

Preliminary Soil Vapor Investigation Summary Report

Vapor Intrusion Evaluation of the Mahopac Business District Wells Remedial Site

NYSDEC Site ID # 03-40-013

**Village of Mahopac
Putnam County**

NYSDEC Project Manager: Hoffman

NYSDOH Project Manager: Obermeyer

October 2006

NYSDEC field investigations conducted to determine if there is soil vapor contamination at the site and to determine the extent to which these contaminants pose a threat to human health and the environment.

Soil gas investigations performed in accordance with the NYSDOH Guidance for Evaluating Soil Vapor Intrusion in the State of New York.

Table of Contents

1.0	Executive Summary
2.0	Site Background and Status
3.0	Summary of Soil Vapor Investigation
4.0	Summary of Findings
5.0	Recommendations and Conclusions

Tables

Table 1	Field Sampling Information
Table 2	Summary of Detected Constituents - Groundwater Analytical Data
Table 3	Summary of Detected Constituents - Soil Vapor Analytical Data

Figures

Figure 1	Groundwater Results
Figure 2	Soil Vapor Results - Chlorinated Volatile and BTEX Compounds
Figure 3	Soil Vapor Results - Additional Detected Compounds

Attachments

Attachment 1	Comprehensive Groundwater Analytical Results
Attachment 2	Comprehensive Soil Vapor Analytical Results

1.0 Executive Summary

A preliminary soil vapor investigation was conducted at the Mahopac Business District Wells Site (the Site) in October 2005 on behalf of the New York State Department of Environmental Conservation (NYSDEC) by Earth Tech Northeast, Inc. The site is located in the Village of Mahopac, Town of Carmel, Putnam County, New York. A total of nine (9) temporary and permanent groundwater monitoring wells and four (4) shallow soil vapor samples were collected from the vicinity of the site. Based on the information developed during this preliminary investigation, the NYSDEC, in consultation with the New York State Department of Health (NYSDOH), has determined that the source of the on-site contamination originates from an off-site source and therefore no further soil vapor intrusion work under the Mahopac Business District Wells Site (Registry No. 3-40-013) is recommended. Further investigation of the off-site source and the potential for exposures associated with the contamination is recommended under another remedial program to address potential exposures associated with vapor intrusion.

2.0 Site Background and Status

Although the soil vapor pathway has been historically evaluated at New York State sites, improvements in analytical techniques and knowledge gained from sites in New York and in other states has led to a more complete understanding of soil vapor as an environmental media of concern. Based on this additional information, New York has re-evaluated previous assumptions and decisions regarding the potential for vapor intrusion at sites. To this effort, the State has conducted a limited soil vapor investigation at the Mahopac Business District Wells Site # 03-40-013 to evaluate the vapor intrusion pathway. The Site is currently listed as a Class 2 site and has fifteen (15) granular activated carbon (GAC) systems connected to the drinking water supply of area homes and commercial properties.

2.1 Site Description

The Mahopac Business District Wells Site (Registry Site No. 3-40-013) is located at the intersection of Routes 6 and 6N in the Village of Mahopac in Putnam County, New York. The site is approximately six acres in size and is bounded by Cherry Lane, Route 6 and Route 6N. The site includes small retail and service businesses, offices, and residential apartments on private wells drawing water from the local bedrock water bearing zone. In most cases, one well services a number of apartments or businesses.

Contamination of groundwater in the Mahopac Business District was discovered following a gasoline spill at the former U.S. Gas Station, during the fall of 1978. The Putnam County Department of Health sampled several private drinking water wells in the business district to determine whether or not gasoline constituents had entered the groundwater. Although the sampling efforts were not initially focused on chlorinated VOCs, tetrachloroethene (PCE) and trichloroethene (TCE) were observed in several of the water samples. Boil water orders were issued and several carbon filtration units were

installed by well owners.

In 1983, the NYSDEC completed a Phase I investigation, conducted by Ecological Analysts, Inc. The Phase I study determined that the potential for harm to human health and the environment from groundwater or surface water migration existed at the Site. The NYSDEC conducted a Remedial Investigation/ Feasibility Study (RI/FS) at the Site which included the installation of a total of fifteen groundwater monitoring wells in order to characterize the extent of groundwater contamination. The findings of the RI/FS included the detection of four principal VOCs in potable groundwater and monitoring wells: PCE, TCE, 1,1,1-trichloroethane (TCA) and trans-1,2-dichloroethene (DCE). The volatile organic compounds (VOCs) plume was observed in the area bounded by the Mahopac Lake to the North, Sycamore Road to the East, Route 6 to the South and Clark Place to the West. The depth of the plume was not determined during the RI/FS.

The source of the observed groundwater contamination has been attributed to historical dischargers from three former dry cleaning establishments: 1) Loving Care Cleaners - historically located at 61 East Lake Boulevard; 2) Mahopac Launderaid - historically located on East Lake Boulevard; and 3) Lake Mahopac Tailor - historically located on Cherry Cherry Lane. Prior to the installation of distillation and recycling equipment at these dry cleaning establishments, spent solvent was typically discharged into the sanitary sewers. Since this disposal activity has stopped, a significant decrease in groundwater contamination has been observed.

2.2 Site Record of Decision (ROD)

The August 1990 ROD called for the following remedies: (1) Provide individual carbon treatment units to affected wells; (2) Provide alternative water supply from Lake Mahopac; (3) Remove contaminated sanitary sewer systems; (4) Review sanitary sewer evaluation survey and proposed work to determine if additional work is necessary; (5) Long-term groundwater monitoring; and (6) Consideration of a pump and treat system on new or existing wells to contain the plume after a new water supply is installed.

Remediation of the Site was conducted in accordance with the ROD and includes: the installation of carbon filtration systems on affected wells; the development of a permanent water supply; and the removal of contaminated sewer sediments. The Town of Carmel has provided city water to the affected area. The water main, filtration plant and storage tanks were completed and began operating in the fall of 1997. Drinking water is being provided to affected residences who have chosen to be connected to the local water district. Private drinking water wells, primarily contained within the bedrock aquifer, at properties where the owners declined to be connected to the local water district, were sampled by the Putnam County Health Department in January 2002. The sampling of the private drinking wells found PCE contamination in a number of these wells. Temporary arrangements (installation of granular activated carbon (GAC) filter systems and the delivery) have been made to supply drinking water to the affected

property owners, while permanent arrangements are being evaluated. The State continues to maintain GAC systems for properties not connected to city water.

Multiple rounds of sampling of the permanent monitoring wells, previously installed to evaluate the area groundwater, have been conducted. The sampling results indicate that the groundwater concentration of PCE has greatly decreased, potentially eliminating the need for further remedial action.

2.3 Site Geology and Groundwater Flow

The overburden geology is comprised of silty sands and fill material in shallow soils. The bedrock is identified as biotite-granite gneiss and biotite-quartz gneiss (Geologic Map of New York, 1970). The depth to bedrock in this area is unknown.

Local groundwater flow in the overburden is shallow, typically encountered less than 5 feet below grade surface, and generally flows radially towards the Mahopac Lake (generally to the North). The overburden groundwater is also tidally influenced by the Mahopac Lake.

3.0 Summary of Soil Vapor Investigation

In October 2005, Earth Tech conducted a soil vapor investigation. A total of four (4) shallow soil vapor samples were collected from the vicinity of the Mahopac Business District Wells Site # 3-40-013. The shallow soil vapor samples were collected from a depth approximately one foot above the site groundwater table. Due to the shallow groundwater levels at the site, no deep soil vapor samples were collected as part of the investigation. The soil vapor samples were collected from temporary soil vapor points installed via geoprobe push technology. The soil vapor points were constructed using 6-inch sampling screen attached to dedicated laboratory-grade polyethylene tubing. The borehole was backfilled with filter sand to a minimum of 6 inches above the sampling screen and backfilled with bentonite to the ground surface. A minimum of 24 hours was provided to allow the bentonite to sufficiently hydrate prior to sampling. Helium Tracer gas was used at each soil vapor sample location to verify the integrity of the bentonite seal between the ground surface and the borehole sampling point. The soil vapor samples were collected over a 2 hour period into 1 liter summa canisters and were submitted to Centek Laboratories of Syracuse, New York, for analysis of Volatile Organic Compounds (VOCs) by EPA Method TO-15.

A total of nine (9) permanent monitoring wells were sampled as part of the investigation. Four (4) shallow and intermediate overburden monitor wells were specifically sampled in the vicinity of the temporary soil vapor points in order to simultaneously evaluate the groundwater and soil vapor quality. The four monitor wells included: permanent shallow overburden monitoring wells MW-2S, MW-GS-5, and MW-6S, sampled in the vicinity of temporary soil vapor points V-2S, V-3S and V-4S, respectively; and permanent intermediate overburden monitoring well MW-3I, sampled in the vicinity of temporary soil vapor point V-1S.

The remaining five (5) monitor wells, designated as MW-2D, MW-2I, MW-4S, MW-GS-6, and MW-6I, were sampled as part of the bi-annual groundwater monitoring performed as part of the existing NYSDEC work assignment for the site. Consistent with the previous groundwater sampling and analysis under the existing NYSDEC work assignment, the groundwater samples were submitted to Chemtech Laboratories for analysis of VOCs via EPA Method 624 and/or 525.2

Refer to Table 1 for additional field sampling information regarding the soil vapor investigation.

4.0 Summary of Findings

4.1 Groundwater Findings

The groundwater sampling results are presented below according to the sampled groundwater interval: shallow overburden and intermediate overburden. Refer to Table 2 and Figure 1 for a summary of the detected groundwater constituents.

4.1.1 Shallow Monitoring Wells

A total of six (6) shallow overburden groundwater monitoring wells (total well depth less than 35 feet below grade surface) were sampled in the vicinity of the site. The shallow overburden wells, MW-2S, MW-GS-5, and MW-6S, sampled in the vicinity of the temporary soil vapor points (V-2S, V-3S, and V-4S, respectively) revealed detectable concentrations of methy tert-butyl ether (MTBE), trans-1,2-dichloroethene, cis-1,2-dichloroethene, benzene, tetrachloroethene (PCE) and ethyl benzene. MTBE was detected in MW-GS-5 at 27 micrograms per liter (ug/l). Trans-1,2-dichloroethene, benzene, and ethyl benzene were detected in MW-GS-5 at 1.2 J ug/l, 34 ug/l and 11 ug/l, respectively. Cis-1,2-dichloroethene was detected at concentrations ranging from 3.2 J ug/l (MW-6S) to 3.6 J ug/l (MW-GS-5). PCE was detected at 5.1 ug/l in MW-6S. Trichloroethene (TCE) and Toluene were not detected in any of the three shallow overburden groundwater samples collected as part of the soil vapor investigation.

The additional shallow overburden monitor wells sampled in the vicinity of the site included MW-2D, MW-4S, and MW-GS-6 revealed detectable concentrations of MTBE, cis-1,2-dichloroethene, benzene, TCE and PCE. MTBE, benzene, and PCE were detected in MW-GS-6 at 13 ug/l and 2.2 J ug/l, and 3.2 J ug/l, respectively. Cis-1,2-dichloroethene was detected at concentrations ranging from 3.5 J ug/l (MW-GS-6) to 4.8 ug/l (MW-2D). TCE was detected in MW-2D at 1.4 ug/l. Toluene was not detected in any of the remaining shallow groundwater samples collected.

4.1.2 Intermediate Monitoring Wells

A total of three (3) intermediate overburden monitoring wells were sampled in the vicinity of the site. The intermediate overburden well, MW-3I, sampled in the vicinity of the temporary soil vapor point (V-1S) revealed a detectable concentration of PCE at 0.4 J ug/l. The additional intermediate overburden monitor wells sampled in the vicinity of the site, MW-2I and MW-6I, revealed detectable concentrations of MTBE, cis-1,2-dichloroethene, and PCE. MTBE was detected in MW-2I at 4.6 J ug/l. Cis-1,2-dichloroethene was detected at concentrations ranging from 4.2 J ug/l (MW-6I) to 4.8 J ug/l (MW-2I). PCE was detected at concentrations ranging from 4.9 J ug/l (MW-2I) to 6.1 ug/l (MW-6I). Toluene and TCE were not detected in any of the intermediate overburden monitoring wells.

4.2 Shallow Soil Vapor Findings

Four (4) shallow soil vapor samples were collected as part of the investigation in the vicinity of the Mahopac Site. Tetrachloroethylene (PCE) was detected in each soil vapor sample locations at concentrations ranging from 0.97 J micrograms per cubic meter (ug/m^3) (V-3S) to 540 J ug/m^3 (V-4S Dupe). Trichloroethene (TCE) was only detected in sample V-4S at 6.8 J ug/m^3 , but was not detected in the V-4S Dupe. Toluene was detected in all four soil vapor sample locations at concentrations ranging from 3.5 ug/m^3 (V-1S) to 36 ug/m^3 (V-2S). Other detected constituents included 1,1,2-Trichloroethane, 2,2,4-Trimethylpentane, Cyclohexane, Heptane, and Hexane. 1,1,2-Trichloroethane and cyclohexane were detected in V-3S at 560 J ug/m^3 and 2,400 J ug/m^3 , respectively. 2,2,4-Trimethylpentane was detected at concentrations ranging from 940 J ug/m^3 (V-4S Dupe) to 40,000 ug/m^3 (V-3S). Heptane was detected at concentrations ranging from 210 J ug/m^3 (V-4S) to 400 J ug/m^3 (V-3S). Hexane was detected at concentrations ranging from 77 J ug/m^3 (V-4S) to 10,000 ug/m^3 (V-3S). Several other VOCs were detected in the soil vapor samples at low concentrations. MTBE was not detected in any of the soil vapor samples. Refer to Table 3 and Figures 2 and 3 for summaries of the detected soil vapor constituents.

5.0 Recommendations and Conclusions

Based on the distribution of the soil vapor and groundwater concentrations, two separate areas were evaluated for further investigation. These areas include the Mahopac Private Wells area and the area west of the Mahopac Private Wells area.

5.1 Mahopac Private Wells Area

The Mahopac Private Wells area is bounded by monitoring well MW-4S and Mahopac Lake to the north, Route 6 to the south, Sycamore Road to the east, and Cherry Lane to the west. Two (2) shallow soil vapor (V-1S and V-2S) and five (5) permanent

groundwater samples (MW-4S, MW-3I, MW-2I, MW-2S, and MW-2D) were collected to assess this area. In general, no direct correlation was observed between the shallow groundwater and shallow soil vapor samples.

Although PCE was not detected in the shallow overburden wells MW-2S or MW-2D, it was detected within the deep overburden well MW-2I at 4.9 J ug/l and the shallow soil vapor sample installed in the near vicinity of the well couple V-2S at 3.8 ug/m³. PCE was detected in MW-3I at a low level of 0.4J ug/l and in the corresponding shallow soil vapor sample at V-1S at 1.0 ug/m³. TCE was not detected in the shallow overburden or intermediate wells MW-2S, MW-4S, MW-2I or MW-3I or within the shallow soil vapor samples V-1S or V-2S. TCE was only detected in well MW-2D at 1.4 ug/l. MTBE was only detected in one groundwater well, MW-2I at 4.6 J ug/l, and not detected in either soil vapor sample. Toluene was not detected in any of the groundwater samples but was detected in the two shallow soil vapor samples at concentrations less than 36 ug/m³. Other VOCs were detected in the soil vapor samples at low concentrations although they were not detected in the groundwater samples.

Based on the fact that chlorinated solvents in soil vapor within the Mahopac Private Wells area were detected at lower concentrations (PCE less than 4 ug/m³ and TCE not detected) than in samples collected west of Cherry Lane, the NYSDEC has determined that the source of the on-site contamination originates from an off-site source and therefore no further soil vapor intrusion work under the Mahopac Business District Wells Site (Registry No. 3-40-013) is recommended. Further investigation of the off-site source and the potential for exposures associated with the contamination is recommended under another remedial program.

5.2 West of Mahopac Private Wells Area

The area west of the Mahopac Private Wells area is located west of Cherry Lane and is bounded by Mahopac Lake to the north, Route 6 to the south, Cherry Lane to the east and the extent of the gas station property to the west. Two (2) shallow soil vapor sample locations (V-3S and V-4S) and four (4) groundwater samples (MW-GS-5, MW-GS-6, MW-6S, and MW-6I) were collected west of the Mahopac Private Wells area. In general, no direct correlation was observed between the shallow groundwater and shallow soil vapor sample.

PCE was detected in both the shallow and intermediate monitoring wells MW-6S and MW-6I at a concentration of 5.1 ug/l and 6.1 ug/l, respectively, and was detected in the shallow soil vapor sample collected in the vicinity (V-4S Dupe) at a elevated concentration of 540 J ug/m³. PCE was not detected in the shallow overburden well MW-GS-5 although it was detected in the shallow soil vapor sampled collected in the vicinity (V-3S) at 0.97 J. TCE was not detected in groundwater in the area but was detected in the shallow soil vapor sample V-4S at 6.8 J ug/m³ although it was not detected in V-4S Dupe. Elevated levels of 1,1,2-Trichloroethene, 2,2,4-Trimethylpentane,

Cyclohexane, Heptane and Hexane were also detected in this area.

Soil vapor samples V-3S and V-4S were collected on property which currently operates as a repair garage and is associated with at least three spills. The spills associated with this property are listed in the table below and include two closed and one open spill. The open spill, spill number 0205779, was reported in September 2004 and was documented to involve equipment failure at the service station and contaminated soil was noted to be discovered at the site.

Spills Associated with Repair Garage located at Intersection of Rt 6 and Rt 6N

Spill No	Region	Spill	Received Date	Address	Status	Spill Description
0205779	3	Lakeside Service Station	9/4/2002	Cherry Lane & RT 6N	Open	Equip Failure - soil contamination
8707105	3	Cherry Lane Citgo	11/18/1987	RT. 6 & Cherry Lane	Closed	Tank Failure - Gasoline
0111274	3	Mickey's Towing	2/27/2002	RT 6 & RT 6N	Closed	Tank Overfill - 25 gal spill

Based on the concentrations of the chlorinated solvents detected in shallow soil vapor sample V-4S, it appears that a potential separate source may exist west of the Mahopac Private Wells area. The NYSDEC recommends further investigation in this area to determine the source of the PCE in soil vapor and the magnitude of possible soil vapor exposure.

TABLES

Table 1
Mahopac Business District Wells Site # 340013
Field Sampling Information

Groundwater Sample Information

Groundwater Sample I.D.	Sample Date	Sample Type	Depth to Water (feet)	Sample Depth (feet)	Monitoring Well Depth (feet)	Associated Vapor Point	GPS Coordinates
MW-3I	10/24/05	Permanent Monitor Well	2.8	~ 45	65	340013-V-1S	Unknown
MW-2S	10/24/05	Permanent Monitor Well	4.3	~ 10	20	340013-V-2S	Unknown
MW-GS-5	10/24/05	Permanent Monitor Well	3.0	~ 5	10	340013-V-3S	Unknown
MW-6S	10/24/05	Permanent Monitor Well	2.2	~ 5	10	340013-V-4S	Unknown

Soil Vapor Sample Information

Vapor Point I.D.	Sample Date	Sample Type	Depth to Water (feet)	Sample Depth (feet)	Sample Screen Interval (feet)	Associated Monitoring Well	GPS Coordinates
340013-V-1S	10/25/2005	Temporary Shallow Vapor	2.8	1.8	1.0 - 1.8	MW-3I	41°22.385' N 073°44.078' W
340013-V-2S	10/25/2005	Temporary Shallow Vapor	4.3	3.3	2.5 - 3.3	MW-2S	41°22.313' N 073°44.179' W
340013-V-3S	10/25/2005	Temporary Shallow Vapor	3.0	2.0	1.2 - 2.0	MW-GS-5	41°23.318' N 073°44.205' W
340013-V-4S	10/25/2005	Temporary Shallow Vapor	2.2	1.2	0.5 - 1.2	MW-6S	41°22.300' N 073°44.205' W

Table 2
Mahopac Business District Wells Site # 340013
Summary of Detected Constituents -
Groundwater Analytical Data

Shallow Monitoring Wells Sampled in the Vicinity of Temporary Soil Vapor Points

Sample ID	MW-2S	MW-3I	MW-GS-5	MW-6S
Sampling Date	10/24/05	10/24/05	10/24/05	10/24/05
Depth to Water	4.32	2.8	3.03	2.18
Depth of MW	20.1	65.0	10.0	10.0
Sample Interval	Shallow Overburden	Intermediate Overburden	Shallow Overburden	Shallow Overburden
Units	ug/L	ug/L	ug/L	ug/L
Methyl tert-Butyl Ether	0.15 U	0.15 U	27	0.23 U
trans-1,2-Dichloroethene	0.14 U	0.14 U	1.2 J	0.40 U
cis-1,2-Dichloroethene	0.12 U	0.12 U	3.6 J	3.2 J
Benzene	0.14 U	0.14 U	34	0.35 U
Trichloroethene	0.15 U	0.15 U	0.59 U	0.59 U
Tetrachloroethylene	0.16 U	0.4 J	0.74 U	5.1
Ethyl Benzene	0.14 U	0.14 U	11	0.50 U

Qualifiers

U - The compound was not detected at the indicated concentration.

J - The result is an approximate value which is less than the quantitation limit but greater than zero.

Samples analyzed by Chemtech Laboratories for VOCs via EPA Method 624/ 524.2 (in accordance with the existing Site work assignment).

Note: MW-GS-5 and MW-GS-6 were previously referred to MW-5 and MW-6, respectively, within the Earthtech May 2005 Sampling Report.

Table 2
Mahopac Business District Wells Site # 340013
Summary of Detected Constituents -
Groundwater Analytical Data

Remainder of Site Area Monitoring Wells

Sample ID	MW-2D	MW-2I	MW-4S	MW-GS-6	MW-6I
Sampling Date	10/24/05	10/24/05	10/24/05	10/24/05	10/24/05
Depth to Water	4.99	4.65	6.5	2.35	1.28
Depth of MW	32.5	49.0	20.1	11.0	45.5
Sample Interval	Shallow Overburden	Intermediate Overburden	Shallow Overburden	Shallow Overburden	Intermediate Overburden
Units	ug/L	ug/L	ug/L	ug/L	ug/L
Methyl tert-Butyl Ether	0.15 U	4.6 J	0.15 U	13	0.23 U
trans-1,2-Dichloroethene	0.14 U	0.40 U	0.14 U	0.40 U	0.40 U
cis-1,2-Dichloroethene	4.8	4.8 J	0.12 U	3.5 J	4.2 J
Benzene	0.14 U	0.35 U	0.14 U	2.2 J	0.35 U
Trichloroethene	1.4	0.59 U	0.15 U	0.59 U	0.59 U
Tetrachloroethylene	0.16 U	4.9 J	0.16 U	3.2 J	6.1
Ethyl Benzene	0.14 U	0.50 U	0.14 U	0.50 U	0.50 U

Table 3
Mahopac Business District Wells Site # 340013
Summary of Detected Constituents -
Soil Vapor Analytical Data

Sample ID	340013-V-1S	340013-V-2S	340013-V-3S	340013-V-4S	340013-V-4S(Dupe)
Sampling Date	10/25/05	10/25/05	10/25/05	10/25/05	10/25/05
Sample Depth (feet)	1.8	3.3	2.0	1.2	1.2
Depth to Water (feet)	2.8	4.3	3.0	2.2	2.2
Units	ug/m ³	ug/m ³	ug/m ³	ug/m ³	ug/m ³
1,1,2-Trichloroethane	0.83 U	0.83 U	560 J	0.83 U	0.83 U
1,2,4-Trimethylbenzene	4	9.8	5.8 J	4.7 J	9.2 J
1,3,5-Trimethylbenzene	0.75	2.4	2.1 J	4.9 J	9.7
2,2,4-Trimethylpentane	0.71 U	0.71 U	40000	2500 J	940 J
4-Ethyltoluene	1.1	5.9	2.5 J	3.6 J	7.2 J
Acetone	0.72 U	0.72 U	0.72 U	0.72 UJ	23 J
Benzene	0.81	2.2	64 J	2.2 J	2.8 J
Carbon Disulfide	0.47 U	0.95	0.47 U	4.7 J	5.4
Carbon Tetrachloride	0.83 J	0.96 U	0.96 U	0.96 UJ	0.96 UJ
Chloroform	0.74 U	2.9	0.74 U	2.2 J	4 J
cis-1,2-Dichloroethene	0.6 U	0.6 U	0.6 U	5.8 J	7.5 J
Cyclohexane	0.52 U	0.52 U	2400 J	170 U	420 U
Ethylbenzene	0.84	8.4	5 J	8.4 J	9.3 J
Freon 11	1.5	1.6	0.86 U	0.8 J	1 J
Freon 12	2.6	2.5	1.2 J	2 J	2.2 J
Heptane	0.62 U	0.62 U	400 J	210 J	330
Hexane	0.43 J	1.4	10000	77 J	96
M-Xylene	2.2 J	22 J	11 J	18 J	23 J
O-Xylene	1.1	7.9	4.4 J	9.6 J	12
P-Xylene	1.1 J	8.4 J	4.4 J	6.4 J	8.1 J
Tetrachloroethylene	1	3.8	0.97 J	500 J	540 J
Toluene	3.5	36	21 J	25 J	31
Trichloroethene	0.82 U	0.82 U	0.82 U	6.8 J	0.82 UJ

Qualifiers

U - The compound was not detected at the indicated concentration.

J - The result is an approximate value which is less than the quantitation limit but greater than zero.

Samples analyzed by Centex Laboratories via EPA Method TO-15 with a minimum reporting limit of 1 ug/m³.

FIGURES

Groundwater Results



New York State
Department of Environmental Conservation
Division of Environmental Remediation

Map Details

Created in ArcGIS 9.1
Created by B.Rung
Date of Last Revision: 10/12/2006
UNAUTHORIZED DUPLICATION
IS A VIOLATION OF APPLICABLE LAWS

Figure 1

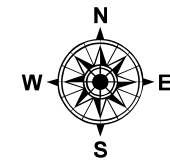
Mahopac Business
District Wells
Site No. 3-40-013

Putnam County
Town of Carmel
Village of Mahopac

DEC Contact:
Hoffman

DOH Contact:
Obermeyer

Spring 2003
Aerial Photography



North American Datum 1983
UTM Zone 18N

SOIL VAPOR RESULTS
Chlorinated Volatile
and
BTEX Compounds



New York State
Department of Environmental Conservation
Division of Environmental Remediation

Map Details

Created in ArcGIS 9.1
Created by B.Rung
Date of Last Revision: 10/12/2006
UNAUTHORIZED DUPLICATION
IS A VIOLATION OF APPLICABLE LAWS

Figure 2

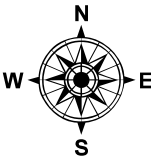
Mahopac Business
District Wells
Site No. 3-40-013

Putnam County
Town of Carmel
Village of Mahopac

DEC Contact:
Hoffman

DOH Contact:
Obermeyer

Spring 2003
Aerial Photography



North American Datum 1983
UTM Zone 18N

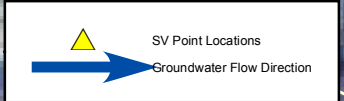
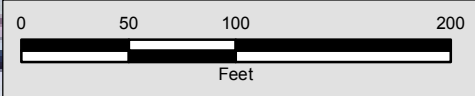
Sample Annotation
U : Compound not detected at
the indicated concentration.
J : Compound detected below
reporting limit, value is
approximate.
Units for soil vapor samples
are micrograms per
cubic meter (ug/m3).

340013-V-1S
PCE : 1
TCE : 0.82 U
TCA : 0.83 U
VC : 0.39 U
Benzene : 0.81
Toluene : 3.5
Ethylbenzene : 0.84
Xylene : 4.4

340013-V-2S
PCE : 3.8
TCE : 0.82 U
TCA : 0.83 U
VC : 0.39 U
Benzene : 2.2
Toluene : 36
Ethylbenzene : 8.4
Xylene : 38.3

340013-V-3S
PCE : 0.97 J
TCE : 0.82 U
TCA : 0.83 U
VC : 0.39 U
Benzene : 64 J
Toluene : 21 J
Ethylbenzene : 5 J
Xylene : 19.8 J

340013-V-4S
PCE : 500 J
TCE : 6.8 J
TCA : 0.83 U
VC : 0.39 U
Benzene : 2.2 J
Toluene : 25 J
Ethylbenzene : 8.4 J
Xylene : 34.0 J



SOIL VAPOR RESULTS
Additional
Detected Compounds



New York State
Department of Environmental Conservation
Division of Environmental Remediation

Map Details

Created in ArcGIS 9.1
Created by B.Rung
Date of Last Revision: 10/12/2006
UNAUTHORIZED DUPLICATION
IS A VIOLATION OF APPLICABLE LAWS

Figure 3

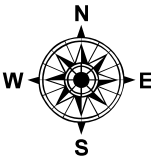
Mahopac Business
District Wells
Site No. 3-40-013

Putnam County
Town of Carmel
Village of Mahopac

DEC Contact:
Hoffman

DOH Contact:
Obermeyer

Spring 2003
Aerial Photography



North American Datum 1983
UTM Zone 18N

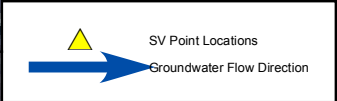
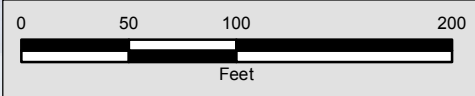
Sample Annotation
U : Compound not detected at
the indicated concentration.
J : Compound detected below
reporting limit, value is
approximate.
Units for soil vapor samples
are micrograms per
cubic meter (ug/m3).

340013-V-1S
1,1,2-Trichloroethane 0.83 U
2,2,4- Trimethylpentane 0.71 U
Cyclohexane 0.52 U
Heptane 0.62 U
Hexane 0.43 J

340013-V-2S
1,1,2-Trichloroethane 0.83 U
2,2,4- Trimethylpentane 0.71 U
Cyclohexane 0.52 U
Heptane 0.62 U
Hexane 1.4

340013-V-3S
1,1,2-Trichloroethane 560 J
2,2,4- Trimethylpentane 40,000
Cyclohexane 2,400 J
Heptane 400 J
Hexane 10,000

340013-V-4S
1,1,2-Trichloroethane 0.83 U
2,2,4- Trimethylpentane 2,500 J
Cyclohexane 170 U
Heptane 210 J
Hexane 77 J



ATTACHMENTS

MAHOPAC BUSINESS DISTRICT WELLS SITE # 340013
COMPREHENSIVE GROUNDWATER ANALYTICAL RESULTS

Sample ID		MW-2D	MW-2S	MW-3I	MW-4S	MW-2I	MW-6I	MW-6S	MW-GS-5	MW-GS-6	TRIPBLANKS
Lab Sample Number		T5416-01	T5416-03	T5416-04	T5416-05	T5416-02	T5416-06	T5416-07	T5416-08	T5416-09	T5416-10
Sampling Date		10/24/05	10/24/05	10/24/05	10/24/05	10/24/05	10/24/05	10/24/05	10/24/05	10/24/05	10/24/05
Matrix		WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER
Dilution Factor		1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
COMPOUND	CAS #	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Dichlorodifluoromethane	75-71-8	0.06 U	0.06 U	0.06 U	0.06 U	0.70 U	0.70 U	0.70 U	0.70 U	0.70 U	0.06 U
Chloromethane	74-87-3	0.07 U	0.07 U	0.07 U	0.07 U	0.45 U	0.45 U	0.45 U	0.45 U	0.45 U	0.07 U
Vinyl Chloride	75-01-4	0.07 U	0.07 U	0.07 U	0.07 U	0.62 U	0.62 U	0.62 U	0.62 U	0.62 U	0.07 U
Bromomethane	74-83-9	0.23 U	0.23 U	0.23 U	0.23 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	0.23 U
Chloroethane	75-00-3	0.17 U	0.17 U	0.17 U	0.17 U	1.1 U	1.1 U	1.1 U	1.1 U	1.1 U	0.17 U
Trichlorofluoromethane	75-69-4	0.09 U	0.09 U	0.09 U	0.09 U	0.58 U	0.58 U	0.58 U	0.58 U	0.58 U	0.09 U
tert-Butyl Alcohol	75-65-0	2.9 U	2.9 U	2.9 U	2.9 U	NA	NA	NA	NA	NA	2.9 U
Diethyl Ether	60-29-7	0.16 U	0.16 U	0.16 U	0.16 U	NA	NA	NA	NA	NA	0.16 U
1,1-Dichloroethene	75-35-4	0.14 U	0.14 U	0.14 U	0.14 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.14 U
Iodomethane	74-88-4	0.08 U	0.08 U	0.08 U	0.08 U	NA	NA	NA	NA	NA	0.08 U
Allyl Chloride	107-5-1	0.15 U	0.15 U	0.15 U	0.15 U	NA	NA	NA	NA	NA	0.15 U
Acrylonitrile	107-13-1	0.46 U	0.46 U	0.46 U	0.46 U	NA	NA	NA	NA	NA	0.46 U
Acetone	67-64-1	1.1 U	1.1 U	1.1 U	1.1 U	6.8 U	6.8 U	6.8 U	6.8 U	6.8 U	1.1 U
Carbon Disulfide	75-15-0	0.14 U	0.14 U	0.14 U	0.14 U	0.36 U	0.36 U	0.36 U	0.36 U	0.36 U	0.14 U
Methyl tert-Butyl Ether	1634-04-4	0.15 U	0.15 U	0.15 U	0.15 U	4.6 J	0.23 U	0.23 U	27	13	0.15 U
Methyl acrylate	79-20-9	0.16 U	0.16 U	0.16 U	0.16 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	0.16 U
Methylene Chloride	75-09-2	0.27 U	0.27 U	0.27 U	0.27 U	0.98 U	0.98 U	0.98 U	0.98 U	0.98 U	0.5 J
trans-1,2-Dichloroethene	156-60-5	0.14 U	0.14 U	0.14 U	0.14 U	0.40 U	0.40 U	0.40 U	1.2 J	0.40 U	0.14 U
1,1-Dichloroethane	75-34-3	0.16 U	0.16 U	0.16 U	0.16 U	0.28 U	0.28 U	0.28 U	0.28 U	0.28 U	0.16 U
2-Butanone	78-93-3	0.99 U	0.99 U	0.99 U	0.99 U	1.6 U	1.6 U	1.6 U	1.6 U	1.6 U	0.99 U
Carbon Tetrachloride	56-23-5	0.15 U	0.15 U	0.15 U	0.15 U	0.34 U	0.34 U	0.34 U	0.34 U	0.34 U	0.15 U
2,2-Dichloropropane	594-20-7	0.19 U	0.19 U	0.19 U	0.19 U	NA	NA	NA	NA	NA	0.19 U
cis-1,2-Dichloroethene	156-59-2	4.8	0.12 U	0.12 U	0.12 U	4.8 J	4.2 J	3.2 J	3.6 J	3.5 J	0.12 U
Chloroform	67-66-3	0.16 U	0.16 U	0.16 U	0.16 U	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U	0.16 U
1,1,1-Trichloroethane	71-55-6	0.14 U	0.14 U	0.14 U	0.14 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.14 U
t-1,4-Dichloro-2-butene	110-57-6	0.45 U	0.45 U	0.45 U	0.45 U	NA	NA	NA	NA	NA	0.45 U
1,1-Dichloropropene	563-58-6	0.16 U	0.16 U	0.16 U	0.16 U	NA	NA	NA	NA	NA	0.16 U
Isopropyl Ether	108-20-3	0.18 U	0.18 U	0.18 U	0.18 U	NA	NA	NA	NA	NA	0.18 U
Propionitrile	107-12-0	1.7 U	1.7 U	1.7 U	1.7 U	NA	NA	NA	NA	NA	1.7 U
Benzene	71-43-2	0.14 U	0.14 U	0.14 U	0.14 U	0.35 U	0.35 U	0.35 U	34	2.2 J	0.14 U
1,2-Dichloroethane	107-06-2	0.21 U	0.21 U	0.21 U	0.21 U	0.28 U	0.28 U	0.28 U	0.28 U	0.28 U	0.21 U

MAHOPAC BUSINESS DISTRICT WELLS SITE # 340013
COMPREHENSIVE GROUNDWATER ANALYTICAL RESULTS

Sample ID		MW-2D	MW-2S	MW-3I	MW-4S	MW-2I	MW-6I	MW-6S	MW-GS-5	MW-GS-6	TRIPBLANKS
Lab Sample Number		T5416-01	T5416-03	T5416-04	T5416-05	T5416-02	T5416-06	T5416-07	T5416-08	T5416-09	T5416-10
Sampling Date		10/24/05	10/24/05	10/24/05	10/24/05	10/24/05	10/24/05	10/24/05	10/24/05	10/24/05	10/24/05
Matrix		WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER
Dilution Factor		1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
COMPOUND	CAS #	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Trichloroethene	79-01-6	1.4	0.15 U	0.15 U	0.15 U	0.59 U	0.59 U	0.59 U	0.59 U	0.59 U	0.15 U
1,2-Dichloropropane	78-87-5	0.14 U	0.14 U	0.14 U	0.14 U	0.27 U	0.27 U	0.27 U	0.27 U	0.27 U	0.14 U
Methacrylonitrile	126-98-7	0.62 U	0.62 U	0.62 U	0.62 U	NA	NA	NA	NA	NA	0.62 U
Tetrahydrofuran	109-99-9	0.45 U	0.45 U	0.45 U	0.45 U	NA	NA	NA	NA	NA	0.45 U
1-Chlorobutane	109-69-3	0.17 U	0.17 U	0.17 U	0.17 U	NA	NA	NA	NA	NA	0.17 U
Dibromomethane	74-95-3	0.19 U	0.19 U	0.19 U	0.19 U	NA	NA	NA	NA	NA	0.19 U
Bromodichloromethane	75-27-4	0.17 U	0.17 U	0.17 U	0.17 U	0.30 U	0.30 U	0.30 U	0.30 U	0.30 U	0.17 U
4-Methyl-2-Pentanone	108-10-1	0.90 U	0.90 U	0.90 U	0.90 U	1.7 U	1.7 U	1.7 U	1.7 U	1.7 U	0.90 U
Methyl methacrylate	80-62-6	0.32 U	0.32 U	0.32 U	0.32 U	NA	NA	NA	NA	NA	0.32 U
Ethyl methacrylate	97-63-2	0.16 U	0.16 U	0.16 U	0.16 U	NA	NA	NA	NA	NA	0.16 U
Toluene	108-88-3	0.13 U	0.13 U	0.13 U	0.13 U	0.38 U	0.38 U	0.38 U	0.38 U	0.38 U	0.13 U
t-1,3-Dichloropropene	10061-02-6	0.14 U	0.14 U	0.14 U	0.14 U	0.29 U	0.29 U	0.29 U	0.29 U	0.29 U	0.14 U
cis-1,3-Dichloropropene	10061-01-5	0.13 U	0.13 U	0.13 U	0.13 U	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	0.13 U
1,1,2-Trichloroethane	79-00-5	0.18 U	0.18 U	0.18 U	0.18 U	0.36 U	0.36 U	0.36 U	0.36 U	0.36 U	0.18 U
1,3-Dichloropropane	142-28-9	0.14 U	0.14 U	0.14 U	0.14 U	NA	NA	NA	NA	NA	0.14 U
2-Hexanone	591-78-6	0.81 U	0.81 U	0.81 U	0.81 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	0.81 U
Dibromochloromethane	124-48-1	0.17 U	0.17 U	0.17 U	0.17 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.17 U
1,2-Dibromoethane	106-93-4	0.17 U	0.17 U	0.17 U	0.17 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.17 U
Tetrachloroethene	127-18-4	0.16 U	0.16 U	0.4 J	0.16 U	4.9 J	6.1	5.1	0.74 U	3.2 J	0.16 U
Chlorobenzene	108-90-7	0.13 U	0.13 U	0.13 U	0.13 U	0.47 U	0.47 U	0.47 U	0.47 U	0.47 U	0.13 U
1,1,1,2-Tetrachloroethane	630-20-6	0.17 U	0.17 U	0.17 U	0.17 U	NA	NA	NA	NA	NA	0.17 U
Hexachloroethane	67-72-1	0.17 U	0.17 U	0.17 U	0.17 U	NA	NA	NA	NA	NA	0.17 U
Ethyl Benzene	100-41-4	0.14 U	0.14 U	0.14 U	0.14 U	0.50 U	0.50 U	0.50 U	11	0.50 U	0.14 U
m/p-Xylenes	126777-61-2	0.29 U	0.29 U	0.29 U	0.29 U	1.1 U	1.1 U	1.1 U	1.1 U	1.1 U	0.29 U
o-Xylene	95-47-6	0.15 U	0.15 U	0.15 U	0.15 U	0.47 U	0.47 U	0.47 U	0.47 U	0.47 U	0.15 U
Styrene	100-42-5	0.14 U	0.14 U	0.14 U	0.14 U	0.45 U	0.45 U	0.45 U	0.45 U	0.45 U	0.14 U
Bromoform	75-25-2	0.17 U	0.17 U	0.17 U	0.17 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.17 U
Bromobenzene	108-86-1	0.14 U	0.14 U	0.14 U	0.14 U	NA	NA	NA	NA	NA	0.14 U
Isopropylbenzene	98-82-8	0.14 U	0.14 U	0.14 U	0.14 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	0.14 U
1,1,2,2-Tetrachloroethane	79-34-5	0.18 U	0.18 U	0.18 U	0.18 U	0.35 U	0.35 U	0.35 U	0.35 U	0.35 U	0.18 U
1,2,3-Trichloropropane	96-18-4	0.20 U	0.20 U	0.20 U	0.20 U	NA	NA	NA	NA	NA	0.20 U

MAHOPAC BUSINESS DISTRICT WELLS SITE # 340013
COMPREHENSIVE GROUNDWATER ANALYTICAL RESULTS

Sample ID		MW-2D	MW-2S	MW-3I	MW-4S	MW-2I	MW-6I	MW-6S	MW-GS-5	MW-GS-6	TRIPBLANKS
Lab Sample Number		T5416-01	T5416-03	T5416-04	T5416-05	T5416-02	T5416-06	T5416-07	T5416-08	T5416-09	T5416-10
Sampling Date		10/24/05	10/24/05	10/24/05	10/24/05	10/24/05	10/24/05	10/24/05	10/24/05	10/24/05	10/24/05
Matrix		WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER
Dilution Factor		1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
COMPOUND	CAS #	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
n-propylbenzene	103-65-1	0.14 U	0.14 U	0.14 U	0.14 U	NA	NA	NA	NA	NA	0.14 U
2-Chlorotoluene	95-49-8	0.11 U	0.11 U	0.11 U	0.11 U	NA	NA	NA	NA	NA	0.11 U
1,3,5-Trimethylbenzene	108-67-8	0.15 U	0.15 U	0.15 U	0.15 U	NA	NA	NA	NA	NA	0.15 U
4-Chlorotoluene	106-43-4	0.15 U	0.15 U	0.15 U	0.15 U	NA	NA	NA	NA	NA	0.15 U
tert-Butylbenzene	98-06-6	0.15 U	0.15 U	0.15 U	0.15 U	NA	NA	NA	NA	NA	0.15 U
1,2,4-Trimethylbenzene	95-63-6	0.15 U	0.15 U	0.15 U	0.15 U	NA	NA	NA	NA	NA	0.15 U
sec-Butylbenzene	135-98-8	0.14 U	0.14 U	0.14 U	0.14 U	NA	NA	NA	NA	NA	0.14 U
p-Isopropyltoluene	99-87-6	0.14 U	0.14 U	0.14 U	0.14 U	NA	NA	NA	NA	NA	0.14 U
1,3-Dichlorobenzene	541-73-1	0.15 U	0.15 U	0.15 U	0.15 U	0.65 U	0.65 U	0.65 U	0.65 U	0.65 U	0.15 U
1,4-Dichlorobenzene	106-46-7	0.17 U	0.17 U	0.17 U	0.17 U	0.79 U	0.79 U	0.79 U	0.79 U	0.79 U	0.17 U
n-Butylbenzene	104-51-8	0.12 U	0.12 U	0.12 U	0.12 U	NA	NA	NA	NA	NA	0.12 U
1,2-Dichlorobenzene	95-50-1	0.16 U	0.16 U	0.16 U	0.16 U	0.67 U	0.67 U	0.67 U	0.67 U	0.67 U	0.16 U
1,2-Dibromo-3-Chloropropane	96-12-8	0.19 U	0.19 U	0.19 U	0.19 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	0.19 U
1,2,4-Trichlorobenzene	120-82-1	0.11 U	0.11 U	0.11 U	0.11 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	0.11 U
Hexachlorobutadiene	87-68-3	0.13 U	0.13 U	0.13 U	0.13 U	NA	NA	NA	NA	NA	0.13 U
Naphthalene	91-20-3	0.14 U	0.14 U	0.14 U	0.14 U	NA	NA	NA	NA	NA	0.14 U
1,2,3-Trichlorobenzene	87-61-6	0.16 U	0.16 U	0.16 U	0.16 U	NA	NA	NA	NA	NA	0.16 U
1,1,2-Trichlorotrifluoroethane	76-13-1	NA	NA	NA	NA	2.1 U	2.1 U	2.1 U	2.1 U	2.1 U	NA
Cyclohexane	110-82-7	NA	NA	NA	NA	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	NA
Methyl Cyclohexane	108-87-2	NA	NA	NA	NA	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	NA

Qualifiers

U - The compound was not detected at the indicated concentration.

J - The result is an approximate value which is less than the quantitation limit but greater than zero.

NA - Not analyzed

Samples analyzed by Chemtech Laboratories for VOCs via EPA Method 624/ 524.2 (in accordance with the existing Site work assignment).

Note: MW-GS-5 and MW-GS-6 were previously referred to MW-5 and MW-6, respectively, within the Earthtech May 2005 Sampling Report.

Comprehensive Soil Vapor Analytical Results

Mahopac Business District Wells
NYSDEC Site No. 340013
Sample Type: Soil vapor

CONSTITUENT	STATION SAMPLE ID DATE TYPE	340013-V-1 340013-Trip Blank 10/24/05 TB	340013-V-1 340013-V-1S 10/24/05 N	340013-V-2 340013-V-2S 10/24/05 N	340013-V-3 340013-V-3S 10/24/05 N	340013-V-4 340013-V-4S 10/24/05 N	340013-V-4 340013-V-4S DUPE 10/24/05 FD
1,1,1-Trichloroethane	ug/m3	0.83 U	0.83 U	0.83 U	0.83 U	0.83 U J	0.83 U J
1,1,2,2-Tetrachloroethane	ug/m3	1 U	1 U	1 U	1 U	1 U J	1 U J
1,1,2-Trichloroethane	ug/m3	0.83 U	0.83 U	0.83 U	560 J	0.83 U	0.83 U
1,1-Dichloroethane	ug/m3	0.62 U	0.62 U	0.62 U	0.62 U	0.62 U	0.62 U
1,1-Dichloroethene	ug/m3	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U
1,2,4-Trichlorobenzene	ug/m3	1.1 U	1.1 U	1.1 U	1.1 U	1.1 U	1.1 U
1,2,4-Trimethylbenzene	ug/m3	0.75 U	4	9.8	5.8 J	4.7 J	9.2 J
1,2-Dibromoethane	ug/m3	1.2 U	1.2 U	1.2 U	1.2 U	1.2 U	1.2 U
1,2-Dichlorobenzene	ug/m3	0.92 U	0.92 U	0.92 U	0.92 U	0.92 U	0.92 U
1,2-Dichloroethane	ug/m3	0.62 U	0.62 U	0.62 U	0.62 U	0.62 U	0.62 U
1,2-Dichloropropane	ug/m3	0.7 U	0.7 U	0.7 U	0.7 U	0.7 U J	0.7 U J
1,3,5-Trimethylbenzene	ug/m3	0.75 U	0.75	2.4	2.1 J	4.9 J	9.7 J
1,3-butadiene	ug/m3	0.34 U	0.34 U	0.34 U	0.34 U	0.34 U	0.34 U
1,3-Dichlorobenzene	ug/m3	0.92 U	0.92 U	0.92 U	0.92 U	0.92 U	0.92 U
1,4-Dichlorobenzene	ug/m3	0.92 U	0.92 U	0.92 U	0.92 U	0.92 U	0.92 U
1,4-Dioxane	ug/m3	1.1 U	1.1 U	1.1 U	1.1 U	1.1 U	1.1 U
2,2,4-trimethylpentane	ug/m3	0.71 U	0.71 U	0.71 U	40000	2500 J	940 J
4-ethyltoluene	ug/m3	0.75 U	1.1	5.9	2.5 J	3.6 J	7.2 J
Acetone	ug/m3	0.72 U	0.72 U	0.72 U	0.72 U	0.72 U J	23 J
Allyl chloride	ug/m3	0.48 U	0.48 U	0.48 U	0.48 U	0.48 U	0.48 U
Benzene	ug/m3	0.49 U	0.81	2.2	64 J	2.2 J	2.8 J
Benzyl chloride	ug/m3	0.79 U	0.79 U	0.79 U	0.79 U	0.79 U	0.79 U
Bromodichloromethane	ug/m3	1 U	1 U	1 U	1 U	1 U J	1 U J
Bromoform	ug/m3	1.6 U	1.6 U	1.6 U	1.6 U	1.6 U	1.6 U
Bromomethane	ug/m3	0.59 U	0.59 U	0.59 U	0.59 U	0.59 U J	0.59 U J
Carbon disulfide	ug/m3	0.47 U	0.47 U	0.95	0.47 U	4.7 J	5.4
Carbon tetrachloride	ug/m3	0.96 U	0.83 J	0.96 U	0.96 U	0.96 U J	0.96 U J
Chlorobenzene	ug/m3	0.7 U	0.7 U	0.7 U	0.7 U	0.7 U	0.7 U
Chloroethane	ug/m3	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U J	0.4 U J
Chloroform	ug/m3	0.74 U	0.74 U	2.9	0.74 U	2.2 J	4 J
Chloromethane	ug/m3	0.31 U	0.31 U	0.31 U	0.31 U	0.31 U	0.31 U
cis-1,2-Dichloroethene	ug/m3	0.6 U	0.6 U	0.6 U	0.6 U	5.8 J	7.5 J
cis-1,3-Dichloropropene	ug/m3	0.69 U	0.69 U	0.69 U	0.69 U	0.69 U	0.69 U
Cyclohexane	ug/m3	0.52 U	0.52 U	0.52 U	2400 J	170 U	420 U
Dibromochloromethane	ug/m3	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U
Ethyl acetate	ug/m3	0.92 U	0.92 U	0.92 U	0.92 U	0.92 U	0.92 U
Ethylbenzene	ug/m3	0.66 U	0.84	8.4	5 J	8.4 J	9.3 J
Freon 11	ug/m3	0.86 U	1.5	1.6	0.86 U	0.8 J	1 J
Freon 113	ug/m3	1.2 U	1.2 U	1.2 U	1.2 U	1.2 U	1.2 U
Freon 114	ug/m3	1.1 U	1.1 U	1.1 U	1.1 U	1.1 U J	1.1 U J
Freon 12	ug/m3	0.75 U	2.6	2.5	1.2 J	2 J	2.2 J

Comprehensive Soil Vapor Analytical Results

Mahopac Business District Wells
NYSDEC Site No. 340013
Sample Type: Soil vapor

CONSTITUENT	STATION SAMPLE ID DATE TYPE	340013-V-1 340013-Trip Blank 10/24/05 TB	340013-V-1 340013-V-1S 10/24/05 N	340013-V-2 340013-V-2S 10/24/05 N	340013-V-3 340013-V-3S 10/24/05 N	340013-V-4 340013-V-4S 10/24/05 N	340013-V-4 340013-V-4S DUPE 10/24/05 FD
Heptane	ug/m3	0.62 U	0.62 U	0.62 U	400 J	210 J	330
Hexachloro-1,3-butadiene	ug/m3	1.6 U	1.6 U	1.6 U	1.6 U	1.6 U	1.6 U
Hexane	ug/m3	0.54 U	0.43 J	1.4	10000	77 J	96
Isopropyl alcohol	ug/m3	0.37 U	0.37 U	0.37 U	0.37 U	0.37 U	0.37 U
Methyl Butyl Ketone	ug/m3	1.2 U	1.2 U	1.2 U	1.2 U	1.2 U	1.2 U
Methyl Ethyl Ketone	ug/m3	0.9 U	0.9 U	0.9 U	0.9 U	0.9 U	0.9 U
Methyl Isobutyl Ketone	ug/m3	1.2 U	1.2 U	1.2 U	1.2 U	1.2 U	1.2 U
Methyl tert-butyl ether	ug/m3	0.55 U	0.55 U	0.55 U	0.55 U	0.55 U	0.55 U
Methylene chloride	ug/m3	0.53 U	0.53 U	0.53 U	0.53 U	0.53 U	0.53 U
m-Xylene	ug/m3	0.66 U	2.2 J	22 J	11 J	18 J	23 J
o-Xylene	ug/m3	0.66 U	1.1	7.9	4.4 J	9.6 J	12
Propylene	ug/m3	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U
p-Xylene	ug/m3	0.66 U	1.1 J	8.4 J	4.4 J	6.4 J	8.1 J
Styrene	ug/m3	0.65 U	0.65 U	0.65 U	0.65 U	0.65 U	6.8 U
Tetrachloroethylene	ug/m3	1 U	1	3.8	0.97 J	500 J	540 J
Tetrahydrofuran	ug/m3	0.45 U	0.45 U	0.45 U	0.45 U	0.45 U R	0.45 U R
Toluene	ug/m3	0.57 U	3.5	36	21 J	25 J	31
trans-1,2-Dichloroethene	ug/m3	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U
trans-1,3-Dichloropropene	ug/m3	0.69 U	0.69 U	0.69 U	0.69 U	0.69 U	0.69 U
Trichloroethene	ug/m3	0.82 U	0.82 U	0.82 U	0.82 U	6.8 J	0.82 U J
Vinyl acetate	ug/m3	0.54 U	0.54 U	0.54 U	0.54 U	0.54 U	0.54 U
Vinyl bromide	ug/m3	0.67 U	0.67 U	0.67 U	0.67 U	0.67 U	0.67 U
Vinyl chloride	ug/m3	0.39 U	0.39 U	0.39 U	0.39 U	0.39 U	0.39 U



MEMORANDUM

TO: Robert Schick, Director, Remedial Bureau C, NYSDEC

FROM: Sal Ervolina, Assistant Director, Division of Environmental Remediation

SUBJECT: Soil Vapor Intrusion Evaluation
Site No. 3-40-013, Mahopac Business District Wells
Village of Mahopac, Putnam County

DATE:

The vapor intrusion exposure pathway was recently evaluated at the Mahopac Business District Wells site. This memorandum serves to notify you of the **Site Not Source** determination made by the NYSDEC and New York State Department of Health (NYSDOH) at the above-referenced site and the requirement, by extension, to perform follow-up vapor intrusion work to investigate the potential off-site source.

On behalf of the NYSDEC and NYSDOH, Earth Tech Northeast conducted a vapor intrusion investigation, which included sampling of soil vapor and groundwater to assess whether or not soil vapor contamination exists at the site and to assess the extent to which the vapors pose a potential threat to human health or the environment. The results of the investigation are summarized in a report prepared by staff from Remedial Bureau E entitled, "Preliminary Soil Vapor Investigation Summary Report, Vapor Intrusion Evaluation of the Mahopac Business District Wells Remedial Site," dated October 2006. Because chlorinated solvents and petroleum constituents were detected in shallow soil vapor and groundwater west of Cherry Lane, it appears that a potential separate source west of the Mahopac Business District Wells area exists.

Based on the information developed during this preliminary investigation, the NYSDEC, in consultation with the NYSDOH, has determined that the source of the on-site contamination originates from one or more off-site source(s) and recommends further investigation under another remedial program. Both the off-site source and the potential for exposures associated with the contamination are to be addressed under another remedial program. It is recommended that the further work include collection of soil vapor samples west of Cherry Lane and heating season sampling of nearby structures to more fully evaluate the potential for soil vapor intrusion.

During the transition, Eric Hausamann, of my staff, will be available to review the results of the preliminary SVI evaluation with you and meet with NYSDOH to discuss future work.

ecc: R. Knizek
W. Wertz
E. Hausamann
T. Festa

Attachments:

- Soil Vapor Intrusion Determination: Site Not Source Memorandum (April 5, 2007)
- Site Investigation Summary Report prepared by NYSDEC (October 2006)