

PHASE II ENVIRONMENTAL SITE ASSESSMENT

For the property known as:

Property Adjacent to Detrex Chemical
State Road Extension
Ashtabula, Ohio 44004

PREPARED FOR:

Ashtabula City Port Authority
P.O. Box 768
Ashtabula, Ohio 44005

PREPARED BY:

RP Consultants, Inc.
7664 Tyler Boulevard
Mentor, Ohio 44060
(440) 946-5888

RP-3625

August 17, 2009

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A. INTRODUCTION

RP Consultants, Inc. was hired by Ashtabula City Port Authority for the purpose of performing a Phase II Environmental Site Assessment on the property located adjacent to Detrex Chemical, State Road Extension, Ashtabula, Ohio 44004. The property is currently used for railroad tracks and a gravel access drive, and is located along State road immediately north of Detrex Chemical (see site map).

The primary goal of this investigation was to quantify the levels of volatile organic compounds (VOCs) and polynuclear aromatic hydrocarbons (PNAs), if any, that may exist as a result of the past use of the adjacent property as a chemical company.

All conclusions and findings are based upon this site assessment conducted by RP Consultants, Inc. We can provide no assurance that information obtained from others is accurate or complete. Furthermore, any change in site conditions after the date of the Phase II work is beyond the scope of this assessment. Accordingly, RP Consultants, Inc. cannot make any guarantees concerning future conditions. The client should also be aware that this report is not a guarantee or certification that the entire site and adjacent properties are free of contamination or hazardous materials, but rather it is an opinion based upon a limited site investigation.

B. SITE HISTORY AND PROPOSED PROPERTY USE

The property appears to have been part of a rail siding servicing two manufacturing plants located to the northwest and southeast of the siding. A review of aerial photographs and a topographic map suggests that the railroad siding has been in place for at lease several decades.

Currently, there are plans to install underground utilities along the railroad siding.

C. SOIL SAMPLING

A total of two soil samples were collected from three soil borings advanced on the subject property (see Site Map). The two soil samples were submitted for analysis. The borings were advanced with a Geoprobe™ 6600 Hydraulic Press Rig, which allowed for continuous sampling of the soils. The borings were advanced to depths of 8 to 12 feet and were halted when the probe was refused in hard clay.

The soil in each boring was visually examined, and detailed soil logs were constructed (see attached figures).

Overall, the pattern of sample location is such that it allowed for some general conclusions to be made regarding the extent of contamination (if any) that could exist as a result of the past use of the adjacent property as a chemical company.

Samples from each boring were collected on July 14, 2009 by Nils Widing of RP Consultants, Inc. Samples were taken at one to four foot intervals.

A new latex glove was used to collect each sample. The sample was divided between a plastic zip lock bag and a laboratory quality glass jar with a screw-on Teflon lined lid.

All sample jars were stored in a cooler with ice, and all sample bags were placed indoors and allowed to warm to room temperature. After approximately fifteen minutes at room temperature, the headspace in each bag was screened for volatile organic compounds (VOCs) with a photoionization detector with a 10.6 eV electrodeless ultraviolet discharge lamp and a Teflon™/stainless steel chamber. Results of the field screening are listed on the soil boring logs in this report.

Prior to screening any samples, the PID was calibrated using 100 ppm isobutylene-in-air standard.

Soil samples with the highest field screening from two of the borings were transported under chain of custody procedures to Summit Environmental Technologies, Inc., 3310 Win Street, Cuyahoga Falls, Ohio 44223. A total of two soil samples were analyzed for the following:

(VOCs Method 8260)

(PNAs Method 8270)

D. LOCAL GEOLOGY/SOILS/HYDROGEOLOGY

Materials encountered during the investigation included limestone, gravel, sand, brick, black and brown silty clay, and black, brown, and gray clay.

Groundwater was not encountered during the boring activities, as the subsurface appeared to be dominated by clayey soils with the exception of some gravel and limestone fill near the surface along the railroad siding.

A review of ODNR Water Well Log Reports indicated that the soils near the subject property are dominated by clay, sand, and shale.

A review of the ODNR Groundwater Resources Map of Ashtabula County indicated that the subject property lies in an area containing clay and sandy clay, less than 30 feet thick, overlying shale. Many wells are dry and this provides a poor area for developing domestic supplies. The information listed on the ODNR map correlated well with observations of soils in the field.

E. RESULTS OF ANALYSES

Results of the soil analyses are listed in the Analytical Results found at the end of this report. The samples were analyzed for VOCs and PNAs. Results were compared to State of Ohio Voluntary Action Program (VAP) generic direct contact

standards for industrial property. These levels are used as a guidepost, as they represent standards that need to be met when sites are undergoing voluntary corrective action.

SB1: This boring was advanced on the east side of State Road north of the railroad tracks (see site map for boring locations). Limestone and gravel were present from ground level to a depth of 2 feet. At 3 feet, black and brown silty clay was encountered. From 3 to 5 feet, brown clay was encountered. From 5 to 6 feet, brown and black clay were encountered. From 7 to 8 feet, wet black clay was encountered. A sample was secured at 7 feet and submitted for laboratory analysis. No staining or odors were encountered during boring activities. No VOCs or PNAs were detected in the sample.

SB2: This boring was advanced on the west side of State Road north of the railroad tracks. Gravel and sand were present from ground level to a depth of 1 foot. From 1 to 2 feet, brick, brown clay, and limestone were encountered. From 2 to 6 feet, brown clay was encountered. From 6 to 9 feet, grayish clay was encountered, including wet clay at 6 to 7 feet. From 9 to 11 feet, gray/brown clay was encountered. At 12 feet, brown clay was encountered. A sample was secured at 6 feet and submitted for laboratory analysis. No staining or odors were encountered during the advancement of boring. No VOCs or PNAs were detected in the sample.

SB3: This boring was advanced on the west side of State Road north of the railroad tracks approximately 50 feet west of SB2. Brown silty clay was present from ground level to a depth of 1 foot. From 1 to 9 feet, brown clay was encountered. From 9 to 10 feet, moist gray/brown clay was encountered. From 10 to 11 feet, brown clay was encountered. No staining or odors were encountered during the advancement of this boring. A sample was not submitted from this boring location.

F. CONCLUSIONS / TECHNICAL SUMMARY

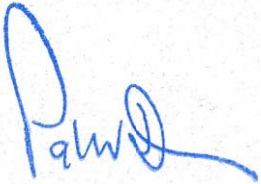
- Materials encountered during the investigation included

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limestone, gravel, sand, brick, black and brown silty clay, and black, brown, and gray clay extending to depths of 8 to 12 feet.

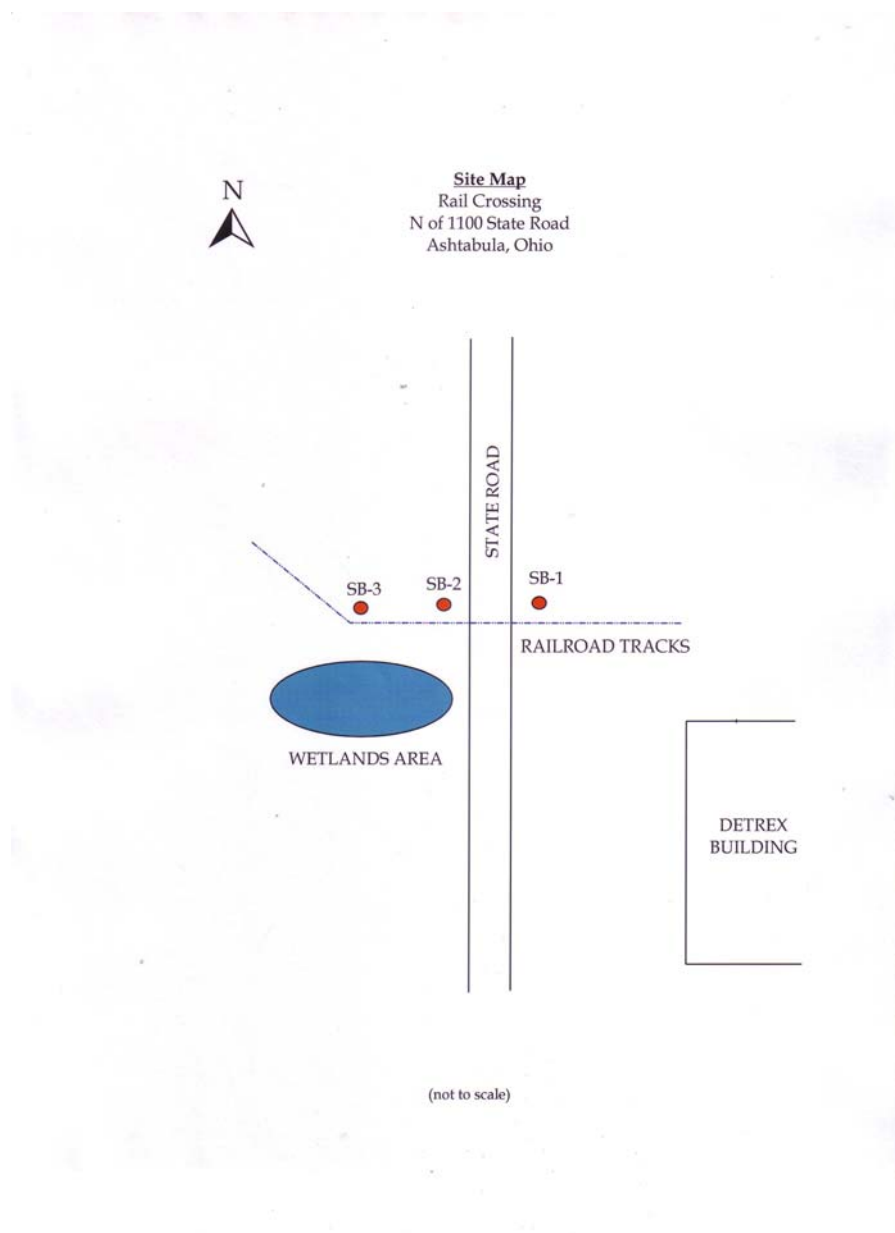
- No groundwater was encountered in the borings, however, the clay at 7-8 feet in SB1 was wet. No staining or odorous soils were encountered during advancement of the borings.
- Soil samples were collected from various depths in all three soil borings. The samples were screened with a PID, and two samples (one from boring SB1 to the east of State Road and one from boring SB2 to the west of State Road) were analyzed for Volatile Organic Compounds (VOCs) and Polynuclear Aromatic Hydrocarbons (PNAs).
- No VOCS or PNAs were detected in either of the two borings.
- The lack of VOCs and PNAs in the borings, as well as the lack of odors and staining, suggests that the adjacent property does not appear to be affecting the subject property.
- Based upon the above information, RP Consultants, Inc. concludes that there is no evidence to suggest that past use of the adjacent property has led to contamination in soils on the subject property in levels that would constitute a reportable and/or actionable release.

Sincerely



Patrick Duncan
Geologist

**FIGURE 1: SITE MAP SHOWING SAMPLE LOCATIONS
OF SOIL BORINGS**



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SOIL BORING/PID LOGS FOR SUBJECT PROPERTY

RP		RP Consultants, Inc.		BORING NUMBER SB-1		PAGE 1 OF 1	
CLIENT		Ashtabula City Port Authority		PROJECT NAME		Property Adjacent to Detrex Corporation	
PROJECT NUMBER		RP-3625		PROJECT LOCATION		State Road Extension	
DATE STARTED		7/14/09		COMPLETED		7/14/09	
DRILLING CONTRACTOR		Summit		GROUND ELEVATION		HOLE SIZE	
DRILLING METHOD		Geoprobe		GROUND WATER LEVELS:			
LOGGED BY		Pat Duncan		CHECKED BY		Pat Duncan	
NOTES				AT TIME OF DRILLING		---	
				AT END OF DRILLING		---	
				AFTER DRILLING		---	
DEPTH (ft)	SAMPLE TYPE NUMBER	REMARKS	U.S.C.S. GRAPHIC LOG	MATERIAL DESCRIPTION	PID (ppm)		
0				Limestone and Gravel			
			GM				
	GB		CL	2.0 Black and Brown Silty Clay	0		
	GB		CH	3.0 Brown Clay	0		
	GB		CH	4.0 Brown Clay	6		
5	GB		CH	5.0 Brown and Black Clay	0		
	GB		CH	6.0 Brown and Black Clay	0		
	GB	Sample sent to the laboratory for analysis	CH	7.0 Wet Black Clay- Lab Sample S1 7 Fl.	0		
				Bottom of hole at 8.0 feet.			

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<div style="display: inline-block; border: 1px solid black; padding: 2px;"> RP </div> RP Consultants, Inc.		BORING NUMBER SB-2 <small>PAGE 1 OF 1</small>	
CLIENT <u>Ashtabula City Port Authority</u>		PROJECT NAME <u>Property Adjacent to Detrex Corporation</u>	
PROJECT NUMBER <u>RP-3625</u>		PROJECT LOCATION <u>State Road Extension</u>	
DATE STARTED <u>7/14/09</u>	COMPLETED <u>7/14/09</u>	GROUND ELEVATION _____	HOLE SIZE _____
DRILLING CONTRACTOR <u>Summit</u>		GROUND WATER LEVELS:	
DRILLING METHOD <u>Geoprobe</u>		AT TIME OF DRILLING <u>---</u>	
LOGGED BY <u>Pat Duncan</u>		AT END OF DRILLING <u>---</u>	
CHECKED BY <u>Pat Duncan</u>		AFTER DRILLING <u>---</u>	
NOTES _____			

DEPTH (ft)	SAMPLE TYPE NUMBER	REMARKS	U.S.C.S. GRAPHIC LOG	MATERIAL DESCRIPTION	PIU (ppm)
0			GM	Gravel Sand	
	5 GB		CH	Brick, Brown Clay, Limestone	0
	5 GB		CH	Brown Clay	0
	5 GB		CH	Brown Clay	0
	5 GB		CH	Brown Clay	0
	5 GB		CH	Brown Clay	0
5			CH		
	5 GB	Sample sent to the laboratory for analysis	CH	Greyish Clay- Lab Sample S2 6 Ft.	0
	5 GB		CH	Greyish Clay	0
	5 GB		CH	Greyish Clay	0
	5 GB		CH	Gray/Brown Clay	0
10			CH		
	5 GB		CH	Brown Clay	0
	5 GB		CH		0
				Bottom of hole at 12.0 feet.	

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<div style="display: inline-block; border: 1px solid black; padding: 2px;"> RP </div> <div style="display: inline-block; vertical-align: middle; margin-left: 5px;"> RP Consultants, Inc. </div>		BORING NUMBER SB-3 <small>PAGE 1 OF 1</small>	
CLIENT <u>Ashtabula City Port Authority</u>		PROJECT NAME <u>Property Adjacent to Detrex Corporation</u>	
PROJECT NUMBER <u>RP-3625</u>		PROJECT LOCATION <u>State Road Extension</u>	
DATE STARTED <u>7/14/09</u>	COMPLETED <u>7/14/09</u>	GROUND ELEVATION _____	HOLE SIZE _____
DRILLING CONTRACTOR <u>Summit</u>		GROUND WATER LEVELS:	
DRILLING METHOD <u>Geoprobe</u>		AT TIME OF DRILLING <u>---</u>	
LOGGED BY <u>Pat Duncan</u>		AT END OF DRILLING <u>---</u>	
CHECKED BY <u>Pat Duncan</u>		AFTER DRILLING <u>---</u>	
NOTES			
DEPTH (ft)	SAMPLE TYPE NUMBER	U.S.C.S. GRAPHIC LOG	MATERIAL DESCRIPTION
0			
	CL		Brown Silty Clay
	GB	1.0	Brown Clay
	CH		
	GB	4.0	Brown Clay
5			
	CH		
	GB	8.0	Brown Clay
	CH	9.0	Grey/ Brown Clay
	GB	10.0	Mostly Brown Clay
10			
	GB	11.0	Bottom of hole at 11.0 feet.

GENERAL BHI / TP / WELL RP-3625 ASHTABULA GP / CONT US GDT 8/3/09

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ODNR WATER WELL LOG INFORMATION



Water Well Log and Drilling Report

Ohio Department of Natural Resources
Division of Water
Phone: 614-265-6740 Fax: 614-265-6767

Well Log Number: **2021258**

[View Image of Original Well Log](#)

ORIGINAL OWNER AND LOCATION

Original Owner Name: DETREX CORPORATION

County: ASHTABULA

Township: ASHTABULA

Section Number:

Address: 1100 STATE ST

Lot Number:

City: ASHTABULA

State: OH

Zip Code: 44004

Location Number:

Location Map Year:

Location Area:

Latitude: 41.894130

Longitude: -80.772519

CONSTRUCTION DETAILS

Borehole Diameter: 1: 8 in.

Borehole Depth: 1: 37 ft.

Depth to Bedrock:

2:

2:

Casing Diameter: 1: 2 in.

Casing Length: 1: 27 ft.

Casing Thickness: 1: 0.154 in.

2:

2:

2:

Casing Height Above Ground: 3

Aquifer Type: SHALE

Well Use: MONITOR

Date of Completion: 1/27/2009

Total Depth: 37 ft.

Driller's Name: STOCK DRILLING

Screen Diameter: 2 in.

Slot Size: 0.01 in.

Screen Length: 10 ft.

Type: MACHINE SLOTTED

Material: PVC

Set Between: From: 37 ft. To: 27 ft.

Gravel Pack Material/Size: #5 SAND

Vol/Wt Used: 450 LBS.

Method of Installation: Poured (gravity)

Placed: FROM: 37 ft. TO: 25 ft.

Grout Material/Size: Bentonite slurry

Vol/Wt Used: 10 LBS

Method of Installation: Pumped w/Tremie pipe

Placed FROM: 25 ft. TO: 3 ft.

WELL TEST DETAILS

Static Water Level: 0 ft.

Test Rate:

Associated Reports

Drawdown:

Test Duration:

NONE

COMMENTS: GROUNDWATER - NONE ENCOUNTERED

WELL LOG

Formations

TAN CLAYEY CLAY & SAND
GRAY SHALEY SHALE & CLAY
GRAY SHALEY SHALE

From	To
0	22
22	36
36	37

[illegible]

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ODNR WATER WELL LOG INFORMATION



Water Well Log and Drilling Report

Ohio Department of Natural Resources
Division of Water
Phone: 614-265-6740 Fax: 614-265-6767

Well Log Number: **2021259**

[View Image of Original Well Log](#)

ORIGINAL OWNER AND LOCATION

Original Owner Name: *DETREX CORPORATION*

County: *ASHTABULA*

Township: *ASHTABULA*

Address: *1100 STATE ST*

City: *ASHTABULA*

State: *OH*

Location Number:

Location Map Year:

Latitude: *41.894150*

Longitude: *-80.77215*

Section Number:

Lot Number:

Zip Code: *44004*

Location Area:

CONSTRUCTION DETAILS

Borehole Diameter: 1: *8 in.*

Borehole Depth: 1: *24 ft.*

Depth to Bedrock:

2:

2:

Casing Diameter: 1: *2 in.*

Casing Length: 1: *14 ft.*

Casing Thickness: 1: *0.154 in.*

2:

2:

2:

Casing Height Above Ground: *3*

Aquifer Type: *CLAY & SAND*

Date of Completion: *1/27/2009*

Total Depth: *24 ft.*

Well Use: *MONITOR*

Driller's Name: *STOCK DRILLING*

Screen Diameter: *2 in.*

Slot Size: *0.01 in.*

Screen Length: *10 ft.*

Type: *MACHINE SLOTTED*

Material: *PVC*

Set Between: *From: 24 ft. To: 14 ft.*

Gravel Pack Material/Size: *#5 SAND*

Vol/Wt Used: *450 LBS.*

Method of Installation: *Poured (gravity)*

Placed: *FROM: 24 ft. TO: 12 ft.*

Grout Material/Size: *Bentonite pellets/chunks*

Vol/Wt Used: *150*

Method of Installation: *Poured (gravity)*

Placed *FROM: 12 ft. TO: 3 ft.*

WELL TEST DETAILS

Static Water Level: *0 ft.*

Test Rate:

Associated Reports

Drawdown:

Test Duration:

NONE

COMMENTS: *GROUNDWATER - NONE ENCOUNTERED*

WELL LOG

Formations

TAN CLAYEY CLAY & SAND

GRAY SHALEY CLAY & SHALE

From	To
0	22
22	24

[illegible]

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ODNR WATER WELL LOG INFORMATION



Water Well Log and Drilling Report

Ohio Department of Natural Resources
Division of Water
Phone: 614-265-6740 Fax: 614-265-6767

Well Log Number: **2021265**

[View Image of Original Well Log](#)

ORIGINAL OWNER AND LOCATION

Original Owner Name: *DETREX CORPORATION*

County: *ASHTABULA*

Address: *1100 STATE ST*

City: *ASHTABULA*

Location Number:

Latitude: *41.895240*

Township: *ASHTABULA*

State: *OH*

Location Map Year:

Longitude: *-80.77222*

Section Number:

Lot Number:

Zip Code: *44004*

Location Area:

CONSTRUCTION DETAILS

Borehole Diameter: 1: *8 in.*

2:

Borehole Depth: 1: *43 ft.*

2:

Depth to Bedrock:

Casing Diameter: 1: *2 in.*

2:

Casing Length: 1: *25 ft.*

2:

Casing Thickness: 1: *0.154 in.*

2:

Casing Height Above Ground: *3*

Date of Completion: *2/3/2009*

Driller's Name: *STOCK DRILLING*

Screen Diameter: *2 in.*

Type: *MACHINE SLOTTED*

Set Between: *From: 40 ft. To: 25 ft.*

Gravel Pack Material/Size: *#5 SAND*

Method of Installation: *Poured (gravity)*

Grout Material/Size: *Bentonite slurry*

Method of Installation: *Pumped w/Tremie pipe*

Aquifer Type: *CLAY & SHALE*

Total Depth: *40 ft.*

Slot Size: *0.01 in.*

Material: *PVC*

Vol/Wt Used: *700 LBS.*

Placed: *FROM: 43 ft. TO: 23 ft.*

Vol/Wt Used: *100 LBS.*

Placed *FROM: 21 ft. TO: 3 ft.*

Well Use: *MONITOR*

Screen Length: *15 ft.*

WELL TEST DETAILS

Static Water Level:

Drawdown:

COMMENTS: *NONE ENCOUNTERED*

Test Rate:

Test Duration:

Associated Reports

NONE

WELL LOG

Formations

TAN CLAYEY CLAY & SAND

GRAY CLAYEY CLAY & SHALE

From To

0 25

25 43

WELL LOCATION		CONSTRUCTION DETAILS																
<div style="display: flex; justify-content: space-between;"> <div> WELL LOG AND DRILLING RECORD Ohio Department of Natural Resources Division of Water, 2045 Morse Road, Columbus, Ohio 43229-6605 Voice (614) 265-6740 Fax (614) 265-6767 </div> <div style="border: 1px solid black; padding: 5px; text-align: center;"> Well Log Number 2021265 </div> </div>		<div style="display: flex; justify-content: space-between;"> <div> Well Log Number 2021265 </div> <div> Page 1 of 1 for this record </div> </div>																
County ASHTABULA Township ASHTABULA Owner/Builder DETREX CORPORATION 1100 STATE ST Address of Well Location City ASHTABULA Zip Code +4 44004 Permit No. Section and/or Lot No. Use of Well MONITOR Coordinates of Well (Use only one of the below coordinate systems) State Plane Coordinates N <input type="checkbox"/> X +/- ft. S <input type="checkbox"/> Y +/- ft. Latitude, Longitude Coordinates Latitude 41.89524 Longitude -80.77222 Elevation of Well in feet: 644 +/- 9 ft. Datum Plane: <input type="checkbox"/> NAD27 <input checked="" type="checkbox"/> NAD83 Elevation Source GPS Source of Coordinates: GPS Well location written description: DETW-MW3D LOCATED 200 YARDS SOUTH OF MAIN DETREX CORPORATION'S ENTRANCE DRIVEWAY ON WEST PORTION OF PROPERTY.		Drilling Method: AUGER BOREHOLE/CASING (Measured from ground surface) 1. Borehole Diameter 8 inches Depth 43 ft. Casing Diameter 2 in Length 25 ft. Thickness 0.154 in. 2. Borehole Diameter inches Depth ft. Casing Diameter in Length ft. Thickness in. Casing Height Above Ground 3 Type { 1 PVC 2 Joints { 1 Threaded 2 SCREEN Diameter 2 in. Slot Size 0.01 in. Screen Length 15 ft. Type MACHINE SLOTTED Material PVC Set Between 40 ft. and 25 ft. GRAVEL PACK (Filter Pack) Material Size #5 SAND Vol/Wt. Used 700 LBS. Method of Installation Poured (gravity) Depth: Placed From: 43 ft. To: 23 ft. GROUT Material Bentonite slurry Vol/Wt. Used 100 LBS. Method of Installation Pumped w/ Tremie pipe Depth: Placed From: 21 ft. To: 3 ft.																
Comments on water quality/quantity and well construction: NONE ENCOUNTERED		DRILLING LOG* FORMATIONS INCLUDE DEPTH(S) AT WHICH WATER IS ENCOUNTERED. <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>Color</th> <th>Texture</th> <th>Formation</th> <th>From</th> <th>To</th> </tr> </thead> <tbody> <tr> <td>TAN</td> <td>CLAYEY</td> <td>CLAY AND SAND</td> <td>0</td> <td>25</td> </tr> <tr> <td>GRAY</td> <td>CLAYEY</td> <td>CLAY AND SHALE</td> <td>25</td> <td>43</td> </tr> </tbody> </table>		Color	Texture	Formation	From	To	TAN	CLAYEY	CLAY AND SAND	0	25	GRAY	CLAYEY	CLAY AND SHALE	25	43
Color	Texture	Formation	From	To														
TAN	CLAYEY	CLAY AND SAND	0	25														
GRAY	CLAYEY	CLAY AND SHALE	25	43														
WELL TEST * Pre-Pumping Static Level ft. Date Measured from Pumping test method Test Rate gpm Duration of Test hrs. Feet of Drawdown ft. Sustainable Yield gpm (Attach a copy of the pumping test record, per section 1521.05, ORC) Is Copy Attached? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Flowing Well? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No																		
PUMP/PITLESS Type of pump Capacity gpm Pump set at ft. Pitless Type Pump installed by I hereby certify the information given is accurate and correct to the best of my knowledge Drilling Firm STOCK DRILLING Address 17360 Railroad ST City, State, Zip JDA MI 48140 Signed RICHARD W STOCK JR. Date 3/3/2009 (Print Electronically)																		
ODH Registration Number 002537		Aquifer Type (Formation producing the most water) CLAY & SHALE Date of Well Completion 2/3/2009 Total Depth of Well 40 ft.																

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ODNR WATER WELL LOG INFORMATION



Water Well Log and Drilling Report

Ohio Department of Natural Resources
Division of Water
Phone: 614-265-6740 Fax: 614-265-6767

Well Log Number: 2021266

[View Image of Original Well Log](#)

ORIGINAL OWNER AND LOCATION

Original Owner Name: DETREX CORPORATION

County: ASHTABULA

Township: ASHTABULA

Address: 1100 STATE ST

City: ASHTABULA

State: OH

Location Number:

Location Map Year:

Latitude: 41.895280

Longitude: -80.7722

Section Number:

Lot Number:

Zip Code: 44004

Location Area:

CONSTRUCTION DETAILS

Borehole Diameter: 1: 8 in.

Borehole Depth: 1: 20 ft.

Depth to Bedrock:

2:

2:

Casing Diameter: 1: 2 in.

Casing Length: 1: 10 ft.

Casing Thickness: 1: 0.154 in.

2:

2:

2:

Casing Height Above Ground: 3

Aquifer Type: CLAY & SAND

Date of Completion: 2/3/2009

Total Depth: 20 ft.

Well Use: MONITOR

Driller's Name: STOCK DRILLING

Screen Diameter: 2 in.

Slot Size: 0.01 in.

Screen Length: 10 ft.

Type: MACHINE SLOTTED

Material: PVC

Set Between: From: 20 ft. To: 10 ft.

Gravel Pack Material/Size: #5 Sand

Vol/Wt Used: 450 lbs.

Method of Installation: Poured (gravity)

Placed: FROM: 20 ft. TO: 8 ft.

Grout Material/Size: Bentonite pellets/chunks

Vol/Wt Used: 100 lbs.

Method of Installation: Poured (gravity)

Placed FROM: 8 ft. TO: 3 ft.

WELL TEST DETAILS

Static Water Level:

Test Rate:

Associated Reports

Drawdown:

Test Duration:

NONE

COMMENTS: NONE ENCOUNTERED

WELL LOG

Formations

TAN CLAYEY CLAY & SAND

From To
0 20

[illegible]

ODNR WATER WELL LOG INFORMATION



Water Well Log and Drilling Report

Ohio Department of Natural Resources
Division of Water
Phone: 614-265-6740 Fax: 614-265-6767

Well Log Number: **2021267**

[View Image of Original Well Log](#)

ORIGINAL OWNER AND LOCATION

Original Owner Name: *DETREX CORPORATION*

County: *ASHTABULA*

Address: *1100 STATE ST*

City: *ASHTABULA*

Location Number:

Latitude: *41.896230*

Township: *ASHTABULA*

State: *OH*

Location Map Year:

Longitude: *-80.77218*

Section Number:

Lot Number:

Zip Code: *44004*

Location Area:

CONSTRUCTION DETAILS

Borehole Diameter: 1: *8 in.*
2:

Borehole Depth: 1: *45 ft.*
2:

Depth to Bedrock:

Casing Diameter: 1: *2 in.*
2:

Casing Length: 1: *35 ft.*
2:

Casing Thickness: 1: *0.154 in.*
2:

Casing Height Above Ground: *3*

Date of Completion: *2/5/2009*

Driller's Name: *STOCK DRILLING*

Screen Diameter: *2 in.*

Type: *MACHINE SLOTTED*

Set Between: *From: 45 ft. To: 35 ft.*

Gravel Pack Material/Size: *#5 SAND*

Method of Installation: *Poured (gravity)*

Grout Material/Size: *Bentonite slurry*

Method of Installation: *Pumped w/Tremie pipe*

Aquifer Type: *SHALE*

Total Depth: *45 ft.*

Well Use: *MONITOR*

Slot Size: *0.01 in.*

Material: *PVC*

Screen Length: *10 ft.*

Vol/Wt Used: *450 LBS.*

Placed: *FROM: 45 ft. TO: 33 ft.*

Vol/Wt Used: *100 LBS.*

Placed *FROM: 30 ft. TO: 3 ft.*

WELL TEST DETAILS

Static Water Level:

Drawdown:

Test Rate:

Test Duration:

Associated Reports

NONE

COMMENTS: *NONE ENCOUNTERED*

WELL LOG

Formations

TAN CLAYEY CLAY & SAND

GRAY CLAYEY CLAY & SHALE

GRAY SHALEY SHALE

From To

0 21

21 44

44 45

[illegible]

RP Consultants, Inc.
RP-3625

ODNR WATER WELL LOG INFORMATION



Water Well Log and Drilling Report

Ohio Department of Natural Resources
Division of Water
Phone: 614-265-6740 Fax: 614-265-6767

Well Log Number: **2021268**

[View Image of Original Well Log](#)

ORIGINAL OWNER AND LOCATION

Original Owner Name: *DETREX CORPORATION*

County: *ASHTABULA*

Address: *1100 STATE ST*

City: *ASHTABULA*

Location Number:

Latitude: *41.896260*

Township: *ASHTABULA*

State: *OH*

Location Map Year:

Longitude: *-80.77216*

Section Number:

Lot Number:

Zip Code: *44004*

Location Area:

CONSTRUCTION DETAILS

Borehole Diameter: 1: *8 in.*

2:

Borehole Depth: 1: *23 ft.*

2:

Depth to Bedrock:

Casing Diameter: 1: *2 in.*

2:

Casing Length: 1: *13 ft.*

2:

Casing Thickness: 1: *0.154 in.*

2:

Casing Height Above Ground: *3*

Date of Completion: *2/9/2009*

Driller's Name: *STOCK DRILLING*

Screen Diameter: *2 in.*

Type: *MACHINE SLOTTED*

Set Between: *From: 23 ft. To: 13 ft.*

Gravel Pack Material/Size: *#5 SAND*

Method of Installation: *Poured (gravity)*

Grout Material/Size: *Bentonite pellets/chunks*

Method of Installation: *Poured (gravity)*

Aquifer Type: *CLAY & SAND*

Total Depth: *23 ft.*

Well Use: *MONITOR*

Slot Size: *0.01 in.*

Material: *PVC*

Screen Length: *10 ft.*

Vol/Wt Used: *450 LBS.*

Placed: *FROM: 23 ft. TO: 11 ft.*

Vol/Wt Used: *150 LBS.*

Placed *FROM: 11 ft. TO: 3 ft.*

WELL TEST DETAILS

Static Water Level:

Drawdown:

COMMENTS: *NONE ENCOUNTERED*

Test Rate:

Test Duration:

Associated Reports

NONE

WELL LOG

Formations

TAN CLAYEY CLAY & SAND

From

0

To

23

[illegible]

ODNR WATER WELL LOG INFORMATION



Water Well Log and Drilling Report

Ohio Department of Natural Resources
Division of Water
Phone: 614-265-6740 Fax: 614-265-6767

Well Log Number: **2021269**

[View Image of Original Well Log](#)

ORIGINAL OWNER AND LOCATION

Original Owner Name: *DETREX CORPORATION*

County: *ASHTABULA*

Address: *1100 STATE ST*

City: *ASHTABULA*

Location Number:

Latitude: *41.894660*

Township: *ASHTABULA*

State: *OH*

Location Map Year:

Longitude: *-80.7722*

Section Number:

Lot Number:

Zip Code: *44004*

Location Area:

CONSTRUCTION DETAILS

Borehole Diameter: 1: *8 in.*

2:

Borehole Depth: 1: *32 ft.*

2:

Depth to Bedrock:

Casing Diameter: 1: *2 in.*

2:

Casing Length: 1: *22 ft.*

2:

Casing Thickness: 1: *0.154 in.*

2:

Casing Height Above Ground: *3*

Date of Completion: *1/30/2009*

Driller's Name: *STOCK DRILLING*

Screen Diameter: *2 in.*

Type: *MACHINE SLOTTED*

Set Between: *From: 32 ft. To: 22 ft.*

Gravel Pack Material/Size: *#5 SAND*

Method of Installation: *Poured (gravity)*

Grout Material/Size: *Bentonite pellets/chunks*

Method of Installation: *Poured (gravity)*

Aquifer Type: *SHALE*

Total Depth: *32 ft.*

Slot Size: *0.01 in.*

Material: *PVC*

Well Use: *MONITOR*

Screen Length: *10 ft.*

Vol/Wt Used: *450 LBS.*

Placed: *FROM: 32 ft. TO: 20 ft.*

Vol/Wt Used: *250 LBS.*

Placed *FROM: 20 ft. TO: 3 ft.*

WELL TEST DETAILS

Static Water Level:

Drawdown:

COMMENTS: *NONE ENCOUNTERED*

Test Rate:

Test Duration:

Associated Reports

NONE

WELL LOG

Formations

TAN CLAYEY CLAY & SAND
GRAY CLAYEY SHALE & CLAY
GRAY SHALE

From	To
0	20
20	31
31	32

WELL LOCATION		CONSTRUCTION DETAILS	
County: ASHTABULA Township: ASHTABULA		Drilling Method: AUGER	
Owner/BUILDER: DETREX CORPORATION		BOREHOLE/CASING (Measured from ground surface)	
Address of Well Location: 1100 STATE ST.		1) Borehole Diameter _____ inches Depth _____ ft.	
		Casing Diameter _____ in. Length _____ ft Thickness _____ ft.	
City: ASHTABULA Zip Code +4: 44004		2) Borehole Diameter _____ inches Depth _____ ft.	
Permit No. _____ Section: _____ and or Lot No. _____		Casing Diameter _____ in. Length _____ ft Thickness _____ ft.	
Use of Well: MONITOR		Casing Height Above Ground _____ ft	
Coordinates of Well (Use only one of the below coordinate systems) State Plane Coordinates		Type { 1 PVC 2 ____	
N <input type="checkbox"/> X _____ +/-' ft.	S <input type="checkbox"/> Y _____ +/-' ft.	Joints { 1 Threaded 2 ____	
Latitude, Longitude Coordinates		SCREEN	
Latitude: 41.89466 Longitude: -80.7722		Diameter _____ in Slot Size _____ in Screen Length _____ ft.	
Elevation of Well in feet: 632 +/-' g ft.		Type MACHINE SLOTTED Material PVC	
Date/Time Plan: <input type="checkbox"/> NAD27 <input checked="" type="checkbox"/> NAD83 Elevation Source GPS		Set Between _____ ft and _____ ft.	
Source of Coordinates: GPS		GRAVEL PACK (Filter Pack)	
Well location written description: DETW-MW2D IS LOCATED ON SW PORTION OF PROPERTY, APPROXIMATELY 100 YARDS NORTH OF DETW-MW1 D & S.		Material #5 SAND Vol/Wt Used 450 LBS.	
		Method of Installation Poured (gravity)	
		Depth Placed From: _____ ft To: _____ ft	
Comments on water quality/quantity and well construction: NONE ENCOUNTERED		GROUT	
		Material Bentonite pellets/chunks Vol/Wt Used 250 LBS.	
		Method of Installation Poured (gravity)	
		Depth Placed From: _____ ft To: _____ ft	
WELL TEST *		DRILLING LOG*	
Pre-Pumping Static Level _____ ft. Date _____		FORMATIONS INCLUDE DEPTH(S) AT WHICH WATER IS ENCOUNTERED.	
Measured from _____		Color Texture Formation From To	
Pumping test method _____		TAN CLAYEY CLAY AND SAND 0 20	
Test Rate _____ gpm	Duration of Test _____ hrs.	GRAY CLAYEY SHALE AND CLAY 20 31	
Feet of Drawdown _____ ft.	Sustainable Yield _____ gpm	GRAY SHALE 31 32	
(Attach a copy of the pumping test record, per section 1521.05, ORC)			
Is Copy Attached? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Flowing Well? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No			
PUMP/PITLESS			
Type of pump _____ Capacity _____ gpm			
Pump set at _____ ft Pitless Type _____			
Pump installed by _____			
I hereby certify the information given is accurate and correct to the best of my knowledge.			
Drilling Firm STOCK DRILLING			
Address 17360 Railroad ST			
City, State, Zip IDA MI 48140			
Signed RICHARD W STOCK JR.	Date 3/3/2009		
(Print Electronically)		Aquifer Type (Formation producing the most water) SHALE	
ODH Registration Number 002537		Date of Well Completion 1/30/2009 Total Depth of Well 32	

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RP-3625

ODNR WATER WELL LOG INFORMATION



Water Well Log and Drilling Report

Ohio Department of Natural Resources
Division of Water
Phone: 614-265-6740 Fax: 614-265-6767

Well Log Number: **2021270**

[View Image of Original Well Log](#)

ORIGINAL OWNER AND LOCATION

Original Owner Name: *DETREX CORPORATION*

County: *ASHTABULA*

Address: *1100 STATE ST*

City: *ASHTABULA*

Location Number:

Latitude: *41.894660*

Township: *ASHTABULA*

State: *OH*

Location Map Year:

Longitude: *-80.77216*

Section Number:

Lot Number:

Zip Code: *44004*

Location Area:

CONSTRUCTION DETAILS

Borehole Diameter: 1: *8 in.*

2:

Borehole Depth: 1: *17 ft.*

2:

Depth to Bedrock:

Casing Diameter: 1: *2 in.*

2:

Casing Length: 1: *7 ft.*

2:

Casing Thickness: 1: *0.154 in.*

2:

Casing Height Above Ground: *3*

Date of Completion: *1/30/2009*

Driller's Name: *STOCK DRILLING*

Screen Diameter: *2 in.*

Type: *MACHINE SLOTTED*

Set Between: *From: 17 ft. To: 7 ft.*

Gravel Pack Material/Size: *#5 SAND*

Method of Installation: *Poured (gravity)*

Grout Material/Size: *Bentonite pellets/chunks*

Method of Installation: *Poured (gravity)*

Aquifer Type: *CLAY & SAND*

Total Depth: *17 ft.*

Slot Size: *0.01 in.*

Material: *PVC*

Vol/Wt Used: *450 LBS.*

Placed: *FROM: 17 ft. TO: 5 ft.*

Vol/Wt Used: *50 LBS.*

Placed *FROM: 5 ft. TO: 3 ft.*

Well Use: *MONITOR*

Screen Length: *10 ft.*

WELL TEST DETAILS

Static Water Level:

Drawdown:

COMMENTS: *NONE*

Test Rate:

Test Duration:

Associated Reports

NONE

WELL LOG

Formations

TAN CLAYEY CLAY & SAND

From

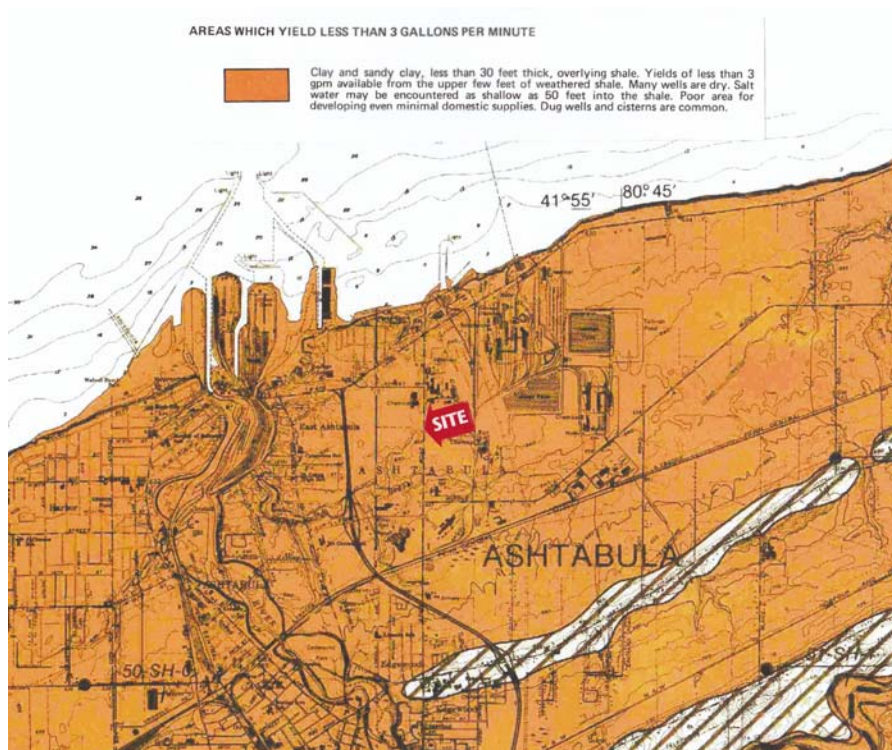
0

To

17

[illegible]

GROUNDWATER RESOURCES MAP SHOWING SUBJECT PROPERTY



[illegible]

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RP-3625



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July 22, 2009

Client: RP Consultants
Address: 7664 Tyler Blvd
Mentor, OH 44060

Date Collected: 7/14/2009
Date Received: 7/17/2009
Project #: RP-3625
Client ID #: RP-3625-S1
Laboratory ID #: 0909089-01
Analysis: VOC (8260B)
Method: 8260B
Matrix: Solid
Date of Analysis: 7/20/2009
Analyst: MS

VOC (8260B)

<u>Parameter</u>	<u>Reporting Limit (mg/Kg)</u>	<u>Results (mg/Kg)</u>
1,1,1,2-Tetrachloroethane	0.0050	BRL
1,1,1-Trichloroethane	0.0050	BRL
1,1,2,2-Tetrachloroethane	0.0050	BRL
1,1,2-Trichloroethane	0.0050	BRL
1,1-Dichloroethane	0.0050	BRL
1,1-Dichloroethene	0.0050	BRL
1,1-Dichloropropene	0.0050	BRL
1,2,3-Trichlorobenzene	0.0050	BRL
1,2,3-Trichloropropane	0.0050	BRL
1,2,4-Trichlorobenzene	0.0050	BRL
1,2,4-Trimethylbenzene	0.0050	BRL
1,2-Dibromo-3-chloropropane	0.010	BRL
1,2-Dibromoethane	0.0050	BRL
1,2-Dichlorobenzene	0.0050	BRL
1,2-Dichloroethane	0.0050	BRL
1,2-Dichloropropane	0.0050	BRL
1,3,5-Trimethylbenzene	0.0050	BRL
1,3-Dichlorobenzene	0.0050	BRL
1,3-Dichloropropane	0.0050	BRL
1,4-Dichlorobenzene	0.0050	BRL
2,2-Dichloropropane	0.0050	BRL
2-Chlorotoluene	0.010	BRL

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Web Site: www.settek.com

RP Consultants, Inc.
RP-3625



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July 22, 2009

Client: RP Consultants
Address: 7664 Tyler Blvd
Mentor, OH 44060

Date Collected: 7/14/2009
Date Received: 7/17/2009
Project #: RP-3625
Client ID #: RP-3625-S1
Laboratory ID #: 0909089-01
Analysis: VOC (8260B)
Method: 8260B
Matrix: Solid
Date of Analysis: 7/20/2009
Analyst: MS

VOC (8260B)

<u>Parameter</u>	<u>Reporting Limit (mg/Kg)</u>	<u>Results (mg/Kg)</u>
4-Chlorotoluene	0.0050	BRL
Benzene	0.0050	BRL
Bromobenzene	0.0050	BRL
Bromochloromethane	0.0050	BRL
Bromodichloromethane	0.0050	BRL
Bromoform	0.0050	BRL
Bromomethane	0.0050	BRL
Carbon Tetrachloride	0.0050	BRL
Chlorobenzene	0.0050	BRL
Chloroethane	0.010	BRL
Chloroform	0.0050	BRL
Chloromethane	0.010	BRL
cis-1,2-Dichloroethene	0.0050	BRL
Dibromochloromethane	0.0050	BRL
Dibromomethane	0.0050	BRL
Dichlorodifluoromethane	0.010	BRL
Ethylbenzene	0.0050	BRL
Hexachlorobutadiene	0.0050	BRL
Isopropylbenzene	0.0050	BRL
m,p-Xylene	0.0050	BRL
Methylene Chloride	0.0050	BRL
n-Butylbenzene	0.0050	BRL

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July 22, 2009

Client: RP Consultants
Address: 7664 Tyler Blvd
Mentor, OH 44060

Date Collected: 7/14/2009
Date Received: 7/17/2009
Project #: RP-3625
Client ID #: RP-3625-S1
Laboratory ID #: 0909089-01
Analysis: VOC (8260B)
Method: 8260B
Matrix: Solid
Date of Analysis: 7/20/2009
Analyst: MS

VOC (8260B)

<u>Parameter</u>	<u>Reporting Limit (mg/Kg)</u>	<u>Results (mg/Kg)</u>
n-Propylbenzene	0.0050	BRL
Naphthalene	0.0050	BRL
o-Xylene	0.0050	BRL
p-Isopropyltoluene	0.0050	BRL
sec-Butylbenzene	0.0050	BRL
Styrene	0.0050	BRL
tert-Butylbenzene	0.0050	BRL
Tetrachloroethene	0.0050	BRL
Toluene	0.0050	BRL
trans-1,2-Dichloroethene	0.0050	BRL
Trichloroethene	0.0050	BRL
Trichlorofluoromethane	0.010	BRL
Vinyl Chloride	0.010	BRL
Dibromofluoromethane (surr)		99.2
Toluene d(8)(surr)		101.7
4-Bromofluorobenzene(surr)		97.0

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RP-3625



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July 22, 2009

Client: RP Consultants
Address: 7664 Tyler Blvd
Mentor, OH 44060

Date Collected: 7/14/2009
Date Received: 7/17/2009
Project #: RP-3625
Client ID #: RP-3625-S1
Laboratory ID #: 0909089-01
Analysis: PNA (8270)
Method: 8270
Matrix: Solid
Date of Analysis: 7/21/2009
Analyst: AE

PNA (8270)

<u>Parameter</u>	<u>Reporting Limit (mg/kg)</u>	<u>Results (mg/kg)</u>
Acenaphthylene	0.20	BRL
Acenaphthene	0.20	BRL
Anthracene	0.20	BRL
Benzo(a)anthracene	0.15	BRL
Benzo(a) pyrene	0.050	BRL
Benzo(b)fluoranthene	0.20	BRL
Benzo(ghi)perylene	0.20	BRL
Benzo(k)fluoranthene	0.20	BRL
Chrysene	0.20	BRL
Dibenzo(a,h)anthracene	0.050	BRL
Fluorene	0.20	BRL
Fluoranthene	0.20	BRL
Indeno(1,2,3-cd)pyrene	0.15	BRL
Naphthalene	0.20	BRL
Phenanthrene	0.20	BRL
Pyrene	0.20	BRL
% 2-Fluorobiphenyl Rec.		79.1
% p-terphenyl-d14 Rec		95.9
% Nitrobenzene-d5 Rec.		77.4

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July 22, 2009

Client: RP Consultants
Address: 7664 Tyler Blvd
Mentor, OH 44060

Date Collected: 7/14/2009
Date Received: 7/17/2009
Project #: RP-3625
Client ID #: RP-3625-S2
Laboratory ID #: 0909089-02
Analysis: VOC (8260B)
Method: 8260B
Matrix: Solid
Date of Analysis: 7/20/2009
Analyst: MS

VOC (8260B)

<u>Parameter</u>	<u>Reporting Limit (mg/Kg)</u>	<u>Results (mg/Kg)</u>
1,1,1,2-Tetrachloroethane	0.0050	BRL
1,1,1-Trichloroethane	0.0050	BRL
1,1,2,2-Tetrachloroethane	0.0050	BRL
1,1,2-Trichloroethane	0.0050	BRL
1,1-Dichloroethane	0.0050	BRL
1,1-Dichloroethene	0.0050	BRL
1,1-Dichloropropene	0.0050	BRL
1,2,3-Trichlorobenzene	0.0050	BRL
1,2,3-Trichloropropane	0.0050	BRL
1,2,4-Trichlorobenzene	0.0050	BRL
1,2,4-Trimethylbenzene	0.0050	BRL
1,2-Dibromo-3-chloropropane	0.010	BRL
1,2-Dibromoethane	0.0050	BRL
1,2-Dichlorobenzene	0.0050	BRL
1,2-Dichloroethane	0.0050	BRL
1,2-Dichloropropane	0.0050	BRL
1,3,5-Trimethylbenzene	0.0050	BRL
1,3-Dichlorobenzene	0.0050	BRL
1,3-Dichloropropane	0.0050	BRL
1,4-Dichlorobenzene	0.0050	BRL
2,2-Dichloropropane	0.0050	BRL
2-Chlorotoluene	0.010	BRL

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RP Consultants, Inc.
RP-3625



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July 22, 2009

Client: RP Consultants
Address: 7664 Tyler Blvd
Mentor, OH 44060

Date Collected: 7/14/2009
Date Received: 7/17/2009
Project #: RP-3625
Client ID #: RP-3625-S2
Laboratory ID #: 0909089-02
Analysis: VOC (8260B)
Method: 8260B
Matrix: Solid
Date of Analysis: 7/20/2009
Analyst: MS

VOC (8260B)

<u>Parameter</u>	<u>Reporting Limit (mg/Kg)</u>	<u>Results (mg/Kg)</u>
4-Chlorotoluene	0.0050	BRL
Benzene	0.0050	BRL
Bromobenzene	0.0050	BRL
Bromochloromethane	0.0050	BRL
Bromodichloromethane	0.0050	BRL
Bromoform	0.0050	BRL
Bromomethane	0.0050	BRL
Carbon Tetrachloride	0.0050	BRL
Chlorobenzene	0.0050	BRL
Chloroethane	0.010	BRL
Chloroform	0.0050	BRL
Chloromethane	0.010	BRL
cis-1,2-Dichloroethene	0.0050	BRL
Dibromochloromethane	0.0050	BRL
Dibromomethane	0.0050	BRL
Dichlorodifluoromethane	0.010	BRL
Ethylbenzene	0.0050	BRL
Hexachlorobutadiene	0.0050	BRL
Isopropylbenzene	0.0050	BRL
m,p-Xylene	0.0050	BRL
Methylene Chloride	0.0050	BRL
n-Butylbenzene	0.0050	BRL

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RP Consultants, Inc.
RP-3625



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July 22, 2009

Client: RP Consultants
Address: 7664 Tyler Blvd
Mentor, OH 44060

Date Collected: 7/14/2009
Date Received: 7/17/2009
Project #: RP-3625
Client ID #: RP-3625-S2
Laboratory ID #: 0909089-02
Analysis: VOC (8260B)
Method: 8260B
Matrix: Solid
Date of Analysis: 7/20/2009
Analyst: MS

VOC (8260B)

<u>Parameter</u>	<u>Reporting Limit (mg/Kg)</u>	<u>Results (mg/Kg)</u>
n-Propylbenzene	0.0050	BRL
Naphthalene	0.0050	BRL
o-Xylene	0.0050	BRL
p-Isopropyltoluene	0.0050	BRL
sec-Butylbenzene	0.0050	BRL
Styrene	0.0050	BRL
tert-Butylbenzene	0.0050	BRL
Tetrachloroethene	0.0050	BRL
Toluene	0.0050	BRL
trans-1,2-Dichloroethene	0.0050	BRL
Trichloroethene	0.0050	BRL
Trichlorofluoromethane	0.010	BRL
Vinyl Chloride	0.010	BRL
Dibromofluoromethane (surr)		102.6
Toluene d(8)(surr)		107.8
4-Bromofluorobenzene(surr)		99.5

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RP-3625



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July 22, 2009

Client: RP Consultants
Address: 7664 Tyler Blvd
Mentor, OH 44060

Date Collected: 7/14/2009
Date Received: 7/17/2009
Project #: RP-3625
Client ID #: RP-3625-S2
Laboratory ID #: 0909089-02
Analysis: PNA (8270)
Method: 8270
Matrix: Solid
Date of Analysis: 7/21/2009
Analyst: AE

PNA (8270)

<u>Parameter</u>	<u>Reporting Limit (mg/kg)</u>	<u>Results (mg/kg)</u>
Acenaphthylene	0.20	BRL
Acenaphthene	0.20	BRL
Anthracene	0.20	BRL
Benzo(a)anthracene	0.15	BRL
Benzo(a) pyrene	0.050	BRL
Benzo(b)fluoranthene	0.20	BRL
Benzo(ghi)perylene	0.20	BRL
Benzo(k)fluoranthene	0.20	BRL
Chrysene	0.20	BRL
Dibenzo(a,h)anthracene	0.050	BRL
Fluorene	0.20	BRL
Fluoranthene	0.20	BRL
Indeno(1,2,3-cd)pyrene	0.15	BRL
Naphthalene	0.20	BRL
Phenanthrene	0.20	BRL
Pyrene	0.20	BRL
% 2-Fluorobiphenyl Rec.		94.4
% p-terphenyl-d14 Rec		101.8
% Nitrobenzene-d5 Rec.		81.0

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Web Site: www.settek.com

VAP STANDARDS

Ohio EPA - VAP - Generic Direct-Contact Soil Standards Summary (Effective 10/21/02)			
Chemical	Residential Single Chemical Soil (mg/kg)	Comm / Ind Single Chemical Soil (mg/kg)	Construction Single Chemical Soil (mg/kg)
Volatile Organic Compounds			
Acetone	7,300	100,000	100,000
Benzene	9.8	100	310
Carbon Disulfide	350	720	720
Carbon Tetrachloride	1.7	16	63
Chlorobenzene	150	690	690
Chloroethane	8,800	100,000	92,000
Chloroform	7.3	32	410
Dibromochloromethane	130	1,300	1,300
Dichlorodifluoromethane	120	850	850
Dichloroethane, 1,1 -	580	2,300	2,300
Dichloroethane, 1,2 -	10	49	560
Dichloroethene, 1,1 -	1.6	7.5	87.0
Dichloroethene, <i>cis</i> - 1,2	760	1,200	1,200
Dichloroethene, <i>trans</i> - 1,2 -	1,500	2,500	2,500
Dichloropropane, 1,2 -	6.4	60	210
Dichloropropene, 1,3 -	13	95	19
Dioxane, 1,4 -	980	19,000	54,000
Ethyl Ether	15,000	580,000	1,000,000
Ethylbenzene	230	230	230
Formaldehyde	15,000	580,000	120,000
Formic acid	150,000	1,000,000	1,000,000
Hexane, <i>n</i> -	71	180	180
Isobutyl Alcohol	22,000	25,000	25,000
Methanol	38,000	1,000,000	1,000,000
Methyl Ethyl Ketone	6,700	71,600	80,000
Methyl Isobutyl Ketone	700	7,400	16,000
Methyl <i>tert</i> - Butyl Ether (MTBE)	5,300	7,200	7,200
Methylene Chloride	250	1,300	2,300
Styrene	1,700	1,700	1,700
Tetrachloroethane, 1,1,1,2 -	95	490	2,800
Tetrachloroethane, 1,1,2,2 -	11	55	580
Tetrachloroethene	130	370	370
Toluene	520	520	520
Trichloroethane, 1,1,1 -	990	1,400	1,400
Trichloroethane, 1,1,2 -	24	120	1,300
Trichloroethene	80	380	800
Trichlorofluoromethane	490	2,000	2,000
Trichloropropane, 1,2,3 -	1.5	29	85
Vinyl Acetate	410	2,700	2,700
Vinyl Chloride	3.7	25	16
Xylenes, Total	160	160	160
Semi-Volatile Organic Compounds			
Acenaphthene	4,600	180,000	530,000
Acetophenone	7,600	290,000	870,000
Acrylonitrile	3.7	18	48
Aniline	5.8	56	570
Anthracene	23,000	880,000	1,000,000
Benzidine	0.05	0.88	2.6
Benzo(a)anthracene	11	63	810
Benzo(a)pyrene	1.1	6.3	81
Benzo(b)fluoranthene	11	63	810
Benzo(k)fluoranthene	110	630	8,100
Bis (2-ethylhexyl) Phthalate	230	230	230
Butyl Benzyl Phthalate	220	220	220
Carbazole	530	10,000	31,000
Chlordane	28	300	400
Chrysene	1,100	6,700	41,000
Dibenz(a,h)anthracene	1.1	6.7	41
Dichlorobenzene, 1,2 -	150	370	370
Dichlorobenzene, 1,3 -	68	240	240
Dichlorobenzene, 1,4 -	95	470	5,300
Dichlorobenzidine, 3,3 -	24	450	1,400

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Chemical	Residential Single Chemical Soil (mg/kg)	Comm / Ind Single Chemical Soil (mg/kg)	Construction Single Chemical Soil (mg/kg)
Dichlorodiphenyldichloroethane (DDD)	41	500	2,100
Dichlorodiphenyldichloroethene (DDE)	29	350	1,500
Dichlorodiphenyltrichloroethane (DDT)	29	350	360
Dichlorophenoxyacetic acid, 2,4 -	760	29,000	8,700
Diethyl Phthalate	640	640	640
Dimethylphenol, 2,4 -	1,500	59,000	180,000
Di-n-butyl Phthalate	100	100	100
Dinitrobenzene, <i>meta</i> -	7.6	290	870
Dinitrobenzene, <i>ortho</i> -	31	1,200	3,400
Dinitrotoluene, 2,4 -	150	5,800	1,700
Dinitrotoluene, 2,6 -	76	2,900	8,800
Endrin	23	870	260
Ethylene Glycol	120,000	120,000	120,000
Fluoranthene	2,300	33,000	170,000
Fluorene	3,100	120,000	340,000
Heptachlor	2.5	44	130
Heptachlor Epoxide	1	22	11
Hexachloro- 1,3 - Butadiene	15	580	170
Hexachlorobenzene	6.9	120	370
Hexachloroethane	77	2,900	8,600
Indeno(1,2,3-c,d)pyrene	11	67	410
Isophorone	4,600	4,600	4,600
Isopropylbenzene (Cumene)	860	860	860
Lindane	7.6	80	350
m-cresol	3,900	150,000	430,000
Methoxychlor	390	15,000	4,300
Methylnaphthalene, 1 -	120	120	120
Naphthalene	54	530	1,900
Nitrobenzene	23	370	1,700
Nitrosodiphenylamine, <i>n</i> -	2,200	41,000	120,000
o-cresol	390	15,000	4,300
Octyl Phthalate, di(<i>n</i>) -	1,500	10,000	10,000
p-cresol	390	8,500	4,300
Pentachlorophenol	51	240	1,700
Phenol	46,000	1,000,000	510,000
Polychlorinated Biphenyls (PCB)	1.1	16	25
Pyrene	1,700	25,000	130,000
Pyridine	77	2,900	8,600
Silvex (2,4,5 TP)	620	23,000	6,900
Toxaphene	10	180	540
Trichlorophenol, 2,4,5 -	7,700	290,000	860,000
Trichlorophenol, 2,4,6 -	1,000	18,000	54,000
Trimethylbenzene, 1,2,4	22	210	230
Trimethylbenzene, 1,3,5	19	180	200
Trinitrobenzene, 1,3,5 -	2,300	87,000	26,000
Inorganic Analytes			
Aluminum	75,000	1,000,000	140,000
Antimony	31	1200	340
Arsenic, Inorganic	6.8	80	210
Barium and Compounds	5,400	200,000	45,000
Beryllium and Compounds	150	5,700	600
Cadmium	35	770	420
Chromium (III)	120,000	1,000,000	850,000
Chromium (VI)	230	8,900	2,000
Cobalt	1,400	40,000	660
Cyanide, Free	1,600	60,000	17,000
Fluorides, Soluble	4,700	180,000	51,000
Lead	400	1,800	1,600
Mercury	7.8	300	84
Nickel (Soluble Salts)	1,500	57,000	5,000
Selenium and Compounds	390	15,000	4,300
Silver	390	15,000	4,300
Thallium	6.2	240	680
Vanadium	700	27,000	7,700
Zinc and Compounds	23,000	900,000	260,000

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gasoline, and the soils on the property are determined to have a vertical hydraulic conductivity (K_v) of 10^{-3} cm/s then, in addition to meeting the industrial generic direct-contact soil standards for benzene, ethylbenzene, toluene, total xylenes and *N*-hexane, the total petroleum hydrocarbon concentration must not exceed one thousand mg/kg.]

Table I: "Total Petroleum Hydrocarbon Soil Saturation Concentration" (values are in mg/kg).

Petroleum Fraction	Residual Saturation Concentrations for:	Residual Saturation Concentrations for:	Residual Saturation Concentrations for:
	Sand and Gravel; Unknown Soil Type $K_v: 10^{-3} - 10^{-4}$ cm/s	Silty/Clayey Sand $K_v: 10^{-4} - 10^{-5}$ cm/s	Glacial Till and Silty Clay $K_v: < 10^{-5}$ cm/s
Light (C_4 - C_{12})	1,000	5,000	8,000
Middle (C_7 - C_{16})	2,000	10,000	20,000
Heavy (C_{16} - C_{32})	5,000	20,000	40,000

Where: "Mg/kg" means milligrams per kilogram, " K_v " means vertical hydraulic conductivity of the unsaturated soil, "cm/s" means centimeters per second, and " C_s " means carbon chain length.

(b) Reporting limits for certified laboratories.

The volunteer must determine that the certified laboratory, which performs analyses that form the basis for the issuance of a further action letter, is capable of detecting the chemical(s) of concern on the property at or below the applicable generic direct-contact soil standards. The volunteer should contact the certified laboratory that is conducting analyses in support of the voluntary action to determine if the cleanup standards contained in paragraph (B)(3) of this rule are within the laboratory's reporting limits. In addition, the volunteer should be aware that even if the standards contained in paragraph (B)(3) of this rule are within the certified laboratory's reporting limits, the actual cleanup levels that must be met at a property may be lower if multiple chemicals of concern exist at the property. Properties with multiple chemicals of concern must perform a cumulative adjustment following the procedure contained in paragraph (B)(2)(b) of this rule. The volunteer must ensure that the cleanup levels after performing this cumulative adjustment, are not below the certified laboratory's reporting limits.

PHOTOGRAPH SHOWING BORING LOCATION



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