Appendix G: Supplemental Soil Vapor Investigation Summary Report - Addendum Off-Site Former Axiohm Facility (C755012A) Ithaca, New York

Prepared for

New York State Department of Environmental Conservation
625 Broadway
Albany, New York 12233

Prepared by

EA Engineering, P.C. and Its Affiliate
EA Science and Technology
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Syracuse, New York 13211-2158
(315) 431-4610

May 2010
Revision: FINAL
EA Project No. 14368.19

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27 May 2010
Christopher J. Canonica, P.E., Program Manager — Date
EA Engineering, P.C.

27 May 2010
Robert S. Casey, Site Manager — Date
EA Science and Technology

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CONTENTS

LIST OF FIGURES

LIST OF TABLES

1. INTRODUCTION

1.1 PROJECT BACKGROUND

As part of the original Immediate Soil Vapor Investigation work assignment, soil vapor samples were previously collected at various locations of the South Hill neighborhood sewer system. Soil vapor samples were collected at four locations in September 2007, five locations in December 2007, five locations in April 2008, and four locations in November 2008. The historical soil vapor sampling locations and South Hill neighborhood sewer line system are illustrated in Figure 1. Soil vapor samples were collected directly above, adjacent to, and in the vicinity of the South Hill neighborhood sewer system based on sections of the system (EA 2009)[1]. Historical data from the previous investigations in the South Hill neighborhood identified potential contaminants of concern such as chlorinated volatile organic compounds (CVOCs); more specifically tetrachloroethene (PCE) and trichloroethene (TCE); and 1,2-dichloroethane, *cis*-1,2-dichloroethene (*cis*-1,2-DCE), *trans*-1,2-dichloroethene, methylene chloride, 1,1,1-trichloroethane, and vinyl chloride.

1.2 OBJECTIVES

The objective of the supplemental soil vapor investigation was to further define the nature and extent of soil vapor contamination within the eastern portions of the South Hill neighborhood and to evaluate the CVOC concentrations, specifically PCE and TCE, within the sewer line utility trenches originating at and lateraling into the Therm, Inc. (Therm) facility.

1.3 REPORT ORGANIZATION

A summary of field investigation activities conducted in September 2009 is included in Section 2. Section 3 summarizes analytical results of the field sampling activities. Analytical results are summarized in table format and associated figures.

The following are provided as attachments:

- **Attachment A**—New York State Department of Environmental Conservation (NYSDEC) Daily Field Reports
- **Attachment B**—Soil Vapor Boring Logs
- **Attachment C**—Soil Vapor Sampling Forms
- **Attachment D**—Data Usability Summary Report (DUSR).

1. EA. 2009. *Final Immediate Soil Vapor Investigation and Vapor Intrusion Summary Report,* Axhiom OU2 Offsite, Tompkins County, Ithaca, New York. April

2. FIELD INVESTIGATION ACTIVITIES

The following sections present the approach of the field investigation activities performed to meet the objectives of the supplemental soil vapor investigation. EA's approach for implementing this portion of the work assignment included sampling protocols designed to further evaluate the presence or absence of potential contaminants of concern in soil vapor within and adjacent to the sewer line utility trenches located in the eastern portion of the South Hill sewer system that originate at, or lateral into, the Therm sewer.

The field investigation activities associated with this supplemental soil vapor investigation took place in September 2009, and included the installation and sampling of three temporary soil vapor points. Daily field reports documenting these activities are provided in Attachment A.

2.1 SOIL VAPOR POINTS

2.1.1 Temporary Soil Vapor Point Installation

EA and NYSDEC representatives supervised the installation of three temporary soil vapor points on 15-16 September 2009. Figure 2 illustrates the locations of the soil vapor sampling points completed in September 2009. Sampling locations were selected in consultation with the NYSDEC representative. Nothnagle Drilling Inc., from Scottsville, New York, performed the drilling and soil vapor point installation at two of the three locations (SV-18 and SV-19). The soil vapor points (SV-18 and SV-19) were installed using Geoprobe® macro-cores to install stainless steel drive points to the required depth (i.e., approximately 1 ft above utility line).

Due to access issues, one additional temporary soil vapor point (SV-20) was installed by EA personnel on 16 September 2009. This soil vapor point was installed utilizing a steel slide hammer and 2-ft macro-core rods to reach the desired sampling depth. Sampling depth intervals were determined by the invert elevation of the sewer line at the sampling location.

Once the sampling depth was reached, a 6-in. stainless steel sampling screen was attached to a dedicated section of 0.25-in. diameter Teflon tubing and placed in the open bore hole. The borehole was then backfilled with sand to a minimum of 6 in. above the stainless steel sampling screen. Granular bentonite pellets were then used to backfill to the ground surface, hydrating concurrently with placement. The soil boring spoils were reworked into the surrounding ground surface. A typical soil vapor point construction diagram is depicted in Figure 3. Soil vapor point boring logs are provided in Attachment B.

2.1.2 Soil Vapor Sampling

After installation, soil vapor points were allowed to set for 24 hours prior to sampling. Soil vapor sampling and helium leak testing were performed in accordance with the New York State

Department of Health *Guidance for Evaluating Soil Vapor Intrusion in the State of New York*, October 2006. The following procedures were followed during soil vapor sampling:

- An air pump (Gil-Air 5 model) was used to purge approximately 1 vapor point volume of air/vapor from the sampling point into a tedlar bag. The tedlar bag was closed and the purge air released into a calibrated ppbRAE. The ppbRAE reading was recorded on the field sampling form.

- Helium tracer gas testing was conducted at one of the three sampling locations to ensure that the soil vapor samples were not affected by ambient air being drawn into the sampling points.

- A 6-L Summa® canister equipped with a flow regulator and vacuum gauge were used to collect the soil vapor samples. The canisters and flow regulators were individually certified clean by the laboratory prior to sampling. The flow controllers were regulated by the laboratory to collect at 41.7 mL/minute over a 2-hour sample collection period.

- The sample canisters were connected to the sample tubing using a compression fitting and placed on the ground adjacent to the sampling point.

One duplicate sample was collected at soil vapor location SV-19. At that location, a dedicated stainless steel in-line "tee", supplied by the laboratory, was used to collect the sample and field duplicate quality control sample. This duplicate sampling method splits the flow coming from a sampling point into two separate canisters.

Soil vapor samples were shipped under standard chain of custody to Air Toxics in Folsom, California. Air Toxics is a New York State Department of Health Environmental Laboratory Approval Program-certified laboratory. Soil vapor samples were analyzed for volatile organic compounds using United States Environmental Protection Agency Method TO-15 (United States Environmental Protection Agency TO-15).

Upon completion of the sampling, the sample tubing was pulled out of the ground and disposed of offsite. The boring holes located in paved areas were resurfaced with cold-patch. Soil vapor sampling logs are provided in Attachment C.

3. FIELD INVESTIGATION RESULTS

This section summarizes the analytical results of the field investigation activities conducted at the site in September 2009. Soil vapor samples were analyzed by an Environmental Laboratory Approval Program-certified laboratory in accordance with the reporting requirements as defined in NYSDEC Analytical Services Protocol of June 2000. Laboratory analytical data were reported using Category B deliverables and a standard electronic data deliverable. The analytical data package or sample delivery group (SDG) was validated by Environmental Data Services, Inc. (EDS) of Williamsburg, Virginia, an independent third party of this assignment. Validated volatile organic compound analytical are provided in Table 1. The CVOC analytical results for each soil vapor sample collected from within the eastern portion of the South Hill sanitary sewer system are presented on Figure 4. The DUSR for the SDG associated with this sampling event is included in Attachment D.

3.1 SOIL VAPOR RESULTS

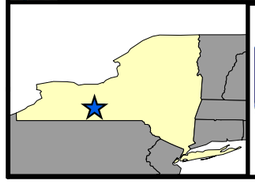
Three CVOCs, including PCE, TCE, and *cis*-1,2-DCE, were detected in soil vapor samples collected in September 2009. The highest concentration of PCE (5,000 µg/m^3) and TCE (450 µg/m^3) were detected in soil vapor sample SV-19. Soil vapor point SV-19 was collected directly above the Therm discharge sewer line utility trench just prior to its convergence with the sewer that runs along South Hill Recreation Way. Soil vapor sample SV-19 represents the highest concentration of PCE and TCE detected within soil vapor samples collected during the NYSDEC Immediate Soil Vapor Investigation thus far.

Lower concentrations of PCE were also detected in soil vapor sample SV-18 (140 µg/m^3) located along the Hudson Street sewer line and at SV-20 (56 µg/m^3) located above the town of Ithaca sewer line which runs along the South Hill Recreation Way. Additionally, TCE concentrations were detected in soil vapor sample SV-20 (30 µg/m^3), while *cis*-1,2-DCE was detected within SV-19 (34 µg/m^3) and SV-20 (1.7 µg/m^3). TCE and *cis*-1,2-DCE concentrations from September 2009 are within the same order of magnitude as previous detections within soil vapor samples collected from within eastern portion of the South Hill sewer system.

3.2 DATA USABILITY SUMMARY REPORTS

EDS validated the analytical data package submitted to EA by Air Toxics, Ltd. Analytical data packages are submitted as SDGs based on the number of samples within each shipment receipted at the laboratory for analysis. The SDG associated with this soil vapor sampling event was reviewed for completeness and compliance as defined by the requirements for NYSDEC Analytical Services Protocol Category B deliverables.

EDS completed data validation for one SDG and submitted a DUSR for the SDG reviewed for this soil vapor sampling event. Overall, the data were acceptable for their intended use; select samples were qualified for various reasons and are identified in the associated table.



OFF-SITE FORMER AXIOHM FACILITY (C755012A)
ISVI SUMMARY REPORT - ADDENDUM
ITHACA, NEW YORK

FIGURE 1
Historical Soil Vapor Sampling Locations and South Hill Neighborhood Sewer Lines

0 125 250 500 750 1,000 Feet

Source: NYS GIS Clearing House

Legend

- Sewer Line (Arrows Indicate Flow Direction)
- Soil Vapor Sampling Point
- Permanent Soil Vapor Sampling Point

PROJECT MGR:	DESIGNED BY:	CREATED BY:	CHECKED BY:	PROJECT NO:	DATE:	SCALE:	FILE NO:
CJC	CJS	JCP	RSC	14368.19	MAY 2010	AS SHOWN	GIS/PROJECTS/ FIGURE1.MXD

OFF-SITE FORMER AXIOHM FACILITY (C755012A)
ISVI SUMMARY REPORT - ADDENDUM
ITHACA, NEW YORK

FIGURE 2
Soil Vapor Sampling Locations

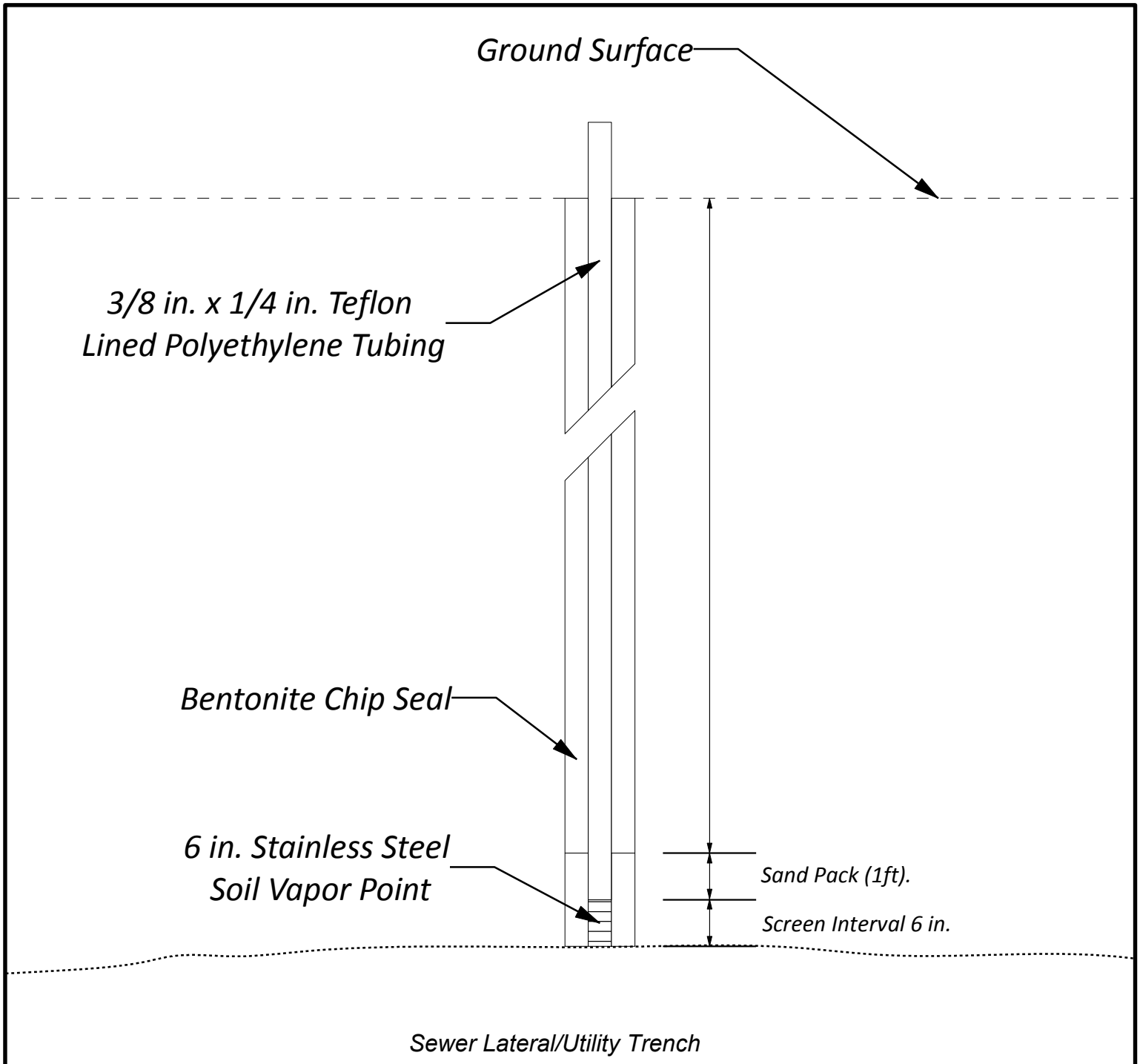
0 50 100 200 300 400 Feet

PROJECT MGR:	DESIGNED BY:	CREATED BY:	CHECKED BY:	PROJECT NO:	DATE:	SCALE:	FILE NO:
CJC	CJS	DCC	RSC	14368.19	MAY 2010	AS SHOWN	GIS/PROJECTS/ FIGURE2.MXD

Legend

- Soil Vapor Sampling Point Locations (September 2009)

Source: NYS GIS Clearing House



EA®	OFF-SITE FORMER AXIOHM FACILITY (C755012A) ISVI SUMMARY REPORT - ADDENDUM ITHACA, NEW YORK					FIGURE 3 TYPICAL TEMPORARY SOIL VAPOR POINT CONSTRUCTION DIAGRAM	
PROJECT MGR: CJC	DESIGNED BY: MJS	CREATED BY: DCC	CHECKED BY: RSC	NOT TO SCALE	DATE: MAY 2010	PROJECT NO: 14368.19	FILE NO: GIS/PROJECTS/ FIGURE3.MXD

C75501A-SV-13 [a] (Apr-2008)	SV-DUP01 (µg/m³)
Carbon Tetrachloride	6.80 J
cis-1,2-Dichloroethene	1.80
Tetrachloroethene	1,600 J
1,1,1-Trichloroethane	ND
Trichloroethene	9.30 J
Vinyl Chloride	ND

C75501A-SV-14 (Apr-2008)	(µg/m³)
Carbon Tetrachloride	ND
cis-1,2-Dichloroethene	ND
Tetrachloroethene	2,200
1,1,1-Trichloroethane	ND
Trichloroethene	37
Vinyl Chloride	ND

C75501A-SV-15 (Apr-2008)	(µg/m³)
Carbon Tetrachloride	1.30
cis-1,2-Dichloroethene	2.10
Tetrachloroethene	120
1,1,1-Trichloroethane	1.20
Trichloroethene	150
Vinyl Chloride	ND

C75501A-SV-18 (Sept-2009)	(µg/m³)
Carbon Tetrachloride	ND
cis-1,2-Dichloroethene	ND
Tetrachloroethene	140
1,1,1-Trichloroethane	ND
Trichloroethene	ND
Vinyl Chloride	ND

C75501A-SV-19 (Sept-2009)	(µg/m³)	SV-DUP (µg/m³)
Carbon Tetrachloride	ND	ND
cis-1,2-Dichloroethene	34.0	36.0
Tetrachloroethene	5,000	4,800
1,1,1-Trichloroethane	ND	ND
Trichloroethene	450	480
Vinyl Chloride	ND	ND

C75501A-SV-17 (Nov-2008)	(µg/m³)
Carbon Tetrachloride	0.760
cis-1,2-Dichloroethene	ND
Tetrachloroethene	60
1,1,1-Trichloroethane	ND
Trichloroethene	16
Vinyl Chloride	ND

C75501A-SV-16 (Nov-2008)	(µg/m³)
Carbon Tetrachloride	0.670
cis-1,2-Dichloroethene	ND
Tetrachloroethene	17
1,1,1-Trichloroethane	ND
Trichloroethene	1.80
Vinyl Chloride	ND

C75501A-SV-20 (Sept-2009)	(µg/m³)
Carbon Tetrachloride	ND
cis-1,2-Dichloroethene	1.70
Tetrachloroethene	56.0
1,1,1-Trichloroethane	ND
Trichloroethene	30
Vinyl Chloride	ND

CHARLES ST
GILES ST
E STATE ST
WATER ST

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ISVI SUMMARY REPORT - ADDENDUM
ITHACA, NEW YORK

FIGURE 4
Soil Vapor Sampling Results

0 70 140 280 420 560 Feet

PROJECT MGR: CJC | DESIGNED BY: CJS | CREATED BY: JCP | CHECKED BY: RSC | PROJECT NO: 14368.19 | DATE: MAY 2010 | SCALE: AS SHOWN | FILE NO: GIS/PROJECTS/FIGURE4.MXD

Legend

Source: NYS GIS Clearing House

- Soil Vapor Sampling Point Locations
- Approximate Location of South Hill Sewer System Lines (arrows indicate flow direction)
- µg/m³ Micrograms per cubic meter
- ND Non-detect

(a) Due to concentration difference between soil vapor sample SV-13 and the duplicate sample collected at this location (SV-DUP01), the more conservative concentration values are shown.

TABLE 1 SUMMARY OF VOLATILE ORGANIC COMPOUNDS IN SOIL VAPOR SAMPLES

Parameter List USEPA Method TO-15	Sample ID	7-55-012-SV-18		7-55-012-SV-19		7-55-012-SV-20		7-55-017-SV-DUP 0909[a]	
	Lab ID	0909535-01A		0909535-02A		0909535-03A		0909535-04A	
	Sample Type	Soil Vapor		Soil Vapor		Soil Vapor		Soil Vapor	
	Sample Date	9/17/2009		9/17/2009		9/17/2009		9/17/2009	
Benzene	(µg/m3)		U		U	0.810			U
Bromodichloromethane	(µg/m3)	34.0			U	2.70			U
Bromoform	(µg/m3)		U		U		U		U
Bromomethane	(µg/m3)		U		U		U		U
2- Butanone (Methyl Ethyl Ketone)	(µg/m3)		U		U	4.30			U
tert- Butyl alcohol	(µg/m3)		U		U		U		U
Carbon Tetrachloride	(µg/m3)		U		U		U		U
Chlorobenzene	(µg/m3)		U		U		U		U
Chloroethane	(µg/m3)		U		U		U		U
Chloroform	(µg/m3)	4,000		170		21.0		180	
Chloromethane	(µg/m3)		U		U	0.470			U
alpha- Chlorotoluene	(µg/m3)		U		U		U		U
Cyclohexane	(µg/m3)		U		U	0.560			U
Dibromochloromethane	(µg/m3)		U		U		U		U
1,2- Dibromoethane (EDB)	(µg/m3)		U		U		U		U
1,3- Dichlorobenzene	(µg/m3)		U		U		U		U
1,4- Dichlorobenzene	(µg/m3)		U		U		U		U
1,2- Dichlorobenzene	(µg/m3)		U		U		U		U
1,1- Dichloroethane	(µg/m3)		U		U		U		U
1,2- Dichloroethane	(µg/m3)		U		U		U		U
1,1- Dichloroethene	(µg/m3)		U		U		U		U
cis-1,2- Dichloroethene	(µg/m3)		U	34.0		1.70		36.0	
trans-1,2- Dichloroethene	(µg/m3)		U		U		U		U
1,2- Dichloropropane	(µg/m3)		U		U		U		U
cis-1,3- Dichloropropene	(µg/m3)		U		U		U		U
trans-1,3- Dichloropropene	(µg/m3)		U		U		U		U
1,4- Dioxane	(µg/m3)		U		U		U		U
Ethanol	(µg/m3)		U		U	2.20			U
Ethyl Benzene	(µg/m3)		U		U		U		U
Freon 11	(µg/m3)		U		U	1.70			U
Freon 113	(µg/m3)		U		U	0.660	J		U
Freon 114	(µg/m3)		U		U		U		U
Freon 12	(µg/m3)		U		U	1.60			U
Hexachlorobutadiene	(µg/m3)		U		U		U		U
Hexane	(µg/m3)		U		U	2.50			U
Methyl tert-butyl ether	(µg/m3)		U		U		U		U
4- Methyl-2-pentanone	(µg/m3)		U		U		U		U
Methylene Chloride	(µg/m3)		U		U		U		U
Styrene	(µg/m3)		U		U		U		U
1,1,2,2- Tetrachloroethane	(µg/m3)		U		U		U		U
Tetrachloroethene	(µg/m3)	140		5,000		56		4,800	
Toluene	(µg/m3)		U		U	4.80			U
1,2,4- Trichlorobenzene	(µg/m3)		U		U		U		U
1,1,1- Trichloroethane	(µg/m3)		U		U		U		U
1,1,2- Trichloroethane	(µg/m3)		U		U		U		U
Trichloroethene	(µg/m3)		U	450		30		480	
1,3,5- Trimethylbenzene	(µg/m3)		U		U		U		U
1,2,4- Trimethylbenzene	(µg/m3)		U		U	0.910			U
2,2,4- Trimethylpentane	(µg/m3)		U		U		U		U
Vinyl Chloride	(µg/m3)		U		U		U		U
m,p- Xylene	(µg/m3)		U		U	2.80		17.0	
o- Xylene	(µg/m3)		U		U	0.90			U

(a) Duplicate sample was collected with SV-19

NOTE: USEPA = United States Environmental Protection Agency
U = The analyte was analyzed for, but was not detected above the sample reporting limit.
J = Reported value is an estimate.
The analytical data results provided by Air Toxics, LTD. Data validation completed by Environmental Data Services, Inc.

Attachment A

NYSDEC
Daily Field Reports

DAILY FIELD REPORT **Day: Tuesday Date: 9/15/09**

NYSDEC

Temperature: (F) 65 (am) 75 (pm)

Wind Direction: W (am) W (pm)

Project Name
Off-Site Former Axiohm Facility
NYSDEC Site # C755012A

Weather: (am) partly cloudy and sunny
(pm) partly cloudy and sunny

Contract # D-004438-19 Arrive at site 1030 (am)

Ithaca, New York Leave site: 300 (pm)

HEALTH & SAFETY:
Are there any changes to the Health & Safety Plan? Yes ( ) No (X)
(If yes, list the deviation under items for concern)

Are monitoring results at acceptable levels?				
	Soil	Yes ( )	n/a (X)	* No ( )
	Waters	Yes ( )	n/a (X)	* No ( )
	Air	Yes (x)	n/a ( )	* No ( )

OTHER ITEMS:

- *If No, provide comments*

Site Sketch Attached: Yes ( ) No (X)
Photos Taken: Yes (X) No ( )

DESCRIPTION OF DAILY WORK PERFORMED:

Arrived at site at 1030am. Jeff with Nothnagle drilling also onsite. Scoped location for SV-18 over Hudson Street Sewer Line. Upon DEC arrival, set up cones and directed traffic while SV was installed in roadway. Curb box installed over point to protect it from traffic. Per DEC request, will be removed at completion of sampling. SV-20 installed with geoprobe over town of Ithaca sewer line. SV-19 to be installed with hand auger over Therm line, but till and shale limited ability to get to depth over sewer line (roughly 6.5 ft). will return on 9/16 with Geoprobe® Slide Hammer kit to install point. Leak testing and sampling of all points to be completed on 9/17.

PROJECT TOTALS:

SAMPLING (Soil/Water/Air)

Contractor Sample ID:	DEC Sample ID:	Description:
None		TO-15 Air Samples

DAILY FIELD REPORT Day: Tuesday Date: 9/15/09

CONTRACTOR/SUBCONTRACTOR EQUIPMENT AND PERSONNEL ON SITE:

(Name of contractor) personnel: David Crandall, Bob Casey

(Name of Subcontractor) personnel: Nothnagle Drilling

(Name of contractor) equipment: 6610 DT Geopgrobe, hand auger, ppbRAE

(*Indicates active equipment)

Other Subcontractors:

VISITORS TO SITE:

1. Karen Cahill, NYSDEC
2. Town of Ithaca Water Department to locate high pressure water line.

PROJECT SCHEDULE ISSUES:

Unable to install SV-19 with hand auger, will return 9/16 with slide hammer.

PROJECT BUDGET ISSUES:

None.

ITEMS OF CONCERN:

COMMENTS:

ATTACHMENT(S) TO THIS REPORT:

SITE REPRESENTATIVE:

Name: David Crandall
cc:

PHOTO LOG

Work Area Along Hudson Street.

Geoprobe Utilized to Install Soil Vapor Point SV-18.

Cone over Soil Vapor Point SV-18

DAILY FIELD REPORT **Day: Wednesday Date: 9/16/09**

NYSDEC

Temperature: (F) 45 (am) 65 (pm)

Wind Direction: W (am) W (pm)

Project Name

Off-Site Former Axiohm Facility

NYSDEC Site # C755012A

Weather: (am) partly cloudy and sunny
(pm) partly cloudy and sunny

Contract # D004438-19

Ithaca, New York

Arrive at site 700 (am)

Leave site: 1200 (pm)

HEALTH & SAFETY:

Are there any changes to the Health & Safety Plan? Yes ( ) No (X)
(If yes, list the deviation under items for concern)

Are monitoring results at acceptable levels?

Soil	Yes ( )	n/a (X)	* No ( )
Waters	Yes ( )	n/a (X)	* No ( )
Air	Yes (x)	n/a ( )	* No ( )

- *If No, provide comments*

~~**OTHER ITEMS:**~~

Site Sketch Attached: Yes ( ) No (X)
Photos Taken: Yes (X) No ( )

~~**DESCRIPTION OF DAILY WORK PERFORMED:**~~

Arrived at site at 700am. Pressure field extension tests perform on 119 Columbia and 416 S. Aurora Homes to test vapor extraction system performance. Tests included drilling holes through foundation and taking air flow readings with micromanometer. Also installed NYSDEC Labels on all vertical piping above extraction points at each home.

Geoprobe® Slide Hammer utilized to install soil vapor point SV-19 above Therm Sewer Line at depth of 6.5 ft. upon reaching desired depth, point was installed with sand pack around screen and hydrated bentonite seal to ground surface. SV-18, 19, and 20 will be purged/leak tested and sampled on 9/17/09

~~**PROJECT TOTALS:**~~

~~**SAMPLING (Soil/Water/Air)**~~

~~Contractor Sample ID:~~	~~DEC Sample ID:~~	~~Description:~~

DAILY FIELD REPORT Day: Wednesday Date: 9/16/09

CONTRACTOR/SUBCONTRACTOR EQUIPMENT AND PERSONNEL ON SITE:

(Name of contractor) personnel: David Crandall

(Name of Subcontractor) personnel: None

(Name of contractor) equipment: ppbRAE, Hammer Drill, Micro-manometer, slide hammer, hand auger.

(*Indicates active equipment)

Other Subcontractors:

VISITORS TO SITE:

1.

PROJECT SCHEDULE ISSUES:

SV sampling delay one day due to having to reattempt installation of SV-19.

PROJECT BUDGET ISSUES:

None.

ITEMS OF CONCERN:

COMMENTS:

ATTACHMENT(S) TO THIS REPORT:

SITE REPRESENTATIVE:

Name: David Crandall
cc:

PHOTO LOG

Geoprobe® Slide Hammer to install SV-19

Completed SV-19

DAILY FIELD REPORT **Day: Thursday Date: 9/17/09**

NYSDEC

Temperature: (F) 45 (am) 65 (pm)

Wind Direction: W (am) W (pm)

Project Name

Off-Site Former Axiohm Facility

NYSDEC Site # C755012A

Weather: (am) partly cloudy w/ light rain
(pm) partly cloudy and sunny

Contract # D-004438-19

Ithaca, New York

Arrive at site 800 (am)

Leave site: 245 (pm)

HEALTH & SAFETY:

Are there any changes to the Health & Safety Plan? Yes ( ) No (X)
(If yes, list the deviation under items for concern)

Are monitoring results at acceptable levels?

Soil	Yes ( )	n/a (X)	* No ( )
Waters	Yes ( )	n/a (X)	* No ( )
Air	Yes (x)	n/a ( )	* No ( )

- *If No, provide comments*

~~**OTHER ITEMS:**~~

Site Sketch Attached: Yes ( ) No (X)
Photos Taken: Yes (X) No ( )

~~**DESCRIPTION OF DAILY WORK PERFORMED:**~~

Arrived at site at 800am. Performed helium leak test on SV-19 (pass) and purged and collected ppb readings for SV-19 and SV-20. Connected SUMMA Canisters and collected samples (2 hour sampling time). Duplicate sample collected at SV-19. Following completion purged and collected ppb readings at SV-18 and collected sample. Performed sampling separately due to location in middle of Hudson Street. Following completion of sampling, removed curb box per DEC request and filled hole with asphalt cold patch.

~~**PROJECT TOTALS:**~~

~~**SAMPLING (Soil/Water/Air)**~~

~~**Contractor Sample ID:**~~	~~**DEC Sample ID:**~~	~~**Description:**~~
~~SV18, SV19, SV20~~		~~TO-15 Soil Vapor (Duplicate at SV19).~~

DAILY FIELD REPORT Day: Thursday Date: 9/17/09

CONTRACTOR/SUBCONTRACTOR EQUIPMENT AND PERSONNEL ON SITE:

(Name of contractor) personnel: David Crandall, Sarah Nelson

(Name of Subcontractor) personnel: None

(Name of contractor) equipment: ppbRAE, Helium detector, air pump, SUMMA Canisters.

(*Indicates active equipment)

Other Subcontractors:

VISITORS TO SITE:

1.

PROJECT SCHEDULE ISSUES:

PROJECT BUDGET ISSUES:

None.

ITEMS OF CONCERN:

COMMENTS:

ATTACHMENT(S) TO THIS REPORT:

SITE REPRESENTATIVE:

Name: David Crandall
cc:

PHOTO LOG

Helium Leak Detector Setup

Sample Collection – SV-20

Sample Collection – SV-19/Duplicate

Sample Collection – SV-18

Cold Patch over removed curb box

Attachment B

Soil Vapor Boring Logs

FIELD BORING LOG FORM

EA Engineering, P.C.
EA Science and Technology

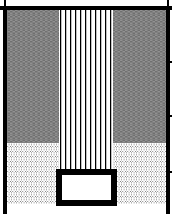
LOG OF SOIL BORING

Coordinates:
Surface Elevation:
Casing Below Surface:
Reference Elevation:
Reference Description:

Job. No.	Client:	Location:
14368.19	New York State Department of Environmental Conservation	Off-Site Former Axiohm Facility
Drilling Method:	6610DT Geoprobe	Soil Boring Number: SV-18
Sampling Method:	Macrocore	Sheet 1 of 1

Water Lev.					Drilling Start	Drilling Finish
Time					9/15/09 1115	9/15/09 1200

Surface Conditions: Asphalt Roadway
Weather: Sunny
Temperature: 65F

Blow Counts (140-lb)	Feet Drvn/Ft. Recvrd	Well Diagram	PID (ppb) HNu	Depth in Feet	USCS Log	
	3.5/2		15	0		0-1.0 Asphalt
			0	1		1.0-3.5 Dark Brown Gravelly Silty Sand (medium fine, medium dense, moist)
			24	2		
				3		Soil Vapor Point set at 3.5 ft. bgs. Sand pack to 2.5 ft. bgs. Hydrated bentonite to .5 ft. bgs. Curb box installed with concrete surrounding in roadway.
				4		
				5		
				6		
				7		
				8		
				9		
				10		
				11		
				12		
				13		
				14		
				15		
				16		
				17		
				18		
				19		
				20		

Logged by: David Crandall Date: 9/15/09

Drilling Contractor: Nothnagle Drilling Driller: Jeff Schweitzer

FIELD BORING LOG FORM

EA Engineering, P.C.
EA Science and Technology

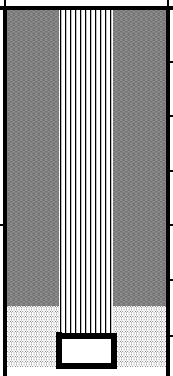
LOG OF SOIL BORING

Coordinates:
Surface Elevation:
Casing Below Surface:
Reference Elevation:
Reference Description:

Job. No.	Client:	Location:
14368.19	New York State Department of Environmental Conservation	Off-Site Former Axiohm Facility
Drilling Method:	Hand Auger/Slide Hammer	Soil Boring Number: SV-19
Sampling Method:	Macrocore (Geoprobe Slide Hammer with macrocore/sleeves)	Sheet 1 of 1

Water Lev.					Drilling Start	Drilling Finish
Time					9/16/09 900	9/16/09 1100

Surface Conditions: wooded area/nature trail
Weather: overcast, periods of sun.
Temperature: 65F

Blow Counts (140-lb)	Feet Drvn/Ft. Recvrd	Well Diagram	PID (ppb) HNu	Depth in Feet	USCS Log	
			0	0		0-0.5 Topsoil
						0.5-6.5 Highly angular gravel within silty sand (medium fine, dense, dry to moist)
			0	1		
			0	2		
			0	3		
			0	4		
			0	5		
			0	6		
						Soil Vapor Point set at 6.5 ft. bgs. Sand pack to 5.5 ft. bgs. Hydrated bentonite to ground surface
				7		
				8		
				9		
				10		
				11		
				12		
				13		
				14		
				15		
				16		
				17		
				18		
				19		
				20		

Logged by: David Crandall Date: 9/16/09

Drilling Contractor: EA (Slide Hammer/Hand Auger) Driller: David Crandall

FIELD BORING LOG FORM

EA Engineering, P.C.
EA Science and Technology

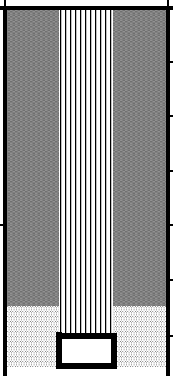
LOG OF SOIL BORING

Coordinates:
Surface Elevation:
Casing Below Surface:
Reference Elevation:
Reference Description:

Job. No.	Client:	Location:
14368.19	New York State Department of Environmental Conservation	Off-Site Former Axiohm Facility
Drilling Method:	6610DT Geoprobe	Soil Boring Number: SV-20
Sampling Method:	Macrocore	Sheet 1 of 1

					Drilling	
Water Lev.					Start	Finish
Time					9/15/09 1320	9/15/09 1400

Surface Conditions: wooded area/nature trail
Weather: overcast, periods of light rain.
Temperature: 65F

Blow Counts (140-lb)	Feet Drvn/Ft. Recvrd	Well Diagram	PID (ppb) HNu	Depth in Feet	USCS Log	
	3.5/2		0	0		0-0.5 Topsoil
						0.5-4.0 Gravel sand and som cobbles (angular)
			0	1		
			0	2		
			0	3		
			0	4		4.0-6.5 Gravel and Stone (angular)
			0	5		
			0	6		
						Soil Vapor Point set at 6.5 ft. bgs. Sand pack to 5.5 ft. bgs. Hydrated bentonite to ground surface
				7		
				8		
				9		
				10		
				11		
				12		
				13		
				14		
				15		
				16		
				17		
				18		
				19		
				20		

Logged by: Bob Casey Date: 9/15/09

Drilling Contractor: Nothnagle Drilling Driller: Jeff Schweitzer

Attachment C

Soil Vapor Sampling Forms

FIELD SOIL VAPOR SAMPLING FORM

EA Engineering and Its Affiliate
EA Science & Technology
6712 Brooklawn Parkway, Suite 104
Syracuse, NY 13211

Project #:	14368.19 0003
Project Name:	NYSDEC - Axiohm OU2
Location:	Ithaca, NY
Project Manager:	Karen Cahill/Bob Casey

Sample Location Information:

Site ID Number:	7-55-012	Sampler(s):	David Crandall/Sarah Nelson
PID Meter Used (Model, Serial #) :☐	ppbRAE	Soil Vapor I.D. No.:	SV-19

SUMMA Canister Record:

SOIL VAPOR POINT		DUPLICATE SAMPLE (IF COLLECTED)	
Flow Regulator No.:	6845	Flow Regulator No.:	FC300231
Canister Serial No.:	352608	Canister Serial No.:	96107
Start Date/Time:	9/17/2009 1000	Start Date/Time:	9/17/09 1000
Start Pressure: (inches Hg)	-30+	Start Pressure: (inches Hg)	-30+
Stop Date/Time:	9/17/2009 1146	Stop Date/Time:	9/17/09 1146
Stop Pressure: (inches Hg)	-3	Stop Pressure: (inches Hg)	-3
Sample ID: 7-55-012-SV- 19		Sample ID: 7-55-012SV- Duplicate-0909	

Other Sampling Information:

Helium percentage achieved in enclosure for Tracer Gas Test:	100%	Depth to sample point:	6.5'
Tracer Gas test result (% of Helium):	0%	Nearest Groundwater Elevation:	NA - above sewer line
Noticeable Odor?	none	Additional info:	
Purge Volume PID Reading (ppb)	1818		
Duplicate Sample?	yes		
Outdoor Ambient Temperature:	~65°F		
Wind Direction:	E		

Comments:

ambient air 900ppb

Sampler Signature:

FIELD SOIL VAPOR SAMPLING FORM

EA Engineering and Its Affiliate EA Science & Technology 6712 Brooklawn Parkway, Suite 104 Syracuse, NY 13211		Project #:	14368.19 0003
		Project Name:	NYSDEC - Axiohm OU2
		Location:	Ithaca, NY
		Project Manager:	Karen Cahill/Bob Casey

Sample Location Information:

Site ID Number:	7-55-012			Sampler(s):	David Crandall/Sarah Nelson
PID Meter Used (Model, Serial #) :□	ppbRAE			Soil Vapor I.D. No.:	SV-20

SUMMA Canister Record:

SOIL VAPOR POINT		DUPLICATE SAMPLE (IF COLLECTED)	
Flow Regulator No.:	00648	Flow Regulator No.:	
Canister Serial No.:	34422	Canister Serial No.:	
Start Date/Time:	9/17/2009 956	Start Date/Time:	
Start Pressure: (inches Hg)	-29	Start Pressure: (inches Hg)	
Stop Date/Time:	9/17/2009 1150	Stop Date/Time:	
Stop Pressure: (inches Hg)	-3	Stop Pressure: (inches Hg)	
Sample ID: 7-55-012-SV-20		Sample ID:	

Other Sampling Information:

Helium percentage achieved in enclosure for Tracer Gas Test:	-	Depth to sample point:	6.5'
Tracer Gas test result (% of Helium):	-	Nearest Groundwater Elevation:	NA - above sewer line
Noticeable Odor?	none	Additional info:	
Purge Volume PID Reading (ppb)	1150 ppb		
Duplicate Sample?	none		
Outdoor Ambient Temperature:	~65°F		
Wind Direction:	E		

Comments:

Ambient O.A - 1300 ppb

1150 ppb - purge

Sampler Signature:

FIELD SOIL VAPOR SAMPLING FORM

EA Engineering and Its Affiliate EA Science & Technology 6712 Brooklawn Parkway, Suite 104 Syracuse, NY 13211		Project #:	14368.19 0003
		Project Name:	NYSDEC - Axiohm OU2
		Location:	Ithaca, NY
		Project Manager:	Karen Cahill/Bob Casey

Sample Location Information:

Site ID Number:	7-55-012			Sampler(s):	David Crandall/Sarah Nelson
PID Meter Used (Model, Serial #) :□	ppbRAE			Soil Vapor I.D. No.:	SV18

SUMMA Canister Record:

SOIL VAPOR POINT		DUPLICATE SAMPLE (IF COLLECTED)	
Flow Regulator No.:	FC00703	Flow Regulator No.:	
Canister Serial No.:	5507	Canister Serial No.:	
Start Date/Time:	9/17/2009 1207	Start Date/Time:	
Start Pressure: (inches Hg)	-30	Start Pressure: (inches Hg)	
Stop Date/Time:	9/17/2009 1356	Stop Date/Time:	
Stop Pressure: (inches Hg)	-3.5	Stop Pressure: (inches Hg)	
Sample ID: 7-55-012-SV- 18		Sample ID:	

Other Sampling Information:

Helium percentage achieved in enclosure for Tracer Gas Test:	-	Depth to sample point:	3.5'
Tracer Gas test result (% of Helium):	-	Nearest Groundwater Elevation:	NA - above sewer line
Noticeable Odor?	none	Additional info:	
Purge Volume PID Reading (ppb)	242 ppb		
Duplicate Sample?	no		
Outdoor Ambient Temperature:	~65°		
Wind Direction:	E		

Comments:

ambient O.A - 2 ppb

purge 242 ppb

Sampler Signature:

Attachment D

Data Usability Summary Report

ENVIRONMENTAL
Data Services, Inc.

DATA USABILITY SUMMARY REPORT
AXIOHM OU2, ITHACA, NEW YORK

Client: EA Engineering, Science and Technology, Syracuse, New York
SDG: 0909535
Laboratory: Air Toxics Ltd., Folsom, California
Site: Axiohm OU2, Ithaca, New York
Date: October 25, 2009

EDS ID	Client Sample ID	Laboratory Sample ID	Matrix
1	7-55-012-SV-18	0909535-01A	Air
2	7-55-012-SV-19	0909535-02A	Air
3	7-55-012-SV-20	0909535-03A	Air
4	7-55-012-SV-DUP 0909	0909535-04A	Air

A Data Usability Summary Review was performed on the analytical data for four air samples collected by EA Engineering at the Axiohm OU2 site in Ithaca, New York. The samples were analyzed under "*Compendium of Methods for the Determination of Toxic Organic Compounds in Ambient Air, Second Edition January 1999, EPA/625/R-96/010B*", Compendium Method TO-15, "*Determination Of Volatile Organic Compounds (VOCs) In Air Collected In Specially-Prepared Canisters And Analyzed By Gas Chromatography/Mass Spectrometry (GC/MS)*".

The data have been evaluated according to the protocols and quality control (QC) requirements of the USEPA Region II Data Review Standard Operating Procedure (SOP) Number HW-31, Revision 4, October 2006: Validating Air Samples - Volatile Organic Analysis of Ambient Air in Canister and the reviewer's professional judgment.

Organics

The following items/criteria were reviewed for this report:

- Data Completeness
- Cover letter, Narrative, and Data Reporting Forms
- Canister Certification Blanks
- Canister Certification Pressures Differences
- Chains-of-Custody and Traffic Reports
- Holding Times
- Laboratory Control Samples
- Surrogate Spike Recoveries
- GC/MS Tuning
- Method Blank
- Initial Calibration
- Continuing Calibration

- Compound Quantitation
- Internal Standard (IS) Area Performance
- Field Duplicate Sample Precision

The items listed above were technically in compliance with the method and SOP criteria with the exceptions discussed in the text below. The data have been reviewed according to the procedures outlined above and qualified accordingly.

Overall Evaluation of Data and Potential Usability Issues

There were no rejections of data.

Overall the remaining data is acceptable for the intended purposes. Data were qualified for the following deficiencies.

- One compound was qualified as estimated in one sample due to a high LCS recovery.

Data Completeness

- All criteria were met.

Cover letter, Narrative, and Data Reporting Forms

- All criteria were met

Canister Certification Blanks

- The batch blank checks were non-detect or < RL.

Canister Certification Pressures Differences

- All criteria were met.

Chains-of-Custody and Traffic Reports

- All criteria were met

Holding Times

- All samples were analyzed within 30 days for air samples.

Laboratory Control Samples

- The following table presents LCS percent recoveries (%R) outside the QC limits. A low %R may indicate a potential low bias while a high %R may indicate a potential high bias. For a low %R, positive results are considered estimated and qualified (J) while non-detects are estimated and qualified (UJ). For a high %R, positive results are considered estimated and qualified (J). Results are valid and usable, however possibly biased.

LCS ID	Compound	%R	Qualifier	Affected Samples
LCS 10/04/09	Carbon tetrachloride	137%	None	All ND
	Freon 113	131%	J	3
	trans-1,3-Dichloropropene	131%	None	All ND
LCS 10/05/09	Carbon tetrachloride	139%	None	All ND
	Freon 113	146%		
	1,1-Dichloroethene	147%		
	cis-1,3-Dichloropropene	133%		
	4-Methyl-2-pentanone	142%		

Surrogate Spike Recoveries

- All samples exhibited acceptable surrogate %R values.

GC/MS Tuning

- All criteria were met.

Method Blank

- The method blanks were free of contamination.

Field and Trip Blanks

- There were no field QC samples associated with the samples in this report.

Initial Calibration

- All %RSD and average RRF values were acceptable.

Continuing Calibration

- The continuing calibrations exhibited acceptable %D and RRF values.

Compound Quantitation

- All criteria were met.

Internal Standard (IS) Area Performance

- All criteria were met.

Field Duplicate Sample Precision

- Field duplicate results are summarized below.

Compound	7-55-012-SV-19 ug/m^3	7-55-012-SV-DUP 0909 ug/m^3	RPD	Qualifier
Trichloroethene	450	480	6%	None
Tetrachloroethene	5000	4800	4%	None
cis-1,2-Dichloroethene	34	36	6%	None
m,p-Xylene	13 U	17	NC	None
Chloroform	170	180	6%	None

Please contact the undersigned at (757) 564-0090 if you have any questions or need further information.

Very truly yours,
Environmental Data Services, Inc.

Nancy Weaver 10/27/09

Nancy Weaver Date
Senior Chemist

Data Qualifiers

J = The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.

UJ = The analyte was not detected above the sample reporting limit; and the reporting limit is approximate.

U = The analyte was analyzed for, but was not detected above the sample reporting limit.

R = The sample results is rejected due to serious deficiencies. The presence or absence of the analyte cannot be verified.

Air Toxics LTD.
Laboratory Services Since 1989

Client Sample ID: 7-55-012-SV-18

Lab ID#: 0909535-01A

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**s100411**	**Date of Collection: 9/17/09 1:56:00 PM**	
Dil. Factor:	**29.8**	**Date of Analysis: 10/4/09 05:01 PM**	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1,1-Trichloroethane	1.5	Not Detected	8.1	Not Detected
Carbon Tetrachloride	1.5	Not Detected	9.4	Not Detected
Trichloroethene	1.5	Not Detected	8.0	Not Detected
Bromodichloromethane	1.5	5.0	10	34
1,1,2-Trichloroethane	1.5	Not Detected	8.1	Not Detected
Tetrachloroethene	1.5	21	10	140
Dibromochloromethane	1.5	Not Detected	13	Not Detected
1,2-Dibromoethane (EDB)	1.5	Not Detected	11	Not Detected
1,1,2,2-Tetrachloroethane	1.5	Not Detected	10	Not Detected
1,3-Dichlorobenzene	1.5	Not Detected	9.0	Not Detected
1,4-Dichlorobenzene	1.5	Not Detected	9.0	Not Detected
1,2-Dichlorobenzene	1.5	Not Detected	9.0	Not Detected
Freon 12	1.5	Not Detected	7.4	Not Detected
Freon 114	1.5	Not Detected	10	Not Detected
Freon 11	1.5	Not Detected	8.4	Not Detected
Freon 113	1.5	Not Detected	11	Not Detected
Bromoform	1.5	Not Detected	15	Not Detected
Vinyl Chloride	3.0	Not Detected	7.6	Not Detected
1,1-Dichloroethene	3.0	Not Detected	12	Not Detected
1,1-Dichloroethane	3.0	Not Detected	12	Not Detected
cis-1,2-Dichloroethene	3.0	Not Detected	12	Not Detected
Benzene	3.0	Not Detected	9.5	Not Detected
1,2-Dichloroethane	3.0	Not Detected	12	Not Detected
Toluene	3.0	Not Detected	11	Not Detected
Ethyl Benzene	3.0	Not Detected	13	Not Detected
m,p-Xylene	3.0	Not Detected	13	Not Detected
o-Xylene	3.0	Not Detected	13	Not Detected
trans-1,2-Dichloroethene	3.0	Not Detected	12	Not Detected
Methyl tert-butyl ether	3.0	Not Detected	11	Not Detected
Chloromethane	3.0	Not Detected	6.2	Not Detected
Bromomethane	3.0	Not Detected	12	Not Detected
Chloroethane	3.0	Not Detected	7.9	Not Detected
Hexane	3.0	Not Detected	10	Not Detected
2-Butanone (Methyl Ethyl Ketone)	3.0	Not Detected	8.8	Not Detected
Chloroform	3.0	820	14	4000
Cyclohexane	3.0	Not Detected	10	Not Detected
1,2-Dichloropropane	3.0	Not Detected	14	Not Detected
1,4-Dioxane	3.0	Not Detected	11	Not Detected
cis-1,3-Dichloropropene	3.0	Not Detected	14	Not Detected

MW 10/25/09

Air Toxics LTD.
Laboratory Services Since 1989

Client Sample ID: 7-55-012-SV-18

Lab ID#: 0909535-01A

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**s100411**	**Date of Collection: 9/17/09 1:56:00 PM**	
Dil. Factor:	**29.8**	**Date of Analysis: 10/4/09 05:01 PM**	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
4-Methyl-2-pentanone	3.0	Not Detected	12	Not Detected
trans-1,3-Dichloropropene	3.0	Not Detected	14	Not Detected
Chlorobenzene	3.0	Not Detected	14	Not Detected
Styrene	3.0	Not Detected	13	Not Detected
1,3,5-Trimethylbenzene	3.0	Not Detected	15	Not Detected
1,2,4-Trimethylbenzene	3.0	Not Detected	15	Not Detected
alpha-Chlorotoluene	3.0	Not Detected	15	Not Detected
2,2,4-Trimethylpentane	3.0	Not Detected	14	Not Detected
tert-Butyl alcohol	15	Not Detected	45	Not Detected
Methylene Chloride	15	Not Detected	52	Not Detected
Hexachlorobutadiene	15	Not Detected	160	Not Detected
Ethanol	15	Not Detected	28	Not Detected
1,2,4-Trichlorobenzene	15	Not Detected	110	Not Detected

Container Type: 6 Liter Summa Canister (100% Certified)

Surrogates	%Recovery	Method Limits
4-Bromofluorobenzene	93	70-130
1,2-Dichloroethane-d4	108	70-130
Toluene-d8	100	70-130

MW 10/25/09

Air Toxics LTD.
Laboratory Services Since 1989

Client Sample ID: 7-55-012-SV-19

Lab ID#: 0909535-02A

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**s100416**	**Date of Collection:**	**9/17/09 11:46:00 AM**
Dil. Factor:	**31.0**	**Date of Analysis:**	**10/5/09 06:59 AM**

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1,1-Trichloroethane	1.6	Not Detected	8.4	Not Detected
Carbon Tetrachloride	1.6	Not Detected	9.8	Not Detected
Trichloroethene	1.6	84	8.3	450
Bromodichloromethane	1.6	Not Detected	10	Not Detected
1,1,2-Trichloroethane	1.6	Not Detected	8.4	Not Detected
Tetrachloroethene	1.6	730	10	5000
Dibromochloromethane	1.6	Not Detected	13	Not Detected
1,2-Dibromoethane (EDB)	1.6	Not Detected	12	Not Detected
1,1,2,2-Tetrachloroethane	1.6	Not Detected	11	Not Detected
1,3-Dichlorobenzene	1.6	Not Detected	9.3	Not Detected
1,4-Dichlorobenzene	1.6	Not Detected	9.3	Not Detected
1,2-Dichlorobenzene	1.6	Not Detected	9.3	Not Detected
Freon 12	1.6	Not Detected	7.7	Not Detected
Freon 114	1.6	Not Detected	11	Not Detected
Freon 11	1.6	Not Detected	8.7	Not Detected
Freon 113	1.6	Not Detected	12	Not Detected
Bromoform	1.6	Not Detected	16	Not Detected
Vinyl Chloride	3.1	Not Detected	7.9	Not Detected
1,1-Dichloroethene	3.1	Not Detected	12	Not Detected
1,1-Dichloroethane	3.1	Not Detected	12	Not Detected
cis-1,2-Dichloroethene	3.1	8.5	12	34
Benzene	3.1	Not Detected	9.9	Not Detected
1,2-Dichloroethane	3.1	Not Detected	12	Not Detected
Toluene	3.1	Not Detected	12	Not Detected
Ethyl Benzene	3.1	Not Detected	13	Not Detected
m,p-Xylene	3.1	Not Detected	13	Not Detected
o-Xylene	3.1	Not Detected	13	Not Detected
trans-1,2-Dichloroethene	3.1	Not Detected	12	Not Detected
Methyl tert-butyl ether	3.1	Not Detected	11	Not Detected
Chloromethane	3.1	Not Detected	6.4	Not Detected
Bromomethane	3.1	Not Detected	12	Not Detected
Chloroethane	3.1	Not Detected	8.2	Not Detected
Hexane	3.1	Not Detected	11	Not Detected
2-Butanone (Methyl Ethyl Ketone)	3.1	Not Detected	9.1	Not Detected
Chloroform	3.1	34	15	170
Cyclohexane	3.1	Not Detected	11	Not Detected
1,2-Dichloropropane	3.1	Not Detected	14	Not Detected
1,4-Dioxane	3.1	Not Detected	11	Not Detected
cis-1,3-Dichloropropene	3.1	Not Detected	14	Not Detected

 NCW 10/25/09

Air Toxics LTD.
Laboratory Services Since 1989

Client Sample ID: 7-55-012-SV-19

Lab ID#: 0909535-02A

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**s100416**	**Date of Collection: 9/17/09 11:46:00 AM**	
Dil. Factor:	**31.0**	**Date of Analysis: 10/5/09 06:59 AM**	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
4-Methyl-2-pentanone	3.1	Not Detected	13	Not Detected
trans-1,3-Dichloropropene	3.1	Not Detected	14	Not Detected
Chlorobenzene	3.1	Not Detected	14	Not Detected
Styrene	3.1	Not Detected	13	Not Detected
1,3,5-Trimethylbenzene	3.1	Not Detected	15	Not Detected
1,2,4-Trimethylbenzene	3.1	Not Detected	15	Not Detected
alpha-Chlorotoluene	3.1	Not Detected	16	Not Detected
2,2,4-Trimethylpentane	3.1	Not Detected	14	Not Detected
tert-Butyl alcohol	16	Not Detected	47	Not Detected
Methylene Chloride	16	Not Detected	54	Not Detected
Hexachlorobutadiene	16	Not Detected	160	Not Detected
Ethanol	16	Not Detected	29	Not Detected
1,2,4-Trichlorobenzene	16	Not Detected	120	Not Detected

Container Type: 6 Liter Summa Canister (100% Certified)

Surrogates	%Recovery	Method Limits
4-Bromofluorobenzene	94	70-130
1,2-Dichloroethane-d4	109	70-130
Toluene-d8	101	70-130

 NW 10/25/09

Air Toxics LTD.
Laboratory Services Since 1989

Client Sample ID: 7-55-012-SV-20

Lab ID#: 0909535-03A

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**s100415**	**Date of Collection:**	**9/17/09 11:50:00 AM**
Dil. Factor:	**1.52**	**Date of Analysis:**	**10/4/09 08:05 PM**

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1,1-Trichloroethane	0.076	Not Detected	0.41	Not Detected
Carbon Tetrachloride	0.076	Not Detected	0.48	Not Detected
Trichloroethene	0.076	5.6	0.41	30
Bromodichloromethane	0.076	0.40	0.51	2.7
1,1,2-Trichloroethane	0.076	Not Detected	0.41	Not Detected
Tetrachloroethene	0.076	8.2	0.52	56
Dibromochloromethane	0.076	Not Detected	0.65	Not Detected
1,2-Dibromoethane (EDB)	0.076	Not Detected	0.58	Not Detected
1,1,2,2-Tetrachloroethane	0.076	Not Detected	0.52	Not Detected
1,3-Dichlorobenzene	0.076	Not Detected	0.46	Not Detected
1,4-Dichlorobenzene	0.076	Not Detected	0.46	Not Detected
1,2-Dichlorobenzene	0.076	Not Detected	0.46	Not Detected
Freon 12	0.076	0.32	0.38	1.6
Freon 114	0.076	Not Detected	0.53	Not Detected
Freon 11	0.076	0.30	0.43	1.7
Freon 113	0.076	0.086 J	0.58	0.66 J
Bromoform	0.076	Not Detected	0.78	Not Detected
Vinyl Chloride	0.15	Not Detected	0.39	Not Detected
1,1-Dichloroethene	0.15	Not Detected	0.60	Not Detected
1,1-Dichloroethane	0.15	Not Detected	0.62	Not Detected
cis-1,2-Dichloroethene	0.15	0.42	0.60	1.7
Benzene	0.15	0.25	0.48	0.81
1,2-Dichloroethane	0.15	Not Detected	0.62	Not Detected
Toluene	0.15	1.3	0.57	4.8
Ethyl Benzene	0.15	Not Detected	0.66	Not Detected
m,p-Xylene	0.15	0.64	0.66	2.8
o-Xylene	0.15	0.21	0.66	0.90
trans-1,2-Dichloroethene	0.15	Not Detected	0.60	Not Detected
Methyl tert-butyl ether	0.15	Not Detected	0.55	Not Detected
Chloromethane	0.15	0.23	0.31	0.47
Bromomethane	0.15	Not Detected	0.59	Not Detected
Chloroethane	0.15	Not Detected	0.40	Not Detected
Hexane	0.15	0.72	0.54	2.5
2-Butanone (Methyl Ethyl Ketone)	0.15	1.4	0.45	4.3
Chloroform	0.15	4.2	0.74	21
Cyclohexane	0.15	0.16	0.52	0.56
1,2-Dichloropropane	0.15	Not Detected	0.70	Not Detected
1,4-Dioxane	0.15	Not Detected	0.55	Not Detected
cis-1,3-Dichloropropene	0.15	Not Detected	0.69	Not Detected

 MW 10/25/09

Air Toxics LTD.
Laboratory Services Since 1989

Client Sample ID: 7-55-012-SV-20

Lab ID#: 0909535-03A

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**s100415**	**Date of Collection: 9/17/09 11:50:00 AM**	
Dil. Factor:	**1.52**	**Date of Analysis: 10/4/09 08:05 PM**	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
4-Methyl-2-pentanone	0.15	Not Detected	0.62	Not Detected
trans-1,3-Dichloropropene	0.15	Not Detected	0.69	Not Detected
Chlorobenzene	0.15	Not Detected	0.70	Not Detected
Styrene	0.15	Not Detected	0.65	Not Detected
1,3,5-Trimethylbenzene	0.15	Not Detected	0.75	Not Detected
1,2,4-Trimethylbenzene	0.15	0.18	0.75	0.91
alpha-Chlorotoluene	0.15	Not Detected	0.79	Not Detected
2,2,4-Trimethylpentane	0.15	Not Detected	0.71	Not Detected
tert-Butyl alcohol	0.76	Not Detected	2.3	Not Detected
Methylene Chloride	0.76	Not Detected	2.6	Not Detected
Hexachlorobutadiene	0.76	Not Detected	8.1	Not Detected
Ethanol	0.76	1.2	1.4	2.2
1,2,4-Trichlorobenzene	0.76	Not Detected	5.6	Not Detected

Container Type: 6 Liter Summa Canister (100% Certified)

Surrogates	%Recovery	Method Limits
4-Bromofluorobenzene	102	70-130
1,2-Dichloroethane-d4	105	70-130
Toluene-d8	101	70-130

 MW 10/25/09

Air Toxics LTD.
Laboratory Services Since 1989

Client Sample ID: 7-55-012-SV-DUP 0909

Lab ID#: 0909535-04A

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**s100518**	**Date of Collection: 9/17/09**	
Dil. Factor:	**31.0**	**Date of Analysis: 10/5/09 10:39 PM**	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1,1-Trichloroethane	1.6	Not Detected	8.4	Not Detected
Carbon Tetrachloride	1.6	Not Detected	9.8	Not Detected
Trichloroethene	1.6	89	8.3	480
Bromodichloromethane	1.6	Not Detected	10	Not Detected
1,1,2-Trichloroethane	1.6	Not Detected	8.4	Not Detected
Tetrachloroethene	1.6	710	10	4800
Dibromochloromethane	1.6	Not Detected	13	Not Detected
1,2-Dibromoethane (EDB)	1.6	Not Detected	12	Not Detected
1,1,2,2-Tetrachloroethane	1.6	Not Detected	11	Not Detected
1,3-Dichlorobenzene	1.6	Not Detected	9.3	Not Detected
1,4-Dichlorobenzene	1.6	Not Detected	9.3	Not Detected
1,2-Dichlorobenzene	1.6	Not Detected	9.3	Not Detected
Freon 12	1.6	Not Detected	7.7	Not Detected
Freon 114	1.6	Not Detected	11	Not Detected
Freon 11	1.6	Not Detected	8.7	Not Detected
Freon 113	1.6	Not Detected	12	Not Detected
Bromoform	1.6	Not Detected	16	Not Detected
Vinyl Chloride	3.1	Not Detected	7.9	Not Detected
1,1-Dichloroethene	3.1	Not Detected	12	Not Detected
1,1-Dichloroethane	3.1	Not Detected	12	Not Detected
cis-1,2-Dichloroethene	3.1	9.0	12	36
Benzene	3.1	Not Detected	9.9	Not Detected
1,2-Dichloroethane	3.1	Not Detected	12	Not Detected
Toluene	3.1	Not Detected	12	Not Detected
Ethyl Benzene	3.1	Not Detected	13	Not Detected
m,p-Xylene	3.1	4.0	13	17
o-Xylene	3.1	Not Detected	13	Not Detected
trans-1,2-Dichloroethene	3.1	Not Detected	12	Not Detected
Methyl tert-butyl ether	3.1	Not Detected	11	Not Detected
Chloromethane	3.1	Not Detected	6.4	Not Detected
Bromomethane	3.1	Not Detected	12	Not Detected
Chloroethane	3.1	Not Detected	8.2	Not Detected
Hexane	3.1	Not Detected	11	Not Detected
2-Butanone (Methyl Ethyl Ketone)	3.1	Not Detected	9.1	Not Detected
Chloroform	3.1	37	15	180
Cyclohexane	3.1	Not Detected	11	Not Detected
1,2-Dichloropropane	3.1	Not Detected	14	Not Detected
1,4-Dioxane	3.1	Not Detected	11	Not Detected
cis-1,3-Dichloropropene	3.1	Not Detected	14	Not Detected

 MW 10/25/09

Air Toxics LTD.
Laboratory Services Since 1989

Client Sample ID: 7-55-012-SV-DUP 0909

Lab ID#: 0909535-04A

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**s100518**	**Date of Collection: 9/17/09**	
Dil. Factor:	**31.0**	**Date of Analysis: 10/5/09 10:39 PM**	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
4-Methyl-2-pentanone	3.1	Not Detected	13	Not Detected
trans-1,3-Dichloropropene	3.1	Not Detected	14	Not Detected
Chlorobenzene	3.1	Not Detected	14	Not Detected
Styrene	3.1	Not Detected	13	Not Detected
1,3,5-Trimethylbenzene	3.1	Not Detected	15	Not Detected
1,2,4-Trimethylbenzene	3.1	Not Detected	15	Not Detected
alpha-Chlorotoluene	3.1	Not Detected	16	Not Detected
2,2,4-Trimethylpentane	3.1	Not Detected	14	Not Detected
tert-Butyl alcohol	16	Not Detected	47	Not Detected
Methylene Chloride	16	Not Detected	54	Not Detected
Hexachlorobutadiene	16	Not Detected	160	Not Detected
Ethanol	16	Not Detected	29	Not Detected
1,2,4-Trichlorobenzene	16	Not Detected	120	Not Detected

Container Type: 6 Liter Summa Canister (100% Certified)

Surrogates	%Recovery	Method Limits
4-Bromofluorobenzene	100	70-130
1,2-Dichloroethane-d4	103	70-130
Toluene-d8	100	70-130

NW 10/25/09

Compound Quantitation

- All criteria were met.

Internal Standard (IS) Area Performance

- All criteria were met.

Field Duplicate Sample Precision

- Field duplicate results are summarized below.

Compound	7-55-012-SV-19 ug/m^3	7-55-012-SV-DUP 0909 ug/m^3	RPD	Qualifier
Trichloroethene	450	480	6%	None
Tetrachloroethene	5000	4800	4%	None
cis-1,2-Dichloroethene	34	36	6%	None
m,p-Xylene	13 U	17	NC	None
Chloroform	170	180	6%	None

Please contact the undersigned at (757) 564-0090 if you have any questions or need further information.

Very truly yours,
Environmental Data Services, Inc.

10/27/09

Nancy Weaver Date
Senior Chemist