

December 14, 1995

Project Reference #2371
FID #230006920
County of Kenosha
HW GENCL

Mr. Scott Ferguson
State of Wisconsin
Department of Natural Resources
Southeast District
P.O. Box 12436
4041 North Richards Street
Milwaukee, WI 53212

Re: **Geoprobe Investigation**
Arctic Laundry and Cleaners
5619 22nd Avenue
Kenosha, Wisconsin 53140-3885

Dear Mr. Ferguson:

Sigma Environmental Services, Inc. (Sigma) conducted a geoprobe subsurface investigation at Arctic Laundry and Cleaners (Arctic) located at 5619 22nd Avenue, Kenosha, Wisconsin (Figure 1). The investigation was conducted to determine the extent of impacts resulting from the disposal of dry cleaning by-products behind the building. Impacted soil and groundwater were initially detected in samples from geoprobe boring GP-1, which was completed in August 1994.

Sigma oversaw the completion of five soil borings (GP-2 through GP-6) at locations on and adjacent to the subject property on October 20, 1995 (Figure 2). One soil sample per boring was collected and submitted to CBC Environmental Laboratories, Inc. of Oak Creek, Wisconsin, for Volatile Organic Compounds (VOC) analysis. Groundwater samples were collected from geoprobe borings GP-2, GP-3, and GP-4 on October 20, 1995. Because groundwater did not readily accumulate in boring GP-5 and GP-6, 3/4-inch slotted PVC screens were temporarily installed in these borings. Groundwater samples were collected from GP-5 and GP-6 on October 26, 1995. The groundwater samples were analyzed for VOCs. The soil boring logs and borehole abandonment forms are presented as Attachment 1.



Review of the soil analytical results (Table 1) indicates that no VOCs were detected in the samples from three of the soil borings (GP-2, GP-5, and GP-6). These borings were located south, northeast, and north of the former disposal area, respectively. The soil sample collected from one to three feet below ground surface (bgs) in boring GP-1 (drilled in the former disposal area in August 1994) contained Tetrachloroethene (PCE) at a concentration of 0.079 milligrams per kilogram (mg/kg), and *o*-Xylene at 0.0014 mg/kg. The soil sample collected from five to seven feet bgs in boring GP-1 contained PCE at 2.7 mg/kg. The soil sample from boring GP-3 (seven to nine feet bgs) contained *n*-Butylbenzene at 0.0015 mg/kg; while the soil sample from nine to 11 feet bgs in boring GP-4 contained PCE (0.0093 mg/kg) and *cis*-1,2-Dichloroethene (0.028 mg/kg). The latter compound can result from the degradation of PCE. The spatial distribution of soil analytical results indicates that the lateral extent of impacted soil has not been delineated north and west of the former disposal area. The soil analytical results are summarized on Table 1, and the laboratory analytical reports are presented as Attachment 2.

Review of the groundwater analytical results (Table 2) indicates that VOCs were detected in samples from four of the six geoprobe borings. PCE was detected in the groundwater samples from GP-1 [42 micrograms per liter ($\mu\text{g/l}$)], GP-2 (13 $\mu\text{g/l}$), GP-3 (50 $\mu\text{g/l}$), and GP-4 (14 $\mu\text{g/l}$). Two degradation products of PCE, Trichloroethene (TCE) and *cis*-1,2-Dichloroethene, were detected at 2.2 $\mu\text{g/l}$ and 6.2 $\mu\text{g/l}$, respectively, in the groundwater sample from boring GP-4. TCE (1.0 $\mu\text{g/l}$) and Toluene (7.2 $\mu\text{g/l}$) were also detected in the groundwater sample collected from boring GP-1. No VOCs were detected in the groundwater samples collected from boring GP-5 and GP-6, indicating that the lateral extent of impacts to the east and northeast of the former disposal area have been defined. However, the spatial distribution of the groundwater analytical results indicates that the lateral extent of impacted groundwater has not been delineated north, south and west of the former disposal area. The groundwater analytical results are summarized on Table 2, and the laboratory analytical reports are presented as Attachment 2.

State of Wisconsin
Department of Natural Resources
December 14, 1995
Page 3

Groundwater samples collected from geoprobe borings are generally used for screening purposes. Because geoprobe borings are not NR 141 compliant monitoring wells, in a strict sense the analytical results from geoprobe groundwater samples should not be compared to NR 140 Groundwater Enforcement Standards (ES). Because geoprobe borings do not have a filter pack, and are not developed prior to sampling, the groundwater samples collected from them are generally very silty. Many organic compounds readily adsorb to silt particles. For this reason, the concentration of these organic compounds may be biased high in silty groundwater samples.

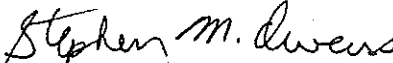
In several instances within Sigma's experience, a NR 141 monitoring well was installed adjacent to a geoprobe boring. The groundwater sample from the monitoring well had very low VOC levels, while the groundwater sample from the adjacent geoprobe boring had VOC concentrations which were several orders of magnitude higher.

Sigma recommends that another phase of investigation, consisting of the installation and sampling of four to five monitoring wells, be conducted to delineate the extent of impacted soil and groundwater.

If you have any questions or comments, please contact me at (414) 768-7144.

Sincerely,

SIGMA ENVIRONMENTAL SERVICES, INC.


Stephen M. Owens, P.G.
Project Hydrogeologist

SMO:mk

Attachments

TABLE 1
SUMMARY OF SOIL ANALYTICAL RESULTS - DETECTED COMPOUNDS
ARCTIC LAUNDRY AND CLEANERS
5619 22ND AVENUE
KENOSHA, WISCONSIN
Project Reference #2371

Laboratory	Sample ID						
	GP-1 1-3'	GP-1 5-7'	GP-2 7-9'	GP-3 7-9'	GP-4 9-11'	GP-5 11-13'	GP-6 13-15'
Analysis (in mg/kg)	Date Collected						
	08/23/94	08/23/94	10/20/95	10/20/95	10/20/95	10/20/95	10/20/95
Tetrachloroethene (PCE)	0.079	2.7	<0.001	<0.001	0.0093	<0.001	<0.001
o-Xylene	0.0014	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
n-Butylbenzene	<0.001	<0.001	<0.001	0.0015	<0.001	<0.001	<0.001
cis-1,2-Dichloroethene	<0.001	<0.001	<0.001	<0.001	0.028	<0.001	<0.001

KEY: Sample depths in feet below ground surface

mg/kg = milligrams per kilogram {equivalent to parts per million (ppm)}

< = not detected above the detection limit (the numerical value following the < symbol)

NOTES: Samples analyzed for Volatile Organic Compounds (EPA Method SW 8021).

Only detected compounds are included in this table.

TABLE 2
SUMMARY OF GROUNDWATER ANALYTICAL RESULTS - DETECTED COMPOUNDS
ARCTIC LAUNDRY AND CLEANERS
5619 22ND AVENUE
KENOSHA, WISCONSIN
Project Reference #2371

Laboratory Analysis	Sample ID						Groundwater Quality Standards	
	GP-1	GP-2	GP-3	GP-4	GP-5	GP-6	ES	PAL
	Date Sample Collected							
	08/25/94	10/20/95	10/20/95	10/20/95	10/26/95	10/26/95		
Trichloroethene (TCE)	1.0	<1.0	<1.0	2.2	<1.0	<1.0	5.0	0.5
Tetrachloroethene (PCE)	42	13	50	14	<1.0	<1.0	5.0	0.5
Toluene	7.2	<1.0	<1.0	<1.0	<1.0	<1.0	343	68.6
cis-1,2-Dichloroethene	<1.0	<1.0	<1.0	6.2	<1.0	<1.0	70	7

KEY: All results are in micrograms per liter ($\mu\text{g/l}$) which is equivalent to parts per billion (ppb)

PCE = Perchloroethylene (a synonym for Tetrachloroethene)

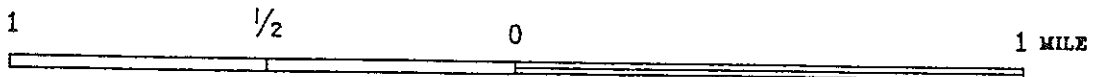
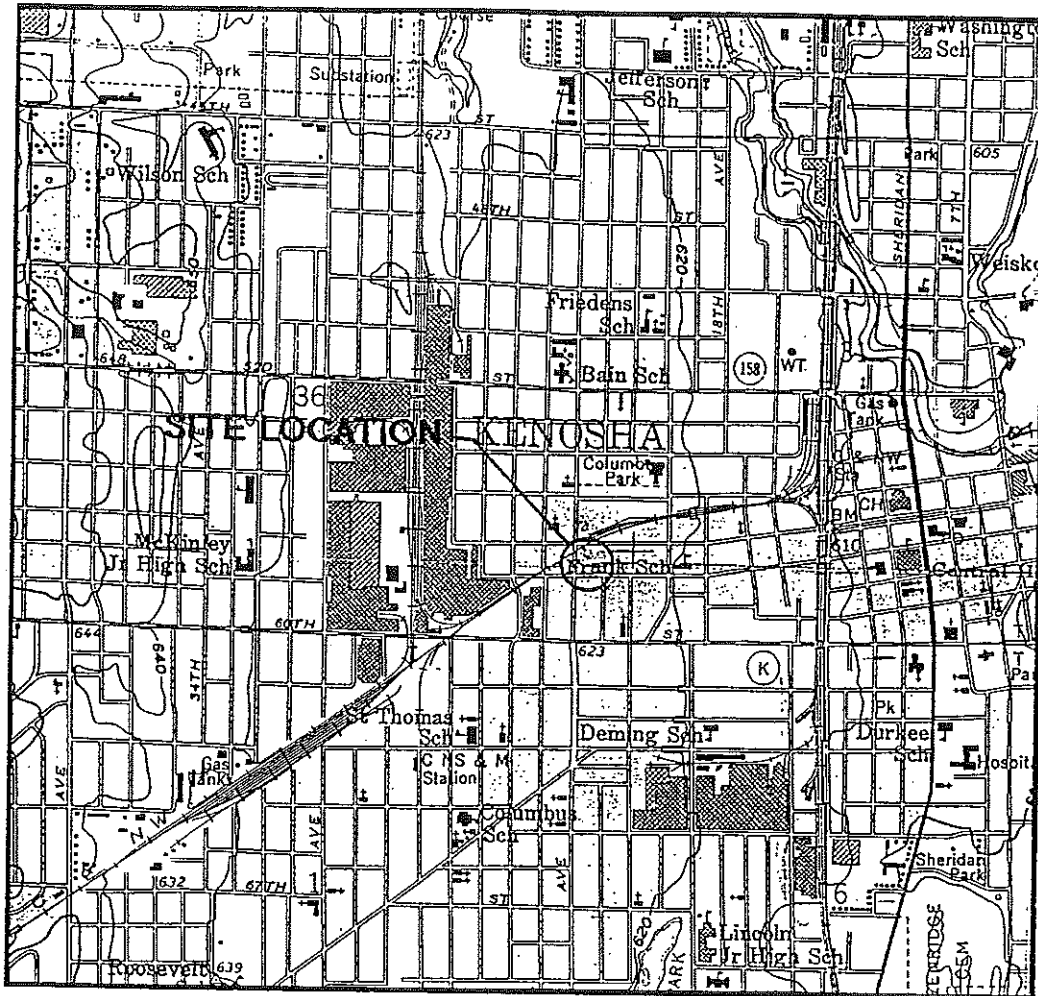
ES = Enforcement Standard (expressed in ppb)

PAL = Preventative Action Limit

█ = Exceeds WDNR Enforcement Standard


NOTES: Samples analyzed for Volatile Organic Compounds (EPA Method SW 8021).

Only detected compounds are included in this table.



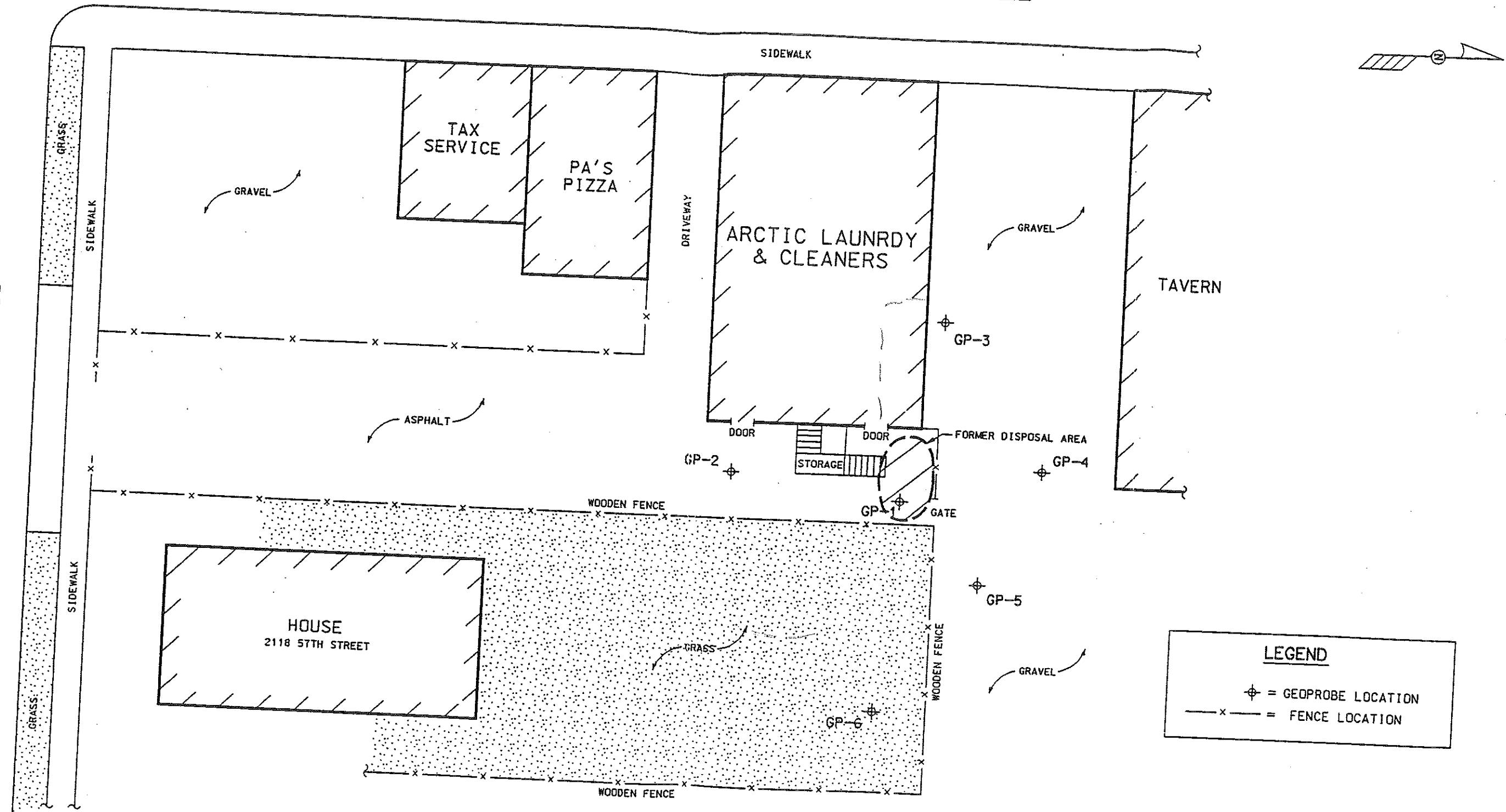
ADAPTED FROM U.S.G.S. 7.5 MINUTE SERIES, KENOSHA, WISCONSIN QUADRANGLE



ARCTIC LAUNDRY & CLEANERS 5619 22ND AVE., KENOSHA, WI			
APP. BY:	DRAWN BY: JWH	DRAWING NUMBER	SCALE: SEE ABOVE
	REV.:	2371-001	DATE: 9-23-94
SITE LOCATION MAP			FIGURE 1

22ND AVENUE


57TH STREET



LEGEND

⊕ = GEOPROBE LOCATION

—x— = FENCE LOCATION

ARCTIC LAUNDRY & CLEANERS		 ENVIRONMENTAL SERVICES INC.
5619 22ND AVE., KENOSHA, WI		
DATE: 10-26-94	DR. BY: BEB	DR. # 2371-002
SITE PLAN & GEOPROBE LOCATION MAP		SCALE: 1" = 20'
		FIGURE 2

- Route To:
- Solid Waste
 - Emergency Response
 - Wastewater
 - Superfund
 - Haz. Waste
 - Underground Tanks
 - Water Resources
 - Other

Facility/Project Name Arctic Laundry & Cleaners		License/Permit/Monitoring Number		Boring Number GP-1	
Boring Drilled By (Firm name and name of crew chief) Briohn Environmental Darren Ferguson		Date Drilling Started 08 / 23 / 94 MM DD YY	Date Drilling Completed 08 / 23 / 94 MM DD YY	Drilling Method Geoprobe Boring	
DNR Facility Well No.	WI Unique Well No.	Common Well Name	Final Static Water Level ____ Feet MSL	Surface Elevation ____ Feet MSL	Borehole Diameter 1.00 inches
Boring Location State Plane _____ N, _____ E S SW 1/4 of SW 1/4 of Section 31, T 2 N, R 23 E			Lat _____ ° ' "	Long _____ ° ' "	Local Grid Location (If applicable) <input type="checkbox"/> N <input type="checkbox"/> E <input type="checkbox"/> S <input type="checkbox"/> W
County Kenosha		DNR County Code 30	Civil Town/City/ or Village City of Kenosha		

Sample Number and Type	Length Att. & Recovered (in)	Blow Counts	Depth in Feet	Soil/Rock Description And Geological Origin For Each Major Unit	USCS	Graphic Log	Well Diagram	PID/FID	Soil Properties					RQD/ Comments
									Compressive Strength	Moisture Content	Liquid Limit	Plasticity Index	P 200	
1	7"		1.0	1.0 to 3.0 Silty, CLAY. (Light brown). Moist.	CL				0	M				No Odors.
2	17"		3.0	3.0 to 5.0 Very fine, Silty, SAND. (Light brown). Dry.	SM				0	D				No Odors.
3	15"		5.0	5.0 to 7.0 Same as above. Moist.	SM			44.5		M				No Odors.
4	13"		7.0	7.0 to 9.0 Very fine, Silty, SAND. (Brownish gray). Moist.	SM				0	M				No Odors.
5	6"		9.0	9.0 to 11.0 Very fine, Silty, SAND. (Gray). Very moist to wet. Boring Terminated at 11 ft b.g.s.	SM				0	M/W				No Odors.

I hereby certify that the information on this form is true and correct to the best of my knowledge.

Signature *Stephen Owens*

Firm **Sigma Environmental Services, Inc.**
220 E. Ryan Rd., Oak Creek, WI 53154 (414) 768-7144

This form is authorized by Chapters 144, 147 and 162, Wis. Stats. Completion of this report is mandatory. Penalties: Forfeit not less than \$10 nor more than \$5,000 for each violation. Fined not less than \$10 or more than \$100 or imprisoned not less than 30 days or both for each violation. Each day of continued violation is a separate offense, pursuant to ss 144.99 and 162.06, Wis. Stats.

- Route To:
- Solid Waste
 - Emergency Response
 - Wastewater
 - Superfund
 - Haz. Waste
 - Underground Tanks
 - Water Resources
 - Other _____

Facility/Project Name Arctic Laundry & Cleaners		License/Permit/Monitoring Number	Boring Number GP-2	
Boring Drilled By (Firm name and name of crew chief) Briohn Environmental Dan Rezner		Date Drilling Started 10 / 20 / 95 MM DD YY	Date Drilling Completed 10 / 20 / 95 MM DD YY	Drilling Method Geoprobe Boring
DNR Facility Well No.	WI Unique Well No.	Common Well Name	Final Static Water Level ____ Feet MSL	Surface Elevation ____ Feet MSL
Boring Location State Plane _____ N, _____ E S		Lat _____ ° ' "	Local Grid Location (If applicable) <input type="checkbox"/> N <input type="checkbox"/> E <input type="checkbox"/> SW <input type="checkbox"/> S <input type="checkbox"/> W	
County Kenosha		DNR County Code 30	Civil Town/City/ or Village City of Kenosha	

Sample Number and Type	Length Att. & Recovered (in)	Blow Counts	Depth in Feet	Soil/Rock Description And Geological Origin For Each Major Unit	U S C S	Graphic Log	Well Diagram	PID/FID	Soil Properties					RQD/ Comments
									Compressive Strength	Moisture Content	Liquid Limit	Plasticity Index	P 200	
1	8"		1.0	1.0 to 3.0 Sandy, Silty, CLAY. 2.5Y 6/3 (Light yellowish brown). Dry, medium plasticity.	CL			0		D				No Odors.
2	8"		3.0	3.0 to 5.0 Same as above.	CL			0		D				No Odors.
3	12"		5.0	5.0 to 7.0 Silty, SAND. 2.5Y 5/3 (Light olive brown). Dry, fine grained, poorly sorted.	SM			2.5		D				No Odors.
4	10"		7.0	7.0 to 9.0 0-6" Same as above. 6-7" Silty, CLAY. 2.5Y 5/2 (Grayish brown). Moist.	CL			0.8		M				No Odors.
5	12"		9.0	9.0 to 11.0 Sandy, SILT. 2.5Y 5/2 (Grayish brown). Wet, Fine grained, poorly sorted. Boring Terminated at 11 ft b.g.s.	SM			0.4		W				No Odors.

I hereby certify that the information on this form is true and correct to the best of my knowledge.

Signature *Dan Rezner* Firm **Sigma Environmental Services, Inc.**
220 E. Ryan Rd., Oak Creek, WI 53154 (414) 768-7144

This form is authorized by Chapters 144, 147 and 162, Wis. Stats. Completion of this report is mandatory. Penalties: Forfeit not less than \$10 nor more than \$5,000 for each violation. Fined not less than \$10 or more than \$100 or imprisoned not less than 30 days or both for each violation. Each day of continued violation is a separate offense, pursuant to ss 144.99 and 162.06, Wis. Stats.

Facility/Project Name Arctic Laundry & Cleaners		License/Permit/Monitoring Number		Boring Number GP-3	
Boring Drilled By (Firm name and name of crew chief) Briohn Environmental Dan Rezner		Date Drilling Started <u>10 / 20 / 95</u> MM DD YY	Date Drilling Completed <u>10 / 20 / 95</u> MM DD YY	Drilling Method Geoprobe Boring	
DNR Facility Well No.	WI Unique Well No.	Common Well Name	Final Static Water Level ____ Feet MSL	Surface Elevation ____ Feet MSL	Borehole Diameter 1.00 inches
Boring Location State Plane _____ N, _____ E S SW 1/4 of SW 1/4 of Section 31 , T 2 N, R 23 E			Lat _____ ° _____ ' _____ "	Local Grid Location (If applicable) <input type="checkbox"/> N <input type="checkbox"/> E <input type="checkbox"/> S <input type="checkbox"/> W	
County Kenosha		DNR County Code 30	Civil Town/City/ or Village City of Kenosha		

Sample Number and Type	Length Att. & Recovered (in)	Blow Counts	Depth in Feet	Soil/Rock Description And Geological Origin For Each Major Unit	USCS	Graphic Log	Well Diagram	PID/FID	Soil Properties					RQD/ Comments
									Compressive Strength	Moisture Content	Liquid Limit	Plasticity Index	P 200	
1	14"		1.0	1.0 to 3.0 Silty, CLAY. 2.5Y 3/2 (Very dark grayish brown). Dry, medium plasticity.	CL			0		D				No Odors.
2	14"		3.0	3.0 to 5.0 Silty, SAND. 2.5Y 6/4 (Light yellowish brown). Dry, fine grained, poorly sorted.	SM			0		D				No Odors.
3	16"		5.0	5.0 to 7.0 Silty, SAND. 10YR 5/3 (Brown). Dry.	SM			0		D				No Odors.
4	18"		7.0	7.0 to 9.0 Silty, SAND. 2.5Y 5/2 (Grayish brown). Dry.	SM			0		D				No Odors.
5	-		9.0	9.0 to 11.0 Same as above. Boring Terminated at 11 ft b.g.s.	SM			0		D				No Odors.

I hereby certify that the information on this form is true and correct to the best of my knowledge.
 Signature *Dan Rezner* Firm **Sigma Environmental Services, Inc.**
 220 E. Ryan Rd., Oak Creek, WI 53154 (414) 768-7144

This form is authorized by Chapters 144, 147 and 162, Wis. Stats. Completion of this report is mandatory. Penalties: Forfeit not less than \$10 nor more than \$5,000 for each violation. Fined not less than \$10 or more than \$100 or imprisoned not less than 30 days or both for each violation. Each day of continued violation is a separate offense, pursuant to ss 144.99 and 162.06, Wis. Stats.

Facility/Project Name Arctic Laundry & Cleaners		License/Permit/Monitoring Number		Boring Number GP-4	
Boring Drilled By (Firm name and name of crew chief) Briohn Environmental Dan Rezner		Date Drilling Started 10 / 20 / 95 MM DD YY		Date Drilling Completed 10 / 20 / 95 MM DD YY	
DNR Facility Well No. _____		WI Unique Well No. _____		Common Well Name _____	
Final Static Water Level _____ Feet MSL		Surface Elevation _____ Feet MSL		Borehole Diameter 1.00 inches	
Boring Location State Plane _____ N, _____ E S		Lat _____ ° ' "		Local Grid Location (If applicable) <input type="checkbox"/> N <input type="checkbox"/> E <input type="checkbox"/> SW 1/4 of SW 1/4 of Section <u>31</u> , T <u>2</u> N, R <u>23</u> E Long _____ ° ' "	
County Kenosha		DNR County Code 30		Civil Town/City/ or Village City of Kenosha	

Sample Number and Type	Length Att. & Recovered (in)	Blow Counts	Depth in Feet	Soil/Rock Description And Geological Origin For Each Major Unit	USCS	Graphic Log	Well Diagram	PID/FID	Soil Properties					RQD/ Comments
									Compressive Strength	Moisture Content	Liquid Limit	Plasticity Index	P 200	
1	14"		1.0	1.0 to 3.0 Sandy, GRAVEL. 2.5Y 3/1 (Very dark gray). Dry, fill type soil.	GM				0	D				No Odors.
2	8"		3.0	3.0 to 5.0 Same as above. [wood fragments]	GM				0	D				No Odors.
3	2"		5.0	5.0 to 7.0 Same as above.	GM				0	D				No Odors.
4	8"		7.0	7.0 to 9.0 Silty, Sandy, GRAVEL. 2.5Y 5/2 (Grayish brown). Dry.	GM				0	D				No Odors.
5	-		9.0	9.0 to 11.0 Silty, SAND. 2.5Y 5/2 (Grayish brown). Wet, fine. Boring Terminated at 11 ft b.g.s.	SM				0	W				No Odors.

I hereby certify that the information on this form is true and correct to the best of my knowledge.
 Signature *Jan A. M.* Firm **Sigma Environmental Services, Inc.**
 220 E. Ryan Rd., Oak Creek, WI 53154 (414) 768-7144

This form is authorized by Chapters 144, 147 and 162, Wis. Stats. Completion of this report is mandatory. Penalties: Forfeit not less than \$10 nor more than \$5,000 for each violation. Fined not less than \$10 or more than \$100 or imprisoned not less than 30 days or both for each violation. Each day of continued violation is a separate offense, pursuant to ss 144.99 and 162.06, Wis. Stats.

Facility/Project Name: **Arctic Laundry & Cleaners** License/Permit/Monitoring Number: _____ Boring Number: **GP-5**

Boring Drilled By (Firm name and name of crew chief): **Briohn Environmental Dan Rezner** Date Drilling Started: **10 / 20 / 95** Date Drilling Completed: **10 / 20 / 95** Drilling Method: **Geoprobe Boring**

DNR Facility Well No.: _____ WI Unique Well No.: _____ Common Well Name: _____ Final Static Water Level: _____ Feet MSL Surface Elevation: _____ Feet MSL Borehole Diameter: **1.00** inches

Boring Location: State Plane _____ N, _____ E S Lat _____ ° ' " Local Grid Location (if applicable): N E
 _____ SW 1/4 of _____ SW 1/4 of Section **31**, T **2** N, R **23** E Long _____ ° ' " _____ Feet S _____ Feet W

County: **Kenosha** DNR County Code: **30** Civil Town/City/ or Village: **City of Kenosha**

Sample Number and Type	Length Att. & Recovered (in)	Blow Counts	Depth in Feet	Soil/Rock Description And Geological Origin For Each Major Unit	USCS	Graphic Log	Well Diagram	PID/FID	Soil Properties					ROD/ Comments
									Compressive Strength	Moisture Content	Liquid Limit	Plasticity Index	P 200	
1	14"		1.0	1.0 to 3.0 Silty, CLAY. 2.5Y 6/3 (Light yellowish brown). Dry, medium plasticity, mottling.	CL			0		M				No Odors.
2	24"		3.0	3.0 to 5.0 Silty, CLAY. 2.5Y 5/3 (Light olive brown). Dry, medium plasticity, mottling.	CL			0		M				No Odors.
3	20"		5.0	5.0 to 7.0 Clayey, Silty, SAND. 2.5Y 5/3 (Light olive brown). Dry. [4" silty sand seam at 6.5 ft b.g.s.]	SM			0		D				No Odors.
4	18"		7.0	7.0 to 9.0 Silty, SAND. 2.5Y 5/2 (Grayish brown). Dry.	SM			0		M				No Odors.
5	20"		9.0	9.0 to 11.0 0-6" Sandy, Gravelly, Silty, CLAY. 6-18" Silty, SAND.	SM			0		M				No Odors.
6	18"		11.0	11.0 to 13.0 Same as above.	SM			0		M				No Odors.

I hereby certify that the information on this form is true and correct to the best of my knowledge.

Signature: Firm: **Sigma Environmental Services, Inc.**
 220 E. Ryan Rd., Oak Creek, WI 53154 (414) 768-7144

This form is authorized by Chapters 144, 147 and 162, Wis. Stats. Completion of this report is mandatory. Penalties: Forfeit not less than \$10 nor more than \$5,000 for each violation. Fined not less than \$10 or more than \$100 or imprisoned not less than 30 days or both for each violation. Each day of continued violation is a separate offense, pursuant to ss 144.99 and 162.06, Wis. Stats.


Sample		Blow Counts	Depth in Feet	Soil/Rock Description And Geological Origin For Each Major Unit	USCS	Graphic Log	Well Diagram	PID/FID	Soil Properties					RQD/ Comments
Number and Type	Length Att. & Recovered (in)								Compressive Strength	Moisture Content	Liquid Limit	Plasticity Index	P 200	
7	18"		13.0	13.0 to 15.0 Same as above.	SM			0	M/W				No Odors.	
8	18"		15.0	15.0 to 17.0 Same as above. Boring Terminated at 17 ft b.g.s.	SM			0	M/W				No Odors.	
			17.0											
			18.0											
			19.0											
			20.0											
			21.0											
			22.0											
			23.0											
			24.0											
			25.0											
			26.0											
			27.0											
			28.0											
			29.0											
			30.0											
			31.0											
			32.0											

Facility/Project Name Arctic Laundry & Cleaners		License/Permit/Monitoring Number	Boring Number GP-6
Boring Drilled By (Firm name and name of crew chief) Briohn Environmental Dan Rezner		Date Drilling Started <u>10 / 20 / 95</u> MM DD YY	Date Drilling Completed <u>10 / 20 / 95</u> MM DD YY
DNR Facility Well No.	WI Unique Well No.	Common Well Name	Drilling Method Geoprobe Boring
		Final Static Water Level ____ Feet MSL	Surface Elevation ____ Feet MSL
Boring Location State Plane _____ N, _____ E S		Lat _____ ° ' "	Local Grid Location (If applicable) <input type="checkbox"/> N <input type="checkbox"/> E <input type="checkbox"/> S <input type="checkbox"/> W
SW 1/4 of SW 1/4 of Section <u>31</u> , T <u>2</u> N, R <u>23</u> E		Long _____ ° ' "	Feet _____ Feet _____
County Kenosha		DNR County Code 30	Civil Town/City/ or Village City of Kenosha

Sample Number and Type	Length Att. & Recovered (in)	Blow Counts	Depth in Feet	Soil/Rock Description And Geological Origin For Each Major Unit	USCS	Graphic Log	Well Diagram	PID/FID	Soil Properties					RQD/ Comments
									Compressive Strength	Moisture Content	Liquid Limit	Plasticity Index	P 200	
1	24"		1.0	1.0 to 3.0 0-12" Gravelly, Silty, CLAY. 2.5Y 5/3 (Light olive brown). Dry. 12-24" Silty, SAND.	SM			0		D				No Odors.
2	20"		3.0	3.0 to 5.0 Silty, CLAY. 2.5Y 5/3 (Light olive brown). Dry, low plasticity, mottling.	CL			0		D				No Odors.
3	24"		5.0	5.0 to 7.0 0-12" Same as above. 12-24" Silty, SAND. 2.5Y 5/3 (Light olive brown). Dry.	SM			0		D				No Odors.
4	20"		7.0	7.0 to 9.0 Silty, SAND. 2.5Y 5/2 (Grayish brown). Dry.	SM			0		M				No Odors.
5	14"		9.0	9.0 to 11.0 Same as above.	SM			0		M				No Odors.
6	18"		11.0	11.0 to 13.0 Same as above.	SM			0		M				No Odors.

I hereby certify that the information on this form is true and correct to the best of my knowledge.
 Signature *Joseph A. M...* Firm **Sigma Environmental Services, Inc.**
 220 E. Ryan Rd., Oak Creek, WI 53154 (414) 768-7144

This form is authorized by Chapters 144, 147 and 162, Wis. Stats. Completion of this report is mandatory. Penalties: Forfeit not less than \$10 nor more than \$5,000 for each violation. Fined not less than \$10 or more than \$100 or imprisoned not less than 30 days or both for each violation. Each day of continued violation is a separate offense, pursuant to ss 144.99 and 162.06, Wis. Stats.

Sample		Blow Counts	Depth in Feet	Soil/Rock Description And Geological Origin For Each Major Unit	USCS	Graphic Log	Well Diagram	PID/FID	Soil Properties					RQD/ Comments
Number and Type	Length Att. & Recovered (in)								Compressive Strength	Moisture Content	Liquid Limit	Plasticity Index	P 200	
7	24"		13.0 14.0 15.0 16.0 17.0 18.0 19.0 20.0 21.0 22.0 23.0 24.0 25.0 26.0 27.0 28.0 29.0 30.0 31.0 32.0	13.0 to 15.0 Same as above. Boring Terminated at 15 ft b.g.s.	SM			0	W				No Odors.	