RSV
ENGINEERING, INC.
Engineers • Land Surveyors • Environmental Scientists

BRRTS Duplicate

July 24, 2009

Mr. William P. Scott
Gonzales Saggio & Harlan, LLP
225 East Michigan St.
Fourth Floor
Milwaukee, WI 53202

Ms. Nancy Ryan
Wisconsin Department of Natural Resources
2300 N. Dr. Martin Luther King, Jr. Drive
Milwaukee, WI 53212-3128

RE: Proposal for Site Remediation and Well Installation
Express Cleaners
3941 North Main St.
Racine, WI
BRRTS# 02-52-547631

Dear Mr. Scott and Ms. Ryan:

Pursuant to Mr. Scott's March 4, 2009 letter and Ms. Natalia Minkel-Dumit's July 9, 2009 letter, RSV Engineering, Inc. (RSV) has prepared this cost estimate for well installation and sampling and remedial options analysis and cost estimate for remediation of soil and groundwater impacts at the Express Cleaners in Racine, Wisconsin (Figure 1).

Site History:

The Express Cleaners facility (site) is the northernmost unit of a three-unit, one-story commercial building located at 3921-3941 North Main St., Racine, WI, owned by the Ehrlich Family Limited Partnership (Ehrlich). A dry cleaning operation has occupied the site for at least 20 years. Wisconsin Department of Natural Resources (WDNR) approved site investigations conducted at the site by previous consultants indicate that soil and groundwater at the site and the adjacent property to the east have been impacted by dry cleaning solvents; specifically tetrachloroethene (PCE), trichloroethene (TCE), cis-1,2-dichloroethene (DCE) and vinyl chloride (VC). Concentrations of these chlorinated volatile organic compounds (CVOCs) exceed their respective Wisconsin Administrative Code NR 140 Enforcement Standards in groundwater samples collected from site monitoring wells. The western and southwestern extents of groundwater concentrations exceeding NR 140 ESs have not been defined.

As noted above, shallow unsaturated soils at the site have been impacted with CVOCs. The water table beneath the site is very shallow, generally present at approximately 2 to 4 feet below ground surface (bgs) on the east side of the site, and 4 to 6 feet bgs on the west side of the site, and few true unsaturated soil samples have been collected at the site. PCE has also been detected at concentrations

exceeding the USEPA Target Shallow Gas Concentration standard in soil vapor samples collected from beneath the floor slab.

Figure 2 shows the depth to groundwater relative to the depth of soil sample collection. As the figure shows, numerous samples were collected at or beneath the water table, and are not, therefore, indicative of soil impacts (note that screening levels at shallower depths were low). Although groundwater samples in the eastern "mass" yielded only low concentrations of CVOCs, we believe that due to the high organic content of the soil of the garden plots, adsorption capacity is very high. Consequently, we believe this is consistent with our observation that the soil samples were at or below the water table.

Remedial Action Options Analysis

Pathways of concern at this site include direct contact with shallow soils and partitioning of soil and groundwater contaminants to soil vapor, and potential subsequent degradation of indoor air quality. Remedial options were evaluated with respect to their ability to eliminate risk associated with the completion of these pathways.

INITIAL SCREENING

A summary of the initial screening considerations is presented in Table 1. The following options were considered during the initial screening of remedial alternatives for the site:

- No action;
- Natural attenuation;
- Nanotechnology
- Soil vapor extraction coupled with ozone injection;
- Soil vapor extraction coupled with chemical injection; and
- Soil vapor extraction coupled with bio-recirculation.

No Action

For the no action option, no additional work would be performed and natural attenuation and degradation of the soil contamination would be utilized to complete the cleanup process. This, essentially, is the approach that has been employed to date, and it includes capping as an engineered remedy as pavement or the site building currently covers much of the impacted area. Because this is the current remedial status, the technical implementability is excellent. Consequently, this option is retained for further analysis as a baseline.

Natural Attenuation

Chlorinated VOCs degrade very slowly under natural, anaerobic conditions. Consequently, the timeframe necessary for groundwater CVOC concentrations to decrease below NR 140 ESs would be very long, likely decades. WDNR guidance on natural attenuation states that remediation must be

achieved within a reasonable timeframe for natural attenuation to be approved as a remedial option. Consequently, this option is not retained for further analysis.

Nanotechnology

Over the past 2 decades, technologies for the remediation of PCE-impacted soil and groundwater have progressed a great deal, driven by the many industrial and dry cleaning sites in need of remediation. Twenty years ago, the approach would likely have been the excavation of soil, followed by either incineration or off-site disposal. Groundwater treatment would have included installation of one or more wells, from which groundwater would have been pumped, treated, and discharged. This process was lengthy and expensive. Over the years, in situ remediation technologies have resulted in reduced costs and remediation times. These approaches have also reduced the liability of the responsible parties, in that contaminated soil is not transported to an off-site location for disposal.

Nanotechnology is emerging as the next phase of the in situ remedial technologies. Nanotechnology utilizes particles in the 1 to 100 nanometer size range, injected into soil and/or groundwater. Various materials are being investigated, but the most common is zero valent iron. When the iron particles come into contact with PCE, the process of beta elimination occurs, in which the PCE rapidly follows its natural degradation path of PCE to trichloroethene to dichloroethene to vinyl chloride to ethene.

This technology is a progression from a former iron particle technology in which iron macroparticles (e.g., filings) were placed in trenches to create a "curtain," through which contaminated groundwater passed, and was treated. The material utilized to create the curtain was of higher permeability than the surrounding aquifer, thereby drawing groundwater into it. This technology was expensive to install, and relied on the impacted groundwater coming to the treatment "system." Problems were also encountered with the curtain material fouling, and essentially clogging. Additionally, trenching is an option to a limited depth, often much shallower than the depth of impacted groundwater. To solve this problem, an expensive approach was utilized to drill a series of boreholes to create a curtain utilizing a series of columns.

If it were a proven technology, nanotechnology would eliminate most, if not all of the problems with the macroparticle technology. In this method, the material is injected directly into the impacted medium, resulting in a more rapid remedial approach, and also eliminating the fouling problem. Because it is injected, large equipment is not necessary to either trench or create a series of columns.

However, after reviewing documentation related to nanotechnology, and discussion with WDNR staff, we do not recommend further consideration of this option. Experienced vendors and contractors are not readily available for the process. Additionally, a review of the technology by the National Institute of Environmental Health Sciences (National Institutes of Health, U.S. Department of Health and Human Services) indicates that potential risks are poorly understood and might lead to unintended consequences. Finally, we consider the process to be in the research phase, and believe that funds available through the DERF program should be utilized for proven technology. Consequently, nanotechnology will not be given further consideration.

Soil Remediation

Soil Excavation and Off-site Disposal and Soil Vapor Extraction

Excavation and off-site disposal of a limited amount of impacted soil (Figure 3) and installation of a soil vapor extraction (subslab depressurization) system are common elements of the remaining three remedial strategies evaluated. Excavation and disposal and soil vapor extraction system installation would mitigate the direct contact with soil and vapor intrusion pathways, respectively, when implemented in conjunction with one of the following groundwater remedial alternatives.

The areas of excavation were determined utilizing the data from Figure 2, as well as an assumption that a PCE concentration of 1 mg/kg will be accepted as a target remediation goal.

Groundwater Remedial Alternatives

Ozone Injection System

Ozone injection is a proven technology for remediation of CVOCs. System installation would require significant infrastructure and operation and monitoring. The timeframe for groundwater remediation would be 1 to 2 years. This option is retained for further consideration.

Enhanced Reductive Dechlorination by Injection of EOS

Injection of Edible Oil Substrate (EOS, soybean oil mixture) to remediate saturated source-area soils is a proven approach to enhance reductive dechlorination of CVOCs in groundwater and saturated soils. No infrastructure would be necessary and there would be no associated operation and monitoring costs. This option is retained for further consideration.

Bio-recirculation

This approach includes anaerobic dechlorination of PCE by addition of a nutrient-amended carbohydrate mixture to the subsurface through installation of an in-situ delivery system. This approach has been demonstrated to be effective with CVOCs and is a process evaluated further in this document.

DETAILED EVALUATION OF REMEDIAL ALTERNATIVES

All options will include the initial task of installation and sampling of two monitoring wells, one located south of well MW-8, and one located on the west side of Main Street, west of MW-8. Wells will be in compliance with the requirements of Wisconsin Administrative Code ch. NR 141. Samples will be analyzed for VOCs. At the time of well installation and sampling, the existing groundwater monitoring wells will be sampled, as well.

Results of the detailed evaluation of remedial alternatives are summarized on Table 2, and cost estimates for each option are included on Tables 3 through 6.

No Action

Description. The no action option analysis is based on the assumptions that the observed groundwater conditions are indicative of the extent of impacts that can be expected from the existing soil contamination and that the area of impacted soil will remain largely capped (with pavement and/or building). Consequently, infiltration in those areas is mitigated, and contaminants in those areas are not driven downward through the soil column to the water table. However, this option would result in significant contaminant concentrations remaining in place. Costs for 2 years of quarterly sampling are included in this evaluation.

There would be no process involved with no action other than the maintenance of the paved area. Groundwater samples would be collected on a quarterly basis for two years. Samples would be forwarded to an analytical laboratory for analyses of VOCs. After eight sample rounds have been completed, a final letter report would be prepared and submitted to the WDNR, and the wells abandoned.

It is possible that site renovation activities could occur in the future that would require the disturbance or removal of the paved surface and contaminated soil. Consequently, coordination with present and future owners would be necessary by means of a deed attachment.

Timeline for Remediation. Chlorinated VOCs degrade very slowly under natural, anaerobic conditions. Consequently, the time to attain remediation would be very long, probably decades. Two years of quarterly groundwater monitoring for VOCs are included in the cost estimate for this option (Table 3).

Ozone Injection

Description. This approach involves installation of a proprietary ozone injection system (Perozone®) manufactured by Kerfoot Technologies, Inc. (Kerfoot; Mashpee, Massachusetts). Installation of 8 injection wells (spargepoints) and associated trenching would be necessary. This treatment approach is intended to chemically destroy chlorinated compounds identified (PCE and associated breakdown products). Kerfoot has an excellent reputation in the ozone injection product market and claims the Perozone® product distributed in the subsurface through the C-Sparger® system produces a cost-effective reduction in contaminant mass and concentration in soil and groundwater, and is effective in soils with permeabilities down to 0.01 ft/day. In addition, Kerfoot claims that monitoring for breakdown products of ozone reactions has shown virtually no evidence of the expected compounds, and that after the initial reaction, ozone and Perozone® both decompose into beneficial oxygen. Also, as contaminants are destroyed rather than transferred from one phase to another, vapor control is not necessary.

Timeline for Remediation.

Groundwater remediation could be achieved in 1 to 2 years. The ozone injection system would likely be operated for 6 months to a year, followed by a 6-month shut down to allow for potential rebound, followed by an additional few months (based on rebound) of additional run time. Significant

infrastructure would be required for the system, as well as significant operation and monitoring. Decomissioning of the system following remediation would also be necessary, and these costs are not included in the attached cost estimate table (Table 4).

Injection of EOS

Description. Our evaluation of an EOS injection option is based on the following assumptions:

- The area to be remediated measures approximately 12,025 square feet, and injection would be completed to a depth of 15 feet;
- The subsurface conditions include clay and silt.

how injected?

Excavation will be completed in accordance with the volumes discussed in the previous section.

The injection process includes the application of an edible oil substrate mixture (EOS). The EOS process provides an innovative, low-cost approach for distributing and immobilizing biodegradable organic substrates in contaminated aquifers to promote in-situ anaerobic biodegradation of chlorinated solvents. EOS consists of food-grade soybean oil, surfactant, macro and micronutrients, and vitamins blended to form a stable micro-emulsion with small, uniformly-sized droplets. Once injected, the oil droplets stick to the sediment surfaces providing a residual oil phase. The EOS then serves as a carbon source for cell growth and an electron donor for energy generation, supporting long-term anaerobic biodegradation of the CVOCs.

The injection process would be completed in approximately 2 to 3 days. No infrastructure, operation and maintenance or decommissioning would be necessary.

Time to attain remediation. As indicated above, the injection process is estimated to be completed in approximately 2 to 3 days. Following treatment of saturated soils, it would be expected that VOC concentrations in site groundwater would decline to acceptable levels within a reasonable timeframe (2 to 5 years). Two years of groundwater monitoring for VOCs are included in the cost estimate for this option.

Bio-Recirculation

Description. This approach attains anaerobic dechlorination of PCE by addition of a nutrient-amended carbohydrate mixture to the subsurface through installation of an in-situ delivery system (ISD). The nutrient-amended carbohydrate is continuously added to the ISD and recirculated through the site via a system of injection and extraction wells. The ISD approach maximizes contact time and concentration of the substrate with contaminants in soil and groundwater, ensuring site-wide coverage. The intent of the ISD is to not only fully dechlorinate the minor mass of CVOCs dissolved in groundwater, but also to fully dechlorinate the majority of the CVOC mass sorbed onto the organic fraction in the soil matrix as it partitions to groundwater.

The ISD system requires substantial infrastructure and associated capital costs, as well as significant operation and monitoring and eventual decommissioning of the system following attainment of remediation. Costs for decommissioning are not included in the attached cost estimate (Table 4).

Time to attain remediation. The estimated timeframe of system operation is approximately 18 months, followed by 6 months of post-treatment monitoring.

Optional Task

As discussed above, RSV does not believe that the non-contiguous mass of soil contaminants indicated on the Northern figures is consistent with the data. However, if the WDNR believes that remediation in this area is necessary, we propose a method of enhanced volatilization, by means of tilling. The depth to groundwater is very shallow (approximately 2 feet). This places the mass within reach of normal farm tilling equipment. RSV proposes that a local contractor be utilized for this work, to be completed every 2 weeks for the course of a summer (June through August).

Estimated Costs

Fees will be assessed on a time and materials basis, in accordance with the attached Standard Billing Rate Schedule. Estimated costs for the four remedial options are summarized in Tables 3 through 6. However, please note that the costs summarized in this table are approximate, and the actual costs for no action will be a result of site activities (e.g., wear and tear on the paved surface), and the actual costs for EOS injection and excavation will be based on competitive bids for subcontracted services and actual site conditions encountered. For either active selected remedy, WDNR assistance may be necessary to obtain approval for working on the affected properties.

The costs for no action are summarized in Table 3, and are estimated to be approximately $47,600 for two years of quarterly groundwater monitoring and an end-of-year letter report. This option would also include pavement maintenance, which would include cleaning the paved surface and re-sealing it as necessary. However, such maintenance would likely be included in routine property maintenance, regardless of the presence of contaminants, and is therefore not included in the cost estimate.

The costs for excavation, soil vapor extraction and ozone injection are summarized in Table 4, and are estimated to be approximately $134,700 and include excavation, transportation and disposal of excavated soils, excavation confirmation sampling, backfill, ozone system installation and operation and maintenance, post-treatment groundwater monitoring and preparation of a remedial action documentation report.

The costs for excavation, soil vapor extraction and EOS injection, as summarized in Table 5, include excavation, transportation and disposal of excavated soils, excavation confirmation sampling, backfill, injection, oversight, 2 years of post-treatment groundwater monitoring and preparation of a remedial action documentation report. The estimated cost for this option is approximately $122,300.

The costs for soil vapor extraction, excavation and bio-recirculation are summarized in Table 6. As with the costs for the previous options, this option includes groundwater sampling after system startup, and subsequent post-treatment groundwater monitoring. The cost for this option is approximately $221,800.

Recommendation

Remediation of VOC contaminants in the soil and groundwater at the site through the process of EOS injection is the most cost-effective and least disruptive option. The timeframe for remediation is slightly longer than with the other options, but there is no infrastructure to dismantle following

completion of the remedy. Injection is a proven and effective method (references with respect to the efficacy of injection on CVOCs are available). In-situ remedial alternatives such as injection are also the most environmentally responsible, as the the bulk of the contamination is treated in place, rather than transported and disposed of, untreated, in another location.

Schedule

RSV is prepared to schedule the construction and sampling of the two new monitoring wells immediately upon receiving authorization. We will also immediately begin preparation of bid documents for the remedial action(s). Further scheduling will be dependent upon the availability of the selected contractor(s) to initiate work.

NR 169.23(9)(a)

RSV will comply with the requirements of Wisconsin Administrative Code ch. NR 700 - 728 for the work proposed herein. Upon request, we will provide copies of all documents and records related to these services for the WDNR. Additionally, we have not worked in concert with any other consultant submitting a proposal for this project.

Staffing

RSV will provide technical staff, qualified to complete the work summarized in this proposal. Robert J. Nauta, P.G. will serve as project manager. Mr. Nauta has over 22 years of professional experience with projects ranging from water supply to US Superfund sites.

Routine project work will be completed by Ms. Paula Richardson, P.G. Ms. Richardson has 7 years of technical experience, primarily on soil and groundwater investigation and remediation.

Principal review will be provided by Mr. Brad Berggren, P.E., P.G. Mr. Berggren has over 25 years of experience, with emphasis on industrial contaminant sites.

Civil engineering will be provide by Wisconsin-licensed civil engineers, as necessary. Resumes for Mr. Nauta, Ms. Richardson and Mr. Berggren are provided in Appendix A.

Insurance

RSV complies with the insurance requirements of the DERF program. A copy of our current certificate of insurance is included in Appendix B.

Terms and Conditions

RSV proposes to provide the services described above in accordance with the terms and conditions in the attached Professional Services Agreement. The agreement, along with the Standard Billing Rate Schedule, are located in Appendix C.

If you have any questions, please contact the undersigned at 920.674.3411.

Sincerely,
RSV ENGINEERING, INC.

Paula A. Richardson, P.G
Hydrogeologist

Robert J. Nauta, P.G.
Vice President

Attachments:

Figures 1 through 3
Tables 1 through 6

TABLE 1
REMEDIAL ACTION OPTIONS INITIAL SCREENING
EXPRESS CLEANERS
RACINE, WISCONSIN

General Response Action	Remedial Action Alternative	Description	Screening Comments
No action	None	No action	Current conditions remain, risk not managed.
Natural attenuation	Remediation by natural attenuation	Bacteria in soil and groundwater reduce contaminant concentrations over time	Current conditions remain, risk not managed. Decades of groundwater monitoring would be necessary.
Excavation and off-site disposal coupled with in-situ treatment	Excavation and disposal with soil vapor extraction and ozone injection	Excavation of unsaturated soils behind building and disposal at landfill, installation of subslab depressurization system to mitigate potential vapor intrusion into building, and installation of ozone injection system to deliver ozone to groundwater and remediate through oxidation.	Soil source area removed. Vapors would be mitigated. Groundwater remediation timeframe is months. Significant infrastructure is necessary for installation of ozone injection system. Operation and monitoring costs can become significant if system is problematic. System would need to be decommisioned following completion of remedial activities.
Excavation and off-site disposal coupled with in-situ treatment	Excavation and disposal with soil vapor extraction and chemical injection	Excavation of unsaturated soils behind building and disposal at landfill, installation of subslab depressurization system to mitigate potential vapor intrusion into building, and application of a biodegradable organic substrate mixture that will enhance microbial degradation of contaminants.	Timeframe for remediation is in years. Site work can be completed in approximately 1 week, and groundwater samples should be collected on a regular basis to check remediation progress. No infrastructure or operation and maintenance necessary for chemical injection. Disruption to site is minimized.
Excavation and off-site disposal coupled with in-situ treatment	Excavation and disposal with soil vapor extraction and chemical injection and recirculation	Excavation of unsaturated soils behind building and disposal at landfill, installation of subslab depressurization system to mitigate potential vapor intrusion into building, and application of a biodegradable organic substrate mixture that will enhance microbial degradation of contaminants. Mixture is re-circulated by groundwater extraction to ensure complete coverage.	Timeframe for remediation is 1.5 to 2 years. Complete coverage of the affected zone with substrate and contact time with contaminants is maximized through recirculation. Installation of infrastructure can be completed in approximately 1 week. Significant infrastructure and weekly operation and maintenance are necessary. System would need to be decommisioned following completion of remedial activities.

Shading denotes remedial option that has been eliminated from further consideraion.

TABLE 2
REMEDIAL ACTION OPTIONS COMPARATIVE ANALYSIS
EXPRESS CLEANERS
RACINE, WISCONSIN

REMEDIAL OPTION	TECHNICAL FEASIBILITY - SOIL				TECHNICAL FEASIBILITY - GROUNDWATER				ECONOMIC FEASIBILITY			
	Long-term effectiveness	Short-term effectiveness	Implement-ability	Restoration time-frame	Long-term effectiveness	Short-term effectiveness	Implement-ability	Restoration time-frame	Capital costs[1]	Initial costs[1]	O&M costs[1]	Potential future liability costs
No action	Low	Low	High	Long	Low	Low	High	Long	Low	Low	Low	High
Soil excavation and disposal coupled with chemical injection	Good	Good	Moderate	Short	Good	Good	Moderate	Short	High	High	Low	Low
Chemical injection	Good	Good	High	Short	Good	Good	High	Short	Moderate	Moderate	Low	Low

[1] Cost notations are relative to other options presented in the table, e.g., the cost for "No further action" is low relative to soil excavation.

TABLE 3
EXPRESS CLEANERS
RACINE, WISCONSIN
OPTION 1 - NO ACTION
ESTIMATED COSTS

TASK	UNITS	QTY.	RATE	COST
Well Installation and Sampling				
Driller	Estimate	1	$1,304	$1,304
Labor	Hours	50	$95	$4,750
Permitting and coordination	Estimate	1	$500	$500
Laboratory -Groundwater VOCs	Each	38	$75	$2,850
Expenses	Estimate	1	$400	$400
Soil and Water disposal	Estimate	1	$1,000	$1,000
Reporting - groundwater flow maps only	hours	4	$95	$380
			Subtotal:	***$11,184***
Option 1: No Action- 2 Years Quarterly Groundwater Monitoring				
Labor	Hours	160	$95	$15,200
Expenses	Event	8	$350	$2,800
Water disposal	drum	16	$250	$4,000
Laboratory	Estimate	152	$75	$11,400
Report	Estimate	1	$3,000	$3,000
			Subotal:	***$36,400***
			Total cost:	***$47,584***

TABLE 4
EXPRESS CLEANERS
RACINE, WISCONSIN
OPTION 2 - SOIL VAPOR EXTRACTION,
EXCAVATION AND OFF-SITE DISPOSAL AND OZONE INJECTION
ESTIMATED COSTS

TASK	UNITS	QTY.	RATE	COST
Well Installation and Sampling				
Driller	Estimate	1	$1,304	$1,304
Labor	Hours	50	$95	$4,750
Permitting and coordination	Estimate	1	$500	$500
Laboratory -Groundwater VOCs	Each	38	$75	$2,850
Expenses	Estimate	1	$400	$400
Soil and Water disposal	Estimate	1	$1,000	$1,000
Reporting - groundwater flow maps only	hours	4	$95	$380
			Subtotal:	***$11,184***
Option 2: Soil Vapor Extraction, Excavation and Ozone Injection				
SVE system installation				
Oversight labor	Hours	10	$95	$950
Subslab depressurization system	Estimate	1	$2,500	$2,500
Installation of vacuum monitoring points	Estimate	1	$1,200	$1,200
Annual check of vacuum	Event	2	$200	$400
Expenses	Estimate	1	$300	$300
Excavation and landfill disposal[1]				
Oversight labor	Hours	10	$95	$950
Excavation and backfill	ton	290	$9	$2,610
Transportation and offsite disposal	ton	290	$41	$11,948
Backfill material	ton	290	$12	$3,553
Confirmation sidewall samples	Each	7	$75	$525
Expenses	Estimate	1	$300	$300
Ozone injection system				
Private utility locator	Estimate	1	$300	$300
Driller	Estimate	1	$4,100	$4,100
Trenching	Estimate	1	$4,500	$4,500
Oversight labor	Hours	50	$95	$4,750
Expenses	Estimate	1	$400	$400
System components	Estimate	1	$49,000	$49,000
System installation and startup	Estimate	1	$6,000	$6,000
Check radius of influence of system	Event	2	$300	$600
Weekly operation & monitoring	Event	52	$300	$15,600
Remedial Action Documentation Report	Estimate	1	$5,000	$5,000
Groundwater Sampling				
Initial and annual sampling - VOCs and DO all wells	Event	2	$3,500	$7,000
Semi-annual-VOCs select wells, DO all wells	Event	1	$1,000	$1,000
			Subtotal:	***$123,486***
			Total cost:	***$134,670***

[1] Excavation cost does not include cost for resurfacing with asphalt, due to the variability of that cost.
Disposal estimate does not include a $5/ton surcharge that has been approved by Governor Doyle for 2009.
The surcharge has not gone into effect yet and it is unknown at this time whether it will do so before site activities.

TABLE 5
EXPRESS CLEANERS
RACINE, WISCONSIN
OPTION 3 - SOIL VAPOR EXTRACTION, EXCAVATION AND REDUCTIVE DECHLORINATION BY EOS INJECTION
ESTIMATED COSTS

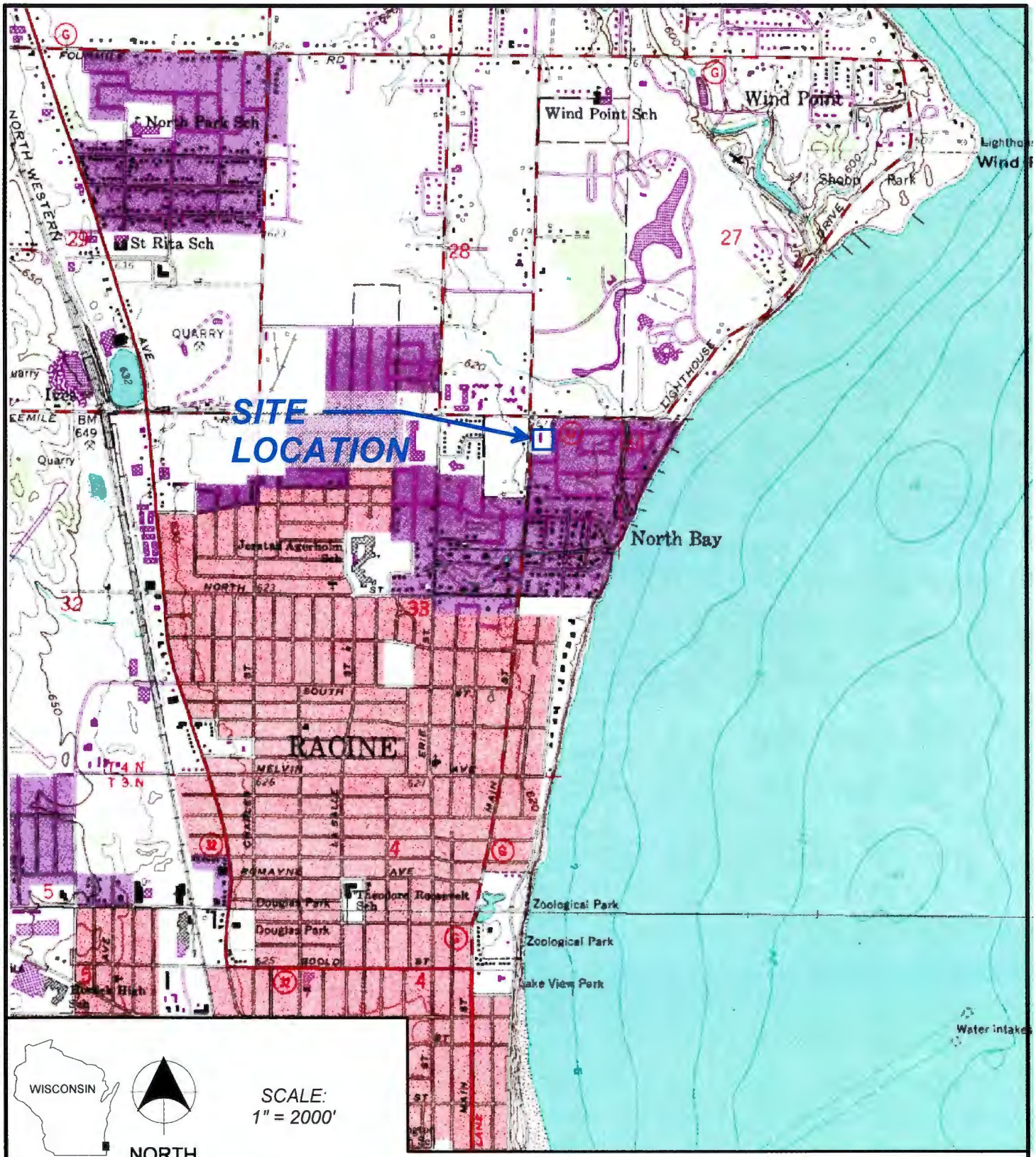
TASK	UNITS	QTY.	RATE	COST
Well Installation and Sampling				
Driller	Estimate	1	$1,304	$1,304
Labor	Hours	50	$95	$4,750
Permitting and coordination	Estimate	1	$500	$500
Laboratory -Groundwater VOCs	Each	38	$75	$2,850
Expenses	Estimate	1	$400	$400
Soil and Water disposal	Estimate	1	$1,000	$1,000
Reporting - groundwater flow maps only	hours	4	$95	$380
			Subtotal:	***$11,184***
Option 3: Soil Vapor Extraction, Excavation and EOS Injection				
SVE system installation				
Oversight labor	Hours	10	$95	$950
Subslab depressurization system	Estimate	1	$2,500	$2,500
Installation of vacuum monitoring points	Estimate	1	$1,200	$1,200
Annual check of vacuum	Event	2	$200	$400
Expenses	Estimate	1	$300	$300
Excavation and landfill disposal[1]				
Oversight labor	Hours	10	$95	$950
Excavation and backfill	ton	290	$9	$2,610
Transportation and offsite disposal	ton	290	$41	$11,948
Backfill material	ton	290	$12	$3,553
Confirmation sidewall samples	Each	7	$75	$525
Expenses	Estimate	1	$300	$300
EOS injection				
Oversight labor	Hours	35	$95	$3,325
Injection contractor	Estimate	1	$64,330	$64,330
Private utility locator	Estimate	1	$300	$300
Expenses	Estimate	1	$400	$400
Remedial Action Documentation Report	Estimate	1	$5,000	$5,000
Groundwater Sampling				
Initial and annual sampling - VOCs and DO all wells	Event	3	$3,500	$10,500
Semi-annual-VOCs select wells, DO all wells	Event	2	$1,000	$2,000
			Subtotal:	***$111,091***
			Total cost:	***$122,275***

[1] Excavation cost does not include cost for resurfacing with asphalt, due to the variability of that cost.
Disposal estimate does not include a $5/ton surcharge that has been approved by Governor Doyle for 2009.
The surcharge has not gone into effect yet and it is unknown at this time whether it will do so before site activities.

TABLE 6
EXPRESS CLEANERS
RACINE, WISCONSIN
OPTION 4 - SOIL VAPOR EXTRACTION, EXCAVATION AND BIO-RECIRCULATION SYSTEM
ESTIMATED COSTS

TASK	UNITS	QTY.	RATE	COST
Well Installation and Sampling				
Driller	Estimate	1	$1,304	$1,304
Labor	Hours	50	$95	$4,750
Permitting and coordination	Estimate	1	$500	$500
Laboratory -Groundwater VOCs	Each	38	$75	$2,850
Expenses	Estimate	1	$400	$400
Soil and Water disposal	Estimate	1	$1,000	$1,000
Reporting - groundwater flow maps only	hours	4	$95	$380
			Total:	***$11,184***
Option 4: Soil Vapor Extraction, Excavation and Bio-recirculation System				
SVE system installation				
Oversight labor	Hours	10	$95	$950
Subslab depressurization system	Estimate	1	$2,500	$2,500
Installation of vacuum monitoring points	Estimate	1	$1,200	$1,200
Annual check of vacuum	Event	2	$200	$400
Expenses	Estimate	1	$300	$300
Excavation and landfill disposal[1]				
Oversight labor	Hours	10	$95	$950
Excavation and backfill	ton	290	$9	$2,610
Transportation and offsite disposal	ton	290	$41	$11,948
Backfill material	ton	290	$12	$3,553
Confirmation sidewall samples	Each	7	$75	$525
Expenses	Estimate	1	$300	$300
Bio-recirculation system				
Private utility locator	Estimate	1	$300	$300
Driller	Estimate	1	$30,000	$30,000
Trenching	Estimate	1	$15,000	$15,000
Electrical and plumbing	Estimate	1	$8,500	$8,500
Oversight labor	Hours	50	$95	$4,750
Expenses	Estimate	1	$400	$400
System components	Estimate	1	$72,000	$72,000
System shipping, installation and startup	Estimate	1	$21,000	$21,000
Soil disposal-drilling spoils	Estimate	1	$1,500	$1,500
Monthly operation and maintenance	Month	18	$800	$14,400
Remedial Action Documentation Report	Estimate	1	$5,000	$5,000
Groundwater Sampling				
Initial and annual sampling - VOCs and DO all wells	Event	3	$3,500	$10,500
Semi-annual-VOCs select wells, DO all wells	Event	2	$1,000	$2,000
			Total:	***$210,586***
			Total cost:	***$221,770***

[1] Excavation cost does not include cost for resurfacing with asphalt, due to the variability of that cost. Disposal estimate does not include a $5/ton surcharge that has been approved by Governor Doyle for 2009. The surcharge has not gone into effect yet and it is unknown at this time whether it will do so before site activities.



BASE MAP: 7.5 MINUTE USGS TOPOGRAPHIC QUADRANGLE, RACINE NORTH, WISCONSIN.

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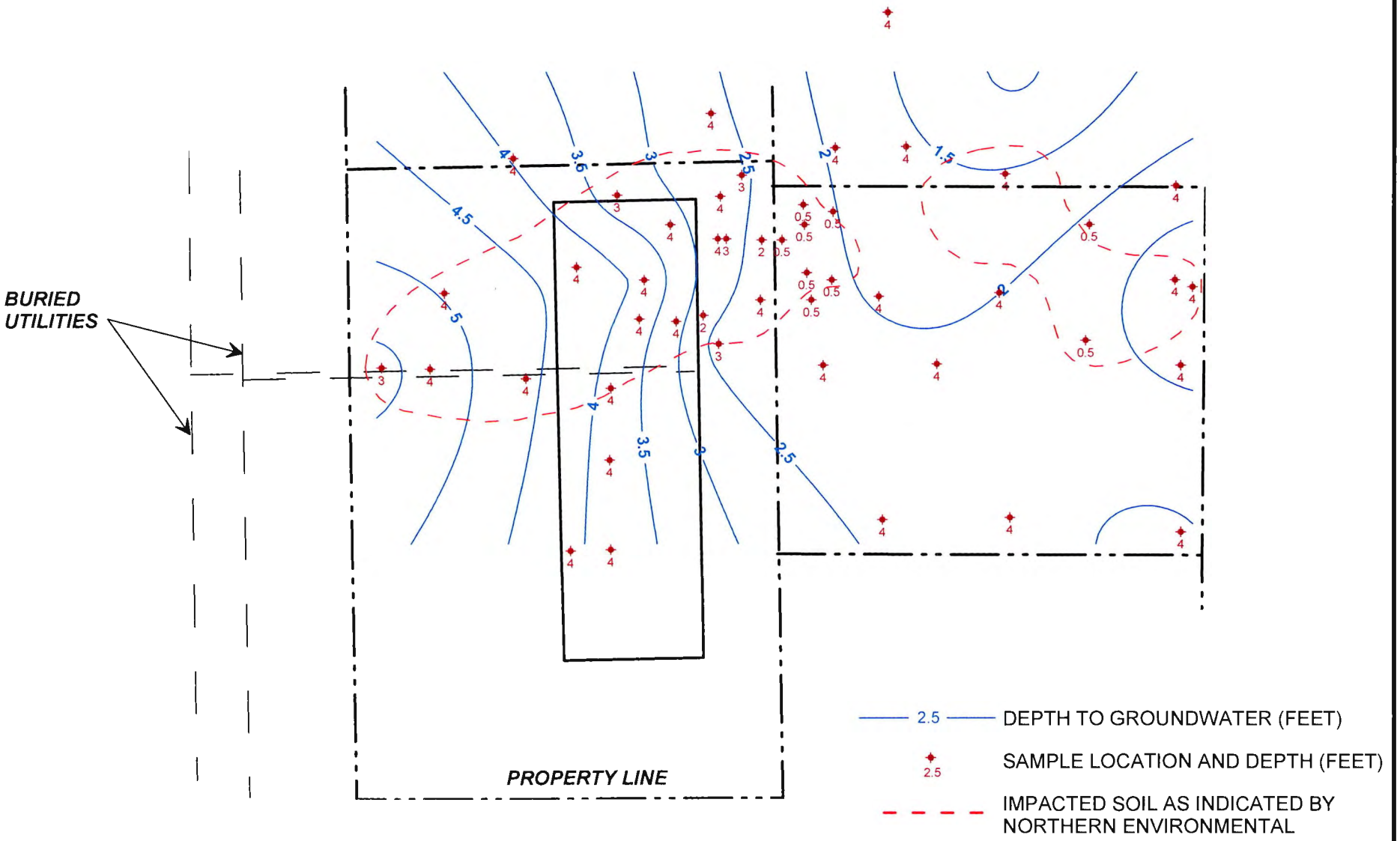
EXPRESS CLEANERS
RACINE, WISCONSIN
SITE LOCATION MAP

FIGURE 1

DRAWN BY	PROJ. No.	DATE	FILE NAME
RN	09-5008	24 JUL 09	SITE LOC



NORTH

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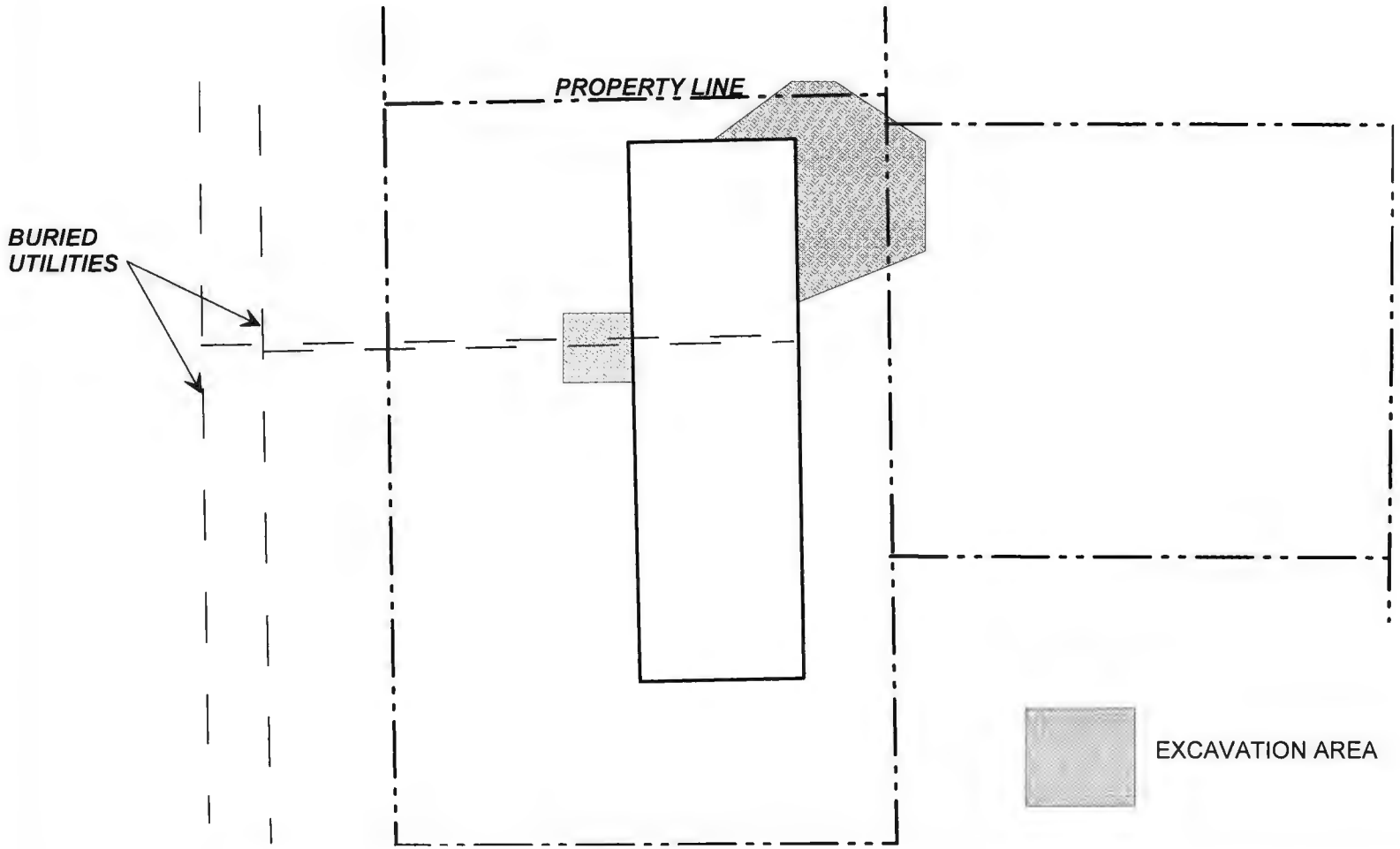
EXPRESS CLEANERS
RACINE, WISCONSIN
SAMPLE AND GROUNDWATER DEPTHS

FIGURE 2

DRAWN BY	PROJ. No.	DATE	FILE NAME
RN	09-5008	20 JUN 09	SAMP DEPTH



SCALE:
1" = 50'

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EXPRESS CLEANERS
RACINE, WISCONSIN
AREA OF PROPOSED EXCAVATION

FIGURE
3

DRAWN BY	PROJ. No.	DATE	FILE NAME
RN	09-5008	20 JUN 09	EXC AREA

ROBERT J. NAUTA, P.G.
Principal Hydrogeologist
Manager – Ecological Department

CREDENTIALS

M.S. Hydrogeology 1987, University of Wisconsin, Madison
B.S., Geology, Phi Beta Kappa 1985, University of Wisconsin, Madison

PROFESSIONAL REGISTRATION

Wisconsin Professional Geologist No. 35

AFFILIATIONS

National Water Well Association

FIELDS OF SPECIALIZATION

- Groundwater Flow and Transport Modeling
- Groundwater Resource Evaluation & Wellhead Protection
- Soil & Groundwater Remediation
- Groundwater contamination Assessment

PROFESSIONAL EXPERIENCE

Mr. Nauta has nearly 20 years experience in groundwater investigations, remediation and resource development. His background ranges from classical site investigations to advanced numerical analyses. His primary expertise includes extensive use of numerical and analytical applications for groundwater flow and contaminant transport simulations for remedial purposes and groundwater resource development and protection. A summary of representative project experience follows:

Groundwater Resource Evaluation & High Capacity Wells:

- Project Manager and principal modeler for a high capacity well for springwater for major international water bottling firm. Work included oversight of staff for wetland, aquatics and groundwater studies, as well as construction of a three-dimensional model of a spring aquifer.
- Project Hydrogeologist to complete an analytical groundwater model to obtain high capacity well permit for Wisconsin Power & Light, Company, Madison, Wisconsin.
- Project Hydrogeologist to construct a three-dimensional groundwater flow model for consumptive use permit for a 45 million gallon per day groundwater withdrawal permit for Florida Power Corporation, Polk County, Florida.
- Project Manager for the construction of a three-dimensional groundwater flow model to evaluate the feasibility of rehabilitating an out-of service municipal well. Included assessment of well with respect to the proposed Wisconsin wellhead protection plan. Work completed for the Beloit Water System, Beloit, Wisconsin.
- Senior Hydrogeologist for the construction of two groundwater flow and particle tracking models for the development of a wellhead protection program for the Water and Rivers Commission of Western Australia.
- Project manager for wellhead protection programs for two Wisconsin cities. These projects included construction of three-dimensional groundwater flow and particle tracking models to delineate wellhead protection zones, and the development of plans and strategies for the future supply needs.
- Project Manager for the construction of a groundwater flow model of Hollywood Basin (Florida), for consumptive use permit for Broward County Office of Environmental Services. Project included saltwater intrusion and wellhead protection evaluation.

- Project Manager for the construction of a groundwater flow model for consumptive use permitting and wellhead protection of a 25 million gallon per day regional wellfield for Broward County Office of Environmental Services.
- Routine wellhead protection services for the Palm Beach County Water Utilities District, West Palm Beach, Florida.
- Associate Hydrogeologist for the completion of a groundwater resource supply study for Lee County, Florida. Investigation included:
  - Water-use projections
  - Supply evaluations of 5 aquifers
  - Future wellfield location recommendations
  - Recharge evaluation
  - Water conservation recommendations
  - Wellhead protection

Modeling Related to Contaminant Studies:

- Project Hydrogeologist for the construction and calibration of a three-dimensional flow model of an industrial facility in Marinette, Wisconsin. This model was used to evaluate options for the remediation of contaminated sediments in a boat slip and turning basin of the Menominee River, as well as impacted soil and groundwater on-shore. The model was also utilized to evaluate risks associated with various options.
- Project Hydrogeologist for completion of a groundwater model to size and locate groundwater extraction and injection wells for groundwater treatment at Superfund site, for a confidential client in Clare, Michigan.
- Project Hydrogeologist to construct a three-dimensional groundwater flow and advective transport model for design of a remediation system for TCE contaminated groundwater for a Superfund project in Buena Borough, New Jersey.
- Project Hydrogeologist for the construction of a groundwater flow and transport model to evaluate contaminant migration from a landfill in Eau Claire, Wisconsin.
- Project Manager for the construction of a groundwater flow model for the design of a groundwater remediation system for a landfill for Dane County, Wisconsin.
- Project Hydrogeologist for the construction of a groundwater flow and particle tracking model for the evaluation of contaminant migration at a landfill site in Tomah, Wisconsin.
- Groundwater modeling and expert witness testimony provided pertaining to a lawsuit involving the impact of agricultural contaminants to the City of Chippewa Falls, Wisconsin municipal wellfield.

Miscellaneous Groundwater Studies:

- Staff Hydrogeologist for completion of a Work Plan for RCRA facility investigation for extensive subsurface creosote contamination for a confidential client, Reed City, Michigan.
- Project Hydrogeologist for a hydrogeologic investigation at three facilities in Massachusetts for Abrasive Industries, Clearwater, Florida.
- Project Manager for an investigation and remediation of chromium contaminated soils for GB Electrical, Inc., Matthews, North Carolina
- Staff Hydrogeologist for contamination investigation at former coal gasification site for Madison Gas & Electric Company, Madison, Wisconsin.
- Project Manager for a contamination assessment and remediation feasibility

study at the site of a fuel oil spill for Oscar Mayer Foods Corporation, Madison, Wisconsin.

- Project Hydrogeologist for the completion of a current assessment summary of the hydrogeologic conditions and proposal to USEPA for continued hydrogeologic investigation methods for RCRA facility for a confidential client in Windsor Locks, Connecticut.
- Project Manager for the soil and groundwater investigation of TCE and TCA contamination from multiple, unknown sources. Project includes source identification, delineation from chlorinated compound plume from an adjacent site, and remediation system design. Work completed for a confidential PRP group in Edgerton, Wisconsin. Project included expert witness testimony.
- Project Manager for the evaluation of the impacts of a quartzite quarry on an adjacent wetland. Project included consideration of vertical and horizontal groundwater flow and tritium dating to identify source of water in wetland area for a confidential client, Milwaukee, Wisconsin.
- Provided expert testimony at trial for contamination caused by releases associated with agricultural activities in central Wisconsin.
- Project Manager for the investigation and remediation (as necessary) of dozens of underground storage tank projects.
- Project Manager for the completion of a mechanical integrity test of injection well for a private water utility in Venice, Florida
- Associated Hydrogeologist for the investigation of EDB Contamination of Soils and Groundwater.

- Groundwater contamination from row crop application of EDB near small town in northern Florida. At this site, Mr. Nauta analyzed travel directions and velocities of EDB in groundwater. Mr. Nauta also reviewed and analyzed groundwater treatment options and natural degradation rates of EDB. Project also included an assessment of the potential effects on municipal wells.
- Mr. Nauta investigated soil and groundwater contamination of EDB resulting from turf application and from citrus grove application. For this project, Mr. Nauta has conducted a review of past research on EDB fate and transport in soils and groundwater, and investigation of groundwater flow and contaminant transport rates and directions, a review and critique of groundwater treatment options and of groundwater transport modeling completed for each site, the projection of future groundwater contamination levels and expert witness testimony.

Miscellaneous positions

Mr. Nauta was appointed by the President of the Wisconsin Senate to be a member of the Groundwater Advisory Committee, which is currently developing the guidelines and strategies to implement Wisconsin Act 310, which will re-vamp Wisconsin's high capacity well regulations, as well as address issues relating to areas of extreme stress to the groundwater system in the State.

Mr. Nauta is also a member of the Board of Visitors of the University of Wisconsin-Madison Department of Geology & Geophysics. This board advises and supports faculty and students, and members are elected to the board by the faculty.

Paula A. Richardson, P.G.

Hydrogeologist

RSV Engineering, Inc.
146 E. Milwaukee Street
Jefferson, WI 53549

Telephone: (920) 674-3411
prichardson@rsv-jefferson.com

EDUCATION

B.S. Geosciences, University of Wisconsin-Milwaukee, 2002

CONTINUING EDUCATION

40-Hour OSHA Health & Safety Training for Hazardous Waste Operations

Midwest Geosciences Group "Improving the Description and Characterization of Glacial Successions" Seminar

PROFESSIONAL AFFILIATIONS/REGISTRATIONS

2009 President of the Wisconsin Ground Water Association (WGWA)

Registered Professional Geologist – Wisconsin, Registration #1256

Wisconsin PECFA Consultant Registration #957464

Wisconsin Department of Commerce Certified Site Assessor #970861

FIELDS OF SPECIALIZATION

- Soil and Groundwater Remedial Investigations
- Phase I/Phase II Environmental Site Assessments
- Baseline Environmental Assessments
- Hydrogeologic Data Acquisition and Analysis (Soil and Groundwater) for:
  - Chlorinated Solvent Sites
  - MGP Sites
  - Industrial Facilities
  - LUST and Spill Sites
  - LUST Site Investigations
- Field Task Coordinator
- Aquifer Analysis-Slug Tests
- Geotechnical Drilling

PROFESSIONAL EXPERIENCE

Over six years of environmental consulting experience as a hydrogeologist for site hydrogeologic characterization and evaluation of soil and groundwater contamination for properties impacted with petroleum products, chlorinated organics, coal gasification by-products, metals, polychlorinated biphenyls, and ash. Consulting activities include field tasks such as well installation, aquifer testing and collection of rock, soil and groundwater samples; and project management tasks such as work scope and budget development, scheduling, data analysis and reporting, proposal, preparation, Petroleum Environmental Cleanup Fund Act (PECFA) Claim and Eligible/ Ineligible Allocation Split preparation, closure requests, and Geographic Information System (GIS) Registry packets.

KEY PROJECTS

- Lead Project Hydrogeologist for remedial investigations of three former manufactured gas plant (MGP) sites in Wisconsin to evaluate the extent of MGP wastes and byproducts impacting soil and groundwater,

including bedrock aquifer assessment. Field supervisory activities including soil borings, groundwater monitoring well installation, soil and groundwater sampling, and aquifer testing. Data analysis included regional and local hydrogeologic assessment, evaluation of contaminants of concern for regulatory compliance, and survey and evaluation of historic structures and processes as potential source areas.

- Project Hydrogeologist as part of a study to determine the potential for groundwater quality impacts in an alluvial aquifer downgradient from a coal ash management impoundment. Field supervisory activities included installation of groundwater monitoring wells and installation and operation of data loggers for continuous groundwater elevation measurement. Subsequent duties included analysis and interpretation of groundwater chemistry in relation to coal ash contaminants of concern.

- Project Hydrogeologist responsible for quarterly mapping of groundwater flow in a sand aquifer at a coal ash landfill. Hydrogeologic interpretation of flow within the aquifer was performed while recognizing that hydrogeology in the area is extremely complex, due to perched zones and an irregular, low permeability bedrock surface.

- Lead Project Hydrogeologist for scheduling and implementation of semi-annual and annual groundwater sampling at MGP sites throughout Wisconsin.

- Lead Project Hydrogeologist for soil and groundwater remedial investigations of several Wisconsin LUST sites. Responsible for work plan preparation, report preparation, closure requests, and data analysis of contaminant magnitude and extent in shallow unlithified systems utilizing soil and groundwater data. Field supervisory responsibilities included soil borings and groundwater monitoring well installations.

- Lead Project Hydrogeologist for hydrogeologic investigations of potential impacts of residential developments on groundwater quality and quantity at nearby wetlands and farms in Illinois.

- Environmental Site Assessment, Phase I Assessments including historical records search and analysis of soil survey maps, wetland maps, topographical maps, and aerial photographs, site reconnaissance including site walkthrough to assess environmental risk, and report writing.

- Baseline Environmental Assessment (BEA), a specialized environmental assessment used to petition the State of Michigan for limitation of environmental liability, excluding preexisting conditions. A Phase I ESA was coupled with historic data review, site reconnaissance and personnel interview to create a sampling plan to document all existing environmental concerns (extent and magnitude) prior to sale or lease of property. Following receipt of the analytical results of the soil and groundwater sampling, the BEA petition was submitted to the State of Michigan and subsequently granted.

BRAD J. BERGGREN, P.E., P.G.

Vice President / Principal

CREDENTIALS

M.S., Soil Science (minor in geotechnical engineering), Oregon State University, 1983
B.S., Civil Engineering, Oregon State University, 1982
B.S., Geology, University of Oregon, 1977

REGISTRATIONS

Engineer: Wisconsin, Oregon, and Washington
Geologist: Wisconsin, Oregon, and Illinois
Geologist/Hydrogeologist: Washington

PROFESSIONAL AFFILIATIONS

National Ground Water Association
American Society of Civil Engineers
Int'l Society of Environmental Forensics

FIELDS OF SPECIALIZATION

- Litigation Support & Cost Recovery
- Management of projects involving characterization and remediation of landfills and contaminated environmental media, including extensive experience with chlorinated solvent releases
- Design and evaluation of remedial action measures
- Civil engineering with emphasis in geotechnical engineering

PROFESSIONAL EXPERIENCE

Mr. Berggren is a Professional Engineer and Geologist with greater than 20 years of experience in engineering and environmental science. Mr. Berggren provides technical direction and management of engineering and environmental projects within RSV Engineering, Inc. Types of projects in which Mr. Berggren has played a key role include landfills, manufacturing facilities, drycleaning facilities, printing facilities, plating operations, as well as chemical and petroleum storage/ distribution facilities. His responsibilities include planning and implementation of investigations/feasibility studies, regulatory agency negotiations, due diligence assessments and engineering design and services during construction for properties involving contamination of groundwater and other environmental media. Work experience includes investigation, risk assessment, and cleanup of organic and inorganic chemical releases, brownfield redevelopment, economic analysis of life-cycle costing and present value for response actions and management of contaminated properties, hydrologic evaluations of gravel quarry operations, pavement design, impoundment liner design, landfill cover design, embankment design, evaluation and selection of waste disposal and treatment options, oversight services during construction and negotiations with federal, state, and local regulatory authorities. Mr. Berggren is accustomed to working with state and federal environmental regulations, including Oregon's environmental cleanup rules, RCRA, CERCLA, SARA, CWA, SDWA, and TSCA. Mr. Berggren's recent experience in Oregon, Washington and Wisconsin includes a variety of projects involving petroleum hydrocarbon releases, Tetrachloroethene (PCE), Trichloroethene (TCE) and other organic and inorganic compound releases, property transfer, brownfield redevelopment, and other environmental contamination issues. In addition, Mr. Berggren has provided investigation/feasibility study and remedial design/remedial action services on numerous NPL Superfund sites throughout the US. In 1996, he was selected by the Oregon Department of Environmental Quality (DEQ) as a member of the technical workgroup that

assisted with revision of Oregon's Environmental Cleanup Rules. Mr. Berggren has also served as a member of the Oregon DEQ Dry Cleaner Advisory Committee.

Mr. Berggren has provided expert services regarding technical aspects of investigations and response actions associated with petroleum products, chlorinated solvents, inorganics, and polychlorinated biphenyls (PCBs) released to soil, sediment and groundwater at sites in Oregon, Washington, Wisconsin and Kentucky. In nearly all cases, these efforts were associated with cost recovery and compliance with state statutes and/or CERCLA and the NCP.

Mr. Berggren has also provided expert services to the insurance industry, including review of file information to assess the nature and timing of releases, preparation of past cost summaries, review of past costs for reasonableness (as well as to identify defense vs. indemnity vs. cost of doing business expenses), projections of future costs, and preparation of proposed allocation schemes in support of settlement negotiations.

SELECTED PROJECTS

Chlorinated Solvents

- Mr. Berggren has participated as a technical advisor, expert, or project manager on numerous chlorinated solvent contamination projects involving source identification, characterization of nature and extent, risk assessment, remedy selection, design and implementation, and redevelopment.

- Technical advisor for defense of a dry-cleaning facility in central Wisconsin. The project involved a state-lead investigation of soil and groundwater associated with a municipal water-supply well field contaminated with tetrachloroethylene. Services included review and evaluation of investigation data collected by the state, evaluation of remedial technologies and response costs, response to state requests for reimbursement of investigation and cleanup costs, and development of litigation defense strategy in cooperation with the client's counsel. Successful negotiations concluded with a one-time reimbursement for past costs associated with investigations and soil-response actions on the client's property, but no future contribution for further investigation or implementation of response actions for the municipal water supply.

- Prepared an Environmental Site Assessment and opinion of environmental liability on behalf of a potential purchaser of a major industrial facility located on the Willamette River in Corvallis, Oregon. The facility had multiple environmental issues including liquid-phase TCE in groundwater, NPDES permitting issues, acoustic issues, and air quality issues. Despite the environmental conditions associated with the site, the assessment of monetary liability supported pre-purchase negotiations that enabled successful sale of the facility.

- Mr. Berggren directed a remedial investigation (RI) for an Oregon site where soil and groundwater are affected by TCE and other chlorinated solvents. This project involved a complex hydrogeologic system that included fractured basalt, weathered basalt, and Willamette Silts.

  Remedial investigation activities included improved characterization of the fractured

bedrock hydrogeology, determination of beneficial uses of water within the locality of the site, and evaluation of potential risks to human health and the environment. Hydrogeologic and contaminant fate and transport evaluations together with assessments of potential risk and beneficial uses of groundwater demonstrated that the relatively high concentrations of TCE present in groundwater did not represent an unacceptable risk and were not likely to adversely impact any beneficial uses of groundwater. These evaluations and associated negotiations with state regulators resulted in a "No Further Action" (NFA) determination by the Oregon Department of Environmental Quality.

- Mr. Berggren served as project officer/project manager for property transfer site assessments conducted at eight sites to assess the potential environmental liability associated with acquisition of the properties for development into retail outlets. One Oregon site involved a subparcel that was a salvage yard where transformers were repaired in the past. Following completion of the Phase I site assessment at this site, he performed a Phase II site assessment, evaluated potential environmental liabilities, provided an analysis of remedial alternatives, and developed cost estimates for remedial actions. Remedial actions included soil cleanup, UST removal, well abandonment, and demolition of structures containing lead-based paint and asbestos. Contaminants of concern included petroleum hydrocarbons, chlorinated volatiles, and PCBs. All eight projects were completed on a fast-track basis to meet the client's aggressive development schedules.

  In addition, he assisted the client with negotiations and technical expertise for one " brownfield" development, the site of a former transformer repair business, that was performed under the Oregon Department of Environmental Quality (DEQ) Voluntary Cleanup section. DEQ has presented this site as a model example for private entity cleanup and development of a contaminated industrial property.

Petroleum Products

- Designed tank investigation and remediation programs for petroleum chemical and industrial clients throughout Oregon, Washington, and the Midwest. Remedy experience includes risk-based corrective action (RBCA), hydrocarbon product recovery, groundwater recovery, vacuum-enhanced groundwater recovery, physical & chemical groundwater treatment, insitu air-sparging, passive and active soil venting, and in-situ and ex-situ bioremediation.

- Provided technical support to insurance carrier regarding Claim involving potential discharge to the Willamette River/Portland Harbor CERCLA site of groundwater containing petroleum hydrocarbons and metals.

- Mr. Berggren provided technical support to the purchaser of approximately 25 properties on the island of Guam. The properties included eleven (11) fuel service stations and one bulk fuel terminal. Services included environmental due diligence support during purchase negotiations and ongoing oversight support associated with investigation and

remediation commitments by the former owners following the sale. Technical support activities included review of existing site information, review of Guam hydrogeologic and groundwater supply research, assessment of potential liabilities associated with future development of Guam's groundwater resources, and recommendations for future site activities.

- Directed remediation system operation and maintenance, and groundwater monitoring associated with a tanker truck spill of gasoline adjacent to the John Day River in central Oregon. The remediation system included groundwater extraction/ treatment and soil vapor extraction. The determination of beneficial uses of water and reasonably likely future land use presented in the RI report together with assessments of potential human health and ecological risk support that further groundwater remediation was not necessary to protect human health or the environment. Active remediation has been discontinued and, based on confirmation groundwater monitoring results, closure was granted.

CERCLA

- Participated in remedial planning, remedial investigations, feasibility studies, remedial designs, or remedial actions for USEPA Superfund hazardous waste sites throughout the US, including Operating Industries Landfill (CA), Red Oak Landfill (IA), Enviro-Chem (IN), Northside landfill (IN), Seymour Recycling (IN), Lakeland Disposal Landfill (IN), Old City Landfill (IN),), GE Pittsfield (MA), Housatonic River (MA), Times Beach (MO), Idaho Pole (MT), Hudson River (NY), New Lyme Landfill (OH), Chem Dyne (OH), Fields Brook (OH), Laskin/Poplar (OH), Old Mill (OH), Berlin and Farro (MI), Forest Waste Landfill (MI), Harbor Island (WA), and Western Processing (WA). In addition, Mr. Berggren reviewed design and construction documentation associated with the Martin Marrietta CERCLA Landfill (OR) to evaluate sources of apparent excess infiltration into the landfill's leachate collection system and identify options to correct the excess infiltration.

- Project manager for the Red Oak Landfill Superfund Site located in Red Oak, Iowa. Mr. Berggren has been involved with the site for over 10 years. Involvement has included the Remedial Investigation (RI), Risk Assessment, Remedy Selection, Remedial Design (RD), and Remedial Action (RA) phases of the project. The Red Oak Landfill site is an approximately 40-acre site involving the landfill disposal of both municipal and industrial wastes. Investigation activities included characterization of waste, soil, sediment, leachate, groundwater, and surface water, as well as defining the limits of disposal through physical observations and geophysical studies. Mr. Berggren actively participated in negotiations with USEPA concerning remedy selection and the consent decree for RD/RA activities. In support of the negotiations, numerous Records of Decisions for other CERCLA landfills were reviewed. RD/RA activities have included design, preparation of technical plans and specifications for construction, and construction oversight of the selected remedy. The selected remedy includes construction of a low-permeability clay cover and associated site grading and surface water drainage features, as well as revegetation. Design and construction

activities were completed consistent with relevant CERCLA and RCRA landfill guidance.

- Evaluated feasible alternatives for control of gas migrating from a 145-acre, 350-feet-deep, NPL landfill in the western United States. This evaluation included analyzing the effectiveness of an existing commercial gas collection system, an active gas migration control system, and gas-monitoring network.

- Designed and evaluated remedial measures for several USEPA Superfund hazardous waste sites. Experience includes the evaluation of applicability and effectiveness of various insitu technologies for remediating soils and groundwater contaminated with a variety of organic and inorganic compounds.

Wood Treating Facilities

- Project Officer and technical advisor for various wood treating facilities (pentachlorophenol, CCA, and creosote), including a large CERCLA remedial design/remedial action (RD/RA) project for a wood preservative facility in Montana. Responsibilities include agency negotiations of remedy and RD/RA scope, management and oversight of field investigation activities, remedial system design and installation, and construction completion report preparation and certification. RD/RA activities for the CERCLA site in Montana included design, preparation of technical plans and specifications for construction, and construction oversight of an approximately 3-acre aboveground soil treatment containment cell. The treatment cell included earthen embankments and a synthetic membrane liner with leachate collection system designed and constructed consistent with RCRA landfill guidance.

- Senior technical advisor for a project in Northern Wisconsin involving containment and monitoring of soil and groundwater affected by past wood-treating operations. Remedial actions included capping of a pentachlorophenol-affected soil area, groundwater monitoring in compliance with an Administrative Order, and evaluation of other remedial alternatives to actively remediate affected soil and groundwater, if action levels were exceeded

Polychlorinated Biphenyls (PCBs)

- Mr. Berggren provided technical support to insurance carrier regarding Claim involving potential discharge to the Willamette River/Portland Harbor CERCLA site of soil/sediment containing PCBs and metals from riverbank and upland areas. The support services also included a review of PCB- related sediment cleanup precedence across the U.S. in support of decision-making regarding cleanup expectations for Portland Harbor sediment.

- Project advisor for a former tractor manufacturing electrical and transformer testing and repair facility operated since the early 1900s. The project involved an initial environmental site assessment with a subsequent Phase II investigation to further evaluate potential concerns and support subparcel property transfers. Actions performed to support the property transfers for redevelopment, included stormwater management planning, UST removal oversight, hydrocarbon affected soil

removal coordination and negotiation, PCB-affected soil response actions, decontamination of PCB-contaminated buildings, negotiation and design of NAPL and PCB-affected soil and groundwater contaminant and cleanup response actions.

- Project manager for a multimillion-dollar project involving remediation of soil, sediment, and groundwater affected by the release of a dense non-aqueous phase liquid containing polychlorinated biphenyls (PCBs) in a fractured limestone environment. The site proved to be particularly challenging in that the contaminant oils were heavier then that of water and as a result they became dispersed throughout the fractured karstic limestone. Mr. Berggren was retained to conduct hydrogeologic investigations to determine the nature and extent of any effected groundwater and aquifer properties influencing the distribution and migration of affected groundwater and negotiate appropriate response actions for soil, surface water, sediment, and groundwater. The hydrogeologic investigations involved monitoring well installation, groundwater sampling, groundwater spring/seep sampling, aquifer pumping tests, regular monitoring of groundwater elevations, dye tracing, and geophysical activities.

  Additional services provided include preparation of risk assessment and feasibility study reports as support to identify appropriate response actions for affected surface water, groundwater and soil. In addition, he directed the design and implementation of interim remedial actions involving collection of non-aqueous phase liquids, removal of PCB-containing soil, temporary on-site treatment of collected groundwater, monitoring of stormwater quality, and oversight of building decontamination activities. Following construction and during operations, additional investigations and monitoring will be completed to evaluate and document the performance of the remedial actions.

Additional Experience

- Characterized and evaluated construction debris and/or foundry sand landfills in Wisconsin in support of applications to the state for exemptions to construct on the landfills.

- Performed environmental site assessment services for numerous clients throughout the Midwest and western United States. These assessments have involved compliance with ASTM standards as well as client or lender specific standards.

- Mr. Berggren has provided opinions regarding the potential impacts on surface water and groundwater quality from proposed residential developments in Wisconsin.

- Mr. Berggren has evaluated geologic and hydrologic information, including well construction logs, to evaluate the potential for gravel mining operations at several locations in Oregon to affect groundwater quantity and quality. The evaluations focused on the potential to influence private water supply wells in the vicinity of the quarries.

- Conducted an investigation of soil and vegetation on a coal strip-mine spoil site in the Midwest. The project included recommendation of plant species and soil

amendments for vegetation establishment.

- Performed oversight services during construction, including inspection of trenching and backfilling of a 1-mile segment of pipeline, installation of groundwater extraction wells, and demolition of on-site facilities, at USEPA Superfund sites in the upper Midwest. Resident inspection for the expansion of a municipal water supply treatment facility in Dayton, Ohio.

- From 1983 to 1987, Mr. Berggren was employed as a geotechnical engineer for CH2M-HILL. From 1987 to 1997, Mr. Berggren was employed as a principal engineer for Geraghty & Miller, Inc.

EXPERT WITNESS EXPERIENCE

Mr. Berggren has provided expert opinions regarding technical aspects of the investigations and remedial designs associated with petroleum hydrocarbons or chlorinated solvents released to soil and groundwater at sites in Oregon and Wisconsin. His opinions addressed compliance with provisions for cost recovery under state statutes and CERCLA. Also, he has provided expert testimony in deposition and trial regarding potential remedial costs associated with a hydrocarbon release from an underground storage tank in Northern Wisconsin. In addition, Mr. Berggren has provided other general litigation support to counsel and their clients, including sources and timing of release, litigation strategy assistance, identification and coordination of other experts, and preparation for taking of depositions.

PUBLICATIONS/PRESENTATIONS

Berggren, B. J., L. A. Holm, and J. R. Schneider. Assessing seepage at uncontrolled hazardous waste sites, in Seepage and Leakage from Dams and Impoundments, proceeding of a symposium sponsored by the Geotechnical Engineering Division of ASCE, May 1985.

Rothschild, E. R., B. J. Berggren, and B. L. Cutright. Geologic and hydrologic considerations in the investigation and remediation of hazardous waste disposal sites: case examples, Abstracts with programs, Geological Society of America, April 1988.

Berggren, B. J., and R. Boness. Investigation and corrective action at a convenience store in northern Wisconsin, Proceedings of the Third Annual Hazardous Materials Management Conference/Central, March 1990.

Berggren, B. J., and F. Jones. How Clean is Clean? Presentation to the Milwaukee, Wisconsin Bar Association, June 1992.

Berggren, B.J. Investigation and Remediation of Contaminated Soil and Groundwater. Two-part educational presentation to the law firm of Lane Powell Spears Lubersky. February 1993.

Berggren, B.J. Home Depot Brownfield Redevelopment Case History. Oregon Department of Environmental Quality Revised Environmental Cleanup Rules Seminar. November 1995.

Berggren, B.J. National Environmental Protection Act Guidelines. Northwest Communication Systems Conference. February 1997.

Berggren, B.J., C.Arola, and J. Flickinger. Enhanced In-Situ Bioremediation of Chlorinated Ethanes – A Case Study. National Ground Water Association Conference on Remediation: Site Closure and Total Cost of Cleanup. November 2003

ACORD CERTIFICATE OF LIABILITY INSURANCE

OP ID JB RSVEN-1

DATE (MM/DD/YYYY) 04/08/09

PRODUCER
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101 East Grand Ave, Suite 11
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Phone: 262-284-7174 Fax: 262-377-3784

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W232 S7530 Big Bend Dr
Big Bend WI 53103

INSURERS AFFORDING COVERAGE		NAIC #
INSURER A:	General Casualty Insurance	24414
INSURER B:	Evanston Insurance Co.	
INSURER C:		
INSURER D:		
INSURER E:		

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.

INSR LTR	ADD'L INSRD	TYPE OF INSURANCE	POLICY NUMBER	POLICY EFFECTIVE DATE (MM/DD/YY)	POLICY EXPIRATION DATE (MM/DD/YY)	LIMITS	
A		GENERAL LIABILITY [X] COMMERCIAL GENERAL LIABILITY [ ] CLAIMS MADE [X] OCCUR GEN'L AGGREGATE LIMIT APPLIES PER: [ ] POLICY [X] PRO-JECT [ ] LOC	CCS0406266	12/28/08	12/28/09	EACH OCCURRENCE DAMAGE TO RENTED PREMISES (Ea occurence) MED EXP (Any one person) PERSONAL & ADV INJURY GENERAL AGGREGATE PRODUCTS - COMP/OP AGG	$ 1000000 $ 100000 $ 5000 $ 1000000 $ 2000000 $ 1000000
A		AUTOMOBILE LIABILITY [X] ANY AUTO [ ] ALL OWNED AUTOS [ ] SCHEDULED AUTOS [X] HIRED AUTOS [X] NON-OWNED AUTOS	CBA0406266	12/28/08	12/28/09	COMBINED SINGLE LIMIT (Ea accident) BODILY INJURY (Per person) BODILY INJURY (Per accident) PROPERTY DAMAGE (Per accident)	$ 1000000 $ $ $
		GARAGE LIABILITY [ ] ANY AUTO				AUTO ONLY - EA ACCIDENT OTHER THAN AUTO ONLY: EA ACC AGG	$ $ $
A		EXCESS/UMBRELLA LIABILITY [X] OCCUR [ ] CLAIMS MADE [ ] DEDUCTIBLE [X] RETENTION $ 0	CCU0406266	12/28/08	12/28/09	EACH OCCURRENCE AGGREGATE	$ 3000000 $ 3000000 $ $ $
A		WORKERS COMPENSATION AND EMPLOYERS' LIABILITY ANY PROPRIETOR/PARTNER/EXECUTIVE OFFICER/MEMBER EXCLUDED? If yes, describe under SPECIAL PROVISIONS below	CWC0406266	12/28/08	12/28/09	[X] WC STATU-TORY LIMITS [ ] OTH-ER E.L. EACH ACCIDENT E.L. DISEASE - EA EMPLOYEE E.L. DISEASE - POLICY LIMIT	 $ 100000 $ 100000 $ 500000
B		OTHER Prof Liability	AE814483	01/10/09	01/10/10	Limits Ded	1000000 15000

DESCRIPTION OF OPERATIONS / LOCATIONS / VEHICLES / EXCLUSIONS ADDED BY ENDORSEMENT / SPECIAL PROVISIONS
fax #608-883-6600

CERTIFICATE HOLDER

CWEBERB

CANCELLATION

SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELLED BEFORE THE EXPIRATION DATE THEREOF, THE ISSUING INSURER 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

RSV
ENGINEERING, INC.

2009 STANDARD BILLING RATE SCHEDULE

Principal	$180.00
Senior Registered Professional Engineer	$130.00
Registered Professional Engineer	$110.00
Senior Civil Engineer	$100.00
Civil Engineer / Traffic Engineer	$ 95.00
Senior Registered Professional Geologist	$135.00
Registered Professional Geologist	$120.00
Senior Scientist / Hydrogeologist / Biologist	$110.00
Staff Scientist / Hydrogeologist / Biologist	$ 100.00
Environmental Scientist	$ 90.00
Civil Engineering / Environmental Technician	$ 75.00
Senior Planner	$100.00
Planner	$ 80.00
Senior Consultant	$100.00
Consultant	$ 85.00
Sr. Construction Manager	$110.00
Construction Manager	$ 90.00
Inspector II	$ 70.00
Inspector I	$ 60.00
Registered Land Surveyor	$110.00
Survey Crew Chief	$ 80.00
Survey Technician	$ 55.00
2-person Survey Crew	$135.00
3-person Survey Crew	$150.00
CADD Operator	$ 70.00
Clerical - Environmental	$ 40.00
Clerical	$ 35.00

Overtime Rates are 1.5 times the Hourly Rate for hourly paid employees. Deposition and trial testimony is billed at $200.00 per hour.

REIMBURSABLE EXPENSES

Photocopies		$0.20 each
Blueprints		Cost
Sepia / Mylar / Slick	24x36	$3.85 each
	30x42	$5.00 each
Mileage		$0.55 /mile
Subcontractors		Cost + 15%
Telephone		Cost

Terms: Net 15 Days

A Finance Charge will be computed at a periodic rate of 1.5% per month, an annual percentage rate of 18%, on any balance not paid within 30 days. Minimum charge will be $1.00 per month.

Revised 12/30/2008

PROFESSIONAL SERVICES AGREEMENT

THIS AGREEMENT, is made and entered into this 24th day of July, 2009, by and between Ehrlich Family Trust (hereinafter referred to as CLIENT), and RSV Engineering, Inc. (hereinafter referred to as RSV) of 146 E. Milwaukee Street, Jefferson WI 53549.

PROJECT. The CLIENT hereby contracts with RSV to perform the services described in the proposal from RSV dated July 24, 2009.

ENGINEER'S COMPENSATION. RSV shall be paid for all services rendered on the basis defined in the proposal from RSV dated July 24, 2009.

CLIENT'S AGENT. The CLIENT has appointed _____ as the official AGENT of the CLIENT for the purposes of the PROJECT. As such, the AGENT shall be responsible for the execution of any document pertaining to this Agreement or any amendment thereto, and for approving all change orders, addenda, and additional services to be performed by RSV.

TERMS AND CONDITIONS

In consideration of the mutual promises and covenants set forth herein and other good and valuable consideration, the receipt and sufficiency of which is hereby acknowledged, the parties do hereby agree as follows:

1. **PERFORMANCE.** RSV shall conduct its services with that degree of care and skill ordinarily exercised by members of the consulting community practicing under similar conditions. RSV warrants that the services will be conducted in a professional manner. If RSV breaches the warranty, RSV shall be given the opportunity to correct any services. RSV shall not be liable for any claim, damage, cost or expense (including attorney fees) or other liability or loss not directly and/or solely caused by the negligent acts, errors or omissions of RSV. RSV's liability hereunder shall not exceed the aggregate of all fees paid to RSV by CLIENT on the Project.

2. **SUBCONTRACTORS.** Should the unexpected need arise, and only after receiving Client approval, RSV may engage subcontractors on behalf of CLIENT to perform any portions of the services to be provided by RSV hereunder. RSV shall contract independently with any subcontractor used, or shall request CLIENT to subcontract directly. Client agrees that RSV shall not be responsible for, or in any manner guarantee, the performance of such subcontractors, nor shall RSV be liable for any negligent acts, errors or omissions of any such subcontractor.

3. **SHOP DRAWINGS.** In the event shop drawings are provided under this Agreement, RSV will check and approve samples, catalog data, schedules, shop drawings, laboratory, shop and mill test of conformance with the design concept of the project and compliance with the information given by the contract documents.

4. **TERMINATION.** This Agreement may be terminated by either party upon seven (7) days prior written notice. In the event of termination, RSV shall be paid up to the effective date of termination for all services rendered by it. All drawings or other documents prepared by RSV shall remain the property of RSV until all monies owed to RSV by CLIENT (whether or not such monies have become due and payable) have been paid.

5. **PAYMENT TERMS.** RSV shall bill for services rendered and reimbursable costs incurred on a monthly basis. Each invoice shall be due and payable within fifteen (15) days of the presentation of the invoice. Invoices over thirty (30) days past due will incur a service charge of 1.5% of the unpaid balance, equal to 18% per year. RSV shall suspend services if unpaid invoices extend 60 days past the date of presentation of the invoice. Service will be resumed when invoices are within 60 days aging.

6. **ADDITIONAL SERVICES; ENTIRE AGREEMENT.** This Agreement contains the entire understanding and agreement between RSV and CLIENT relating to the PROJECT. Additional services, change orders, addenda or modification to this Agreement, or the services set forth in this Agreement, shall only be authorized by a subsequent written agreement entered into between RSV and CLIENT.

7. **ARBITRATION.** Any dispute arising pursuant to any contract to which these terms and conditions apply shall be submitted to arbitration in accordance with the rules of the American Arbitration Association, the award of the arbitrator to be final in the parties. Judgment upon any award rendered may be entered in any court having jurisdiction.

8. **INSURANCE.** Upon written request, RSV will furnish CLIENT a written description of insurance coverage then being maintained by RSV that may be related to RSV's performance of services hereunder. No oral representations regarding insurance shall be binding upon RSV.

9. **COST ESTIMATES.** Any estimates or equipment, construction, or operation costs will be made on the basis of RSV's experience; however, RSV does not warrant the accuracy of such estimates as compared to contractor's bids or actual costs incurred.

10. **INDEMNITY.** RSV shall indemnify, protect and hold harmless Client from and against any and all liability, claims, demands, losses, damages, expenses and costs (including attorney fees) to the extent such matter arises from the negligence or willful misconduct of RSV. This indemnification shall be limited to the RSV insurance coverage and dollar amounts.

Client shall indemnify, protect and hold harmless RSV from and against any and all liability, claims, demands, losses, damages, expenses and costs (including attorney fees) to the extent such matter arises from the negligence or willful misconduct of Client.

11. **SITE SECURITY.** Client is solely responsible for all aspects of site security and for obtaining any necessary permission from any affected third-party owners for use of their lands.

12. **FEDERAL RIGHT-TO-KNOW COMPLIANCE.** In compliance with the Federal Hazard Communication Standard, CLIENT shall provide RSV with a list of hazardous chemicals in the work place which employees may be exposed to while performing this Contract. In addition, the CLIENT shall provide a listing of protective measures in case exposure occurs.

13. **WAIVER.** No waiver, discharge, or renunciation of any claim or right to RSV arising out of breach of the Agreement by CLIENT shall be effective unless in writing signed by RSV and supported by separate consideration.

14. **GOVERNING LAW.** This agreement and the legal relations between the parties hereto, shall be governed and construed in accordance with the Laws of the State of Wisconsin.

IN WITNESS WHEREOF, the parties hereto have made and executed this Agreement.

CLIENT:	RSV ENGINEERING, INC.
By: _____	By: _____
(Name of Authorized Signatory)	Robert J. Nauta, P.G.
Title: _____	Title: Vice President
Date: _____	Date: 07.24.09