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Somers, NY 10589

August 14, 2007

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Remedial Bureau 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.

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**.

Results of Sampling: 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 ($11.3 \mu\text{g}/\text{m}^3$), SV-5 ($3.44 \mu\text{g}/\text{m}^3$), SV-6 ($5.9 \mu\text{g}/\text{m}^3$), and SV-7 ($1.13 \mu\text{g}/\text{m}^3$). 1,1,1-TCA was detected in SV-1 ($1.2 \mu\text{g}/\text{m}^3$), SV-2 ($34.4 \mu\text{g}/\text{m}^3$), SV-5 ($12.54 \mu\text{g}/\text{m}^3$), and SV-7 ($7.1 \mu\text{g}/\text{m}^3$).

The highest concentration detected of TCE ($11.3 \mu\text{g}/\text{m}^3$) and 1,1,1-TCA ($34.4 \mu\text{g}/\text{m}^3$) 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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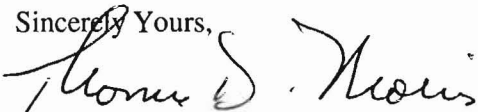
Conclusions: Based on the January 2007 groundwater sampling results and the April 2007 soil vapor analytical results in conjunction with the field data obtained from both the groundwater sampling event and the soil vapor sampling event, we offer the following conclusions:

- 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 $\mu\text{g}/\text{m}^3$ was the highest reading) and 1,1,1-TCA (34.4 $\mu\text{g}/\text{m}^3$ 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 $\mu\text{g}/\text{m}^3$ was the highest reading) and for 1,1,1-TCA (12.54 $\mu\text{g}/\text{m}^3$ 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,



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

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cc:
Randy Crispino (URS Corporation)

Attachments

Table 1
ng/Sampling Field Data Collection Sheet
Mead Property Site
Highland, New York

[illegible]

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.

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, NY

[illegible]

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

Highland, New York

[illegible]

Flow Controler ID # K-250

Table 1
ng/Sampling Field Data
Mead Property Site
Highland, New York

[illegible]

Comments: Start @ 14:07, Stop @ 16:07 Flow Controller ID # K-168



TABLES

TABLE 2

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

Parameter	CAS Number	Number of Samples	Number of Detects	NYDOH Sub-Slab Vapor Action Levels (µg/m³)	Maximum Concentration	Minimum Concentration	Sample Location and Depth (feet)																		
							SV-1	SV-2	SV-3	SV-4	SV-5	SV-6	SV-7												
							2.5 - 3.0	2.5 - 3.0	2.0 - 2.5	2.0 - 2.5	2.0 - 2.5	2.0 - 2.5	2.0 - 2.5												
							4/18/07	4/18/07	4/18/07	4/18/07	4/18/07	4/18/07	4/18/07												
Volatile Organic Compounds (ppb(v/v)) ^{1a}																									
1,1,1-Trichloroethane	71-55-6	7	4	N/A	6.3	0.22	0.22		6.3	<	0.080	U	<	0.080	U	2.3		1.3	<	0.080	U				
Trichloroethene	79-01-6	7	4	N/A	2.1	0.21	<	0.040	U	2.1	<	0.040	U	<	0.040	U	0.640		1.1		0.21				
Volatile Organic Compounds (µg/m³) ^{2b}																									
1,1,1-Trichloroethane	71-55-6	7	4	<100	34.4	1.2	1.20		34.4	<	0.436	U	<	0.436	U	12.54		7.1	<	0.436	U				
Trichloroethene	79-01-6	7	4	<50	11.3	1.13	<	0.215	U	11.3	<	0.215	U	<	0.215	U	3.438		5.9		1.13				
Helium (%)																									
Helium	106-88-3	7	1	N/A	0.97	0.97	<	0.24	U	<	0.28	U	<	0.28	U	<	0.28	U	0.97	<	0.29	U	<	0.27	U

NOTES:

Bold results indicate a detection of the compound

NA = Not Applicable

U = Analyte not detected

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

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

3. Trichloroethane: standards

Concentration $\mu\text{g}/\text{m}^3$ = (Concentration ppb (v/v)) (24.46 Molecular Weight of the analyte)**Molecular Weights:**

1,1,1-Trichloroethane = 133.41

Trichloroethene = 131.39

FIGURES

