

Soil Investigation

for the

City of Appleton at

Second Street Appleton, WI

Outagamie County

July 7, 2000

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PROJECT N1624B00

TO Gary Edelstein - RR/3 SUBJECT Soil Investigation in second St., N.W. Mauthe MESSAGE The City of Appleton hired Omni Engineus to do a soil boring investigation in second St @ Mauthe. They plan to do utility upgrade nex ear. I wanted you to have a copy of report for your files, The soils samples I not show contamination, F Thanks, signed Sennber Huffman DATE 7/20 RFPI Y

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EXECUTIVE SUMMARY

OMNNI has performed a limited subsurface investigation within Second Street, between Douglas Street and Outagamie Street, in the City of Appleton, Wisconsin. The purpose of the investigation was to determine if contamination from the N.W. Mauthe Superfund site, located adjacent to Second Street, had impacted the subsurface in the street. The City of Appleton is planning some utility work in the area for 2001 and is preparing for the possibility for dealing with chromium contaminated soil.

The N.W. Mauthe site was investigated in the early 1990's. Chromium contamination was found on site and the plume moved to the south toward Second Street.

Investigation activities, completed on May 9, 2000, consisted of performing a total of six soil borings (B1 – B6) in the street right-of-way. The borings were performed with a geoprobe.

This report summarizes the results of the investigation.

Analytical test results indicated that the metals detected in the soil were consistent with background levels found in Wisconsin soil.

OMNNI recommends no further action.

INTRODUCTION/BACKGROUND

A subsurface investigation was performed at the N.W. Mauthe site in 1992. Some borings were performed in Second Street as a part of the investigation. According to a report by CH2M Hill, some green discoloration was found in the soil while drilling boring W8. The investigation revealed background levels of metals in the soil and no contamination above standards in the groundwater. The groundwater collection trench used to help remediate the site is located on the north side of Second Street.

OMNNI was contracted by the City of Appleton to perform an investigation in Second Street. The City plans utility work in the street in 2001, and is planning for the possibility that contaminated soil and/or groundwater may be encountered during the work. A new water main and storm sewer is planned for Second Street.

The site is located in the SE 1/4 of the NW 1/4 of Section 34, T21N, R17E, City of Appleton, Outagamie County, Wisconsin. (See Figure 1 - Site Location Map, Appendix A.)

A total of six soil borings were performed in the street on May 9, 2000. (See Figure 2 - Site Detail Map, Appendix A.)

The site is serviced by City sewer and water.

The following are the primary contacts for the project:

Owner:	City of Appleton, 100 N. Appleton Street, Appleton, WI, 54914; (920) 832-5915. Contact: Mr. Don Wydeven.
Consultant:	OMNNI Associates, One Systems Drive, Appleton, WI 54914; (920) 735-6900. Contact: Mr. Dave Fries.

Driller: B.E.S.T. Geoprobing, P.O. Box 12494, Green Bay, WI 54307-2494; 1-800-326-1889. Contact: Mr. Claude Dauphinais.

Laboratory:U.S. Analytical Laboratory, 1090 Kennedy Avenue, Kimberly, WI 54136;
(920) 735-8295. Contact: Mr. Chris Zabel.

GEOLOGY AND HYDROGEOLOGY

Surficial deposits in the vicinity of the site consist of sediment deposited during the Wisconsin Glaciation. According to United States Geological Survey maps (<u>Water Resources of Wisconsin - Fox-Wolf River</u> <u>Basin</u>, by Perry Olcott, 1968), glacial lake deposits consisting of silt and clay cover the site area. These soils appear to thicken in the immediate vicinity of the Fox River.

In general, subsurface materials encountered during drilling activities consisted of red-brown clay from the surface to a depth of approximately 10 feet, the depth of the borings.

The glacial deposits overlie dolomites of the Ordovician-aged Platteville Formation, Decorah Formation, and Galena Dolomite. Bedrock was not encountered during the investigation. According to the above-referenced geologic maps, the dolomite bedrock is as much as 100 feet deep in the vicinity of the site.

Topography on-site is generally flat. Off-site, it slopes gently downward to the southeast. Based on topography and the site investigation performed at the N.W. Mauthe site, the local groundwater movement is expected to be to the south - southeast. The water table on-site is shallow (less than 10 feet). Both groundwater depth and flow direction may vary due to seasonal variations, variations in soil stratigraphy, and underground structures (e.g., sewers).

FIELD ACTIVITIES

SOIL BORINGS

Soil boring activities were performed on May 9, 2000. A total of six soil borings were installed in Second Street to determine if contamination existed in the soil. Because contamination was not found in the groundwater in the area of interest, groundwater was not tested as part of this investigation.

Borings were installed to depths of 10 feet. (See DNR Forms, Appendix C, for specific information on boring construction.) All of the soil borings were properly abandoned per NR 141. (See DNR Forms, Appendix C.)

Soil samples were obtained continuously at 2.0-foot intervals for field inspection. At each sampling interval, a representative portion of the soil was also collected for possible laboratory analysis. (See Handbook of Field Procedures, Appendix D.) A single soil sample was chosen from each boring for laboratory analysis based on visual observations.

FIELD AND ANALYTICAL RESULTS

SOIL

Results of inspection of soils showed no green or yellow discoloration for all soil samples observed. All samples collected for laboratory analysis were tested for Resource Conservation and Recovery Act (RCRA) metals.

Results of analytical testing on soil samples collected during drilling activities showed levels of metals typical of background in the State of Wisconsin. (See Table 1 - Summary of Laboratory Analysis, Soil Boring Samples, Appendix B, and Laboratory Results and Chain of Custody Documentation, Appendix E.)

ANALYSIS OF DEGREE AND EXTENT OF CONTAMINATION

The investigation carried out in Second Street in the City of Appleton, WI did not identify any metals contamination above levels typically found in Wisconsin soil. Groundwater monitoring performed by CH2M Hill does not reveal any contamination in the groundwater in wells near Second Street (W8 and MW105).

CONCLUSIONS/RECOMMENDATIONS

Based on the investigation, the City should not expect to find contamination in Second Street between Douglas Street and Outagamie Street when doing utility work in 2001.

OMNNI recommends no further action at the site.

STANDARD OF CARE

The conclusions presented in this investigation were arrived at using generally accepted hydrogeologic and engineering practices. The conclusions presented herein represent our professional opinions, based on the data collected at the time of the investigation, at the specific boring and sampling locations discussed in this report. Conditions at other locations on the property may be different than described in this investigation. The scope of this report is limited to the specific project and location described herein.

Dave Fries Hydrogeologist

Reviewed By:

Prepared By:

Don Brittnacher Environmental Engineer

"I, Dave Fries, hereby certify that I am a hydrogeologist as that term is defined in s. NR 712.03 (1), Wis. Adm. Code, and that, to the best of my knowledge, all of the information contained in this document is correct and the document was prepared in compliance with all applicable requirements in chs. NR 700 to 726, Wis. Adm. Code."

CONS FRIES G-192 ິທ Ű (Professional Geologist) ber Ô GEO STONAL

"I, Don Brittnacher, hereby certify that I am a registered professional engineer in the State of Wisconsin, registered in accordance with requirements of ch. A-E 4, Wis. Adm. Code; that this document has been prepared in accordance with the Rules of Professional Conduct in ch. A-E 8, Wis. Adm. Code; and that, to the best of my knowledge, all information contained in this document is correct and the document was prepared in compliance with all applicable requirements in chs. NR 700 to 726, Wis. Adm.

Inac

(Professional Engineer)

DISTRIBUTION:

Mr. Don Wydeven City of Appleton 100 N. Appleton Street Appleton, WI 54914

Ms. Jennifer Huffman DNR – Appleton Field Station 3369 W. Brewster Street Appleton, WI 54914



APPENDIX A

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FIGURES

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DRAWN BY:	DLD	SCALE:	1" = 40
REVIEWED BY:		DATE:	4/20/00

APPENDIX B

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TABLES

N1624B00 CITY OF APPLETON - SECOND STREET

TABLE 1 SUMMARY OF LABORATORY ANALYSIS SOIL BORING SAMPLES MAY 9, 2000

B5-3 PARAMETER STANDARD **B1-3 B2-4 B3-5 B4-4 B6-3** 1.5 6.0 - 8.0 SAMPLE DEPTH 4.0 - 6.0 8.0 - 10.0 6.0 - 8.0 4.0 - 6.0 4.0 - 6.0 SAMPLE DATE 5/9/00 5/9/00 5/9/00 5/9/00 5/9/00 5/9/00 DETECTED RCRA METALS (mg/kg) ARSENIC 5.0* <2.8 <2.8 <2.8 <2.8 <2.8 <2.8 BARIUM 100* 35 56 20 47 62 53 CADMIUM 1.0* <1.2 <1.2 <1.2 <1.2 <1.2 <1.2 CHROMIUM 5.0* 12 17 8.2 17 13 14 LEAD 5.0* <6 <6 <6 <6 <6 <6 0.2* MERCURY < 0.03 < 0.03 < 0.03 < 0.03 < 0.03 < 0.03 SELENIUM 1.0* <4.9 <4.9 <4.9 <4.9 <4.9 <4.9 SILVER 5.0* <3 <3 <3 <3 <3 <3

*The regulatory levels for the metals are based on TCLP method 1311. Total metals analysis was performed on the samples. The total:TCLP ratio is 20:1

F:VENVIRON1624B/TABLES/SOIL

APPENDIX C

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DNR FORMS

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Form 4400-122	Rev. 7-98

Route To:

Watershed/Wastewater

Waste Management
Other

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

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Signature	I	

Firm OMNNI Associates, Inc.

One Systems Drive Appleton, WI 54914-1654

Tel: (920) 735-6900 Fax: (920) 830-6100

This form is authorized by Chapters 281, 283, 289, 291, 292, 293, 295, and 299, Wis. Stats. Completion of this form is mandatory. Failure to file this form may result in forfeiture of between \$10 and \$25,000, or imprisonment for up to one year, depending on the program and conduct involved. Personally identifiable information on this form is not intended to be be used for any other purpose. NOTE: See instructions for more information, including where the completed form should be sent.

SOIL BORING LOG INFORMATION

Rev. 7-98

Form 4400-122

Route To: W

Watershed/Wastewater

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 Firm
 OMNNI Associates, Inc.
 Tel: (920) 735-6900

 One Systems Drive Appleton, WI 54914-1654
 Fax: (920) 830-6100

This form is authorized by Chapters $\frac{1}{281}$, 283, 289, 291, 292, 293, 295, and 299, Wis. Stats. Completion of this form is mandatory. Failure to file this form may result in forfeiture of between \$10 and \$25,000, or imprisonment for up to one year, depending on the program and conduct involved. Personally identifiable information on this form is not intended to be be used for any other purpose. NOTE: See instructions for more information, including where the completed form should be sent.

SOIL BORING LOG INFORMATION Rev. 7-98

Form 4400-122

Route To:

Watershed/Wastewater Remediation/Redevelopment Waste Management

Other 🗌

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Signature ave

Firm OMNNI Associates, Inc. Tel: (920) 735-6900 One Systems Drive Appleton, WI 54914-1654 Fax: (920) 830-6100

This form is authorized by Chapters 281, 283, 289, 291, 292, 293, 295, and 299, Wis. Stats. Completion of this form is mandatory. Failure to file this form may result in forfeiture of between \$10 and \$25,000, or imprisonment for up to one year, depending on the program and conduct involved. Personally identifiable information on this form is not intended to be be used for any other purpose. NOTE: See instructions for more information, including where the completed form should be sent.

SOIL BORING LOG INFORMATION

Rev. 7-98

Form 4400-122

Route To:

Watershed/Wastewater Remediation/Redevelopment Waste Management

Other 🗌

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Signature

Firm

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OMNNI Associates, Inc. One Systems Drive Appleton, WI 54914-1654

Tel: (920) 735-6900 Fax: (920) 830-6100

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SOIL BORING LOG INFORMATION Rev. 7-98

Form 4400-122

Route To:

Watershed/Wastewater Remediation/Redevelopment Waste Management Other []

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SE	1/4	of N	W 1	/4 of Sectio	on 34,	<u>T 21 N, R 17 E</u>	Lo	ng	<u> </u>	<u>'</u>	<u> </u>	Feet 🗆 S			_	Feet 🗌 W	
Facilit	y ID				ounty		County C	Code	Civil	fown/C leton	ity/ or	Village					
Sar	mle		1	0			43	T	App		<u> </u>	<u> </u>	Soil	Prop	erties		T
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1	24		5	Gravel								<u> </u>	M/W				10:32
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			E	Clay at tip - no discoloration				1		1		1					
2	24		$\frac{1}{2}$	Red bro	own clay w/	gravel				1			М				10:33
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3 LS	24			Brown	clay w/brig	ht red discoloratio	n		-				M/W				10:37
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		that t	1	mation cr	this form is t	ue and correct to the l	est of my	knowle	l	I							l

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

Signature we A	Firm OMNNI Associates, Inc. One Systems Drive Appleton, WI 54914-1654	Tel: (920) 735-6900 Fax: (920) 830-6100

This form is authorized by Chapters 281, 283, 289, 291, 292, 293, 295, and 299, Wis. Stats. Completion of this form is mandatory. Failure to file this form may result in forfeiture of between \$10 and \$25,000, or imprisonment for up to one year, depending on the program and conduct involved. Personally identifiable information on this form is not intended to be be used for any other purpose. NOTE: See instructions for more information, including where the completed form should be sent.

<u>Route To:</u>

Watershed/Wastewater

Waste Management

Other 🗌

			<u>.</u>											<u>, </u>	Pa	ge 1	of	1
Facili	ty/Proje	ct Nam	ne C	000010	traat			License	License/Permit/Monitoring Number Boring Number									
Borin	y or Al g Drilleo	d By: 1	Name of	f crew ch	ucci hief (first, last) a	and Firm		Date Dr	rilling S	tarted		Da	ate Drill	illing Completed Drilling N			ling Method	
	-	-			,													
BE	ST Dr	illing	& Geo	oprobin	lg	Common V	Vall Nama	5/9/2000				5/9/2000				geoprobe		
WI ONQUE WEN NO. DIAK WEN ID NO. COmmon wen Name				ven ivanie	r litat St	Feet	MSL	vei	Surra	E Eleva Fe	et MSL 2.0 inches) inches				
Local	Grid O	rigin	(es	stimated:) or Bo	ring Location	1 🛛	 ,		•	,		Local	Grid Lo	ocation			
State	Plane	• • •			N,	E s/c	C/N		at				<u>и</u> П			1		E
SE 1/4 of NW 1/4 of Section 34, 1/21 N, R 1/E Long								Feet W										
Outagamie 45 Appleton																		
Sa	mple								Γ					Soi	l Prop	erties		
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			E	Brow	vn clay w/gra	vel at tip					1							
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3 LS	24			Red-1	brown clay w	/no discolo	oration				1			м	ł		I	11:04
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I herel	by certif	y that 1	the infor	rmation of	on this form is t	rue and corre	ect to the be	est of my l	knowle	dge.							<u> </u>	
Signat			Zavi	-7	2 7	F	Ome	NNI As Systems I	sociat Drive A	es, Inc	C. n. WI 5	4914-1	654			1	Tel: (9 Fax: (9	20) 735-6900 20) 830-6100
				$\overline{\mathcal{V}}$						17.500	<u>,</u>	<u> </u>				<u>^</u>	<u> </u>	
result	in forfei	umoriz ture of	between	napters n \$10 an	201, 203, 289, 1d \$25.000. or i	291, 292, 29. mprisonment	5, 295, and t for up to c	n 299, wis one year, d	lependi	comp ng on t	he prog	i unis t ram an	d condu	nandat act invo	ory. Fe olved. H	nure to Persona	nie th llv ider	is form may

result in forfeiture of between \$10 and \$25,000, or imprisonment for up to one year, depending on the program and conduct involved. Personally identifiable information on this form is not intended to be be used for any other purpose. NOTE: See instructions for more information, including where the completed form should be sent.

Il abandonment work shall be performed in accordance with the provisions of Chapters NR 811, NR 812 or 141, Wis. Admin. Code, whichever is applicable.

(1) GENERAL INFORMATION		(2) FACIL	TY NAME	City of Appleto	n - Second S	treet
Well/Drillhole/Borehole County		Original W	ell Owner (If I	Known)		
Location Outagamie						
		Present We	ll Owner			
SE 1/4 of NW 1/4 of Sec 34 · T 21	$N R 17 \square W$	City of	Appleton			
(If Applicable)		Street or Re	oute			
Govit Lot	Grid Number	100 N	Annleton S	treet		
Grid Location		City, State,	Zip Code			
	e 🗋 e 🗋 w	Annleta	w WI 549	12		
Civil Town Name		Facility We	11 No. and/or 1	Name (If Applicab	ole)	WI Unique Well No.
		D1		······ (+		
Street Address of Well		Reason For	Abandonmen			
		Ear and				
City Village		Dete of Ab	sampling o			
A malatan		5/0/00				
Appleton	· <u> </u>	5/9/00				
WELDDRILLHOLE/BOREHOLE INFORMATION		La Dat				
(3) Original Well/Drillhole/Borehole Construction Cor	npleted On	(4) Depth t	o Water (Feet)	. .	
(Date)5/9/00		Pump &	& Piping Remo	oved? UY	es 🗌 No	Not Applicable
		Liner(s)) Removed?	L Y	'es ∐ No	Not Applicable
Monitoring Well Construction	n Report Available?	Screen	Removed?	Ц	'es ∐ No	Not Applicable
U Water Well	es 🖾 No	Casing	Left in Place?	LIY	'es ∐ No	
Drillhole		If No, E	xplain			
Borehole						
		Was Ca	sing Cut Off I	Below Surface?	Yes Yes	5 🖾 No
Construction Type:		Did Sea	ling Material	Rise to Surface?	🛛 Yes	5 🗌 No
Drilled Driven (Sandpoint)	🗖 Dug	Did Ma	terial Settle A	fter 24 Hours?	🗌 Yes	s 🖾 No
Other (Specify) Geoprobe		If Yes,	Was Hole Rete	opped?	🗌 Yes	5 🗌 No
		(5) Paguira	d Mathad of F	laoing Sealing M	atorial	
Formation Type:			ductor Dino		Conductor D	ing Dummad
Unconsolidated Formation	edrock		auctor Pipe -		Other (Evel)	ipe - Fumped
10.0					Other (Expla	
Total Well Depth (ft) Casing Diam	eter (in.)	(6) Sealing	Materials		For moni	toring wells and
(From ground surface) Casing Dept	ı (ft.)		t Cement Gro	ut	monitorin	ig well boreholes only
			d-Cement (Co	oncrete) Grout		
Lower Drillhole Diameter (in.)			ncrete		Bento	nite Pellets
		Cla	y-Sand Slurry		🗌 Granu	ılar Bentonite
Was Well Annular Space Grouted?	📙 No 📙 Unknown	Ber	tonite-Sand S	lurry	Bento:	nite-Cement Grout
If Yes, To What Depth?	Feet	🗌 Сћі	pped Bentonit	e	I	
_(7)						
Sealing Material Used		From (Ft.)	To (Ft.)	(Mix Ra	tio or Mud Weight
Asphalt		Surface	1.0			
		Suilace	1.0			
Bentonite		1.0	10.0			
· · · · · · · · · · · · · · · · · · ·	,					
	<u></u>	<u> </u>				
(8) Comments			÷			<u> </u>
(9) Name of Person or Firm Doing Sealing Work		(10)	FC	R DNR OR COL	NTY USE C	NLY
BEST/OMNNI Associates		Date	Ceceived/Insne	scted	District	County
Signature of Person Dring Work	Date Signed					×
	6/28/22	Revie	vet/Inspector			omniking Most
Street or Route	Telephone Number				H,	Innconvolume West
	020 725 4000	122112	tun Merstroo			oucondian R. work
City State Zin Code	720-133-0700		uh tieressai	2		
Ampleten XII 54014						
ADDICION, WI 34914		1				

All abandonment work shall be performed in accordance with the provisions of Chapters NR 811, NR 812 or 141, Wis. Admin. Code, whichever is applicable.

(1) GENERAL INFORMATION	(2) FACIL	TY NAME	City of Appleto	on - Second Street
Well/Drillhole/Borehole County	Original W	ell Owner (If]	Known)	
Location Outagamie	_			
<u> </u>	Present We	ll Owner		
SE $\frac{1}{4}$ of $\frac{NW}{1}$ $\frac{1}{4}$ of Sec. $\frac{34}{5}$; T. $\frac{21}{21}$ N; R. $\frac{17}{10}$ W	City of	Appleton		
(If Applicable)	Street or R	oute		
Gov't Lot Grid Number	100 N.	Appleton S	treet	
Grid Location	City, State,	Zip Code		
<u>f.</u> □ N. □ S., <u>f.</u> □ E. □ W.	Appleto	on, WI 549	12	
Civil Town Name	Facility We	ll No. and/or l	Name (If Applicat	ble) WI Unique Well No.
	B2			
Street Address of Well	Reason For	Abandonmen	it	
2nd Street	For soi	l sampling o	only	
City, Village	Date of Ab	andonment		
Appleton	5/9/00			
WELL/DRILLHOLE/BOREHOLE INFORMATION				
(3) Original Well/Drillhole/Borehole Construction Completed On	(4) Depth 1	o Water (Feet)	
(Date) 5/9/00	Pump &	& Piping Remo	oved? 🗌 Y	es 🗌 No 🖾 Not Applicable
	Liner(s) Removed?	🗆 Y	es 🗌 No 🖾 Not Applicable
Monitoring Well Construction Report Available?	Screen	Removed?	□ Y	es 🗌 No 🖾 Not Applicable
Water Well Yes No	Casing	Left in Place?	[] Y	Tes 🗌 No
Drillhole	If No, I	Explain		
Borehole		<u> </u>		
	Was Ca	ising Cut Off I	Below Surface?	🗌 Yes 🖾 No
Construction Type:	Did Sea	ling Material	Rise to Surface?	🛛 Yes 🔲 No
Drilled Driven (Sandpoint) Dug	Did Ma	terial Settle A	fter 24 Hours?	🗌 Yes 🖾 No
Other (Specify) Geoprobe	If Yes,	Was Hole Ret	opped?	🗌 Yes 🗌 No
	(5) Beguire	d Mathad of I	lacing Sealing M	aterial
Formation Type:		duatas Dina		Conductor Ding Dumped
Unconsolidated Formation Bedrock		nductor Pipe -		Other (Eveloin) Grouity
				Ouler (Explain) Gravity
Total Well Depth (ft) <u>10.0</u> Casing Diameter (m.)	(6) Sealing	Materials		For monitoring wells and
(From ground surface) Casing Depth (ft.)		at Cement Gro	out	monitoring well boreholes only
		id-Cement (Co	oncrete) Grout	
Lower Drilliole Diameter (in.)		ncrete		Bentonite Pellets
		y-Sand Slurry		Granular Bentonite
If Vec. To What Depth?		itonite-Sand S	lurry	Bentonite-Cement Grout
		pped Bentonn		
(7) Sealing Material Used	From (Ft)	To (Et)		Mix Ratio or Mud Weight
	riom(rc)			
• A anhalt	Surface	1.0		
	Surface	1.0		
Bentonite	10	10.0		
	1.0	10.0		
	1			
		·		
	1			
	<u> </u>			l
(8) Comments				
	199998			
(9) Name of Person or Firm Doing Sealing Work	(10)	R	JK DNR OR COL	INIY USE ONLY
BEST/OMNNI Associates	Date	cecerved/Inspo	scted	District/County
bignature of t'erson Loing work Date Signed				
6/28/00	Revie	wet/Inspector		Complying Work
Street or Koute V Telephone Number				Noncomplying Work
One Systems Drive 920-735-6900	Follow	v-up Necessar	9	
	1 100000			
City, State, Zip Code].			

All abandonment work shall be performed in accordance with the provisions of Chapters NR 811, NR 812 or 141, Wis. Admin. Code, whichever is applicable.

(1) GENERAL INFORMATION		(2) FACIL	ITY NAME	City of Appleto	on - Second S	treet
Well/Drillhole/Borehole County		Original W	ell Owner (If	Known)		<u> </u>
Location						
		Present We	ll Owner		·······	· · · · · · · · · · · · · · · · · · ·
SE 1/4 of NW 1/4 of Sec 34 · T 21	NR 17 \square W	City of	Annleton			
(If Applicable)		Street or R	oute			
Gov't Lot	Grid Number	100 N	Annleton S	treet		
Grid Location		City, State,	Zip Code			
	e 🗆 r 🗆 w	Annlet	wn WI 540	12		
Civil Town Name		Facility We	11 No. and/or	Name (If Applical	ble)	WI Unique Well No
		D2		····· (
Street Address of Well		Reason For	Abandonmen			
		Remark				
		FOI SOL	sampling c		<u> </u>	
		E CO (00	andonment			
Appleton		5/9/00		· <u> </u>		
WELD/DRILLHOLE/BOREHOLE INFORMATION		Los D. d.				
(3) Original Well/Drillhole/Borehole Construction Co	mpleted On	(4) Depth t	o Water (Feet)		
(Date)5/9/00		Pump &	k Piping Remo	oved? LY	les ∐ No	Not Applicable
		Liner(s) Removed?	<u>ц</u>	les 🗌 No	Not Applicable
Monitoring Well Constructi	on Report Available?	Screen	Removed?	ЦĬ	les ∐ No	Not Applicable
Water Well	Yes 🖾 No	Casing	Left in Place?	L' 1	ζes ∐ No	
Drillhole		If No, E	xplain		···	
Borehole						
		Was Ca	sing Cut Off I	Below Surface?	🗌 Yes	🛛 Ňo
Construction Type:		Did Sea	ling Material	Rise to Surface?	🛛 Yes	
Drilled Driven (Sandpoint)	Dug	Did Ma	terial Settle A	fter 24 Hours?	🗌 Yes	No No
Other (Specify) Geoprobe		If Yes.	Was Hole Ret	onned?	T Yes	
Formation Type		(5) Require	d Method of I	lacing Sealing M	aterial	
Villacourselideted Formation	Dadaaala		nductor Pipe -	Gravity	Conductor P	ipe - Pumped
Unconsolidated Formation	Bearock		mp Bailer	\bowtie	Other (Expla	in) Gravity
Total Well Depth (ft) <u>10.0</u> Casing Dia	meter (in.)	(6) Sealing	Materials		For monit	oring wells and
(From ground surface) Casing Dep	th (ft.)		t Cement Gro	ut	monitorin	g well boreholes only
			d-Cement (Co	ncrete) Grout		6 ·····,
Lower Drillhole Diameter (in.)			ncrete	,	Bentor	nite Pellets
			v-Sand Shurry			lar Bentonite
Was Well Annular Space Grouted?			tonite-Send S	luces		aite-Coment Grout
If Yes, To What Depth?	Feet		nonic-Salid S	lully		me-Cement Olout
				e 		
(7) Sealing Material Used		From (Ft)	To (Ft.)		Mix Rat	tio or Mud Weight
			10 (1 4)			
A cmbalt		Surface	1.0			
		Surface	1.0			
Dentenite		1 10	10.0			
		1.0	10.0			
(8) Comments						
(9) Name of Person or Firm Doing Sealing Work		(10)	FC	DR DNR OR COL	INTY USE O	NLY
BEST/OMNNI Associates		Date	Ceccived/Inspe	icted	District	County
Signature of Person Doing Work	Date Signed	1				
L Dave L	6/28/00	Revie	vet/Inspector		∧	omplying Work
Street or Route	Telephone Number					ancontalvine Work
One Systems Drive	920-735-6900	Rallas	Aup Necessar	Ŷ	<u></u>	
City State Zin Code	1 220-733-0200	-	- P. P. Land Co.	K		
Ampleten WIL 64014						
ADDICION. WI 34914		1				

State of Wisconsin
Department of Natural Resources

Il abandonment work shall be performed in accordance with the provisions of Chapters NR 811, NR 812 or 141, Wis. Admin. Code, whichever is applicable.

(1) GENERAL INFORMATION		(2) FACIL	TY NAME	City of Appleto	on - Second Street
Well/Drillhole/Borehole County		Original W	ell Owner (If]	Known)	
Location Outagamie					
	×Е	Present We	ll Owner		
<u>SE</u> $\frac{1}{4}$ of <u>NW</u> $\frac{1}{4}$ of Sec. <u>34</u> ; T. <u>21</u>	$N; R = \frac{17}{0} w$	City of	Appleton		
(If Applicable)		Street or Re	oute		
Gov't Lot	Grid Number	100 N	Appleton S	treet	
Grid Location		City, State,	Zip Code		
A L N L S	θГгПw	Annleto	m WI 549	12	
Civil Town Name		Facility We	Il No. and/or	Name (If Applicat	ble) WI Unique Well No.
-		B4			
Street Address of Well		Reason For	Abandonmen		
		Eseresi		··· 1	
City Village		For sol	sampling c		
City, v mage		Date of Au	andonment		
Appleton	·	5/9/00			
WELL/DRILLHOLE/BOREHOLE INFORMATION	<u></u>	· · · · · · · · · · · · · · · · · · ·		· -	
(3) Original Well/Drillhole/Borehole Construction Co	ompleted On	(4) Depth t	o Water (Feet)	- -
(Date) $5/9/00$		Pump &	2 Piping Remo	oved? 📙 Y	es 📙 No 🖾 Not Applicable
		Liner(s)	Removed?	<u>Ц</u> Ү	es 📙 No 🛛 Not Applicable
Monitoring Well Construction	on Report Available?	Screen	Removed?	🗌 Y	es 🗌 No 🖾 Not Applicable
Water Well	Yes 🛛 No	Casing	Left in Place?	C Y	Tes 🔲 No
Drillhole		If No, E	xplain		
Borehole			·		
		Was Ca	sing Cut Off I	Below Surface?	\square Ves \boxtimes No
Construction Type:		Did See	ling Material	Dice to Surface?	
		Did Sea	torial Sattle A	How 24 Univer	\square Yes \square No
Sandpoint)			We a Hele Det		
Other (Specify)		If Yes,	was Hole Ret	opped?	
		(5) Require	d Method of H	Placing Sealing Ma	aterial
Formation Type:			ductor Pipe -	Gravity	Conductor Pipe - Pumped
Unconsolidated Formation	Bedrock		np Bailer		Other (Explain) Gravity
Total Well Depth (A) 10.0 Casing Dia	meter (in)	(6) Seeling	Matarials		For monitoring wells and
(From ground surface) Casing Den	th (ft)		t Comont Coo		
	ui (12)				monitoring wen obrenoies only
Louver Drillholo Diameter (in)			a-Cement (Co	increte) Grout	
			icrete		Bentonite Pellets
			y-Sand Slurry		Granular Bentonite
Was well Annular Space Grouted?			tonite-Sand S	lurry	Bentonite-Cement Grout
	Feet		pped Bentonit	e	·
(7)	·····			I — —	
Sealing Material Used		From (Ft.)	To (Ft.)		Mix Ratio or Mud Weight
Asphalt		Surface	1.0		
Bentonite		1.0	10.0		
<u> </u>		<u> </u>			
		1			
-	<u></u>				
(8) Comments				·	
(9) Name of Person or Firm Doing Sealing Work		(10)	R	DR DNR OR COL	INTY USE ONLY
BEST/OMNNI Associates		Date I	Received/Inspe	scted	District/County
Signature of Person Doing Work	Date Signed	1			· · · · · · · · · · · · · · · · · · ·
C DAILY)	6/28700	Revie	vet/Inspector		C Completere Virtual
Street or Route	Telephone Number				
One Sustame Drive	020 735 6000	Panas	un Merstone	¢.	
City State Zin Code	920-733-0300	12:0110.4	-up presessor	7	
Annieton WI 54914		1			

DNR/COUNTY

All abandonment work shall be performed in accordance with the provisions of Chapters NR 811, NR 812 or 141, Wis. Admin. Code, whichever is applicable.

(1) GENERAL INFORMATION		(2) FACIL	TY NAME	City of Applet	on - Second	Street
Well/Drillhole/Borehole C	ounty	Original W	ell Owner (If	Known)		
Location	Outagamie					
• SE 1/4 of NW 1/4 of Sec. 34	T 21 N R 17 \square W	Present We	Appleton			
(If Applicable)		Street or Re	oute			
Grid Location Gov't Lot	Grid Number	<u>100 N.</u> City, State,	Appleton S Zip Code	treet		
ft. 🗆 N. 🗆 S.,	f. 🗆 E. 🗆 W.	Appleto	on, WI 549	12		
Civil Town Name		Facility We	ll No. and/or 1	Name (If Applica	ble)	WI Unique Well No.
Street Address of Well		Reason For	Abandonmen	ıt		
2nd Street		For soil	sampling o	only		
City, Village		Date of Ab	andonment			
Appleton		5/9/00				
WELL/DRILLHOLE/BOREHOLE INFO	DRMATION	T.				
(3) Original Well/Drillhole/Borehole C	onstruction Completed On	(4) Depth t	o Water (Feet)		
(Date) $-5/7/6$	٥	Pump &	2 Piping Remo	oved?	Yes LINC	Not Applicable
	Construction Report Assolith1-2	Liner(s) Removed?	Ц Ц	$\frac{1}{2} \frac{1}{2} \frac{1}$	Not Applicable
Water Wall	Construction Report Available?	Casing	Kemoveu? Loft in Place?	E.	V_{00} \square No	
	☐ Water Well ☐ Yes ☑ No Casing Left in Place? [] Yes ☐ No)	
	1					
		Was Ca	sing Cut Off I	Below Surface?	 □	s 🛛 No
Construction Type:		Did Sea	ling Material	Rise to Surface?	Xe Ye	s 🗌 No
Drilled Drive	n (Sandpoint)	Did Ma	terial Settle A	fter 24 Hours?		s 🖾 No
Other (Specify) _Geoprobe		If Yes,	Was Hole Ret	opped?	Ye	s 🗌 No
		(6) Dequire	d Mathad of I			
Formation Type:			ductor Pipe -	Gravity	Conductor	Pine - Punned
Unconsolidated Formation	Bedrock		nn Bailer		Other (Expl	lain) Gravity
Total Wall Douth (8) 10.0	Casing Diameter (in)		Meteriala			itaning walls and
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(7) Sealing M	aterial Used	From (Ft.)	To (Ft.)	<u> </u>	Mix R	atio or Mud Weight
	·					
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(9) Name of Person or Firm Doing Seal	ing Work	(10)	PC	DR DNR OR CO	UNTY USE	DNLY
BEST/OMNNI Associates		Date	Received/Inspe	sched	Distric	t/County
Signature of Person Doing Work	Date Signed]				
- aux ff-	5 6/28/00	Revie	ver/Inspector			Complying Work
Street or Route	Telephone Number					Noncomplying Work
One Systems Drive	920-735-6900	Follow	-up Necessar	9		
Crty, State, Zip Code						
Appleton, WI 54914		J ·				
	DNR/CC	DUNTY				

All abandonment work shall be performed in accordance with the provisions of Chapters NR 811, NR 812 or 141, Wis. Admin. Code, whichever is applicable.

(1) GENERAL INFORMATION	(2) FACIL	ITY NAME	City of Appleto	n - Second Street
Well/Drillhole/Borehole County	Original W	ell Owner (If I	Known)	
Location		•		
	Present We	ll Owner	<u>. </u>	
SE $(4 \times 1)^{12}$ SE (4×1)	City of			
$\frac{\text{SL}}{(16 \text{ Ambiestle})} = \frac{14 \text{ of } 1/4 \text{ of Sec. } -54 \text{ ; } 121 \text{ N; R} -17 \text{ W}}{(16 \text{ Ambiestle})}$		Appleton		
(II Applicable)	SucciorK	oute		
Gov't Lot Grid Number	<u>100 N.</u>	Appleton S	treet	
Grid Location	City, State,	Zip Code		
ft. 🗌 N. 🗌 S.,ft. 🗌 E. 🗌 W.	Applet	on, WI 549	12	
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	B6			
Street Address of Well	Reason For	Abandonmen	t	
and Street	Eor soi	l sampling c	nlv	
City Village	Date of Ah	andonment	, miy	·····
A	5/0/00			
	3/9/00			
WELD/DRILLHOLE/BOREHOLE INFORMATION	T			
(3) Original Well/Drillhole/Borehole Construction Completed On	(4) Depth 1	to Water (Feet))	
(Date) $5/9/00$	Pump	& Piping Remo	oved? 🗌 Y	es I No I Not Applicable
	Liner(s) Removed?	<u>г</u> П	es 🗌 No 🖾 Not Applicable
Monitoring Well Construction Report Available?	Screen	Removed?		es 🗌 No 🖾 Not Applicable
Water Well Ves X No	Casing	Left in Place?		$res \square No$
	If No. 1	Zvelsie	<u> </u>	
	1110,1			···
Borehole				
-	Was Ci	asing Cut Off I	Below Surface?	Yes 🛛 No
Construction Type:	Did Sea	aling Material	Rise to Surface?	Yes IN0
Drilled Driven (Sandpoint) Dug	Did Ma	terial Settle A	fter 24 Hours?	🗌 Yes 🖾 No
Other (Specify) Geoprobe	If Yes,	Was Hole Ret	opped?	🗌 Yes 🔲 No
	· · · · · ·			
Formation Type:	(5) Require	ed Method of I	lacing Sealing Ma	aterial
		nductor Pipe -	Gravity	Conductor Pipe - Pumped
Unconsolidated Formation	🗌 Du	mp Bailer	\boxtimes	Other (Explain) Gravity
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APPENDIX D

HANDBOOK OF FIELD PROCEDURES

HANDBOOK OF FIELD PROCEDURES

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PERSONNEL QUALIFICATIONS

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Kenneth E. Hawk -	Completed 40-hour hazardous waste training. Bachelors Degree in Geology from University of Wisconsin-Oshkosh. Masters Degree in Environmental Science from University of Wisconsin- Green Bay. Licensed Professional Geologist (no. 197), State of Wisconsin Certified Site Assessor-01660.
Don Brittnacher -	 Completed 40-hour hazardous waste training. Bachelors Degree in Geology from University of Notre Dame. Masters Degree in Environmental Health Engineering from University of Notre Dame. Licensed Professional Geologist (no. 462), State of Wisconsin Licensed Professional Engineer (no. 30286), State of Wisconsin Certified Site Assessor-01658.
David L. Fries -	Completed 40-hour hazardous waste training. Bachelors Degree in Geology from Lawrence University, Appleton, WI. Masters Degree in Environmental Science from University of Wisconsin- Green Bay. Licensed Professional Geologist (no. 192), State of Wisconsin Certified Site Assessor-01662. Certified Hazardous Materials Manager (no. 10226)
Bill Endter -	Completed 40-hour hazardous waste training. Associate Degree in Natural Resource Technology from Fox Valley Technical College.
Deanna Drum -	Completed 40-hour hazardous waste training. Associate Degree in Mechanical Design, Fox Valley Technical College.

SOIL BORING INSTALLATION PROCEDURES

A number of different drilling and geoprobing firms are used for environmental investigations. Borings intended to be converted to monitoring wells are advanced using 7 5/8" O.D. x 4 1/2" I.D. hollow stem augers or 6 1/4" O.D. solid stem augers powered by a truck-mounted drill rig. If bedrock drilling is required, borings are advanced using either air or mud-rotary drilling techniques. Soil borings not intended for monitoring wells are typically advanced using 4" O.D. solid stem augers. The geoprobe typically advances a 2" diameter hole. All soil borings that are not converted to permanent or temporary groundwater monitoring wells are properly abandoned per NR 141.

Samples are typically obtained from each boring at 2.5' intervals by split-spoon sampling according to ASTM D-1586. A portion of each sample is screened with a photoionization detector (PID). At each sampling interval, a representative portion of the soil is also collected for possible laboratory analysis. Soil samples are chosen from each boring for laboratory analysis based on headspace screening data, and visual and olfactory observations. In general, the sample from each boring that exhibits the highest PID reading is chosen for analysis. See the Soil Sampling Procedures below, for further information pertaining to field headspace analysis and sample collection procedures.

SOIL SAMPLING PROCEDURES

All soil sampling is performed in accordance with DNR PUBL-SW-127, <u>Soil Sampling Requirements</u> for LUST Site Investigations and Excavations and DILHR ch. 10, <u>Flammable and Combustible</u> <u>Liquids</u>. The soil samples are collected and analyzed in accordance with DNR PUBL-SW-130 92REV, <u>LUST Analytical Guidance</u>, July, 1993. Our standard instruments and sample collection procedures are as follows:

- 1. Soil samples are collected from a split-spoon sampler during environmental drilling.
- 2. Sample collector wears new latex exam gloves when collecting samples to decrease the risk of personal exposure and cross contamination.
- 3. A portion of the sample is collected in a sampling syringe and placed in new glass 40 ml vials, or new glass 2 oz jars, and immediately placed on ice, and later delivered to the laboratory for analysis. This procedure will be discussed in more detail later in this report. (See Table 1.)
- 4. The remaining portion of the sample is placed in a clean 4 oz. jar (approx. 1/2 filled), and sealed with aluminum foil and a teflon-lined lid. The headspace sample is then agitated for a minimum of 30 seconds and then allowed to equilibrate. Minimum equilibration time will correspond to the following specifications:

Minimum Sample Headspace Equilibration Time

Ambient Outside Air Minimum Amount of Time Temperature at the Sample Must Equilibrate Time of Sample at 70° F or Greater Collection Temperature < 40 F 40 min. 41 – 55 F 20 min. 56 - 69 F 10 min. > 70 5 min.

INSTRUMENT SPECIFICATIONS

When the sample has completed equilibration, it is promptly field analyzed with a portable photoionization detector (PID). OMNNI uses either a Photovac Inc. Microtip HL-200 or ML-1000 or a Thermo Environmental Instruments Model 580A OVM, both equipped with an 11.2 ev lamp. A background reading is first taken. The PID probe is then inserted into the jar through a single hole in the aluminum foil. The instrument reading is measured at one-half the distance between the foil seal and the sample surface. The measured reading is then recorded.

Isobutylene at a concentration of 100 ppm is used for field calibration gas. The PID meter is field calibrated at the following times:

- At the beginning of each day
- After any significant change in temperature or humidity
- Every three hours
- After any repairs to the instrument are performed
- 5. All samples are returned to the laboratory as soon as possible, usually the day the sample was collected. All samples are returned to the lab with a chain-of-custody form, form #4400-151. Time of sample collection and sample PID reading are listed. Care is taken to ensure that the chain-of-custody form is properly and fully completed before submitting to the laboratory.
- 6. The samples are sent to a laboratory certified by the Wisconsin Department of Natural Resources.
- 7. Table 2 on page 9 outlines the required DNR laboratory analysis for specific UST contaminants.

Soil analyses, other than those in Table 2, will be conducted in accordance with methods approved by the DNR.

MONITORING WELL INSTALLATION AND DEVELOPMENT PROCEDURES

The permanent monitoring wells are typically constructed of two-inch, schedule 40, flush-thread PVC casings and well screens. Temporary wells are one-inch diameter, schedule 40 casings and screens. Prior to use, well parts are individually wrapped in plastic.

Permanent wells are installed and developed according to NR 141, DNR Groundwater Monitoring Well Requirements. The monitoring wells are installed with five to fifteen-foot screens which are placed in the borings to intersect the water table. Piezometers are installed with five-foot screens sealed beneath the water table. Filter pack and annular space seal material are installed by gravity as the augers are withdrawn from the hole. Wells are cut to the required height using a PVC pipe cutter.

An as-constructed well and boring survey is performed by OMNNI once field work is complete. Elevations are either based on a local datum of 100 feet, or a U.S.G.S. elevation, assigned to a mark on a reference point located at the site. Ground elevation is surveyed to the nearest 0.1 foot, and the top of the well casing to the nearest 0.01 foot.

A horizontal grid system is established at the site with the origin of the grid set on the reference point. Wells and borings are located with respect to this grid system.

To properly develop each permanent monitoring well, water is removed until a consistent water quality is obtained. This is done by removing 10 times the water volume in the well and filter pack, removing water until it is free of sediment, or removing the water until the well is purged dry. Water is removed from the wells by bailing the water with as little agitation as possible. If the water level is unaffected by bailing and large amounts of water are to be removed, the well is developed by using the surge and purge method with a Red Lion centrifugal pump. No water is added to the well during development. Temporary wells are typically developed by allowing the peristaltic pump to run until the water is as clear as possible.

The development water is barrelled, pending the results of analytical testing. If the well is suspected to be clean and small volumes of water are to be removed, the water may be spread on pavement to volatilize any possible contaminants.

GROUNDWATER SAMPLING PROCEDURES AND V.O.C. SAMPLING NOTES

- A. Devices used to measure water elevation, purge wells and retrieve samples:
 - 1. Groundwater levels are measured with a fiberglass reel tape with a weighted stainless steel "sounder" at the end.
 - 2. In wells that have free product on top of the water surface, depth to water and depth to product are measured with a fiberglass reel tape with an interface probe at the end.
 - 3. Wells are purged and samples are collected by one of the following methods:
 - a) Wells are purged with a Voss disposable bailer.
 - b) Alternate purging and sampling equipment consists of a peristaltic groundwater sampling pump.
- B. Procedures for calculating purge volumes, purging wells and sampling:

- 1. Wells are normally sampled starting from the upgradient area and progressing toward the downgradient area of the site. When the degree of contamination is known, least contaminated wells are sampled first, the more contaminated wells sampled last.
- 2. All the wells are opened before the depth to groundwater is determined.
- 3. Wells are purged by removing four water volumes within a casing or all the water until the well runs dry.
- 4. Once all the wells have been purged, the samples are drawn using equipment mentioned above. (See Table 3 Water Sample Preparation Guide)
- 5. Sample, odor, turbidity, temperature, conductivity and pH are determined on the unfiltered portions of the sample and recorded on the well specific field sheet.
- 6. When the sample requires filtering, the sample is filtered with an in-line pump (as soon after collection as possible).
- 7. Quality Assurance/Quality Control Samples
 - a) Trip and field blanks will consist of three new 40 ml vials filled with deionized water. These are sent to the laboratory for (P)VOC analysis. If no field contamination has occurred, these samples will have no detectable (P)VOCs.
 - b) One trip blank should be analyzed for every 10 samples collected. At least one trip blank is taken per site visit. Trip blanks are poured, labeled, and sealed, then taken out in the field. Trip blanks are kept with all samples collected until reaching the field.
 - c) Field blanks are used if the bailers are not dedicated to a specific well. If there is a possibility for field cross-contamination of samples, field blanks may also be taken at the sample collector's discretion.
 - d) One temperature blank is collected per batch of samples.
 - e) One duplicate sample is collected with every 10 samples.
- 8. Samples are refrigerated, then transported to a state certified laboratory for testing as soon as possible.
- 9. A chain-of-custody will be filled out listing all samples collected, requested laboratory analysis, date and time of collection, and the name of the sample collector. This document will remain with the samples at all times and bear the names of all persons handling the samples until the samples are received by the laboratory.
- C. Procedures for cleaning equipment:
 - 1. In the field, sampling equipment is rinsed with a 10% methanol solution and then flushed three times with deionized water between each well sampled.

- 2. Equipment that is still contaminated after field cleaning will be rinsed with tap water, washed off with detergent, rinsed with a 10% methanol solution, and flushed three times with deionized water.
- D. Transporting samples to lab:
 - 1. Filtered, preserved, labelled, and sealed samples are iced and transported to the lab for analysis as soon as possible.
 - 2. The laboratory will be notified by the sample collector when courier service is required.
- E. The above procedures constitute normal groundwater sampling procedures for permanent groundwater monitoring wells. Modifications to each of the outlined items may be applicable for site specific conditions or special volatile organic sampling considerations. Methods used are consistent with WDNR "Groundwater Sampling Procedures Guidelines" Publ. WR-153, February, 1987.

DECONTAMINATION PROCEDURES

Decontamination is the process of removing and/or neutralizing contaminants that may have accumulated on PPE (personnel protective equipment) and equipment. Proper decontamination is a critical element in the control of hazards which helps ensure the health and safety of workers. Proper decontamination also contains the contamination to the site, thus preventing further environmental problems.

Drilling

The following decontamination procedures should be used when completing borings, installing monitoring wells, and/or installing remediation systems.

- A. Between samples, the split spoon will be cleaned in a multiple rinse, surfactant solution (soap and water or Alconox solution.)
- B. The sample will be collected while wearing new latex exam gloves.
- C. The surface upon which the sample is collected will be cleaned between samples.
- D. The latex exam gloves will be changed between samples.
- E. Soil which has accumulated around the boring will either be stockpiled or barreled. If the soil is stockpiled, it will be placed on and covered with visqueen. The stockpiled or barreled soil will later be disposed of in compliance with the DNR regulations.
- F. Upon completion of the boring, the augers will be decontaminated before they are used again. The following procedures will be followed when decontaminating drilling equipment:
 - 1. A decontamination basin lined with plastic (visqueen) is set up near the work area.

- 2. All contaminated equipment is placed in the decontamination basin.
- 3. A pressurized steam cleaner is used to clean all contaminated equipment.
- 4. Following steam cleaning, the auger is removed from the decontamination basin.
- 5. Upon completion of the job, the accumulated water in the decontamination basin is pumped out and placed in a barrel. Wash water used for cleaning the split spoons is also added to the barrel. The barrel will be disposed of in compliance with all regulatory agencies.
- 6. The visqueen used in the decontamination basin is disposed of in compliance with all regulatory agencies.

TEST	CONTAINER SIZE**	SAMPLE SIZE	PRESERVATIVE	HOLDING TIME
GRO Gasoline Range Organics	2 oz. wide mouth jar or 40 ml vial (2 per sample)	25 g	25 ml Methanol (purge and trap grade)	4 days
DRO Diesel Range Organics	2 oz. wide mouth jar or 40 ml vial (2 per sample)	25 g	None	4 days
Total Lead/ Total Cadmium	4 oz. wide mouth jar (2 per sample)	4 oz.	None	6 months
VOC / PVOC Volatile Organic Compounds	2 oz. wide mouth jar or 40 ml vial (2 per sample)	25 g	25 ml Methanol (purge and trap grade)	4 days
PCB Polychlorinated Biphenyls	4 oz. wide mouth jar (2 per sample)	4 oz.	None	14 days
PAH Polynuclear Aromatic Hydrocarbons	4 oz. wide mouth jar (2 per sample)	4 oz.	None	14 days

Table 1SOIL SAMPLE PREPARATION GUIDE*

* All samples will be sealed, labeled, and placed on ice immediately after collection.

** To ensure a proper seal between the sample container and the cap, no soil shall remain on the jar or cap threads. When samples are collected with the syringe, a 40 ml vial is used and the sample is preserved in the lab.

PETROLEUM SUBSTANCE	CLOSURE ASSESSMENT	SOLID WASTE PRO./LANDFILLS	SITE INVESTIGATIONS
Gasoline Aviation Fuel	GRO	Free Liquids GRO Benzene Haz. Waste Det.	GRO PVOC/VOC Pb
Diesel Jet Fuel No.'s 1, 2, 4 Fuel Oil	DRO	Free Liquids GRO Benzene Haz. Waste Det.	DRO PVOC PAH
Crude Oil Lubricat. Oil No. 6 Fuel Oil	DRO	Free Liquids DRO Haz. Waste Det.	DRO PAH
Unknown Petroleum	GRO and DRO	Free Liquids GRO and DRO Pb, Cd, CH S Haz Waste Det.	GRO and DRO VOC/PVOC PAH Pb, Cd
Waste Oil	DRO .	Free Liquids DRO VOC Pb, Cd, CH S Haz. Waste Det.	DRO VOC/PVOC PAH PCB Pb, Cd

 Table 2

 SOIL SAMPLE ANALYSIS GUIDE FOR PETROLEUM CONTAMINATION

	WATER DAME DE TRETA	KATION GOIDE	
TEST	SAMPLE SIZE / CONTAINER	PRESERVATIVE	HOLDING TIME
VOC / PVOC Volatile Organic Compounds	3 - 40 ml vials filled with no headspace	0.5 ml of 1:1 HC1	14 days
DRO Diesel Range Organics	1 - 1 liter amber glass bottles	5 ml of 1:1 HC1	7 days
GRO Gasoline Range Organics	3 - 40 ml vials filled with no headspace	0.5 ml of 1:1 HC1	14 days
PAH Polynuclear Aromatic Hydrocarbons	1 - 1 liter amber glass bottles	None	7 days
PCB Polychlorinated Biphenyls	1 - 1 liter amber glass bottle	None	7 days
LEAD / CADMIUM metals **	1 - 250 ml plastic bottle	2 ml of HNO ₃ or to a pH of < 2	6 months

Table 3 WATER SAMPLE PREPARATION GUIDE *

* All samples will be sealed, labeled, and placed on ice immediately after collection.

** When testing for dissolved metals, the sample will be field filtered before preservation.

APPENDIX E

LABORATORY ANALYSIS RESULTS AND CHAIN OF CUSTODY DOCUMENTATION

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U.S. Analytical Lab

MAY 19 2000 MAY 19 2000 OMNINI ASSOCIATES

DAVE FRIES OMNNI ASSOCIATES INC ONE SYSTEMS DRIVE APPLETON WI 54914-1654

Project #N1624B00Project NameCITY OF APPLETONInvoice #E29718

Report Date 17-May-00

	Analyte	Result	Units	LOD	LOQ	Dil	Run Date	Method	Analyst	QC Code
Lab Code Sample ID	5029718A B1-3						Sample Type Sample Date	Soil 5/9/00		
Inorganic			•							. <u></u>
General										
Solids P	ercent	86.9	%			1	5/10/00	5021	KAH	1
Metals										
Arsenic		< 2.8	mg/kg	2.8	9.2	1	5/12/00	6010B	JLA	1
Barium		35	mg/kg	0.28	0.93	1	5/12/00	6010B	JLA	1
Cadmiur	n	< 1.2	mg/kg	1.2	4	1	5/12/00	6010B	JLA	1
Chromiu	m	12	mg/kg	0.55	1.8	1	5/16/00	6010B	JLA	1
Lead		< 6	mg/kg	6	20	1	5/12/00	6010B	JLA	1
Mercury		< 0.03	mg/kg	0.03	0.1	1	5/10/00	245.1	SJV	1
Seleniun	n	< 4.9	mg/kg	4.9	16	1	5/12/00	6010B	JLA	1
Silver		< 3	mg/kg	3	10	1	5/12/00	6010B	JLA	11
Lab Code Sample ID	5029718B B2-4						Sample Type Sample Date	Soil 5/9/00		
L)
Inorganic										
General										
Solids Pe	ercent	86.7	%			1	5/10/00	5021	КАН	1
Metals										
Arsenic		< 2.8	mg/kg	2.8	9.2	1	5/12/00	6010B	JLA	1
Barium		56	mg/kg	0.28	0.93	1	5/12/00	6010B	JLA	1
Cadmiur	n	< 1.2	mg/kg	1.2	4	1	5/12/00	6010B	JLA	1
Chromiu	m	17	mg/kg	0.55	1.8	1	5/16/00	6010B	JLA	1
Lead		< 6	mg/kg	6	20	1	5/12/00	6010B	JLA	1
Mercury		< 0.03	mg/kg	0.03	0.1	1	5/10/00	245.1	VLS	1
Seleniun	ı	< 4.9	mg/kg	4.9	16	1	5/12/00	6010B	JLA	1
Silver		< 3	mg/kg	3	10	1	5/12/00	6010B	JLA	1
Lab Code	5029718C						Sample Type	Soil		I.
Sample ID	B3-5						Sample Date	5/9/00		؛، رنــــــ
Inorganic										
General										
Solids Pe	ercent	90.2	%			ı	5/10/00	5021	KAH	i
Metals										
Arsenic		< 2.8	mg/kg	2.8	9.2	1	5/12/00	6010B	JLA	1

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N1624B00
CITY OF APPLETON
E29718

(REG S

Report Date 17-May-00

	Analyte	R	esult	Units	LOD	LOQ	Dil	Run Date	Method	Analyst	QC Code
Lab Code Sample ID	5029718C B3-5					·		Sample Type Sample Date	Soil 5/9/00		
Barium		20		mg/kg	0.28	0.93	1	5/12/00	6010B	JLA	1
Cadmiu	m		< 1.2	mg/kg	1.2	4	1	5/12/00	6010B	JLA	1
Chromit	um	8.2		mg/kg	0.55	1.8	1	5/16/00	6010B	JLA .	1
Lead			< 6	mg/kg	6	20	1	5/12/00	6010B	JLA	1
Mercury	/		< 0.03	mg/kg	0.03	0.1	1	5/10/00	245.1	SJV	1
Seleniur	m		< 4.9	mg/kg	4.9	16	1	5/12/00	6010B	JĹA	1
Silver			< 3	mg/kg	3	10	1	5/12/00	6010B	JLA	1
Lab Code	5029718D							Sample Type	Soil		
Sample ID	B4-4							Sample Date	5/ 9 /00		
Inorganic								<u> </u>			
General											
Solids P	ercent	88.6		%			1	5/10/00	5021	KAH	1
Lab Code 5029718C Sample TD Sample TD <ths< td=""><td></td></ths<>											
Arsenic			< 2.8	mg/kg	2.8	9.2	1	5/12/00	6010B	JLA	1
Barium		47		mg/kg	0.28	0.93	1	5/12/00	6010B	JLA	1
Cadmiu	m		< 1.2	mg/kg	1.2	4	1	5/12/00	6010B	JLA	1
Chromiu	ım	17		mg/kg	0.55	1.8	1	5/16/00	6010B	JLA	1
Lead			< 6	mg/kg	6	20	1	5/12/00	6010B	JLA	1
Mercury	,		< 0.03	mg/kg	0.03	0.1	1	5/10/00	245.1	SJV	1
Seleniur	n		< 4.9	mg/kg	4.9	16	1	5/12/00	6010B	JLA	1
Silver			< 3	mg/kg	3	10	1	5/12/00	6010B	JLA	1
Lab Code	5029718E							Sample Type	Soil		
Sample ID	B5-3							Sample Date	5/9/00		
Inorganic										_	
General											
Solids P	ercent	87.7		%			1	5/10/00	5021	KAH	1
Metals											
Arsenic			< 2.8	mg/kg	2.8	9.2	1	5/12/00	6010B	JLA	1
Barium		62		mg/kg	0.28	0.93	1	5/12/00	6010B	JLA	1
Cadmiur	n		< 1.2	mg/kg	1.2	4	1	5/12/00	6010B	JLA	1
Chromiu	ım	13		mg/kg	0.55	1.8	1	5/16/00	6010B	JLA	1
Lead			< 6	mg/kg	6	20	1	5/12/00	6010B	JLA	1
Mercury	,		< 0.03	mg/kg	0.03	0.1	1	5/10/00	245.1	SJV	1
Seleniun	n		< 4.9	mg/kg	4.9	16	1	5/12/00	6010B	JLA	1

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Project #N1624B00Project NameCITY OF APPLETONInvoice #E29718

Report Date 17-May-00

	Analyte	Result	Units	LOD	LOQ	Dil	Run Date	Method	Analyst	QC Code
Lab Code Sample ID	5029718E B5-3						Sample Type Sample Date	Soil 5/9/00		
Silver		< 3	mg/kg	3	10	1	5/12/00	6010B	JLA	1
Lab Code Sample ID	5029718F B6-3						Sample Type Sample Date	Soil 5/9/00		
Inorganic General	<u> </u>									
Solids Metals	Percent	86.1	%			1	5/10/00	5021	КАН	1
Arsenie	c	< 2.8	mg/kg	2.8	9.2	1	5/12/00	6010B	JLA	1
Barium	n	53	mg/kg	0.28	0.93	1	5/12/00	6010B	JLA	1
Cadmi	um	< 1.2	mg/kg	1.2	4	1	5/12/00	6010B	JLA	1
Chrom	ium	14	mg/kg	0.55	1.8	1	5/16/00	6010B	JLA	1
Lead		< 6	mg/kg	6	20	1	5/12/00	6010B	JLA	1
Mercur	гу	< 0.03	mg/kg	0.03	0.1	1	5/10/00	245.1	SJV	1
Seleniu	um	< 4.9	mg/kg	4.9	16	1	5/12/00	6010B	JLA	1
Silver		< 3	mg/kg	. 3	10	1	5/12/00	6010B	JLA	1

LOD Limit of Detection

"J" Flag: Analyte detected between LOD and LOQ

LOQ Limit of Quantitation

Code

1

Comment

All laboratory QC requirements were met for this sample.

fit **Authorized Signature**

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C	B3-5	5/9/00	9:15	4,202	501							X		
0	B4-4	5/9/00	(0:1(4,202	Soi (X		
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