

Route 100 Somers, NY 10589

August 14, 2007

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Remedial Bareau C Division of Environmental Remediation

New York Department of Environmental Conservation Division of Environmental Remediation 625 Broadway Albany, New York 12233-7014

Attn: Mr. John Miller

Re: April 2007 Soil Vapor Sampling Event Mead Property Site Highland, New York IBM Corporation NYSDEC Site Code No. 3-56-019

Dear Mr. Miller:

The purpose of this letter is to report the activities and data associated with completion of the April 18, 2007 soil vapor sampling at the Mead Property Site in Highland, New York ("the Site"). This work was performed in accordance with the *Draft Soil Vapor and Sub-Slab Sampling Work Plan* dated April 9, 2007.

Objective: The objective of this work was to evaluate the soil vapor, specifically the total volatile organic compounds (VOCs) within the plume area. This report details the activities associated with the tasks specified in the work plan including soil vapor point installation, soil vapor sampling, and data evaluation. Each of these tasks is discussed in further detail below.

Soil Vapor Point Installation: On April 11 and 12, 2007, on behalf of IBM, URS mobilized to the Site to install seven soil vapor sampling points. All seven soil vapor points were installed into glacial till using hand augers. At each soil vapor location a six inch stainless steel screen was attached to a piece of polyethylene tubing and placed into the boring. Each boring was backfilled using No. 2 sand, hydrated bentonite pellets, and sealed at the ground surface using a Portland cement grout with a steel flush mount cap. Soil vapor point construction logs are included as **Appendix A**.

Soil vapor points SV-1 and SV-2 were installed to a depth of 2.5 feet to 3.0 feet below ground surface (bgs), whereas soil vapor points SV-3, SV-4, SV-5, SV-6, and SV-7 were installed to a depth of 2.0 feet to 2.5 feet bgs to account for the seasonal fluctuation of the groundwater table elevation. **Figure 1** shows the locations of the soil vapor point installations.

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Soil Vapor Point Sampling: On April 18, 2007, URS sampled all seven (7) soil vapor points. All vapor points were purged prior to sampling for one to three times the well volume of the sampling point (tubing and screened area combined). The soil vapor purged from the sampling points was field screened for oxygen, carbon dioxide, and methane using a Gem 2000, and for volatile organic compounds (VOCs) using a Photoionization Detector (PID). The levels of these compounds were recorded prior to sampling and are included as **Table 1**.

During purging and sampling activities, the atmosphere surrounding the soil vapor points was enriched with helium to verify the integrity of the soil vapor probe seal. A MGD-2002 real-time helium monitor was used to screen the vapor being purged from the soil vapor point, to determine if helium was present in elevated amounts.

Following vapor point purging, a laboratory cleaned and blanked 6-liter Summa canister was attached to each soil vapor point for sampling. Samples were regulated over a 2 hour period, so that air flow did not exceed 0.2 liters per minute air flow.

In addition to the samples collected by URS, Steven Phelps of Precision Environmental Services, a New York Department of Environmental Conservation (NYSDEC) sub-contractor, collected spilt samples on all seven (7) soil vapor points.

The Summa canisters containing the samples were packaged for shipment, accompanied by a proper chain-of-custody, and sent via FedEx to the Severn Trent Laboratory (STL) in Knoxville, Tennessee for analysis of 1,1,1-Trichloroethane (1,1,1-TCA), Trichloroethene (TCE), and Helium parameters via USEPA Method TO-15. A summary of the analytical results are compared to the New York Department of Health (NYDOH) screening values in **Table 2**. The laboratory analytical data package is included in **Appendix B**.

<u>Results of Sampling:</u> The soil vapor sampling results, located on **Table 2**, indicate that both TCE and 1,1,1-TCA were "non-detect" for the two sampling points (SV-3 and SV-4) located closest to the two nearest homes (520 and 522 North Riverside Road). TCE was detected at SV-2 (11.3 μ g/m³), SV-5 (3.44 μ g/m³), SV-6 (5.9 μ g/m³), and SV-7 (1.13 μ g/m³). 1,1,1-TCA was detected in SV-1 (1.2 μ g/m³), SV-2 (34.4 μ g/m³), SV-5 (12.54 μ g/m³), and SV-7 (7.1 μ g/m³).

The highest concentration detected of TCE $(11.3\mu g/m^3)$ and 1,1,1-TCA $(34.4\mu g/m^3)$ occurred at SV-2, which is located on-site, within the fenced area, and approximately 300 feet northwest of the closest residents (see **Figure 1**).

A single detection of helium occurred at SV-5 with a concentration of 0.97%, which is below the NYDOH threshold of 10%, therefore the detection of helium in SV-5 is minimal and the integrity of the vapor point has not been compromised.

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<u>Conclusions</u>: Based on the January 2007 groundwater sampling results and the April 2007 soil vapor analytical results in conjunction with the field data obtained from both the groundwater sampling event and the soil vapor sampling event, we offer the following conclusions:

- January 2007 groundwater elevations in wells nearest to the soil vapor points ranged between 2.71'bgs at MW-17B to 7.95'bgs at MW-2S. These groundwater elevations appear consistent with previous late winter/early spring groundwater measurements, and are higher than the groundwater elevations seen in summer/fall groundwater sampling events.
- Analytical results for both (SV-1 and SV-2) on-Site soil vapor points, indicate low concentrations for TCE (11.3 μ g/m³ was the highest reading) and 1,1,1-TCA (34.4 μ g/m³ was the highest reading).
- Soil vapor points SV-5, SV-6, and SV-7 are located down gradient of the historic source wells (MW-7B, MW-9B, MW-12B, and MW-15B) and again indicated low concentrations for TCE (5.9 μg/m³ was the highest reading) and for 1,1,1-TCA (12.54 μg/m³ was the highest reading).
- Analytical results for soil vapor points SV-3 (located near 522 North Riverside Road) and SV-4 (located near 520 North Riverside Road) indicate that TCE and 1,1,1-TCA were "non-detect" at both sampling points.
- The detection of elevated levels of carbon dioxide, along with decreased levels of oxygen prior to sampling (see **Table 1**) are characteristic of a reducing environment indicating a favorable condition for both the biotic and abiotic dechlorination of chlorinated VOCs.

Based on the results of the April 2007 soil vapor point sampling and the preceding groundwater sampling results, IBM considers the Site soil vapor evaluation complete and the need to proceed with sub-slab vapor and indoor air sampling is not warranted.

If you have any questions or comments or require additional information, please contact Randy Crispino of URS Corporation at (215) 367-2528 or me at (914) 766-2739.

Sincerely Yours, , Moins

Thomas D. Morris, P.E. Program Manager Corporate Environmental Programs

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cc:

Randy Crispino (URS Corporation)

Attachments

Table 1 Soil Vapor Screening/Sampling Field Data Collection Sheet Mead Property Site Highland, New York

Job Locati	on: Mead Prop	ertv Site. High	land. New Yo	Sample Point ID: SV-1												
Data and T		© 00.01.00	,			Sample II	D: SV-1									
Soil Vapor	Sampler(s): JT	@ 08:21:30 B/MC				Laboratory Parameters Tested: 1,1,1-Trichloroethane										
Project Ma	nager: Randy C	rispino														
Sampling M	Method:	Summa Cani	ster: 11207	Canister Vac	a cuum:	30'' Hg	Final Sumn	Vacuum: 8" Hg								
Time	Temperature	Purging Time (sec)	Barometric Pressure	PID (ppm/ppb)	O2 (%)	CO2 (%)	ata Methane (%)	Hellum (ppm)	Field Observations/Weather Conditions							
8:21:00	47	0	29.17	400 ppb	19.4	0.6	1.7	0.0	10 ppb background							
8:21:15	47	30	29.17	340 ppb	19.4	1.6	1.7	0.0								
			_													
					_											
				*												
			-													

Comments: Steven Phelps (Precision Environmental Services, NSYDEC sub-contractor) allowed split sampling summa canister to fill in approx. 20-25 min. and canister remained connected in line for remainder of sampling.

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Start @ 08:21, Stop @ 10:21

Flow Controller ID # K-224

Table 1 Soil Vapor Screening/Sampling Field Data Collection Sheet Mead Property Site Highland, New York

Job Locatio	on: Mead Prope	rty Site, Highl	and, New York	Sample Point ID: SV-2											
Date and Ti	me: 4-18-2007 (n na.us				Sample II): SV-2								
Soil Vapor	Sampler(s): JTB	/MC				Laborato Trichloro	ry Parameter ethene, Heliu	s Tested: 1 Im	,1,1-Trichloroethane,						
Project Mar	nager: Randy Cr	ispino													
Sampling N	lethod:	ster: 8815B	Initial Summ Canister Vac	ia cuum:	28" Hg	Final Summ	Vacuum: 8" Hg								
					Sc	creening D	ata		Field						
Time	Temperature	Purging Time (sec)	Barometric Pressure	(ppm/ppb)	(%)	CO2 (%)	Methane (%)	(ppm)	Observations/Weather Conditions						
8:57:00	47	0	29.17	2.0 ppm	20.2	0.5	1.5	0.0	0.0 ppb background						
8:57:30	47	30	29.17	2.3 ppm	20.2	0.9	1.6	0.0							
			_												

Comments: Start @ 09:02, Stop @ 11:02 Flow Controller # K-217

Table 1 Soil Vapor Screening/Sampling Field Data Collection Sheet Mead Property Site Highland, New York

Job Locatio	on: Mead Prope	rty Site, Highla	and, New York	Sample Point ID: SV-3												
Date and Ti	ma: 4-18-2007 @	0 11:32				Sample ID:	SV-3									
Soil Vapor	Sampler(s): JTB	/MC			-	Laboratory Parameters Tested: 1,1,1-Trichloroethane, Trichloroethene, Hellum										
Project Mar	ager: Randy Cr	ispino														
Sampling N	lethod:	Summa Canle	ster: 6643	Canister Vac	uum: 9	29.5" Hg	Final Summ	r Vacuum: 8.5" Hg								
Time	Temperature	Purging Time (sec)	Barometric Pressure	PID (ppm/ppb)	02 (%)	CO2 (%)	Methane (%)	Helium (ppm)	Observations/Weather Conditions							
11:29:00	46	0	29.28	2.9	19.5	0.0	0.0	0.0								
11:29:30	46	24	29.28	4	19.7	0.0	0.0	0.0								
					-											

Comments: Start @ 11:32, Stop @ 13:32 Flow Controler ID# K-276

Left's Composition

Table 1
Soil Vapor Screening/Sampling Field Data Collection Sheet
Mead Property Site
Highland, New York

				Sample P	oint ID: SV-	4											
Job Locatio	on: Mead Prope	erty Site, High	and, New Yori	(
Date and Ti	me: 4-18-2007 (@ 10:53				Sample ID: SV-4											
Date and Th	110. 4-10-2007	y 10.00				Laborator	ry Paramete	rs Tested:	1,1,1-Trichloroethane,								
Soil Vapor	Sampler(s): JTE					_Trichloroethene, Heilum											
Project Mar	ager: Randy Ci	rispino															
				Initial Summ	a –												
Sampling N	lethod:	Summa Canl	ster: 12522	Canister Vac	uum:	29" Hg	Final Summ	na Caniste	r Vacuum: 8" Hg								
Time	Temperature	Puraina	Barometric Pressure	PID	02	CO2	Methane	Hellum	Field Observations/Weather								
		Time (sec)		(ppm/ppb)	(%)	(%)	(%)	(ppm)	Conditions								
10:50:00	46	0	29.29	1.6	21.3	0.5	1.6	0.0									
10:50:30	46	24	29.29	1.5	21.4	0.5	1.5	0.0									
						-											

Comments: Start @ 10:53, Stop @ 12:53

53 Flow Controller # K-222

Table 1 Soil Vapor Screening/Sampling Field Data Collection Sheet Mead Property Site Highland, NY

Job Locatio	on: Mead Prop	arty Site, High	land, New York	Sample Point ID: SV-5												
Date and Ti	mo: 4-19-2007	@ 12.16				Sample II	D: SV-5									
Soil Vapor S	Sampler(s): JTE	B/MC				Laboratory Parameters Tested: 1,1,1-Trichloroethane, Trichloroethene, Hellum										
Project Mar	ager: Randy C	rispino														
Sampling M	lethod:	Summa Cani	ster: 93282	Initial Summ Canister Vac	a cuum:	29.5" Hg	Final Summ	ər Vacuum: 8" Hg								
					S	creening D	ata		Field							
Time	Temperature	Purging Time (sec)	Barometric Pressure	(ppm/ppb)	(%)	(%)	Methane (%)	(ppm)	Observations/Weather Conditions							
13:14:00	47	0	29.33	2.8	17.8	0	1.7	0.0	Able to collect only one reading during purge.							
					-											
								-								

Comments: Start @ 13:16, Stop @ 15:16 Flow Controler ID # K-302

Table 1 Soil Vapor Screening/Sampling Field Data Collection Sheet Meand Property Site Highland, New York

Job Locatio	on: Mead Prope	erty Site, High	land, New York	Sample Point ID: SV-6										
Date and T	me: 4-18-2007 (@ 13·54				Sample II	D: SV-6							
Soil Vapor	Sampler(s): JTE	<u>3/MC</u>				Laboratory Parameters Tested: 1,1,1-Trichloroeth Trichloroethene, Hellum								
Project Mar	hager: Handy Ci		Initial Summ	a										
Sampling N	lethod:	Summa Canl	ster: 6598	Canister Vac	uum:	29.5" Hg	Final Sumn	na Canister	r Vacuum: 9.5" Hg					
Time	Temperature	Purging Time	Barometric Preasure	PID (ppm/ppb)	02 (%)	CO2 (%)	Methane (%)	Hellum (ppm)	Field Observations/Weather Conditions					
13:52:00	47	0	29.31	2.2	21.3	0.8	1.6	0.0	Able to collect only one reading during pruge.					
									_					
		_												

Comments: Start @ 13:54, Stop @ 15:54

Flow Controler ID # K-250

Table 1 Soil Vapor Screening/Sampling Field Data Collection Sheet Mead Property Site Highland, New York

Job Locati	on: Mead Prope	erty Site, High	land, New York	Sample Point ID: SV-7												
Date and T	Ime: 4-18-2007 (a 14·07				Sample II	D: SV-7	-								
Soil Vapor	Sampler(s): JTE	3/MC				Laboratory Parameters Tested: 1,1,1-Trichloroethane, Trichloroethene, Hellum										
Project Ma	nager: Randy C	ispino		A the set set of the												
Sampling I	Method:	Summa Canl	ster: 6609	Initial Summ Canister Vac	a uum:	29" Hg	Final Summ	Vacuum: 8" Hg								
Time	Temperature	Purging Time	Barometric Preasure	PID (ppm/ppb)	02 (%)	CO2 (%)	ata Methane (%)	Hellum (ppm)	Field Observations/Weather Conditions							
14:05	47	0	29.31	2.2	19.3	0.7	1,7	0.0	Able to collect only one reading during purge.							
						<u> </u>										
						<u> </u>										
				_												
							-									
I																

Comments: Start @ 14:07, Stop @ 16:07

Flow Controler ID # K-168

TABLES

TABLE 2

Soil Vapor Analytical Results **Mead Property Site** April 2007 Sampling Event Highland, New York

							T							Sample	Loca	tion and	Dep	th (fe	et)							
				AND ALL MOTION				SV-1			SV-2		SV-3			SV-4			SV-5			SV-6			SV-7	1
Pscameler	CAS Number	Number of Samples	Number of Detects	Vapor Action levels (µg/m ³)	Meximum Concentration	Minimum Concentration		2.5 - 3.0			2.5 - 3.0		2.0 - 2.5		2.0 - 2.5			2.0 - 2.5		5	2.0 - 2.5		5	2.0 - 2.5		.5
								4/18/07			4/18/07		4/18/0	7		4/18/07			4/18/07			4/18/07			4/18/0	7
Volatile Organic Compounds (ppb(v v)) 10																										
111 Trichloroethane	71-55-6	7	4	NA	6.3	0.22	ÎΤ	0.22			6.3		0.08	D U	<	0.080	U	ГТ	2.3			1.3		<	0.080	J U
Themoroethene	79-01-6	7	4	NA	2.1	0.21	<	0.040	U		2.1		0.04) U	<	0.040	U		0.640			1.1			0.21	
Volatile Organic Com	pounds (up	Hm 3) 20																				1000				
111 Trichloroethane	71-55-6	7	4	<100	34.4	1.2	ÎT	1.20			34.4	<	0.43		<	0.436	U		12.54			7.1	T	<	0.436	j U
Trichlorsethene	79-01-6	7	4	-50	11.3	1.13	<	0.215	U		11.3		0.21	5 U		0.215	U		3.438			5.9			1.13	
Helium (%)																										
Heium	108-88-3	7	1	NA	0.97	0.97	<	0.24	U	<	0.28	U <	0.28	U	<	0.28	Ú		0.97		<	0.29	U	<	0.27	U
A LOOP AND											and the second second		and the other Designation of the local division of the local divis												and the second se	

Sold results indicate a detection of the compound

Not Applicable

. Analyte not delected

Concentration shown as part per billion by volume as reported by the analytical laboratory.

Economication shown as micrograms cubic meter for comparison to the NYSDOH Matrix 1 (Trichloroethene) and Matrix 2

"Inchiorpethanel standards.

(24 46 Molecular Weight of the analyte) (24 46 Molecular Weight of the analyte)

1 Trichloroethane = 133.41

*-choroethene = 131 39

FIGURES

