeline; installation of plant and equipment to reclaim solvents; underground storage tank removals and installations; stainless steel process and steam piping.

1973 Proprietor, Web Engineering Associates

to

1975 Began company to provide engineering and construction expertise to oil industry. Engineering projects included engineering review of the design of a 600' - 24" diameter #6 oil line; design of a 40' pipe bridge; design of Spill Prevention, Control and Countermeasure Plans. Construction experience included developing a company to provide service station pump and tank installation and small bulk oil storage plant installation.

1971 Engineer, Chevron Oil Company, Western Division, Marketing  
to Operations, Denver, Colorado

1973

Develop and coordinate company wide projects for five marketing divisions in ten Mid-Western states. Projects included feasibility study of lube oil blending and canning plant, construction costs- \$2,000,000.00, annual costs- \$12,000,000.00; design and implementation of a \$3,000,000.00 OSHA compliance program; gasoline, diesel and aviation fuel quality control; development of an environmental protection program; implementation of compliance with Department of Transportation regulations.

Responsible for specification and purchase of equipment and facilities, including transport tank trucks; warehouse and bulk storage facilities, self service gasoline stations, and tank truck loading facilities, vapor recovery equipment.

1968 Associate Engineer, Chevron Oil Company, Eastern Division New  
to England Region

1971

Responsible for estimating costs, payout calculations, and engineering design and construction in eighteen bulk plants and two terminals in Maine, New Hampshire, and Massachusetts. Responsible for estimating costs, design, presentation of plans to local officials, and construction of service stations.

Major projects included analysis, design and installation of new tanker terminal piping system; improving loading rack capacity and safety; oil spill contingency plan; designed, secured permits and supervised construction of sixteen service stations.

1965 Associate Design Engineer, Chevron Oil Company, Eastern Division,  
to Perth Amboy, New Jersey

1968

Responsible for estimating costs, payout calculations, design, drafting, field construction, and contract administration on refinery projects.

Work included engineering supervision of plant shut-downs; piping systems to heat exchangers, columns, furnaces and tanks; tank inspections and repairs; rebuilding furnaces, fuel filters to loading facilities; water and air pollution control projects.

**JONATHAN ALAN AISNER, LSP**  
**Senior Hydrogeologist, Web Engineering Associates, Inc.**

**EDUCATION**

M.S., Geology, University of South Florida, 1981.

B. S., Geology, Morehead State University, 1978.

**REGISTRATION**

Commonwealth of Massachusetts Licensed Site Professional

Registered Environmental Manager, National Registry of Environmental Professionals

**CERTIFICATION**

Certified Professional Geologist, American Institute of Professional Geologist

SARA (OSHA 1910.120) Hazardous Waste Operations (HAZWOPER) Training

United States Coast Guard Auxiliary

**PROFESSIONAL EXPERIENCE**

**Senior Hydrogeologist; Web Engineering Associates, Inc. (Present)**

Responsible for coordination, implementation and management of environmental consulting and contracting projects including (but not limited to), Phase I environmental site assessments, Phase II surface and subsurface soil and groundwater investigations, remedial investigations and remedial feasibility studies, remedial design and construction, remedial technology implementation, operation and management, and solid and hazardous waste management. Additional responsibilities include corporate and project health and safety program development and implementation, quality assurance/quality control programs, regulatory agency compliance, corporate and client environmental and ergonomic planning and training.

**Senior Project Manager; Rone Engineers, Inc., Dallas, Texas (1993 - 1995)**

Responsible for the performance, supervision and project management of environmental consulting, remediation, and solid/hazardous waste management projects. Additional responsibilities included corporate health and safety programs, environmental and ergonomic training, corporate quality assurance/quality control program, construction of remedial treatability laboratory, and design of state-of-the-art remediation equipment for chemical fixation/stabilization, vapor extraction and bioremediation.

**Senior Hydrogeologist; Environmental Audit, Inc., Placentia, California (1993 - by contract)**

Responsible for the performance, supervision and management of environmental consulting, remediation, and solid/hazardous waste management projects including (but not limited to) environmental site assessments and environmental impact reports, regulatory compliance audits, hazardous and non-hazardous waste site characterization, subsurface soil and groundwater investigations, remedial investigations and feasibility studies, remedial design and implementation, remedial action planning, health and safety planning and program implementation.

**Project Manager; Clean-Up Technology, Santa Monica, California (1992-1993 - by contract)**

Responsible for implementation and management of solid and hazardous waste management and remediation projects, remedial investigations and feasibility studies, and treatability studies including, but not limited to, bioremediation, vapor extraction, thermal desorption, chemical fixation/stabilization, and recycle/reuse.

**First Senior Project Manager then Manager of Environmental Services; Maxim Engineers, Inc., Dallas, Texas and Los Angeles, California (1988 - 1992)**

Responsible for the generation, implementation and management of environmental consultation and remediation projects for the Environmental Services Department. Project oversight included Phase I Environmental Site Assessments, due diligence risk assessments, RCRA and SARA III regulatory compliance permitting and auditing, subsurface soil and groundwater investigations, groundwater monitoring and recovery program implementation and management, landfill design and characterization, underground storage tank management and removals, remedial design, remedial construction management, and remedial project implementation.

**Project Geologist, CURA Environmental, Inc., Dallas, Texas (1987 - 1988)**

Implementation and project management of comprehensive asbestos surveys, asbestos operations and maintenance programs, and asbestos abatement and control programs under the Asbestos Hazard Emergency Response Act (AHERA). Additional responsibilities included the performance of Phase I Environmental Site Assessments and underground storage tank removals.

**First Petroleum Geologist then Project Leader, Texaco, USA, Midland, Texas (1984 - 1987)**

Responsible for the generation of developmental oil and natural gas prospects, implementation of petroleum resource drilling and production programs, design and implementation of oil field development strategies in East Texas, South Texas and Western Louisiana.

**First Project Geologist then Assistant Project Leader, Getty Oil Company, Midland, Texas (1981 - 1984 prior to acquisition by Texaco, USA)**

Responsible for the generation of exploratory oil and natural gas prospects, implementation of petroleum resource drilling and exploration programs, design and implementation of exploratory oil and natural gas programs; generation of prospects utilizing traditional stratigraphic, sedimentological and structural correlations supported with geophysical (i.e. seismic and gravometric) methodologies and landsat imagery. Areas of concentration included the Eastern Shelf of West-Central Texas and the Midland Basin.

**Chief Environmental Hydrologist, Southwest Florida Water Management District, Brooksville, Florida (1980 - 1981)**

Responsible for the implementation and management of environmental investigations as they relate to the surface and subsurface hydrology and hydrogeology of southwest Florida including environmental impact reports, water resource management, water quality studies, wetlands delineation, wetlands preservation and protection program design and implementation, flood hazard identification and mitigation programs, groundwater characterization, monitoring and conservation program implementation, limnological studies, and aquifer characterization and utilization programs.

Prior to 1980, Mr. Aisner served as Senior Hydrologic Technician with the United States Geological Survey (Tampa, Florida), and as Project Geologist/Reclamation Specialist with Mobil Chemical Company (Bartow, Florida).

## **PROFESSIONAL ASSOCIATIONS**

American Association of Petroleum Geologists; Division of Environmental Geosciences  
American Institute of Professional Geologists  
Association of Hazardous Materials Professionals  
National Registry of Environmental Professionals

## **Summary of Qualifications**

Mr. Aisner has over eleven (total) years of experience in the field of environmental science, project management, consultation, and remediation. Mr. Aisner has performed and managed a wide variety of projects involving the application of diverse environmental technologies to assist private and public sector clientele in defining and managing environmental and health and safety concerns and risks. He has managed multi-disciplinary staffs of geologists, biologists, chemists, engineers, and technicians in various environmental projects from concept through completion. His experience and technical expertise includes Phase I environmental site assessments and due diligence risk assessments; Phase II surface and subsurface soil and groundwater investigations; RCRA (and other regulatory) compliance audits; permitting assistance and regulatory agency liaison; wetland studies (including delineation, assessment and impact studies); landfill design, construction, assessment and closure; industrial and commercial property characterization; underground and above ground storage tank management (including installations, upgrades, and removals); asbestos surveys and operation and management plans; remedial investigations and feasibility studies; remedial planning and design; construction management, heavy equipment operation and environmental contracting; solid and hazardous waste management planning and implementation (including waste minimization, waste reduction and pollution prevention); occupational and industrial health and safety planning and occupational training (including OSHA 29 CFR 1910.120 40 Hour Hazardous Waste Site Operator (HAZWOPER) and 8 Hour HAZWOPER refresher, OSHA 29 CFR 1910.1200 4 and 8 Hour Hazard Communication and Employee Right-to-Know, Respiratory Protection and Personal Protection Equipment, and Industrial Hygiene Basics).

Mr. Aisner has managed numerous projects involving the remediation of contaminated properties using state of the art as well as innovative remedial technologies to minimize client costs and liabilities including chemical fixation/stabilization, vapor extraction, thermal desorption, bioremediation, and recycle/reuse options. Additionally, Mr. Aisner has been actively involved in treatability studies, project cost estimation and proposal preparation. Mr. Aisner has been a key player in the development, construction and operation of a 40 acre recycling facility in Southern California which accepts petroleum hydrocarbon contaminated soil for bioremediation. The treated soil is subsequently recycled/reused as clean fill.

Mr. Aisner has acquired considerable expertise as an environmental consultant for the petroleum industry, having completed assessment, investigation and remediation projects for exploration, production, drilling and oil field service companies.

## **ROBERT P. COLUCCIO**

**Associate Engineer**

### **PROFESSIONAL CERTIFICATIONS**

*Massachusetts Registered Professional Engineer: License No. 41274*

*Connecticut Registered Professional Engineer: License No. 21912*

*Massachusetts Certified Wastewater Treatment Plant Operator: Grade 2-I*

### **EXPERIENCE**

Mr. Coluccio brings over 16 years of professional experience and over 100 projects in environmental and chemical engineering and design. His expertise includes: Design of chemical and petroleum storage facilities, vehicle and marine refueling stations, liquid inventory control, spill prevention and countermeasure, underground storage tank failure analysis, wastewater treatment plants, storm water and sewer management, as well as design and implementation of remedial action systems for hazardous waste sites, hazardous waste site investigations, and air quality permitting.

Other experiences include: Expert witness, mediation, public hearings, licensing, appeals, and permitting for planning boards, conservation commissions, city councils, board of selectmen, and state and local fire.

#### **Engineering Design**

***Chemical and Fuel Oil Storage Facilities:*** Design of aboveground and underground storage tanks and delivery systems for chemical and fuel handling facilities; flammable chemical and hazardous waste storage and handling, fire risk assessments, fire protection, truck traffic, secondary containment and leak detection, compartmentalized storage, truck loading/unloading, plantwide distribution, spill prevention and countermeasure.

***Vehicle and Marine Refueling Stations:*** Design and install vehicle and marine refueling stations throughout Massachusetts. Design and install largest marine refueling station in Massachusetts serving cruise vessels, commercial fishing vessels, and pleasure boats. Interface with U.S. Army Corp of Engineers, U.S. Coast Guard, Massport Fire and Rescue, Massport Environmental, Boston Conservation Commission, and Massachusetts Department of Environmental Protection.

***Inventory Control and Spill Prevention:*** Designed inventory control system for large fuel storage depots including a multi-million gallon fuel farm for a power generation plant. Experience includes No. 6 Fuel oil, epoxy resins, Class I and II liquids, ultrasonics, weigh scales, concrete, steel, and fiberglass containment structures.

***Industrial Wastewater Treatment Plant:*** Design of wastewater treatment plants employing dissolved air flotation, chemical flocculation, pH adjustment, oil/water separation, chemical destruction of organics, sedimentation design, sludge management, high level controls and building design. Interface with municipal waste treatment plants. Solve regulatory issues.

***Storm Water and Sewer Management:*** Design of storm water collection and distribution systems, site survey and re-grading, oil/water separation, manway structures, concrete pads and containment dikes, steel canopy structural design, NPDES and sewer discharge permitting

### **Site Assessment and Remediation**

***Oil and Hazardous Material Releases:*** Emergency response and investigation, remedial design and implementation following releases of oil or hazardous material to the environment. Representative projects include:

Investigation and remediation of gasoline, fuel oil, chlorinated solvents, and PCB releases. Phase I site assessments, subsurface investigations, MCP Compliance, Notifications of Activities and Use Limitations, and Tier Classification.

Remedial design includes: Vapor Extraction, Air Sparging, Oil/Water Separation, Air Stripping, Carbon Filtration, Catalytic Oxidation, and Bioremediation.

### **Project and Contract Management**

***Contract Management:*** Managed numerous site-specific projects for state, federal, and private clients from proposal phase to final site walkover. Prepare cost estimates, bid documents, written specifications and drawings. Provide consultation during contractor selection and submittal approvals, and oversight during construction. Project values range to \$1,000,000.

### **Air Quality Permitting**

***MADEP Source Registration Regulatory Compliance:*** Performed mass balances to determine volatile organic emission status of industrial facilities, interface with regulatory agencies regarding category updates and compliance fees

### **EDUCATION**

1984 - Master of Science, Chemical Engineering; Clarkson University, Potsdam, NY

1982 - Bachelor of Science, Chemistry, State University of New York at Oneonta,  
Oneonta, NY

## **MICHAEL J. HUDSON**

**Senior Project Manager/Hydrogeologist, Web Engineering Associates, Inc.**

### **SUMMARY OF QUALIFICATIONS**

At Web Engineering, Mr. Hudson is a Senior Project Manager/Hydrogeologist for hazardous waste site assessment and remediation projects. He is responsible for scoping, budgeting, managing, and conducting hazardous materials site assessments, site remediation and closure projects, and ground water/hydrogeology investigations.

Mr. Hudson has over fifteen years of professional environmental consulting experience throughout New England and has developed expertise in all facets of hazardous waste and hydrogeologic consulting including subsurface investigations; design of ground-water recovery wells; delineation of ground-water capture zones and flow nets for recovery well systems; use of analytical and numerical computer models to simulate ground-water flow and contaminant transport; and design, operation and maintenance of soil and ground-water remediation systems. He has been involved in the remediation and closure of sites contaminated by both petroleum hydrocarbons and chlorinated solvents.

Prior to joining Web Engineering, Mr. Hudson served as Branch Manager for the New England Regional Office of an environmental consulting firm. Mr. Hudson has managed numerous environmental projects in Massachusetts and the Northeast, including hazardous waste assessments, ground-water remediation, water supply development, and aquifer delineation and protection studies. He has served as Project Manager for numerous Massachusetts Contingency Plan (MCP) Phase I and Phase II assessments, and Phase III remedial designs involving chlorinated solvents, petroleum hydrocarbons, metals and other contaminants.

### **PROJECT MANAGEMENT EXPERIENCE**

#### **Hazardous Waste Site Investigations, Remedial Design and Implementation**

Project Manager for site assessment of a chemical manufacturing facility in eastern Massachusetts located in close proximity to public water supply wells. Designed and installed a monitoring well network and subsurface evaluation program that identified two sources of volatile organic compound contamination from former above ground storage tanks and a former dry well. Evaluated contaminant transport in the three-layer aquifer beneath the site, which is in the upgradient zone of contribution of several public water supply wells. Evaluated hazardous waste assessments performed on nearby industrial properties and a regional sewer interceptor, both of which were potential water supply contamination sources.

Project Manager for a Phase II Comprehensive Site Assessment of a dry-cleaning facility in northeastern Massachusetts. The study included a soil gas investigation to identify the approximate limits of the shallow contamination plume, soil borings, and monitoring well installations. The soil gas study identified a formerly unknown underground gas tank on the adjacent property that was contributing potentially hazardous vapors onto the site. Off-site testing and water quality analyses established the limits of the PCE plume. Air emissions tests established the need for a new vapor control system in the dry-cleaning store.

Project Manager for a Phase II Comprehensive Site Assessment and Phase III Remediation Plan for a circuit board manufacturing facility in eastern Massachusetts. The VOC contamination source was delineated and a soil venting system designed to remediate the source. A Quantitative risk assessment was performed to evaluate the risks to human health and the environment.

Project Manager for investigation of petroleum contamination in highly fractured bedrock in eastern Massachusetts. Installed bedrock borings and monitoring wells to determine surface water infiltration and migration rates through fractured media. Conducted fracture mapping and structural analysis to evaluate potential migration pathways through bedrock.

Project Manager for a site impacted by a long-term gasoline release in eastern Massachusetts. After delineating the plume limits through a HydroPunch survey, designed remedial action plan involving three recovery wells to remediate a 600-foot long plume of contaminated ground water.

Project Manager for numerous sites where active soil and/or ground-water remediation systems are, or have, operated. Responsibilities include regular system monitoring, maintenance, risk assessment, site closure, and reporting to the appropriate regulatory agencies.

Project Manager for a PRP Oversight contract with the New York State Department of Environmental Conservation. This long-term project involved providing oversight of the remediation design and cleanup of numerous hazardous waste sites, including NPL Superfund sites, throughout the state of New York. Responsibilities included technical review of remediation design plans and specifications, full-time on-site oversight during remediation and site closure, and determination of compliance with approved plans and specifications.

## **Site Assessment/Environmental Due Diligence**

As a Project Manager, have completed dozens of Preliminary Site Assessments of industrial, commercial, and residential/undeveloped properties throughout the Northeast. Extensive subsurface investigation techniques were used including hollow stem augers, drive and wash, cable tool, mud rotary, air rotary, and several geophysical methods. Reports included field data, laboratory results, and recommendations regarding site conditions and further cost estimates for assessment and/or remediation.

## **Underground Storage Tank Management**

Project Manager for the characterization of soil and ground-water contamination at numerous sites contaminated by leaking underground storage tanks (USTs). Scope of work has included drilling and sampling programs, monitoring well installation, data collection, ground-water surface mapping and gradient/flow calculations, and contaminant plume delineation. Submitted and implemented plans for remedial actions.

Project Manager for numerous sites where UST removals and replacements occurred. Responsible for overall engineering design submittals, permitting, bidding, oversight of contractor work, and submittal of final as-built plans and tank closure reports.

## **Economic Geology**

Prepared geologic/economic source reports for numerous sand and gravel operations and quarries in New York state and Massachusetts; including subsurface investigations, surficial geologic mapping, petrographic analyses, and estimates of reserves and aggregate quality.

## **Expert Witness Testimony**

Provided expert witness testimony for several clients and law firms including submittal of affidavits and depositions, and testimony in court. Testimony has focused on aspects of hazardous waste site remediation including hydrogeology, surficial geology, bioremediation, and contaminant migration and transport.

## **Water Supply Development and Aquifer Protection Studies**

Project Manager for several town-wide aquifer mapping and protection studies that included field surficial geologic mapping, preparation of hydrogeologic maps, and computer modelling to determine pumping well zones of contribution and aquifer/ watershed safe yields. The goal of these aquifer studies has always been the development and implementation of practical schemes to protect the aquifer and preserve ground-water quality. Prepared several successful applications for municipalities which resulted in the maximum grant award of \$500,000 under the first two funding rounds of the Massachusetts Department of Environmental Quality Engineering (DEQE) Aquifer Land Acquisition (ALA) program.

Developed and utilized numerical finite difference ground-water flow models and analytical ground-water models for simulating pumping well zones of

contribution. Developed innovative techniques for simulating the groundwater effects of large septic recharge systems in order to establish design elevation criteria for subsurface leaching fields.

Managed test well exploration and production well development projects for municipal and private clients throughout New England. The work included the design, performance, and analysis of aquifer tests in both unconsolidated and bedrock aquifers. Employed seismic refraction, electrical resistivity, and fracture trace analyses to determine optimal production well locations.

Designed and installed regional and site-specific monitoring well networks for ground-water inflow and outflow components of the hydrologic budget using quantitative flow net analysis.

### **Geotechnical Investigations**

Project Manager for soil and concrete inspection and testing, Radioactive Waste Solidification and Storage Building, Nine Mile Point Nuclear Power Plant, New York. Supervised a staff of ten construction inspectors for the duration of the project.

Project Manager for geotechnical investigations and construction inspection including caissons, piles, spread footings, Dutch Cone Penetrometer testing, vibrofloatation densification, density testing, permeability testing, and other standard soil tests.

### **EMPLOYMENT HISTORY**

Web Engineering Associates, Inc., Norwell, MA

1995- Senior Project Manager/Hydrogeologist

Hygienetics Environmental Services, Inc.

1993-1995 Division Manager, Site Assessment & Remediation

RESNA Industries, Inc. (formerly Applied Geosystems), Hopkinton, MA

1991-1993 Branch Manager, New England Regional Office

Rizzo Associates, Inc., Natick, MA

1989-1991 Senior Project Manager/Senior Hydrogeologist

SEA Consultants, Inc., Cambridge, MA

1987-1989 Project Manager/Senior Hydrogeologist

IEP, Inc., Northborough, MA

1981-1987 Project Manager/Hydrogeologist

Atlantic Testing, Inc., Syracuse, NY

1980-1981 Project Manager

### **EDUCATION**

B.S., St. Lawrence University, 1977, Geology.

M.S., University of Virginia, 1981, Environmental Sciences (emphasis in Hydrogeology)

### **PROFESSIONAL AFFILIATIONS AND CERTIFICATIONS**

National Ground Water Association

Geological Society of America

OSHA 40-hour 29 CFR 1910.120 (Hazardous Waste Operations) Certification

**R. JEFFREY RIOTTE**

## **Vice President: Web Engineering Associates, Inc.**

### **EXPERIENCE**

Mr. Riotte brings over thirty years of professional experience in project and office management, Federal and State regulations, environmental planning, and professional environmental service sales. His expertise includes: water quality planning studies, landscape planning and design, tank management, regulatory program development and implementation, public participation, and working knowledge of Federal and Massachusetts environmental compliance programs.

#### **Program/Project Management**

*Managed teams of geologists, scientists, engineers, and clients in the following program/project areas:*

- Storage tank management and compliance under State and Federal Regulations
- Storage tank design, construction and operational requirements
- Tank and piping leak detection and structural assessments
- Site remediation under the Massachusetts Contingency Plan Process (310 CMR 40.0000)
- Site assessments
- Spill Prevention Control and Countermeasure Plans (SPCCs) for tank owners
- Massachusetts Trust Fund applications for underground storage tank owners (Chapter 21J)
- Stormwater Management Plans
- Hazardous waste management and recycling projects
- Fire and Safety Codes for flammable and combustible liquids
- Regional water quality management plans for the EPA

#### **Marketing of Professional Environmental Services**

*Marketed the following Services:*

- Underground and Above Ground storage tank management, leak testing and structural assessments
- Tank closures and designed upgrades
- Site assessments
- Site remediation services (LSP Services) under the Massachusetts Contingency Plan (310 CMR 40.0000) including innovative bioremediation services
- Spill Prevention Control and Countermeasure Plans (SPCCs)
- Tank and bulk plant design Massachusetts Trust Fund 21J services
- Soil and groundwater sampling
- Environmental permitting and compliance

- Expert witness testimony
- Environmental Engineering and Design Services
- Bioremediation Applications

### **Regulations/Guidelines Expert**

#### ***Knowledge of the rules and regulations associated with:***

- Federal and State underground and above ground storage tank regulations
- Federal Water Pollution Control Act
- Federal Stormwater Management Program
- Spill Prevention Control and Countermeasure Plans (SPCCs)
- Resource Conservation and Recovery Act (RCRA) Regulations
- Massachusetts Contingency Plan (310 CMR 40.0000)
- Massachusetts Hazardous Waste Regulations (310 CMR 30.0000)
- Massachusetts Petroleum Product Clean-up Fund Regulation (503 CMR 2.00)
- Massachusetts Oil Burning Equipment Regulations (527 CMR 4.00)
- Standards and Guidelines for: API, NFPA, PEI, ASPOE, OSHA, DOT

### **Professional Office Management: Operations and Personnel**

#### ***Supervised the following areas of a 17 Person Professional Services Office:***

- Budgeting
- Staff Hiring and Assignments
- Conflict Resolution
- Daily Operational Decision Making
- Planning and Marketing Strategies
- Staff Deployment
- Client Relationships

### **EMPLOYMENT HISTORY**

1985-Present	Web Engineering Associates, Inc., Vice President Leak Detection Systems, Inc., Vice President
1975-1985	Merrimack Valley Planning Commission
1972-1975	University of Massachusetts, Program Manager, Federal Water Pollution Control Act (Section 208, Water Quality Studies)

### **EDUCATION**

1972	University of Massachusetts-Master of Regional Planning
1968	Middlebury College-Bachelor of Arts

## **BRUCE OBORSKY**

### **Operations Manager, Web Engineering Associates, Inc.**

**1983-Present**

#### **Operations Manager (Leak Detection Systems, Inc.)**

- ◆ Conducted Research and development regarding the Tank Auditor - a precision leak testing device for underground storage tanks.
- ◆ Training coordinator for all licensed Tank Auditor testers nation-wide (103 trainees to date/20 licensed companies).
- ◆ Manager of all equipment testing, repairs, and maintenance activities associated with the national licensee program.
- ◆ Headed investigations of structural integrity of aboveground and underground storage tanks.
- ◆ In-charge of all engineering equipment procurement and supplies.
- ◆ Head troubleshooter for solving unusual tank installations, improper piping arrangements and non-functional pumping systems.
- ◆ OSHA - 40 Hour Course.

**1981-1983**

#### **Construction Supervisor, Web Construction Company**

- ◆ Supervised manpower in the construction of bulk fuel plants, maintenance, and repairs - (projects typically valued at \$500,000.00).
- ◆ Planned daily tasks for work crews consisting of pipefitters, welders, heavy equipment operators, and laborers.

**1977-1981**

#### **Assistant Manufacturing Supervisor - Russo Woodstove Manufacturing**

- ◆ Instrumental in growth of Company from 15 man shop to 150 men
- ◆ Oversaw and coordinated the obtaining of necessary required raw materials to keep production on line.
- ◆ Trained and supervised welding department.
- ◆ Developed procedures for sandblasting and painting departments.

