
Passive Soil Vapor Survey Report
Home #43 and Home #35
Ithaca, New York

Prepared by:

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Latham, New York

January 20, 2012

Project No. HL-0634

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TABLE OF CONTENTS

1	INTRODUCTION	1
1.1	Prior Investigation Phases.....	1
1.2	Purpose and Scope.....	2
1.3	Report Organization	3
2	AREAS OF EVALUATION.....	4
2.1	Home #43 Sample Locations	4
2.2	Home #35 Sample Locations	4
3	INVESTIGATION PROCEDURES	5
3.1	Field Procedures.....	5
3.1.1	Borehole Drilling	5
3.1.2	Passive Soil Vapor Sample Collection	5
3.1.3	Passive Soil Vapor Sample Retrieval.....	6
3.2	Laboratory Procedures.....	7
3.3	Quality Assurance and Quality Control.....	7
3.4	Deviations from the Work Plan.....	7
4	RESULTS AND DATA VALIDATION.....	9
4.1	Results for Home #43	9
4.1.1	PCE Results for Home #43	9
4.1.2	TCE Results for Home #43	9
4.2	Results for Home #35	10
4.2.1	PCE Results for Home #35	10
4.2.2	TCE Results for Home #35	10
4.3	Data Validation.....	10
4.3.1	Summary of Validation Results	10
5	DATA EVALUATION AND CONCLUSIONS	12
5.1	Home #43	12
5.2	Home #35	12
6	RECOMMENDATIONS	14
6.1	Home #43	14

6.2	Home #35	14
7	STUDY LIMITATIONS	15
8	REFERENCES	16

LIST OF TABLES

Table 1	Passive Soil Vapor Sample Results, Home #43
Table 2	Passive Soil Vapor Sample Results, Home #35

LIST OF FIGURES

Figure 1	Site Vicinity Map
Figure 2	Passive Soil Vapor Sample Locations, Home #43
Figure 3	Passive Soil Vapor Sample Locations, Home #35
Figure 4	Passive Soil Vapor PCE Results, Home #43
Figure 5	Passive Soil Vapor TCE Results, Home #43
Figure 6	Passive Soil Vapor PCE Results, Home #35
Figure 7	Passive Soil Vapor TCE Results, Home #35

LIST OF APPENDICES

Appendix A	Field Notes
Appendix B	Passive Soil Vapor Laboratory Results

1 INTRODUCTION

This report presents the results of a passive soil vapor survey conducted by EnviroGroup Limited (EnviroGroup) on behalf of Therm, Inc. (Therm), pursuant to the October 5, 2011 Passive Soil Vapor Sampling Work Plan (the “Work Plan”). The purpose of the survey was to evaluate the presence, spatial distribution, and potential source areas of certain volatile organic compounds (VOCs) in shallow soil vapor at two properties in Ithaca, New York (Figure 1). The New York State Department of Environmental Conservation (NYSDEC) and New York State Department of Health (NYSDOH) approved the Work Plan prior to commencement of the work.

The following sections of the Introduction describe the prior investigation phases, the purpose and scope of this evaluation, and the report organization.

1.1 PRIOR INVESTIGATION PHASES

Recent investigations conducted by the NYSDEC indicated the presence of trichloroethene (TCE) and tetrachloroethene (PCE) in sub-slab vapor at Home #43 and in indoor air and exterior soil vapor at Home #35, both located in the evaluation area shown on Figure 1.

Indoor air and sub-slab vapor samples were collected by NYSDEC at Home #43 in December 2010 (EA, 2011a). Although indoor air concentrations were either below detection (PCE) or relatively low (TCE at $0.37 \mu\text{g}/\text{m}^3$), the sub-slab vapor concentration of PCE and TCE was 93 and $2,100 \mu\text{g}/\text{m}^3$, respectively. According to NYSDEC, a sub-slab depressurization system was installed at Home #43 in early 2011. Results of post mitigation indoor air sampling conducted by NYSDEC in July, 2011 (EA, 2011c) indicated low indoor air levels ($0.53 \mu\text{g}/\text{m}^3$) of TCE.

Indoor air samples were collected by NYSDEC at Home #35 in December 2010 (EA, 2011a) and May 2011 (EA, 2011b). The indoor air concentration of TCE and PCE in the unfinished portion of the basement in December 2010 was 1.3 and $0.36 \mu\text{g}/\text{m}^3$, respectively. The TCE and PCE concentration in samples collected in the unfinished portion of the basement in May 2011 was 0.83 and $1.1 \mu\text{g}/\text{m}^3$, respectively, similar to concentrations measured in December 2010. TCE and PCE was also detected in the indoor air sample collected in May 2011 from the finished side of Home #35’s basement, near an open and unsealed floor drain, at a concentration of 5.4 and $2.6 \mu\text{g}/\text{m}^3$,

respectively. NYSDEC also reported detecting PCE and TCE in vapors within the floor drain in May 2011 at a concentration of 15.7 and 33 $\mu\text{g}/\text{m}^3$, respectively. This floor drain presumably connects to the sanitary sewer line east of the house. An active soil vapor sample (SV-19) was also collected at a depth of approximately 6 BGS feet by NYSDEC in 2010 about 30 feet to the northeast of Home #35 near a sanitary sewer line that flows in a northerly direction from Pearsall Place (EA, 2010). A TCE and PCE concentration of 450 $\mu\text{g}/\text{m}^3$ and 5,000 $\mu\text{g}/\text{m}^3$, respectively, was reported in soil vapor at SV-19.

1.2 PURPOSE AND SCOPE

The purpose of the Work Plan was to see whether TCE and PCE are generally present in soil vapor in the Evaluation Areas and, if so, to assess the general nature, extent and potential source area(s) of the compounds based on their spatial distribution in shallow soil vapor.

Passive soil vapor samples indicate the relative masses of these compounds, if any, that are sorbed onto sampling media over a specific period of time. While the passive soil vapor probes do not provide soil vapor concentrations for the compounds of interest, the spatial distributions of the relative sorbed masses help achieve the following objectives:

Home #43:

- Determine whether TCE (or PCE) is present in soil vapor or if the prior detection of TCE in sub-slab vapor (2,100 $\mu\text{g}/\text{m}^3$) was anomalous/erroneous.
- Determine whether the TCE present in soil vapor is confined to the immediate vicinity of the house (indicating a potential local source) or if it is more extensive.

Home #35:

- Determining whether PCE or TCE is present at the soil vapor probe SV-19 location or if the prior detection was anomalous/erroneous.
- In the case that PCE or TCE is present, the spatial distribution helps determine whether the PCE or TCE is:
 - Following any of the sewers in the vicinity, e.g., sewers coming from the south, east, or west;

- o Due to some subsurface source (soil or groundwater);
- o Very localized (suggesting a local source); or,
- o Coming from any particular direction (if not a local source).

The scope of this evaluation included the installation and analysis of 74 passive soil vapor probes in the Evaluation Areas. Samples were collected in manner consistent with the probe manufacturers recommendation and NYSDOH (2006) and submitted to an analytical laboratory for analysis of vinyl chloride; 1,1-dichloroethene; trans-1,2-dichloroethene; cis-1,2-dichloroethene; TCE; and PCE using gas chromatography/mass spectrometry (GC/MS) instrumentation following modified USEPA Method 8260 procedures.

1.3 REPORT ORGANIZATION

The following sections of this report discuss the areas of evaluation (Section 2) and evaluation procedures (Section 3); the passive soil vapor results and data validation (Section 4), the evaluation of the results (Section 5), the conclusions and recommendations (Section 6); and the study limitations (Section 7). The references are listed in Section 8.

2 AREAS OF EVALUATION

Home #43 and Home #35 were evaluated for the presence of elevated VOC concentrations in shallow soil vapor by collecting and analyzing passive soil vapor samples. The sample locations were measured from fixed features on the property and mapped, along with other relevant property features, such as buildings, driveways, and underground utilities, as shown on Figures 2 and 3, respectively. Locations of sewer manholes and lines shown on the figures were acquired from the City of Ithaca.

2.1 HOME #43 SAMPLE LOCATIONS

Forty-two passive soil vapor samples were collected from the property at Home #43 (Figure 2). Thirty-eight of the 42 passive soil vapor probes were installed to a depth of three feet below ground surface (BGS) at the following spacing:

- A nominal 10 foot by 10 foot grid pattern in the front and back yard. The centerline of the back yard grid was extended to the south by four probes (40 feet) to evaluate the shallow soil vapor VOC trend between the Therm property and Home #43.
- A nominal 10 foot spaced row along the east and west side yards.

The remaining four of the 42 passive soil vapor probes were installed to a depth of five feet BGS (or refusal) to evaluate the influence of sample depth in the following locations:

- Two probes were installed next to three foot deep probes in the front yard near the sewer lateral to the house.
- Two probes were installed in adjacent to three foot probes along the north-south centerline of the backyard grid.

2.2 HOME #35 SAMPLE LOCATIONS

Thirty-two passive soil vapor samples were collected from the property at Home #35 (soil vapor probe SV-19 area) on a nominal 10 foot by 10 foot grid pattern extending in all directions around SV-19 (Figure 3).

3 INVESTIGATION PROCEDURES

This section of the Report describes the investigation procedures that were followed during the passive soil vapor sampling program. Field procedures are described in Section 3.1 followed by a description of laboratory procedures in Section 3.2. Field and laboratory procedures were completed consistent with the probe manufacturer's recommendations and NYSDOH (2006) as applicable.

3.1 FIELD PROCEDURES

Passive soil vapor sample probes were installed and sampled by EnviroGroup in accordance with the probe manufacturers recommendations as described in this section. Prior to commencing field activities, GHD 1) arranged for access, 2) had Dig Safe New York mark the locations of public underground utilities, and 3) had the property owners identify the locations of all known private underground utilities and structures in the Evaluation Areas.

A NYSDEC representative was at the properties during borehole drilling and passive soil vapor sample collection activities.

3.1.1 Borehole Drilling

Boreholes for passive soil vapor sample collection were advanced using an electric hammer drill and appropriate sized bits. For both the three foot and five foot deep sample locations, a one-inch diameter hole was advanced to approximately one foot BGS. For the three foot deep sample locations, a ½ inch diameter hole was advanced from the base of the one foot deep hole to three feet BGS. For the five foot deep sample locations the ½ inch diameter hole was extended to five feet BSG (or refusal). Only one (PSV-43-C10) of the deep probe boreholes was unable to be advanced to five feet BGS. Refusal was encountered at this location at four feet six inches BGS.

3.1.2 Passive Soil Vapor Sample Collection

Passive soil vapor samples were collected using passive soil gas (PSG) Samplers provided by Beacon Environmental Services, Inc. (Beacon). Beacon provided the PSG Samplers in a BESURE Sample Collection Kit™ (Kit) with all the materials necessary to collect the requested number of soil vapor samples. After the borehole was created, a one

inch diameter by one foot long aluminum sleeve (provided by Beacon) was inserted into the borehole to be flush with the ground surface. Next, a PSG Sampler (a rugged, borosilicate glass vial containing two sets of hydrophobic adsorbent cartridges) was removed from the Kit. The PSG Samplers were delivered wrapped with a retrieval wire, which was unwound prior to deployment. Next, the solid cap on the PSG Sampler vial was removed and replaced with a sampling cap (a one-hole cap with a screen meshing insert). The PSG Sampler was then lowered with the screened-capped-end pointing down into the hole. Irrespective of borehole depth (i.e. three or five feet), the PSG sampler was lowered to approximately eight inches BGS. With the retrieval wire extending from the hole, an aluminum foil plug was inserted into the top of the hole and labeled with the probe designation. The wire was coiled and laid flat on the ground surface. A photograph of each probe was taken to document the condition of the aluminum foil plug at the time of insertion.

3.1.3 Passive Soil Vapor Sample Retrieval

The samplers were left in place and exposed to any subsurface vapors for approximately 14 days. Immediately prior to removal of the PSG Samplers, the ground surface around the probe was screened for the presence of VOCs using a photo-ionization detector (PID) and a photograph of each probe was taken to document the condition of the aluminum foil plug at the time of retrieval.

At the end of the sample period the PSG Samplers were removed by pulling on the retrieval wire. The sampling cap was removed, the wire cut from the vial, and the solid cap replaced on the sampler vial.

Probe PSV-43-B2 was inadvertently installed with the solid shipping cap instead of the screened sampling cap, thus the probe was not exposed to soil vapors and was not submitted for analysis. Also, probe PSV-43-B7 was installed, but broken during retrieval, thus not submitted for analysis.

Passive soil vapor samples were labeled with the sample identification number, placed in a sealable plastic bag and shipped under chain of custody control to Beacon for analysis.

Passive soil vapor samples were stored at room temperature before and after use, and were shipped to the laboratory under chain of custody procedures, including two (2) trip

blanks and two (2) duplicate samples. The holding time of 30 days (between sample collection and analysis) was not exceeded.

3.2 LABORATORY PROCEDURES

Passive soil vapor samples were analyzed by Beacon using gas chromatography/mass spectrometry (GC/MS) instrumentation following modified USEPA Method 8260C procedures. Samples were analyzed for vinyl chloride; 1,1-dichloroethene; trans-1,2-dichloroethene; cis-1,2-dichloroethene; TCE; and PCE. The laboratory performed an initial five-point calibration. In addition, a 4-bromofluoro-benzene (BFB) tune was performed daily and a method blank was performed following daily calibration. Internal standards and surrogates were included with each sample analysis. Beacon's reported quantitation level (RQL) for each of the targeted compounds is 10 nanograms (ng) and the demonstrated limit of detection (LOD) is 5 ng.

3.3 QUALITY ASSURANCE AND QUALITY CONTROL

Quality assurance and quality control (QC) procedures were consistent with NYSDOH guidance for development of a Data Usability Summary Report, including preparation of sample log sheets and collection of duplicate samples and trip blanks, and standard laboratory quality control tests and procedures pursuant to USEPA Method requirements. Duplicate passive soil vapor samples were collected through a second adsorbent cartridge within the same vial.

Passive soil vapor sample data was reviewed, validated, and verified in terms of their ability to satisfy quality assurance requirements.

3.4 DEVIATIONS FROM THE WORK PLAN

The following provides a summary of deviations from the Work Plan:

- With the exception of location PSV-43-B9, all boreholes were sleeved with one-inch diameter by 12-inch long aluminum tubes provided by Beacon. These sleeves were not specified in the Work Plan. The sleeves were utilized as recommended by Beacon due to the potential for freezing weather conditions during the sampling event. The boring at location PSV-43-B9 was drilled between two patio pavers rendering it too narrow to be fitted with a sleeve.

- The Work Plan indicated that the passive soil vapor probes would be set at three feet below grade. Beacon recommends against setting the probes deeper than approximately eight to ten inches below grade. As such, all probes were set as per Beacon's recommendation (with NYSDEC concurrence) to between eight and ten inches below grade.
- The Work Plan indicated that the four deep boreholes at Home #43 would be sleeved with PVC pipe to a depth of three feet. After discussions in the field with a NYSDEC representative it was determined that these four borings would be sleeved exactly as the adjacent three foot deep borings (bullets above) to ensure similar sampling conditions.
- The Work Plan indicated that 31 probes would be installed and analyzed at Home #35. Due to the actual configuration of the sewer manholes and the location of historic soil vapor probe SV-19, one additional probe (PSV-35-C5) was installed at this property.
- The spacing between rows seven and eight at Home #43 was five feet rather than the 10 foot spacing indicated in the Work Plan. This was done to accommodate the probes between the house and a patio.
- Probe PSV-43-C9 was not installed due to its proximity in the center of a patio.
- Probes PSV-43-B11 and PSV-43-D11 were added to provide coverage in the back yard of Home #43 after the tightening of the spacing of rows seven and eight (bullet above).

None of these deviations would affect overall data quality or prevent meeting the purpose and objectives of the survey. Each of these deviations was discussed with and approved by the NYSDEC prior to completion of field activities.

4 RESULTS AND DATA VALIDATION

The results of the passive soil vapor survey are presented in this section. Results are presented by property location. Lists of all analyzed compounds for Home #43 and Home #35 are presented in Tables 1 and 2, respectively. All samples collected were subject to data validation, also provided below.

PCE and TCE were both detected in samples collected at Home #43. PCE, TCE and cis-1,2-dichloroethene were detected in samples at Home #35. It should be noted that passive soil vapor results are presented in units of mass, i.e., nanograms (ng), while the historic active soil vapor samples collected by NYSDEC were reported in concentration units, i.e., micrograms per cubic meter ($\mu\text{g}/\text{m}^3$). Therefore, the results of passive and active soil vapor samples cannot be compared quantitatively, although spatial patterns and compound ratios should be similar.

4.1 RESULTS FOR HOME #43

The results of the passive soil vapor samples at Home #43 are presented in Table 1 and summarized below. In addition, the PCE and TCE results are plotted on sample location maps on Figures 4 and 5, respectively. The laboratory data report is presented in Appendix B.

4.1.1 PCE Results for Home #43

PCE was detected in probes on the east side of Home #43, near the sewer lateral leading from the house to the Pearsall Place sanitary sewer line, with the highest detected levels (PSV-43-A8, 80 ng) at the southeast corner of the house near a sharp turn in the sewer lateral. PCE was not detected in any of the probes in the western or southern areas of the property. Deep and shallow probe results (where paired) were the same (below detection).

4.1.2 TCE Results for Home #43

TCE was detected in a few probes along the sewer lateral (up to 33 ng at PSV-43-A8), and near the southwest corner of the house (up to 46 ng at PSV-43-D9). TCE was not detected in any probes on the north side of the house and was only detected in one sample at an estimated level (below the reporting limit) in the southern portion of the property. Deep and shallow probe results were the same (below the reporting limit), although in

one pair of samples on the south side of the house, the shallow result was <10 ng, while the deep result was an estimated 5 ng (below the reporting limit of 10 ng).

4.2 RESULTS FOR HOME #35

The results of the passive soil vapor samples at Home #35 are presented in Table 2. In addition, the PCE and TCE results are plotted on sample location maps on Figures 6 and 7, respectively. The laboratory data report is presented in Appendix B.

4.2.1 PCE Results for Home #35

The highest PCE levels (up to 661 ng) were found on the east (downhill) side of the sewer line running from Pearsall Place. PCE was either not detected or was detected at low levels (15 ng or less) in probes on the west side of the sewer line closer to the house.

4.2.2 TCE Results for Home #35

The distribution of TCE was similar to PCE, with non-detectable or below reporting limit (estimated) levels on the west (uphill) side of the sewer running from Pearsall Place, and higher levels on the east side of the sewer (up to 309 ng).

4.3 DATA VALIDATION

All passive soil vapor samples were subject to data validation by EnviroGroup. This was performed to verify that they were collected and tested according to the procedures specified in the Work Plan.

Data validation included the following items:

- Ensuring that sample documentation and holding time requirements were met for all samples;
- Ensuring that chain of custody requirements were met;
- Evaluation of field duplicates;
- Ensuring that instrument tuning procedures were documented; and
- Ensuring that the data summary sheets and contour maps were correct based on an evaluation of the raw data.

4.3.1 Summary of Validation Results

Validation resulted in the following qualifications on the data:

Two field duplicates were collected during the sampling event as specified in the Work Plan. The results of sample/sample duplicates pairs were comparable for all analytes with the exception of TCE results for sample pair PSV-35-C5 and PSV-35-C5 DUP. These data have been flagged accordingly on Table 1.

5 DATA EVALUATION AND CONCLUSIONS

This section presents an evaluation of the passive soil vapor results for Home #43 and Home #35, respectively.

5.1 HOME #43

PCE detections at Home #43 were generally coincident with the location of the sewer lateral on the east side of the house, which connects to the municipal sanitary sewer line along Pearsall Place (Figure 4). TCE was also detected in several soil vapor probes in this area (Figure 5). Therefore, PCE and TCE vapors along the east side of the house are most likely related to the presence of these compounds in the sewer line.

TCE was also detected in a small area immediately southwest of the house, which appears chemically distinct (i.e., lacking PCE) and geographically separate from the TCE detections on the east side of the property (Figure 5). The TCE vapors near the southwest corner of the house appear to be coincident with an area of shallow bedrock and a vapor pattern that trends to the southwest. The source of this TCE is uncertain; however, we note that a sewer lateral leading from Therm to Pearsall Place is located a short distance to the southwest of this area, one property west of Home #43 (see Figure 5). In addition, we understand residents recall that some blasting may have been required to install the swimming pool located on the property between Home #43 and the sewer lateral. Therefore, it is possible that blasting facilitated localized migration of TCE from the immediate vicinity of the sewer line toward Home #43. This transport mechanism would also explain the limited extent of the vapors (i.e., limited to the area where blasting created or opened shallow bedrock fractures).

5.2 HOME #35

PCE and TCE levels were highest on the east side of the sewer line leading from Pearsall Place to the Town sewer behind Home #35, which is also the downhill side of the sewer line, based on the local topography (see Figures 6, and 7, respectively). PCE and TCE soil vapor levels were much lower or below detection on the west (uphill) side of the sewer, in the area immediately adjacent to Home #35. Therefore, the source of these vapors is most likely historic releases of PCE and TCE from the sewer line running from Pearsall Place. The PCE and TCE levels generally decrease to the northeast suggesting

that the impacts are localized and related to the change of grade where the Pearsall Place sewer joins the Town sewer near SV-19.

The PCE to TCE ratio of indoor air samples collected by NYSDEC in the unfinished portion of the basement (December 2010 and May 2011) were similar to the ratios observed in the soil vapor and drain vapor samples (i.e., PCE concentrations greater than TCE concentrations). However, the PCE to TCE ratio in the May 2011 indoor air sample collected in the finished portion of the basement was TCE dominant and, therefore, inconsistent with the PCE dominant soil vapor and drain vapor ratios. This line of evidence suggests another (background) source of TCE in the finished portion of the basement in May 2011 (i.e. household product).

6 RECOMMENDATIONS

Recommendations resulting from the data evaluation presented in Section 5 are presented in Sections 6.1 and 6.2, respectively.

6.1 HOME #43

A sub-slab depressurization system was installed at Home #43 by NYSDEC as a precautionary measure based on elevated sub-slab concentrations of TCE measured previously. No further action at Home #43 other than normal operation, maintenance, and monitoring of this system pursuant to NYSDOH (2006) guidance is recommended.

Based on the results of the current investigation, it appears that the extent of TCE in soil vapor near Home #43 is very limited and that the potential for any impacts have been addressed by the NYSDEC activities described above. Nevertheless, we recommend installing additional passive soil vapor probes along the sewer lateral southwest of Home #43 to confirm that this is the source of the TCE vapors. If so, this would complete the conceptual model and explain the source, transport pathway and extent of the TCE in this area.

6.2 HOME #35

Based on the limited extent of vapor impacts, evidence of natural attenuation, and lack of other homes in the vicinity, no further investigation related to this local release is recommended.

A radon system is already installed in Home #35; hence, subsurface sources of vapors below the slab, if any, are already controlled, with the possible exception of the floor drain on the finished side, which appears to be connected to the sewer. Therefore, we recommend that the floor drain be sealed to prevent or minimize its contributions to VOCs in indoor air. Indoor air testing after sealing of the floor drain is recommended to evaluate the presence of indoor or background sources of TCE and/or PCE in the home.

7 STUDY LIMITATIONS

EnviroGroup's work presented herein was performed in a manner consistent with that level of care normally exercised by members of our profession practicing in the same geographic area at the time the work is performed. No other warranty is made, expressed or implied, regarding this study. The findings, conclusions and recommendations presented herein are based on our professional judgment and should not be considered scientific certainties.

The scope of this study only included an evaluation of VOCs in soil vapor at the subject properties, through testing and evaluation of passive soil vapor by the test methods referenced. No other environmental issues, environmental media, or compounds were considered.

We have relied on the work of others during this study. We assume that the work performed by others was done correctly, that the information provided is correct, and assume no liability for the errors or omissions of others.

This report presents and evaluates the results of passive soil vapor tests conducted at specific locations and times. The concentrations of VOCs can vary in time and space; therefore, subsequent tests in the same locations and/or tests in new locations are unlikely to produce the same results. Nevertheless, considering the potential for variations in VOC concentrations in time and space, we believe our conclusions and recommendations are reasonable.

8 REFERENCES

- NYSDOH, 2006. Guidance for Evaluating Soil Vapor Intrusion in the State of New York, October.
- EnviroGroup Limited, 2011. Passive Soil Vapor Sampling Work Plan.
- EA Engineering, 2011a. Off-Site Former Axiohm Facility (C755012A) Supplemental Vapor Intrusion Summary Report, Figure 6A, November.
- EA Engineering, 2011b. Off-Site Former Axiohm Facility (C755012A) Supplemental Vapor Intrusion Summary Report, Table 5, September.
- EA Engineering, 2011c. Off-Site Former Axiohm Facility (C755012A) Supplemental Vapor Intrusion Summary Report, Table 2, May.
- EA Engineering, 2010. Appendix G: Supplemental Soil Vapor Investigation Summary Report Addendum, Off-Site Former Axiohm Facility (C755012A), Table 1, May.

TABLES

TABLE 1

SUMMARY OF RESULTS FOR PASSIVE SOIL VAPOR SAMPLES

**House #43
South Hill Neighborhood
Ithaca, New York**

Sample ID:	Trip Blank-2	PSV-43-A1	PSV-43-A1D	PSV-43-A2	PSV-43-A2D	PSV-43-A8	PSV-43-A9	PSV-43-B1	PSV-43-B3	PSV-43-B3 DUP	PSV-43-B4	PSV-43-B5
Lab Sample ID:	A11111816	A11111859	A11111860	A11111861	A11111862	A11111863	A11111864	A11111865	A11111866	A11111867	A11111868	A11111869
Sample Date:	11/15/2011	11/15/2011	11/15/2011	11/15/2011	11/15/2011	11/15/2011	11/15/2011	11/15/2011	11/15/2011	11/15/2011	11/15/2011	11/15/2011
Vinyl Chloride	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
1,1-Dichloroethene	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
trans-1,2-Dichloroethene	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
cis-1,2-Dichloroethene	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
Trichloroethene	<10	<10	<10	<10	<10	33	<10	<10	10 J	7 J	<10	9 J
Tetrachloroethene	<10	<10	<10	<10	<10	80	11	12	8 J	10	<10	31

Notes:

- 1) All units are in nanograms (ng).
- 2) "<" - Analyte not detected at reported quantitation level.
- 3) "J" - Result is an estimated value above the limit of detection but below the reported quantitation level.

TABLE 1**SUMMARY OF RESULTS FOR PASSIVE SOIL VAPOR SAMPLES****House #43
South Hill Neighborhood
Ithaca, New York**

Sample ID:	PSV-43-B6	PSV-43-B8	PSV-43-B9	PSV-43-B10	PSV-43-B11	PSV-43-C1	PSV-43-C2	PSV-43-C8	PSV-43-C8D	PSV-43-C10	PSV-43-C10D	PSV-43-C11
Lab Sample ID:	A11111870	A11111871	A11111872	A11111873	A11111874	A11111875	A11111876	A11111877	A11111878	A11111879	A11111880	A11111881
Sample Date:	11/15/2011	11/15/2011	11/15/2011	11/15/2011	11/15/2011	11/15/2011	11/15/2011	11/15/2011	11/15/2011	11/15/2011	11/15/2011	11/15/2011
Vinyl Chloride	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
1,1-Dichloroethene	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
trans-1,2-Dichloroethene	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
cis-1,2-Dichloroethene	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
Trichloroethene	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	5 J	<10
Tetrachloroethene	<10	7 J	6 J	<10	<10	<10	5 J	<10	<10	<10	<10	<10

Notes:

- 1) All units are in nanograms (ng).
- 2) "<" - Analyte not detected at reported quantitation level.
- 3) "J" - Result is an estimated value above the limit of detection but below the reported quantitation level.

TABLE 1**SUMMARY OF RESULTS FOR PASSIVE SOIL VAPOR SAMPLES****House #43
South Hill Neighborhood
Ithaca, New York**

Sample ID:	PSV-43-C12	PSV-43-C13	PSV-43-C14	PSV-43-C15	PSV-43-D1	PSV-43-D2	PSV-43-D8	PSV-43-D9	PSV-43-D10	PSV-43-D11	PSV-43-E1	PSV-43-E2
Lab Sample ID:	A11111882	A11111883	A11111884	A11111885	A11111886	A11111887	A11111888	A11111889	A11111890	A11111891	A11111892	A11111893
Sample Date:	11/15/2011	11/15/2011	11/15/2011	11/15/2011	11/15/2011	11/15/2011	11/15/2011	11/15/2011	11/15/2011	11/15/2011	11/15/2011	11/15/2011
Vinyl Chloride	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
1,1-Dichloroethene	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
trans-1,2-Dichloroethene	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
cis-1,2-Dichloroethene	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
Trichloroethene	<10	8 J	<10	<10	<10	<10	<10	46	<10	<10	<10	<10
Tetrachloroethene	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10

Notes:

- 1) All units are in nanograms (ng).
- 2) "<" - Analyte not detected at reported quantitation level.
- 3) "J" - Result is an estimated value above the limit of detection but below the reported quantitation level.

TABLE 1**SUMMARY OF RESULTS FOR PASSIVE SOIL VAPOR SAMPLES**

**House #43
South Hill Neighborhood
Ithaca, New York**

Sample ID:	PSV-43-E3	PSV-43-E4	PSV-43-E5	PSV-43-E6	PSV-43-E7	PSV-43-E8	PSV-43-E9
Lab Sample ID:	A11111894	A11111895	A11111896	A11111897	A11111898	A11111899	A11111900
Sample Date:	11/15/2011	11/15/2011	11/15/2011	11/15/2011	11/15/2011	11/15/2011	11/15/2011
Vinyl Chloride	<10	<10	<10	<10	<10	<10	<10
1,1-Dichloroethene	<10	<10	<10	<10	<10	<10	<10
trans-1,2-Dichloroethene	<10	<10	<10	<10	<10	<10	<10
cis-1,2-Dichloroethene	<10	<10	<10	<10	<10	<10	<10
Trichloroethene	<10	<10	<10	6 J	24	6 J	32
Tetrachloroethene	<10	<10	<10	<10	<10	<10	<10

Notes:

- 1) All units are in nanograms (ng).
- 2) "<" - Analyte not detected at reported quantitation level.
- 3) "J" - Result is an estimated value above the limit of detection but below the reported quantitation level.

TABLE 2

SUMMARY OF RESULTS FOR PASSIVE SOIL VAPOR SAMPLES

House #35
South Hill Neighborhood
Ithaca, New York

Sample ID:	Trip Blank-1	PSV-35-A1	PSV-35-A2	PSV-35-A3	PSV-35-A4	PSV-35-A5	PSV-35-A7	PSV-35-B1	PSV-35-B2	PSV-35-B3	PSV-35-B4	PSV-35-B5
Lab Sample ID:	A11111815	A11111817	A11111818	A11111819	A11111820	A11111821	A11111822	A11111823	A11111824	A11111825	A11111826	A11111827
Sample Date:	11/15/2011	11/15/2011	11/15/2011	11/15/2011	11/15/2011	11/15/2011	11/15/2011	11/15/2011	11/15/2011	11/15/2011	11/15/2011	11/15/2011
Vinyl Chloride	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
1,1-Dichloroethene	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
trans-1,2-Dichloroethene	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
cis-1,2-Dichloroethene	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
Trichloroethene	<10	<10	<10	<10	<10	<10	<10	<10	<10	5 J	<10	<10
Tetrachloroethene	<10	15	8 J	5 J	<10	<10	<10	6 J	<10	15	8 J	<10

Notes:

- 1) All units are in nanograms (ng).
- 2) "<" - Analyte not detected at reported quantitation level.
- 3) "J" - Result is an estimated value above the limit of detection but below the reported quantitation level.
- 4) "P" - Duplicated samples do not have results less than 50% RPD when results are greater than 5 times the laboratory's limit quantification.

TABLE 2

SUMMARY OF RESULTS FOR PASSIVE SOIL VAPOR SAMPLES

House #35
South Hill Neighborhood
Ithaca, New York

Sample ID:	PSV-35-B6	PSV-35-B7	PSV-35-C1	PSV-35-C2	PSV-35-C3	PSV-35-C4	PSV-35-C5	PSV-35-C5 DUP	PSV-35-C7	PSV-35-D1	PSV-35-D2
Lab Sample ID:	A11111828	A11111829	A11111830	A11111831	A11111832	A11111833	A11111834	A11111835	A11111836	A11111837	A11111838
Sample Date:	11/15/2011	11/15/2011	11/15/2011	11/15/2011	11/15/2011	11/15/2011	11/15/2011	11/15/2011	11/15/2011	11/15/2011	11/15/2011
Vinyl Chloride	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
1,1-Dichloroethene	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
trans-1,2-Dichloroethene	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
cis-1,2-Dichloroethene	<10	13	<10	<10	<10	<10	22	34	<10	<10	<10
Trichloroethene	7 J	149	53	<10	<10	6 J	167 P	309 P	26	13	100
Tetrachloroethene	7 J	84	234	<10	<10	9 J	194	141	93	185	481

Notes:

- 1) All units are in nanograms (ng).
- 2) "<" - Analyte not detected at reported quantitation level.
- 3) "J" - Result is an estimated value above the limit of detection but below the reported quantitation level.
- 4) "P" - Duplicated samples do not have results less than 50% RPD when results are greater than 5 times the laboratory's limit quantification.

TABLE 2

SUMMARY OF RESULTS FOR PASSIVE SOIL VAPOR SAMPLES

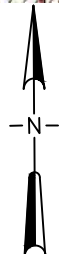
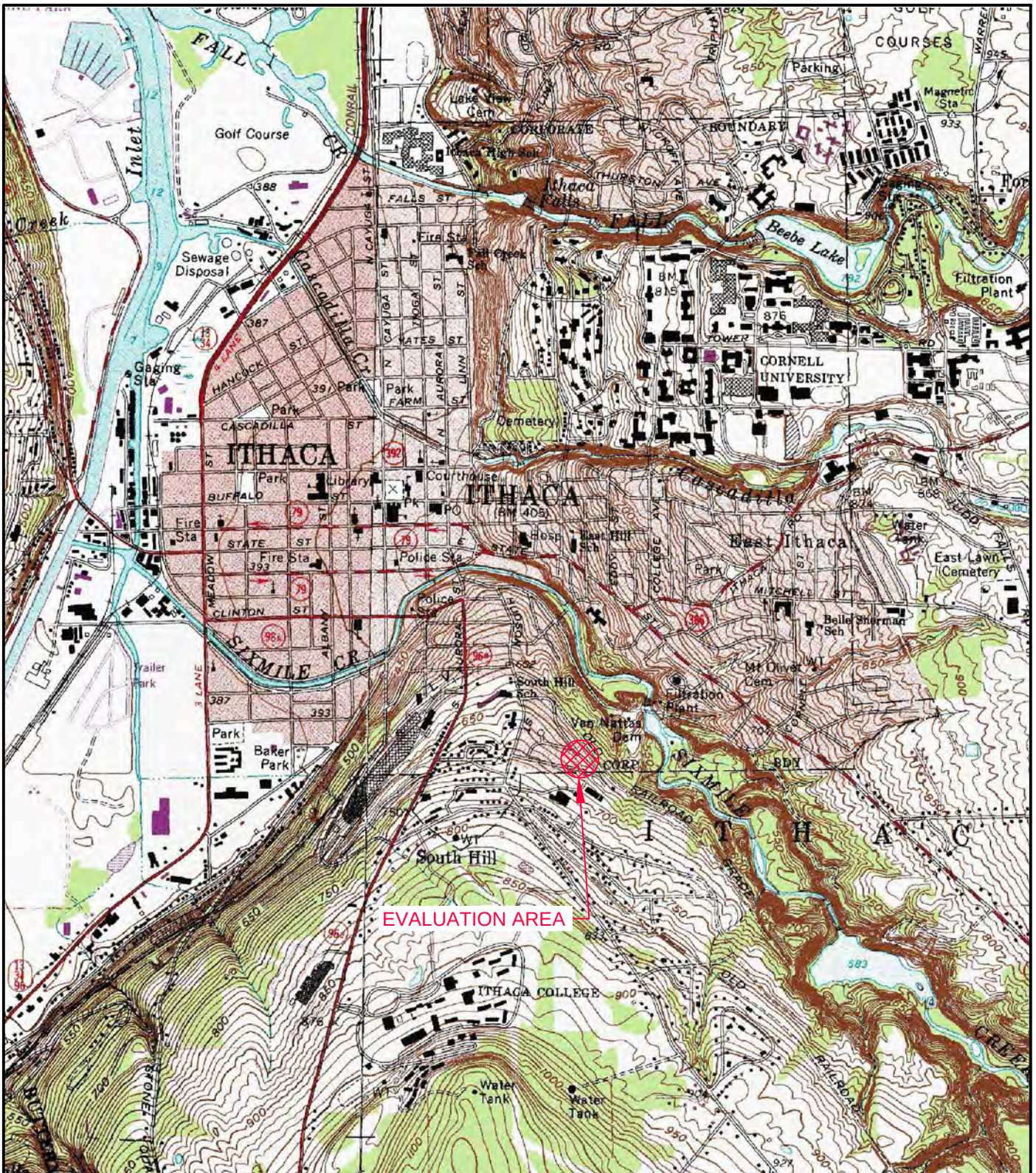
House #35
South Hill Neighborhood
Ithaca, New York

Sample ID:	PSV-35-D3	PSV-35-D4	PSV-35-D5	PSV-35-D7	PSV-35-E1	PSV-35-E2	PSV-35-E3	PSV-35-E4	PSV-35-E5	PSV-35-E7	PSV-35-F5
Lab Sample ID:	A11111839	A11111840	A11111841	A11111842	A11111843	A11111844	A11111845	A11111846	A11111847	A11111848	A11111849
Sample Date:	11/15/2011	11/15/2011	11/15/2011	11/15/2011	11/15/2011	11/15/2011	11/15/2011	11/15/2011	11/15/2011	11/15/2011	11/15/2011
Vinyl Chloride	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
1,1-Dichloroethene	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
trans-1,2-Dichloroethene	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
cis-1,2-Dichloroethene	15	<10	13	<10	6 J	<10	<10	8 J	10	<10	9 J
Trichloroethene	197	18	149	43	62	51	59	166	128	<10	119
Tetrachloroethene	644	149	423	95	210	297	182	661	387	21	373

Notes:

- 1) All units are in nanograms (ng).
- 2) "<" - Analyte not detected at reported quantitation level.
- 3) "J" - Result is an estimated value above the limit of detection but below the reported quantitation level.
- 4) "P" - Duplicated samples do not have results less than 50% RPD when results are greater than 5 times the laboratory's limit quantification.

FIGURES



0 1000' 2000' 3000'
SCALE 1"=2000' AT ORIGINAL SIZE

SITE VICINITY MAP



EnviroGroup Limited
Centennial, Colorado

FIGURE 1

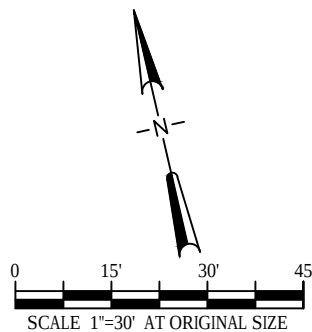
JAN. 2012

HL-0634



LEGEND:

- --- --- --- --- APPROX. PROPERTY LINES
- --- --- --- --- APPROX. LOCATION OF SEWER LATERAL
- PROBE LOCATIONS W/ PCE CONCENTRATIONS:
39 SV PROBES 3 FT. DEEP @ 10' C-C N
- DEEP SOIL VAPOR PROBES (BORE HOLE TO 5 FEET)
- SEWER LINE
- SEWER MANHOLE



THERM, INC.
ITHACA, NEW YORK

**PASSIVE SOIL VAPOR SAMPLE
LOCATIONS, HOME #43**



EnviroGroup Limited
Centennial, Colorado

FIGURE 2

JAN. 2012

HL-0634

(XREF)\\HancockLaw_Estabrook\\HL_0634_HancockLaw_Therm\\Drawings\\Therm Jan2012\\Figure 3 Passive Soil Vapor Sample Locations-Home 35.dwg, 1/9/2012 4:50 PM



LEGEND:

- APRROX. PROPERTY LINES
- APRROX. LOCATION OF SEWER LATERAL
- PROBE LOCATIONS W/ PCE CONCENTRATIONS:
32 SV PROBES 3 FT. DEEP @ 10' C-C ±
- DEEP SOIL VAPOR PROBES (BORE HOLE TO 5 FEET)
- SEWER LINE
- SEWER MANHOLE

0 10' 20' 30'
SCALE 1"=20' AT ORIGINAL SIZE

THERM, INC.
ITHACA, NEW YORK

**PASSIVE SOIL VAPOR SAMPLE
LOCATIONS, HOME #35**

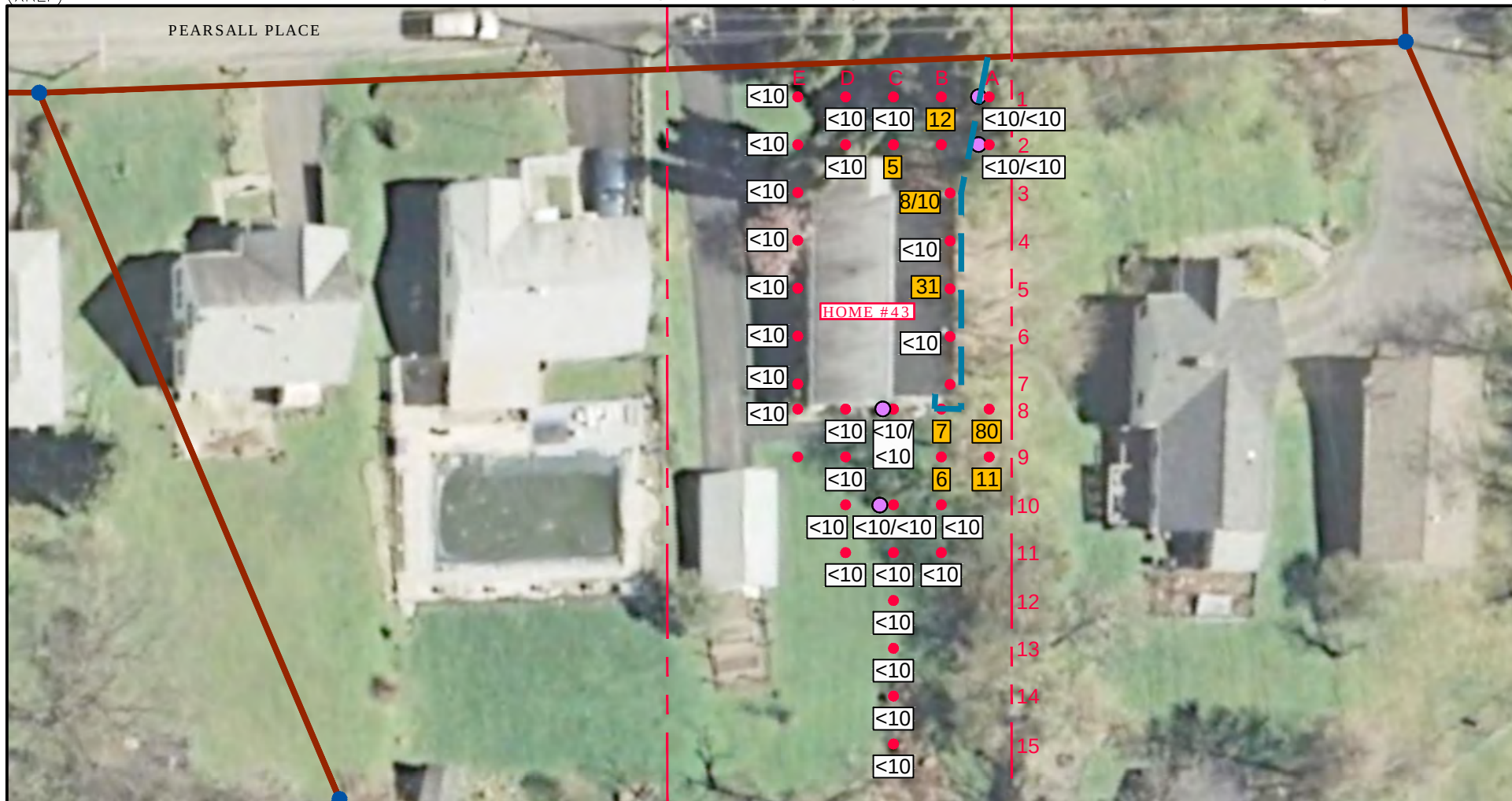


EnviroGroup Limited
Centennial, Colorado

FIGURE 3

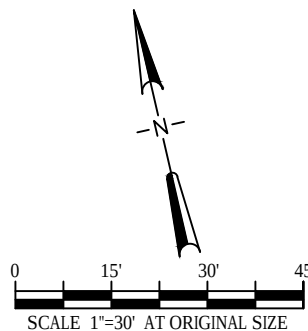
JAN. 2012

HL-0634



LEGEND:

- APPROX. PROPERTY LINES
- APPROX. LOCATION OF SEWER LATERAL
- PROBE LOCATIONS W/ PCE CONCENTRATIONS:
39 SV PROBES 3 FT. DEEP @ 10' C-C N
- DEEP SOIL VAPOR PROBES (BORE HOLE TO 5 FEET)
- PCE CONCENTRATION IN NANOGRAMS (NG)
- PCE CONCENTRATION BELOW DETECTION LIMIT
- SEWER LINE
- SEWER MANHOLE



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PASSIVE SOIL VAPOR
PCE RESULTS, HOME #43

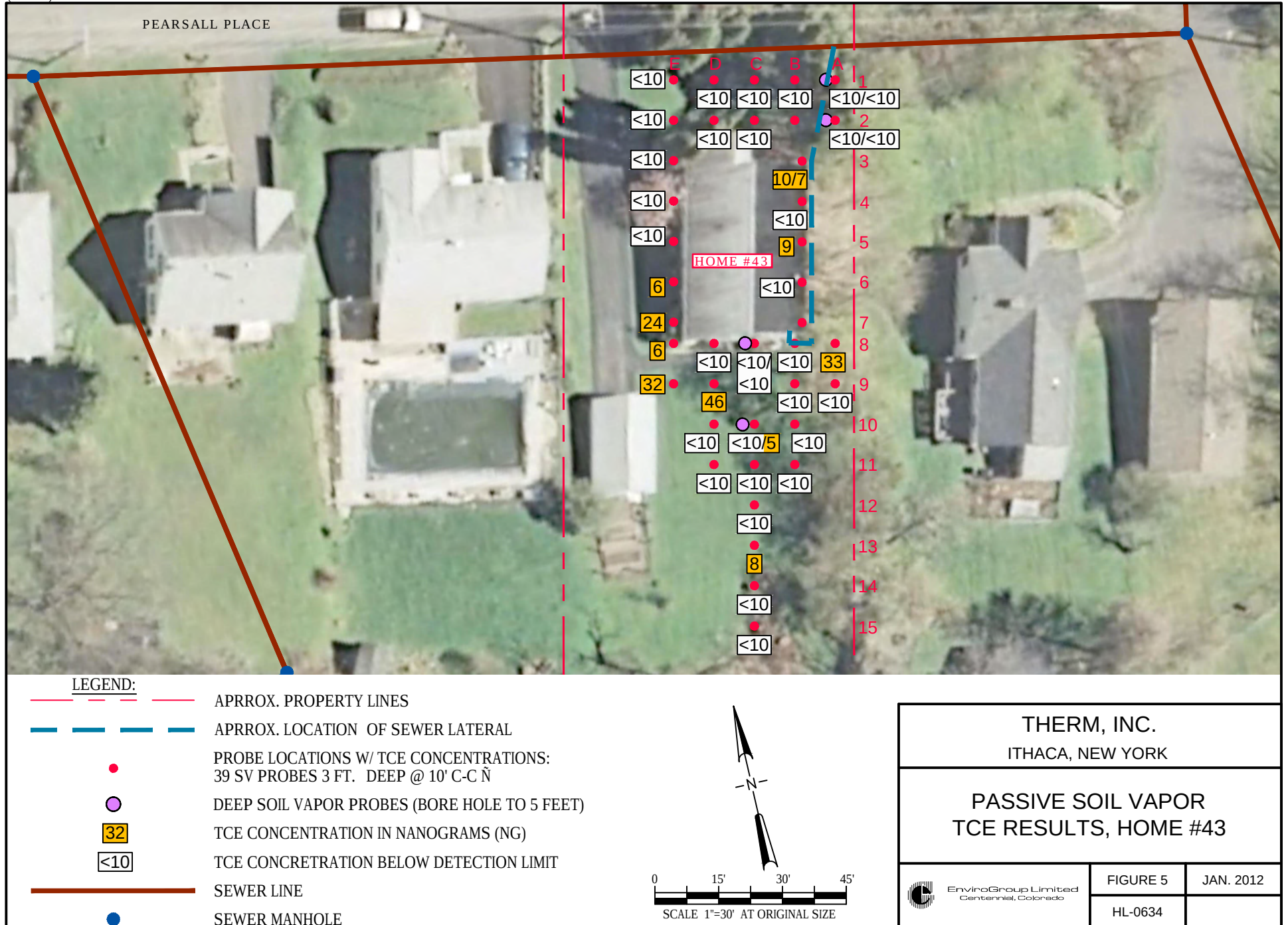


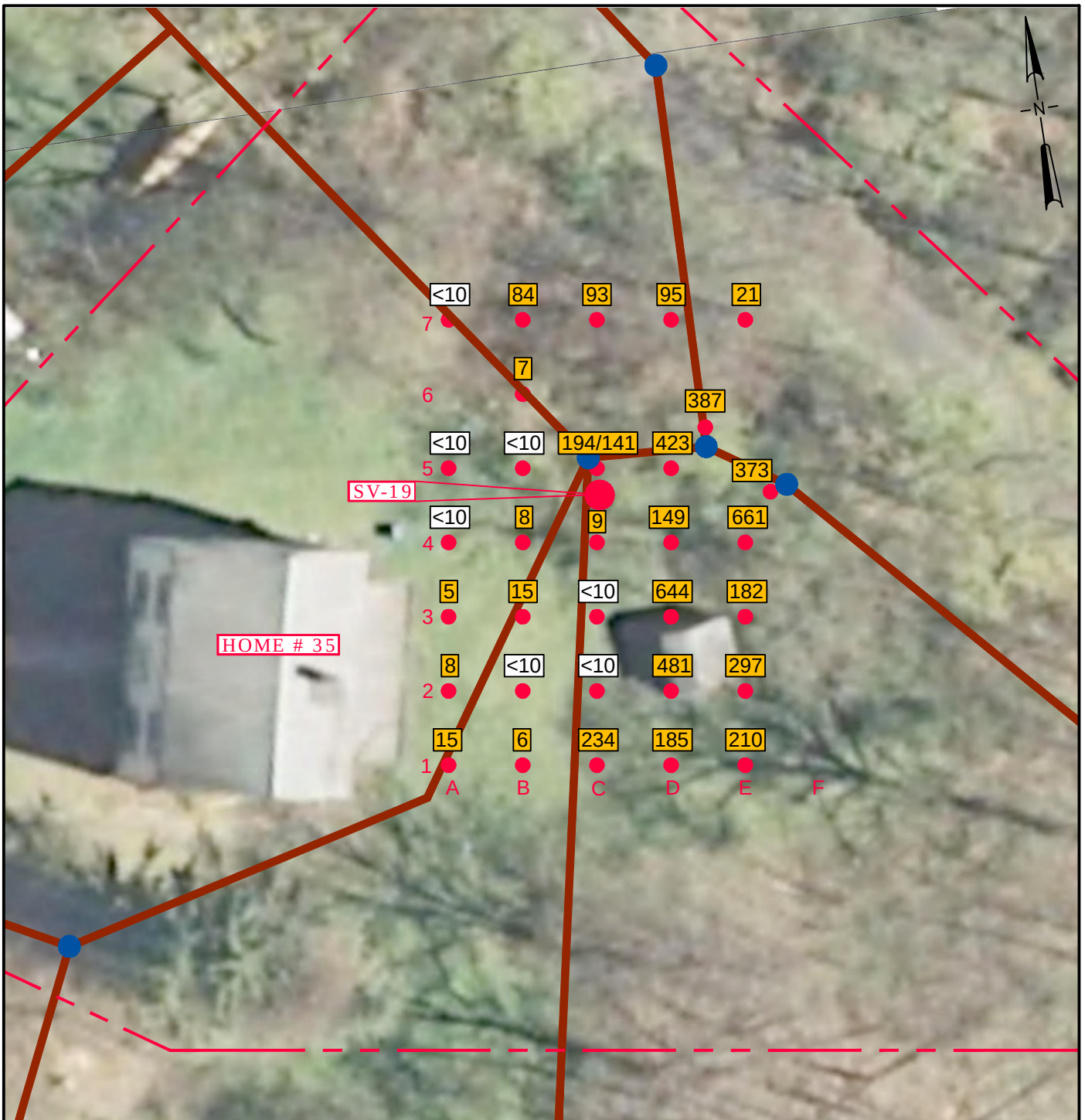
EnviroGroup Limited
Centennial, Colorado

FIGURE 4

JAN. 2012

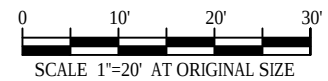
HL-0634





LEGEND:

	APPROX. PROPERTY LINES
	APPROX. LOCATION OF SEWER LATERAL
	PROBE LOCATIONS W/ PCE CONCENTRATIONS: 32 SV PROBES 3 FT. DEEP @ 10' C-C ±
	DEEP SOIL VAPOR PROBES (BORE HOLE TO 5 FEET)
	TCE CONCENTRATION IN NANOGRAMS (NG)
	TCE CONCENTRATION BELOW DETECTION LIMIT
	SEWER LINE
	SEWER MANHOLE



SCALE 1"=20' AT ORIGINAL SIZE

THERM, INC.
ITHACA, NEW YORK

**PASSIVE SOIL VAPOR
PCE RESULTS, HOME #35**

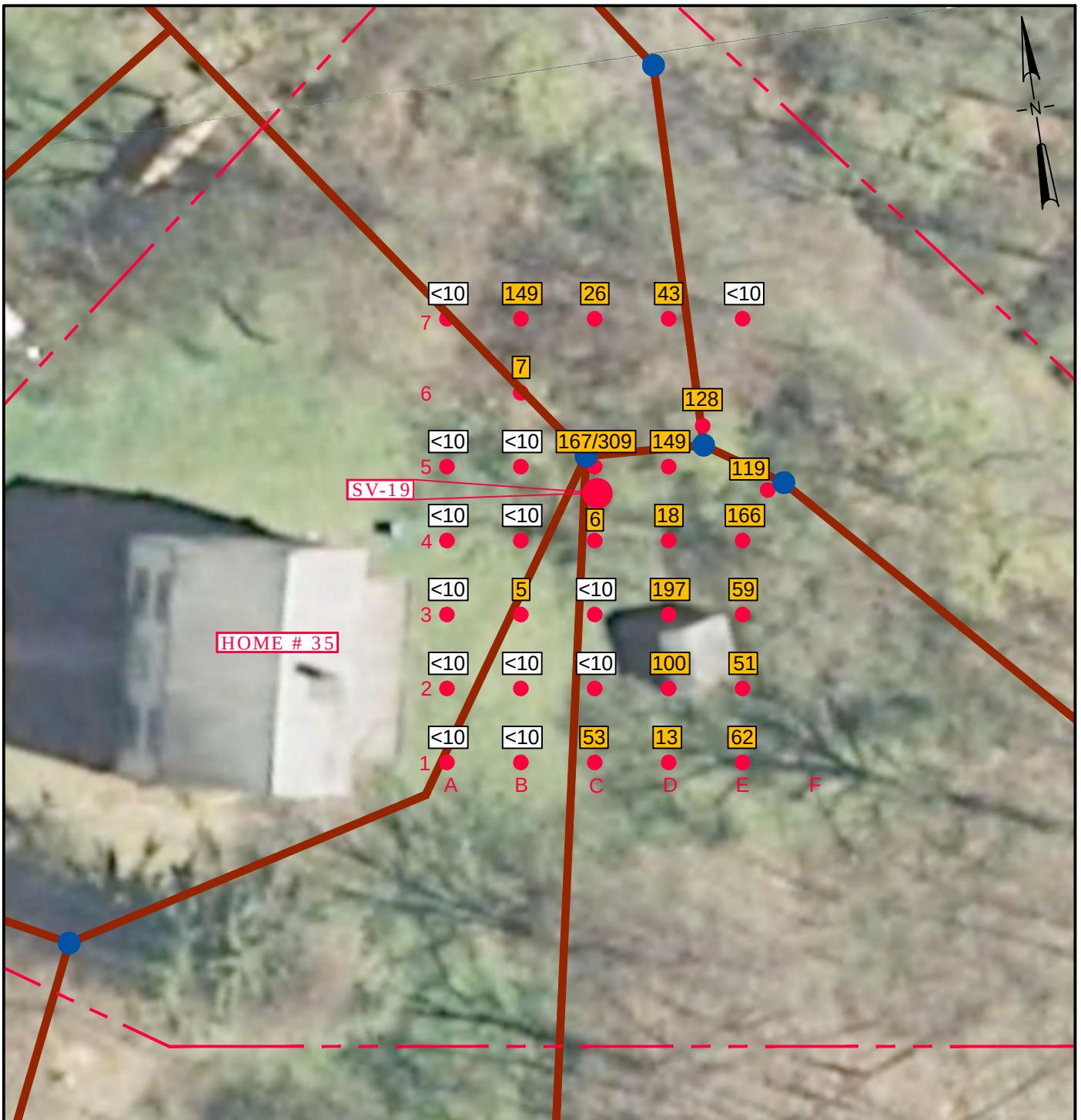


EnviroGroup Limited
Centennial, Colorado

FIGURE 6

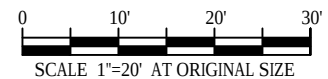
JAN. 2012

HL-0634



LEGEND:

- APPROX. PROPERTY LINES
- APPROX. LOCATION OF SEWER LATERAL
- PROBE LOCATIONS W/ TCE CONCENTRATIONS:
32 SV PROBES 3 FT. DEEP @ 10' C-C ±
- DEEP SOIL VAPOR PROBES (BORE HOLE TO 5 FEET)
- 100 TCE CONCENTRATION IN NANOGRAMS (NG)
- <10 TCE CONCENTRATION BELOW DETECTION LIMIT
- SEWER LINE
- SEWER MANHOLE



THERM, INC.
ITHACA, NEW YORK

**PASSIVE SOIL VAPOR
TCE RESULTS, HOME #35**



EnviroGroup Limited
Centennial, Colorado

FIGURE 7

JAN. 2012

HL-0634

APPENDIX A

FIELD NOTES

PASSIVE SOIL-GAS SURVEY FIELD DEPLOYMENT REPORT

Project Information	
Beacon Project No.:	2432
Site Name:	Ithaca Site
Site Location:	Ithaca, NY



Client Information	
Company Name:	EnviroGroup Limited
Office Location:	Latham, NY
Samples Collected By:	E Lovenduski

FIELD SAMPLE ID	Date Emplaced	Date Retrieved	Sampling Hole Depth (inches)	FIELD NOTES (e.g., asphalt/concrete/gravel, description of sample location, PID/FID readings) <i>* Pickup Surface * PID Reading ppm</i>
	11/01/11	11/15/11		
	Time Emplaced	Time Retrieved		
TRIP BLANK	1259	1020	—	
PSV-35-A1	1301	1025	36"	Gross 0.9
PSV-35-A2	1305	1029	36"	Gross 0.8
PSV-35-A3	1306	1033	36"	Gross 0.9
PSV-35-A4	1308	1035	36"	Gross 0.9
PSV-35-A5	1310	1038	36"	Gross 0.9
PSV-35-A7	1315	1040	36"	Soil 0.5
PSV-35-B1	1320	1043	36"	Gross 1.2
PSV-35-B2	1322	1045	36"	Gross 0.3
PSV-35-B3	1325	1047	36"	Gross 1.3
PSV-35-B4	1327	1049	36"	Gross 1.5
PSV-35-B5	1329	1052	36"	Soil 2.3
PSV-35-B6	1331	1054	36"	Soil 0.3
PSV-35-B7	1337	1056	36"	Soil 2.4
PSV-35-C1	1343	1100	36"	Gross 2.1

* Background on PID reads 0-9 ppm

PASSIVE SOIL-GAS SURVEY FIELD DEPLOYMENT REPORT

Project Information	
Beacon Project No.:	2432
Site Name:	Ithaca Site
Site Location:	Ithaca, NY



Client Information	
Company Name:	EnviroGroup Limited
Office Location:	Latham, NY
Samples Collected By:	

FIELD SAMPLE ID	Date Emplaced	Date Retrieved	Sampling Hole Depth (inches)	FIELD NOTES (e.g., asphalt/concrete/gravel, description of sample location, PID/FID readings)	
	Time Emplaced	Time Retrieved			
PSV-35-C2	1345	1102	36"	Grass	2.2
PSV-35-C3	1347	1104	1	Grass	1.8
PSV-35-C4	1349	1106		Grass	0.3
PSV-35-C5	1351	1108		Soil	DVP HERE 1.5
PSV-35-C6	1353	1111		Soil	1.8
PSV-35-D1	1411	1114		Grass	0.7
PSV-35-D2	1416	1117		Grass	0.7
PSV-35-D3	1418	1119		Soil	2.0
PSV-35-D4	1420	1122		Soil	1.7
PSV-35-D5	1422	1124		Soil	0.9
PSV-35-D7	1425	1126		Soil	1.2
PSV-35-E1	1430	1128		Grass	1.0
PSV-35-E2	1435	1130		Grass	6.7
PSV-35-E3	1438	1132		Soil	0.7
PSV-35-E4	1441	1134	✓	Soil	1.1

PASSIVE SOIL-GAS SURVEY FIELD DEPLOYMENT REPORT

Project Information	
Beacon Project No.:	2432
Site Name:	Ithaca Site
Site Location:	Ithaca, NY



Client Information	
Company Name:	EnviroGroup Limited
Office Location:	Latham, NY
Samples Collected By:	

FIELD SAMPLE ID	Date Emplaced	Date Retrieved	Sampling Hole Depth (inches)	FIELD NOTES (e.g., asphalt/concrete/gravel, description of sample location, PID/FID readings)	
	11/02/11	11/15/11			
	Time Emplaced	Time Retrieved			
TRIP BLANK	—	1320	—	Mulch - F-1 (A)	0.0
PSV-43-A1	1220	1324	36"	Mulch	0.0
PSV-43-A1D	1221	1326	60"	Mulch	0.0
PSV-43-B1	1223	1329	36"	Grass	0.0
PSV-43-C1	1225	1331		Grass	0.7
PSV-43-D1	1227	1332		Grass	0.2
PSV-43-E1	1230	1334		Grass	0.0
PSV-43-A2	1233	1336	↓	Mulch	1.1
PSV-43-A2D	1234	1337	60"	Mulch wet tub on 11/15	0.9
PSV-43-B2	1237	1338	36"	Grass - no sample - sample of river pt on.	0.0
PSV-43-C2	1240	1340		Grass	0.0
PSV-43-D2	1243	1341		Grass	0.0
PSV-43-E2	1245	1343		Grass	0.0
PSV-43-E3	1249	1345		Mulch	0.0
PSV-43-E4	1251	1347	↓	Mulch	0.6

PASSIVE SOIL-GAS SURVEY FIELD DEPLOYMENT REPORT

Project Information	
Beacon Project No.:	2432
Site Name:	Ithaca Site
Site Location:	Ithaca, NY



Client Information	
Company Name:	EnviroGroup Limited
Office Location:	Latham, NY
Samples Collected By:	

FIELD SAMPLE ID	Date Emplaced	Date Retrieved	Sampling Hole Depth (inches)	FIELD NOTES (e.g., asphalt/concrete/gravel, description of sample location, PID/FID readings)	
	Time Emplaced	Time Retrieved			
PSV-43-E5	1256	1349	36"	Grass	0.0
PSV-43-E6	1258	1350		Grass	0.0
PSV-43-E7	1305	1351		Grass	0.0
PSV-43-E8	1309	1352		Grass	0.0
PSV-43-E9	1349	1354		Tube wet & pick-up	0.4
PSV-43-D8	1430	1359		Mulch - Flower box	0.0
PSV-43-C8	1432	1401		Gravel	0.0
PSV-43-C8D	1433	1402	60"	Gravel	0.0
PSV-43-B9	1435	1403	36"	Gravel	0.0
PSV-43-A8	1437	1405		Mulch	0.0
PSV-43-A9	1439	1407		Mulch	0.0
PSV-43-B9	1441	1408		Brick	0.0
PSV-43-D9	1442	1410		Mulch	0.0
PSV-43-B10	1444	1414		Mulch - wet tube on 11/15	0.0
PSV-43-C10	1446	1416		Mulch	0.0

PASSIVE SOIL-GAS SURVEY FIELD DEPLOYMENT REPORT

Project Information	
Beacon Project No.:	2432
Site Name:	Ithaca Site
Site Location:	Ithaca, NY



Client Information	
Company Name:	EnviroGroup Limited
Office Location:	Latham, NY
Samples Collected By:	

FIELD SAMPLE ID	Date Emplaced	Date Retrieved	Sampling Hole Depth (inches)	FIELD NOTES (e.g., asphalt/concrete/gravel, description of sample location, PID/FID readings) Piccol PID (ppm)
	Time Emplaced	Time Retrieved		
PSV-43-C100	1447	1417	54"	Mulch - Tube wet on 11/15 0.0
PSV-43-C101	1449	1419	36"	Mulch 0.0
PSV-43-C11	1451	1423		Grass - wet tube on 11/15 0.0
PSV-43-C12	1453	1426		Grass wet tube on 11/15 0.0
PSV-43-C13	1456	1428		Grass - wet tube on 11/15 0.0
PSV-43-C14	1458	1430		Grass - wet tube on 11/15 0.0
PSV-43-C15	1500	1431		Grass 0.0
PSV-43-D11	1503	1425		Grass wet tube on 11/15 0.0
PSV-43-B11	1506	1420		Grass wet tube on 11/15 0.0
PSV-43-B8	1510			Already installed PS 2 5/1
PSV-43-B7	1513			Vial broke when removed, soil sample lost in hole no sample 0.0
PSV-43-B6	1515	1435		Gravel moist in tube on 11/15 0.0
PSV-43-B5	1517	1437		Gravel wet in tube on 11/15 0.0
PSV-43-B4	1519	1439		Gravel Moist in tube on 11/15 0.0
PSV-43-B3	1521	1442	✓	Gravel moist in tube on 11/15 DVPHERE 0.0

CHAIN-OF-CUSTODY PASSIVE SOIL-GAS SAMPLES

House #43-1

Project Information			Client Information	
Beacon Project No.:	2432		Company Name:	EnviroGroup Limited
Site Name:	Ithaca Site	Office Location:	Latham, NY	
Site Location:	Ithaca, NY	Samples Submitted By:	E. Lovenduski	
Analytical Method:	EPA Method 8260C	Contact Phone No.:	518-258-3859	
Target Compounds:	Beacon Project Number 2432 Target Compound List			

Field Sample ID	Lab Sample ID (for lab use only)	Comments (only necessary if problem or discrepancy)			
		Condition of sample or vial	Date	Time	Initial
TRIP BLANK 02			11/15/11	1320	SLK
PSV-43-A1				1324	SLK
PSV-43-A1D				1326	SLK
PSV-43-B1				1329	SLK
PSV-43-C1				1331	SLK
PSV-43-D1				1332	SLK
PSV-43-E1				1334	SLK
PSV-43-AZ				1336	SLK
PSV-43-A2D				1337	SLK
PSV-43-CZ				1340	SLK
PSV-43-DZ				1341	SLK
PSV-43-EZ				1343	SLK
PSV-43-E3				1345	SLK
PSV-43-E4				1347	SLK
PSV-43-E5				1349	SLK
PSV-43-E6				1350	SLK
PSV-43-E7				1351	SLK
PSV-43-E8				1352	SLK
PSV-43-E9				1354	SLK
PSV-43-D8				1359	SLK

Shipment of Field Kit to Site — Custody Seal #		17350381	Intact? ☒ Y ☐ N	
Relinquished by:	Date/Time	Courier	Received by:	Date/Time
Ryan Schell	10-27-2011 / 1700 Hours	UPS	[Signature]	10/28/11 1100

Shipment of Field Kit to Laboratory — Custody Seal #			Intact? ☐ Y ☐ N	
Relinquished by:	Date/Time	Courier	Received by:	Date/Time
[Signature]	11/16/11 1500	FedEx		

CHAIN-OF-CUSTODY PASSIVE SOIL-GAS SAMPLES

HOUSE #43-2

Project Information		 BEACON ENVIRONMENTAL SERVICES, INC. 323 Williams Street, Suite D, Ithaca, NY 14850 (800) 678-5510	Client Information	
Beacon Project No.:	2432		Company Name:	EnviroGroup Limited
Site Name:	Ithaca Site		Office Location:	Latham, NY
Site Location:	Ithaca, NY		Samples Submitted By:	E. Lovenduski
Analytical Method:	EPA Method 8260C		Contact Phone No.:	518-258-3857
Target Compounds:	Beacon Project Number 2432 Target Compound List			

Field Sample ID	Lab Sample ID (for lab use only)	Comments (only necessary if problem or discrepancy)			
		Condition of sample or vial	Date	Time	Initial
PSV-43-C8			11/15/11	1401	SS
PSV-43-C8D				1402	SS
PSV-43-B8				1403	SS
PSV-43-A8				1405	SS
PSV-43-A9				1407	SS
PSV-43-B9				1408	SS
PSV-43-D9				1410	SS
PSV-43-B10				1414	SS
PSV-43-C10				1416	SS
PSV-43-C10D				1417	SS
PSV-43-D10				1418	SS
PSV-43-C11				1423	SS
PSV-43-C12				1426	SS
PSV-43-C13				1428	SS
PSV-43-C14				1430	SS
PSV-43-C15				1431	SS
PSV-43-D11				1425	SS
PSV-43-B11				1420	SS
PSV-43-B6				1435	SS
PSV-43-B5				1437	SS

Shipment of Field Kit to Site — Custody Seal # 17350381

Intact? ☒ Y ☐ N

Relinquished by:	Date/Time	Courier	Received by:	Date/Time
Ryan Schick	10-27-2011 / 1700 Hours	UPS	SS	10/28/11 1100

Shipment of Field Kit to Laboratory — Custody Seal #

Intact? ☐ Y ☐ N

Relinquished by:	Date/Time	Courier	Received by:	Date/Time
SS/Schick	11/15/11 1500	FEDEx		

House #43-3

B BEACON
ENVIRONMENTAL
SERVICES, INC.
323 Williams Street Suite D Del An MD 21014 (800) 874-3510

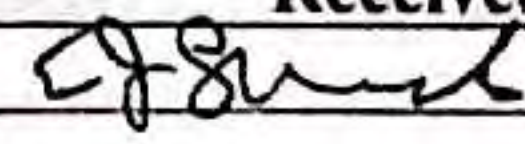
A handwritten signature, possibly 'L. L. L.', is written in black ink on a piece of lined paper. The signature is stylized with loops and a long horizontal stroke at the end. A diagonal line is drawn across the bottom left corner of the page.Page 3 of 3

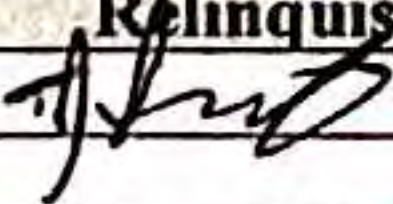
CHAIN-OF-CUSTODY PASSIVE SOIL-GAS SAMPLES

HOUSE#35-1

Project Information		 BEACON ENVIRONMENTAL SERVICES, INC. 323 Williams Street, Suite D, Shelton, CT 06484 (800) 878-5520	Client Information	
Beacon Project No.:	2432		Company Name:	EnviroGroup Limited
Site Name:	Ithaca Site		Office Location:	Latham, NY
Site Location:	Ithaca, NY		Samples Submitted By:	E. Lovenduski
Analytical Method:	EPA Method 8260C		Contact Phone No.:	518-258-3859
Target Compounds:	Beacon Project Number 2432 Target Compound List			

Field Sample ID	Lab Sample ID (for lab use only)	Comments (only necessary if problem or discrepancy)			
		Condition of sample or vial	Date	Time	Initial
TRIP BLANK 01			11/15/11	1020	SL
PSV-35-A1			1	1025	SL
PSV-35-A2				1029	SL
PSV-35-A3				1033	SL
PSV-35-A4				1035	SL
PSV-35-A5				1038	SL
PSV-35-A7				1040	SL
PSV-35-B1				1043	SL
PSV-35-B2				1045	SL
PSV-35-B3				1047	SL
PSV-35-B4				1049	SL
PSV-35-B5				1052	SL
PSV-35-B6				1054	SL
PSV-35-B7				1056	SL
PSV-35-C1				1100	SL
PSV-35-C2				1102	SL
PSV-35-C3				1104	SL
PSV-35-C4				1106	SL
PSV-35-C5				1108	SL
PSV-35-C5 DUP				1108	SL

Shipment of Field Kit to Site — Custody Seal #		17350381		Intact? ☒ Y ☐ N	
Relinquished by:	Date/Time	Courier	Received by:	Date/Time	
Ryan Strick	10-27-2011 / 1700 Hours	UPS		10/28/11 1100	

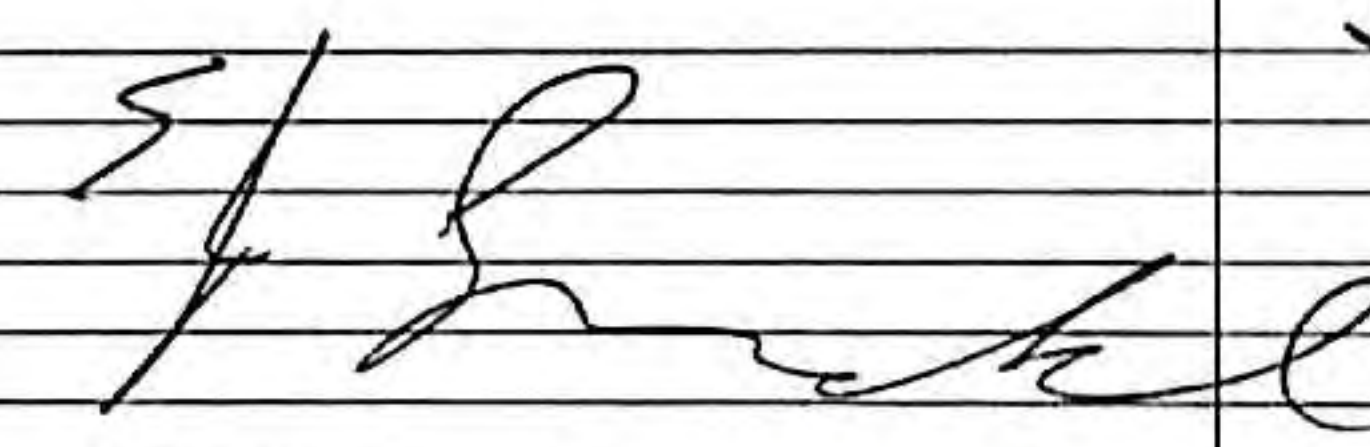
Shipment of Field Kit to Laboratory — Custody Seal #				Intact? ☐ Y ☐ N	
Relinquished by:	Date/Time	Courier	Received by:	Date/Time	
	11/16/11 1500	FFD Ex			

Generated by CamScanner

CHAIN-OF-CUSTODY PASSIVE SOIL-GAS SAMPLES

House #35-2

Project Information		 BEACON ENVIRONMENTAL SERVICES, INC. 323 Williams Street Suite D Del Mar, MD 21014 (301) 876-5510	Client Information	
Beacon Project No.:	2432		Company Name:	EnviroGroup Limited
Site Name:	Ithaca Site		Office Location:	Latham, NY
Site Location:	Ithaca, NY		Samples Submitted By:	E. Lorenduski
Analytical Method:	EPA Method 8260C		Contact Phone No.:	518-258-3859
Target Compounds:	Beacon Project Number 2432 Target Compound List			

Field Sample ID	Lab Sample ID (for lab use only)	Comments (only necessary if problem or discrepancy)			
		Condition of sample or vial	Date	Time	Initial
PSV-35-C7			11/15/11	1111	SL
PSV-35-D1				1114	SL
PSV-35-D2				1117	SL
PSV-35-D3				1119	SL
PSV-35-D4				1122	SL
PSV-35-D5				1124	SL
PSV-35-D7				1126	SL
PSV-35-E1				1128	SL
PSV-35-E2				1130	SL
PSV-35-E3				1132	SL
PSV-35-E4				1134	SL
PSV-35-E5				1136	SL
PSV-35-E7				1138	SL
PSV-35-F5				1140	SL
					

Shipment of Field Kit to Site — Custody Seal #		17350381		Intact? Y N	
Relinquished by:	Date/Time	Courier	Received by:	Date/Time	
Ryan School	10-27-2011 / 1700 Hours	UPS	ES	10/28/11 1100	

Shipment of Field Kit to Laboratory — Custody Seal #				Intact? Y N	
Relinquished by:	Date/Time	Courier	Received by:	Date/Time	
AS	11/16/11 1500	FED EX			

APPENDIX B

PASSIVE SOIL VAPOR LABORATORY RESULTS

EnviroGroup Limited
26 Century Hill Drive
Latham, NY 12110

Passive Soil Gas Survey – Analytical Report
Date: December 7, 2011

Attn: Mr. Eric Lovenduski

Beacon Project No. 2432

Project Reference:	Ithaca Sites 35 and 43, Ithaca, NY
Samplers Installed:	November 1 and 2, 2011
Samplers Retrieved:	November 15, 2011
Samples Received:	November 17, 2011
Analyses Completed:	November 20, 2011
Laboratory Data Issued:	November 23, 2011

EPA Method 8260C (Modified)

All samples were successfully analyzed using thermal desorption-gas chromatography/mass spectrometry (TD-GC/MS) instrumentation to target a custom compound list following EPA Method 8260C. Laboratory results are reported in nanograms (ng) of specific compound per sample.

Laboratory QA/QC procedures included internal standards, surrogates, and blanks based on EPA Method 8260C. Analyses and reporting were in accordance with BEACON's Quality Assurance Project Plan.

Reporting limits

The reporting limit (RL) for each compound is equal to the limit of quantitation (LOQ), which is 10 nanograms (ng), and the limit of detection (LOD) is 5 ng. **Table 1** provides survey results in nanograms per sampler by sample-point number and compound name; measurements below the LOQ but above the LOD are flagged with a "J." The LOQs (<10 ng) represent a baseline above which results exceed laboratory-determined limits of precision and accuracy. Field sample measurements above the upper calibration standard are estimated; however, these values are reported without qualifiers because all reported measurements are relative to each other and are appropriate to meet the survey objectives of locating source areas and vapor intrusion pathways and defining the lateral extent of contamination.

Calibration Verification

The continuing calibration verification (CCV) values for the system check compounds were all within $\pm 20\%$ of the true values as defined by the initial five-point calibration and met the requirements specified in Beacon Environmental's Quality Assurance Project Plan.

Method Blanks/Trip Blanks

Laboratory method blanks are run with each sample batch to identify contamination present in the laboratory. If contamination is detected on a method blank, measurements of identical compounds in that sample batch are flagged in the laboratory report. The laboratory method blank analyzed in connection with the present samples revealed no contamination.

The trip blank is a sampler prepared, transported, and analyzed with other samples but intentionally not exposed. Any target compounds identified on the trip blanks are reported in the laboratory data. The analyses of the trip blanks (labeled Trip-1 and Trip-2 in **Table 1**) reported none of the targeted compounds.

Passive Soil-Gas Survey Notes

When sample locations are covered with or near the edge of an artificial surface (*e.g.*, asphalt or concrete), the concentrations of compounds in soil gas are often significantly higher than the concentrations would be if the surfacing were not present. Thus, a reading taken below or near an impermeable surface is much higher than it would be in the absence of such a cap. Therefore, the sample location conditions should be evaluated when comparing results between locations.

Survey findings are exclusive to this project and when the spatial relationships are compared with results of other BEACON Surveys it is necessary to incorporate survey and site information from both investigations (*e.g.*, depth to sources, soil types, porosity, soil moisture, presence of impervious surfacing, sample collection times). BEACON recommends the guidelines stated in **Attachment 1** to establish a relationship between reported soil-gas measurements and actual subsurface contaminant concentrations, which will indicate those measurements representing significant subsurface contamination.

BEACON's passive soil-gas samplers are prepared with two sets of adsorbent cartridges for subsequent duplicate or confirmatory sample analysis. At ENVIROGROUP's request, duplicate analysis was performed for two (2) samples. The duplicate samples were designated with "DUP" following the sample number. When comparing quantitative results, a duplicate correspondence should be considered when the relative percent difference (RPD) between the two samples is less than or equal to 100%. For the purpose of calculating correspondences, all non-detections should be assigned, as a baseline value, the CRQL for the specific contaminant. Based on these assumptions, a 100% correlation was found between the duplicate samples and their base samples.

Project Details

Samplers were deployed on November 1 and 2, 2011, and were retrieved on November 15, 2011. **Attachment 2** describes the field procedures used. Individual deployment and retrieval times will be found in the Field Deployment Report (**Attachment 3**).

Seventy-three (73) field samples, two (2) field sample duplicates, and two (2) trip blanks were received by BEACON on November 17, 2011. Adsorbent cartridges from the passive samplers were thermally desorbed, then analyzed using gas chromatography/mass spectrometry (GC/MS) equipment, in accordance with EPA Method 8260C (Modified), as described in **Attachment 4**. BEACON's laboratory analyzed each sample for the targeted compounds; analyses were completed on November 20, 2011. Following a laboratory review, results were provided to ENVIROGROUP on November 23, 2011. The Chain-of-Custody form, which was shipped with the samples for this survey, is supplied as **Attachment 5**.

All field sample locations are shown on **Figure 1**. In this investigation, samples were collected in two distinct areas of concern, identified as Site 35 and Site 43. Maps with the prefix "2-" show results for the samples collected at Site 35, while maps with the prefix "3-" show results for the samples collected at Site 43.

The following tables lists frequency of detections based on the number of field samples analyzed, the reporting limit, and the maximum value for each mapped compound. The table also includes the transformation and interpolation method for the compound distribution maps provided.

Site 35

Figure No.	2-1	2-2	2-3
Compound	cis-1,2-Dichloroethene	Trichloroethene	Tetrachloroethene
Frequency	8	19	25
Reporting Limit (nanograms)	10	10	10
Max Value (nanograms)	22	197	661
Transformation Method	Log	Log	Log
Interpolation Method	Kriging	Kriging	Kriging

Site 43

Figure No.	3-1	3-2	3-3
Compound	cis-1,2-Dichloroethene	Trichloroethene	Tetrachloroethene
Frequency	0	10	8
Reporting Limit (nanograms)	10	10	10
Max Value (nanograms)	<10	46	80
Transformation Method	NA	Log	Log
Interpolation Method	NA	Kriging	Kriging

Attachments:

- 1- Applying Results From Passive Soil-Gas Surveys
- 2- Field Procedures
- 3- Field Deployment Report
- 4- Laboratory Procedures
- 5- Chain-of-Custody Form

ALL DATA MEET REQUIREMENTS AS SPECIFIED IN THE BEACON ENVIRONMENTAL SERVICES, INC. QUALITY ASSURANCE PROJECT PLAN. RELEASE OF THE DATA CONTAINED IN THIS DATA PACKAGE HAS BEEN AUTHORIZED BY THE LABORATORY DIRECTOR OR HIS SIGNEE, AS VERIFIED BY THE FOLLOWING SIGNATURE:



Steven C. Thornley
Laboratory Director

Table 1

Beacon Environmental Services, Inc.
323 Williams Street
Bel Air, MD 21014 USA

Analysis by EPA Method 8260C (Modified)

Client Sample ID:	mb111118a	Trip-1	Trip-2	PSV-35-A1	PSV-35-A2	PSV-35-A3
Project Number:		2432	2432	2432	2432	2432
Lab File ID:	A11111813	A11111815	A11111816	A11111817	A11111818	A11111819
Received Date:		11/17/2011	11/17/2011	11/17/2011	11/17/2011	11/17/2011
Analysis Date:	11/18/2011	11/18/2011	11/18/2011	11/18/2011	11/18/2011	11/18/2011
Analysis Time:	16:16	17:02	17:25	17:48	18:10	18:33
Units:	ng	ng	ng	ng	ng	ng
COMPOUNDS						
Vinyl Chloride	<10	<10	<10	<10	<10	<10
1,1-Dichloroethene	<10	<10	<10	<10	<10	<10
trans-1,2-Dichloroethene	<10	<10	<10	<10	<10	<10
cis-1,2-Dichloroethene	<10	<10	<10	<10	<10	<10
Trichloroethene	<10	<10	<10	<10	<10	<10
Tetrachloroethene	<10	<10	<10	15	8 J	5 J

Table 1

Beacon Environmental Services, Inc.
323 Williams Street
Bel Air, MD 21014 USA

Analysis by EPA Method 8260C (Modified)

Client Sample ID:	PSV-35-A4	PSV-35-A5	PSV-35-A7	PSV-35-B1	PSV-35-B2	PSV-35-B3
Project Number:	2432	2432	2432	2432	2432	2432
Lab File ID:	A11111820	A11111821	A11111822	A11111823	A11111824	A11111825
Received Date:	11/17/2011	11/17/2011	11/17/2011	11/17/2011	11/17/2011	11/17/2011
Analysis Date:	11/18/2011	11/18/2011	11/18/2011	11/18/2011	11/18/2011	11/18/2011
Analysis Time:	18:55	19:18	19:40	20:03	20:25	20:48
Units:	ng	ng	ng	ng	ng	ng
COMPOUNDS						
Vinyl Chloride	<10	<10	<10	<10	<10	<10
1,1-Dichloroethene	<10	<10	<10	<10	<10	<10
trans-1,2-Dichloroethene	<10	<10	<10	<10	<10	<10
cis-1,2-Dichloroethene	<10	<10	<10	<10	<10	<10
Trichloroethene	<10	<10	<10	<10	<10	5 J
Tetrachloroethene	<10	<10	<10	6 J	<10	15

Table 1

Beacon Environmental Services, Inc.
323 Williams Street
Bel Air, MD 21014 USA

Analysis by EPA Method 8260C (Modified)

Client Sample ID:	PSV-35-B4	PSV-35-B5	PSV-35-B6	PSV-35-B7	PSV-35-C1	PSV-35-C2
Project Number:	2432	2432	2432	2432	2432	2432
Lab File ID:	A11111826	A11111827	A11111828	A11111829	A11111830	A11111831
Received Date:	11/17/2011	11/17/2011	11/17/2011	11/17/2011	11/17/2011	11/17/2011
Analysis Date:	11/18/2011	11/18/2011	11/18/2011	11/18/2011	11/18/2011	11/18/2011
Analysis Time:	21:11	21:34	21:56	22:18	22:41	23:04
Units:	ng	ng	ng	ng	ng	ng

COMPOUNDS

Vinyl Chloride	<10	<10	<10	<10	<10	<10
1,1-Dichloroethene	<10	<10	<10	<10	<10	<10
trans-1,2-Dichloroethene	<10	<10	<10	<10	<10	<10
cis-1,2-Dichloroethene	<10	<10	<10	13	<10	<10
Trichloroethene	<10	<10	7 J	149	53	<10
Tetrachloroethene	8 J	<10	7 J	84	234	<10

Table 1

Beacon Environmental Services, Inc.
323 Williams Street
Bel Air, MD 21014 USA

Analysis by EPA Method 8260C (Modified)

Client Sample ID:	PSV-35-C3	PSV-35-C4	PSV-35-C5	PSV-35-C5 DUP	PSV-35-C7	PSV-35-D1
Project Number:	2432	2432	2432	2432	2432	2432
Lab File ID:	A11111832	A11111833	A11111834	A11111835	A11111836	A11111837
Received Date:	11/17/2011	11/17/2011	11/17/2011	11/17/2011	11/17/2011	11/17/2011
Analysis Date:	11/18/2011	11/18/2011	11/19/2011	11/19/2011	11/19/2011	11/19/2011
Analysis Time:	23:26	23:49	0:12	0:34	0:57	1:20
Units:	ng	ng	ng	ng	ng	ng

COMPOUNDS

Vinyl Chloride	<10	<10	<10	<10	<10	<10
1,1-Dichloroethene	<10	<10	<10	<10	<10	<10
trans-1,2-Dichloroethene	<10	<10	<10	<10	<10	<10
cis-1,2-Dichloroethene	<10	<10	22	34	<10	<10
Trichloroethene	<10	6 J	167	309	26	13
Tetrachloroethene	<10	9 J	194	141	93	185

Table 1

Beacon Environmental Services, Inc.
323 Williams Street
Bel Air, MD 21014 USA

Analysis by EPA Method 8260C (Modified)

Client Sample ID:	PSV-35-D2	PSV-35-D3	PSV-35-D4	PSV-35-D5	PSV-35-D7	PSV-35-E1
Project Number:	2432	2432	2432	2432	2432	2432
Lab File ID:	A11111838	A11111839	A11111840	A11111841	A11111842	A11111843
Received Date:	11/17/2011	11/17/2011	11/17/2011	11/17/2011	11/17/2011	11/17/2011
Analysis Date:	11/19/2011	11/19/2011	11/19/2011	11/19/2011	11/19/2011	11/19/2011
Analysis Time:	1:42	2:05	2:27	2:50	3:13	3:35
Units:	ng	ng	ng	ng	ng	ng

COMPOUNDS

Vinyl Chloride	<10	<10	<10	<10	<10	<10
1,1-Dichloroethene	<10	<10	<10	<10	<10	<10
trans-1,2-Dichloroethene	<10	<10	<10	<10	<10	<10
cis-1,2-Dichloroethene	<10	15	<10	13	<10	6 J
Trichloroethene	100	197	18	149	43	62
Tetrachloroethene	481	644	149	423	95	210

Table 1

Beacon Environmental Services, Inc.
323 Williams Street
Bel Air, MD 21014 USA

Analysis by EPA Method 8260C (Modified)

Client Sample ID:	PSV-35-E2	PSV-35-E3	PSV-35-E4	PSV-35-E5	PSV-35-E7	PSV-35-F5
Project Number:	2432	2432	2432	2432	2432	2432
Lab File ID:	A11111844	A11111845	A11111846	A11111847	A11111848	A11111849
Received Date:	11/17/2011	11/17/2011	11/17/2011	11/17/2011	11/17/2011	11/17/2011
Analysis Date:	11/19/2011	11/19/2011	11/19/2011	11/19/2011	11/19/2011	11/19/2011
Analysis Time:	3:58	4:21	4:43	5:06	5:28	5:51
Units:	ng	ng	ng	ng	ng	ng

COMPOUNDS

Vinyl Chloride	<10	<10	<10	<10	<10	<10
1,1-Dichloroethene	<10	<10	<10	<10	<10	<10
trans-1,2-Dichloroethene	<10	<10	<10	<10	<10	<10
cis-1,2-Dichloroethene	<10	<10	8 J	10	<10	9 J
Trichloroethene	51	59	166	128	<10	119
Tetrachloroethene	297	182	661	387	21	373

Table 1

Beacon Environmental Services, Inc.
323 Williams Street
Bel Air, MD 21014 USA

Analysis by EPA Method 8260C (Modified)

Client Sample ID:	mb111118a1	PSV-43-A1	PSV-43-A1D	PSV-43-A2	PSV-43-A2D	PSV-43-A8
Project Number:		2432	2432	2432	2432	2432
Lab File ID:	A11111857	A11111859	A11111860	A11111861	A11111862	A11111863
Received Date:		11/17/2011	11/17/2011	11/17/2011	11/17/2011	11/17/2011
Analysis Date:	11/19/2011	11/19/2011	11/19/2011	11/19/2011	11/19/2011	11/19/2011
Analysis Time:	8:54	9:40	10:02	10:25	10:47	11:10
Units:	ng	ng	ng	ng	ng	ng

COMPOUNDS

Vinyl Chloride	<10	<10	<10	<10	<10	<10
1,1-Dichloroethene	<10	<10	<10	<10	<10	<10
trans-1,2-Dichloroethene	<10	<10	<10	<10	<10	<10
cis-1,2-Dichloroethene	<10	<10	<10	<10	<10	<10
Trichloroethene	<10	<10	<10	<10	<10	33
Tetrachloroethene	<10	<10	<10	<10	<10	80

Table 1

Beacon Environmental Services, Inc.
323 Williams Street
Bel Air, MD 21014 USA

Analysis by EPA Method 8260C (Modified)

Client Sample ID:	PSV-43-A9	PSV-43-B1	PSV-43-B3	PSV-43-B3 DUP	PSV-43-B4	PSV-43-B5
Project Number:	2432	2432	2432	2432	2432	2432
Lab File ID:	A11111864	A11111865	A11111866	A11111867	A11111868	A11111869
Received Date:	11/17/2011	11/17/2011	11/17/2011	11/17/2011	11/17/2011	11/17/2011
Analysis Date:	11/19/2011	11/19/2011	11/19/2011	11/19/2011	11/19/2011	11/19/2011
Analysis Time:	11:32	11:55	12:18	12:40	13:03	13:26
Units:	ng	ng	ng	ng	ng	ng
COMPOUNDS						
Vinyl Chloride	<10	<10	<10	<10	<10	<10
1,1-Dichloroethene	<10	<10	<10	<10	<10	<10
trans-1,2-Dichloroethene	<10	<10	<10	<10	<10	<10
cis-1,2-Dichloroethene	<10	<10	<10	<10	<10	<10
Trichloroethene	<10	<10	10 J	7 J	<10	9 J
Tetrachloroethene	11	12	8 J	10	<10	31

Table 1

Beacon Environmental Services, Inc.
323 Williams Street
Bel Air, MD 21014 USA

Analysis by EPA Method 8260C (Modified)

Client Sample ID:	PSV-43-B6	PSV-43-B8	PSV-43-B9	PSV-43-B10	PSV-43-B11	PSV-43-C1
Project Number:	2432	2432	2432	2432	2432	2432
Lab File ID:	A11111870	A11111871	A11111872	A11111873	A11111874	A11111875
Received Date:	11/17/2011	11/17/2011	11/17/2011	11/17/2011	11/17/2011	11/17/2011
Analysis Date:	11/19/2011	11/19/2011	11/19/2011	11/19/2011	11/19/2011	11/19/2011
Analysis Time:	13:48	14:11	14:34	14:56	15:19	15:42
Units:	ng	ng	ng	ng	ng	ng
COMPOUNDS						
Vinyl Chloride	<10	<10	<10	<10	<10	<10
1,1-Dichloroethene	<10	<10	<10	<10	<10	<10
trans-1,2-Dichloroethene	<10	<10	<10	<10	<10	<10
cis-1,2-Dichloroethene	<10	<10	<10	<10	<10	<10
Trichloroethene	<10	<10	<10	<10	<10	<10
Tetrachloroethene	<10	7 J	6 J	<10	<10	<10

Table 1

Beacon Environmental Services, Inc.
323 Williams Street
Bel Air, MD 21014 USA

Analysis by EPA Method 8260C (Modified)

Client Sample ID:	PSV-43-C2	PSV-43-C8	PSV-43-C8D	PSV-43-C10	PSV-43-C10D	PSV-43-C11
Project Number:	2432	2432	2432	2432	2432	2432
Lab File ID:	A11111876	A11111877	A11111878	A11111879	A11111880	A11111881
Received Date:	11/17/2011	11/17/2011	11/17/2011	11/17/2011	11/17/2011	11/17/2011
Analysis Date:	11/19/2011	11/19/2011	11/19/2011	11/19/2011	11/19/2011	11/19/2011
Analysis Time:	16:04	16:27	16:50	17:13	17:35	17:58
Units:	ng	ng	ng	ng	ng	ng
COMPOUNDS						
Vinyl Chloride	<10	<10	<10	<10	<10	<10
1,1-Dichloroethene	<10	<10	<10	<10	<10	<10
trans-1,2-Dichloroethene	<10	<10	<10	<10	<10	<10
cis-1,2-Dichloroethene	<10	<10	<10	<10	<10	<10
Trichloroethene	<10	<10	<10	<10	5 J	<10
Tetrachloroethene	5 J	<10	<10	<10	<10	<10

Table 1

Beacon Environmental Services, Inc.
323 Williams Street
Bel Air, MD 21014 USA

Analysis by EPA Method 8260C (Modified)

Client Sample ID:	PSV-43-C12	PSV-43-C13	PSV-43-C14	PSV-43-C15	PSV-43-D1	PSV-43-D2
Project Number:	2432	2432	2432	2432	2432	2432
Lab File ID:	A11111882	A11111883	A11111884	A11111885	A11111886	A11111887
Received Date:	11/17/2011	11/17/2011	11/17/2011	11/17/2011	11/17/2011	11/17/2011
Analysis Date:	11/19/2011	11/19/2011	11/19/2011	11/19/2011	11/19/2011	11/19/2011
Analysis Time:	18:21	18:44	19:06	19:29	19:51	20:14
Units:	ng	ng	ng	ng	ng	ng

COMPOUNDS

Vinyl Chloride	<10	<10	<10	<10	<10	<10
1,1-Dichloroethene	<10	<10	<10	<10	<10	<10
trans-1,2-Dichloroethene	<10	<10	<10	<10	<10	<10
cis-1,2-Dichloroethene	<10	<10	<10	<10	<10	<10
Trichloroethene	<10	8 J	<10	<10	<10	<10
Tetrachloroethene	<10	<10	<10	<10	<10	<10

Table 1

Beacon Environmental Services, Inc.
323 Williams Street
Bel Air, MD 21014 USA

Analysis by EPA Method 8260C (Modified)

Client Sample ID:	PSV-43-D8	PSV-43-D9	PSV-43-D10	PSV-43-D11	PSV-43-E1	PSV-43-E2
Project Number:	2432	2432	2432	2432	2432	2432
Lab File ID:	A11111888	A11111889	A11111890	A11111891	A11111892	A11111893
Received Date:	11/17/2011	11/17/2011	11/17/2011	11/17/2011	11/17/2011	11/17/2011
Analysis Date:	11/19/2011	11/19/2011	11/19/2011	11/19/2011	11/19/2011	11/19/2011
Analysis Time:	20:36	20:59	21:22	21:44	22:07	22:30
Units:	ng	ng	ng	ng	ng	ng
COMPOUNDS						
Vinyl Chloride	<10	<10	<10	<10	<10	<10
1,1-Dichloroethene	<10	<10	<10	<10	<10	<10
trans-1,2-Dichloroethene	<10	<10	<10	<10	<10	<10
cis-1,2-Dichloroethene	<10	<10	<10	<10	<10	<10
Trichloroethene	<10	46	<10	<10	<10	<10
Tetrachloroethene	<10	<10	<10	<10	<10	<10

Table 1

Beacon Environmental Services, Inc.
323 Williams Street
Bel Air, MD 21014 USA

Analysis by EPA Method 8260C (Modified)

Client Sample ID:	PSV-43-E3	PSV-43-E4	PSV-43-E5	PSV-43-E6	PSV-43-E7	PSV-43-E8
Project Number:	2432	2432	2432	2432	2432	2432
Lab File ID:	A11111894	A11111895	A11111896	A11111897	A11111898	A11111899
Received Date:	11/17/2011	11/17/2011	11/17/2011	11/17/2011	11/17/2011	11/17/2011
Analysis Date:	11/19/2011	11/19/2011	11/19/2011	11/20/2011	11/20/2011	11/20/2011
Analysis Time:	22:52	23:15	23:38	0:00	0:23	0:46
Units:	ng	ng	ng	ng	ng	ng

COMPOUNDS

Vinyl Chloride	<10	<10	<10	<10	<10	<10
1,1-Dichloroethene	<10	<10	<10	<10	<10	<10
trans-1,2-Dichloroethene	<10	<10	<10	<10	<10	<10
cis-1,2-Dichloroethene	<10	<10	<10	<10	<10	<10
Trichloroethene	<10	<10	<10	6 J	24	6 J
Tetrachloroethene	<10	<10	<10	<10	<10	<10

Table 1

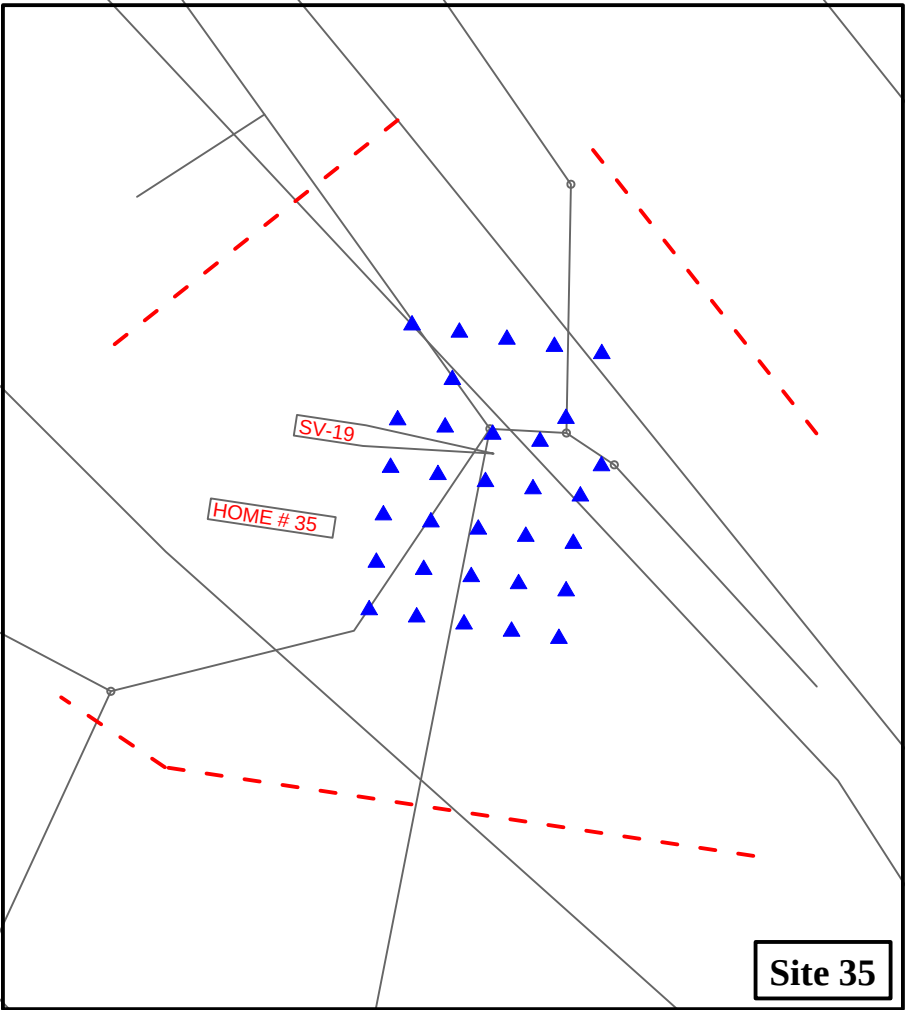
**Beacon Environmental Services, Inc.
323 Williams Street
Bel Air, MD 21014 USA**

Analysis by EPA Method 8260C (Modified)

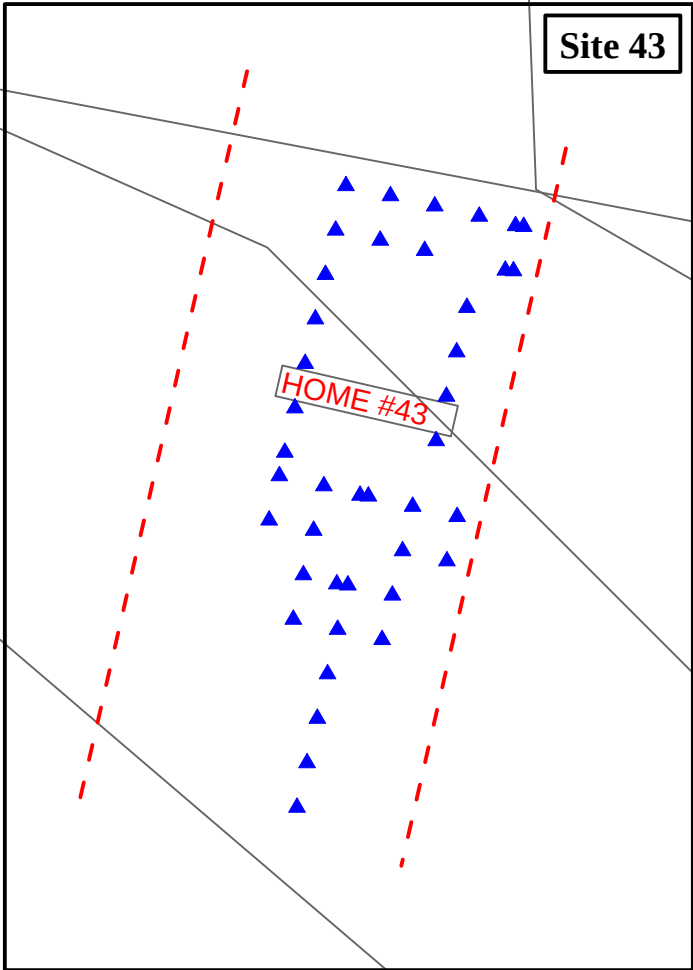
Client Sample ID: PSV-43-E9
Project Number: 2432
Lab File ID: A11111900
Received Date: 11/17/2011
Analysis Date: 11/20/2011
Analysis Time: 1:09
Units: ng

COMPOUNDS

Vinyl Chloride	<10
1,1-Dichloroethene	<10
trans-1,2-Dichloroethene	<10
cis-1,2-Dichloroethene	<10
Trichloroethene	32
Tetrachloroethene	<10



Areas of investigation that are shown in greater detail in subsequent maps.



LEGEND

- ▲ PASSIVE SOIL-GAS SAMPLE LOCATION
- - - APPROXIMATE PROPERTY LINES

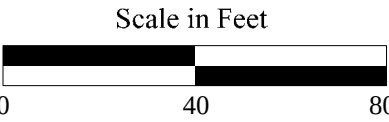
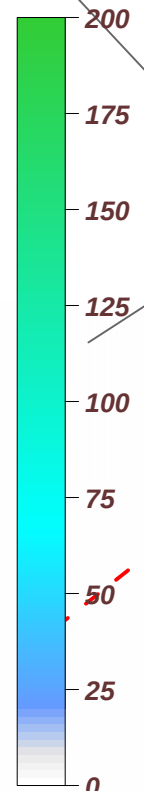


Figure 1
Passive Soil-Gas Survey
Sample Locations
Ithaca Sites 35 and 43
Ithaca, NY



HOME # 35

SV-19

LEGEND

- 6 J** NANOGRAMS/SAMPLER (J = Estimated Value)
- ▲** PASSIVE SOIL-GAS SAMPLE LOCATION
- 35-A1**
- APPROXIMATE PROPERTY LINES

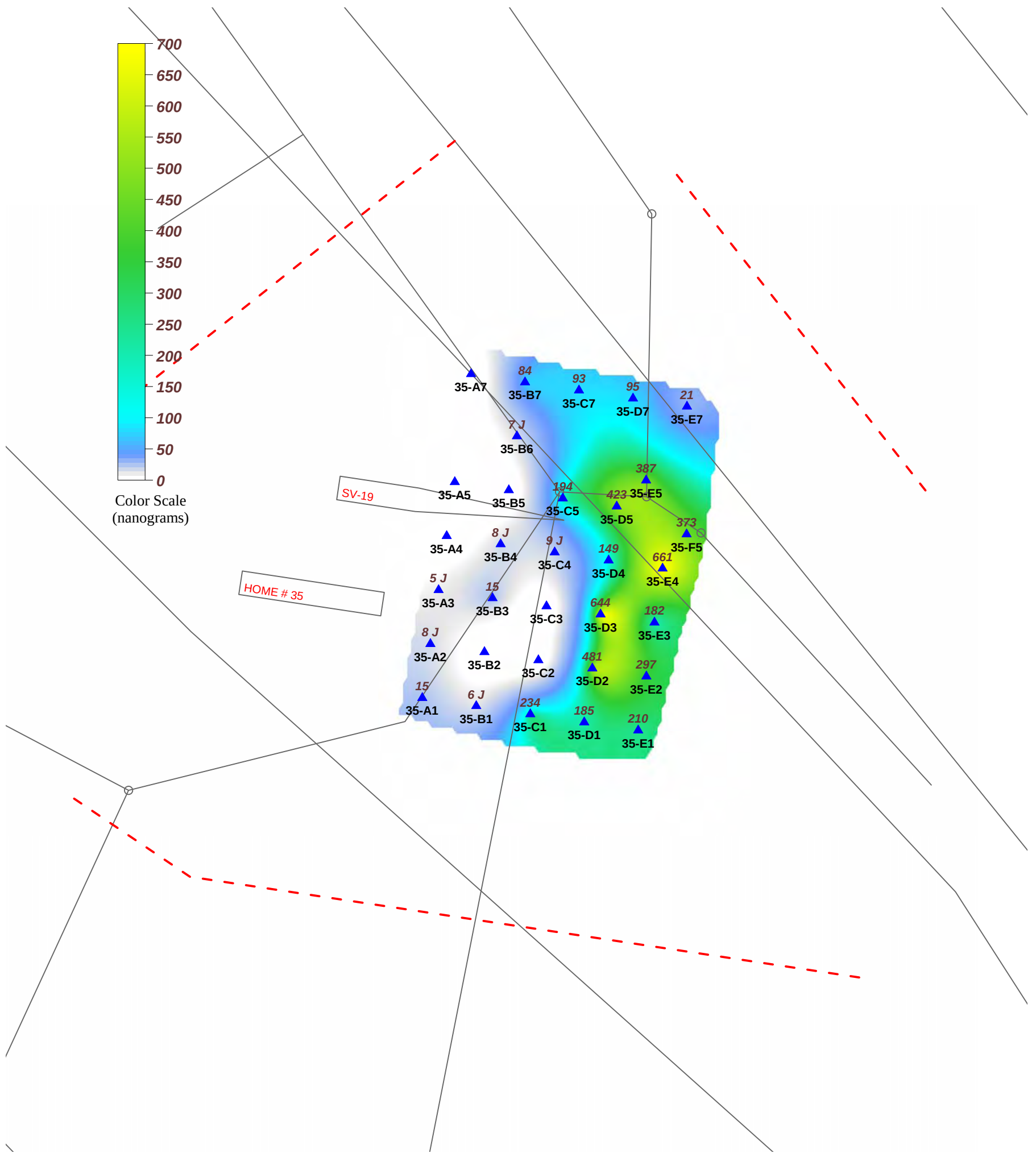
Scale in Feet



323 Williams Street, Bel Air, MD, 800-878-5510
Beacon Project No. 2432, December 2011

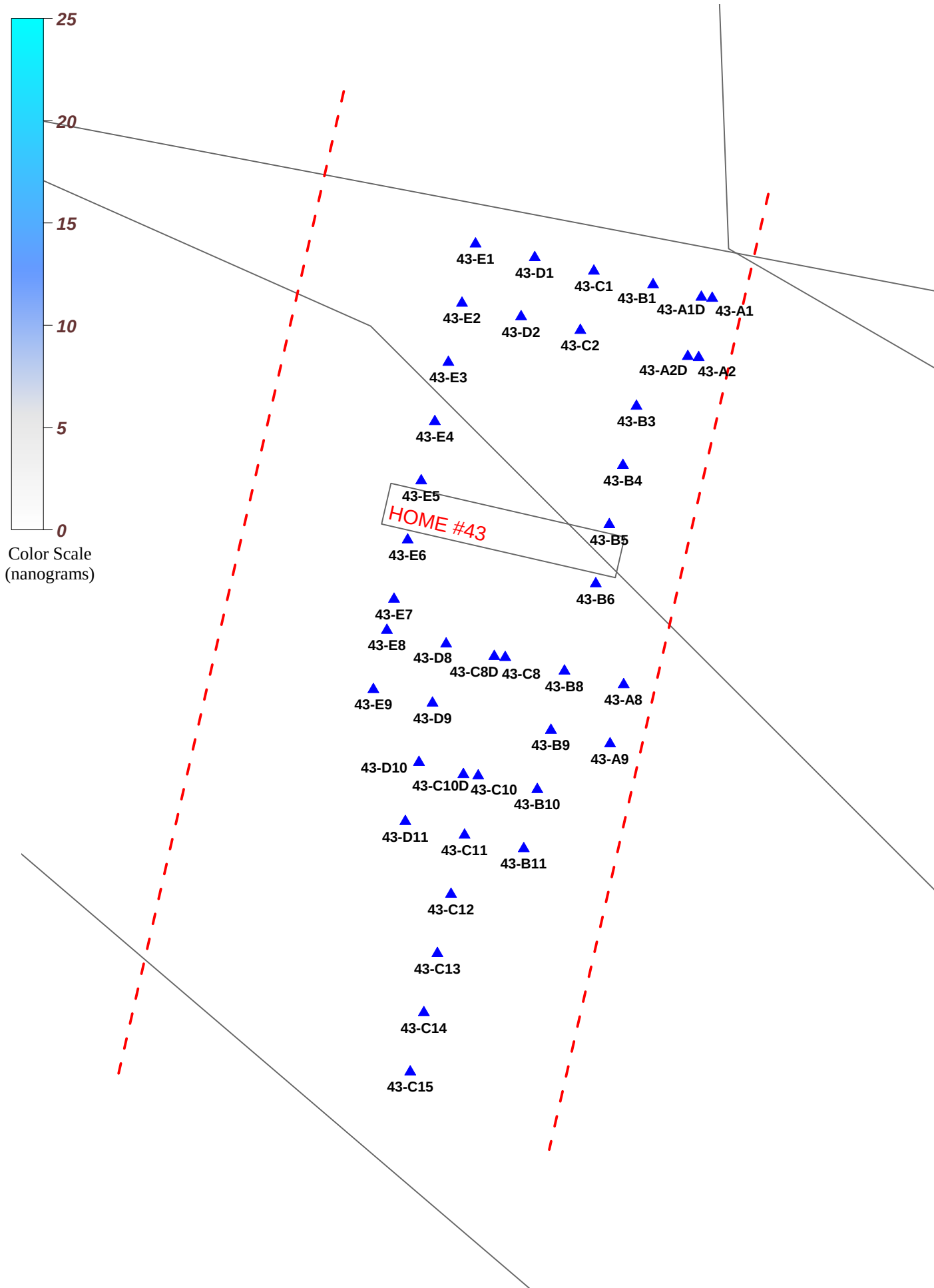
Figure 2-2
Passive Soil-Gas Survey
Trichloroethene

Site 35
Ithaca, NY



LEGEND

- 6 J** NANOGRAMS/SAMPLER (J = Estimated Value)
- ▲** PASSIVE SOIL-GAS SAMPLE LOCATION
- 35-A1**
- APPROXIMATE PROPERTY LINES



LEGEND

- 6 J** NANOGRAMS/SAMPLER (J = Estimated Value)
- 43-A1** PASSIVE SOIL-GAS SAMPLE LOCATION
- - -** APPROXIMATE PROPERTY LINES

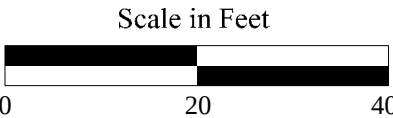
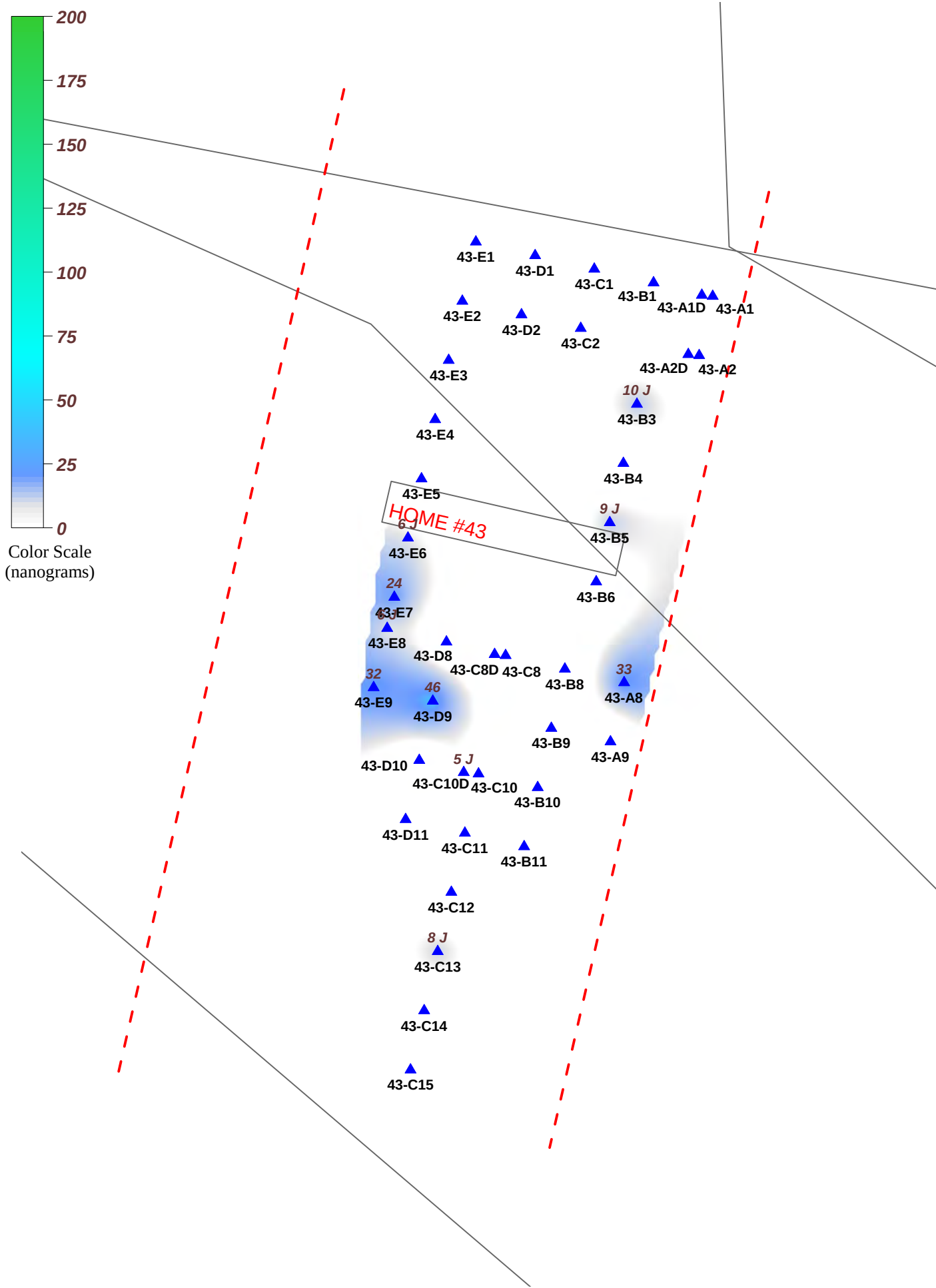


Figure 3-1
Passive Soil-Gas Survey
cis-1,2-Dichloroethene

Site 43
Ithaca, NY



LEGEND

- 6 J** NANOGRAMS/SAMPLER (J = Estimated Value)
- ▲** PASSIVE SOIL-GAS SAMPLE LOCATION
- APPROXIMATE PROPERTY LINES



323 Williams Street, Bel Air, MD, 800-878-5510
Beacon Project No. 2432, December 2011

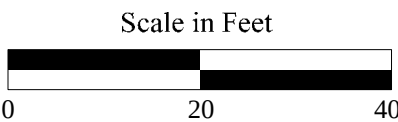
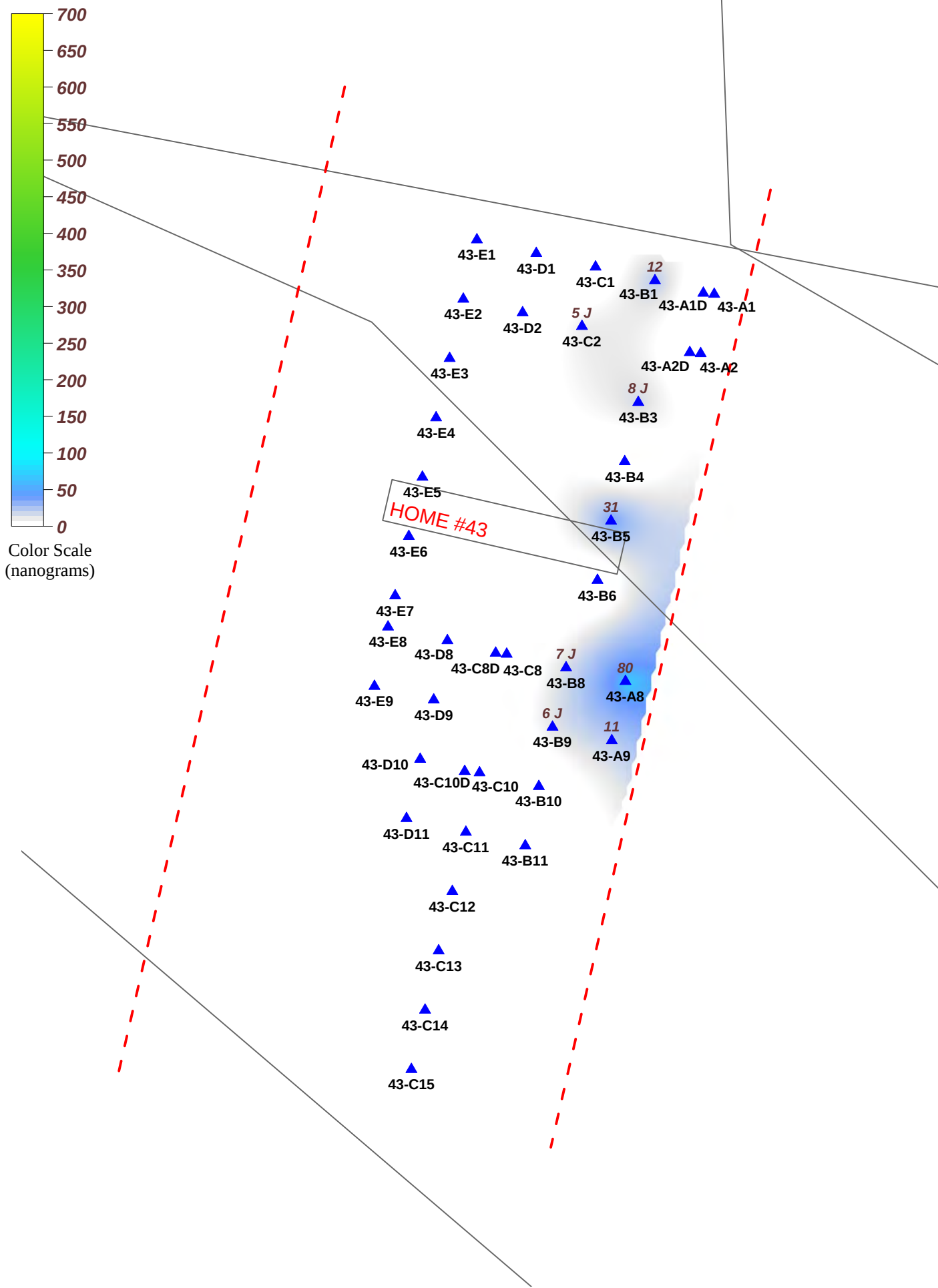


Figure 3-2
Passive Soil-Gas Survey
Trichloroethene

Site 43
Ithaca, NY



LEGEND

- 6 J** NANOGRAMS/SAMPLER (J = Estimated Value)
- 43-A1** PASSIVE SOIL-GAS SAMPLE LOCATION
- - -** APPROXIMATE PROPERTY LINES

Attachments

Attachment 1

APPLYING RESULTS FROM PASSIVE SOIL-GAS SURVEYS

The utility of soil-gas surveys is directly proportional to their accuracy in reflecting and representing changes in the subsurface concentrations of source compounds. Passive soil-gas survey results are the mass collected from the vapor-phase emanating from the source(s). The vapor-phase is merely a fractional trace of the source(s) and, as a matter of convenience, the units used in reporting detection values from passive soil-gas surveys are smaller than those employed for source-compound concentrations.

Passive soil gas data are reported in mass of compounds identified per sample location (e.g., nanograms (ng) or micrograms (µg) per sampler). Results from a passive soil gas survey typically are then used to guide where follow-on intrusive samples should be collected to obtain corresponding concentrations of the contaminants in soil, soil gas, and/or groundwater, as well as eliminate those areas where intrusive samples are not required. It is not practical to report passive soil gas data as concentration because the sampler's uptake rates of the compounds are often greater than the replenishment rates of the compounds around the sampler, which results in low bias measurements, and the replenishment rates will be dependent on several factors that include, at a minimum, soil gas concentrations, soil porosity and permeability, and soil moisture level.

Whatever the relative concentrations of source and associated soil gas, best results are realized when the ratio of soil-gas measurements to actual subsurface concentrations remains as close to constant as the real world permits. It is the reliability and consistency of this ratio, not the particular units of mass (e.g., nanograms) that determine usefulness. Thus, BEACON emphasizes the necessity of conducting — at minimum — follow-on intrusive sampling in areas that show relatively high soil-gas measurements to obtain corresponding concentrations of soil and groundwater contaminants. These correspondent values furnish the basis for approximating a relationship. For extrapolating passive soil gas results to vapor intrusion evaluations, we recommend a minimum of three passive soil gas locations be converted to a shallow vapor well then sampled using an active soil gas method. Once a relationship is established, it can be used in conjunction with the remaining soil-gas measurements to estimate subsurface contaminant concentrations across the survey field. (See www.beacon-usa.com/passivesoilgas.html, Publication 1: *Mass to Concentration Tie-In for PSG Surveys* and Publication 4: *Groundwater and PSG Correlation*.) It is important to keep in mind, however, that specific conditions at individual sample points, including soil porosity and permeability, depth to contamination, and perched ground water, can have an impact on soil-gas measurements at those locations.

When passive soil-gas surveys are utilized as described above, the data provide information that can yield substantial savings in drilling costs and in time. They furnish, among other things, a checklist of compounds expected at each survey location and help to determine how and where drilling budgets can most effectively be spent. Passive soil-gas surveys can also be used as a remediation or general site monitoring tool that can be implemented on a quarterly, semi-annual or annual basis.

Attachment 2

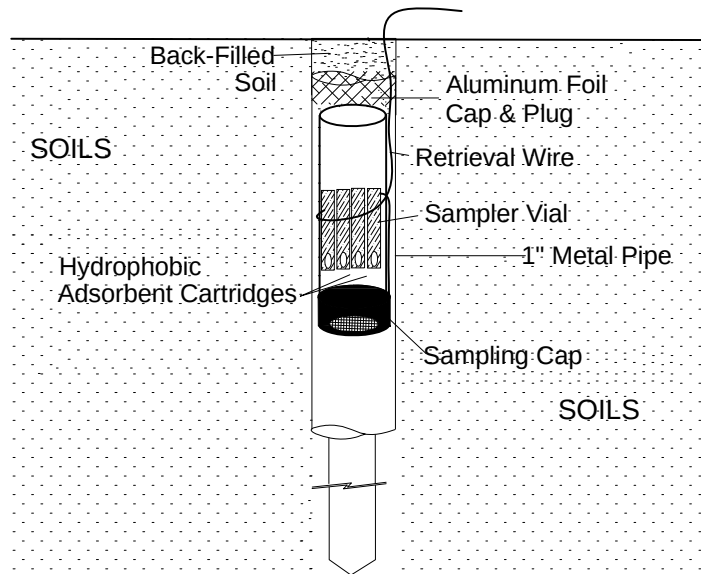
FIELD PROCEDURES FOR PASSIVE SOIL-GAS SURVEYS

The following field procedures are routinely used during a BEACON Passive Soil-Gas Survey. Modifications can be and are incorporated from time to time in response to individual project requirements. In all instances, BEACON adheres to EPA-approved Quality Assurance and Quality Control practices.

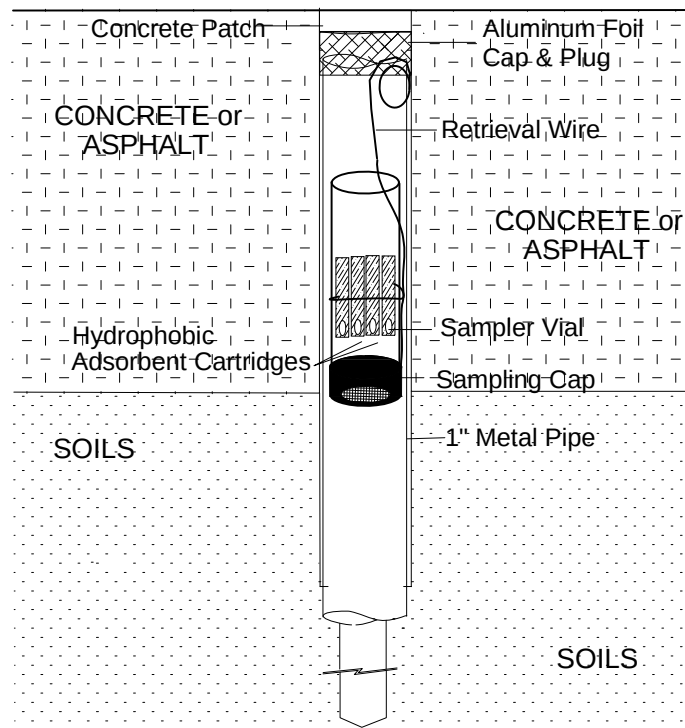
- A. Field personnel carry a BESURE Sample Collection Kit™ and support equipment to the site and deploy the passive samplers in a prearranged survey pattern. A passive sampler consists of a borosilicate glass vial containing hydrophobic adsorbent cartridges with a length of wire attached to the vial for retrieval. Although samplers require only one person for emplacement and retrieval, the specific number of field personnel required depends upon the scope and schedule of the project. Each Sampler emplacement generally takes less than two minutes.
- B. At each survey point a field technician clears vegetation as needed and, using a hammer drill with a 1"- to 1½"-diameter bit, creates a hole 12 to 14 inches deep. [Note: For locations covered with asphalt, concrete, or gravel surfacing, the field technician drills a 1"- to 1½"-diameter hole through the surfacing to the soils beneath]. The technician then, using a hammer drill with a ½" diameter bit, creates a hole three-feet deep. The hole is then sleeved with a 1"-diameter metal sleeve.
- C. The technician then removes the solid plastic cap from a sampler and replaces it with a Sampling Cap (a plastic cap with a hole covered by screen meshing). The technician inserts the sampler, with the Sampling Cap end facing down, into the hole (**see attached figure**). The sampler is then covered with an aluminum foil plug and soils for uncapped locations or, for capped locations, an aluminum foil plug and a concrete patch. The sampler's location, time and date of emplacement, and other relevant information are recorded on the Field Deployment Form.
- D. One or more trip blanks are included as part of the quality-control procedures.
- E. Once all the samplers have been deployed, field personnel schedule sampler recovery and depart, taking all other equipment and materials with them.
- F. Field personnel retrieve the samplers at the end of the exposure period. At each location, a field technician withdraws the sampler from its hole, removes the retrieval wire, and wipes the outside of the vial clean using gauze cloth; following removal of the Sampling Cap, the threads of the vial are also cleaned. A solid plastic cap is screwed onto the vial and the sample location number is written on the label. The technician then records sample-point location, date, time, etc. on the Field Deployment Form.
- G. Sampling holes are refilled with soil, sand, or other suitable material. If samplers have been installed through asphalt or concrete, the hole is filled to grade with a plug of cold patch or cement.
- H. Following retrieval, field personnel ship or transport the passive samplers to BEACON's laboratory.

BEACON'S PASSIVE SOIL-GAS SAMPLER

DEPLOYMENT THROUGH SOILS



DEPLOYMENT THROUGH AN ASPHALT/CONCRETE CAP



Attachment 3

Field Deployment Report

PASSIVE SOIL-GAS SURVEY FIELD DEPLOYMENT REPORT

Project Information	
Beacon Project No.:	2432
Site Name:	Ithaca Site
Site Location:	Ithaca, NY



Client Information	
Company Name:	EnviroGroup Limited
Office Location:	Latham, NY
Samples Collected By:	E Lovenduski

FIELD SAMPLE ID	Date Emplaced	Date Retrieved	Sampling Hole Depth (inches)	FIELD NOTES (e.g., asphalt/concrete/gravel, description of sample location, PID/FID readings) <i>ed</i>
	Time Emplaced	Time Retrieved		
TRIP BLANK	1259	1020	—	<i>Pickup Surface PID Reading ppm</i> <i>0.9</i>
PSV-35-A1	1301	1025	36"	Grass <i>0.9</i>
PSV-35-A2	1305	1029	36"	Grass <i>0.8</i>
PSV-35-A3	1306	1033	36"	Grass <i>0.9</i>
PSV-35-A4	1308	1035	36"	Grass <i>0.9</i>
PSV-35-A5	1310	1038	36"	Grass <i>0.9</i>
PSV-35-A7	1315	1040	36"	Soil <i>0.5</i>
PSV-35-B1	1320	1043	36"	Grass <i>1.2</i>
PSV-35-B2	1322	1045	36"	Grass <i>0.3</i>
PSV-35-B3	1325	1047	36"	Grass <i>1.3</i>
PSV-35-B4	1327	1049	36"	Grass <i>1.5</i>
PSV-35-B5	1329	1052	36"	Soil <i>2.3</i>
PSV-35-B6	1331	1054	36"	Soil <i>0.3</i>
PSV-35-B7	1337	1056	36"	Soil <i>2.4</i>
PSV-35-C1	1343	1100	36"	Grass <i>2.7</i>

* Background on PID reads 0-9 ppm

PASSIVE SOIL-GAS SURVEY FIELD DEPLOYMENT REPORT

Project Information	
Beacon Project No.:	2432
Site Name:	Ithaca Site
Site Location:	Ithaca, NY



Client Information	
Company Name:	EnviroGroup Limited
Office Location:	Latham, NY
Samples Collected By:	ELownduski

FIELD SAMPLE ID	Date Emplaced	Date Retrieved	Sampling Hole Depth (inches)	FIELD NOTES (e.g., asphalt/concrete/gravel, description of sample location, PID/FID readings)
	Time Emplaced	Time Retrieved		
	11/1/11	11/15/11		Surface PID
PSV-35-C2	1345	1102	36"	Gross 2.2
PSV-35-C3	1347	1104		Gross 1.8
PSV-35-C4	1349	1106		Gross 0.3
PSV-35-C5	1351	1108		Soil DVP HERE 1.5
PSV-35-C6	1353	1111		Soil 1.8
PSV-35-D1	1411	1114		Gross 0.7
PSV-35-D2	1416	1117		Gross 0.7
PSV-35-D3	1418	1119		Soil 2.0
PSV-35-D4	1420	1122		Soil 1.7
PSV-35-D5	1422	1124		Soil 0.9
PSV-35-D7	1425	1126		Soil 1.2
PSV-35-E1	1430	1128		Gross 1.0
PSV-35-E2	1435	1130		Gross 0.7
PSV-35-E3	1438	1132		Soil 0.7
PSV-35-E4	1441	1134	✓	Soil 1.1

PASSIVE SOIL-GAS SURVEY FIELD DEPLOYMENT REPORT

Project Information	
Beacon Project No.:	2432
Site Name:	Ithaca Site
Site Location:	Ithaca, NY



Client Information	
Company Name:	EnviroGroup Limited
Office Location:	Latham, NY
Samples Collected By:	E. L. Lusk

FIELD SAMPLE ID	Date Emplaced	Date Retrieved	Sampling Hole Depth (inches)	FIELD NOTES (e.g., asphalt/concrete/gravel, description of sample location, PID/FID readings)
	Time Emplaced	Time Retrieved		
	11/1/17	11/15/17		
PSV-35-E5	1444	1136	36"	50.1 surface PID 1.5
PSV-35-F5	1448	1140	↓	50.1 1.0
PSV-35-E7	1630	1138	↓	50.1 1.4

PASSIVE SOIL-GAS SURVEY FIELD DEPLOYMENT REPORT

Project Information	
Beacon Project No.:	2432
Site Name:	Ithaca Site
Site Location:	Ithaca, NY



Client Information	
Company Name:	EnviroGroup Limited
Office Location:	Latham, NY
Samples Collected By:	E. Lowndeski

FIELD SAMPLE ID	Date Emplaced	Date Retrieved	Sampling Hole Depth (inches)	FIELD NOTES (e.g., asphalt/concrete/gravel, description of sample location, PID/FID readings)
	Time Emplaced	Time Retrieved		
TRIP BLANK	—	1320	—	Mulch - F.I.C. 0.0
PSV-43-A1	1220	1324	36"	Mulch 0.0
PSV-43-A1D	1221	1326	60"	Mulch 0.0
PSV-43-B1	1223	1329	36"	Gross 0.0
PSV-43-C1	1225	1331		Gross 0.7
PSV-43-D1	1227	1332		Gross 0.2
PSV-43-E1	1230	1334		Gross 0.0
PSV-43-A2	1233	1336	↓	Mulch 1.1
PSV-43-A2D	1234	1337	60"	Mulch but taken on 11/15 0.9
PSV-43-B2	1237	1338	36"	Gross - no sample - sample cap never put on. 0.0
PSV-43-C2	1240	1340		Gross 0.0
PSV-43-D2	1243	1341		Gross 0.0
PSV-43-E2	1245	1343		Gross 0.0
PSV-43-E3	1249	1345		Mulch 0.0
PSV-43-E4	1251	1347	↓	Mulch 0.6

PASSIVE SOIL-GAS SURVEY FIELD DEPLOYMENT REPORT

Project Information	
Beacon Project No.:	2432
Site Name:	Ithaca Site
Site Location:	Ithaca, NY



Client Information	
Company Name:	EnviroGroup Limited
Office Location:	Latham, NY
Samples Collected By:	E. Lovend-3/11

FIELD SAMPLE ID	Date Emplaced	Date Retrieved	Sampling Hole Depth (inches)	FIELD NOTES (e.g., asphalt/concrete/gravel, description of sample location, PID/FID readings)
	Time Emplaced	Time Retrieved		
PSV-43-E5	1256	1349	36"	Grass 0.0
PSV-43-E6	1258	1350		Grass 0.0
PSV-43-E7	1305	1351		Grass 0.0
PSV-43-E8	1309	1352		Grass 0.0
PSV-43-E9	1349	1354		Tube wet & pick-up 0.4
PSV-43-D8	1430	1359		Mulch - flower box 0.0
PSV-43-C8	1432	1401		Gravel 0.0
PSV-43-C8D	1433	1402	60"	Gravel 0.0
PSV-43-B8	1435	1403	36"	Gravel 0.0
PSV-43-A8	1437	1405		Mulch 0.0
PSV-43-A9	1439	1407		Mulch 0.0
PSV-43-B9	1441	1408		Brick 0.0
PSV-43-D9	1442	1410		Mulch 0.0
PSV-43-B10	1444	1414		Mulch - wet tube on 11/15 0.0
PSV-43-C10	1446	1416		Mulch 0.0

PASSIVE SOIL-GAS SURVEY FIELD DEPLOYMENT REPORT

Project Information	
Beacon Project No.:	2432
Site Name:	Ithaca Site
Site Location:	Ithaca, NY



Client Information	
Company Name:	EnviroGroup Limited
Office Location:	Latham, NY
Samples Collected By:	ELOVENDSKI

FIELD SAMPLE ID	Date Emplaced	Date Retrieved	Sampling Hole Depth (inches)	FIELD NOTES (e.g., asphalt/concrete/gravel, description of sample location, PID/FID readings)	
	Time Emplaced	Time Retrieved			
PSV-43-C10D	1447	1417	60" ^{54"}	Mulch - Tube wet on 11/15	PICKUP PID (ppm) 0.0
PSV-43-D10	1449	1418	36"	Mulch	0.0
PSV-43-C11	1451	1423		Grass - wet tube on 11/15	0.0
PSV-43-C12	1453	1426		Grass wet tube on 11/15	0.0
PSV-43-C13	1456	1428		Grass - wet tube on 11/15	0.0
PSV-43-C14	1458	1430		Grass - wet tube on 11/15	0.0
PSV-43-C15	1500	1431		Grass	0.0
PSV-43-D11	1503	1425		Grass wet tube on 11/15	0.0
PSV-43-B11	1508	1420		Grass wet tube on 11/15	0.0
PSV-43-B8	1510			Already installed PS 2 S/S	
PSV-43-B7	1513			Vial broke when removed, solvents lost in hole no sample	
PSV-43-B6	1515	1435		Gravel moist in tube on 11/15	0.0
PSV-43-B5	1517	1437		Gravel wet in tube on 11/15	0.0
PSV-43-B4	1519	1439		Gravel Moist in tube on 11/15	0.0
PSV-43-B3	1521	1442	✓	Gravel moist in tube on 11/15	DUPHERE 0.0

Attachment 4

LABORATORY PROCEDURES FOR PASSIVE SOIL-GAS SAMPLES

Following are laboratory procedures used with BEACON Passive Soil-Gas Surveys, a screening technology for expedited site investigation. After exposure, adsorbent cartridges from the passive samplers are analyzed using U.S. EPA Method 8260C as described in the Solid Waste Manual (SW-846), a capillary gas chromatographic/mass spectrometric method, modified to accommodate high temperature thermal desorption of the adsorbent cartridges and to meet the objectives of reporting semi-quantitative data. This procedure is summarized as follows:

- A. The adsorbent cartridges are loaded with internal standards and surrogates prior to loading the autosampler with the cartridges. The loaded cartridges are purged in a helium flow. Then the cartridges are thermally desorbed in a helium flow onto a focusing trap. Any analytes in the helium stream are adsorbed onto a focusing trap.
- B. Following trap focusing, the trap is thermally desorbed onto a Rxi-624Sil MS 20m, 0.18 mm ID, 1.00 micron filament thickness capillary column.
- C. The GC/MS is scanned between 35 and 270 Atomic Mass Units (AMU) at 3.12 scans per second.
- D. BFB tuning criteria and the initial five-point calibration procedures are those stated in method SW846-8260C. System performance and calibration check criteria are met prior to analysis of samples. A laboratory method blank is analyzed after the daily standard to determine that the system is contaminant-free.
- E. The instrumentation used for these analyses includes:
 - Agilent 6890-5973a Gas Chromatograph/Mass Spectrometer;
 - Markes Unity thermal desorber;
 - Markes Ultra autosampler; and
 - Markes Mass Flow Controller Modules

Attachment 5

Chain-of-Custody Form

CHAIN-OF-CUSTODY PASSIVE SOIL-GAS SAMPLES

HOUSE#35-1

Project Information	
Beacon Project No.:	2432
Site Name:	Ithaca Site
Site Location:	Ithaca, NY
Analytical Method:	EPA Method 8260C
Target Compounds:	Beacon Project Number 2432 Target Compound List



Client Information	
Company Name:	EnviroGroup Limited
Office Location:	Latham, NY
Samples Submitted By:	E. Lovenduski
Contact Phone No.:	518-258-3859

Field Sample ID	Lab Sample ID (for lab use only)	Comments (only necessary if problem or discrepancy)			
		Condition of sample or vial	Date	Time	Initial
TRIP BLANK 01	2432 Trip-1		11/15/11	1020	ESL
PSV-35-A1	2432 PSV-35-A1		11/15/11	1025	ESL
PSV-35-A2	2432 PSV-35-A2			1029	ESL
PSV-35-A3	2432 PSV-35-A3			1033	ESL
PSV-35-A4	2432 PSV-35-A4			1035	ESL
PSV-35-A5	2432 PSV-35-A5			1038	ESL
PSV-35-A7	2432 PSV-35-A7			1040	ESL
PSV-35-B1	2432 PSV-35-B1			1043	ESL
PSV-35-B2	2432 PSV-35-B2			1045	ESL
PSV-35-B3	2432 PSV-35-B3			1047	ESL
PSV-35-B4	2432 PSV-35-B4			1049	ESL
PSV-35-B5	2432 PSV-35-B5			1052	ESL
PSV-35-B6	2432 PSV-35-B6			1054	ESL
PSV-35-B7	2432 PSV-35-B7			1056	ESL
PSV-35-C1	2432 PSV-35-C1			1100	ESL
PSV-35-C2	2432 PSV-35-C2			1102	ESL
PSV-35-C3	2432 PSV-35-C3			1104	ESL
PSV-35-C4	2432 PSV-35-C4			1106	ESL
PSV-35-C5	2432 PSV-35-C5			1108	ESL
PSV-35-C5 DUP	2432 PSV-35-C5 DUP			1108	ESL

Shipment of Field Kit to Site — Custody Seal # 17350381

Relinquished by:	Date/Time	Courier	Intact? ☒ Y ☐ N	Received by:	Date/Time
Ryan Schick	10-27-2011 / 1700 Hours	UPS		ESL	10/28/11 1100

Shipment of Field Kit to Laboratory — Custody Seal # 17350382

Relinquished by:	Date/Time	Courier	Intact? ☒ Y ☐ N	Received by:	Date/Time
ESL	11/16/11 1500	FDEX		Steven Thornberry	11.17.11 / 1000 hrs

CHAIN-OF-CUSTODY PASSIVE SOIL-GAS SAMPLES

House #35-2

Project Information	
Beacon Project No.:	2432
Site Name:	Ithaca Site
Site Location:	Ithaca, NY
Analytical Method:	EPA Method 8260C
Target Compounds:	Beacon Project Number 2432 Target Compound List



Client Information	
Company Name:	EnviroGroup Limited
Office Location:	Latham, NY
Samples Submitted By:	E. Lovenduski
Contact Phone No.:	518-258-3859

Field Sample ID	Lab Sample ID (for lab use only)	Comments (only necessary if problem or discrepancy)			
		Condition of sample or vial	Date	Time	Initial
PSV-35-C7	2432 PSV-35-C7		11/15/11	1111	SL
PSV-35-D1	2432 PSV-35-D1			1114	SL
PSV-35-D2	2432 PSV-35-D2			1117	SL
PSV-35-D3	2432 PSV-35-D3			1119	SL
PSV-35-D4	2432 PSV-35-D4			1122	SL
PSV-35-D5	2432 PSV-35-D5			1124	SL
PSV-35-D7	2432 PSV-35-D7			1126	SL
PSV-35-E1	2432 PSV-35-E1			1128	SL
PSV-35-E2	2432 PSV-35-E2			1130	SL
PSV-35-E3	2432 PSV-35-E3			1132	SL
PSV-35-E4	2432 PSV-35-E4			1134	SL
PSV-35-E5	2432 PSV-35-E5			1136	SL
PSV-35-E7	2432 PSV-35-E7			1138	SL
PSV-35-F5	2432 PSV-35-F5			1140	SL

Shipment of Field Kit to Site — Custody Seal # 17350381

Intact? Y N

Relinquished by:	Date/Time	Courier	Received by:	Date/Time
Ryan School	10-27-2011 / 1700 Hours	UPS	ES	10/28/11 1100

Shipment of Field Kit to Laboratory — Custody Seal # 17350382

Intact? ☒ Y ☐ N

Relinquished by:	Date/Time	Courier	Received by:	Date/Time
ES	11/16/11 1500	FED EX	Steven Thornley	11.17.11 / 1000 hrs

CHAIN-OF-CUSTODY PASSIVE SOIL-GAS SAMPLES

House #43_1

Project Information	
Beacon Project No.:	2432
Site Name:	Ithaca Site
Site Location:	Ithaca, NY
Analytical Method:	EPA Method 8260C
Target Compounds:	Beacon Project Number 2432 Target Compound List



Client Information	
Company Name:	EnviroGroup Limited
Office Location:	Latham, NY
Samples Submitted By:	E Lovenduski
Contact Phone No.:	518-258-3859

Field Sample ID	Lab Sample ID (for lab use only)	Comments (only necessary if problem or discrepancy)			
		Condition of sample or vial	Date	Time	Initial
TRIP BLANK 02	2432 Trip 2		11/15/11	1320	SLK
PSV-43-A1	2432 PSV-43-A1			1324	SLK
PSV-43-A1B	2432 PSV-43-A1B			1326	SLK
PSV-43-B1	2432 PSV-43-B1			1329	SLK
PSV-43-C1	2432 PSV-43-C1			1331	SLK
PSV-43-D1	2432 PSV-43-D1			1332	SLK
PSV-43-E1	2432 PSV-43-E1			1334	SLK
PSV-43-A2	2432 PSV-43-A2			1336	SLK
PSV-43-A2D	2432 PSV-43-A2D			1337	SLK
PSV-43-C2	2432 PSV-43-C2			1340	SLK
PSV-43-D2	2432 PSV-43-D2			1341	SLK
PSV-43-E2	2432 PSV-43-E2			1343	SLK
PSV-43-E3	2432 PSV-43-E3			1345	SLK
PSV-43-E4	2432 PSV-43-E4			1347	SLK
PSV-43-E5	2432 PSV-43-E5			1349	SLK
PSV-43-E6	2432 PSV-43-E6			1350	SLK
PSV-43-E7	2432 PSV-43-E7			1351	SLK
PSV-43-E8	2432 PSV-43-E8			1352	SLK
PSV-43-E9	2432 PSV-43-E9			1354	SLK
PSV-43-D8	2432 PSV-43-D8		↓	1359	SLK

Shipment of Field Kit to Site — Custody Seal # 17350381

Intact? ☒ Y ☐ N

Relinquished by:	Date/Time	Courier	Received by:	Date/Time
Ryan Schell	10-27-2011 / 1700 Hours	UPS	[Signature]	10/28/11 1100

Shipment of Field Kit to Laboratory — Custody Seal # 17350382

Intact? ☒ Y ☐ N

Relinquished by:	Date/Time	Courier	Received by:	Date/Time
[Signature]	11/16/11 1500	FedEx	Kenny Ipiach	11-17-2011 / 1000 hrs

CHAIN-OF-CUSTODY PASSIVE SOIL-GAS SAMPLES

HOUSE #43-2

Project Information	
Beacon Project No.:	2432
Site Name:	Ithaca Site
Site Location:	Ithaca, NY
Analytical Method:	EPA Method 8260C
Target Compounds:	Beacon Project Number 2432 Target Compound List



Client Information	
Company Name:	EnviroGroup Limited
Office Location:	Latham, NY
Samples Submitted By:	E. Lovenduski
Contact Phone No.:	518-258-3859

Field Sample ID	Lab Sample ID (for lab use only)	Comments (only necessary if problem or discrepancy)			
		Condition of sample or vial	Date	Time	Initial
PSV-43-C8	2432 PSV-43-C8		11/15/11	1401	SL
PSV-43-C8D	2432 PSV-43-C8D			1402	SL
PSV-43-B8	2432 PSV-43-B8			1403	SL
PSV-43-A8	2432 PSV-43-A8			1405	SL
PSV-43-A9	2432 PSV-43-A9			1407	SL
PSV-43-B9	2432 PSV-43-B9			1408	SL
PSV-43-D9	2432 PSV-43-D9			1410	SL
PSV-43-B10	2432 PSV-43-B10			1414	SL
PSV-43-C10	2432 PSV-43-C10			1416	SL
PSV-43-C10D	2432 PSV-43-C10D			1417	SL
PSV-43-D10	2432 PSV-43-D10			1418	SL
PSV-43-C11	2432 PSV-43-C11			1423	SL
PSV-43-C12	2432 PSV-43-C12			1426	SL
PSV-43-C13	2432 PSV-43-C13			1428	SL
PSV-43-C14	2432 PSV-43-C14			1430	SL
PSV-43-C15	2432 PSV-43-C15			1431	SL
PSV-43-D11	2432 PSV-43-D11			1425	SL
PSV-43-B11	2432 PSV-43-B11			1420	SL
PSV-43-B6	2432 PSV-43-B6			1435	SL
PSV-43-B5	2432 PSV-43-B5			1437	SL

Shipment of Field Kit to Site — Custody Seal # 17350381

Intact? ☒ Y ☐ N

Relinquished by:	Date/Time	Courier	Received by:	Date/Time
Ryan Scheel	10-27-2011 / 1700 Hours	UPS	SL	10/28/11 11:00

Shipment of Field Kit to Laboratory — Custody Seal # 17350382

Intact? ☒ Y ☐ N

Relinquished by:	Date/Time	Courier	Received by:	Date/Time
SL	11/15/11 15:00	FEDEx	Kenny Ipechew	11-17-11 / 1000 hrs

House #43-3

BEACON ENVIRONMENTAL SERVICES, INC.
323 Williams Street, Suite D, Bel Air, MD 21014 (800) 878-5510

A handwritten signature in blue ink, appearing to read 'L. J. L.', is written on a grid background. The signature is stylized with loops and flourishes. A diagonal line is drawn across the bottom left corner of the page.Page 3 of 3