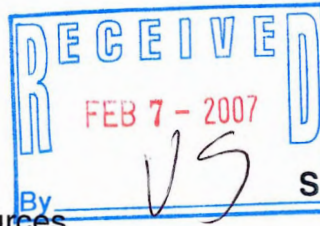




**Shaw Environmental, Inc.**  
111 West Pleasant Street, Suite 105  
Milwaukee, WI 53212-3939  
Tel: 414.291.2350  
Fax: 414.291.2385

February 2, 2007

Ms. Victoria Stovall  
Wisconsin Department of Natural Resources  
2300 North Dr. Martin Luther King Jr. Drive  
Milwaukee, Wisconsin 53212



**SEALED BID**

**Re: *Site Investigation Proposal***  
***Express Dry Cleaners***  
***3921-3941 North Main Street***  
***Racine, Wisconsin***  
***BRRTS No. 02-52-547631***

Dear Ms. Stovall:

Enclosed please find the Shaw Environmental, Inc. (Shaw) document entitled *Site Investigation Proposal* for the Express Dry Cleaners property referenced above. The subsurface investigation will be performed in accordance with NR 716, Wisconsin Administrative Code, and the Dry Cleaner Environmental Response Fund (DERF) program requirements.

Please contact me with any questions at 414.291.2359.

Sincerely,

**SHAW ENVIRONMENTAL, INC.**

A handwritten signature in blue ink, appearing to read "Timothy P. Welch".

Timothy P. Welch, P.G.  
Project Manager

A handwritten signature in blue ink, appearing to read "William F. Kralj".

William F. Kralj, P.E.  
Senior Project Engineer

TPW:deb

cc: DeWitt, Ross and Stevens, S.C.  
Attn: Mr. Arthur Glor

# SITE INVESTIGATION PROPOSAL

***Express Dry Cleaners  
3921 – 3941 North Main Street  
Racine, Wisconsin  
BRRTS #02-52-547631  
FID #241303810***

***February 2, 2007***

Prepared for:

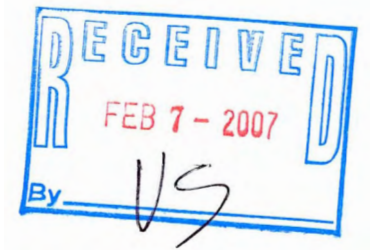
Mr. Arthur H. Glor  
Senior Scientist  
DeWitt, Ross and Stevens, S.C.  
13935 Bishops Drive, Suite 300  
Brookfield, WI 53005-6605

and

Mr. Mark Drews  
Wisconsin Department of Natural Resources  
141 NW Barstow Street, Room 180  
Waukesha, WI 53188

Prepared by:

  
**Shaw**™ Shaw Environmental, Inc.  
111 West Pleasant Street, Suite 105  
Milwaukee, Wisconsin 53212



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Table 1	Cost Estimate – Site Investigation
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**List of Exhibits**

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Exhibit A	Firm Overview and Project Summaries
Exhibit B	Shaw's Chlorinated Solvent Treatment Technologies
Exhibit C	Resumes
Exhibit D	Insurance Certificates
Exhibit E	Shaw Fee Schedule and Professional Services Agreement

## **INTRODUCTION**

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Shaw Environmental, Inc. (Shaw) is pleased to submit this scope of work and cost estimate for a Site Investigation at the Express Dry Cleaners facility located at 3921 – 3941 North Main Street, in Racine, Wisconsin (herein the “Property”). The scope of work presented herein was developed by Shaw based on a review of the January 23, 2007 Request for Proposal (RFP) and the site scoping activities presented with that document. The scope of work proposed by Shaw, as presented in this proposal, is based on the following:

- A review of the Bid Package Scope of Work and related documents enclosed with the Bid Request.
- A review of the Site Investigation Scoping Document prepared for Mr. Mark Drews by Northern Environmental of Mequon, Wisconsin dated January 16, 2007.

Shaw’s primary goal in conducting Site Investigation projects is to delineate the extent of impacts as swiftly as possible. To achieve that goal, your project will be managed with a phased strategy to minimize the amount of work necessary to delineate the impacts, while utilizing the Drycleaner Environmental Repair Fund (“DERF”) program to maximize reimbursement of investigative costs. The deliverable will be a Site Investigation Workplan and Remedial Action Options Report.

### ***Statement of Qualifications and Experience***

Shaw is a full-service environmental consulting firm with over 30 years of experience in assessing soil and groundwater quality and developing remedial solutions at sites with chlorinated hydrocarbons, including dry cleaning facilities. Our staff of geologists, hydrogeologists, and engineers have extensive experience and expertise in the following areas:

- In-Situ remediation of soils and groundwater at dry cleaning sites proposed for redevelopment;
- Knowledge of the eligibility and reimbursement requirements of the Drycleaner Environmental Repair Fund (DERF);
- Active participation in the DERF Advisory Committee;
- Technical expertise and experience in the fate and transport of chlorinated hydrocarbons, and the evaluation of remedial system performance;
- Strong working relationships with staff from the Southeast Offices of the WDNR.

Shaw is a solution-oriented and client-focused consulting firm. Additional information and documentation of Shaw's qualifications and experience at sites with chlorinated hydrocarbons are provided in Exhibits A and B.

### ***Project Background***

Northern Environmental completed a site scoping study at the property in January 2007. This Scoping investigation was based on the results of subsurface investigation conducted in April, 2006 by Gabriel Environmental Services. Dry cleaning operations have been ongoing at the site from about the early to mid 1970's until 2005 under the name of Valet Cleaners. In that year the facility was operated as Express Cleaners Inc. until the present time. According to Northern, the operations have historically used, and are currently using, a dry cleaning solvent tetrachloroethene (a.k.a. perchloroethene [PCE]). There is one dry cleaning machines located in the facility. The facility occupies a portion of a building with two other tenant areas. The overall building has approximate dimensions of about 225 feet by 150 feet. The portion of the building occupied by Express Cleaners has dimensions of approximately 50 feet by 55 feet. The surface area around the building is covered with an asphalt pavement.

As part of the Northern Environmental site scoping study, three Geoprobe® soil borings, were analyzed. These borings were prepared by a separate contractor during a Phase II Investigation of the facility. Two of the Geoprobe® borings were advanced to a depth of 12 feet below ground surface (bgs) while a third was advanced to approximately 4 feet bgs. A total of five soil samples were analyzed for VOCs. PCE was reported in four of the five soil samples. The PCE impacts ranged from 465 micrograms per kilogram ( $\mu\text{g}/\text{kg}$ ) to 121,000  $\mu\text{g}/\text{kg}$ . In addition, trichloroethene (TCE) was reported at concentrations of 346  $\mu\text{g}/\text{kg}$  and 618  $\mu\text{g}/\text{kg}$  in two soil borings. A further breakdown product, Cis-1, 2-DCE was found in three borings at concentrations that varied between 6  $\mu\text{g}/\text{kg}$  and 461  $\mu\text{g}/\text{kg}$ .

The soils located at the Property reportedly consist of sandy to clayey soil. Groundwater was unreported in the Gabriel report, although it is believed to be at relatively shallow depths and may be perched within granular seams of soil underlain by cohesive soil layers.

### ***Dry Cleaner Environmental Fund (DERF) Program***

This program was created in the 1997 - 1999 state budget, and became effective on October 14, 1997. This program was developed by the dry cleaning industry to cover eligible costs associated with responding to, investigating and cleaning up contamination caused by releases of dry cleaning solvents. The program is funded by a license fee for dry cleaners and a solvent fee on the sale of dry cleaning solvents. The maximum award is \$500,000 per occurrence less a deductible of \$10,000 plus a percentage payment based on the reward if greater than \$200,000. To qualify for DERF reimbursement, owners/operators or agents may submit reimbursement

applications to the WDNR for review and auditing. The applications can be submitted for various project milestones including immediate and interim actions, site investigations, and remedial actions.

## SCOPE OF WORK

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The scope of work will consist of the advancement and sampling of Geoprobe® soil borings to evaluate the vertical and horizontal extent of chlorinated hydrocarbon-affected soils, and the installation of groundwater monitoring wells. The following scope of work is proposed by Shaw:

- Upon authorization from the client, Shaw will submit Potential Claim Notification to the WDNR and in accordance with NR 169.09(1)(C)(3), we will notify the WDNR that we will complete the investigation activities at the Property. In accordance with the DERF regulations, a Site Investigation Work Plan will be prepared and submitted to the WDNR. The work plan will include the investigation activities presented in this proposal, and will comply with the requirements of NR 169(1)(C)(5). Field activities will not be initiated until written approval to proceed has been received from the WDNR
- Shaw will prepare a site specific Health & Safety Plan to be followed during all field activities. This plan will provide information to ensure the health and safety of site personnel. The health and safety plan will be prepared in accordance with 29 CFR 1910.120.
- In accordance with NR 169, three written contractor bids will be obtained by Shaw for all contracted services. The service providers will be selected on a competitive (i.e., low-cost) basis.
- Shaw will advance 9 Geoprobe® soil borings to approximately 16 feet below ground surface (bgs). Five (5) of the borings will be advanced inside the building, and four (4) borings will be advanced outside the Express Dry Cleaners facility. During boring advancement, soil samples will be collected continuously for lithologic description, an evaluation of engineering properties, and field screening with a portable photoionization detector (PID). Shaw proposes to collect one soil sample for laboratory analysis from each boring. The soil sample submitted for laboratory analysis will be collected from the direct contact interval (between a depth of two to four feet bgs), the interval with the highest PID reading, or the interval immediately above the groundwater interface. All soil samples will be properly preserved and submitted to the subcontracted analytical laboratory, retained following the review of bids by Shaw, under chain-of-custody control for VOC analyses. A contingency is included to submit two samples for TCLP-VOC laboratory analyses.
- Two (2) of the interior soil borings will be converted to temporary, 1 inch diameter groundwater monitoring wells. Groundwater samples will be collected from the temporary wells and submitted under chain-of-custody control for method 8260 VOC laboratory analyses.
- Shaw will supervise the installation of four (4) NR 141 compliant groundwater-monitoring wells to a depth of approximately 16 feet bgs along the north, northeast and eastern portions of the Property. The wells will be constructed with schedule 40 polyvinyl chloride (PVC) flush-threaded pipe, attached to factory-slotted screen. The wells will be installed with a truck-mounted hollow stem auger drilling rig. Shaw proposes to collect two soil samples for laboratory analysis from each monitoring well location. The soil sample submitted for



laboratory analysis will be collected from the direct contact interval (between depths of zero to four feet bgs). At each well location, a sample will be collected from the interval with the highest PID reading, or the interval immediately above the groundwater interface. All soil samples will be properly preserved and submitted to the selected analytical laboratory under chain-of-custody control for method 8260 VOC analyses.

- Shaw will supervise the installation of one (1) NR 141 compliant piezometer to a depth of approximately 30 feet bgs, nested with a monitoring well along the north side of the Property. The piezometer will be constructed with schedule 40 polyvinyl chloride (PVC) flush-threaded pipe, attached to factory-slotted screen.
- Shaw will develop the newly installed groundwater monitoring wells and piezometer to remove suspended sediment from the well and sand pack. The water will be containerized on-site for disposal. Following development, the wells will be allowed to stabilize prior to sample collection.
- Shaw will collect groundwater samples from the four groundwater monitoring wells and piezometer, using low flow sampling techniques. Prior to sample collection, each well will be inspected and a water level measurement will be recorded. During the sampling process, field measurement of pH, temperature, conductivity and oxidation-reduction potential will be recorded. The wells will be sampled using clean sampling equipment for each well. Five groundwater samples and a duplicate QA\QC sample will be submitted under chain-of-custody control method 8260 VOC laboratory analyses.
- Shaw will determine the hydraulic conductivity of the saturated soils by slug testing the monitoring wells and piezometer.
- Shaw will survey the top of casing and groundwater surface elevation for each well to a USGS datum.
- Shaw will assess migration pathways and the potential for impact to receptors. The evaluation of migration pathways will include an evaluation of the utilities and potable drinking water wells in the area.
- Shaw will characterize all wastes generated during the investigation, and dispose of all drummed investigation derived waste.
- Shaw will prepare a Site Investigation Report (SIR) following completion of the drilling and sampling activities. The SIR will be prepared to comply with all of the requirements of NR 716. Prior to submitting the SIR to the WDNR, a draft copy will be submitted to DeWitt, Ross and Stevens, S.C. for review and comment.

## **PROJECT TEAM**

---

Shaw will be responsible for implementing and managing all work at the Property. The Shaw approach to project team organization and project management focuses on client service. We understand the issues associated with a change of project management or team members during a project and have committed the personnel and resources outlined in this proposal for the duration of the project. The team is structured after those used in previously successful programs in which principal engineers and scientists have played an active role. In this plan, key management staff are intimately involved with both the administrative and scientific aspects of the project, thus ensuring cost-effective integration of the management and technical teams and a clear focus on project objectives. The overall goals of the management plan are to:

- Actively manage/monitor the status of all activities;
- Ensure adherence to schedules;
- Oversee and report on the technical and financial status of the project; and
- Ensure the quality and timely preparation of all deliverables.

Shaw has selected a talented, highly qualified, and experienced team to perform the tasks required for the project. With practical technical experience in remediation, Shaw will provide the client with proven investigation and remediation services. A brief description of each team member's project responsibilities is provided below.

The personnel assigned to implement the scope of work were selected because of their experience in the following areas:

- Knowledge of the DERF, WDNR guidance, and administrative rules;
- Experience in conducting site investigation and remediation activities at dry cleaning facilities proposed for redevelopment;
- Technical expertise and experience with chlorinated solvent compounds in soil and groundwater.

Mr. William Kralj, P.E. will manage the project. Mr. Timothy Welch, P.G., Program Manager will serve as the Project Advisor and technical contact with Express Cleaners and DeWitt, Ross and Stevens S.C. Mr. Welch is thoroughly familiar with the WDNR requirements for investigation and remediation at dry cleaning sites. Ms. Heidi Woelfel, P.G., Staff Hydrogeologist, will assist in the project coordination and implement the field activities, and will perform necessary QA/QC. Resumes for all key personnel are presented in Exhibit C.

## ***COST ESTIMATE***

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Costs associated with the investigation of the Property are likely eligible for reimbursement under DERF. Upon written WDNR approval of subsurface investigation completion, Shaw will prepare a reimbursement application for submittal to the WDNR.

The estimated cost to execute the proposed scope of work is approximately \$20,820.00. In accordance with NR 169.21 (3) (a), the cost breakdown is presented as Table 1. The DERF site investigation worksheets are presented as Table 2.

## **CERTIFICATE OF INSURANCE**

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This proposal has been prepared in accordance with the requirements of NR 169.23. In accordance with NR 169.23(6), Shaw certifies the following:

- If selected to complete the scope of work described herein, Shaw will comply with the applicable requirements of Chapters NR 169 and Chapters NR 700 to NR 728 of the WAC.
- Shaw will make available to the WDNR upon request, for inspection and copying, all of the documents and records related to the contract services.

Also in accordance with NR 169.23(6), a copy of Shaw's Certificate of Insurance is presented in Exhibit D.

## **SCHEDULE**

---

An estimated time of completing the scope of work is approximately 60 to 90 days once the project has begun and Shaw has been given the authority to proceed.

### ***Project Schedule***

<b>Task</b>	<b>Duration</b>	<b>Cumulative Schedule</b>
Work Plan Development\ Health & Safety Plan	1 weeks	1 week
Scheduling and Bid Procurement	1 week	2 weeks
Drilling Activities, Well Development & Survey	2 weeks	4 weeks
Groundwater Sampling	1 week	5 weeks
Receive Laboratory Analysis	2 weeks	7 weeks
Prepare Report	1 week	8 weeks

## **CERTIFICATIONS**

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Shaw will comply with the applicable requirements under NR 169 and NR 700. Shaw will also make available to the WDNR upon request, all of our documents and records related to this project.

### ***Conditions***

Shaw will contact "Digger's Hotline" to locate underground utilities on the site. If the locations of underground utilities cannot be determined, the extent of the subsurface investigations will be limited.

Additionally, should the discovery of unanticipated hazardous materials at the site dictate a change in personal protective equipment above Level D, this discovery will constitute a changed condition mandating a renegotiated work scope of services.

### ***Agreement***

Exhibit E sets forth our rates and Professional Services Agreement.

***Table 1***  
***Cost Estimate – Site Investigation***

Table 1  
 Cost Estimate: Site Investigation  
 Express Dry Cleaners  
 3921-3941 North Main Street  
 Racine, Wisconsin

<u>Task</u>	<u>Quantity</u>	<u>Units</u>	<u>Unit Rates</u>	<u>Subtotal</u>
<b>CONSULTING COSTS</b>				
WORKPLAN and HEALTH AND SAFETY PLAN PREPARATION				
Admin Support	3	hrs	\$ 47.00	\$ 141.00
Office Support	2	hrs	\$ 50.00	\$ 100.00
CAD Operator	1	hrs	\$ 56.00	\$ 56.00
Staff Geologist	8	hrs	\$ 84.00	\$ 672.00
Project Manager	3	hrs	\$ 113.00	\$ 339.00
			<b>Sub-Total</b>	<b>\$ 1,308.00</b>
MONITORING WELL & GEOPROBE INSTALLATION				
Staff Scientist	25	hrs	\$ 50.00	\$ 1,250.00
Project Manager	5	hrs	\$ 113.00	\$ 565.00
Truck	2	each	\$ 27.00	\$ 54.00
Photoionization Detector	2	each	\$ 75.00	\$ 150.00
			<b>Sub-Total</b>	<b>\$ 2,019.00</b>
MONITORING WELL DEVELOPMENT & SAMPLING				
Field Technician	20	hrs	\$ 50.00	\$ 1,000.00
Project Manager	6	hrs	\$ 113.00	\$ 678.00
Low Flow Sampling Equipment	1	day	\$ 150.00	\$ 150.00
Truck	2	each	\$ 27.00	\$ 54.00
Bailers	6	each	\$ 20.00	\$ 120.00
Peristaltic Pump and tubing	1	day	\$ 40.00	\$ 40.00
Water Level Indicator	2	day	\$ 21.00	\$ 42.00
Drums	2	each	\$ 40.00	\$ 80.00
			<b>Sub-Total</b>	<b>\$ 2,164.00</b>
HYDRAULIC CONDUCTIVITY TESTING				
Staff Geologist	12	hrs	\$ 84.00	\$ 1,008.00
Project Manager	1	hrs	\$ 113.00	\$ 113.00
Water Level Indicator	1	each	\$ 21.00	\$ 21.00
Mini-Troll	1	each	\$ 75.00	\$ 75.00
Truck	1	each	\$ 27.00	\$ 27.00
			<b>Sub-Total</b>	<b>\$ 1,244.00</b>
DATA ANALYSIS, REPORT PREPARATION & PROJECT MANAGEMENT				
Office Support	8	hrs	\$ 50.00	\$ 400.00
Staff Geologist	30	hrs	\$ 84.00	\$ 2,520.00
Project Manager	6	hrs	\$ 113.00	\$ 678.00
CAD Operator	6	hrs	\$ 56.00	\$ 336.00
Senior Engineer	8	hrs	\$ 147.00	\$ 1,176.00
			<b>Sub-Total</b>	<b>\$ 5,110.00</b>
			<b>Shaw Consulting Subtotal</b>	<b>\$ 11,845.00</b>



**COMMODITY SERVICES****DRILLING & GEOPROBE**

Mobilization/Demobilization	1 lump sum	\$ 250.00	\$ 250.00
Per Diem	1 day	\$ 125.00	\$ 125.00
Utility Clearance - 5 foot hand dig	40 feet	\$ 10.00	\$ 400.00
Concrete Penetration	5 each	\$ 15.00	\$ 75.00
Interior Borings	80 feet	\$ 8.00	\$ 640.00
Direct Push Soil Borings	64 feet	\$ 5.50	\$ 352.00
Direct Push Borehole Abandonment	112 feet	\$ 0.50	\$ 56.00
Temporary Well Installation-1"	32 feet	\$ 4.00	\$ 128.00
Decontamination	2 day	\$ 150.00	\$ 300.00
Flush Mount-small	2 each	\$ 50.00	\$ 100.00
Hollow Stem Auger Drill-4.25"	94 feet	\$ 12.00	\$ 1,128.00
Drums	7 each	\$ 35.00	\$ 245.00
Well Installation-2"	94 feet	\$ 12.00	\$ 1,128.00
Flush Mount	5 each	\$ 75.00	\$ 375.00
	<b>Drilling Subtotal</b>		<b>\$ 5,302.00</b>

**LABORATORY ANALYTICAL**

Water Samples			
Volatile Organic Compounds	9 each	\$ 61.00	\$ 549.00
Soil Samples			
Volatile Organic Compounds	18 each	\$ 61.00	\$ 1,098.00
Volatile Organic Compounds-TCLP	2 each	\$ 70.00	\$ 140.00
	<b>Laboratory Subtotal</b>		<b>\$ 1,787.00</b>

**INVESTIGATIVE WASTE DISPOSAL**

Hazardous Waste	1 each	\$ 300.00	\$ 300.00
Non-Hazardous Waste	8 each	\$ 150.00	\$ 1,200.00
	<b>Drum Subtotal</b>		<b>\$ 1,500.00</b>

**Total Estimated Subcontractor Cost \$ 8,589.00**

**Total Estimated Project Cost \$ 20,434.00**

Notes: Drilling, geoprobe, laboratory costs presented in this table are good faith estimates, the actual costs will be based on competitive bids.

***Table 2***  
***DERF Subsurface Investigation Bid Sheets***

DERF Site Investigation Bid Sheet

Consultant Bid Summary

Form 4400-233 (R 4/04) Page 2 of 6

**Site Information**

Site Name **Express Dy Cleaners**

Consultant Name **Shaw Environmental, Inc.**

Applicant Name

**Bid Summary**

<b>Drilling Costs Total =</b>	<b>\$5,302.00</b>
<b>Analytical Costs Total =</b>	<b>\$1,787.00</b>
<b>Consulting Costs Total =</b>	<b>\$11,032.00</b>
<b>Misc Costs Total =</b>	<b>\$2,313.00</b>
<b>Grand Total =</b>	<b>\$20,434.00</b>

I certify that the costs are an accurate estimate of my total projected costs for the site investigation and I understand and will adhere to s.292.65 Stats. and ch NR 169, Wis. Adm. Code.

Consultant Signature

*Tina P. Welch*

Date

*02/2/07*

Please attach to these forms a written narrative specifying how the tasks outlined in these sheets will be performed.

Consultant Name: Shaw Environmental, Inc.  
 Site Name: Express Dry Cleaners  
 BRRTS #: 02-52-547631  
 Date: 2/2/07

**DERF Site Investigation Bid Sheet**  
**Drilling Costs**

Form 4400-233 (R 4/04) Page 3 of 6

Drilling Costs						
Task	Interval	Number of Borings or Wells	Number of Days	Total Number Feet Drilled	Cost/feet, Day or Well	Total Cost
Well installation and Completion						
MW's (4.25")	0-16'	4		64	12	\$768.00
PZ (4.25')	0-30'	1		30	12	\$360.00
MW's (1")	0-16'	2		32	4	\$128.00
	> ___ ft					
Decontamination Costs						\$300.00
Mobilization Costs						\$250.00
Auger Borings (continuous sampling)						
Interior	0-16'	5		80	8	\$640.00
HAS	0-16'	4		64	12	\$768.00
Piezometer	0-30'	1		30	12	\$360.00
	> ___ ft					
Abandonment						\$56.00
Concrete Penetration						\$75.00
Auger Borings (specify split spoon sampling interval)						
	___ ft to ___ ft					
	___ ft to ___ ft					
	___ ft to ___ ft					
	> ___ ft					
Decontamination Costs						
Mobilization Costs						
Direct Push Borings (per point)						
	< ___ ft depth					
Exterior	0-16'	4		64	5.5	\$352.00
	> ___ ft depth					
Decontamination Costs						
Mobilization Costs						
Well Development (if done by subcontractor)						
	Monitoring Wells					
	Piezometers					
	Recovery Wells					
Other						
Drums		7			35	\$245.00
Flush Mount Covers		5			75	\$375.00
Flush-small		2			50	\$100.00
Per Diem			1		125	\$125.00
Utility Clearance		8		40	10	\$400.00
<b>Total Drilling Costs</b>						<b>\$5,302.00</b>

Consultant Name: Shaw Environmental, Inc  
 Site Name: Express Dry Cleaners  
 BRRTS #: 02-52-547631  
 Date: 2/2/07

**DERF Site Investigation Bid Sheet**

**Analytical Costs**

Form 4400-233 (R 4/04) Page 4 of 6

Parameter	WI Certified Lab			Field Test/Field Kit			Mobile Lab			Total Costs
	\$/sample	# samples	Method Used	\$/sample	# samples	Method Used	\$/Sample /Day	# Samples / Days	Method Used	
<b>Solids Analysis</b>										
VOCs	61	18	8260							\$1,098.00
TCLP	70	2								\$140.00
RCRA Metals										\$0.00
Duplicate Analyses										\$0.00
Blank Analyses										\$0.00
Other: (Specify)										\$0.00
<b>Water Analysis (low flow sampling assumed unless otherwise indicated at bottom of this sheet)</b>										
VOCs	61	9								\$549.00
Nitrate*										\$0.00
Dissolved Oxygen*										\$0.00
Temperature*										\$0.00
Ferrous Iron*										\$0.00
Sulfate*										\$0.00
Sulfide*										\$0.00
ORP*										\$0.00
pH*										\$0.00
TOC*										\$0.00
Alkalinity*										\$0.00
Chloride*										\$0.00
Spec. Conductance*										\$0.00
Ethene/Ethane/Methane*										\$0.00
Hydrogen*										\$0.00
Carbon Dioxide*										\$0.00
RCRA Metals										\$0.00
Duplicate Analyses										\$0.00
Blank Analyses										\$0.00
Other: (Specify)										\$0.00
<b>Air Analysis</b>										
VOCs										\$0.00
TCE										\$0.00
PCE (minimum detection limit is <10 ppbv)										\$0.00
Other: (Specify)										\$0.00
<b>Waste Analyses (soil/water)</b>										
										\$0.00
										\$0.00
<b>Miscellaneous (Specify)</b>										
										\$0.00
										\$0.00
<b>Charge for Mobile Lab (indicate # days and daily fee)</b>										
Total Analytical Costs										\$1,787.00

\* Natural Attenuation parameters required for consideration of NA as remedy.

Consultant Name: *SHAW ENVIRONMENTAL, INC.*  
 Site Name: *EXPLIS DRY CLEANERS*  
 BRRTS #: *02-52-547671*  
 Date: *02/2/07*

**DERF Site Investigation Bid Summary**  
**Consultant Costs**  
 Form 4400-233 (R 4/04) Page 5 of 6

Position (specify)	Hourly Rate	Hours/Task															Total Costs			
		Workplan Development	Access	Receptor Survey	Waste Determination	Drilling Oversight	Soil Sampling	Drilling sampling	Well Development	Hydraulic Conductivity Test	Groundwater sampling	Soil gas/vapor intrusion survey	SSRCL calculations (contained out or remedial actions)	SI Report preparation	RADR Report preparation	Project Management		Other (Specify)		
<b>Professional Staff</b>																				
Staff Geologist	84	8							12					30					\$4,200.00	
Project Manager	113	3											4		14				\$2,373.00	
Senior Engineer	147														8				\$1,176.00	
																			\$0.00	
																			\$0.00	
<b>Field Staff</b>																				
Field Technician	50					25		10		10									\$2,250.00	
																			\$0.00	
																			\$0.00	
																			\$0.00	
																			\$0.00	
<b>Office Support Staff</b>																				
Admin Support	47	3																	\$141.00	
Office Support	50	2											8						\$500.00	
CAD Operator	56	1											6						\$392.00	
																			\$0.00	
																			\$0.00	
<b>Total Consulting Costs</b>																			<b>\$11,032.00</b>	

Consultant Name: Shaw Environmental, Inc.  
 Site Name: Express Dry Cleaners  
 BRRTS #: 02-52-547631  
 Date: 2/2/07

**DERF Site Investigation Bid Summary Sheet**

**Miscellaneous Costs**

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Major Activity	Specifications	Commodity Unit (specify)	Unit Rate	Number of Units	Total Cost
IDW Disposal					
	Non-Hazardous	drum	150	8	\$1,200.00
	Hazardous	drum	300	1	\$300.00
<b>Equipment Rental (list and include shipping costs if applicable)</b>					
<b>Field Supplies (list)</b>					
PID			75	2	\$150.00
Mileage/Truck			27	5	\$135.00
Bailers			20	6	\$120.00
Peristaltic Pump			40	1	\$40.00
Water Level Indicator			21	3	\$63.00
Mini Troll			75	1	\$75.00
Surveying					
<b>Personal Protection Equipment (list)</b>					
<b>Sample Shipping Costs</b>					
<b>Other (specify)</b>					
Drums			40	2	\$80.00
Low Flow Sampling			150	1	\$150.00
<b>Total Miscellaneous Costs</b>					<b>\$2,313.00</b>

**Reminders:** DERF does not reimburse for attorney, closure or GIS fees. Mileage and meals are also non-reimbursable. Also, costs to prepare a reimbursement application and discuss the application with the department are not reimburseable. No expedited shipping w/o prior PM approval.

*Exhibit A*  
*Firm Overview and Project Summaries*





## FIRM OVERVIEW

In considering the selection of a consultant for a remediation project, the following points should be considered carefully:

1. The consultant selected must have extensive experience in sub-surface site investigations and remediation and must have the resources necessary to successfully manage the project.

*Shaw has over 300 active remediation projects under management at this time and has achieved over 300 site closures with over 225 in Wisconsin alone. We have a staff of over 120 technical people located in four offices in Wisconsin. We have extensive experience in managing large multiple-site projects for clients including Wisconsin Central Railroad, Dodge County, Jefferson County, Door County, City of Sturgeon Bay, Garrow Oil Company, Dairyland Fuels and others.*

2. The consultant selected should have extensive knowledge and experience utilizing Wisconsin's new site specific soil standards, flexible closure standards, and risk assessment methods. These issues are critical in achieving cost-effective site closures in a timely manner.

*Shaw negotiated the first site-specific soil closure standard for a petroleum contaminated site in the state of Wisconsin utilizing innovative risk-assessment methods. (e.g.; Hartley Controls, Neenah, Wisconsin...see attached Project Summaries). Since then, Shaw has utilized these methods and techniques extensively and they are an integral part of every site investigation and remedial action.*

*We have included for your reference, some additional Project Summaries that demonstrate Shaw's capabilities in these areas.*

3. The consultant selected must have substantial experience with the state reimbursement programs and a proven track record of obtaining maximum reimbursement.

*Shaw manages more state funded remediation projects than any other consultant in the state of Wisconsin. We have an entire staff of people that specialize in the preparation and submittal of registrations, claims, and appeals. To date, Shaw has received reimbursement on over 250 claims totaling more than \$50 million.*

4. The consultant selected should be located nearby to provide maximum service and efficiency.

*Shaw has three (3) full-service offices throughout Wisconsin to provide fast and efficient services to our clients. The office locations are:*

*Milwaukee..... (414) 291-2360  
Green Bay ..... (920) 497-8910  
La Crosse..... (608) 781-5470*

## PROJECT SUMMARY (EXHIBIT A)

**PROJECT:** Risk-Based Site Closure Relating to Heavy Petroleum Contamination

**Client:** Hartley Controls Corporation

**Contact:** David J. Kasun  
(414) 729-3666

Petroleum contamination was identified during underground storage tank (UST) removal activities at the site conducted by a previous consultant. Over-excavation was performed in an attempt to remove the petroleum contaminated soils, however, the close proximity of a building and underground utilities precluded complete removal of the soils. Sampling conducted at the limits of the excavation, along with subsequent site investigation activities, revealed the presence of significant contaminant concentrations remaining in the soils at the site including; diesel range organics (DRO), volatile organics compounds (VOCs), and polynuclear aromatic hydrocarbons (PAHs).

Shaw Environmental, Inc. (Shaw), was retained by Hartley Controls Corporation to develop a strategy for cost effective closure of the site. Shaw determined that a risk-based approach offered the least costly means of attaining closure, with the shortest duration, and with no disruption of business activities at the site. A risk assessment was performed based on existing site data, using computer assisted contaminant fate and transport modeling. In addition, standard Environmental Protection Agency (EPA) methods were applied to estimate human exposure to contamination and the associated carcinogenic and non-carcinogenic health risks. Results of the risk assessment demonstrated that, under the specific conditions at the site, the volume and concentrations of contaminants remaining in place posed risks to human health and groundwater quality which were within acceptable limits.

Presentation of the risk assessment methods and results to the Wisconsin Department of Natural Resources (WDNR) resulted in the **first risk-based closure for petroleum contamination granted in the State of Wisconsin**. No restrictions were placed on the property, and no additional investigative or remedial activities were required at the site.

## PROJECT SUMMARY(EXHIBIT A)

**PROJECT:** Investigation and Remediation of Former Bulk Fuel Facility

**Client:** Carroll College

**Contact:** John Christensen  
(414) 524-7380

Project Summary: Shaw performed a site characterization and remediation of a former bulk fuel facility scheduled for redevelopment as an NCAA tennis court facility. Funds available for the property redevelopment were contingent upon completing environmental investigation and restoration activities in less than 18 months. Shaw developed a remedial solution using risk-based methods that enabled Carroll College to secure funding and initiate construction activities in July 1996.

Site Investigation: The investigation identified gross petroleum contamination within the soil, bedrock, and groundwater over a 2-acre area that extends throughout the area of the bulk fuel facility, the proposed tennis court, and a portion of the college football field. Over 30,000 tons of soil exhibited gross petroleum concentrations in excess of Wisconsin's soil standards.

Risk Assessment and Natural Attenuation Analysis: Shaw performed a preliminary risk assessment using EPA methods to demonstrate that the majority of the soil contamination did not pose a threat to groundwater quality or human health. Results of this analysis were used in regulatory negotiations to reduce the mass of soils requiring treatment from 30,000 to 10,000 tons. The standards negotiated were tens times higher than the generic cleanup levels established by the Wisconsin Department of Natural Resources.

Project Savings: Implementation of site specific soil standards reduced the volume of soil requiring remediation from 30,000 tons to 10,000 tons, resulting in a **savings of \$750,000**. Further cost savings of **\$350,000** were realized by eliminating the requirement to pump and treat groundwater.

## PROJECT SUMMARY (EXHIBIT A)

**PROJECT:** Investigation and Remedial Activities for Petroleum Hydrocarbons, Phthalate, and Heavy Metal Contamination for WDOT State Highway 13 Relocation Project

**Client:** Wisconsin Central, LTD

**Contact:** Mr. Geoffrey Nokes  
(847) 318-4648

Shaw conducted environmental characterizations of eight properties situated within the right-of-way of the WDOT State Highway 13 relocation project in Marshfield, Wisconsin. Petroleum constituents, phthalates, and heavy metals were identified during preliminary Phase II assessments conducted for the WDOT.

Remedial investigation and design were coordinated with the WDOT project schedule to allow for property transaction prior to construction in July 1996. Field investigations were initiated to identify potential sources of soil and groundwater contamination.

Shaw negotiated with the WDNR on behalf of the client to establish site specific cleanup levels for metals, and has eliminated concerns relating to potential phthalate contamination based on past analytical QA/QC issues and supplemental verification testing. Shaw has also proposed site specific cleanup standards for gross petroleum contamination at several of the sites. Two sites have already been submitted to the WDNR and are currently being considered for case closure. Remedial strategies for the remaining sites include:

- X In-situ lead fixation
- X Ex-situ bioremediation for petroleum affected soils
- X Horizontal air sparging for VOC contaminated soils
- X Groundwater extraction/treatment to control groundwater migration

## PROJECT SUMMARY (EXHIBIT A)

**PROJECT:** In-Situ Bioremediation of Petroleum Contaminated Soil and Groundwater using a Recirculation Cell

**Client:** Goetz Garage, Richfield, Wisconsin

**Contact:** Mr. Terry Fassbender  
(414) 628-1515

Shaw was contracted to investigate the degree and extent of soil and groundwater contamination, potentially derived from operation of underground storage tanks on the property. The investigation results identified free-floating petroleum product and volatile organic compounds contributing to contamination of near-by potable wells. Shaw initiated emergency response free product abatement measures which include the installation of a recovery well and a utilized separation and treatment system.

Shaw designed and received the first permit in the State of Wisconsin to operate an in-situ bioremediation recirculation cell using injection well technology. The system consists of three major design components: air sparging and soil vapor extraction; groundwater pumping and treatment; and reinjection of treated wastewater using a network of reinjection wells. Based on the performance of the system and the results of bioassays and degradation studies, Shaw has received regulatory approval to add nutrients and/or hydrogen peroxide to the reinjected water stream to accelerate cleanup time.

As of the third quarter of 1996, the system has been in operation for nine months, with over **two orders of magnitude reduction** in groundwater contaminant concentrations and total VOC recovery exceeding 4,000 lbs.

## PROJECT SUMMARY (EXHIBIT A)

**PROJECT:** Risk-Based Site Closure Relating to Petroleum Contamination

**Client:** American Auto site, Schofield, Wisconsin

**Contact:** Jeffery Boden  
(715) 359-3606

Shaw was retained to perform a site investigation relating to known petroleum contamination at the above-referenced site. Results of the investigation activates revealed the presence of soil contamination at the site including: gasoline range organics (GRO), diesel range organics (DRO), volatile organic compounds (VOCs), and polynuclear aromatic hydrocarbons (PAHs).

Shaw determined that a risk-based approach offered the least costly means of attaining closure, with the shortest duration, and with no disruption of business activities at the site. A risk assessment was performed based on existing site data, using computer assisted contaminant fate and transport modeling. In addition, standard Environmental Protection Agency (EPA) methods were applied to estimate human exposure to contamination and the associated carcinogenic and non-carcinogenic health risks. Results of the risk assessment demonstrated that under the specific conditions at the site, the volume and concentrations of contaminants remaining in place posed risks to human health and groundwater quality which were within acceptable limits.

Submittal of the risk assessment methods and results to the Wisconsin Department of Commerce **resulted in closure of site**. No restrictions were placed on the property, and no remedial activities were required at the site.

## PROJECT SUMMARY (EXHIBIT A)

**PROJECT:** Investigation and Remediation of Former Monarch Iron Range Property

**Client:** Dodge County

**Contact:** Chuck Swain, Chairman, Dodge County Board  
(414) 386-3600

On behalf of Dodge County, Shaw completed an environmental investigation and initiated remediation at the former Monarch Iron Range (MIR) property located in Beaver Dam, Wisconsin. The 14-acre MIR property, which was acquired by the County in the 1960's based on tax delinquency, was used in the manufacture of iron ranges, fireplace grills, and bomb shell casings for over 90 years. In 1987, the EPA was called in to remove over 500 barrels of toxic and hazardous wastes and over 65,000 gallons of materials including fuel and waste oils, paint thinner, and electroplating solutions. Shaw was retained in 1991 to complete the site characterization and to develop a remedial solution that would enable Dodge County to redevelop the property in 1995.

Completion of Site Investigation. Contaminants previously identified included petroleum related compounds, heavy metals, polychlorinated biphenyls (PCBs), and chlorinated solvents. It is believed that the petroleum-related compounds originated from former underground storage tanks. Other constituents were believed to be related to electroplating and degreasing operations at the facility. Through additional testing and laboratory analysis, Shaw demonstrated that prior PCB and heavy metal testing methods were generating false-positive results in the groundwater samples. As a result of this effort, further investigation activities were limited to characterizing the petroleum and solvent plumes in the soil and groundwater.

Negotiations with WDNR. Based on the results of the site investigation, over 35,000 tons of soil were characterized with petroleum and solvent concentrations in excess of Wisconsin's standards. Shaw entered into negotiations with WDNR representatives to reduce remedial expenses by establishing site-specific soil standards and alternative soil disposal/treatment methods. Based on these negotiations, Shaw was able to reduce the soil volume requiring treatment from 35,000 tons to 20,000 tons. In addition, Shaw's negotiations with the WDNR eliminated the need for PCB and heavy metals remediation in groundwater. A total of **\$1.6 million** in overall project costs were **eliminated** through pre-remedial negotiations.

Remedial Design. Once criteria required for closure was established through WDNR negotiations, Shaw developed a comprehensive remedial strategy to meet the redevelopment schedule and site construction requirements. Shaw's remedial strategy consisted of in-situ treatment to address deep soil and groundwater contamination and soil excavation where soils were accessible. Excavation activities included the removal of over 10,000 tons of concrete and 20,000 tons of contaminated soil. In-situ treatment consisting of soil vapor extraction, air sparging, and groundwater extraction treatment technologies were configured in a fashion to reduce any conflicts with plans for future development. The system was installed in 1995 and is anticipated to remediate the residual contamination within two years.

Assistance in Project Funding. Shaw assisted Dodge County in pursuing collective agreements with several potential funding sources. Based upon the efforts of both the County and Shaw, funding for environmental remedial costs was supplied by sources including: the WDNR's Emergency Environmental Repair Program the City of Beaver Dam, in conjunction with matching funds provided by the Department of Development, and through the state of Wisconsin's Petroleum Environmental Cleanup Fund Act (PECFA). Additional money to offset environmental expenditures has also been obtained through the sale of parcels on the property as well as tax revenues generated by new businesses on the site.

Current Project Status. As a result of the efforts of Shaw and Dodge County, this once vacant 14-acre parcel in the center of Beaver Dam now houses new businesses including a grocery store, a video outlet, and a restaurant. Future development plans also include multi-family housing. Shaw's efforts have allowed the redevelopment of the site to proceed and the project has served as a model for brown fields redevelopment programs throughout the state of Wisconsin. Evidence of the success for this effort is presented in a chronology contained within the October 1996 issue of the WDNR magazine.



***Exhibit B***  
***Shaw's Chlorinated Solvent Treatment Technologies***

# Shaw's Chlorinated Solvent Treatment Technologies

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Shaw has spent years developing specialized microorganisms and a variety of approaches for the remediation of aquifers contaminated with TCE and other chlorinated solvents.

Shaw offers a complete portfolio of chlorinated solvent remedial approaches. Alone or as a combination, these offer cost-effective solutions tailored for sites ranging from dry cleaner releases to industrial spills. The menu of remedial technologies includes: Anaerobic Biostimulation, Proton Reduction, In Situ Oxidation, Micro-Scale Zero Valent Destruction, Cometabolic Biostimulation, Bioaugmentative Biostimulation, Electroosmosis, Soil Vapor Extraction, and Natural Attenuation.

One of these technologies, Proton Reduction, is the focus of great excitement here at Shaw. The technology has been applied at several sites with great success. Proton Reduction is an effective, cost-conscious means of PCE remediation, the most common solvent found in soil and groundwater at dry cleaning sites. Proton Reduction is the movement of ion-containing liquid (e.g., water) relative to a stationary charged surface (e.g., soil pores) due to an applied electric field. Anaerobic processes, such as Proton Reduction, remove halogens from certain dry cleaning contaminants such as PCE and produce dehalogenated compounds that are generally less toxic, less likely to bioaccumulate, and are more susceptible to further microbial attack. PCE has been considered a very difficult compound to treat in the past but with the advancement of Proton Reduction, this compound becomes very treatable and without the need for the addition of chemical constituents to the soil. Shaw is strongly marketing this technology in Wisconsin as a viable, low cost option to the treatment of solvent contamination at sites, thereby reducing risk of further site contamination and potential contamination to nearby locations.

Shaw has worked on numerous sites contaminated with chlorinated solvents. A few of the sites have been highlighted in this packet though it is not nearly all-inclusive. Other projects include:

**Shaw was awarded a project with the U.S. Air Force to conduct a full-scale field demonstration of our biostimulation technology for chlorinated solvents.** The project involves adding a proprietary co-substrate to groundwater to stimulate the growth and activity of indigenous bacteria that can degrade chlorinated solvents such as TCE, DCE and VC.

**Remediation of a Low Permeability TCE Contaminated Siltstone Bedrock in Northern NJ.** The project involved the injection of ENV435 (Shaw's proprietary microorganism strain) in the saturated zone of the test area. A manuscript based on the project is available: *Walsh, M., T. Boland, J. Liskowitz, M.F. DeFlaun, and R. Steffan, 1998. Remediation of a low permeability TCE contaminated siltstone bedrock, Part 2. Pneumatic injection of constitutive TCE degrading organisms, ASCE Special Volume "Remediation in Rock Masses." In press.*

**Remediation of a Silty-Sand Chlorinated Solvent Contamination Aquifer in Southern NJ.** The project involved the injection of ENV435 into a VOC-contaminated aquifer in a series of four distinct experiments that evaluated variations in injection mechanism and co-substrate additions. Contaminants included TCE, DCE, and vinyl chloride. This field demonstration helped to validate the bioaugmentation technology.

**In Situ Bioremediation of a Chlorinated Solvent Contaminated Site.** This full-scale project involved the use of bioaugmentation to remediate chlorinated solvents (primarily TCE). In three months, TCE concentrations were reduced from greater than 300 ppb to less than 30 ppb within the treatment area.



**New Hampshire Superfund Site.** The groundwater at this site contained benzene, vinyl chloride, acetone, methyl ethyl ketone (MEK), tetrahydrofuran (THF), perchloroethene (PCE), trichloroethene (TCE), and arsenic. Shaw used a combined in situ anaerobic/aerobic treatment zone system to treat the contaminants.

**DOE site in Florida.** Shaw performed a field demonstration of in situ anaerobic biostimulation at this site to treat chlorinated solvents in a sandy surficial aquifer. The demonstration was very successful and resulted in the rapid degradation of the site contaminants that included TCE, methylene chloride, dichloroethene, vinyl chloride, and toluene. A publication on this project is available: *Sewell, G.W., M.F. DeFlaun, N.H. Baek, E. Lutz, B. Weesner, W. Mahaffey, 1998. Performance evaluation of an in situ anaerobic biotreatment system for chlorinated solvents, In "Designing and Applying Treatment Technologies Remediation of Chlorinated and Recalcitrant Compounds," G.B. Wickramanayake and R.E. Hincee (eds), pp. 15-20, Battelle Press, Columbus, OH.*

## Chlorinated Solvent/Coolant Oil-Contaminated Site Closure

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<i>Client:</i>	Former metal working facility in Racine, WI
<i>Contaminants:</i>	Chlorinated solvents & Coolant oils
<i>Services:</i>	Phase II, Risk Assessment, Groundwater Monitoring, Fate and Transport Modeling, Closure

### *Project Description:*

Shaw's Pewaukee office, working through our sister company MET, has successfully achieved case closure at a former metal working facility in Racine, Wisconsin. Phase II investigation activities conducted at this facility identified soil contamination in the form of coolant oils associated with the machining operations and soil and groundwater contamination in the form of chlorinated solvents associated with a vapor parts degreaser.

Preliminary risk evaluations were performed which demonstrated that the coolant oils contained in the upper five to seven feet of the soil column did not pose a risk to human health due to direct contact. A residual contaminant level (RCL) of over 1,500 mg/kg (measured as gasoline or diesel range organics) was established for these oils. It was also demonstrated through SPLP testing that these contaminants were not leaching to groundwater. Groundwater monitoring confirmed that the coolant oils were not present in the shallow aquifer system. Shaw was able to successfully argue for a no further action status for the coolant oil related impacts since existing levels were below the proposed RCL and all new sources had been eliminated.

The chlorinated solvents found on site include tetrachloroethene (PCE) and trichloroethene (TCE), in addition to a number of breakdown products associated with these compounds including vinyl chloride (VC). Groundwater enforcement standard exceedences were identified in the shallow aquifer zone near the degreaser unit. A plume extended down gradient from this area to within 20 feet of the property boundary. A second plume of chlorinated solvents was identified near the former outdoor scrap metal storage area. This plume was associated with surficial spills of spent chlorinated solvent. This plume extended off-site onto an adjacent property. Vertical migration of the plume was minimal based on the results from a source area piezometer.

Soil sampling established that the chlorinated solvent soil contamination near the former degreaser was localized to an area beneath a portion of the building on-site. No shallow chlorinated solvents were identified near the former outdoor scrap metal storage area indicating these contaminants may have been volatilized from the shallow soils. Based on the data collected, Shaw was able to argue that a direct contact health risk associated with chlorinated solvents was not present at this facility. The site qualified for closure related to the chlorinated solvent soil impacts using a deed notice identifying the presence of soil contamination beneath the building. This notice serves to notify future landowners that any site development activities that result in the exposure or disturbance of these soils requires permitting through the WDNR and may necessitate special soil handling and management.

Approximately two years of groundwater monitoring was completed from a well network that included nine monitoring wells and one source area piezometer. Sampling parameters included VOCs and natural

attenuation indicator parameters. This data was used to demonstrate that the plume was stable or receding and that natural attenuation was restoring the aquifer system. The results indicated that complete degradation of TCE/PCE was occurring. Measurable concentrations of ethene and ethane were detected in down gradient monitoring wells.

The monitoring well data was coupled with a fate and transport model that was used to establish a theoretical cleanup time frame for the site using natural attenuation as the sole remedial option. The modeling efforts included the use of SESOIL coupled with AT123D. The SESOIL model estimated the initial and final soil mass of chlorinated solvents based on model simulations of 10 and 40 years. This data was also used to establish a loading rate to the groundwater for use in the AT123D three-dimensional groundwater model. The AT123D model was used to establish the extent of the groundwater plume 10 years and 40 years into the future.

The results of SESOIL simulation indicated that approximately 14% of the soil mass of TCE would be reduced over the next 40 years. The AT123D model indicated that the overall groundwater plume would remain on-site near the former vapor degreaser over the next 40-year period and that the plume was stable.

Based on monitoring well and modeling results, Shaw was able to argue that the site qualified for a flexible case closure using a groundwater use restriction. This restriction will need to be applied to both the subject property and the adjacent property, which contained NR140 enforcement standard exceedances. The use of this strategy resulted in significant cost savings for the client by eliminating the need for active soil remediation beneath the building and active groundwater remediation costs.

## Investigation at Former Dry Cleaner Facility in Waukesha, WI

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<b>Client:</b>	Carroll College
<b>Dates:</b>	June 1999 - present
<b>Contaminants:</b>	Chlorinated solvents, mainly perchloroethylene (PCE) and trichloroethylene (TCE)
<b>Services:</b>	Site investigation and remediation using electrokinetics

### ***Project Description:***

The site was used for dry cleaning and laundry services until 1995. Chlorinated solvents were identified in soil and groundwater as a result of dry cleaning operations. Shaw identified the source, nature, and extent of the chlorinated solvent impacts in the soil and groundwater at the site. Groundwater impacts were also observed on neighboring properties.

Shaw's investigative activities included additional monitoring wells and soil and groundwater sampling to evaluate intrinsic bioremediation. The additional wells were required to complete the work begun by a previous consultant who had identified the presence of chlorinated compounds.

Upon completion of site investigation activities, Shaw developed a remedial strategy involving electrokinetics. This approach is to be implemented in conjunction with intrinsic bioremediation to reduce contaminant concentrations in the source area and address the off-site contaminant plume. The selected remedial strategy meshes nicely with the client's plans to acquire the subject and surrounding properties.

The electrokinetics technology supplies hydrogen to the groundwater, stimulating reductive dechlorination by indigenous organisms. Shaw's knowledge of the dehalogenation processes initially led to the development of remediation strategies that stimulate dehalogenation in situ by applying carbon sources that can be fermented to hydrogen. The hydrogen produced during fermentation then acts as an energy source for the dehalogenating organisms while supplying the required electrons to drive the dehalogenation process. In Shaw's most recent dehalogenation technology, the hydrogen required to drive the dehalogenation process is derived from in situ proton reduction.

## Groundwater Collection System/Slurry Wall Design and Installation

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**Client:** Wisconsin Solvent Reclamation Facility

**Contaminants:** Solvents

**Services:** Remedial design and installation

### ***Project Description:***

A comprehensive remedial design and installation program for a solvent reclamation and manufacturing facility in southeast Wisconsin was conducted. Various solvents and related chemical agents had entered the subsurface environment requiring an extensive groundwater contamination containment and recovery program.

Involvement in this project consisted of the following:

- Project management and cost accounting
- On-site project coordination
- On-site health and safety supervision and coordination
- Design and installation of a bentonite slurry wall around the downgradient portion of the facility
- Design and installation of a collection system for contaminated groundwater
- Construction supervision

Under level B conditions, 1,500 feet of a groundwater collection trench and two manholes equipped with air-driven piston pumps and stainless steel piping were installed in conjunction with 2,000 feet of a 14-foot bentonite slurry wall.

Final closure activities included land farming contaminated soils, pumping/treatment of contaminated groundwater, and continued compliance monitoring.

## Former Industrial Site, Genoa, IL

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**Client:** Fortune 500 Telecommunications Company

**Contaminants:** Chlorinated Solvents

**Services:** Assessment of Historical Data, Development of Sampling Strategy,  
Evaluation of Intrinsic Remediation, Presentation to Illinois EPA

### ***Project Description:***

The Genoa, Illinois site a was a former waste disposal pit, approximately 15 feet by 15 feet, that was used for the disposal of chlorinated and aromatic solvents from 1942 to 1963, including trichloroethene (TCE), toluene, ethylbenzene, and xylenes. Recent site investigation activities delineated a plume of groundwater contamination that extended 1500 feet down-gradient at an average width of 300 feet. The aquifer underlying the site is encountered at approximately 5 feet below ground surface and is confined by a clay till unit at approximately 50 feet. The soils in the saturated zone are primarily sands and gravel, with some silt lenses. Conventional remedial technologies proposed for the site included the excavation of the pit and surrounding soils, the installation of a slurry wall and sheet piling in the source area, and groundwater pumping and treatment. The estimated cost for the remedial program was \$20 million.

Shaw was asked to review the data from the site to assess the potential for the application of innovative remedial strategies. The review showed that as the plume progressed down-gradient, the contaminants measured in the plume changed from primarily TCE to vinyl chloride and cis-dichloroethene (products of reductive dehalogenation of TCE) with corresponding lesser amounts of trichloroethene. In addition, high concentrations of dissolved iron and manganese indicated that redox conditions favorable for anaerobic dechlorination of TCE existed at the site. Shaw developed a sampling strategy to further define conditions at the site, and to see if intrinsic remediation was occurring at the site. Additional data collected at the site included phospholipid fatty acid analysis (PLFA) to define the bacterial population, and the analysis of dissolved, gaseous degradation products in groundwater (methane, ethane, ethene). In addition, microcosm studies were initiated at Shaw's laboratories.

The work conducted by Shaw confirmed that the native microbial population was dechlorinating TCE under current site conditions. The rate of degradation was estimated and used in the preparation of mathematical models to demonstrate the attenuation of the plume. In addition, Shaw determined that the use of an in situ source reduction technology, such as biosparging, would improve the overall remediation of the aquifer. This information, combined with the fact that contaminated groundwater was confined by impermeable clay tills, was used to present a remedial strategy based on intrinsic remediation to the Illinois EPA. A monitoring plan and strategy for reduction of the source area was accepted. Shaw estimates that the cost of the alternative plan will be approximately \$2 million, a savings of \$18 million over the conventional approach.



## **Intrinsic Remediation of Chlorinated and Aromatic Volatile Organic Hydrocarbons; Industrial Site, NJ.**

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**Client:** Confidential

**Contaminants:** Chlorinated Solvents, benzene, toluene

**Services:** Intrinsic Remediation Study using groundwater microcosms. Extensive testing of all phases of possible amendments. Development of zero-order degradation rates to support mathematical modeling.

### ***Project Description:***

Shaw has designed and executed a program for this industrial site in New Jersey to (1) determine if and under what conditions biodegradation of compounds of concern can be achieved, and (2) develop rates of biological degradation for each compound to be used in mathematical modeling designed to predict the extent of migration of the compounds of concern. The program is part of the evaluation of groundwater and soil remedies for a Corrective Measures Study. The site is an active facility that has been in operation for decades as a manufacturing and research center. Compounds of concern, particularly chlorinated solvents, have been identified in groundwater contained in fractured bedrock at depths to 400 feet below ground surface, as well as in saturated overburden soils.

The initial step of the study was the review of historical groundwater quality data. The presence of compounds that were presumed to be the result of biological degradation of TCE and other factors led to hypothesis that natural biological activity was degrading compounds of interest. A biochemical characterization program was performed using samples of groundwater from the site. These analyses included the determination of nutrients, viable microbial populations, electron acceptors, and dissolved gases (oxygen and carbon dioxide). From these analyses, several wells were selected for treatability testing.

Several complications specific to this site necessitated a special treatability study design. While the typical study of this type relies on the use of microcosms created with site soil and groundwater, the depths of the contamination, and the nature of the fractured bedrock did not allow the collection of soil. Instead, the study relied on the collection of groundwater samples, and the set-up of replicates and controls under a variety of conditions for sacrifice at appropriate time points. The conditions tested included aerobic (oxygen added), aerobic amended (oxygen and nutrients added), anaerobic amended (addition of electron donors and acceptors), and anaerobic intrinsic (no amendments, no oxygen). At each time point, a live sample and killed control were sacrificed for analysis.

The results of the study were compiled over a 100 day period. Both aerobic and anaerobic degradation were measured for most compounds of concern at the site. Rates of degradation varied in samples from different geologic strata. In general, higher rates of degradation were observed in the samples with highest contamination. The data will be used in mathematical modeling to evaluate anaerobic intrinsic degradation rates in association with other fate and transport phenomena at the site. Treatability data and rates will also be used to compare possible in situ and ex situ (bioreactor) approaches to groundwater treatment.

## **Intrinsic Remediation Assessment and Strategy Byron Barrel & Drum Site, Byron, NY**

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**Client:** Byron Barrel & Drum Technical Committee

**Contaminants:** Chlorinated Solvents

**Services:** Assessment of Historical Data, Development of Sampling Strategy,  
Interpretation of Intrinsic Remediation, Presentation to EPA Region II

### ***Project Description:***

The Byron Barrel and Drum Site in New York State is a former waste disposal site where chlorinated solvents have been identified in soil and groundwater. In 1984, EPA removed drums and 40 cubic yards of contaminated soil and debris from the site. Historical groundwater monitoring data showed a decline in concentrations of target compounds with time. Shaw reviewed available site data, and interpreted the historical data from the perspective of reductions due to the action of native bacteria. A presentation was prepared and delivered to the EPA Region II project management team using site data, a detailed scientific discussion of the degradation of chlorinated solvents by bacteria, and Shaw's experience at similar sites. A plan for demonstrating intrinsic remediation at the site was accepted by EPA, and a sampling and analysis plan to develop site-specific data to achieve closure for groundwater at the site via intrinsic remediation is currently being implemented. EPA is expected to issue an explanation of significant difference (ESD) to the 1989 Record of Decision for Operable Units 1 & 3. The original ROD called for a soil flushing and groundwater pump and treat remedy estimated to cost \$6 million.

## Solvent Savers Superfund Site

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<b>Client:</b>	Former Waste Solvent Recovery Facility - New York
<b>Project Dates:</b>	July 1995 - present
<b>Contaminants:</b>	Chlorinated solvents, primarily consisting of Trichloroethylene (TCE) and 1,1,1-Trichloroethane (1,1,1-TCA)
<b>Services:</b>	Soil Vapor Extraction

### **Project Description:**

This site was operated as a waste solvent recovery and drum reconditioning business from approximately 1967 to 1973. As a result of waste handling and disposal practices, waste materials entered the site soils during this period.

In October 1994, Shaw submitted the final ISVE system design to the US EPA on behalf of the participating parties. The ISVE system design addressed vadose zone soils where they exceeded the preliminary VOC cleanup levels identified at the time of the design. The initial ISVE system installation was completed in July 1995. In an effort to further remediate the site, a final design for expansion of the ISVE system was submitted to the US EPA in September 1996.

The ISVE system was highly effective at the removal of VOCs from vadose zone soils during the initial testing program. Construction of the expansion to the current ISVE system was completed in January 1997 allowing an additional 60,000 yd<sup>3</sup> of soil to be treated for a total of 135,000 yd<sup>3</sup>.

The remedial system relies primarily on pressurized injection and vacuum withdrawal of air through a total of 120 air wells. Combined system flow of approximately 750 scfm passes through the soils on a continuous basis. Air is injected into the subsurface soils and recovered using PVC piping and ISVE wells. Contaminated vapors are treated by passage through granular activated carbon units, and subsequently re-injected into the soils. A buried polyethylene site cover limits vertical air flow and excludes moisture from entering the soils under treatment.

The design cleanup levels are in terms of the following:

- 2.2 mg/kg for TCE and 0.9 mg/kg for 1,1,1-TCA

## Subsurface Soils Contaminated with Chlorinated Organic Solvent Compounds

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**Client:** United States Army Corp of Engineers  
United States Environmental Protection Agency

**Site:** Genzale Plating Superfund Site  
Franklin Square, New York

**Dates:** April 1995 - July 1996

**Contaminants:** Chlorinated organic solvent compounds. Target Compound: TCE

**Services:** Phase 1 - Design, Installation, Operation of Soil Vapor Extraction System  
Phase 2 - Confirmational Soil Sampling

### ***Project Description:***

The site on Long Island, New York consisted of 18,000 cubic yards of sandy soils that were contaminated as a result of disposal practices over many years. Contamination extended to the groundwater table, located approximately 35 feet below grade.

The soil vapor extraction (SVE) system was designed, installed, and operated to remove volatile organic compounds (VOCs) from vadose zone soils primarily through direct volatilization. The SVE system consisted of an integrated network of 14 air withdrawal and injection wells (SVE wells) beneath a site cover comprised of compacted crushed stone. The wells were individually connected to process machinery to allow the wells to be operated in either the air injection or air withdrawal mode and enable greater control of system flow within the treatment zone. Extracted process air was passed through granular activated carbon for removal of VOC vapors before being reinjected into the treatment cell (closed-loop configuration). The SVE system was operated for a period of one year.

Based on results of process air sampling, soil sampling was performed in Phase 2 to confirm treatment effectiveness. Analysis of soil samples revealed TCE levels below the target cleanup level. Therefore, with the permission of the USEPA, the SVE system was shutdown and decommissioned in July 1996.

Analysis of the confirmational soil samples collected after one year of operation revealed TCE concentrations of less than 5 ppb for all samples. Since these concentrations were less than target clean up levels, and based on the off gas monitoring performed during the operational period, it was evident that the amount of TCE in vadose zone soils was reduced and that any potential adverse effects of TCE on human health or the environment had been mitigated.

SHAW ENVIRONMENTAL, INC.

CHLORINATED SOLVENT PUBLICATION LIST

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*Exhibit C*  
*Resumes*

# **William F. Kralj, P.E.**

## **Project Director**

### **Why Selected as Key Personnel for this Project**

- Extensive experience with multi-phase site assessments and pre-demolition, and demolition evaluations evaluations
- Experience in a wide variety of underground remediation projects
- Managed multiple project teams performing assessments and investigations at sites statewide
- Ability to allocate all appropriate Shaw resources to address client requirements

### **Education**

Bachelor of Science Civil Engineering  
Marquette University, 1978

### **Registrations**

Registered Professional Engineer – Wisconsin  
Registered Professional Civil Engineer – California

### **Background Summary**

Mr. Kralj has 29 years of diverse consulting experience working with industry and government in the areas of environmental assessment, underground engineering, remediation, licensing and permitting. He also has experience working with decommissioning and demolition of large industrial facilities.

### **Relevant Experience**

#### **Milwaukee Solvay Coke and Gas site - Milwaukee**

Served as project manager and project coordinator during a CERCLA removal action for a former manufactured gas plant in Milwaukee Wisconsin.

#### **Dry Cleaner Solvent Remediation Milwaukee, Wisconsin**

Served as project manager for a large remedial project that took place during a major construction project at a hospital located in Milwaukee. During the project, dry cleaner solvents were discovered in an area slated for new building construction. The area was explored, assessed and evaluated prior to removal and disposal of substantial quantities of soil. All

this was done with minimal impact to the hospital construction schedule.

### **Consultant to a major North American Transportation Company**

Mr. Kralj has been a consultant to ATC Leasing Co. They have facilities throughout the United States and several facilities in Canada and Mexico. He has assisted them with management of industrial storm water permitting, SPCC compliance, environmental Due Diligence and remediation at sites where spills or releases have occurred.

### **Harbor Park / Former Kenosha Lakefront Site**

Consultant to the property owner during an RI/FS conducted on this former automobile manufacturing facility. Was designated as a project coordinator between WDNR and property owner to implement site remedies. The agreement was successfully closed. Since then this property has become an outstanding example of successful redevelopment of a brownfield property in Wisconsin.

### **Madison Gas and Electric Co. – SPCC Plan Development**

Assisted MGE with the development of a comprehensive program to ensure compliance of all their generating, transmission distribution and related service facilities with changes to the Spill Containment Control and Countermeasure plans relating to recent changes in the regulations that affect all of their facilities.

### **Badger Generating Project – Licensing and Permitting – Pleasant Prairie, Wisconsin**

Served as project Manager for a project to license and permit a 1080 MW natural gas – fired combined cycle power plant located in southeastern Wisconsin. This was the first large electric generating facility that was licensed and permitted in the State in over 30 years. The project was successful and well accepted. It also became a model for other generating projects that followed afterward.



### **American Transmission Co. LLC – Licensing and Permitting of Transmission Interconnection**

Served as project manager for the licensing and permitting of the first major project performed by American Transmission Company LLC. This was a project that combined reliability improvements into a segment of an existing transmission line and also provided a transmission interconnection to the planned Badger Generating Project.

### **We Energies Underground Steam Line Improvements**

As part of the Marquette Interchange expansion project, significant changes needed to be made to the infrastructure in the area of the interchange. Because the new interchange took up a much larger area than the original interchange, there were significant design efforts to reroute and redesign an underground steam main system that is used to transmit steam used to heat most of the buildings in the Downtown Milwaukee area. The project consisted of assisting in the design and layout of the new steam main system. It also addressed the abandonment of former steam mains to allow for construction and the sequencing necessary to undertake construction without the interruption of service.

### **Blythe Energy Project Phase II – Blythe California**

The project consisted of providing consultation on certain air quality issues associated with the construction of this natural gas fired combined cycle facility.. The work involved dealing with a variety of State agencies to provide responses to comments concerning the facility.

### **Remediation of an Uncontrolled Hazardous Waste Landfill, Wisconsin**

Project manager for a remediation of an uncontrolled hazardous waste landfill, which included construction of a heavy equipment decontamination system, a secure drum storage area, and a 450-foot access road across a marshy area.

### **Various Clients – Geotechnical Consultation on Multiple Developments Throughout the United States**

Performed geotechnical engineering and environmental due diligence on multiple site developments throughout the United States. The typical project consisted of commercial development that was constructed or refinanced. These included restaurants, hotels and industrial facilities.

### **Large Canyon Landfill – Colton, California**

The project consisted of the design of a large canyon landfill in located in Colton, California. The design took into consideration seismic events which were likely to occur near the site area. The geometry and topographic features of the canyon also presented unique challenges to the design especially relating to the stability of slopes especially during seismic loading.

# Timothy Welch, PG

## Project Manager

### Why Selected as Key Personnel for this Project

- Directed and participated in performance of over 30 Phase II and III investigation/ remediation projects for the City of Milwaukee
- Directed design/implementation of more than 50 Phase I or II ESAs
- Expertise in data evaluation, validation, and hydrogeological interpretations
- Extensive experience and strong working relationships with the WDNR, COMM, and area law firms

### Education

Graduate Studies, Hydrogeology, 1993 to 1994  
BS, Geological Sciences, 1985

### Registrations

Professional Geologist, 1995, Wisconsin,  
No. 558-013

### Background Summary

Mr. Welch is a hydrogeologist with 20 years of experience in project management; site assessment, remedial investigations, feasibility studies, and the evaluation, design and implementation of remedial action plans. He is responsible for identifying client objectives; developing project scope, schedule, and budget; and acting as the client/regulator liaison. He also provides technical assistance and training to staff and technically reviews project documentation.

### Relevant Experience

#### City of Milwaukee, Subsurface Investigation/Geotechnical Exploration, Menomonee Valley, Wisconsin

As project manager, directed investigation and geotechnical exploration of a 16-acre parcel. Approximately 1,110 feet of drilling were performed, including 17 monitoring wells, 9 piezometers and 4 soil borings. Soil and groundwater sampling, along with methane monitoring, were completed in one month to facilitate development of the Harley Davidson museum. Directed development of sampling and analysis protocols, coordination of the investigation and site survey, disposal of

investigative waste, and technical review of chemical and physical data, and project documentation.

#### Various Clients, Multiple Phase I or II ESAs, Sites Nationwide

Project manager for more than 50 Phase I or II ESAs for owners of industrial, commercial, and agriculture properties nationwide. Each project's objective was to establish an acceptable level of risk for all parties involved with the real estate transfer or refinancing. If concerns were identified during the Phase I ESA process, Phase II activities were recommended and implemented.

#### City of Milwaukee Redevelopment Authority, Buildings and Fleet Division, and Port Authority, Multiple Phase II and III ESAs, Milwaukee, Wisconsin

Project manager for ten Phase II and Phase III ESAs, ranging in value from \$10,000 to \$250,000, for three Milwaukee city agencies. Work required thorough familiarity with the site assessment process, greenspace grants, and use of EPA hazardous site assessment/brownfields cleanup grant funding.

#### City of Milwaukee, King Drive Commons EPA Brownfield Grant Project, Wisconsin

As project manager and hydrogeologist, directed delineation of petroleum- and chlorinated hydrocarbon-contaminated soils and characterization of hazardous and non-hazardous waste streams, as part of the WDNR-approved remedial action plan (RAP) for this property slated for construction of a three-story residential/commercial structure. The RAP included source soil excavation and offsite disposal of special and hazardous wastes, development of a soil management plan for construction, and design of a passive vapor mitigation system for installation beneath the structure.

### **Coachella School District, Preliminary Endangerment Assessment (PEA) for Proposed West Coachella Elementary School, Coachella, California**

Project manager for the PEA, which included risk and hazard calculations for chemicals of potential concern (metals, pesticides, and dioxins).

Successfully completed the PEA report, while working closely with California EPA's Human and Ecological Risk Division toxicologist.

### **Multiple Clients, Remedial Investigations, Feasibility Studies, Site Remediations, Midwestern U.S.**

Project manager and client liaison for more than 150 remedial investigation/feasibility study projects and site remediations conducted for petroleum refineries and distributors, municipalities, and commercial/industrial property owners. Successfully negotiated closure with governmental agencies. Remedial action plans, remedial options reports, and costs estimates were developed based on the property owners' objectives, environmental factors, and hydrogeologic conditions. Remedial actions included soil excavation, landspreading, mechanical soil and groundwater treatment systems, passive bioremediation, engineering controls, institutional controls (restrictions), and assessment of the natural attenuation of contaminants through long-term monitoring programs. Work required excellent project management skills, as well as the ability to manage multiple projects concurrently.

### **Grand River Cooperative and Condon Oil Company, First Multi-Site Bundled Remediation for Wisconsin COMM and DNR, Wisconsin**

As project manager, negotiated a cost-partitioning strategy with COMM, Condon Companies, and Grand River Cooperative for remediation of 8,800 tons of petroleum contaminated soil at three former bulk petroleum storage facilities. Performed a pump test on the Del Monte Foods high-capacity production well that pumps 2 to 2.5 million gallons of water per day during

production season, and is located 200 feet downgradient of the contaminant source. The pump test was performed to evaluate the vertical flow of groundwater relative to the dissolved phase contaminant plume during Del Monte's canning season.

### **Broy Company, RCRA Closure, West Bend, Wisconsin**

As project manager, directed RI/FS for the closure of Wisconsin RCRA hazardous waste facility at an operating printing facility. Responsibilities included project management; supervision of the project team; liaison with regulator, client, and attorneys; data interpretation and presentation; development of remedial strategies; and implementation of a successful closure strategy.

### **Multiple Clients, Groundwater Attenuation Monitoring Projects, Sites throughout Wisconsin**

Project manager for more than 50 natural attenuation monitoring projects at sites throughout Wisconsin. Responsibilities included implementing natural attenuation monitoring programs, serving as client/regulatory liaison, preparing quality assurance plans, and developing sampling and analysis protocols. As project hydrogeologist for many of these projects, planned in situ based remediation pilot tests; collected and interpreted data; and subsequently designed in situ groundwater recovery, air sparging, and SVE remediation systems.

### **Village of Whitefish Bay, Landfill RI/FS, Milwaukee, Wisconsin**

Project hydrogeologist for a subsurface investigation and feasibility study of the Village of Whitefish Bay's abandoned solid and hazardous waste landfill, which was contaminated with chlorinated solvents, petroleum hydrocarbons and metals. Project involved developing a sampling and analysis plan; review, evaluation, and continuation of previously performed investigative work; evaluation of applicable remedial alternative strategies; and technical report preparation.

# Heidi Woelfel

## Staff Geologist

### Why Selected as Key Personnel for this Project

- Former WDNR Program Assistant with strong knowledge of states' processes
- Experienced field geologist with experience at CERCLA sites, UST sites, pipelines and brownfield sites
- Experience with NEPA assessments and environmental permitting for public sector and utility clients

### Education

B.S., Geology, University of Wisconsin, 1997

### Registrations/Certifications

Professional Geologist, Texas (#4650)  
LPST Project Manager, Texas (#PM0000130)  
Federal Railway Association (FRA) Safety Training  
OSHA 40 Hour HAZWOPER Training

### Relevant Experience

#### Due Diligence Assessments

Ms. Woelfel has conducted due diligence assessments at commercial and industrial properties in Wisconsin, Colorado, Louisiana, Arkansas, and Texas. These assessments have involved a variety of commercial businesses, power plants, and health care facilities. Ms. Woelfel's role has included historical data review and interpretation, regulatory data review, and site walk-throughs. She has also prepared site investigation reports to present the findings and recommendations of the investigations.

Ms. Woelfel is has been responsible for the preparation of reports including quarterly and semi-annual groundwater monitoring for retail petroleum clients, RCRA corrective actions sites, Phase I and Phase II reports for various commercial clients and industrial facilities, and Closure Request reports for sites associated with the Texas DOT.

### Soil/Groundwater Contamination Investigation and Analysis

Ms. Woelfel has been involved in several groundwater sampling projects at sites regulated under WDNR, LDEQ, IDEM, ODEQ and TCEQ which have involved the use of different sampling techniques, including low flow sampling, submersible pumps, time weighted composite, and disposable bailers. She is experienced with various drilling techniques including direct push technology, cone penetration technology (CPT), roto-sonic, hollow-stem auger, and mud rotary.

Ms. Woelfel has done work in Wisconsin, Indiana, Louisiana, Washington, Arkansas, Oklahoma, Georgia, Alabama and Texas in accordance with the respective regulatory agencies.

She has implemented operation and maintenance (O&M) activities on groundwater remedial systems, which included regular maintenance of air sparging equipment and recovery well systems.

### Hydrocarbon Assessment and Remediation

Ms. Woelfel has implemented numerous subsurface investigations, which included well installations, and underground storage tank (UST) removals. She has completed field investigations to delineate soil and groundwater quality impacts from various hydrocarbon sources, and has managed the installation and operation of several remediation technologies including air sparging systems, soil vapor extraction, and mobile dual phase extraction.

***Exhibit D***  
***Insurance Certificates***

# ACORD™ CERTIFICATE OF LIABILITY INSURANCE Page 1 of 3

DATE  
09/05/2006

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877-945-7378													
<b>INSURED</b>  Shaw Environmental & Infrastructure, Inc. Shaw Environmental, Inc. See Below for List of Other Insureds 4171 Essen Lane Baton Rouge, LA 70809	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <th style="width: 80%;">INSURERS AFFORDING COVERAGE</th> <th style="width: 20%;">NAIC#</th> </tr> <tr> <td>INSURER A: Zurich American Insurance Company</td> <td>16535-006</td> </tr> <tr> <td>INSURER B:</td> <td></td> </tr> <tr> <td>INSURER C:</td> <td></td> </tr> <tr> <td>INSURER D:</td> <td></td> </tr> <tr> <td>INSURER E:</td> <td></td> </tr> </table>	INSURERS AFFORDING COVERAGE	NAIC#	INSURER A: Zurich American Insurance Company	16535-006	INSURER B:		INSURER C:		INSURER D:		INSURER E:	
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**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	ADD'L LTR	TYPE OF INSURANCE	POLICY NUMBER	POLICY EFFECTIVE DATE (MM/DD/YY)	POLICY EXPIRATION DATE (MM/DD/YY)	LIMITS
A		GENERAL LIABILITY <input checked="" type="checkbox"/> COMMERCIAL GENERAL LIABILITY <input type="checkbox"/> CLAIMS MADE <input checked="" type="checkbox"/> OCCUR  GEN'L AGGREGATE LIMIT APPLIES PER: <input type="checkbox"/> POLICY <input checked="" type="checkbox"/> PROJECT <input type="checkbox"/> LOC	GL0386660701	9/1/2006	9/1/2007	EACH OCCURRENCE \$ 2,000,000 DAMAGE TO RENTED PREMISES (Ea occurrence) \$ 500,000 MED EXP (Any one person) \$ 25,000 PERSONAL & ADV INJURY \$ 2,000,000 GENERAL AGGREGATE \$ 4,000,000 PRODUCTS - COMP/OP AGG \$ 4,000,000
A		AUTOMOBILE LIABILITY <input checked="" type="checkbox"/> ANY AUTO <input type="checkbox"/> ALL OWNED AUTOS <input type="checkbox"/> SCHEDULED AUTOS <input type="checkbox"/> HIRED AUTOS <input type="checkbox"/> NON-OWNED AUTOS	BAP386660401 TAP386660501	9/1/2006 9/1/2006	9/1/2007 9/1/2007	COMBINED SINGLE LIMIT (Ea accident) \$ 2,000,000 BODILY INJURY (Per person) \$ BODILY INJURY (Per accident) \$ PROPERTY DAMAGE (Per accident) \$ GARAGE LIABILITY <input type="checkbox"/> ANY AUTO AUTO ONLY - EA ACCIDENT \$ OTHER THAN AUTO ONLY: EA ACC \$ AGG \$ EXCESS LIABILITY <input type="checkbox"/> OCCUR <input type="checkbox"/> CLAIMS MADE <input type="checkbox"/> DEDUCTIBLE <input type="checkbox"/> RETENTION \$
A		WORKERS COMPENSATION AND EMPLOYERS' LIABILITY ANY PROPRIETOR/PARTNER/EXECUTIVE OFFICER/MEMBER EXCLUDED? If yes, describe under SPECIAL PROVISIONS below OTHER	WC386660601 WC386661401	9/1/2006 9/1/2006	9/1/2007 9/1/2007	<input checked="" type="checkbox"/> WC STATUTORY LIMITS <input type="checkbox"/> OTHER E.L. EACH ACCIDENT \$ 1,000,000 E.L. DISEASE - EA EMPLOYEE \$ 1,000,000 E.L. DISEASE - POLICY LIMIT \$ 1,000,000

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

<b>CERTIFICATE HOLDER</b>  SPECIMEN CERTIFICATE	<b>CANCELLATION</b>  SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELLED BEFORE THE EXPIRATION DATE THEREOF, THE ISSUING INSURER WILL ENDEAVOR TO MAIL <u>30</u> 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 
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**DESCRIPTION OF OPERATIONS/LOCATIONS/VEHICLES/EXCLUSIONS ADDED BY ENDORSEMENT/SPECIAL PROVISIONS**

**Named Insureds:**

The Shaw Group Inc.; Shaw International, Inc.; Stone & Webster, Inc.; Stone & Webster Construction, Inc.; B.F. Shaw, Inc.; Shaw Sunland Fabricators, Inc.; Shaw Global Energy Services, Inc.; Shaw SSS Fabricators, Inc.; Shaw Maintenance, Inc.; Shaw Constructors, Inc.; Shaw NAPTech, Inc.; Shaw Energy Delivery Services, Inc.; Shaw Field Services, Inc.; S&W Engineering NY, PC; Shaw Environmental, Inc.; Shaw Environmental and Infrastructure, Inc.; Shaw Coastal, Inc.; Shaw Beneco, Inc.; EMCON/OWT, Inc.; Shaw Infrastructure, Inc.; Stone & Webster Consultants, Limited; Stone & Webster Management Consultants, Inc.

The Shaw Group Inc. and its majority owned subsidiaries are Named Insureds under the insurance policies listed on this Certificate. The above list is a representative list of the major subsidiaries of The Shaw Group Inc. and should not be considered complete.

**Additional Insured Status:**

The General Liability and Automobile Liability policies include a Blanket Additional Insured endorsement. This endorsement confers additional insured status to persons and/or entities if specifically required by a written contract executed prior to a loss but only to the extent of the Named Insured's obligations to indemnify, defend and/or hold harmless as specified by the written contract, subject to policy limits or to the extent allowable by law, if less.

The General Liability and Automobile Liability policies grant coverage to "additional insureds" on a primary basis, subject to each policy's terms, conditions and exclusions, when required by contract executed prior to a loss.

**Waiver of Subrogation:**

The General Liability, Automobile Liability and Workers' Compensation policies, through blanket endorsements, automatically waive the rights of subrogation, where allowable by law, possessed by the insurer against any person and/or entity to the extent that the Insured had, prior to a claim, a written contract to waive such rights.

## IMPORTANT

If the certificate holder is an ADDITIONAL INSURED, the policy(ies) must be endorsed. A statement on this certificate does not confer rights to the certificate holder in lieu of such endorsement(s).

If SUBROGATION IS WAIVED, subject to the terms and conditions of the policy, certain policies may require an endorsement. A statement on this certificate does not confer rights to the certificate holder in lieu of such endorsement(s).

## DISCLAIMER

The Certificate of Insurance on the reverse side of this form does not constitute a contract between the issuing insurer(s), authorized representative or producer, and the certificate holder, nor does it affirmatively or negatively amend, extend or alter the coverage afforded by the policies listed thereon.



# ACORD™ CERTIFICATE OF LIABILITY INSURANCE

DATE  
09/05/2006

PRODUCER 877-945-7378

Willis North America, Inc.  
26 Century Blvd.  
P. O. Box 305191  
Nashville, TN 372305191

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.

INSURED The Shaw Group Inc., et al  
See Below for List of Other Insureds  
4171 Essen Lane  
Baton Rouge, LA 70809

INSURERS AFFORDING COVERAGE	NAIC#
INSURER A: American International Specialty Lines In	26883-001
INSURER B:	
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 ADD'L LTR INSRD	TYPE OF INSURANCE	POLICY NUMBER	POLICY EFFECTIVE DATE (MM/DD/YY)	POLICY EXPIRATION DATE (MM/DD/YY)	LIMITS								
	<b>GENERAL LIABILITY</b> <input type="checkbox"/> COMMERCIAL GENERAL LIABILITY <input type="checkbox"/> CLAIMS MADE <input type="checkbox"/> OCCUR  GEN'L AGGREGATE LIMIT APPLIES PER: <input type="checkbox"/> POLICY <input type="checkbox"/> PRO-JECT <input type="checkbox"/> LOC				EACH OCCURRENCE \$ DAMAGE TO RENTED PREMISES (Ea occurrence) \$ MED EXP (Any one person) \$ PERSONAL & ADV INJURY \$ GENERAL AGGREGATE \$ PRODUCTS - COMP/OP AGG \$								
	<b>AUTOMOBILE LIABILITY</b> <input type="checkbox"/> ANY AUTO <input type="checkbox"/> ALL OWNED AUTOS <input type="checkbox"/> SCHEDULED AUTOS <input type="checkbox"/> HIRED AUTOS <input type="checkbox"/> NON-OWNED AUTOS				COMBINED SINGLE LIMIT (Ea accident) \$ BODILY INJURY (Per person) \$ BODILY INJURY (Per accident) \$ PROPERTY DAMAGE (Per accident) \$								
	<b>GARAGE LIABILITY</b> <input type="checkbox"/> ANY AUTO				AUTO ONLY - EA ACCIDENT \$ OTHER THAN EA ACC \$ AUTO ONLY: AGG \$								
	<b>EXCESS LIABILITY</b> <input type="checkbox"/> OCCUR <input type="checkbox"/> CLAIMS MADE  DEDUCTIBLE \$ RETENTION \$				EACH OCCURRENCE \$ AGGREGATE \$ \$ \$ \$								
	<b>WORKERS COMPENSATION AND EMPLOYERS' LIABILITY</b> ANY PROPRIETOR/PARTNER/EXECUTIVE OFFICER/MEMBER EXCLUDED? If yes, describe under SPECIAL PROVISIONS below				<table border="1"> <tr> <td>WC STATU-TORY LIMITS</td> <td>OTH-ER</td> </tr> <tr> <td>E.L. EACH ACCIDENT</td> <td>\$</td> </tr> <tr> <td>E.L. DISEASE - EA EMPLOYEE</td> <td>\$</td> </tr> <tr> <td>E.L. DISEASE - POLICY LIMIT</td> <td>\$</td> </tr> </table>	WC STATU-TORY LIMITS	OTH-ER	E.L. EACH ACCIDENT	\$	E.L. DISEASE - EA EMPLOYEE	\$	E.L. DISEASE - POLICY LIMIT	\$
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E.L. EACH ACCIDENT	\$												
E.L. DISEASE - EA EMPLOYEE	\$												
E.L. DISEASE - POLICY LIMIT	\$												
A	<b>Other Contractors Pollution/Professional Errors &amp; Omissions Liabil (Claims-Made)</b>	3779547	9/1/2006	9/1/2007	\$1,000,000 Each Claim \$1,000,000 Annual Aggregate								

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

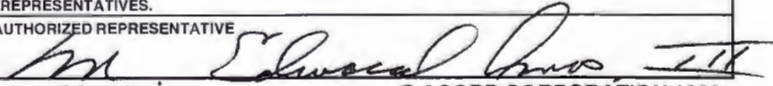
## CERTIFICATE HOLDER

"Specimen"

## CANCELLATION

SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELLED BEFORE THE EXPIRATION DATE THEREOF, THE ISSUING INSURER WILL ENDEAVOR TO MAIL 30 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



<p>PRODUCER  877-945-7378  Willis North America, Inc. 26 Century Blvd. P. O. Box 305191 Nashville, TN 372305191</p>	<p>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.</p>												
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DESCRIPTION OF OPERATIONS/LOCATIONS/VEHICLES/EXCLUSIONS ADDED BY ENDORSEMENT/SPECIAL PROVISIONS

Named Insureds:

The Shaw Group Inc.; Shaw International, Inc.; Stone & Webster, Inc.; Stone & Webster Construction, Inc.; B.F. Shaw, Inc.; Shaw Sunland Fabricators, Inc.; Shaw Global Energy Services, Inc.; Shaw SSS Fabricators, Inc.; Shaw Maintenance, Inc.; Shaw Constructors, Inc.; Shaw NAPTech, Inc.; Shaw Energy Delivery Services, Inc.; Shaw Field Services, Inc.; S&W Engineering NY, PC; Shaw Environmental, Inc.; Shaw Environmental and Infrastructure, Inc.; Shaw Coastal, Inc.; Shaw Beneco, Inc.; EMCON/OWT, Inc.; Shaw Infrastructure, Inc.; Stone & Webster Consultants, Limited; Stone & Webster Management Consultants, Inc.

The Shaw Group Inc. and its majority owned subsidiaries are Named Insureds under the insurance policies listed on this Certificate. The above list is a representative list of the major subsidiaries of The Shaw Group Inc. and should not be considered complete.

## **IMPORTANT**

If the certificate holder is an ADDITIONAL INSURED, the policy(ies) must be endorsed. A statement on this certificate does not confer rights to the certificate holder in lieu of such endorsement(s).

If SUBROGATION IS WAIVED, subject to the terms and conditions of the policy, certain policies may require an endorsement. A statement on this certificate does not confer rights to the certificate holder in lieu of such endorsement(s).

## **DISCLAIMER**

The Certificate of Insurance on the reverse side of this form does not constitute a contract between the issuing insurer(s), authorized representative or producer, and the certificate holder, nor does it affirmatively or negatively amend, extend or alter the coverage afforded by the policies listed thereon.

***Exhibit E***  
***Shaw Fee Schedule and Professional Services Agreement***



## Category Rate Schedule

Effective 11/1/05

Category	Typical Category Function	Commercial Rate
M	Technical Publications Assistant 1 Laborer 1	\$40.00
N	Administrative Assistant 1 Drafter 1 Laborer 2 Equipment Operator 1 Technician 1	\$47.00
O	Administrative Assistant 2 Transaction Processing Assistant 3 Laborer 3 Equipment Operator 2 Technician 2 Scientist 1	\$57.00
P	Administrative Assistant 3 Project Controls Cost Scheduler 1 Project Accountant 1 Drafter 2 Equipment Operator 3 Foreman Technician 3 Engineer 1	\$68.00
Q	Admin/Executive Assistant 4 Subcontract Administrator 1 EH&S Specialist 1 Scientist 2	\$76.00
R	Subcontract Administrator 2 Project Controls Cost Scheduler 2 Drafter 3 Engineer 2	\$86.00
S	Project Accountant 2 Technician 4 Scientist 3	\$96.00
T	Subcontract Administrator 3 Drafter 4 EH&S Specialist 2	\$104.00
U	Project Accountant 3 Project Controls Cost Scheduler 3 EH&S Specialist 3 Project Scientist 3	\$112.00
V	Project Accountant 4 Site Superintendent 1 Engineer 3 Scientist 4	\$120.00
W	Project Controls Cost Scheduler 4 Subcontract Administrator 4 Site Superintendent 2 Engineer 4 Project Engineer 3 Project Scientist 4 Client Program Manager 1 Project Manager 1	\$129.00
X	Scientist 5 Project Engineer 4 Client Program Manager 2 Business Line Manager 1	\$145.00
Y	Engineer 5 Scientist 6 Project Engineer 5 Project Scientist 5 Client Program Manager 3 Project Manager 2 Business Line Manager 2	\$170.00

(See Terms and Conditions on reverse side.)



## Category Rate Schedule

Effective 11/1/05

### TERMS AND CONDITIONS - COMMERCIAL

#### 1.0 Personnel Charges

- 1.1 Personnel time charges for technical, management, and direct project clerical and administrative support activities will be invoiced according to the applicable Category Rate.
- 1.2 All time is rounded to the nearest quarter hour.
- 1.3 The Category Rate Schedule is revised periodically; Shaw E&I will provide written notice of a revision within (30) days of the effective date.
- 1.4 All field labor and equipment are subject to a four (4) hour minimum charge and are charged portal-to-portal, Shaw E&I's facility.
- 1.5 Shaw E&I Temporary (contract) personnel may be charged at the applicable Category Rate.
- 1.6 Personnel time charges for travel are invoiced at the applicable Category Rate at the actual time incurred.

#### 2.0 Premium Charges

- 2.1 The Category Rate Schedule applies for all hours worked by exempt (salaried) personnel.
- 2.2 Overtime, Weekends & Holidays - Hours worked in excess of daily or weekly standards and/or weekends and holidays by non-exempt and hourly personnel may be subject to a contract specific premium.
- 2.3 Emergency Response - Non-exempt and hourly personnel may be subject to a contract specific Category Rate premium.
- 2.4 Expert Testimony - Testimony about the nature or extent of Shaw E&I's services, preparation thereof, and/or standby time may be subject to a contract specific Category Rate premium.

#### 3.0 Travel and Living Expenses

- 3.1 Travel expenses for transportation (including mileage reimbursement) and lodging expenses will be charged at cost plus 15%.
- 3.2 Meals and incidental expenses will be charged at a pre-determined daily rate (based on location) plus 15%.
- 3.3 Long-term, on-site project personnel are permitted to return home every three (3) weeks. These travel expenses will be invoiced at cost plus 15%.

#### 4.0 Other Charges

- 4.1 Charges for equipment will be invoiced in accordance with Shaw E&I Equipment Rates.
- 4.2 Client shall be responsible for payment (without deduction or offset from the total contract amount) of any and all sales, use, value added, gross receipts, franchise and like taxes, and tariffs and duties, and all disposal fees and taxes, levied against Shaw E&I or its employees by any governing or taxing authority.

#### 5.0 Reimbursable Expenses

- 5.1 All project-related expenses including materials, purchased equipment, subcontractor costs, fees, duties, deposits, tolls, weight certificates, special permits, and associated federal, state, county, city taxes or surcharges and other costs incurred specifically for the project will be invoiced at cost plus 15%.

#### 6.0 Invoicing and Terms of Payment

- 6.1 Invoices may be submitted as frequently as biweekly; however, on any project where total billings are expected to exceed \$1,000,000 or monthly billings are expected to exceed \$250,000, progress billings may be submitted as frequently as weekly.
- 6.2 Payment for services is due upon receipt of the invoice.
- 6.3 A service charge equal to 1.5% per month or the maximum lawful rate, whichever is lesser, may be charged on all account balances past due.

**SHAW ENVIRONMENTAL, INC.  
PROFESSIONAL SERVICES AGREEMENT  
TIME AND MATERIALS BASIS**

**1. SERVICES:** Shaw Environmental, Inc. ("SHAW") agrees to perform for the undersigned CLIENT professional environmental, health and safety, consulting and/or analytical services ("Services") described in attached proposal and in accord with the following terms and conditions.

**2. FEES, INVOICES AND PAYMENTS:** The Services will be performed on a time and materials basis, with compensation due for all goods and Services provided by SHAW, computed in accord with currently-in-effect SHAW rates for Time & Material work. SHAW's particular applicable T & M Rate Sheet for the Services may be attached hereto. Other compensation provisions are as follows:

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Invoices will be submitted by SHAW no more frequently than every two weeks, with payment due upon CLIENT'S receipt of invoice. Payment shall be in U.S. Dollars. CLIENT shall be responsible for payment (without deduction or offset from the total invoice amount) of any and all sales, use, value added, gross receipts, franchise and like taxes, and tariffs and duties, and all disposal fees and taxes, levied against SHAW or its employees by any government or taxing authority. A service charge equal to one and one-half percent (1 ½ %) per month, or the maximum rate permitted by law, whichever is less, will be added to all accounts which remain unpaid for more than thirty (30) calendar days beyond the date of the invoice. Should there be any dispute as to any portion of an invoice, the undisputed portion shall be promptly paid.

**3. CLIENT'S COOPERATION:** To assist SHAW in performing the Services, CLIENT shall (i) provide SHAW with relevant material, data, and information in its possession pertaining to the specific project or activity, (ii) consult with SHAW when requested, (iii) permit SHAW reasonable access to relevant CLIENT sites, (iv) ensure reasonable cooperation of CLIENT's employees in SHAW's activities, and (v) notify and report to all regulatory agencies as required by such agencies.

**4. CONFIDENTIALITY:** If initialed here\_\_\_\_\_ by SHAW's authorized representative, in the course of performing Services, to the extent that CLIENT discloses to SHAW, business or technical information that CLIENT clearly marks in writing as confidential or proprietary, SHAW will exercise reasonable efforts to avoid the disclosure of such information to others. Nonetheless, CLIENT shall treat as confidential all information and data furnished to it by SHAW in connection with this Agreement including, but not limited to, SHAW's technology, formulae, procedures, processes, methods, trade secrets, ideas, inventions, and/or computer programs; and CLIENT shall not disclose such information to any third party.

Nothing herein is meant to prevent nor shall be interpreted as preventing either party from disclosing and/or using any information or data (i) when the information or data are actually known to the receiving party before being obtained or derived from the transmitting party, (ii) when information or data are generally available to the public without the receiving party's fault at any time before or after it is acquired from the transmitting party; (iii) where the information or data are obtained or acquired in good faith at any

time by the receiving party from a third party who has the same in good faith and who is not under any obligation to the transmitting party in respect thereto; (iv) where a written release is obtained by the receiving party from the transmitting party; (v) three (3) years from the date of receipt of such information; or (vi) when required by process of law; provided, however, upon service of such process, the recipient thereof shall use reasonable efforts to notify the other party and afford it an opportunity to resist such process.

**5. RIGHT TO USE INFORMATION AND DOCUMENTS:** CLIENT may use any final reports of findings, feasibility studies, industrial hygiene and safety, engineering work or other work performed or prepared by SHAW under this Agreement in connection with the project and/or location indicated in the Services for which such work was prepared, but SHAW reserves all other rights with respect to such documents and all other documents produced in performing the Services. CLIENT shall obtain prior written consent from SHAW for any other use, distribution, or publication of such reports or work results. Unless otherwise expressly agreed to in writing, nothing in this Agreement shall be interpreted to prevent SHAW from application and use of any information learned by it from the services (subject to the provisions of Section 4). All reports will be delivered subject to SHAW's then current limitations and disclaimers.

**6. PATENTS AND CONFIDENTIAL INFORMATION:** SHAW shall retain all right and title to all patentable and unpatentable inventions including confidential know-how developed by SHAW hereunder. However, SHAW hereby grants to CLIENT a royalty-free, nonexclusive, nonassignable license as to such inventions and know-how to use the same in any of CLIENT's facilities. Information submitted to CLIENT by SHAW hereunder is not intended nor shall such submission constitute inducement and/or contribution to infringe any patent(s) owned by a third party, and SHAW specifically disclaims any liability therefor.

**7. DELAYS AND CHANGES IN CONDITIONS:** If SHAW is delayed or otherwise in any way hindered or impacted at any time in performing the Services by (i) an act, failure to act or neglect of CLIENT or CLIENT's employees or any third parties; (ii) changes in the scope of the work; (iii) unforeseen, differing or changed circumstances or conditions including differing site conditions, acts of force majeure (such as fires, floods, riots, and strikes); (iv) changes in government acts or regulations; (v) delay authorized by CLIENT and agreed to by SHAW; or (vi) any other cause beyond the reasonable control of SHAW, then 1) the time for completion of the Services shall be extended based upon the impact of the delay, and 2) SHAW shall receive an equitable compensation adjustment. (Any such equitable adjustment shall be based on SHAW's then current Time and Material Rates, as may be provided in a Rate sheet attached hereto.)

**8. INSURANCE:** SHAW is presently protected by Worker's Compensation Insurance as required by applicable law and by General Liability and Automobile Liability Insurance (in the amount of \$1,000,000 combined single limit) for bodily injury and property damage. Insurance certificates will be furnished to Client on request. If the CLIENT requires further insurance coverage, SHAW will endeavor to obtain said coverage, and CLIENT shall pay any extra costs therefor.

**9. RISK ALLOCATION - CLIENT hereby agrees that:** (1) there are risks inherent to the Services, many of which cannot be ascertained or anticipated prior to or during the course of the Services; (2) due to the inherently limited nature and amount of the data resulting from environmental investigation methods, complete analysis of conditions is not always possible, and, therefore, conditions frequently vary from those anticipated earlier; and (3) technology, methods, accepted professional standards as well as law and policy, are undefined and/or constantly changing and evolving. In light of all of the foregoing and considering SHAW's lack of responsibility for creating the conditions requiring the Services, as a material inducement to and consideration for SHAW's agreement to perform the Services on the terms and at the price herein provided for, CLIENT SPECIFICALLY AGREES THAT SHAW'S LIABILITY SHALL BE STRICTLY LIMITED AS PROVIDED IN SECTIONS 10 THROUGH 12 OF THIS AGREEMENT.

**10. WARRANTY:** SHAW is an independent contractor and SHAW's Services will be performed, findings obtained, and recommendations prepared in accordance with generally and currently accepted professional practices and standards governing recognized firms in the area engaged in similar work. THIS WARRANTY IS IN LIEU OF ALL OTHER WARRANTIES EITHER EXPRESSED OR IMPLIED.

**11. INDEMNITIES:** SHAW shall defend, indemnify and hold harmless CLIENT from and against loss or damage to tangible property, or injury to persons, to the extent arising from the negligent acts or omissions or willful misconduct of SHAW, its subcontractors, and their respective employees and agents acting in the course and scope of their employment; provided, however, SHAW shall indemnify CLIENT from and against any loss or damage in the handling or management of any hazardous or radioactive material, or any pollution, contamination, or release of hazardous or radioactive materials, only to the extent resulting from SHAW's gross negligence or willful misconduct. CLIENT shall defend, indemnify and save harmless SHAW (including its parent, subsidiary, and affiliated companies and their officers, directors, employees, and agents) from and against, and any indemnity by SHAW shall not apply to, loss, damage, injury or liability arising from the (i) acts or omissions of CLIENT, its contractors, and their respective subcontractors, employees and agents, or of third parties; (ii) any allegations that SHAW is the owner, operator, manager, or person in charge of all or any portion of a site addressed by the services, or arranged for the treatment, transportation, or disposal of, or owned or possessed, or chose the treatment, transportation or disposal site for, any material with respect to which Services are provided, and (iii) any pollution, contamination or release of hazardous or radioactive materials, including all adverse health effects thereof, except for any portion thereof which results from SHAW's gross negligence or willful misconduct.

**12. LIMITATIONS OF LIABILITY:**

**a. GENERAL LIMITATION - CLIENT'S SOLE AND EXCLUSIVE REMEDY FOR ANY ALLEGED BREACH OF WARRANTY BY IT SHALL BE TO REQUIRE IT TO RE-PERFORM ANY DEFECTIVE SERVICES. SHAW'S LIABILITY AND CLIENT'S REMEDIES FOR ALL CAUSES OF ACTION ARISING HEREUNDER WHETHER BASED IN CONTRACT, WARRANTY, NEGLIGENCE, INDEMNITY, OR ANY OTHER CAUSE OF ACTION, SHALL NOT EXCEED IN**

**THE CUMULATIVE AGGREGATE (INCLUDING ANY INSURANCE PROCEEDS) WITH RESPECT TO ALL CLAIMS ARISING OUT OF OR RELATED TO THIS AGREEMENT, WHATEVER MINIMUM AMOUNT MAY BE REQUIRED BY LAW OR, IF NONE, THE LESSER OF THE AMOUNT OF COMPENSATION FOR SUCH SERVICES, OR \$100,000 (WHICH AMOUNT INCLUDES ANY FEES AND COSTS INCURRED IN RE-PERFORMING SERVICES). THE REMEDIES IN THIS AGREEMENT ARE CLIENT'S SOLE AND EXCLUSIVE REMEDIES. ALL CLAIMS, INCLUDING THOSE FOR NEGLIGENCE OR ANY OTHER CAUSE WHATSOEVER SHALL BE DEEMED WAIVED UNLESS SUIT THEREON IS FILED WITHIN ONE (1) YEAR AFTER THE EARLIER OF (1) SHAW'S SUBSTANTIAL COMPLETION OF THE SERVICES OR (2) THE DATE OF SHAW'S FINAL INVOICE. FURTHER, SHAW SHALL HAVE NO LIABILITY FOR ANY ACTION INCLUDING DISCLOSURE OF INFORMATION WHERE IT BELIEVES IN GOOD FAITH THAT SUCH ACTION IS REQUIRED BY PROFESSIONAL STANDARDS OF CONDUCT FOR THE PRESERVATION OF PUBLIC HEALTH, SAFETY OR WELFARE, OR BY LAW.**

**b. CONSEQUENTIAL DAMAGES:** FURTHER AND REGARDLESS OF ANY OTHER PROVISION HEREIN, SHAW SHALL NOT BE LIABLE FOR ANY INCIDENTAL, INDIRECT, OR CONSEQUENTIAL DAMAGES (INCLUDING LOSS OF PROFITS, DECLINE IN PROPERTY VALUE, REGULATORY AGENCY FINES, LOST PRODUCTION OR LOSS OF USE) INCURRED BY CLIENT OR FOR WHICH CLIENT MAY BE LIABLE TO ANY THIRD PARTY OCCASIONED BY THE SERVICES OR BY APPLICATION OR USE OF REPORTS OR OTHER WORK PERFORMED HEREUNDER.

**13. GOVERNING LAWS:** This Agreement shall be governed and construed in accordance with the laws of the State in which the site to which the Services relate is located, or if there is no such site, or there are multiple sites in different states, in accord with Louisiana law.

**14. TERMINATION:** Either party may terminate this Agreement with or without cause upon twenty (20) days' written notice to the other party. Upon such termination, CLIENT shall pay SHAW for all Services performed hereunder up to the date of such termination. In addition, if CLIENT terminates, CLIENT shall pay SHAW all reasonable costs and expenses incurred by SHAW in effecting the termination, including, but not limited to non-cancelable commitments and demobilization costs.

**15. ASSIGNMENT:** Neither SHAW nor CLIENT shall assign any right or delegate any duty under this Agreement without the prior written consent of the other, which consent shall not be unreasonably withheld. Notwithstanding the foregoing, the Services may be performed by any subsidiary or affiliate of the IT Group or other person designated by SHAW, and, SHAW may, upon notice to CLIENT, assign, pledge or otherwise hypothecate the cash proceeds and accounts receivable resulting from the performance of any Services or sale of any goods pursuant to this Agreement.



16. MISCELLANEOUS:

a. ENTIRE AGREEMENT, PRECEDENCE, ACCEPTANCE MODIFICATIONS: The terms and conditions set forth herein constitute the entire understanding of the Parties relating to the provisions of the Services by SHAW to the CLIENT. All previous proposals, offers, and other communications relative to the provisions of these Services by SHAW, oral or written, are hereby superseded, except to the extent that they have been expressly incorporated by reference herein. In the event of conflict, the three pages of this Agreement shall govern. CLIENT may accept these terms and conditions by execution of this Agreement or by authorizing SHAW to begin work. Any modifications or revision of any provisions hereof or any additional provisions contained in any purchase order, acknowledgement or other document issued by the CLIENT is hereby expressly objected to by SHAW and shall not operate to modify the Agreement.

b. DISPUTES, ATTORNEY FEES - Any dispute regarding this Agreement or the Services shall be resolved first by exchange of documents by senior management of the parties, who may be assisted by counsel. Any thereafter unresolved disputes shall be litigated in the state whose law governs under Section 13 hereunder. In any litigation, the Prevailing Party shall be entitled to receive, as part of any award or judgment, eighty percent (80%) of its reasonable attorneys' fees and costs incurred in handling the dispute. For these purposes, the "Prevailing Party" shall be the party who obtains a litigation result more favorable to it than its last formal written offer (made at least twenty calendar days prior to the formal trial) to settle such litigation.

c. WAIVER OF TERMS AND CONDITIONS - The failure of SHAW or CLIENT in any one or more instances to enforce one or more of the terms or conditions of this Agreement or to exercise any right or privilege in the Agreement or the waiver by SHAW or CLIENT of any breach of the terms or conditions of this Agreement shall not be construed as thereafter waiving any such terms, conditions, rights, or privileges, and the same shall continue and remain in force and effect as if no such failure to enforce had occurred.

d. NOTICES - Any notices required hereunder may be sent by orally confirmed US Mail, courier service (e.g. FedEx), orally confirmed teletype (fax) or orally confirmed email (further confirmed by US Mail) to the addresses set forth below.

e. SEVERABILITY AND SURVIVAL - Each provision of this Agreement is severable from the others. Should any provision of this Agreement be found invalid or unenforceable, such provision shall be ineffective only to the extent required by law, without invalidating the remainder of such provision or the remainder of this Agreement.

Further, to the extent permitted by law, any provision found invalid or unenforceable shall be deemed automatically redrawn to the extent necessary to render it valid and enforceable consistent with the parties' intent. For example, if the gross negligence standard in Section 11 is unenforceable under an applicable "anti-indemnity" statute, but a sole negligence standard is enforceable, the sole negligence standard shall be automatically substituted therefor. The terms and conditions set forth herein shall survive the termination of this Agreement.

CLIENT and SHAW agree to the foregoing (INCLUDING THE LIMITATIONS ON LIABILITY IN SECTIONS 9-12) and have caused this Agreement to be executed by their duly authorized representatives as of the date set forth below.

Executed on \_\_\_\_\_, 200\_\_

CLIENT

Client Name: \_\_\_\_\_

By (Sign): \_\_\_\_\_

Print Name: \_\_\_\_\_

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

Address: \_\_\_\_\_

Phone: \_\_\_\_\_

Fax: \_\_\_\_\_

E-mail: \_\_\_\_\_

SHAW ENVIRONMENTAL, INC.

By (Sign): *Paul Zovic*

Print Name: Paul Zovic

Title: District Manager

Address: 111 West Pleasant Street, Suite 105  
Milwaukee, WI 53212-3939

Phone: (414) 291-2363

Fax: (414) 291-2385

E-mail: Paul.Zovic@shawgrp.com