

July 24, 2009  
File No. 20.P000105.10

Ehrlich Family Limited Partnership  
c/o Gonzalez, Saggio & Harlan, LLP  
225 East Michigan Street, 4<sup>th</sup> Floor  
Milwaukee, Wisconsin 53202



Attention: Ms. Natalia Minkel-Dumit

Subject: Remedial Action Bid Proposal  
Express Cleaners  
3941 North Main Street  
Racine, Wisconsin  
FID #252010000  
BRRTS #02-52-547631

20900 Swenson Drive  
Suite 150  
Waukesha  
Wisconsin  
53186  
262-754-2560  
FAX 262-754-9711  
www.gza.com

Dear Ms. Minkel-Dumit:

At the request of Gonzalez, Saggio & Harlan, LLP (GSH), on behalf of their client the Ehrlich Family Limited Partnership (Ehrlich), GZA GeoEnvironmental, Inc. (GZA) has prepared this remedial action bid proposal pursuant to a request for proposal (RFP) dated March 4, 2009, and as amended by an RFP dated July 9, 2009 and as conveyed during a telephone conversation with you on July 22, 2009, for the property located at 3941 North Main Street in the City of Racine, Wisconsin ("Site"). This remedial action bid proposal includes estimated costs for the following contemplated tasks:

- Collection of additional soil samples to define treatability parameters for addressing chlorinated volatile organic compound (CVOC) contamination (namely tetrachloroethylene [PCE]);
- Installation of two additional water table monitoring wells to further evaluate the extent of shallow groundwater contamination (one south of MW-8 and one downgradient on the west side of North Main Street);
- Installation of a sub-slab depressurization system to control vapor intrusion;
- Implementation of a remedial action to address soil and groundwater contamination underlying the Site; and
- Collection of groundwater samples to monitor the remedial action and obtain groundwater data to support regulatory closure.

## BACKGROUND



Erhlich owns a small shopping center comprised of three contiguous building units at the Site. The northernmost building unit historically and currently operates as a dry cleaning facility whose current tenant is Express Dry Cleaners, Inc. Phase I and II environmental site assessments (ESAs) were completed during March and April 2006, as part of environmental due diligence associated with the potential sale of the property. Based on a limited Phase II ESA, elevated concentrations of PCE, trichloroethylene (TCE), and cis-1,2-dichloroethylene (cis-1,2-DCE) were detected in soil. The results were reported to the Wisconsin Department of Natural Resources (WDNR) in May 2006, and the WDNR issued a responsible party letter in June 2006. The Site entered the WDNR-administered Dry Cleaner Environmental Response Program (DERP) for further Site investigation.

Between about March 2007 and May 2009, additional phases of Site investigation were completed by others to evaluate the lateral and vertical extent of CVOC impacts to soil and groundwater at the Site. GZA has reviewed and relied upon the data obtained from this work to interpret Site physical and chemical characteristics and formulate an opinion on an effective remedial approach to restore soil and groundwater quality to a level that will ultimately allow for flexible regulatory closure. The following is a summary of physical and chemical subsurface information gathered during the various phases of Site investigation:

- Unconsolidated deposits include up to 4 feet of gravelly sand fill underlain by up to 9 feet of silty sand. The sand is underlain by glacial deposits comprised of relatively low permeability silty clay and clayey silt.
- The water table is between approximately 2 and 6 feet below ground surface (bgs) at the Site, and is approximately 4 feet bgs under the building where the greatest unsaturated soil impacts remain.
- Groundwater flows to the west-southwest across the western three-quarters of the Site with an approximate horizontal gradient of 0.02 feet/foot (ft/ft), and east-southeast across the eastern one-quarter of the Site with an approximate horizontal gradient of 0.003 ft/ft.
- Based on one test location in each of the geologic layers, hydraulic conductivity is approximately  $2.1 \times 10^{-4}$  centimeters per second (cm/sec) in the saturated silty sand and approximately  $1.4 \times 10^{-6}$  cm/sec in the underlying silty clay/clayey silt.
- PCE was detected in unsaturated and saturated soil beneath the Site at concentrations up to 70,000 micrograms per kilogram ( $\mu\text{g}/\text{kg}$ ).  
*Wright Co*
- PCE- and TCE-impacted soil beneath the dry cleaner building footprint was detected above the calculated Site-specific United States Environmental Protection Agency (USEPA) soil screening levels for the protection groundwater (SSLPG).



The impacts extend approximately 45 to 50 feet west-southwest and 35 feet east of the dry cleaning operation.

- Up to 3,000± cubic yards (yd<sup>3</sup>) of PCE- and/or TCE-impacted soil may be present at the Site.
- PCE, TCE, cis-1,2-DCE and vinyl chloride (VC) are present in groundwater in excess of Wisconsin Administrative Code (WAC) Chapter NR 140 groundwater quality enforcement standards (ESs) in several wells in proximity to the source area, and at locations downgradient both on-Site to the southwest and off-Site to the southeast.
- PCE and TCE soil concentrations exceed Wisconsin Department of Health and Family Services (DHFS) target sub-slab soil gas concentration, and the USEPA target shallow soil gas concentration (TSGC) beneath the building slab.
- The lower permeability of the underlying silty clay/clayey silt deposit appears to have limited vertical migration of CVOCs.
- Based on the various phases of Site investigation, the WDNR is in general agreement that the Site impacts have been adequately defined to allow Ehrlich to proceed with the DERP remedial action bid proposal process. As part of the bid proposal process, the WDNR is also requiring that two additional monitoring wells be installed to further evaluate the extent of shallow groundwater impacts south of existing monitoring well MW-8 and off-Site on the west side of North Main Street.

These key observations and conditions formed the basis of evaluating and selecting an appropriate remedial action strategy presented in the following section.

## EVALUATION OF REMEDIAL ALTERNATIVES

Several Site-specific conditions presented previously have an important bearing on whether potential remedial alternatives are applicable for the Site. Some of these Site-specific conditions include:

- The majority of the residual PCE at the Site is present below the current dry cleaner building and extending through to the silty clay/clayey silt deposit.
- The upper saturated silty sand deposit is moderately permeable (on the order of 10<sup>-4</sup> cm/sec) and the deeper silty clay/clayey silt deposit is less permeable (on the order of 10<sup>-6</sup> cm/sec).
- The estimated groundwater flow velocity is low (less than 2 feet per year [ft/yr]) within the upper silty sand deposit.



- The previous investigations did not identify sensitive receptors to the CVOCs at the Site other than potentially from the vapor intrusion pathway to occupants of the Site building.
- Based on the presence of cis-1,2-DCE, and to a lesser degree VC, reductive dechlorination of PCE is currently occurring in the groundwater plume.

Based on Site conditions, GZA believes that source remediation followed by monitored natural attenuation (MNA) groundwater monitoring is an appropriate remedial approach to achieve regulatory closure.

#### Evaluation of Source Remediation Technologies

Several potentially applicable technologies were considered for source area remediation including:

1. Excavation and off-Site disposal;
2. Air sparging and soil vapor extraction;
3. Enhanced reductive dechlorination (ERD); and
4. In-situ oxidation.

Due to the Site conditions and the fact that the dry cleaner is currently in operation at the Site, the applicability of various potential remedial technologies is limited and many can be eliminated from further consideration. A brief discussion of applicability is provided for various technologies as follows:

- Source area excavation and off-Site disposal is not practical given that most of the contaminant mass is below building and dry cleaning operation.
- Air sparging and soil vapor extraction of CVOCs is impracticable as sparging and vapor extraction would have the local effect of raising the already shallow underlying water table making it difficult or impossible to effectively perform soil vapor extraction.
- A remedial action consisting of ERD may be effective at further reducing PCE based on the reductive dechlorination that is occurring naturally in the groundwater system. The current rate of natural or un-enhanced reductive dechlorination is likely limited by low dissolved organic carbon. Therefore, the addition of organic carbon is expected to greatly enhance the rate of on-going reductive dechlorination. Because of the length of time ERD would need to occur to achieve clean-up objectives, and due to the potential generation of high methane levels and noxious odors in this mixed commercial/residential neighborhood, ERD was not selected as a preferred remedial action for the Site.



- A remedial action consisting of in-situ chemical oxidation through the injection of oxidizers such as permanganate could be a technically feasible method for focusing on the source-area impacts and it has proven effectiveness in moderately permeable environments. Chemical injection rates would be expected to be on the order of several hundred gallons per day and have the temporary effect of raising the water table beneath the building, thereby treating typically unsaturated soil impacts beneath the building slab. Oxidation of sorbed and non-aqueous-phase CVOCs has been demonstrated with permanganate at many sites, and the chemical reaction rate with the target contaminants is generally very rapid. The oxidation reactions occur in the dissolved aqueous phase after the contaminants desorb from the soil media and/or dissolve from the free phase. Poor performance of permanganate is often attributable to injection of an inadequate volume of oxidant to contact the entire treatment zone, insufficient permeability and site heterogeneities that limit delivery of the oxidant, excessive oxidant consumption by natural subsurface materials, and/or the presence of large masses of dense, non-aqueous-phase liquid (DNAPL). Therefore, bench-scale tests will be performed to evaluate the permanganate concentration and volume required to achieve clean-up objectives. Dependant on the outcome of the bench-scale testing, the remedial timeframe could be relatively short, on the order of approximately two years with concurrent MNA of groundwater through regulatory closure.

#### Recommended Remedial Alternative

Of the remedial actions described with the potential to be effective at the Site, GZA recommends implementation of in-situ chemical oxidation using permanganate as a suitably efficient and cost effective remedial alternative that will meet regulatory closure within a reasonably short period of time. It is appropriate for the Site given the shallow nature of the impacts, the moderate permeability of the underlying silty sand deposits, low groundwater flow velocity and lack of nearby sensitive receptors. GZA anticipates that targeted application of permanganate beneath the dry cleaner building will result in an 85 to 90 percent (%) reduction in the overall CVOC mass at the Site.

#### **PROPOSED SCOPE OF WORK**

GZA has reviewed and relied upon the physical and chemical information collected by others, as provided with the RFP and its amendments to derive our opinion as to the most suitable response action at the Site. Resumes of key project personnel that will be involved during implementation of the tasks outlined below are provided in Attachment 1. GZA's clean-up objectives for the proposed remedial approach outlined below is to reduce overall CVOC mass, reduce indoor vapor inhalation risks to occupants of the Site building, and perform MNA groundwater monitoring to achieve flexible regulatory closure within a reasonable timeframe. The following tasks will be performed to meet these objectives.



### Task 1 - Bench-Scale Testing and Installation of Additional Monitoring Wells

To determine the Site-specific permanganate injection concentration and volume required to treat an estimated 3,000± yds<sup>3</sup> of source PCE impacts, one additional soil boring will be completed in the source area beneath the building. Two soil samples (one from the highest observed soil impact interval of the silty sand and one from the highest soil impact interval observed in the silty clay/clayey silt deposit) will be collected in proximity of the proposed treatment area for bench-testing of permanganate oxygen demand and injection concentration. The effective source treatment area is approximately 140 feet in length, 60 feet in width and up to 9 feet in thickness, and covers the approximate footprint area up to the interpreted 10 milligram per kilogram (mg/kg) PCE iso-concentration contour line at the Site (Figure 1).

At the request of WDNR, two additional monitoring wells will be completed to further evaluate the south-southwest extents of shallow groundwater impacts. Specifically, one of the proposed monitoring wells will be installed on the Site and south of monitoring well MW-8, and the second will be installed downgradient and off-Site along the west side of North Main Street. The wells will be installed and developed in compliance with WAC Chapter NR 141 guidelines and the groundwater sample will be collected and submitted for USEPA SW846-8260B volatile organic compound (VOC) analysis.

### Task 2 - Design and Installation of Sub-Slab Depressurization System

Indoor vapor intrusion from CVOCs migrating through soil is a concern when buildings are located near source areas or located over shallow groundwater plumes. Based on previous sub-slab vapor monitoring by others, concentrations of PCE exceed the DHFS screening threshold of 6 parts per billion by volume (ppbv) based on residential occupancy beneath the dry cleaning operations concrete slab floor. As such, GZA will design and install a sub-slab depressurization system (SSDS) to minimize the potential for indoor infiltration of fugitive PCE vapors underlying the building. Our design approach will involve a three-step process:

1. Collect Site-specific use information. An important step used to balance space function with system cost. For example, it may be desired by the owner that visible piping be minimized in the building, so higher capacity fans can be incorporated to minimize visible piping.
2. Perform Site-specific pressure field extension testing. This process involves coring holes through the concrete floor and testing the pressure field created with a series of test fans or blowers to determine the sub-slab aggregate gradient to be used in the system design.
3. Use the data collected in the first two phases to create drawings and specifications identifying the equipment and layout of the system.



A SSDS basically consists of a fan or blower which draws air from the soil beneath a building and discharges it to the atmosphere through a series of collection and discharge pipes. One or more holes are cut through the building slab so that the extraction pipe(s) can be placed in near contact with sub-grade materials, in order for soil gas to be drawn in from just beneath the slab. Given the sub-slab PCE vapors exceed occupancy threshold values beneath the dry cleaning operation, sub-slab vapor mitigation will target the northern portion of the building rather than the entire combined building footprint covering approximately 7,750 square feet. Up to three extraction pipes may be required in the northern portion of the building, and the piping will likely run from the extraction point(s) through the exterior wall to the outside of the building. The piping will be connected to a fan or blower, that will be mounted either on the outside of the building or in the ceiling plenum space or attic of the building. Placement of the fan/blower in this manner ensures that a pressurized discharge pipe is not present within occupied spaces (in case of leakage). The exhaust piping will be installed so that the discharge is above the buildings roof line.

### Task 3 - Remedial Action Design and Implementation

Upon receiving approval from WDNR of the recommended remedial alternative, GZA will prepare a design report for the remedial action to be implemented at the Site. The remedial scenario will involve in-situ oxidation of CVOC impacts within the interpreted 10 mg/kg PCE soil iso-concentration contour using a series of five horizontal injection wells to deliver the oxidant reagent to the base of the silty sand deposit as presented in plan view in Figure 1. A Wisconsin Pollution Discharge Elimination System (WPDES) permit will be obtained prior to the injections. The basis of our cost (discussed below) assumes that access will be granted from the neighbor to the east of the dry cleaning operation in order to install the proposed injection wells. Once installed, the wells will be thoroughly developed using surge block or pumping methods to establish hydraulic connection with the target water bearing unit. Dry bulk permanganate reagent will be mixed on the Site in accordance with the manufacturers' recommended injection concentration and volume, based on the bench-scale test results under Task 1. The permanganate reagent will be prepared in 1,000-gallon batches and temporarily stored in poly-tanks for delivery under pressure injection or gravity feed to the silty sand. GZA will monitor temporary wells installed beneath the floor of the building during permanganate delivery to evaluate the distribution effectiveness. GZA anticipates that approximately 7,000 pounds of dry permanganate will be mixed with approximately 33,000-gallons of water (resulting in an injection concentration of approximately 3%), and will be delivered to the silty sand over a period of approximately 10 days. The injection rate will be limited by the ability of the aquifer to accept the liquid and the anticipated 3- to 4-foot maximum rise in water table beneath the building.

In general accordance with Chapter NR 724, GZA will prepare design plans and specifications and an operation and maintenance plan specifying the frequency of activities necessary to monitor the effectiveness of the remedial action. The plan will outline post-injection monitoring activities from the initial oxidant reagent application through regulatory closure under Chapter NR 726.

#### Task 4 - Post-Active Remedial Performance Monitoring and Site Closure



GZA will conduct post-active remedial MNA performance monitoring for two years after completion of the injections of the oxidant reagent. Groundwater samples will be collected from the well network on a quarterly basis (eight rounds) and submitted to a laboratory for analysis of VOCs. After performance monitoring, contaminant mass reduction and groundwater quality trend analyses will be performed to demonstrate contaminant plume stability. Figures that present spatial and temporal trends in data and groundwater flow interpretations will be prepared to aid in understanding post-remedial conditions and assist in defining a logical pathway to regulatory closure of the Site. If deemed appropriate, a request for case closure consistent with Chapter NR 726 requirements will be submitted in writing on a WDNR case summary and close out form and will be accompanied by a case close out report documenting the remedial action results and trends in groundwater CVOC concentrations. Given residual CVOCs in soil and groundwater may remain after demonstrated plume stability, closure under Chapter NR 726 may occur under the "Flexible Closure" rules and include registry of the Site on WDNR's geographic information system (GIS) for remaining soil and groundwater impacts.

#### **BASIS OF BILLING**

GZA's professional services for the proposed remedial action will be billed on a time and materials basis in accordance with the Schedule of Fees, provided in Attachment 2, for an estimated total of \$116,658. Total cost estimates for professional services and contract services contemplated are itemized on the provided Task Pricing Worksheets (Attachment 2). This estimate is based on the anticipated scope of work outlined above, representing our present judgment as to the level of effort required. Actual charges may be greater or less depending on the level of effort required for completing the scope of work.

#### **SCHEDULE**

GZA will begin the proposed remedial work within one week upon receiving authorization to proceed. We estimate that three weeks will be required to complete the treatability pilot testing followed by system design, installation and performance monitoring.

#### **TERMS AND CONDITIONS**

Conditions of engagement are described in the Terms and Conditions for Professional Services provided in Attachment 3. GZA's Report will be prepared on behalf of and for the exclusive use of Ehrlich. Ehrlich acknowledges and agrees that the Report and the findings in the Report shall not, in whole or in part, be disseminated or conveyed to any other party, or used or relied upon by any other party, in whole or in part, except for the specific purpose and to the specific parties alluded to above, without the written consent of GZA. GZA would be pleased to discuss the conditions associated with any such additional dissemination, use, or reliance by other parties. A sample certificate of liability insurance is provided, as requested, as Attachment 4.



**ACCEPTANCE**

This proposal may be accepted by signing in the appropriate space below and returning one complete copy to us. Issuance of a purchase order implicitly acknowledges acceptance of the Terms and Conditions for Professional Services. This Proposal for Services, Schedule of Fees and Terms and Conditions for Professional Services shall constitute the entire agreement between the parties. This proposal is valid for a period of 30 days from the date of issue.



We appreciate the opportunity to submit this proposal to you. If you have any questions, please call the undersigned at your convenience at 262-754-2560.

Very truly yours,

**GZA GeoEnvironmental, Inc.**

A handwritten signature in blue ink, appearing to read 'David G. Bauer', written over a horizontal line.

David G. Bauer, P.G.  
Project Manager  
Hydrogeologist

A handwritten signature in blue ink, appearing to read 'Bernard Fenelon', written over a horizontal line.

Bernard G. Fenelon, P.G.  
Senior Project Manager  
Hydrogeologist

A handwritten signature in blue ink, appearing to read 'John C. Osborne', written over a horizontal line.

John C. Osborne, P.G.  
Principal  
District Manager

R:\2009\20.P000105.10 Express Dry Cleaner July 24, 2009 Proposal.doc

**Attachments**

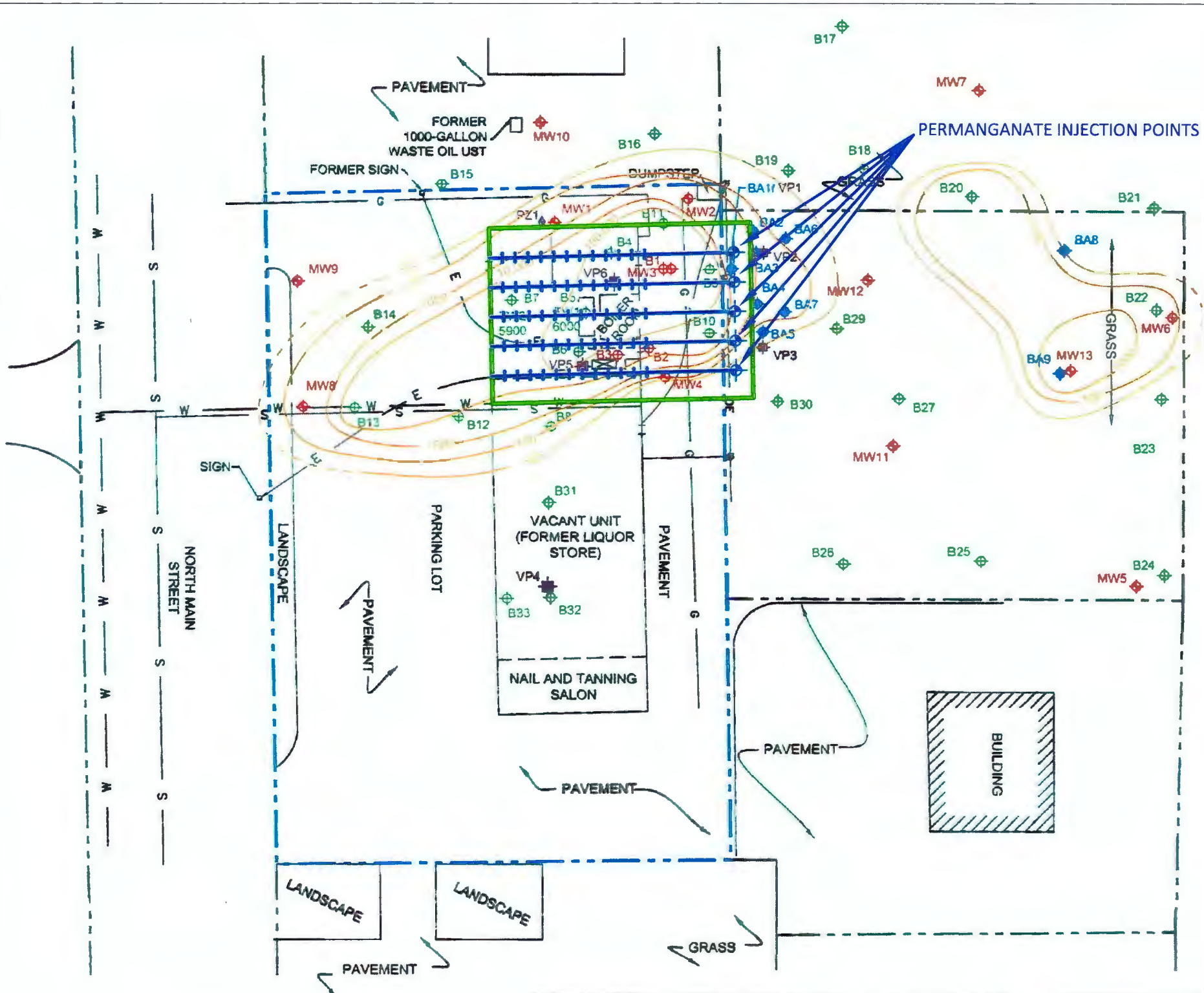
cc: Ms. Nancy Ryan - Wisconsin Department of Natural Resources

This Proposal for Services, Schedule of Fees and Terms and Conditions for Professional Services are hereby accepted and executed by a duly authorized signatory, who by execution hereof warrants that he/she has full authority to act for, in the name, and on behalf of the Ehrlich Family Limited Partnership.

**EHRLICH FAMILY LIMITED PARTNERSHIP**

By: \_\_\_\_\_ Title: \_\_\_\_\_

Printed/Typed Name: \_\_\_\_\_ Date: \_\_\_\_\_

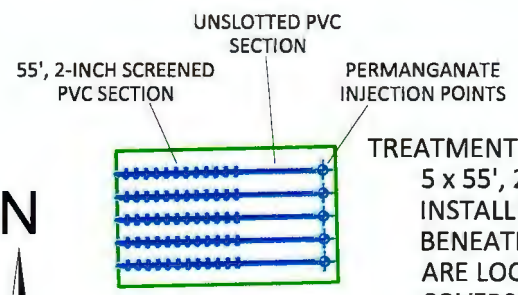


**LEGEND**

- SUBJECT PROPERTY BOUNDARY
- ADJACENT PROPERTY BOUNDARIES
- OVERHEAD ELECTRIC LINE
- FENCE
- UNDERGROUND GAS LINE
- WATERMAIN
- BURIED ELECTRIC LINE
- BURIED SANITARY SEWER
- BURIED TELEPHONE LINE
- UTILITY POLE
- FORMER DRY CLEANING MACHINE LOCATION
- EXISTING DRY CLEANING MACHINE
- SOIL VAPOR SAMPLING POINT LOCATION AND IDENTIFICATION
- HAND AUGER NEAR SURFACE SAMPLE LOCATION AND IDENTIFICATION
- BOREHOLE LOCATION AND IDENTIFICATION
- BOREHOLE LOCATION AND IDENTIFICATION
- 2" MONITORING WELL LOCATION AND IDENTIFICATION
- PIEZOMETER LOCATION AND IDENTIFICATION
- 1" TEMPORARY MONITORING WELL LOCATION
- SOIL PCE ISOCONCENTRATION LINE IN MICROGRAMS PER KILOGRAM

Sample Location	Sample Depth (feet)	Soil PCE Concentration (ug/kg)
PZ1	1-3	370
MW1	3.5-5.5	430
MW2	1-3	1740
MW3	1-3	8400
MW4	1-3	<25
MW6	2-4	48
MW8	1-3	330
MW12	1-3	<18
B1	4	121,000
B2	2	9900
B2	12	465
B3	4	21,100
B4	2-4	270,000
B4	4-6	1,380
B4	14-16	270
B5	2-4	66,000
B5	10-12	305
B6	2-4	136,000
B6	12-14	174
B7	2-4	10,200
B7	6-8	77,000
B8	2-4	67
B9	0-2	92,000
B9	8-10	770,000
B10	2-4	14,000
B10	8-10	28
B11	2-4	63,000
B11	6-8	590,000
B12	2-4	1370
B13	2-4	112
B13	6-8	68,000
B14	2-4	131
B15	2-4	<25
B15	4-6	<25
B16	2-4	<25

Sample Location	Sample Depth (feet)	Soil PCE Concentration (ug/kg)
B17	2-4	<25
B18	2-4	<25
B19	2-4	<25
B20	2-4	104
B21	2-4	<25
B22	2-4	670
B23	2-4	<25
B24	2-4	<25
B25	2-4	<25
B26	2-4	<25
B27	2-4	<25
B28	2-4	<25
B29	2-4	<25
B30	2-4	<25
B31	2-4	<25
B32	2-4	<25
B33	2-4	<25
MW6	2-4	48
MW8	1-3	330
BA1	2	130
BA2	0.5	650
BA2	2	700
BA3	0.5	1200
BA3	2	1300
BA4	0.5	690
BA4	2	100
BA5	30	43
BA6	0.5	56
BA6	2	74
BA7	0.5	84
BA7	2	380
BA8	1.5	<25
BA9	0.5	33
BA9	2	1200



TREATMENT AREA FOR HORIZONTAL INJECTION WELLS INCLUDES:  
 5 x 55', 2-INCH PVC WELL SCREEN BENEATH BUILDING  
 INSTALLED AT A DEPTH OF APPROXIMATELY 7 TO 8 FEET  
 BENEATH FLOOR SLAB IN SILTY SAND. INJECTION POINTS  
 ARE LOCATED AT THE GROUND SURFACE IN FLUSH MOUNT  
 COVERS.

**NOTES**

1. BASE MAP DEVELOPED FROM ELECTRONIC IMAGE FILE OF DRAWING TITLED "ISOCONCENTRATION MAP OF PCE CONCENTRATIONS IN UNSATURATED SOIL," PREPARED BY NORTHERN ENVIRONMENTAL, DATED 4/15/08, REVISED 6/2/09.



NO.	ISSUE/DESCRIPTION	BY	DATE
CONCEPTUAL REMEDIAL LAYOUT			
PREPARED BY:		PREPARED FOR:	
<b>GZA GeoEnvironmental, Inc.</b> Engineers and Scientists 2090 SWENSON DRIVE, SUITE 150 WALKESHA, WISCONSIN 53186 (262) 754-2500			
PROJ. MGR:	DGB	REVIEWED BY:	JCO
DESIGNED BY:	DGB	DRAWN BY:	JAH
DATE:	7/23/09	PROJECT NO.:	20.P000105.10
		CHECKED BY:	JCO
		SCALE:	
		REVISION NO.:	
			FIGURE <b>1</b>
			SHEET NO.

UNLESS SPECIFICALLY STATED BY WRITTEN AGREEMENT, THIS DRAWING IS THE SOLE PROPERTY OF GZA GEOENVIRONMENTAL, INC. (GZA). THE INFORMATION SHOWN ON THE DRAWING IS SOLELY FOR USE BY GZA'S CLIENT OR THE CLIENT'S DESIGNATED REPRESENTATIVE FOR THE SPECIFIC PROJECT AND LOCATION IDENTIFIED ON THE DRAWING. THE DRAWING SHALL NOT BE TRANSFERRED, REUSED, COPIED, OR ALTERED IN ANY MANNER FOR USE AT ANY OTHER LOCATION OR FOR ANY OTHER PURPOSE WITHOUT THE PRIOR WRITTEN CONSENT OF GZA. ANY TRANSFER, REUSE, OR MODIFICATION TO THE DRAWING BY THE CLIENT OR OTHERS, WITHOUT THE PRIOR WRITTEN EXPRESS CONSENT OF GZA, WILL BE AT THE USER'S SOLE RISK AND WITHOUT ANY RISK OR LIABILITY TO GZA.



**ATTACHMENT 1**

**Resumes**

## EXPERIENCE

GZA GeoEnvironmental, Inc. – 2006 to present  
Years with Other Firms: 18

## AREAS OF SPECIALIZATION

- Brownfield Soil/Groundwater Investigations
- Forensic Due Diligence Relative to Real Estate Transactions
- Pre-demolition and HazMat Assessments and Demolition Planning
- Corrective Actions
- Hydrogeologic Characterizations
- Construction Management/Field Superintendent Administration

## EDUCATION

**Bachelor of Science**, Geoscience and Hydrogeology, University of Wisconsin-Milwaukee, 1988

### Additional Course Work

University of Wisconsin Madison – Department of Engineering  
Effective Construction Contract and Field Administration, 2005  
Preventing and Detecting Deficiencies in Design and Construction Documentation, 2005

## AFFILIATIONS

Association of Ground Water Scientists and Engineers  
Wisconsin Groundwater Association  
Construction Management Association of America

## REGISTRATIONS/CERTIFICATIONS

Professional Geologist, Wisconsin, No. G-175  
Asbestos Supervisor, Wisconsin, No. ACS-111287  
Asbestos Inspector, Wisconsin, No. AII-111287  
OSHA, 40-Hour - 29 CFR 1910.120(e) (2) Safety at Hazardous Materials Sites Training  
OSHA, 8-Hour Safety at Hazardous Materials Sites Refresher Training, Annually  
MSHA, 8-Hour Mine Safety Training Part 46 and Part 48, Annually

## PROFILE

Mr. Bauer has greater than 20 years of consulting experience specializing in hydrogeologic- and environmental-related disciplines, Brownfield investigations and development, and managing environmental projects from initial planning and conceptualization stages through the feasibility study, remediation and regulatory negotiations stage. His responsibilities include coordination of risk-based, “fast-track” remedial investigation/feasibility studies, evaluation and reduction of extensive field and laboratory analytical data sets as they pertain to conceptual remedial alternative analysis, preliminary remedial design, final remedial design, quality assurance and quality control. He is responsible for the interpretation and presentation of technical information and has been directly involved in technical negotiations with various state and federal agencies and has participated in public meetings as part of community relations. His experience includes providing services for municipalities, governmental agencies, and private sector industrial and non-industrial clients.

## REPRESENTATIVE EXPERIENCE

**Owner's Representative/Brownfield Due Diligence Management.** Owner's Representative and Field Operations Manager for a due diligence investigation of a 150-acre, tax delinquent industrial property located in the Menomonee River Valley in the City of Milwaukee. Responsibilities included managing and directing multiple contractors and field professionals involved with execution of the soil and groundwater quality investigation Work Plans and specifications; and assembled, quantified and interpreted multiple environmental media data sets which revealed several identifiable areas of environmental concern, the technical foundation for development of remedial controls used to prepare the property for redevelopment as a light industrial park and green space.

**Owner's Representative/Brownfield Remediation Management.** Owner's Representative and on-site Construction Manager for the State of Wisconsin's largest Brownfield development at a blighted property located in the Menomonee River Valley in the City of Milwaukee. Responsibilities to achieve the Owner's desired development objective included management of multiple Contractors involved with removal and containment of approximately 500,000 cubic yards of asbestos-containing materials, abandonment of extensive sewer networks underlying the future development and implementation of design controls constructed to prevent the migration of chlorinated VOCs, fuel oil product and other impacts identified in soil and groundwater underlying the site. Other responsibilities included management and strict conformance to asbestos removal, demolition and remediation specifications, employment of "best management" practices, and cost control inventory.

**Project Hydrogeologist/Project Manager.** Managed and directed a Brownfield investigation and remediation of a tax delinquent hazardous waste site property in West Allis, Wisconsin. The site has since been closed and turned over to the City of West Allis pending future beneficial redevelopment.

**Owner's Representative/Brownfield Due Diligence Management.** Provided Owner's Representative Services and managed environmental due diligence and geotechnical services at a blighted property selected for construction of a \$107 million, 450,000 square-foot newspaper printing facility. Responsibilities included assisting the owner in obtaining permits and exemptions to construct on the property, identifying and implementing design controls in areas of environmental concern and the collection of deep subsurface data pertinent to the facility's press room foundation design.

**Owner's Representative/Pre-Demolition Management.** Designed, coordinated and managed material handling and demolition specifications for a prominent developer in the City of Milwaukee, Wisconsin relative to the demolition of a 360,000 square-foot tannery facility to be developed into luxury condominiums, apartments and limited retail space.

**Owner's Representative/Construction Site Management.** Provided Owner's Representative services and managed the completion of a \$4 million, 30,000 square-foot distribution center, assisting the Construction Manager with preparation of trade-specific bid packages, solicitation of those bid packages and selection of the various trade Contractors. Coordinated and directly supervised site civil layout and grading work, structural steel erection, concrete and foundation construction, electrical, building control(s), plumbing, HVAC, glass, specialty door, drywall, carpentry, painting, tele/data wiring, fire protection, acoustical ceiling tile, roofing, and landscape Contractors from groundbreaking through project closeout. Ensured that Contractors comply with construction documents and adhere to project schedule and projected project budget.

**Owner's Representative/Construction Superintendent.** Provided Owner's Representation and ensured contractor conformance with demolition and engineered remedial control specifications during preparation of a 20-acre parcel for construction of a 130,000 square-foot, \$95 million motorcycle museum complex.

## EXPERIENCE

GZA GeoEnvironmental, Inc. – 1993 to present  
Years with Other Firms: 6

## AREAS OF SPECIALIZATION

- Corrective Actions
- Geophysical Investigations
- Groundwater Supply Investigations
- Groundwater-Use Impact Assessments
- Groundwater and Contaminant Flow Modeling
- Remedial Investigations

## EDUCATION

B.S., 1983, Geological Sciences, University of Wisconsin-Milwaukee  
M.S., 1987, Geological Sciences, University of Wisconsin-Milwaukee

## PROFESSIONAL ACTIVITIES

Association of Ground Water Scientists and Engineers  
Society of Exploration Geophysicists

## PROFESSIONAL REGISTRATION

Professional Geologist, Wisconsin, No. 751

## SUMMARY OF EXPERIENCE

Mr. Fenelon has performed remedial investigations and corrective actions, due diligence activities for property transactions, groundwater supply development, groundwater-use impact assessments, and geophysical investigations professionally for 22 years.

**Remedial investigations and corrective actions** for soil and groundwater contamination were performed for industrial, commercial, and landfill facilities related to chlorinated solvents, petroleum products, semi-volatile organic compounds, and metals. The scope of services performed include: 1) evaluating contaminant magnitude and extent in soil and groundwater, 2) evaluating remedial options, 3) implementing remedial actions in soil and groundwater and supervising remedial system operation and maintenance, 4) supervising groundwater monitoring and contaminant trend evaluation in support of MNA regulatory closure, 5) evaluating environmental risk and site liabilities as part of pre-acquisition due diligence activities for industry and law firms, and 6) redeveloping urban contaminated brownfield properties.

**Geophysical investigations** were performed for a variety of projects including: 1) to obtain basic geological information to aid groundwater explorations, 2) to obtain subsurface information to optimize exploratory boring and well locations for environmental investigations, 3) to identify subsurface contaminant sources, 4) to evaluate extents of filling, and 5) to obtain geological information (sediment type, depth to bedrock, bedrock acoustic velocity, etc) for geotechnical investigations. Geophysical methods applied include 1) electrical resistivity soundings and profiles, 2) seismic refraction surveys, 3) electromagnetic profiling, 4) time-domain electromagnetic soundings 5) ground penetrating radar, and 6) magnetometry.

**Groundwater supply investigations** were performed for municipalities, industry, developers, commercial entities and golf courses throughout the upper Midwestern United States in a variety of geological environments including sand and gravel, fractured bedrock (dolomite, limestone, granite, etc.) and sandstone utilizing hydrogeological, geophysical, and drilling exploration methods. Well-head protections services and groundwater modeling to optimize well-field development were also performed to aid water supply development.

**Groundwater-use impact assessments** were performed for the non-metallic mining industry related to dewatering requirements for aggregate extraction, municipalities and industries related to use of groundwater from production wells, agricultural entities related to irrigation wells, and developers related to potable groundwater supply requirements and changes in drainage patterns and infiltration characteristics under post-development conditions. Services provided include geologic and hydrogeologic research, soil boring and test well installations, aquifer testing, double-ring infiltrometer testing, groundwater modeling, presentations at zoning and plan commission meetings to provide technical information for projects and for the issuance of conditional-use permits, and answering public concerns regarding various types of proposed projects.

Specific relevant project experience includes:

#### **REMEDIAL INVESTIGATIONS AND CORRECTIVE ACTIONS**

**Senior Project Manager, Remediation, 10-Acre Brownfield/Industrial Site, Confidential Client, Eastern Michigan.** GZA has performed several phases of investigation and corrective action at a 10-acre Brownfield site that was formerly an industrial facility with about 60 years of industrial activity. The cleanup is being performed under an Order of Consent from the USEPA. The site is being prepared for residential development and the cleanup is subject to State of Michigan Part 201 clean up criteria.

**Senior Project Manager, Site Investigation/Remediation, 70-Acre Brownfield/Industrial Site, Confidential Client, Central Pennsylvania.** GZA is currently conducting a comprehensive site characterization of a 70-acre industrial facility with almost 100 years of industrial activity under the Commonwealth of Pennsylvania brownfield development program (Act 2). The requirement for active site remediation is expected to be minimal due to demonstration of limited risk from the extensive industrial contamination present across the site. Liability protection for various industrial chemical in soil and groundwater across many areas of the site is expected to be obtained from Pennsylvania by 2010.

**Senior Project Manager – Commercial Brownfield Site Development, Madison, Wisconsin, Altman, Kritzer and Levick, S.C.** GZA performed pre-acquisition due diligence activities on two adjacent commercial and industrial properties with documented soil and groundwater contamination. The environmental work was performed under the State of Wisconsin's Voluntary Party Liability Protection Program (VPLE) for redevelopment of brownfield property. GZA identified a several environmental conditions on the combined properties, the most significant consisting of a release of tetrachloroethene (PCE) from a former dry cleaner requiring source remediation. GZA assisted the site developer with the preparation of a Wisconsin Department of Commerce Brownfield Development Grant which resulted in the grant award of \$750,000 that could be used for development of the site. GZA performed a "not-to-exceed" Lump Sum remedial action of the PCE source area during construction at the site and performed two years of groundwater monitoring to establishing downward contaminant trends in the groundwater system after source remediation. The site received a conditional Certificate of Completion under the VPLE program in 2001 and final closure after placement of the Site on Wisconsin's groundwater GIS registry in 2004.

**Senior Project Manager, Site Investigation/Remediation, Superfund Site, Confidential Client, Central Michigan.** In 2003, GZA became the supervising contractor for one the responsible parties (RPs) at a Superfund site in central Michigan. Initially, GZA evaluated data generated over 20 years by numerous consultants for the site that resulted in a significant shift in interpretation of site hydrogeological conditions from the interpretation made by the previous consultants and the requirement for more aggressive remedial action. Due to the significant change in interpretation of site conditions, GZA made a formal presentation to MDEQ and USEPA. GZA is currently performing on-going evaluation of the groundwater remedial action for compliance with the Consent Decree (CD) and Record of Decision (ROD) in a portion of the site and is evaluating the potential for a separate portion of the site to meet groundwater remedial objectives set forth in the ROD through a monitored natural attenuation (MNA) remedial scenario. The MNA evaluation period began in the Fall of 2004 and is expected to be completed by the end of 2008. Justification for

discontinuing the groundwater pumping system and changing the compliance boundaries supported by the MNA study and a pilot test of the system shutdown will be performed in 2008/2009.

**Senior Project Manager, Site Remediation and Monitoring, Confidential Client, South-Central Wisconsin.** GZA reviewed almost 15 years of data gathered by another environmental consultant at a site in which an estimated 500,000 pounds of solvent had been released to the surface. The site had undergone about 10 years of active soil and groundwater remediation under Wisconsin's voluntary action program. GZA documented previous site activities and lack of cleanup progress and successfully convinced WDNR that continued operation of the expensive and aging remediation system was not warranted. GZA also identified an improperly constructed well that indicated the false identification of contamination in the regional aquifer and resulted in an incorrect interpretation of the contaminants migration potential through the low permeability till into the regional aquifer. Given the technical impracticability of source remediation with the current state of remedial technologies, a low technology remedial approach consisting of groundwater monitoring and enhanced reductive dechlorination (ERD) in the sandstone aquifer was proposed and accepted by WDNR. Continued evaluation of source remediation is being performed on a five-year basis. The change in remedial strategy resulted in substantial savings to the responsible party on the order for \$1 million over ten years. Implementation of ERD through organic carbon injections began during the Summer/Fall of 2004 with positive results and a follow-up organic carbon injection was performed in the fall/winter of 2008.

**Senior Project Manager, Pre-Acquisition Due Diligence, Site Characterization, Remediation and Post-Remediation Groundwater Monitoring, Confidential Client, Central Wisconsin.** GZA performed complete turn-key services for the buying party of a manufacturing facility in central Wisconsin that performed plating operations. Due to the detection of chlorinated solvent in the soil and groundwater of the Site during a Phase II Environmental Site Assessment and the presence of a municipal water-supply well within 500 feet of the site, GZA provided a pre-acquisition remedial estimate to closure of \$1.3M. As part of the sale an escrow account was established for the estimated cost of investigation and remediation. GZA performed site investigation and remediation activities at the site between 1995 and the Fall of 2002 and post-remedial groundwater monitoring through 2007. GZA also assisted Client with contaminated soil management and UST issues discovered during several post-acquisition building phases. GZA anticipates that the total cost of environmental from pre-acquisition of closure, including environmental activities related to building phases will be less than \$550K resulting in savings of about \$750K from the initial pre-acquisition remedial estimate. A No Further Action letter was issued by WDNR in 2007.

**Senior Project Manager, Site Investigation, Remediation and Monitoring, Confidential Client, Eastern Wisconsin.** GZA is currently performing off-site investigation activities of a chlorinated solvent release of tetrachloroethene (PCE) at a manufacturing facility in eastern Wisconsin. The investigation is complicated by the presence of two adjacent manufacturing facilities with similar soil and groundwater contamination issues and solvents detected in a municipal well adjoining the site. Most of the PCE source is bound in a 20-foot deep nearly-saturated low permeability clay overlying unsaturated sand and gravel resulting in continuous low solvent loading to the groundwater system. In addition to the presence of solvent in the local water supply aquifer at concentrations above state drinking water standards, vinyl chloride, a PCE daughter product, has been detected in the shallow groundwater system near a residential neighborhood potentially resulting in vapor intrusion through the foundations of the homes and a health risk to the residents. The vapor intrusion pathway has been evaluated in many homes in 2006 and 2007 and evaluation of remedial actions was performed in 2008. The recommended remedial method of electrical resistance heating for soil and MNA for groundwater is expected to be implemented in the 2009 through 2010 timeframe.

**Senior Project Manager, Site Investigation, Closure, New Waico Development Co., LLP, Milwaukee, Wisconsin.** GZA evaluated soil and groundwater conditions in this two block multi-family housing development in 2002. As part of the pre-acquisition environmental activities GZA evaluated Phase II Environmental Site Assessment results performed by another environmental consultant and provided "likely" and "worst-case" environmental liability estimates for the buyer, its lending institutions, and the Wisconsin Department of Commerce WHEDA program. The "worst-case" environmental liability estimate was required by the WEHDA program as a condition of providing financing for the acquisition. Based on the very limited Phase II ESA data, GZA's "likely" and "worst-case" total investigation and remediation estimates were \$90K and \$720K, respectively. After completing further



environmental investigation activities and evaluating site risk, GZA requested site closure from the WDNR. GZA obtained a No Further Action letter for the owner of the site in the Summer of 2003. In the Fall of 2003 the site was placed on Wisconsin's soil GIS Registry and a Deed Restriction was placed on the property specifying site maintenance conditions requirements as detailed in a cap maintenance plan prepared by GZA. GZA was able to complete the environmental investigation through closure for a cost of less than \$40K resulting in savings of about \$50K and \$680K from the "likely" and "worst-case" environmental cost estimate, respectively.

**Senior Project Manager, Site Characterization and Remediation, Sunnyside Mobil, Neviasher Investments, Janesville, Wisconsin.** GZA managed the characterization and remediation of a leaking underground storage tank site with free product present in dolomite and sandstone bedrock several hundred feet up gradient and up to 400 feet down gradient of the former USTs. Free product thicknesses were measured at over two feet thick at depths of more than 50. Twelve of the 32 monitoring wells (nine screened in the dolomite and 23 in the sandstone) installed during the investigation were found to have had measurable free petroleum product. Factors complicating the Site investigation and remedial action included very large-scale fluctuations in the depth to water in the sandstone (up to 14 feet), up gradient migration of contamination (presumably petroleum product migration above the water table in the dolomite), two aquifers impacted, two adjacent closed leaking underground storage tank (LUST) sites with commingled contamination, fracture flow in the dolomite, separate and isolated groundwater flow systems between the sandstone and the dolomite, and a separate dissolved-phase tetrachloroethene (PCE) plume co-mingling with the petroleum contamination. GZA was complimented by WDNR for its efficient performance of the site investigation and the conclusions made given the complicating geological factors at the site. Due to the likely technical impracticability of free product removal in the sandstone and dolomite and the lack of known receptors to the contamination, GZA successfully argued for a low-tech approach to site remediation consisting of passive product collectors and MNA monitoring. The Site received closure in 2006 following groundwater monitoring to support the MNA remedial option.

**Senior Project Manager, Site Characterization and Remediation of a Federal RCRA Site, Confidential Client, Eastern Tennessee.** Managed site investigation, remedial action and risk assessment activities associated with a ¼-mile long chlorinated solvent and plating metals groundwater plume beneath industrial and residential property originating from a plating operation. Contamination has migrated under numerous properties consisting of both residential and industrial uses. Geological conditions consist of sand and gravel over karst limestone and significant DNAPL was detected beneath former process areas of the plant. A \$750K groundwater recovery system was installed at several on- and off-site locations to remove contaminated groundwater and achieve hydraulic control and restore the condition of the groundwater at off-site locations. The site work was performed under Tennessee Department of Environmental Conservation, RCRA Section, and USEPA.

**Senior Project Manager, Milwaukee World Festival Grounds Redevelopment, Milwaukee, Wisconsin.** GZA evaluated site-wide environmental and geotechnical conditions prior to two phases of a major reconstruction of the existing Summerfest festival grounds completed between 2001 and 2004. Contamination concerns were focused on the presence of methane, cyanide, polycyclic hydrocarbon (PAH), and petroleum volatile organic compound (PVOC) contamination and the presence of a variety of waste/fill that was used to create the landmass several decades ago. GZA obtained a fast-traced Exemption to Construct on a Landfill through the WDNR and prepared a Materials Management Plan to minimize off-site transport and disposal of contaminated residues. GZA performed materials management oversight activities to ensure implementation of the Materials Management Plan during both phases of construction.

**Senior Project Manager - Environmental Evaluation for Lakefront Development; Freedom Education Center Wing Addition to the War Memorial Art Museum, Milwaukee, Wisconsin.** GZA conducted an environmental evaluation of subsurface conditions during a geotechnical evaluation of the site for the development of this lakeshore facility including a multi-story parking garage and education wing to the War Memorial. Contamination concerns were focused on the presence of methane at two times the lower explosive limit (LEL) in soil beneath the site and petroleum volatile organic compound (PVOC) contamination in the groundwater system. Future development on the site will require minimizing off-site disposal of soil generated during construction

activities, obtaining an Exemption to Construct on a Landfill from the WDNR, engineering controls for the presence of methane below the planned building, and proper management of materials (soil and groundwater) generated during site development.

**Senior Project Manager, Site Characterization and Remediation, More than 25 Sites, Various Client, Southeastern Wisconsin and Illinois.** Managed the characterization and remediation of numerous leaking underground storage tank (LUST) sites in southeastern Wisconsin between 1989 and 2004. Site complexities range from minor petroleum releases in clay environments to free-product present in multiple bedrock aquifers at distances of several hundred feet from the UST release area. Remedial technologies implemented have included soil vapor extraction, groundwater and free product extraction, sparging, excavation and off-site disposal and monitored natural attenuation. The UST sites are administered under Wisconsin's PECFA program. PECFA program reimbursements have typically been in excess of 99 percent after the responsible part has satisfied the deductible.

**Project Manager and Hydrogeologist, Northern States Power Company and James River Corporation Landfills, Ashland, Wisconsin.** Performed hydrogeological characterization activities in accordance with NR 500 requirements for preparation of Initial Site Reports and Feasibility Reports requiring approval from the Wisconsin Department of Natural Resources. The investigations included soil boring and monitoring well installation, in-situ aquifer testing by measuring groundwater recovery which required more than 6 months of monitoring, 2-D groundwater flow modeling and leachate generation calculations. Submission of documentation and subsequent review by WDNR project managers resulted in only minimal follow-up on GZA's part to address WDNR concerns and questions.

#### **GROUNDWATER-USE ASSESSMENTS**

**Senior Project Manager, Phantom Lake Management District, Town of Mukwonago, Wisconsin.** In 2005, GZA performed a hydrogeologic assessment of the Upper Phantom Lake groundwater/surface water basin for the Phantom Lakes Management District (PLMD) Board in order to evaluate the potential impact of pumping from a proposed Village of Mukwonago municipal water supply well located within 1,000 feet of the southern border of Upper Phantom Lake. GZA also provided recommendations to the PLMD and the Village of Mukwonago for pumping test protocols on a test well in 2007 to better assess potential impacts to the Lake and an opinion on the potential to impact the lake based on pumping test results.

**Senior Project Manager, Linnerud Development, Stoughton, Wisconsin.** In 2007, GZA performed a hydrogeologic assessment of the groundwater/storm water basin for the area of the proposed Linnerud Development in order to evaluate the potential impact of the development's storm water plan on the nearby Virgin Lake basin. The pre-developed conditions of a primarily internally-drained site needed to be maintained after development. GZA aided the engineer in the design of site infiltration in accordance with Wisconsin Department of Natural Resources' (WDNR) Conservation Practice Standard 1002 *Site Evaluation for Stormwater Infiltration*. GZA performed drilling services and reviewed geotechnical boring logs (more than 150 borings were drilled to support the analysis) and performed grain-size analyses, and conducted double-ring infiltrometer testing in the various proposed infiltration basins.

**Senior Project Manager, Pabst Farms, Town of Summit, Wisconsin.** In 2005, GZA performed an evaluation of the potential effect of storm-water management on the groundwater system and numerous flow-through lakes at the Aurora Hospital proposed for the Pabst Farm property. GZA performed its evaluations using information from US Geological Survey topographic maps, area domestic well construction reports, USGS, Wisconsin Geological Survey and SEWRPC hydrogeologic reports, and large-scale pumping tests. GZA's assessment of potential impact to groundwater and surface water was performed with the aid of a ModFlow model constructed for a 16 square-mile area surrounding the Site. The evaluation was successful in showing the negligible impact of the proposed site development on the groundwater system and surrounding lakes through the proper management of storm water.

**Senior Project Manager, Various Residential Developments, Town of Richfield, Wisconsin.** During 2006 through 2009, GZA performed evaluations of the likely effect water usage from several proposed residential and commercial developments on the local groundwater system and surrounding surface water bodies. GZA performed its evaluations using information from US Geological Survey topographic maps, Wisconsin Geological Survey and Southeastern Wisconsin Regional Planning Commission (SEWRPC) hydrogeologic reports, area domestic well construction reports and incorporated applicable requirements and provisions of the Town of Richfield groundwater protection ordinance, Chapter 59 of the Richfield Municipal Code. GZA's assessments of potential impact to groundwater and surface water were performed by comparing pre-construction to post-construction site infiltration characteristics and water demands and sanitary water return (on-site septic systems) to the area aquifer.

**Senior Project Manager, Non-Metallic Mining Industry, More than 15 Sites in Southeastern Wisconsin and Northern Illinois.** GZA evaluated the feasibility of carbonate bedrock quarry and sand and gravel pit dewatering, predicted impact of dewatering activities to local wetlands, aquifers and water levels in area domestic wells for numerous sites in southeastern Wisconsin between 1993 and 2007. Site activities have included test well installation, monitoring well and soil boring installation, test pumping and groundwater modeling. GZA has provided professional opinions and answered questions from members of zoning and planning boards and the public in public forums as part of property re-zoning process or issuing of conditional-use permits.

## **GEOPHYSICAL INVESTIGATIONS**

**Senior Geophysicist, Numerous Wisconsin and Illinois Municipalities.** Performed seismic refraction and resistivity sounding surveys to evaluate sand and gravel aquifer development potential and to optimize test well drilling locations.

**Senior Geophysicist, Numerous Wisconsin and Illinois Municipalities.** Performed seismic refraction, azimuthal resistivity, electromagnetic profiling and geothermal surveys, and aerial photography interpretation to evaluate the potential for fractured bedrock aquifer development.

**Senior Geophysicist, Numerous sites, Iowa, Illinois, Michigan, Wisconsin.** Performed magnetic, magnetic gradiometer, electromagnetic, ground penetrating radar, time-domain electromagnetic, and seismic refraction surveys at environmental sites to detect buried metallic objects groundwater contamination plumes, geologic characteristics, and subsurface disturbed zones.

**Project Geophysicist, Southeastern Pennsylvania.** Performed seismic refraction depth to bedrock surveys at sites considered for commercial development in southeastern Pennsylvania. Surveys were performed to allow adjustments to site layout plans to minimize the requirements for bedrock excavation to achieve site grades and to estimate the costs to construction related to requirements to excavate bedrock.

## **GROUNDWATER SUPPLY INVESTIGATIONS**

**Project Manager, Sand and Gravel Aquifer Exploration for Wisconsin, Illinois, and Iowa Municipalities.** Performed evaluations for sand and gravel aquifer development by conducting surface geophysical surveys, test drilling and well installation, test well pumping, and water sampling. The assessments were performed for municipalities including the Village of Tigerton, Wisconsin (resulted in the highest capacity production well in the Village by 50 percent and best water quality in the Village); Town of Bristol, Wisconsin; City of Mosinee, Wisconsin; Town of Weston, Wisconsin; City of Kiel, Wisconsin; City of West DeMoines, Iowa; Newton, Iowa; St. Charles, Illinois; Oswego, Illinois, Sioux Falls, South Dakota; and Omaha, Nebraska.

**Project Manager, Fractured Bedrock Aquifer Exploration for Wisconsin, Illinois, and Iowa Municipalities.** Performed aerial photography interpretation and surface geophysical surveys, test drilling and well installation, and test well pumping to evaluate the potential for fractured bedrock aquifer development. The assessments were performed for municipalities including the City of Kiel, Wisconsin (resulted in the highest capacity production well in the City by

more than 200 percent); Town of Bristol, Wisconsin; Town of Pewaukee, Wisconsin; City of Plymouth, Wisconsin, Village of Roland, Iowa; and Town of Bolingbrook, Illinois.

**Senior Project Manager, Fractured Bedrock and Sand and Gravel Aquifer Exploration for Irrigation Wells in Wisconsin, Illinois, and Iowa.** Performed exploration services as described above for irrigation water supply for private entities consisting of golf courses and green houses.

**Senior Project Manager, Groundwater Use Assessment, Industrial and Housing Developments in Southeastern Wisconsin.** Assessed the impact of groundwater pumping from the Niagaran dolomite aquifer of proposed developments on existing domestic wells adjacent to the proposed development. Services included review of existing hydraulic information, digital modeling of the proposed groundwater use, and presentation of results at public meetings.

### GROUNDWATER FLOW MODELING

**Senior Project Manager, Proposed Quarry, Northern Illinois.** Managed the performance of a three-dimensional ModFlow groundwater flow model in 2006 to assess the affect of quarry dewatering on the local groundwater system and area domestic wells.

**Senior Project Manager, Institutional Development, Waukesha County, Wisconsin.** Managed the performance of a three-dimensional ModFlow groundwater flow model in 2005 to assess the affect of various storm water management options to the local groundwater system and nearby lakes.

**Senior Project Manager, CERCLA Site, Confidential Industrial Client, North-Central Iowa.** Managed the performance of a three-dimensional groundwater flow model in 1993 consisting of ModFlow to assess risk of contaminant migration from a CERCLA site to receptors (consisting of a municipal water supply well and surface water body) and to optimize groundwater extraction and hydraulic containment remedial scenarios.

**Senior Project Manager, Manufacturing Facility, Amana Appliances, Middle Amana, Iowa.** Performed three-dimensional contaminant groundwater flow model in 2000 consisting of ModFlow and MT3D to assess risk of contaminant migration from an industrial site containing chlorinated solvents and petroleum product to a municipal water supply well and potential groundwater recovery scenarios.

**Senior Project Manager, Natural Gas Compressor Stations, Several Michigan Sites.** Managed three-dimensional contaminant groundwater flow model in 2003 consisting of ModFlow and MT3D to assess risk of contaminant migration to receptors and potential for off-Site migration of contaminants.

**Senior Hydrogeologist, Payne and Dolan and Various Developments, Southeastern Wisconsin.** Managed 2-D and 3-D groundwater flow modeling from 1989 to 2000 to predict the impact of proposed quarry dewatering at numerous sites in southeastern Wisconsin using ModFlow to simulate the regional dolomite aquifer.

## EXPERIENCE

GZA GeoEnvironmental, Inc. – 1994 to present

Years with Other Firms: 7

## AREAS OF SPECIALIZATION

- Commercial and Industrial Site Redevelopment
- Subsurface Investigations and Remedial Actions Involving Petroleum and Chlorinated Hydrocarbons
- Environmental Due Diligence
- NPL/Superfund Site Project Management
- Litigation Support/Expert Testimony
- Groundwater Resource Assessment
- Regional Groundwater Flow Evaluation

## EDUCATION

**Bachelor of Science.**, 1985, Geological Sciences, University of Wisconsin at Milwaukee

**Master of Science.**, 1991, Geological Sciences, University of Wisconsin at Milwaukee

## PROFESSIONAL REGISTRATION

Professional Geologist, Wisconsin, No. 676

## PROFESSIONAL ACTIVITIES

Association of Groundwater Scientists and Engineers

National Water Well Association

Wisconsin Ground Water Association

## SUMMARY OF EXPERIENCE

Mr. Osborne has performed as Principal-in-Charge or Senior Hydrogeologist/Project Manager for over 20 years in the fields of environmental and groundwater consulting. As the Principal-in-Charge and District Manager, he has overseen and reviewed a large diversity of environmental, geotechnical, health and safety and groundwater resource projects implemented by teams of scientific and engineering professionals. Individual responsibilities have included: the identification of environmental issues related to commercial and industrial property redevelopment; the management of major soil and groundwater contamination investigations associated with chlorinated solvent sites, industrial landfills, hazardous waste releases, underground storage tank sites and bulk petroleum storage facilities; and multi-faceted environmental due diligence support related to the acquisition of commercial/industrial operations and redevelopment of urban properties. Expert testimony in support of litigation has been provided in the areas of evaluating environmental liabilities related to de-valued contaminated properties, State regulatory violations and professional standard-of-care issues. Mr. Osborne also offers a unique blend of technical expertise in hydrogeology and contaminant transport with regulatory negotiating experience that enables the development of sound strategies for site characterization, remediation and closure that effectively balances risk exposure for the client and cost while preserving professional integrity.

Project management tasks have also included remedial investigation/feasibility studies, preliminary and final remedial system design and remedial construction as the prime contractor on National Priority List (NPL) sites. Mr. Osborne has taken active roles in representing clients and presenting technical issues to

the Wisconsin Department of Natural Resources, many other state regulatory agencies, as well as the negotiation of Consent Decrees, Administrative Orders and the presentation of technical topics to the U.S. Environmental Protection Agency and Department of Justice. He offers technical expertise in bridging complex site development issues such as civil engineering, geotechnical, environmental and regulatory concerns that typically characterize Brownfield properties. He has specialized experience in the areas of groundwater flow interpretations and contaminant transport involving the characterization of subsurface impacts from DNAPLs in porous media and fractured bedrock environments. Additional expertise is offered in the design of groundwater isolation and dewatering systems, the integration of surface geophysical methods during site characterization activities and the evaluation of regional groundwater resource and drinking water quality issues.

His professional experience includes:

**Principal/District Manager, GZA GeoEnvironmental, Inc., Waukesha, Wisconsin Operations.** At GZA, Mr. Osborne manages technical staff and operates as principal-in-charge and project manager for a broad spectrum of environmental and hydrogeology consulting projects. Project sizes vary from NPL and Superfund sites to environmental site assessments and RCRA closure projects. The Milwaukee operation, through technical quality and on-going consideration of the client's perspective, has developed a strong reputation in the consulting field.

**Senior Hydrogeologist/Division Manager, Layne GeoSciences, Inc. A Subsidiary of Layne, Inc., Pewaukee, Wisconsin.** At Layne GeoSciences, Inc., Mr. Osborne had extensive experience in the project management of soil and groundwater contamination studies as well as in the characterization of physical flow systems for the purpose of groundwater dewatering control and for geotechnical problems. Incorporated into the range of projects are tasks such as finite difference flow modeling, bedrock fracture studies and regional aquifer contamination studies.

**Project Hydrogeologist, ASHCO, Inc., New Berlin, Wisconsin.** Responsibilities included conducting hydrogeologic studies, groundwater investigations and monitoring designs for solid-waste disposal facilities in the pulp and paper and power generation industries. Also included are landfill capping and liner design, permitting negotiations with the WDNR, clay source determination and characterization for use in landfill construction and construction management.

#### **INDUSTRIAL SITE/BROWNFIELD REDEVELOPMENT**

**Project Manager and Principal-In-Charge - Industrial Site Redevelopment for Northeast Milwaukee, Altman, Kritzer and Levick, S.C.** Conducted pre-acquisition due diligence activities on an approximately 16-acre industrial property formerly used for extensive railroad operations and maintenance, lumber yard and bulk petroleum storage activities to be developed for a large retail facility. Activities managed included Phase I Environmental Site Assessments, Phase II investigation of subsurface impacts and quantification of environmental liabilities including asbestos containing materials related to site purchase and development. A Grant of Exemption to Construct on an Abandoned landfill was requested and obtained from the WDNR pursuant to Chapter NR 500 in order to develop and manage foundry residues on the Site. A Materials Management Plan was prepared for the site construction activities and implemented with the cooperation of the site contractors resulting in the proper handling and displacement of the regulated material. Significant cost saving were realized through on-site management of the foundry material instead of off-site disposal. The site was also received into the Voluntary Party Liability Exemption Program administered by the WDNR.

**Project Manager and Principal-In-Charge – Demolition and Redevelopment of Nakoma Plaza, Madison, Wisconsin - Altman, Kritzer and Levick, S.C.** Conducted pre-acquisition due diligence activities on two adjacent commercial and industrial properties with documented soil and groundwater contamination. Assisted in negotiating environmental agreements with sellers, conducted comprehensive asbestos inspections and hazardous materials inventories of buildings slated for demolition. Proceeded with large-scale pre-demolition ACBM abatement and hazardous materials management.

Also conducted combined environmental and geotechnical investigations to define the extent of impact from multiple source areas that had migrated within an intermittent perched saturated zone and regional sand and gravel aquifer. Entered site into the State of Wisconsin Voluntary Party Liability Exemption (VPLE) Program and managed program requirements during the fast-tracked demolition and reconstruction process. Also assisted with the preparation of a Wisconsin Department of Commerce Brownfield Development Grant that resulted in the award of \$750,000. Remediation was conducted of primary source areas coupled with a materials management plan approved by the WDNR that enabled off-site disposal of impacted soil to be minimized. Supplementing this work was a geotechnical evaluation of low-strength soils and providing foundation criteria for a 120,000 square-foot building design. This combined scope of work culminated in the issuance of a Certificate of Completion for the client under the VPLE program.

**Principal-In-Charge, Comprehensive Environmental Due Diligence, Multiple Site Investigations and Brownfield Redevelopment of the Bayshore Town Center, Glendale, Wisconsin.** GZA assisted a team of investors, developers and their legal counsel to evaluate and navigate the environmental risks and potential liabilities related to the redevelopment of the Bayshore Mall into the Bayshore Town Center, a 47-acre combined retail, commercial and residential development situated on a variety of previously impacted properties. The project involved multiple Phase I and Phase II ESAs, developing remedial and environmental costs estimates, working with the WDNR, assisting with stakeholder decision making and providing an environmental management strategy that satisfied the interests of the developers and their regulatory obligations. The project also involved obtaining exemptions to construct on abandoned landfills, the development and implementation of material management plans, construction observation, the installation of several hundred thousand square feet of sub-slab venting systems and post-construction documentation. Regulatory closure was obtained on all open cases and the site is proposed for issuance of a Voluntary Party Liability Exemption Certificate of Completion.

**Principal-In-Charge, Milwaukee World Festival Grounds Redevelopment, Milwaukee, Wisconsin.** The project consisted of evaluating the site-wide environmental and geotechnical conditions in consideration of a major reconstruction of the existing Summerfest festival grounds on the shore of Lake Michigan. Contamination concerns were focused on cyanide contamination and the presence of a variety of waste/fill that was used to create the landmass several decades ago. A fast-tracked Exemption to Construct was obtained through the WDNR and a Materials Management Plan was created to minimize off-site transport and disposal of contaminated residues. Six new structures were proposed within close proximity to existing buildings overlying the fill materials. Driven pile foundations were used for support of the major structures. To address the concern for vibration-induced settlements of the existing buildings due to vibration from the pile driving, GZA evaluated the subsurface conditions and established vibration guidelines to protect the existing buildings. Vibrations were monitored by GZA during pile driving to confirm that vibrations were within the established guidelines.

**Principal-In-Charge - Combined Geotechnical and Environmental Evaluation for Lakefront Development; Freedom Education Center Wing Addition to the War Memorial Art Museum, Milwaukee, Wisconsin.** Conducted simultaneous investigation of subsurface geotechnical and environmental conditions that could affect the lakeshore development of this facility, including a multi-story parking garage and education wing. Evaluated methane presence, environmental contaminants in groundwater and construction-related difficulties such as dewatering feasibility. GZA was able to show key geotechnical and environmental design considerations that resulted in significant cost savings to the project. Methane evaluation and design considerations are on going.

**Project Manager and Principal-In-Charge - Contaminated Site Development, Delafield, Wisconsin, Altman, Kritzer and Levick, S.C.** Conducted pre-acquisition due diligence activities on a former industrial property adjacent to a closed major solid waste disposal facility. In combination with a geotechnical investigation, managed the Phase I Environmental Site Assessment, Phase II investigation of subsurface impacts and quantification of environmental liabilities related to site purchase and development. During Phase II activities, methane concentrations were found to exceed 50%, by volume, beneath the property slated for development. Completed an assessment of methane venting designs and selected an optimal design that would minimize methane gas migration to the subbuilding area. An active methane venting system was designed, the construction phases inspected in the field and operation and maintenance of the system is on-going.

#### **NPL/SUPERFUND SITE PROJECT MANAGER**

**Principal-In-Charge, Confidential Industrial Client NPL Site, Preliminary Investigation, and RI/FS Related to Landfilling of Industrial By-Products.** Managed and oversaw the investigation of groundwater contamination migrating from multiple industrial waste disposal areas in a fractured carbonate aquifer. Investigation techniques included seismic refraction and electromagnetic induction geophysical methods, installation of monitoring wells and physical and geochemical characterization of the groundwater flow system. Reporting to the USEPA Region VII included preparation of RI Workplan, Health and Safety Plan, Quality Assurance/Quality Control Project Plans, and RI/FS Report.

**Principal-In-Charge, Confidential Industrial Client NPL Site, Remedial Design and Construction to Address Closure of Industrial By-Products Landfilling Areas.** Managed and oversaw the remedial design plan for the closure of multiple areas where landfilling of industrial by-products had occurred. The design included the preparation of regrading plans involving the consolidation and capping of disposal areas with natural materials. In addition, the remedy included the design of a pH water neutralization plant capable of treating impacted water at a rate of 300 gpm.

**Project Manager, Holnam, Inc., West Quarry Superfund Site RI/FS and Remedial Design, Mason City, Iowa.** Performed remedial investigation/feasibility study, remedial design, pilot testing, as well as plans and specifications for the capping and closure of a 119-acre cement kiln dust landfill. Hydrogeologic characterization and determination of the extent of groundwater impacts in a fractured carbonate aquifer. Conducted geophysical surveys, aquifer pumping tests, collected groundwater samples and performed stream gauging as part of the data collection activities. Other work tasks conducted included preparing workplans, directing field staff, interpreting chemical and physical data, conducting groundwater flow modeling, and performing a risk assessment to evaluate exposure potential to private and municipal wells. Also conducted the FS, and through careful integration of client's interests and regulatory concerns, recommended a remedial strategy which was selected by the USEPA and incorporated into the Site Record of Decision. The preliminary and final RD phases included the



oversight of a technical design for a Programmable-Logic-Controlled hydraulic isolation system, Consent Decree negotiations with EPA/DOJ, and solicitation and selection of construction bids.

**Project Manager, Holnam, Inc., Remedial Construction, West Quarry Superfund Site, Mason City, Iowa.** Managed the remedial construction as the prime contractor for a \$2.7 million project. Actual construction included the installation of over 220,000 cyds of clay cap, a bedrock extraction well network with over 7,000 feet of distribution piping and a water treatment facility capable of receiving flows of over 500 gpm with remote monitoring capabilities. Following successful operation of the remediation system, the site was de-listed from the NPL by the USEPA.

## **SUBSURFACE INVESTIGATIONS AND REMEDIAL ACTIONS**

**Project Manager, Remedial Investigation/Feasibility Study for Confidential International Paper Manufacturer, Appleton, Wisconsin.** Conducted multi-phased remedial investigation/feasibility study of chlorinated solvent contamination and evaluation of DNAPL extent in glacial deposits and a fractured dolomite aquifer in central Wisconsin. Through the investigation effort, the solvent source was identified beneath the primary manufacturing facility. Migration of VOCs from the source area extended through a complex sequence of glacial tills and impacted the upper portion of a regional carbonate and sandstone aquifer. Lead an evaluation of remedial technologies including SVE, in situ oxidation, hydraulic isolation and air sparging.

**Principal-in-Charge, Multi-Site Underground Storage Tank Releases – Investigation, Remediation and Site Closure.** A Wisconsin petroleum jobber owned and operated over 20 service stations and five bulk petroleum storage facilities requiring petroleum storage system upgrades. This work included assessing each system for petroleum releases, and if discovered, reporting the contamination and proceeding with site investigations, remedial action plans and remediation in accordance with the WDNR, Wisconsin Department of Industry, Labor and Human Relations and the Wisconsin Department of Commerce guidance and regulations. Some sites included the evaluation of groundwater impacts that migrated beyond the site boundaries. In a broad range of geological environments, we evaluated and implemented remedial solutions that were based on site-specific conditions, were proven cost effective technologies and enabled site closure to be achieved in a reasonable period of time. All sites were closed to the satisfaction of the overseeing agencies and the work received maximum reimbursement through the Wisconsin Petroleum Environmental Cleanup Fund Act.

**Principal-In-Charge of a Remedial Technology Peer Review for a Chlorinated Solvent Recovery and Remediation System.** A large manufacturing client requested the detailed evaluation of the effectiveness of an existing remedial system and recommendations for revising the entire site remedial strategy. The site involved the release of hundreds of drums of chlorinated solvents in several areas, the presence of DNAPL in a glacial till and bedrock system and significant dissolved-phase contamination attempting to be addressed through an SVE system supplemented with groundwater pumping. The evaluation revealed significant ineffectiveness of the current system in regards to mass recovery and environmental repair. As a result of the evaluation, GZA was awarded the site to implement a biostimulation strategy, which was fully accepted by the governing regulatory agency.

**Principal-In-Charge of a Regional Aquifer Investigation of Chlorinated Solvent Impacts.** On behalf of a confidential international industrial client, an investigation of a historical manufacturing site revealed chlorinated solvent impacts emanating into a regional fractured sandstone aquifer. Other regional investigations determined that a continuous plume of chlorinated solvent impacts in groundwater extend

over a 2-mile radius and impacted potentially over 250 private residential wells. A comprehensive investigation of the site was conducted and a detailed 3-dimensional site conceptual model was developed to demonstrate local versus regional impacts. This project involved vertical plume tracking and hydrogeological characterization to depths of up to 400 feet and an ability to unravel and communicate complex hydrogeological conditions while negotiating with state regulators, setting technical strategy and providing technical support during the defense of multiple legal claims.

**Principal-In-Charge, Paper Pulp Landfill Siting and Permitting Study, James River Corporation, Ashland, Wisconsin.** Performed oversight of landfill siting and hydrogeologic characterization activities to prepare a Chapter NR 500 Initial Site Report and Feasibility Report for approval from the WDNR. The investigations included soil boring and monitoring well installation, in-situ aquifer testing by measuring groundwater recovery which required more than 6 months of monitoring, 2-D groundwater flow modeling and leachate generation calculations.

**Principal-In-Charge, Remedial Investigation/Feasibility Study for the French Island Chlorinated Solvent Burn Pits, La Crosse, Wisconsin.** Provided on-going technical supervision during investigation and feasibility study phases of the project. Continually provided practical, low cost, technology-appropriate solutions for the municipality.

**Project Manager and Senior Hydrogeologist, Northern States Power Company, Ashland, Wisconsin.** Conducted a siting study, Initial Site Report and Feasibility Study for a new fly ash disposal facility in the Ashland/Bayfield County area. Performed regional and on-site study of glacial and bedrock geology and hydrogeologic characteristics.

**Project Manager and Hydrogeologist, Rhinelander Paper Company, Rhinelander, Wisconsin.** Conducted an evaluation of the transport and fate of multi-phase contaminants in the groundwater system from the Rhinelander Paper Company Landfill near Rhinelander, Wisconsin. Involved an examination of sulfite liquor migration in glacial outwash overlying bedrock, co-mingling of pulp landfill leachate and downgradient geochemical evolution of groundwater.

**Project Manager, The Marley Company, Davenport, Iowa.** Performed RCRA Closure activities for a hazardous waste storage area including geologic and hydrogeologic characterization, infield soil sampling and gas chromatography and monitoring system installation and sampling.

**Project Manager, Confidential Bulk Petroleum Supplier, Milwaukee, Wisconsin.** Managed RCRA Closure activities involving a major petroleum product release at a bulk storage facility. Following investigation activities, over 25,000 gallons of petroleum product were recovered during interim corrective action efforts.

**Project Manager, Town of Lisbon, Waukesha County, Wisconsin.** Conducted a regional bacteria contamination study in a fractured dolomite aquifer for the purposes of determining the factors controlling bacteria migration and fate in groundwater. Provided intermittent public education on water quality issues and the effects of local mining activities on groundwater quality and quantity.

**Project Manager, Country Ford Lincoln-Mercury, Delavan, Wisconsin.** Conducted an investigation of petroleum contamination of a prolific sand and gravel aquifer in southeast Wisconsin. The off-site extent of contamination was determined and a remedial action plan presented for site corrective action.

## ENVIRONMENTAL DUE DILIGENCE

**Principal-in-Charge/Project Manager – Multi-Site Phase I Environmental Assessment at Retail Operations throughout the U.S.** Coordinated a team of environmental staff to conduct fast turnaround Phase I ESAs and asbestos surveys at sites in Arizona, California, Michigan, Illinois, North Carolina, Mississippi and Wisconsin.

**Principal-in-Charge/Project Manager – Phase I and II ESAs and Environmental Compliance Assessments at Manufacturing Operations in Illinois.** Conducted pre-acquisition Phase I, Phase II and environmental compliance assessments at a major manufacturing operation, painting facility and administrative offices. Despite claims of strong environmental performance by the operation and no reported historical use of industrial solvents, were able to identify a significant chlorinated solvent plume emanating from beneath the facility. The plume included vinyl chloride concentrations exceeding inhalation standards for workers at the site and an off-site TCE plume migrating toward residential areas with groundwater users. Assisted in quantifying the liabilities related to the contamination and non-compliance issues while working with a team of attorneys and financial experts.

**Principal-in-Charge/Project Manager – Multi-Site Environmental Assessments at Closed Retail Operations throughout the East Coast.** Assisted Kohl's Department Stores with the acquisition of the Caldor's chain of retail operations by performing a fast-tracked risk ranking of 34 operations throughout the East Coast of the U.S. Coordinated a team of environmental staff in multiple GZA offices to perform site visits, review existing files and to complete a risk ranking of potential environmental concerns related to each facility. The assessments lead to managing and conducting asbestos inspections and abatement at most operations and geotechnical investigations in support of building renovations and expansions.

**Principal-in-Charge/Project Manager – Multi-Site Environmental Assessments at Closing Retail Operations throughout the New England and Atlantic States.** Assisted Kohl's Department Stores with the acquisition of the Bradlees's chain of retail operations by performing a fast-tracked risk ranking of 17 operations throughout the upper East Coast including New York, New Jersey, Massachusetts, New Hampshire and Connecticut. Coordinated a team of environmental staff in multiple GZA offices to perform site visits, review existing files and to complete a risk ranking of potential environmental concerns related each facility.

**Principal-in-Charge/Project Manager – Multi-Site Environmental Site Assessments at 42 Locations throughout the Midwestern U.S.** Assisted in the pre-acquisition due diligence of 42 properties scattered throughout the Midwest over a period of 45 days. Coordinated a team of staff from several GZA offices to conduct the work and then provided recommendations on follow-up activities while quantifying environmental liabilities to assist in proper valuation of the real estate deal.

## PUBLICATIONS

Osborne, J.C., 1991, "An Investigation of Coliform Bacteria Contamination in the Silurian Dolomite Aquifer in the Lisbon Township", Waukesha County, Wisconsin.



**ATTACHMENT 2**  
**Schedule of Fees**  
**Task Pricing Worksheets**

## SCHEDULE OF FEES

FOR PROPOSAL FOR SERVICES DATED July 24, 2009 FILE NO. 20.P000105.10



	<u>Per Hour**</u>
Director of Toxicology	\$195.00
Principal	\$165.00
Senior Scientist/Senior Toxicologist	\$165.00
Associate or Consultant	\$155.00
Senior Project Manager/Senior Technical Specialist	\$125.00
Project Manager/Technical Specialist I	\$110.00
Assistant Project Manager/Technical Specialist II	\$ 95.00
Engineer/Geologist/Environmental Specialist I	\$ 85.00
Engineer/Geologist/Environmental Specialist II	\$ 75.00
Engineering/Geological Technician I*	\$ 65.00
Engineering/Geological Technician II*	\$ 60.00
CADD Technician	\$ 60.00
Administrative Assistant/Word Processor*	\$ 55.00
Outside Services and Expenses	Cost plus 15%

\* For these personnel, overtime work will be charged at a rate equal to 1.5 times the Standard Rate.

\*\* A fifty percent (50%) premium will be added to the above rates for expert witness and other special services.

The above rates for Technical and Support Personnel will be charged for actual time worked on the project. In addition, there will be charges for:

- Time required for travel from Company office to job or meeting site and return.
- For work requiring out-of-town overnight stay, the minimum charge for work on the project will be eight (8) hours per day.

### EXPENSES

- Laboratory Service, Rental of Specialized Field or Monitoring Equipment and Vehicle charges based on GZA standard unit prices.
- Transportation, Lodging and Subsistence for Out-of-Town Travel.
- Printing, Reproduction, Photographs, Shipping Charges and Material Purchases.
- Communication fee charged at 3.0% of labor invoiced for total cost of local, long distance, and cellular phone equipment and connectivity; electronic data communication and transmission; facsimile and document scanning; and USPS postage.
- Company Van/Pick-up for Projects \$0.65/Mile.
- Personal Vehicle Travel for Projects \$0.585/Mile, or prevailing federal government rate.

### INVOICES

Progress invoices will be submitted to the client monthly and a final bill will be submitted upon completion of our services. Each invoice is due on presentation and is past due thirty (30) days from invoice date. Client agrees to pay a finance charge of one and one-half percent (1-1/2%) per month on past due accounts.

FUNDS PAYABLE IN UNITED STATES CURRENCY

(WI Std SOF) 7159 (Rev. 4/2008)



PRIVILEGED AND CONFIDENTIAL

**TASK PRICING WORKSHEET**  
 REMEDIAL ACTION BID PROPOSAL  
 EXPRESS CLEANERS, 3941 N. MAIN STREET, RACINE, WI

JULY 24, 2009

**COST ESTIMATE SUMMARY**

TASK	TASK NAME	Total Labor	Total Expenses	Other Charges	Grand Total Fee and Expenses
Task 1.0:	Bench-Scale Testing and Installation of Additional Monitoring Wells	\$2,875	\$405	\$3,375	\$6,655
Task 2.0:	Design and Installation of Sub-Slab Depressurization System	\$6,140	\$848	\$3,500	\$10,488
Task 3.0:	Remedial Action Design and Implementation	\$16,920	\$6,458	\$36,355	\$59,733
Task 4.0:	Post-Active Remedial Performance Monitoring and Site Closure	\$25,360	\$3,782	\$10,640	\$39,782
<b>TOTALS</b>		<b>\$51,295</b>	<b>\$11,493</b>	<b>\$53,870</b>	<b>\$116,658</b>

Note: Please note that this is a preliminary conceptual design subject to the outcome of the proposed bench-scale test results which will be used to evaluate the actual volume of reagent necessary to achieve the clean-up objectives. Costs may vary upward or downward dependant upon the results of PNOD analysis.

**PRIVILEGED AND CONFIDENTIAL**

**TASK PRICING WORKSHEET  
REMEDIAL ACTION BID PROPOSAL  
EXPRESS CLEANERS, 3941 N. MAIN STREET, RACINE, WI**

**JULY 24, 2009**

**Task 1.0: Bench-Scale Testing and Installation of Additional Monitoring Wells**

**Work Description:**

Install one additional soil boring and collect two soil samples (one from the highest observed soil impact interval of the silty sand and one from the highest soil impact interval observed in the silty clay/clayey silt deposit) for PNOD analysis. Install two additional monitoring wells (one installed on the Site and south of monitoring well MW-8 and the second installed downgradient and off the Site along the west side of North Main Street).

**PROFESSIONAL FEES**

Staff Level	Description of Responsibilities	Direct Labor Rate	Estimated Hours	Total Labor
Principal	QA/QC	\$165 /hr.	1	\$165
Associate Principal		\$155 /hr.		\$0
Senior PM	PM and Field Work Coordination	\$125 /hr.	2	\$250
Project Manager	PM and Field Work Coordination	\$110 /hr.	8	\$880
Assistant PM		\$95 /hr.		\$0
Eng/Geol I		\$85 /hr.		\$0
Eng/Geol II	Field Work	\$75 /hr.	18	\$1,350
Technician I		\$65 /hr.		\$0
Drafting	Figures	\$60 /hr.	2	\$120
Admin.	Word Processing	\$55 /hr.	2	\$110
<b>Labor Totals:</b>				<b>\$2,875</b>

**REIMBURSED EQUIPMENT AND EXPENSES**

Expense Item	Description	Unit Rate	Number of Units	Markup	Total Cost
1	Communication Fee - Fax, tele, postage, etc (3.0% of Task total)	\$86	1	1.00	\$86
2	Mileage	\$0.650 /mi	160	1.00	\$104
3	PID Equipment	\$75 /day	1	1.00	\$75
4	Water Level Indicator	\$30 /day	1	1.00	\$30
5	Peristaltic Pump	\$55 /day	1	1.00	\$55
6	Tubing	\$15 /well	2	1.00	\$30
7	Expendable Supplies	\$25 /day	1	1.00	\$25
<b>Reimbursed Expense Total:</b>					<b>\$405</b>

**OTHER CHARGES**

Service Item	Description	Unit Rate	Number of Units	Markup	Total Cost
1	Treatability Soil Boring and Monitoring Well Installations	\$2,100	1	1.00	\$2,100
2	PNOD Laboratory Analysis	\$255. /Sample	2	1.00	\$510
3	Groundwater VOC Analysis (Newly installed wells + Duplicate)	\$65. /Sample	3	1.00	\$195
4	Elevation Survey of Wells	\$200 /well	2	1.00	\$400
5	FedEx Shipping Charges	\$170 /ea	1	1.00	\$170
<b>Other Charges Total:</b>					<b>\$3,375</b>

**ESTIMATED TASK TOTAL: \$6,655**

**PRIVILEGED AND CONFIDENTIAL**

**TASK PRICING WORKSHEET  
REMEDIAL ACTION BID PROPOSAL  
EXPRESS CLEANERS, 3941 N. MAIN STREET, RACINE, WI  
JULY 24, 2009**

**Task 2.0: Design and Installation of Sub-Slab Depressurization System**

Work Description:

Design and install a sub-slab depressurization system (SSDS) to minimize the potential for indoor infiltration of fugitive PCE and TCE vapors underlying the building. SSDS consists of a fan or blower which draws air from the soil beneath a building and discharges it to the atmosphere through a series of collection and discharge pipes. Given DHFS sub-slab vapor thresholds were exceeded beneath the northern portion of the building, three extraction pipes are anticipated. The piping will be connected to a fan or blower that will be mounted either on the outside of the building or in the ceiling plenum space or attic of the building. The exhaust piping will be installed so that the discharge is above the buildings roof line.

**PROFESSIONAL FEES**

Staff Level	Description of Responsibilities	Direct Labor Rate	Estimated Hours	Total Labor
Principal	Review Design Documents	\$165 /hr.	4	\$660
Associate Principal		\$155 /hr.		\$0
Senior PM	PM and Field Work Coordination, and SSDS Design	\$125 /hr.	6	\$750
Project Manager	PM and Field Work Coordination, and SSDS Design	\$110 /hr.	10	\$1,100
Assistant PM		\$95 /hr.		\$0
Eng/Geol I	SSDS Design Testing and Installation Oversight	\$85 /hr.	40	\$3,400
Eng/Geol II		\$75 /hr.		\$0
Technician I		\$65 /hr.		\$0
Drafting	Figures	\$60 /hr.	2	\$120
Admin.	Word Processing	\$55 /hr.	2	\$110
<b>Labor Totals:</b>				<b>\$6,140</b>

**REIMBURSED EQUIPMENT AND EXPENSES**

Expense Item	Description	Unit Rate	Number of Units	Markup	Total Cost
1	Communication Fee - Fax, tele, postage, etc (3.0% of Task total)	\$184		1.00	\$0
2	Mileage	\$0.650 /mi	320	1.00	\$208
3	Generator	\$75 /day	1	1.00	\$75
4	Coring Machine	\$250 /day	1	1.00	\$250
5	Blower	\$150 /day	1	1.00	\$150
6	Vacuum Gauges	\$15 /day	1	1.00	\$15
7	Misc. Supplies (Fittings, etc.)	\$150 /day	1	1.00	\$150
<b>Reimbursed Expense Total:</b>					<b>\$848</b>

**OTHER CHARGES**

Service Item	Description	Unit Rate	Number of Units	Markup	Total Cost
1	SSDS Equipment and Installation	\$3,500 /unit	1	1.00	\$3,500
2				1.00	\$0
3				1.00	\$0
4				1.00	\$0
5				1.00	\$0
<b>Other Charges Total:</b>					<b>\$3,500</b>

**ESTIMATED TASK TOTAL: \$10,488**



**TASK PRICING WORKSHEET  
REMEDIAL ACTION BID PROPOSAL  
EXPRESS CLEANERS, 3941 N. MAIN STREET, RACINE, WI  
JULY 24, 2009**

<b>Task 3.0: Remedial Action Design and Implementation</b>	
<b>Work Description:</b>	The remedial scenario will involve in-situ oxidation of CVOC impacts beneath the building and include installation of five horizontal injection wells to deliver the oxidant reagent. Dry bulk permanganate reagent will be mixed on the Site in accordance with the manufacturers' recommended injection concentration and volume, based on the bench-scale test results. The permanganate reagent will be prepared in 1,000-gallon batches and temporarily stored in poly-tanks for delivery under pressure injection or gravity feed to the silty sand. GZA anticipates that approximately 7,000 pounds of dry permanganate will be mixed with approximately 33,000 gallons of water and will be delivered to the silty sand over a period of approximately 10 days. GZA will prepare design plans and specifications outlining post-injection monitoring activities from the initial oxidant application through regulatory closure under Chapter NR 726.

**PROFESSIONAL FEES**

Staff Level	Description of Responsibilities	Direct Labor Rate	Estimated Hours	Total Labor
Principal	Review Design Documents	\$165 /hr.	6	\$990
Associate Principal		\$155 /hr.		\$0
Senior PM	PM and Field Work Coordination, and Design Report	\$125 /hr.	16	\$2,000
Project Manager	PM and Field Work Coordination, and Design Report	\$110 /hr.	40	\$4,400
Assistant PM		\$95 /hr.		\$0
Eng/Geol I	Mix and Distribute Oxidant	\$85 /hr.	80	\$6,800
Eng/Geol II		\$75 /hr.		\$0
Technician I		\$65 /hr.		\$0
Drafting	Assistance during Mixing of Oxidant	\$60 /hr.	40	\$2,400
Admin.	Word Processing	\$55 /hr.	6	\$330
<b>Labor Totals:</b>				<b>\$16,920</b>

**REIMBURSED EQUIPMENT AND EXPENSES**

Expense Item	Description	Unit Rate	Number of Units	Markup	Total Cost
1	Communication Fee - Fax, tele, postage, etc (3.0% of Task total)	\$508	1	1.00	\$508
2	Mileage	\$0.650 /mi	800	1.00	\$520
3	1,500 gallon low profile water hauling tank	\$1,200 /ea	1	1.00	\$1,200
4	Pneumatic Mixer	\$275 /day	10	1.00	\$2,750
5	Hydrant Permit City of Racine	\$150 /ea	1	1.00	\$150
6	Water Usage	\$.01 /gal	33,000	1.00	\$330
7	Plumbing & Misc. Supplies	\$500	1	1.00	\$500
8	Generator	\$250 /week	2	1.00	\$500
<b>Reimbursed Expense Total:</b>					<b>\$6,458</b>

**OTHER CHARGES**

Service Item	Description	Unit Rate	Number of Units	Markup	Total Cost
1	Drill 5 horiz. borings beneath bldg., daylight injection/infiltration ports on east side of building	\$2,400 /ea	5	1.00	\$12,000
2	2-inch Sch 40 PVC slotted well screen	\$11 /ft	300	1.00	\$3,300
3	2-inch Sch 40 PVC blank and riser	\$5 /ft	200	1.00	\$1,000
4	Flushmount Covers	\$100 /ea	5	1.00	\$500
5	REMOX S 330.75 LB	\$2.50 /lb	7,000	1.00	\$17,500
6	Shipping to site	\$590 /ea	1	1.00	\$590
7	Tax on REMOX S 330.75 LB (5.5%)	\$965	1	1.00	\$965
8	Injection Permitting (WPDES)	\$500 /ea	1	1.00	\$500
<b>Other Charges Total:</b>					<b>\$36,355</b>

**Note:** Please note that this is a preliminary conceptual design subject to the outcome of the proposed bench-scale test results which will be used to evaluate the actual volume of reagent necessary to achieve the clean-up objectives. Costs may vary upward or downward dependant upon the results of PNOD analysis.

<b>ESTIMATED TASK TOTAL:</b>	<b>\$59,733</b>
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**PRIVILEGED AND CONFIDENTIAL**

**TASK PRICING WORKSHEET  
REMEDIAL ACTION BID PROPOSAL  
EXPRESS CLEANERS, 3941 N. MAIN STREET, RACINE, WI  
JULY 24, 2009**

**Task 4.0: Post-Active Remedial Performance Monitoring and Site Closure**

Work  
Description:

GZA will conduct post-active remedial MNA performance monitoring for about two years after completion of the injection of the oxidant reagent. Groundwater samples will be collected from the well network on a quarterly basis for a period of two years and submitted to the laboratory for analysis of VOCs. After performance monitoring, groundwater quality trend analyses will be performed to demonstrate contaminant plume stability. Figures that present spatial and temporal trends in data and groundwater flow interpretations will be prepared to aid in understanding post-remedial conditions and assist in defining a logical pathway to regulatory closure of the Site. Closure may occur under the "Flexible Closure" rules and include registry of the Site on the WDNR's geographic information system (GIS) for remaining soil and groundwater impacts.

**PROFESSIONAL FEES**

Staff Level	Description of Responsibilities	Direct Labor Rate	Estimated Hours	Total Labor
Principal	Review Report and Closure Documents	\$165 /hr.	4	\$660
Associate Principal		\$155 /hr.		\$0
Senior PM	PM and Field Work Coordination, Report	\$125 /hr.	20	\$2,500
Project Manager	PM and Field Work Coordination, Report	\$110 /hr.	80	\$8,800
Assistant PM		\$95 /hr.		\$0
Eng/Geol I		\$85 /hr.		\$0
Eng/Geol II	Field Work (2 years monitoring, or 8 qrtly rounds)	\$75 /hr.	160	\$12,000
Technician I		\$65 /hr.		\$0
Drafting	Figures	\$60 /hr.	16	\$960
Admin.	Word Processing	\$55 /hr.	8	\$440
Labor Totals:				<b>\$25,360</b>

**REIMBURSED EQUIPMENT AND EXPENSES**

Expense Item	Description	Unit Rate	Number of Units	Markup	Total Cost
1	Communication Fee - Fax, tele, postage, etc (3.0% of Task total)	\$761	1	1.00	\$761
2	Water Level Indicator	\$30 /day	16	1.00	\$480
3	Mileage	\$0.650 /mi	640	1.00	\$416
4	Tubing	\$5 /well	225	1.00	\$1,125
5	Peristaltic Pump	\$55 /day	16	1.00	\$880
6	Misc. Supplies	\$15 /event	8	1.00	\$120
Reimbursed Expense Total:					<b>\$3,782</b>

**OTHER CHARGES**

Service Item	Description	Unit Rate	Number of Units	Markup	Total Cost
1	SW 846 Method 8260B VOC Analysis (15 wells per round, Duplicate and Trip Blank)	\$65. /Sample	136	1.00	\$8,840
2	Groundwater Disposal	\$.75 /gal	800	1.00	\$600
3	Closure Review Fee	\$750. /ea.	1	1.00	\$750
4	Soil GIS Registry	\$200. /ea.	1	1.00	\$200
5	Groundwater GIS Registry	\$250. /ea.	1	1.00	\$250
Other Charges Total:					<b>\$10,640</b>

<b>ESTIMATED TASK TOTAL:</b>	<b>\$39,782</b>
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## **ATTACHMENT 3**

### **Terms and Conditions for Professional Services**



## TERMS AND CONDITIONS FOR PROFESSIONAL SERVICES

© 2008 by GZA GeoEnvironmental, Inc.

Client ("You"): Ehrlich Family Limited Partnership c/o Gonzalez, Saggio & Harlan, LLP

Proposal No: 20.P000105.10

Site: Express Cleaners, 3941 North Main Street, Racine, Wisconsin

These Terms and Conditions, together with GZA's Proposal, make up the Agreement between GZA and you, Client, named above.

**BEFORE SIGNING THE PROPOSAL, BE SURE YOU READ AND UNDERSTAND THE PARAGRAPHS ENTITLED "INDEMNIFICATION" AND "LIMITATION OF REMEDIES" WHICH DEAL WITH THE ALLOCATION OF RISK BETWEEN YOU AND GZA.**

**1. Services.** GZA will perform the services set forth in its Proposal and any amendments or change orders authorized by you. Any request or direction from you that would require extra work or additional time for performance or would result in an increase in GZA's costs will be the subject of a negotiated amendment or change order.

**2. Standard of Care.** GZA will perform the services with the degree of skill and care ordinarily exercised by qualified professionals performing the same type of services at the same time under similar conditions in the same or similar locality. **NO WARRANTY, EXPRESS OR IMPLIED, INCLUDING WARRANTY OF MARKETABILITY OR FITNESS FOR A PARTICULAR PURPOSE, IS MADE OR INTENDED BY GZA'S PROPOSAL OR BY ANY OF GZA'S ORAL OR WRITTEN REPORTS.**

### **3. Payment.**

- a. Except as otherwise stated in the Proposal, you will compensate GZA for the services at the rates set forth in the applicable Proposal, amendment or change order; reimburse its expenses, which will include a communication fee calculated as a percentage of labor invoiced; and pay any sales or similar taxes thereon.
- b. Any retainer specified in GZA's Proposal shall be due prior to the start of services and will be applied to the final invoice for services.
- c. GZA will submit invoices periodically, and payment will be due within 20 days from invoice date. Overdue payments will bear interest at 1½ percent per month or, if lower, the maximum lawful rate. GZA may terminate its services upon 10 days' written notice anytime your payment is overdue on this or any other project and you will pay for all services through termination, plus termination costs. You will reimburse GZA's costs of collecting overdue invoices, including reasonable attorneys' fees.

### **4. Your Responsibilities.**

- a. Except as otherwise agreed, you will secure the approvals, permits, licenses and consents necessary for performance of the services. If you are the owner or operator of the Site, you will provide GZA with all documents, plans, information concerning underground structures (including but not limited to utilities, conduits, pipes, and tanks), information related to hazardous materials or other environmental or geotechnical conditions at the site and other information that may be pertinent to the services or, if you are not the owner or operator of the Site, you agree to make reasonable efforts to obtain these same documents and provide them to GZA. Unless otherwise indicated in writing, GZA will be entitled to rely on documents and information you provide.
- b. If you use the services of a construction contractor at the Site, you agree to use best and reasonable efforts to include in your agreement(s) with the construction contractor provisions obligating the latter:
  - (i) to indemnify, defend and hold harmless, to the fullest extent permitted by law, you and GZA, its officers, employees and principals, for or on account of any claims, liabilities, costs and expenses, including attorneys' fees, arising out of or relating to the design or implementation of construction means, methods, procedures, techniques, and sequences of construction, including safety precautions or programs, of the contractor, or any of its subcontractors or any engineer engaged by it;
  - (ii) to name you and GZA as additional insureds under general liability and builder's risk insurance coverages maintained by the contractor, or any of its subcontractors; and
  - (iii) to require that all of its subcontractors agree and be bound to the obligations set forth in (i) and (ii) above.
- c. In the event that you are unable to secure such provisions in the agreement(s) with the construction contractor, you shall promptly notify GZA and GZA shall have the opportunity to negotiate with you reasonable substitute risk allocation and insurance indemnities and protections.

**5. Right of Entry.** You grant GZA and its subcontractor(s) permission to enter the site to perform the services. If you do not own the site, you represent and warrant that the owner has granted permission for GZA to enter the site and perform the services; you will provide reasonable verification on request; and you will indemnify GZA for any claims by the site owner related to alleged trespass by GZA or its subcontractors.

**6. Reliance.** The services, information, and other data furnished by you shall be at your expense, and GZA may rely upon all information and data that you furnish, including the accuracy and completeness thereof. You acknowledge that the quality of the services provided by GZA is directly related to the accuracy and completeness of the information and data that you furnish to GZA. **GZA's REPORTS ARE PREPARED FOR AND MADE AVAILABLE FOR YOUR SOLE USE. YOU ACKNOWLEDGE AND AGREE THAT USE OF OR RELIANCE UPON THE REPORT OR THE FINDINGS IN THE REPORT BY ANY OTHER PARTY, OR FOR ANY OTHER PROJECT OR PURPOSE, SHALL BE AT YOUR OR SUCH OTHER PARTY'S SOLE RISK AND WITHOUT ANY LIABILITY TO GZA.**

**7. GZA Professionals.** GZA employees or consultants may act as licensed, certified or registered professionals (including but not limited to Professional Engineers, Licensed Site or Environmental Professionals, or Certified Industrial Hygienists, collectively referred to in this section as "GZA Professionals") whose duties may include the rendering of independent professional opinions. You acknowledge that a federal, state or local agency or other third party may audit the services of GZA or other contractor/consultant(s), which audit may require additional services, even though GZA and such GZA Professionals have each performed such services in accordance with the standard of care set forth herein. You agree to compensate GZA for all services performed in response to such an audit, or to meet additional requirements resulting from such an audit, at the rates set forth in the applicable Proposal, amendment or change order.

**8. Hazardous Materials; GZA "Not a Generator".** Before any hazardous or contaminated materials are removed from the site, you will sign manifests naming you as the generator of the waste (or, if you are not the generator, you will arrange for the generator to sign). You will select the treatment or disposal facility to which any waste is taken. GZA will not be the generator or owner of, nor will it possess, take title to, or assume legal liability for any hazardous or contaminated materials at or removed from the site. GZA will not have responsibility for or control of the site or of operations or activities at the site other than its own. GZA will not undertake, arrange for or control the handling, treatment, storage, removal, shipment, transportation or disposal of any hazardous or contaminated materials at or removed from the site, other than any laboratory samples it collects or tests. You agree to defend, indemnify and hold GZA harmless for any costs or liability incurred by GZA in defense of or in payment for any legal actions in which it is alleged that GZA is the owner, generator, treater, storer or disposer of hazardous waste.

**9. Limits on GZA's Responsibility.** GZA will not be responsible for the acts or omissions of contractors or others at the site, except for its own subcontractors and employees. GZA will not supervise, direct or assume control over or the authority to stop any contractor's work, nor shall GZA's professional activities or the presence of GZA or its employees and subcontractors be construed to imply that GZA has authority over or responsibility for the means, methods, techniques, sequences or procedures of construction, for work site health or safety precautions or programs, or for any failure of contractors to comply with contracts, plans, specifications or laws. Any opinions by GZA of probable costs of labor, materials, equipment or services to be furnished by others are strictly estimates and are not a guarantee that actual costs will be consistent with the estimates.

**10. Changed Conditions.**

- a. You recognize the uncertainties relating to the furnishing of professional services, which often require a phased or exploratory approach, with the need for additional services becoming apparent during the initial services. You also recognize that actual conditions encountered may vary significantly from those anticipated, that laws and regulations are subject to change, and that the requirements of regulatory authorities are often unpredictable.
- b. If changed or unanticipated conditions or delays make additional services necessary or result in additional costs or time for performance, GZA will notify you and the parties will negotiate appropriate changes to the scope of services, compensation and schedule.
- c. If no agreement can be reached, GZA will be entitled to terminate its services and to be equitably compensated for the services already performed. GZA will not be responsible for delays or failures to perform due to weather, labor disputes, intervention by or inability to get approvals from public authorities, acts or omissions on your part or any other causes beyond GZA's reasonable control, and you will compensate GZA for any resulting increase in its costs.

**11. Documents and Information.** All documents, data, calculations and work papers prepared or furnished by GZA are instruments of service and will remain GZA's property. Designs, reports, data and other work product delivered to you are for your use only, for the limited purposes disclosed to GZA. Any delayed use, use at another site, use on another project, or use by a third party will be at the user's sole risk, and without any liability to GZA. Any technology, methodology or technical information learned or developed by GZA will remain its property. Provided GZA is not in default under this Agreement, GZA's designs will not be used to complete this project by others, except by written agreement relating to use, liability and compensation.

**12. Electronic Media.** In accepting and utilizing any drawings, reports and data on any form of electronic media generated by GZA, you covenant and agree that all such electronic files are instruments of service of GZA, who shall be deemed the author, and shall retain all common law, statutory law and other rights, including copyrights. In the event of a conflict between the signed documents prepared by GZA and electronic files, the signed documents shall govern. You agree not to reuse these electronic files, in whole or in part, for any purpose or project other than the project that is the subject of this Agreement. Any transfer of these electronic files to others or reuse or modifications to such files by you without the prior written consent of GZA will be at the user's sole risk and without any liability to GZA.

**13. Confidentiality; Subpoenas.** Information about this Agreement and GZA's services and information you provide to GZA regarding your business and the site, other than information available to the public and information acquired from third parties, will be maintained in confidence and will not be disclosed to others without your consent, except as GZA reasonably believes is necessary: (a) to perform its services; (b) to comply with professional standards to protect public health, safety and the environment; and (c) to comply with laws and court orders. GZA will make reasonable efforts to give you prior notice of any disclosure under (b) or (c) above. You will reimburse GZA for responding to any subpoena or governmental inquiry or audit related to the services, at the rates set forth in the applicable Proposal, amendment or change order.

**14. Insurance.** During performance of the services, GZA will maintain workers compensation, commercial general liability, automobile liability, and professional liability insurance. GZA will furnish you certificates of such insurance on request.

**15. Indemnification.** You agree to hold harmless, indemnify, and defend GZA and its affiliates and subcontractors and their employees, officers, directors and agents (collectively referred to in this paragraph as "GZA") against all claims, suits, fines and penalties, including mandated cleanup costs and attorneys' fees and other costs of settlement and defense, which claims, suits, fines, penalties or costs arise out of or are related to this Agreement or the services, except to the extent they are caused by GZA's negligence or willful misconduct.

**16. Limitation of Remedies.**

- a. To the fullest extent permitted by law and notwithstanding anything else in this Agreement to the contrary, the aggregate liability of GZA and its affiliates and subcontractors and their employees, officers, directors and agents (collectively referred to in this paragraph as "GZA") for all claims arising out of this Agreement or the services is limited to \$50,000 or, if greater, 10% of the compensation received by GZA under this Agreement.
- b. You may elect to increase the limit of liability by paying an additional fee, such fee to be negotiated prior to the execution of this Agreement.
- c. Any claim will be deemed waived unless received by GZA within one year of substantial completion of the services.
- d. GZA will not be liable for lost profits, loss of use of property, delays, or other special, indirect, incidental, consequential, punitive, exemplary or multiple damages.
- e. GZA will not be liable to you or the site owner for injuries or deaths suffered by GZA's or its subcontractors' employees.
- f. You will look solely to GZA for your remedy for any claim arising out of or relating to this Agreement, including any claim arising out of or relating to alleged negligence or errors or omissions of any GZA principal, officer, employee or agent.

**17. Disputes.**

- a. All disputes between you and GZA shall be subject to non-binding mediation.
- b. Either party may demand mediation by serving a written notice stating the essential nature of the dispute, the amount of time or money claimed, and requiring that the matter be mediated within forty-five (45) days of service of notice.
- c. The mediation shall be administered by the American Arbitration Association in accordance with its most recent Construction Mediation Rules, or by such other person or organization as the parties may agree upon.
- d. No action or suit may be commenced unless mediation has occurred but did not resolve the dispute, or unless a statute of limitation period would expire if suit were not filed prior to such forty-five (45) days after service of notice.

**18. Miscellaneous.**

- a. Massachusetts law shall govern this Agreement.
- b. The above terms and conditions regarding Limitation of Remedies and Indemnification shall survive the completion of the services under this Agreement and the termination of the contract for any cause.
- c. Any amendment to these Terms and Conditions must be in writing and signed by both parties.
- d. Having received these Terms and Conditions, your oral authorization to commence services, your actions, or your use of the Report or Work Product constitutes your acceptance of them.
- e. This Agreement supersedes any contract terms, purchase orders or other documents issued by you.
- f. Neither party may assign or transfer this Agreement or any rights or duties hereunder without the written consent of the other party.
- g. Your failure or the failure of your successors or assigns to receive payment or reimbursement from any other party for any reason whatsoever shall not absolve you, your successors or assigns of any obligation to pay any sum to GZA under this agreement.
- h. These Terms and Conditions shall govern over any inconsistent terms in GZA's Proposal.
- i. The provisions of this Agreement are severable; if any provision is unenforceable it shall be appropriately limited and given effect to the extent it is enforceable.
- j. The covenants and agreements contained in this Agreement shall apply to, inure to the benefit of and be binding upon the parties hereto and upon their respective successors and assigns.



**ATTACHMENT 4**

**Certificate of Liability Insurance**

ACORD

CERTIFICATE OF LIABILITY INSURANCE

DATE 2/28/2009

PRODUCER Risk Strategies Company 160 Federal Street Boston, MA 02110 T: 617-330-5700 F: 617-330-5789 E: gzacerts@risk-strategies.com

THIS CERTIFICATE IS ISSUED AS A MATTER OF INFORMATION ONLY AND CONFERS NO RIGHTS UPON THE CERTIFICATE HOLDER. THIS CERTIFICATE DOES NOT AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICIES BELOW.

INSURERS AFFORDING COVERAGE

NAIC #

INSURER A Commerce & Industry Insurance Company

INSURER B Commerce & Industry Insurance Company

INSURER

INSURER D Hartford Casualty Ins Co

INSURER E AISLIC

INSURER

INSURED GZA GeoEnvironmental, Inc. 20900 Swenson Drive Suite 150 Waukesha, WI 53186

COVERAGES

THE POLICIES OF INSURANCE LISTED BELOW HAVE BEEN ISSUED TO THE INSURED NAMED ABOVE FOR THE POLICY PERIOD INDICATED, NOTWITHSTANDING ANY REQUIREMENT, TERM OR CONDITION OF ANY CONTRACT OR OTHER DOCUMENT WITH RESPECT TO WHICH THIS CERTIFICATE MAY BE ISSUED OR MAY PERTAIN, THE INSURANCE AFFORDED BY THE POLICIES DESCRIBED HEREIN IS SUBJECT TO ALL THE TERMS, EXCLUSIONS AND CONDITIONS OF SUCH POLICIES. AGGREGATE LIMITS SHOWN MAY HAVE BEEN REDUCED BY PAID CLAIMS.

Table with columns: INSR LTR, TYPE OF INSURANCE, POLICY NUMBER, POLICY EFFECTIVE DATE, POLICY EXPIRATION DATE, LIMITS. Includes sections for General Liability, Automobile Liability, Excess Liability, Workers' Compensation, and Contractor's Pollution/Professional Liability.

DESCRIPTION OF OPERATIONS/LOCATIONS/VEHICLES/EXCLUSIONS ADDED BY ENDORSEMENT/SPECIAL PROVISIONS

Job #: Sample Certificate Job City: Job State:

Job Name:

Issued as Evidence of Insurance.

CERTIFICATE HOLDER CERT ID: SAM002-2010

CANCELLATION

SAMPLE CERTIFICATE OF INSURANCE

SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELLED BEFORE THE EXPIRATION DATE THEREOF, THE ISSUING COMPANY WILL ENDEAVOR TO MAIL 10 DAYS WRITTEN NOTICE TO THE CERTIFICATE HOLDER NAMED TO THE LEFT, BUT FAILURE TO DO SO SHALL IMPOSE NO OBLIGATION OR LIABILITY OF ANY KIND UPON THE INSURER, ITS AGENTS OR REPRESENTATIVES.

AUTHORIZED REPRESENTATIVE

Michael Christian/RW

Handwritten signature: MB Christian

Att: