URS

January 27, 2009

Susan B. Shearer (née Welt), M.P.H., P.E.
Bureau of Environmental Exposure Investigation
New York State Department of Health
547 River Street, Room 300
Troy, New York 12180-2216

Girish Desai, P.E.
New York State Department of Environmental Conservation
Division of Environmental Remediation
Building 40 – SUNY
Stony Brook, New York 11790-2356

Re: Powers Chemco Site No. 1-30-028
Work Plan for Indoor Air Sampling
Glen Cove, New York

Dear Ms. Shearer and Mr. Desai:

On behalf of Konica Minolta Graphic Imaging USA, Inc., (KMGI), URS Corporation (URS) has prepared this Work Plan for Indoor Air Sampling at 36-38 The Place, which is a residence located in Glen Cove, New York. The residence is located on the north side of The Place, which is to the northwest and adjacent to the Powers Chemco site.

Background

In early 2007, the New York State Department of Health (NYSDOH) and New York State Department of Environmental Conservation (NYSDEC) requested that KMGI perform a soil vapor intrusion (SVI) investigation. On March 29 and 30, 2007, Environmental Resources Management (ERM) conducted a SVI investigation consisting of sampling the ambient air, indoor air, and sub-slab soil vapor from eight residences located on the north side of The Place. ERM conducted a subsequent SVI investigation during the heating season on February 5 and 6, 2008.

Upon review of the analytical results from both the March 2007 and February 2008 indoor air sampling events at 36-38 The Place, the NYSDOH concluded the following:

1. The levels of acetone and Methyl ethyl ketone (MEK) detected in sub-slab samples during the March 2007 SVI investigation decreased in the February 2008 SVI investigation.

2. Acetone was detected at a level of 690 micrograms per cubic meter ($\mu g/m^3$) in the sub-slab vapor sample and low levels were also detected in the basement air during the February 2008 SVI investigation.

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3. The levels of acetone and MEK in the indoor air and outdoor air samples were comparable during the February 2008 SVI investigation.

4. The detectable indoor air results from February 2008 were within typical indoor air levels.

5. Since acetone and MEK have been detected the groundwater at the Powers Chemco site, volatilization from groundwater may be contributing to the sub-slab levels at the subject property.

On November 21, 2008, the NYSDEC requested that KMGI perform an additional SVI investigation at 36-38 The Place during the current heating season to confirm that the concentrations of site-related volatile organic compounds (VOCs) are decreasing in the sub-slab soil gas, which would indicate that the SVI pathway of site-related VOCs is still incomplete.

Scope of Work

URS proposes to conduct a SVI investigation at the 36-38 The Place residence during the current heating season. Air samples will be collected from the sub-slab, basement, and first floor within the residence (***Figure 1***). One additional sample will be collected from an outdoor location. Once this work plan is approved by the agency, URS will contact the property owner to obtain authorization for site access and schedule a sampling date.

Sampling will be performed in accordance with the indoor air sampling protocols outlined in the NYSDOH "Guidance for Evaluating Soil Vapor Intrusion in the State of New York" (October 2006). Prior to the collection of air samples, URS will completely fill out the "Indoor Air Quality Questionnaire and Building Inventory" form contained in Appendix B of the NYSDOH SVI Guidance. Samples will be collected with laboratory batch-certified clean, one liter, Silonite-coated, Summa® canisters fitted with regulators set to collect a sample over a 24-hour period. The Summa® canisters will be laboratory certified clean in batches of five.

The sub-slab, basement, first floor, and outdoor composite air samples will be collected concurrently over a 24-hour period. The following information will be recorded in the field notebook and/or data collection forms at each sample location:

- Sampler's name;
- Date, time and Photoionization detector (PID) reading;
- Date and time of sample start and stop;
- Summa® canister serial number;
- Initial and final Summa® canister vacuum
- Sample identification, and descriptive location of the sampling area;
- Sample identification for other corresponding samples at the same property;

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- Weather conditions including: ambient temperature inside and outside the residence, barometric pressure, wind speed, and wind direction;
- Sampling depth(s);
- Soil type at sample location, if known;
- Soil vapor purge volumes;
- Apparent moisture content of the air being sampled;
- Description of features that may impact the vapor measurements (e.g., storage areas for materials that may contain VOCs, drainage facilities, utility lines, contamination noted, floor stains, etc.); and
- All equipment calibrations performed.

Details on the procedures for the collection of vapor samples are further described in the following sections:

Sub-Slab Soil Vapor Samples

The sub-slab sample will be collected in a central area away from the building foundation. Prior to advancing the boring, the basement flooring/foundation slab will be inspected, the location of subsurface utilities will be evaluated, and the ambient air surrounding the proposed sampling location will be screened with a PID. In addition, the seal around the sump in the basement will be checked for tightness prior to collecting SVI samples. A probe will be installed at a location where the potential for ambient air infiltration via floor penetration is minimal. A hammer drill will then be used to advance a one-inch diameter boring to a depth of approximately one-half-inch into the basement floor or foundation slab. Inside the initial one-inch diameter boring, a one-half-inch diameter boring will be drilled to a minimum depth of three inches beneath the basement floor/foundation slab into the sub-slab aggregate. Dedicated Teflon® tubing (approximately 3/8-inch outside diameter) will be inserted two inches into the subsurface through the one-half-inch diameter boring. The annular space between the floor and the tubing will then be sealed with modeling clay. Three volumes of air will be purged from the tubing and the borehole using the PID air pump. During the purge, PID measurements will be monitored and the highest reading will be recorded.

High purity helium will be used as a tracer gas when collecting soil vapor samples in an effort to detect infiltration of ambient air. The Teflon® tubing from the sub-slab soil vapor probe will be connected to a union inside a metal dome. Outside the union, a second Teflon® tube will be connected to a helium detector. A one liter canister of high purity helium will be introduced into the dome over the interface and fittings of the sampling apparatus. The helium detector can detect less than 1 percent helium. If helium greater than 1 percent is detected in the sub-slab soil vapor probe then an alarm will sound. If greater than 10 percent helium is detected, the annular space between the floor and the sub-slab soil vapor probe will be re-sealed with modeling clay and the tracer gas leak test will be re-performed.

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If short circuiting is not detected during this tracer gas test then the tubing will be disconnected from the union inside the dome and the regulator will be connected to a laboratory batch-certified clean, one liter, Silonite-coated, Summa® canister regulated for a 24-hour sample collection period. In accordance with the NYSDOH SVI Guidance, samples will not be collected at a flow rate faster than 0.2 liters per minute (L/min) over the 24-hour sample duration.

The laboratory will set the regulator on the one liter Summa® canister to sample at a flow rate of approximately 0.00063 L/min. The laboratory will also set the regulator to finish the 24-hour sample collection period such that the canister still exhibits a slight vacuum (approximately -3 to -5 inches of mercury). After the sub-slab sample collection is complete, the tubing will be removed and the borehole will be backfilled with quick drying hydraulic cement. The sample area will be photographed.

The laboratory will analyze the sample collected in the batch-certified clean, one liter, Silonite-coated, Summa® canisters for helium. If less than 10% of helium is detected inside the canister, then the sample will be considered valid.

Indoor Air Samples

Two indoor air samples will be collected from the subject property including one in the basement area and one on the first floor. One duplicate indoor air sample will be collected for quality assurance/quality control (QA/QC) purposes from the basement area. A "T" fitting connecting one regulator with two laboratory batch-certified clean, one liter, Silonite-coated, Summa® canisters will be used to collect a sample and a sample duplicate from this location. The indoor air samples will be collected over a 24-hour sample collection period. In accordance with the NYSDOH SVI Guidance, samples will not be collected at a flow rate faster than 0.2 L/min over the 24-hour sample duration. Samples will be collected through a section of dedicated Teflon® tubing extending from the Summa® canister to the breathing zone of a seated or sleeping person, approximately three feet above the floor. The laboratory will set the regulator to finish the 24-hour sample collection period such that the canister still exhibits a slight vacuum (approximately -3 to -5 inches of mercury). The sample area will be photographed.

Ambient Air Samples

An ambient air sample will be collected at a location upwind of the residence, and away from upwind obstructions, such as bushes or buildings. The ambient air sample will be collected away from potentially confounding source areas (e.g., exhaust systems, roads, and parking lots) that could influence the sample. The ambient air sample will be collected with a laboratory batch-certified clean, one liter, Silonite-coated, Summa® canister programmed for a 24-hour sample collection period. In accordance with the NYSDOH SVI Guidance, samples will not be collected at a flow rate faster than 0.2 L/min over the 24-hour sample duration. A sample from the breathing zone, approximately four to six feet above the ground section, will be collected

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through dedicated Teflon® tubing connected to a Summa® canister. The laboratory will set the regulator to finish the 24-hour sample collection period such that the canister still exhibits a slight vacuum (approximately -3 to -5 inches of mercury). The sample area will be photographed.

Laboratory Analysis

At the conclusion of sampling, the Summa® canisters will be shipped via overnight delivery to an Environmental Laboratory Accreditation Program- (ELAP-) certified laboratory - Centek Laboratories, LLC (New York Lab ID No. 11830) in Syracuse, New York.

Sub-slab vapor samples will be analyzed for VOCs using United States Environmental Protection Agency (USEPA) Method TO-15, with a target detection limit of 1.0 $\mu g/m^3$ for each parameter.

Indoor air and ambient air samples will be analyzed for VOCs using USEPA Method TO-15, with a target detection limit of 1.0 $\mu g/m^3$ for each parameter except trichloroethene, carbon tetrachloride, and vinyl chloride. The target detection limit for these three compounds in the indoor and ambient air samples will be 0.25 $\mu g/m^3$. If these three VOCs are not detected in an indoor air or ambient air sample at 1.0 $\mu g/m^3$ using the standard TO-15 full-scan analysis, additional analysis of the sample will be carried out using gas chromatography-mass spectrometry (GC/MS) selective ion monitoring (SIM) to achieve the required 0.25 $\mu g/m^3$ detection limit. This lower detection limit is required under the NYSDOH SVI Guidance document and will be used to evaluate the risks posed by these VOCs at concentrations as low as 0.25$\mu g/m^3$.

Health & Safety

SVI activities will be performed in accordance with the site-specific health and safety plan contained in the Limited Subsurface Investigation Work Plan for the Powers Chemco site. SVI investigation activities will be conducted by a two-person team.

Reporting

The preliminary analytical data will be submitted to the NYSDEC and NYSDOH for review prior to submittal of the final report.

URS will provide a brief letter report to the property owner within 30 days of data validation that includes the following:

- *Indoor Air Quality Questionnaire and Building Inventory* forms,
- Sample logs,
- Validated laboratory data in ASP Category B deliverable format,

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- Photographs of the sampling locations, and
- A summary of the sampling results

A draft transmittal letter will be submitted to the NYSDEC the NYSDOH for review and approval prior to distribution to the property owner and other interested parties.

If you have any questions or require further information, please contact Michael Welch at (301) 258-5834. Since the samples need to be collected prior to the end of the heating season (March 31, 2009), KMGI requests comments on this Work Plan by February 6, 2009. URS will proceed with contacting the property owner and scheduling the sampling event once we receive department approval.

Sincerely,

Michael Welch
Project Manager

Greg Quandt
Department Head, Strategic Environmental Management

cc: Mr. Cory Kirkbride, KMGI

Attachments: Figure 1 - Air Sample Locations at 36-38 The Place

Attachment A - 0.25 $\mu g/m^3$ IDL Study
Attachment B - 1.0 $\mu g/m^3$ IDL Study

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Imagery: NY State GIS Clearinghouse, Orthoimagery 2007

Legend

- Sub-slab Soil Vapor Sample Location
- Basement Indoor Air Sample Location
- First Floor Indoor Air Sample Location
- Ambient/Outdoor Air Sample Location

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Figure 1
Air Sample Locations at 36-38 The Place
Konica Minolta Graphic Imaging
Glen Cove, New York

G: Proposals/Konica_Minolta/Projects/for_Christine.mxd

Attachment A
0.25 $\mu g/m^3$ IDL Study

Name	Amount	IDL #1	IDL #2	IDL #3	IDL #4	IDL #5	IDL #6	IDL #7	Avg	Stdev	%Rec	IDL
Vinyl Chloride	0.15	0.16	0.15	0.15	0.15	0.14	0.15	0.15	0.150	0.006	100.0	0.019
1,2-dichloroethane	0.15	0.14	0.14	0.14	0.14	0.14	0.14	0.15	0.141	0.004	94.0	0.013
Carbon tetrachloride	0.15	0.15	0.15	0.14	0.14	0.15	0.15	0.14	0.146	0.005	97.3	0.016
Trichloroethene	0.15	0.14	0.14	0.13	0.14	0.14	0.14	0.14	0.139	0.004	92.7	0.013

Attachment B
1.0 $\mu g/m^3$ IDL Study

Name	Amount	IDL #1	IDL #2	IDL #3	IDL #4	IDL #5	IDL #6	IDL #7	Avg	Stdev	%Rec	IDL
Propylene	0.5	0.47	0.49	0.47	0.46	0.48	0.44	0.46	0.467	0.016	93.4	0.050
Freon 12	0.5	0.49	0.49	0.48	0.46	0.50	0.47	0.47	0.480	0.014	96.0	0.044
Chloromethane	0.5	0.52	0.52	0.51	0.49	0.53	0.48	0.52	0.510	0.018	102.0	0.057
Freon 114	0.5	0.50	0.48	0.47	0.47	0.51	0.47	0.49	0.484	0.016	96.9	0.051
Vinyl Chloride	0.5	0.46	0.49	0.46	0.46	0.50	0.48	0.48	0.476	0.016	95.1	0.051
1,3-butadiene	0.5	0.52	0.52	0.47	0.44	0.51	0.49	0.49	0.491	0.029	98.3	0.092
Butane	0.5	0.49	0.49	0.44	0.48	0.48	0.45	0.50	0.476	0.022	95.1	0.070
Bromomethane	0.5	0.49	0.51	0.46	0.48	0.51	0.43	0.48	0.480	0.028	96.0	0.089
Chloroethane	0.5	0.49	0.49	0.47	0.45	0.49	0.48	0.50	0.481	0.017	96.3	0.053
Ethanol	0.5	0.50	0.42	0.42	0.48	0.41	0.47	0.45	0.450	0.035	90.0	0.109
Vinyl Bromide	0.5	0.49	0.51	0.47	0.46	0.51	0.46	0.49	0.484	0.021	96.9	0.068
Freon 11	0.5	0.50	0.49	0.47	0.48	0.51	0.48	0.48	0.487	0.014	97.4	0.043
Acetone	0.5	0.44	0.50	0.43	0.49	0.46	0.44	0.50	0.466	0.030	93.1	0.096
Isopropyl alcohol	0.5	0.45	0.47	0.47	0.42	0.41	0.44	0.43	0.441	0.023	88.3	0.074
1,1-dichloroethene	0.5	0.48	0.45	0.48	0.47	0.50	0.47	0.49	0.477	0.016	95.4	0.050
Freon 113	0.5	0.48	0.38	0.46	0.47	0.49	0.46	0.47	0.459	0.036	91.7	0.114
t-Butyl alcohol	0.5	0.45	0.38	0.42	0.43	0.41	0.41	0.40	0.414	0.022	82.9	0.070
Methylene chloride	0.5	0.47	0.38	0.47	0.46	0.49	0.47	0.47	0.459	0.036	91.7	0.112
Allyl chloride	0.5	0.48	0.41	0.45	0.44	0.48	0.47	0.48	0.459	0.027	91.7	0.084
Carbon disulfide	0.5	0.51	0.44	0.51	0.47	0.51	0.47	0.51	0.489	0.029	97.7	0.090
trans-1,2-dichloroethene	0.5	0.50	0.44	0.47	0.47	0.43	0.50	0.50	0.473	0.029	94.6	0.092
methyl tert-butyl ether	0.5	0.44	0.38	0.39	0.42	0.43	0.43	0.45	0.420	0.026	84.0	0.081
1,1-dichloroethane	0.5	0.46	0.42	0.45	0.45	0.45	0.46	0.46	0.450	0.014	90.0	0.044
Vinyl acetate	0.5	0.43	0.40	0.41	0.42	0.42	0.41	0.44	0.419	0.013	83.7	0.042
Methyl Ethyl Ketone	0.5	0.51	0.43	0.42	0.48	0.43	0.43	0.47	0.453	0.034	90.6	0.107
cis-1,2-dichloroethene	0.5	0.45	0.40	0.44	0.41	0.43	0.44	0.45	0.431	0.020	86.3	0.061
Hexane	0.5	0.47	0.42	0.45	0.45	0.44	0.47	0.49	0.456	0.023	91.1	0.072
Ethyl acetate	0.5	0.50	0.47	0.50	0.50	0.42	0.44	0.48	0.473	0.032	94.6	0.101
Chloroform	0.5	0.45	0.45	0.44	0.45	0.46	0.44	0.46	0.450	0.008	90.0	0.026
Tetrahydrofuran	0.5	0.41	0.44	0.44	0.43	0.44	0.47	0.48	0.444	0.024	88.9	0.075
1,2-dichloroethane	0.5	0.46	0.43	0.44	0.44	0.44	0.43	0.44	0.440	0.010	88.0	0.031
1,1,1-trichloroethane	0.5	0.46	0.49	0.45	0.44	0.49	0.45	0.45	0.461	0.020	92.3	0.064
Cyclohexane	0.5	0.46	0.47	0.47	0.45	0.48	0.44	0.48	0.464	0.015	92.9	0.048
Carbon tetrachloride	0.5	0.48	0.50	0.46	0.46	0.51	0.46	0.46	0.476	0.021	95.1	0.068
Benzene	0.5	0.45	0.46	0.46	0.44	0.48	0.45	0.45	0.456	0.013	91.1	0.040
Methyl Methacrylate	0.5	0.47	0.47	0.40	0.46	0.41	0.43	0.44	0.440	0.028	88.0	0.089
1,4-dioxane	0.5	0.44	0.42	0.42	0.46	0.43	0.43	0.46	0.437	0.017	87.4	0.054
2,2,4-trimethylpentane	0.5	0.45	0.46	0.44	0.44	0.45	0.45	0.44	0.447	0.008	89.4	0.024
Heptane	0.5	0.43	0.41	0.43	0.43	0.46	0.41	0.42	0.427	0.017	85.4	0.054
Trichloroethene	0.5	0.44	0.45	0.43	0.43	0.44	0.42	0.44	0.436	0.010	87.1	0.031
1,2-dichloropropane	0.5	0.46	0.48	0.44	0.42	0.49	0.43	0.45	0.453	0.026	90.6	0.081

Name	Amount	IDL #1	IDL #2	IDL #3	IDL #4	IDL #5	IDL #6	IDL #7	Avg	Stdev	%Rec	IDL
Bromodichloromethane	0.5	0.47	0.50	0.45	0.45	0.49	0.45	0.47	0.469	0.020	93.7	0.064
cis-1,3-dichloropropene	0.5	0.43	0.43	0.42	0.42	0.42	0.40	0.40	0.417	0.013	83.4	0.039
trans-1,3-dichloropropene	0.5	0.43	0.44	0.41	0.41	0.46	0.41	0.41	0.424	0.020	84.9	0.062
1,1,2-trichloroethane	0.5	0.45	0.46	0.43	0.44	0.46	0.44	0.46	0.449	0.012	89.7	0.038
Toluene	0.5	0.43	0.44	0.41	0.45	0.45	0.41	0.43	0.431	0.017	86.3	0.053
Methyl Isobutyl Ketone	0.5	0.44	0.41	0.44	0.46	0.47	0.42	0.44	0.440	0.021	88.0	0.065
Dibromochloromethane	0.5	0.47	0.48	0.46	0.47	0.47	0.43	0.48	0.466	0.017	93.1	0.054
Methyl Butyl Ketone	0.5	0.45	0.45	0.41	0.41	0.42	0.44	0.45	0.433	0.019	86.6	0.059
1,2-dibromoethane	0.5	0.45	0.46	0.43	0.46	0.45	0.44	0.46	0.450	0.012	90.0	0.036
Tetrachloroethylene	0.5	0.47	0.50	0.47	0.47	0.48	0.44	0.49	0.474	0.019	94.9	0.060
Chlorobenzene	0.5	0.46	0.46	0.44	0.46	0.46	0.45	0.45	0.454	0.008	90.9	0.025
Ethylbenzene	0.5	0.43	0.43	0.41	0.43	0.42	0.40	0.42	0.420	0.012	84.0	0.036
m&p-xylene	1	0.82	0.84	0.77	0.84	0.80	0.79	0.81	0.810	0.026	81.0	0.081
Styrene	0.5	0.43	0.45	0.47	0.43	0.40	0.41	0.42	0.430	0.024	86.0	0.075
Bromoform	0.5	0.46	0.48	0.45	0.47	0.46	0.43	0.46	0.459	0.016	91.7	0.049
o-xylene	0.5	0.41	0.44	0.45	0.44	0.46	0.45	0.47	0.446	0.019	89.1	0.060
Bromofluorobenzene	1	0.93	0.94	0.91	0.99	0.95	0.94	0.96	0.946	0.025	94.6	0.079
Cumene	0.5	0.41	0.44	0.48	0.43	0.41	0.41	0.41	0.427	0.026	85.4	0.083
1,1,2,2-tetrachloroethane	0.5	0.47	0.46	0.42	0.46	0.44	0.44	0.47	0.451	0.019	90.3	0.059
4-ethyltoluene	0.5	0.42	0.41	0.39	0.44	0.43	0.39	0.41	0.413	0.019	82.6	0.059
1,3,5-trimethylbenzene	0.5	0.39	0.39	0.36	0.43	0.37	0.40	0.41	0.393	0.024	78.6	0.074
1,2,4-trimethylbenzene	0.5	0.41	0.39	0.39	0.41	0.41	0.44	0.46	0.416	0.026	83.1	0.081
1,3-dichlorobenzene	0.5	0.44	0.43	0.40	0.45	0.41	0.40	0.43	0.423	0.020	84.6	0.062
benzyl chloride	0.5	0.45	0.45	0.54	0.48	0.45	0.47	0.45	0.470	0.033	94.0	0.104
1,4-dichlorobenzene	0.5	0.42	0.43	0.39	0.43	0.40	0.40	0.40	0.410	0.016	82.0	0.051
1,2-dichlorobenzene	0.5	0.43	0.42	0.38	0.43	0.40	0.41	0.42	0.413	0.018	82.6	0.057
1,2,4-trichlorobenzene	0.5	0.41	0.40	0.37	0.42	0.38	0.39	0.39	0.394	0.017	78.9	0.054
Naphthalene	0.5	0.53	0.47	0.42	0.50	0.40	0.43	0.46	0.459	0.046	91.7	0.145
Hexachloro-1,3-butadiene	0.5	0.42	0.43	0.36	0.43	0.39	0.39	0.42	0.406	0.026	81.1	0.083