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**CORRECTIVE MEASURES IMPLEMENTATION REPORT
SOIL VAPOR INTRUSION REPORT
FOURTH QUARTER 2007**

REVISION NO.: 0

**UNITED TECHNOLOGIES CORPORATION
CARRIER CORPORATION
THOMPSON ROAD FACILITY
SYRACUSE, NEW YORK**

EnSafe Project No.: 0888803666

Prepared for:

**United Technologies Corporation
Remediation Shared Services
United Technologies Building
Hartford, Connecticut 06010**

Prepared by:



**EnSafe Inc.
220 Athens Way, Suite 410
Nashville, Tennessee 37228
(615) 255-9300
(800) 588-7962
www.ensafe.com**

February 2008

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February 2008

Prepared by:

A handwritten signature in blue ink that reads "May M. Heflin".

May M. Heflin, PE

February 14, 2008

Reviewed by:

A handwritten signature in blue ink that reads "David Wyatt".

David Wyatt

February 14, 2008

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1.0 INTRODUCTION

EnSafe Inc. has been retained by United Technologies Corporation Remediation Shared Services to perform quarterly soil vapor intrusion monitoring at the Carrier Corporation (Carrier) Thompson Road facility in Syracuse, New York, for four consecutive quarters. The quarterly monitoring is in response to New York State Department of Environment and Conservation (NYSDEC) Consent Order (CO) CO 7-20051118-4 dated February 13, 2006, in which Carrier was directed to evaluate soil vapor intrusion and migration. A Soil Vapor Intrusion Work Plan was submitted for review to the NYSDEC as part of the CO on April 13, 2006. NYSDEC issued comments to the work plan in a letter dated August 4, 2006, and a site meeting was held on August 18, 2006, to discuss these comments. A revised work plan was submitted on September 22, 2006, and approved by NYSDEC on October 13, 2006. Based on the December 2006 sampling results, the February 2007 indoor air monitoring program at the Carrier facility was expanded as outlined in the *Air Sampling Plan for First Quarter 2007, Modifications to the November 2006 SVI Work Plan*, February 2007, and approved by NYSDEC on February 9, 2007.

The site is at the intersection of Carrier Parkway (New York State Route 98) and Thompson Road in Syracuse, New York, south of the New York State Thruway Interchange 35 and immediately southeast of Carrier Circle.

Details of the sampling activities and approach are outlined in the NYSDEC-approved *Corrective Measures Implementation Work Plan — Soil Vapor Intrusion Work Plan*, September 2006 and *Air Sampling Plan for 1st Quarter 2007, Modifications to the November 2006 SVI Work Plan*, February 2007.

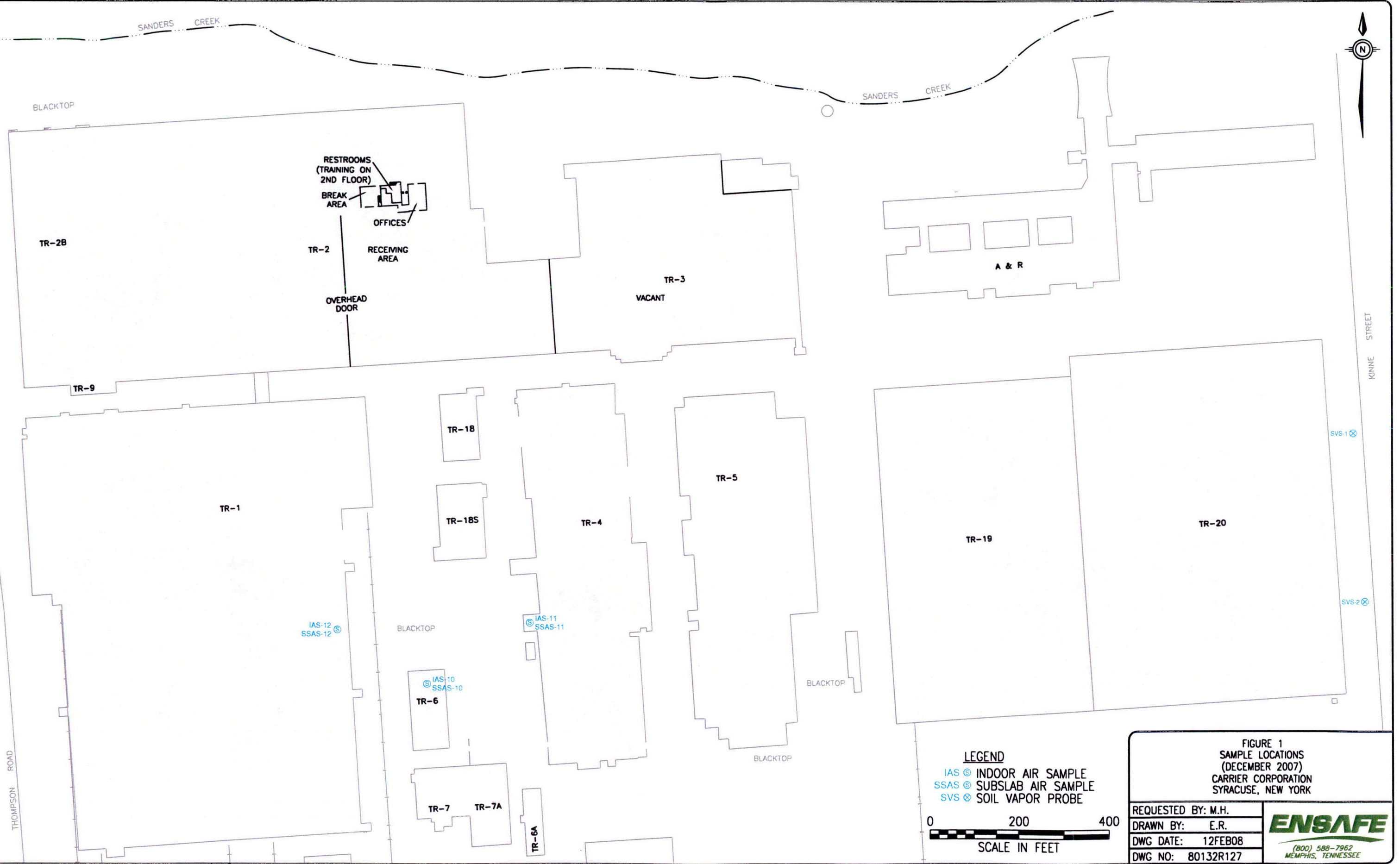
2.0 AIR MONITORING/SAMPLING ACTIVITIES

Air and/or vapor samples were collected from various locations at the site as follows (see Figure 1):

- Three indoor air samples from office and/or warehouse areas (IAS-10 through IAS-12)
- Two sub-slab vapor samples from collocated office and/or warehouse areas (SSAS-10 through SSAS-12)
- One soil vapor probe along Kinne Street (SVS1)



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LEGEND

IAS ⊙ INDOOR AIR SAMPLE
 SSAS ⊙ SUBSLAB AIR SAMPLE
 SVS ⊗ SOIL VAPOR PROBE

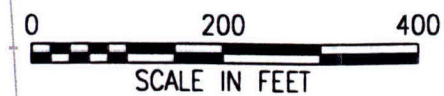


FIGURE 1
 SAMPLE LOCATIONS
 (DECEMBER 2007)
 CARRIER CORPORATION
 SYRACUSE, NEW YORK

REQUESTED BY: M.H.
 DRAWN BY: E.R.
 DWG DATE: 12FEB08
 DWG NO: 80132R127

ENSAFÉ
 (800) 588-7962
 MEMPHIS, TENNESSEE

- Summa canisters at sample locations SSAS-12 (TR-1 south) and SVS-2 (Kinne Street) were unable to function properly due to excessive moisture in the tubing pulling the vapor from the sub-slab and soil, respectively. Two attempts were made to obtain a vapor sample at each of these locations (i.e., the canisters were replaced after the first attempt failed). Excessive moisture is attributed to recent and/or ongoing rainfall events.

The air samples collected were analyzed for specific volatile organic compounds (VOCs) as outlined in the approved work plan using U.S. Environmental Protection Agency (USEPA) TO-15. Copies of the laboratory data are provided in Appendix A. Due to its size, the Level B Quality Assurance/Quality Control (QA/QC) required by NYSDEC for the air data is provided only in electronic format on the CD that accompanies this report. Joe George of EnSafe collected the various samples for laboratory analysis on December 11, 2007. All samples were analyzed by a NYSDEC-approved analytical laboratory, Air Toxics Ltd. in Folsom, California.

Historical groundwater sampling at SWMUs 1 through 4 discovered VOCs. These same VOCs also appeared in the December 2007 air samples. Figure 2 shows the sample locations and corresponding concentrations. TCE was below the NYSDEC guidance value (5 micrograms per cubic meter) at all indoor air sample locations.

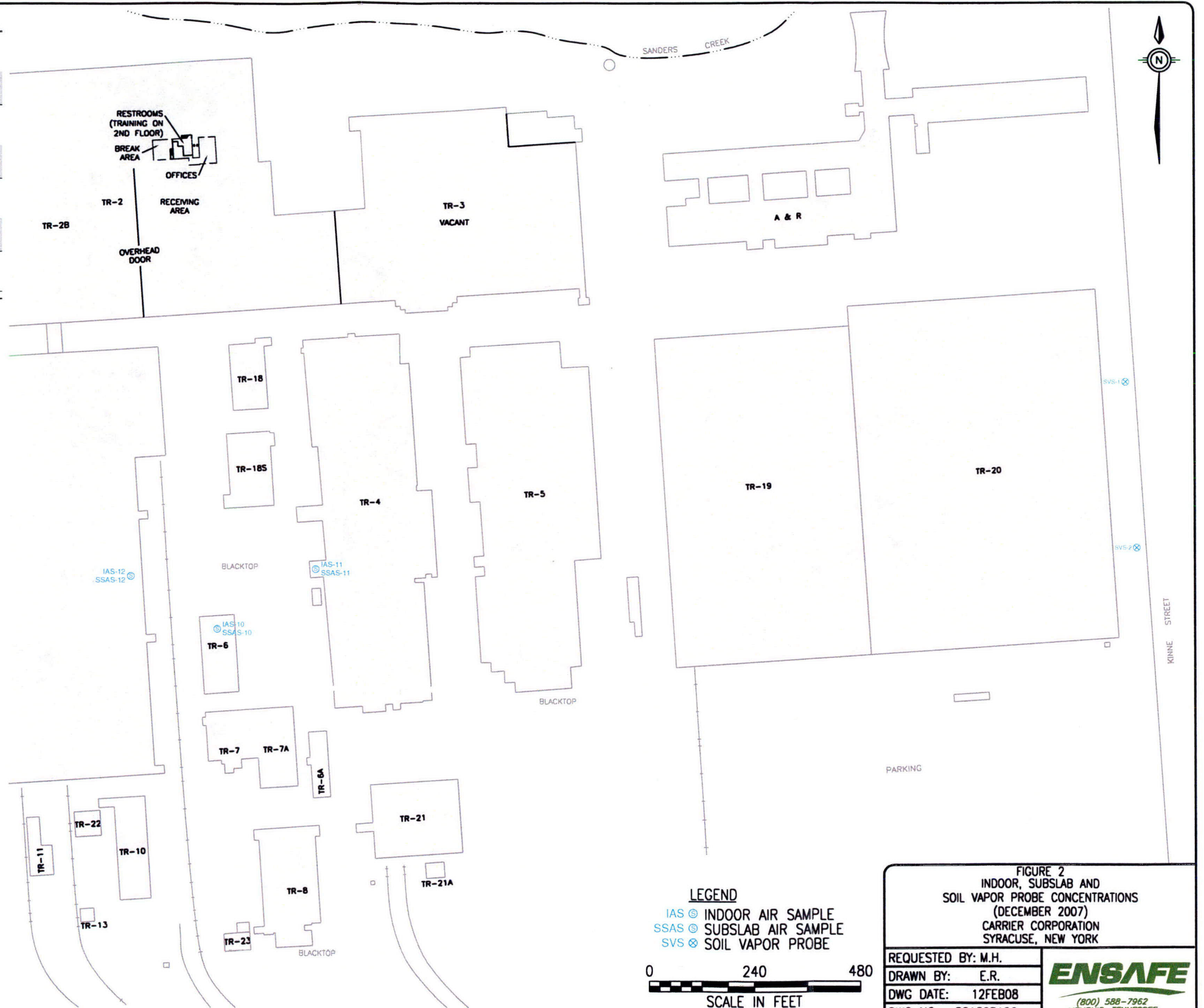
All sample locations detected TCE in the indoor air sample (below the NYSDEC guidance value) and all locations detected TCE in sub-slab vapor samples with the exception of SSAS-12. The Summa canister at sample locations SSAS-12 (TR-1 south) was unable to function properly due to excessive moisture in the tubing pulling the vapor from the sub-slab. Two attempts were made to obtain a vapor sample at this location (i.e., the canister was replaced after the first attempt failed). Excessive moisture is attributed to recent and/or ongoing rainfall events.

Based on the proximity of all of sample locations to SWMUs 1 through 4 and the comparability of VOCs detected in the air samples and in groundwater samples, it is likely that groundwater contamination resulting from the leaking tanks formerly at SWMUs 1 through 4 is the source of vapor contamination in the buildings tested.

Of the two soil vapor probe samples, only SVS-1 on the north end of the Kinne Street swale was able to collect a sample. Again, the Summa canister at sample location SVS-2 (Kinne Street) was unable to function properly due to excessive moisture in the tubing pulling the vapor from the soil. Two attempts were made to obtain a vapor sample at this location (i.e., the canister was replaced after the first attempt failed). Excessive moisture is attributed to recent and/or ongoing rainfall events. TCE was not detected in the soil vapor at SVS-1.

ID/Location	Date	TCE	1,1-DCE	1,2-DCE	1,2-DCE	1,1-DCA	Vinyl Chloride	Benzene	Toluene	Ethyl Benzene	m,p-Xylene	o-Xylene
IAS-10 (TR-6)	2/15/2007	1.4	ND	ND	ND	ND	ND	17	119	15	63	17
	5/9/2007	0.31	ND	ND	ND	ND	ND	1.6	7.8	1.7	9.2	2.1
	8/23/2007	3	ND	ND	ND	ND	ND	0.96	11	6.8	24	5.3
	12/11/2007	3.8	ND	ND	ND	ND	ND	2.6	20	59	230	45
SSAS-10 (TR-6)	2/15/2007	310	ND	10	1.6	1.3	ND	2.3	12	2.2	8.7	2.8
	5/9/2007	240	ND	9.7	0.76	1.1	ND	ND	0.84	ND	2.1	0.88
	8/23/2007	370	ND	5.0	ND	ND	ND	ND	ND	ND	ND	ND
	12/11/2007	220	1.5	3.6	0.72	0.68	ND	0.68	5.2	12	47	6.6
IAS-11 (TR-4 south)	2/15/2007	2.1	ND	ND	ND	ND	ND	0.78	1.4	ND	0.75	ND
	5/9/2007	1.2	ND	ND	ND	ND	ND	0.97	3.7	1.2	3.6	1.1
	8/23/2007	0.82	ND	ND	ND	ND	ND	0.52	1.6	ND	ND	ND
	12/11/2007	2.7	ND	ND	ND	ND	ND	0.6	1.6	ND	ND	ND
SSAS-11 (TR-4 south)	2/15/2007	270	ND	1.2	ND	ND	ND	1.3	6.2	0.67	1.2	ND
	5/9/2007	290	ND	1.4	ND	ND	ND	ND	ND	ND	ND	ND
	8/23/2007	380	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	12/11/2007	640	ND	2.8	ND	ND	ND	ND	ND	ND	ND	ND
IAS-12 (TR-1 south)	2/15/2007	0.82	ND	ND	ND	ND	ND	2.3	19	1.8	5.6	1.5
	5/9/2007	1.2	ND	ND	ND	ND	ND	3.2	11	1.8	7.3	2.1
	8/23/2007	0.53	ND	ND	ND	ND	ND	1.9	7.9	1.4	3.9	1.1
	12/11/2007	1.1	ND	ND	ND	ND	ND	2.8	12	2.8	12	3.9
SSAS-12 (TR-1 south)	2/15/2007	18	ND	ND	ND	ND	ND	5.6	14	0.96	3.5	0.88
	5/9/2007	51	ND	ND	ND	1.7	ND	0.54J	0.82	ND	0.96	ND
	8/23/2007	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	12/11/2007	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
SVS-1 (North end of Kinne St. Sewer)	8/23/2007	ND	ND	ND	ND	ND	ND	82	850	180	370	120
	12/11/2007	ND	ND	ND	ND	ND	ND	1.1	2.3	ND	0.85	ND
SVS-2 (South end of Kinne St. Sewer)	8/23/2007	0.28	ND	ND	ND	ND	ND	4.8	190	74	200	58
	12/11/2007	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS

Notes:
(1000) = 1000 mg/L
ND - Not Detected
NE - Not Established
NA - Not Applicable, but do not use this sample for calculate CA/COC
NS - Not Sampled due to container malfunction, or when vapor is being
AS-1 (10-12) = Indoor Air Sample from TR-10
SSAS-1 (TR-10) = Subslab Vapor Sample from TR-10



LEGEND
IAS ● INDOOR AIR SAMPLE
SSAS ● SUBSLAB AIR SAMPLE
SVS ● SOIL VAPOR PROBE

0 240 480
SCALE IN FEET

FIGURE 2
INDOOR, SUBSLAB AND
SOIL VAPOR PROBE CONCENTRATIONS
(DECEMBER 2007)
CARRIER CORPORATION
SYRACUSE, NEW YORK

REQUESTED BY: M.H.
DRAWN BY: E.R.
DWG DATE: 12FEB08
DWG NO: 80132R126

ENSAFE
(800) 588-7962
MEMPHIS, TENNESSEE

In accordance with Section 2.2 of the Soil Vapor Intrusion Work Plan, Carrier notified NYSDEC of the detections (via correspondence dated February 8, 2008) and provided the air monitoring data from the August 2007 monitoring event.

3.0 DATA EVALUATION

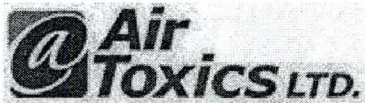
The data was reviewed by laboratory QA/QC personnel and was found to be valid with few qualifications. An EnSafe chemist reviewed the data and determined the data usable with the appropriate qualification(s). A *Data Evaluation and Usability Report* is included as Appendix B of this report.

4.0 FUTURE MONITORING ACTIVITIES

Air (indoor, sub-slab, and soil vapor) sampling as part of the *Air Sampling Plan for 1st Quarter 2007, Modifications to the November 2006 SVI Work Plan*, February 2007, has been completed.

In accordance with Attachment II, Section 4.0 of the CO and the work plan cited above, Carrier has completed the required investigation of soil vapor intrusion and migration at the facility. Information gained from this investigation indicates that mitigation and/or remedial measures may be necessary at some locations. Therefore, in accordance with Attachment II, Section 4.3 of the CO, Carrier will develop a Corrective Measures Study (CMS) that evaluates and selects appropriate mitigation and/or remedial options for the facility. The CMS will be submitted to NYSDEC within 90 days of written agreement on this path forward.

Appendix A
Air Toxics Ltd. Laboratory Report
Air Monitoring Data, December 2007



AN ENVIRONMENTAL ANALYTICAL LABORATORY

Air Toxics Ltd. Introduces the Electronic Report

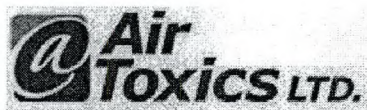
Thank you for choosing Air Toxics Ltd. To better serve our customers, we are providing your report by e-mail. This document is provided in Portable Document Format which can be viewed with Acrobat Reader by Adobe.

This electronic report includes the following:

- Work order Summary;
- Laboratory Narrative;
- Results; and
- Chain of Custody (copy).

180 BLUE RAVINE ROAD, SUITE B FOLSOM, CA - 95630

(916) 985-1000 .FAX (916) 985-1020
Hours 8:00 A.M to 6:00 P.M. Pacific



AN ENVIRONMENTAL ANALYTICAL LABORATORY

WORK ORDER #: 0712260

Work Order Summary

CLIENT: Ms. May Heflin
EnSafe, Inc.
220 Athens Way, Suite 410
Nashville, TN 38134

BILL TO: Ms. Joan Liddell
EnSafe, Inc.
5724 Summer Trees Drive
Memphis, TN 38134

PHONE: (615) 255-9300

P.O. # 6672

FAX:

PROJECT # 0888803666 UTC Thompson Rd Site

DATE RECEIVED: 12/12/2007

CONTACT: Bryanna Langley

DATE COMPLETED: 12/27/2007

<u>FRACTION #</u>	<u>NAME</u>	<u>TEST</u>	<u>RECEIPT VAC./PRES.</u>	<u>FINAL PRESSURE</u>
01A	IAS-11 (TR-4)	Modified TO-15	6.5 "Hg	5 psi
01AA	IAS-11 (TR-4) Lab Duplicate	Modified TO-15	6.5 "Hg	5 psi
01B	IAS-11 (TR-4)	Modified TO-15	6.5 "Hg	5 psi
01BB	IAS-11 (TR-4) Lab Duplicate	Modified TO-15	6.5 "Hg	5 psi
02A	Lab Blank	Modified TO-15	NA	NA
02B	Lab Blank	Modified TO-15	NA	NA
03A	CCV	Modified TO-15	NA	NA
03B	CCV	Modified TO-15	NA	NA
04A	LCS	Modified TO-15	NA	NA
04B	LCS	Modified TO-15	NA	NA

CERTIFIED BY:

Laboratory Director

DATE: 12/27/07

Certification numbers: CA NELAP - 02110CA, LA NELAP/LELAP- AI 30763, NJ NELAP - CA004
NY NELAP - 11291, UT NELAP - 9166389892

Name of Accrediting Agency: NELAP/Florida Department of Health, Scope of Application: Clean Air Act,

Accreditation number: E87680, Effective date: 07/01/07, Expiration date: 06/30/08

Air Toxics Ltd. certifies that the test results contained in this report meet all requirements of the NELAC standards

This report shall not be reproduced, except in full, without the written approval of Air Toxics Ltd.

180 BLUE RAVINE ROAD, SUITE B FOLSOM, CA - 95630
(916) 985-1000 . (800) 985-5955 . FAX (916) 985-1020



AN ENVIRONMENTAL ANALYTICAL LABORATORY

LABORATORY NARRATIVE
Modified TO-15 Full Scan/SIM
EnSafe, Inc.
Workorder# 0712260



One 6 Liter Summa Special (100% Certified) sample was received on December 12, 2007. The laboratory performed analysis via modified EPA Method TO-15 using GC/MS in the Full Scan and SIM acquisition modes. The method involves concentrating up to 1.0 liters of air. The concentrated aliquot is then flash vaporized and swept through a water management system to remove water vapor. Following dehumidification, the sample passes directly into the GC/MS for analysis.

This workorder was independently validated prior to submittal using 'USEPA National Functional Guidelines' as generally applied to the analysis of volatile organic compounds in air. A rules-based, logic driven, independent validation engine was employed to assess completeness, evaluate pass/fail of relevant project quality control requirements and verification of all quantified amounts.

Method modifications taken to run these samples are summarized in the table below. Specific project requirements may over-ride the ATL modifications.

<i>Requirement</i>	<i>TO-15</i>	<i>ATL Modifications</i>
ICAL %RSD acceptance criteria	$\leq 30\%$ RSD with 2 compounds allowed out to $< 40\%$ RSD	For Full Scan: 30% RSD with 4 compounds allowed out to $< 40\%$ RSD For SIM: Project specific; default criteria is $\leq 30\%$ RSD with 10% of compounds allowed out to $< 40\%$ RSD
Daily Calibration	$\pm 30\%$ Difference	For Full Scan: $\leq 30\%$ Difference with four allowed out up to $\leq 40\%$.; flag and narrate outliers For SIM: Project specific; default criteria is $\leq 30\%$ Difference with 10% of compounds allowed out up to $\leq 40\%$.; flag and narrate outliers
Blank and standards	Zero air	Nitrogen
Method Detection Limit	Follow 40CFR Pt.136 App. B	The MDL met all relevant requirements in Method TO-15 (statistical MDL less than the LOQ). The concentration of the spiked replicate may have exceeded 10X the calculated MDL in some cases

Receiving Notes

There were no receiving discrepancies.

Analytical Notes

The results for each sample in this report were acquired from two separate data files originating from the same analytical run. The two data files have the same base file name and are differentiated with a "sim" extension on the SIM data file.



AN ENVIRONMENTAL ANALYTICAL LABORATORY

Definition of Data Qualifying Flags

Eight qualifiers may have been used on the data analysis sheets and indicates as follows:

B - Compound present in laboratory blank greater than reporting limit (background subtraction not performed).

J - Estimated value.

E - Exceeds instrument calibration range.

S - Saturated peak.

Q - Exceeds quality control limits.

U - Compound analyzed for but not detected above the reporting limit.

UJ- Non-detected compound associated with low bias in the CCV

N - The identification is based on presumptive evidence.

File extensions may have been used on the data analysis sheets and indicates as follows:

a-File was requantified

b-File was quantified by a second column and detector

r1-File was requantified for the purpose of reissue



AN ENVIRONMENTAL ANALYTICAL LABORATORY

Summary of Detected Compounds MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN

Client Sample ID: IAS-11 (TR-4)

Lab ID#: 0712260-01A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (uG/m3)	Amount (uG/m3)
Benzene	0.17	0.19	0.55	0.60
Toluene	0.17	0.44	0.64	1.6

Client Sample ID: IAS-11 (TR-4) Lab Duplicate

Lab ID#: 0712260-01AA

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (uG/m3)	Amount (uG/m3)
Benzene	0.17	0.18	0.55	0.58
Toluene	0.17	0.45	0.64	1.7

Client Sample ID: IAS-11 (TR-4)

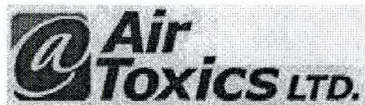
Lab ID#: 0712260-01B

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (uG/m3)	Amount (uG/m3)
Trichloroethene	0.034	0.50	0.18	2.7

Client Sample ID: IAS-11 (TR-4) Lab Duplicate

Lab ID#: 0712260-01BB

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (uG/m3)	Amount (uG/m3)
Trichloroethene	0.034	0.50	0.18	2.7



AN ENVIRONMENTAL ANALYTICAL LABORATORY

Client Sample ID: IAS-11 (TR-4)

Lab ID#: 0712260-01A

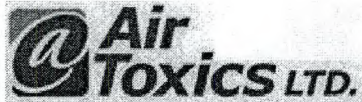
MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN

File Name:	g122022	Date of Collection: 12/12/07
Dil. Factor:	1.71	Date of Analysis: 12/21/07 04:33 AM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (uG/m3)	Amount (uG/m3)
Vinyl Chloride	0.17	Not Detected	0.44	Not Detected
1,1-Dichloroethene	0.17	Not Detected	0.68	Not Detected
trans-1,2-Dichloroethene	0.17	Not Detected	0.68	Not Detected
1,1-Dichloroethane	0.17	Not Detected	0.69	Not Detected
cis-1,2-Dichloroethene	0.17	Not Detected	0.68	Not Detected
Benzene	0.17	0.19	0.55	0.60
Toluene	0.17	0.44	0.64	1.6
Ethyl Benzene	0.17	Not Detected	0.74	Not Detected
m,p-Xylene	0.17	Not Detected	0.74	Not Detected
o-Xylene	0.17	Not Detected	0.74	Not Detected

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

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	110	70-130
Toluene-d8	98	70-130
4-Bromofluorobenzene	104	70-130



AN ENVIRONMENTAL ANALYTICAL LABORATORY

Client Sample ID: IAS-11 (TR-4) Lab Duplicate

Lab ID#: 0712260-01AA

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN

File Name:	g122023	Date of Collection:	12/12/07
Dil. Factor:	1.71	Date of Analysis:	12/21/07 05:15 AM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (uG/m3)	Amount (uG/m3)
Vinyl Chloride	0.17	Not Detected	0.44	Not Detected
1,1-Dichloroethene	0.17	Not Detected	0.68	Not Detected
trans-1,2-Dichloroethene	0.17	Not Detected	0.68	Not Detected
1,1-Dichloroethane	0.17	Not Detected	0.69	Not Detected
cis-1,2-Dichloroethene	0.17	Not Detected	0.68	Not Detected
Benzene	0.17	0.18	0.55	0.58
Toluene	0.17	0.45	0.64	1.7
Ethyl Benzene	0.17	Not Detected	0.74	Not Detected
m,p-Xylene	0.17	Not Detected	0.74	Not Detected
o-Xylene	0.17	Not Detected	0.74	Not Detected

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

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	111	70-130
Toluene-d8	102	70-130
4-Bromofluorobenzene	105	70-130



AN ENVIRONMENTAL ANALYTICAL LABORATORY

Client Sample ID: IAS-11 (TR-4)

Lab ID#: 0712260-01B

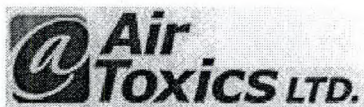
MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN

File Name:	g122022sim	Date of Collection:	12/12/07
Dil. Factor:	1.71	Date of Analysis:	12/21/07 04:33 AM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (uG/m3)	Amount (uG/m3)
Trichloroethene	0.034	0.50	0.18	2.7

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

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	110	70-130
Toluene-d8	99	70-130
4-Bromofluorobenzene	104	70-130



AN ENVIRONMENTAL ANALYTICAL LABORATORY

Client Sample ID: IAS-11 (TR-4) Lab Duplicate

Lab ID#: 0712260-01BB

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN

File Name:	g122023sim	Date of Collection:	12/12/07
Dil. Factor:	1.71	Date of Analysis:	12/21/07 05:15 AM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (uG/m3)	Amount (uG/m3)
Trichloroethene	0.034	0.50	0.18	2.7

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

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	109	70-130
Toluene-d8	100	70-130
4-Bromofluorobenzene	102	70-130



AN ENVIRONMENTAL ANALYTICAL LABORATORY

Client Sample ID: Lab Blank

Lab ID#: 0712260-02A

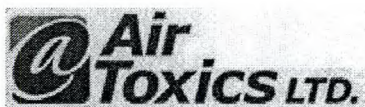
MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN

File Name:	g122006	Date of Collection: NA
Dil. Factor:	1.00	Date of Analysis: 12/20/07 03:01 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (uG/m3)	Amount (uG/m3)
Vinyl Chloride	0.10	Not Detected	0.26	Not Detected
1,1-Dichloroethene	0.10	Not Detected	0.40	Not Detected
trans-1,2-Dichloroethene	0.10	Not Detected	0.40	Not Detected
1,1-Dichloroethane	0.10	Not Detected	0.40	Not Detected
cis-1,2-Dichloroethene	0.10	Not Detected	0.40	Not Detected
Benzene	0.10	Not Detected	0.32	Not Detected
Toluene	0.10	Not Detected	0.38	Not Detected
Ethyl Benzene	0.10	Not Detected	0.43	Not Detected
m,p-Xylene	0.10	Not Detected	0.43	Not Detected
o-Xylene	0.10	Not Detected	0.43	Not Detected

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	105	0-0
Toluene-d8	97	0-0
4-Bromofluorobenzene	105	0-0



AN ENVIRONMENTAL ANALYTICAL LABORATORY

Client Sample ID: Lab Blank

Lab ID#: 0712260-02B

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN

File Name:	g122006sim	Date of Collection: NA
Dil. Factor:	1.00	Date of Analysis: 12/20/07 03:01 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (uG/m3)	Amount (uG/m3)
Trichloroethene	0.020	Not Detected	0.11	Not Detected

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	106	0-0
Toluene-d8	97	0-0
4-Bromofluorobenzene	106	0-0



AN ENVIRONMENTAL ANALYTICAL LABORATORY

Client Sample ID: CCV

Lab ID#: 0712260-03A

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN

File Name:	g122002	Date of Collection: NA
Dil. Factor:	1.00	Date of Analysis: 12/20/07 12:15 PM

Compound	%Recovery
Vinyl Chloride	100
1,1-Dichloroethene	85
trans-1,2-Dichloroethene	101
1,1-Dichloroethane	102
cis-1,2-Dichloroethene	91
Benzene	99
Toluene	106
Ethyl Benzene	103
m,p-Xylene	103
o-Xylene	106

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	105	0-0
Toluene-d8	103	0-0
4-Bromofluorobenzene	108	0-0



AN ENVIRONMENTAL ANALYTICAL LABORATORY

Client Sample ID: CCV

Lab ID#: 0712260-03B

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN

File Name:	g122002sim	Date of Collection: NA
Dil. Factor:	1.00	Date of Analysis: 12/20/07 12:15 PM

Compound	%Recovery
Trichloroethene	99

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	104	0-0
Toluene-d8	103	0-0
4-Bromofluorobenzene	112	0-0



AN ENVIRONMENTAL ANALYTICAL LABORATORY

Client Sample ID: LCS

Lab ID#: 0712260-04A

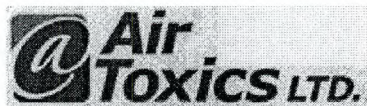
MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN

File Name:	g122003	Date of Collection: NA
Dil. Factor:	1.00	Date of Analysis: 12/20/07 12:45 PM

Compound	%Recovery
Vinyl Chloride	101
1,1-Dichloroethene	89
trans-1,2-Dichloroethene	96
1,1-Dichloroethane	108
cis-1,2-Dichloroethene	97
Benzene	100
Toluene	114
Ethyl Benzene	107
m,p-Xylene	111
o-Xylene	113

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	98	0-0
Toluene-d8	98	0-0
4-Bromofluorobenzene	107	0-0



AN ENVIRONMENTAL ANALYTICAL LABORATORY

Client Sample ID: LCS

Lab ID#: 0712260-04B

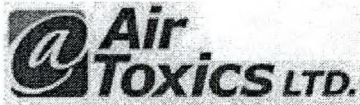
MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN

File Name:	g122003sim	Date of Collection: NA
Dil. Factor:	1.00	Date of Analysis: 12/20/07 12:45 PM

Compound	%Recovery
Trichloroethene	104

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	100	0-0
Toluene-d8	98	0-0
4-Bromofluorobenzene	108	0-0



AN ENVIRONMENTAL ANALYTICAL LABORATORY

Air Toxics Ltd. Introduces the Electronic Report

Thank you for choosing Air Toxics Ltd. To better serve our customers, we are providing your report by e-mail. This document is provided in Portable Document Format which can be viewed with Acrobat Reader by Adobe.

This electronic report includes the following:

- Work order Summary;
- Laboratory Narrative;
- Results; and
- Chain of Custody (copy).

180 BLUE RAVINE ROAD, SUITE B FOLSOM, CA - 95630

(916) 985-1000 .FAX (916) 985-1020

Hours 8:00 A.M to 6:00 P.M. Pacific



AN ENVIRONMENTAL ANALYTICAL LABORATORY

WORK ORDER #: 0712238

Work Order Summary

CLIENT: Ms. May Heflin
EnSafe, Inc.
220 Athens Way, Suite 410
Nashville, TN 38134

BILL TO: Ms. Joan Liddell
EnSafe, Inc.
5724 Summer Trees Drive
Memphis, TN 38134

PHONE: (615) 255-9300

P.O. # 6672

FAX:

PROJECT # 0888803666 Carrier UTC Thompson Rd

DATE RECEIVED: 12/12/2007

CONTACT: SVI
Bryanna Langley

DATE COMPLETED: 12/27/2007

<u>FRACTION #</u>	<u>NAME</u>	<u>TEST</u>	<u>RECEIPT</u>	<u>FINAL</u>
			<u>VAC./PRES.</u>	<u>PRESSURE</u>
01A	SVS-1	Modified TO-15	0.8 psi	5 psi
01B	SVS-1	Modified TO-15	0.8 psi	5 psi
02A	IAS-12	Modified TO-15	0.0 "Hg	5 psi
02AA	IAS-12 Lab Duplicate	Modified TO-15	0.0 "Hg	5 psi
02B	IAS-12	Modified TO-15	0.0 "Hg	5 psi
02BB	IAS-12 Lab Duplicate	Modified TO-15	0.0 "Hg	5 psi
03A	SSAS-10	Modified TO-15	2.5 "Hg	5 psi
04A	IAS-10	Modified TO-15	0.0 "Hg	5 psi
04AA	IAS-10 Lab Duplicate	Modified TO-15	0.0 "Hg	5 psi
04B	IAS-10	Modified TO-15	0.0 "Hg	5 psi
04BB	IAS-10 Lab Duplicate	Modified TO-15	0.0 "Hg	5 psi
05A	IAS-10-DUP	Modified TO-15	6.0 "Hg	5 psi
05B	IAS-10-DUP	Modified TO-15	6.0 "Hg	5 psi
06A	SSAS-11	Modified TO-15	6.5 "Hg	5 psi
07A	Lab Blank	Modified TO-15	NA	NA
07B	Lab Blank	Modified TO-15	NA	NA
08A	CCV	Modified TO-15	NA	NA

Continued on next page



AN ENVIRONMENTAL ANALYTICAL LABORATORY

WORK ORDER #: 0712238

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DATE COMPLETED: 12/27/2007

<u>FRACTION #</u>	<u>NAME</u>	<u>TEST</u>	<u>RECEIPT VAC./PRES.</u>	<u>FINAL PRESSURE</u>
08B	CCV	Modified TO-15	NA	NA
09A	LCS	Modified TO-15	NA	NA
09B	LCS	Modified TO-15	NA	NA

CERTIFIED BY:

Laboratory Director

DATE: 12/27/07

Certification numbers: CA NELAP - 02110CA, LA NELAP/LELAP- AI 30763, NJ NELAP - CA004
NY NELAP - 11291, UT NELAP - 9166389892

Name of Accrediting Agency: NELAP/Florida Department of Health, Scope of Application: Clean Air Act,

Accreditation number: E87680, Effective date: 07/01/07, Expiration date: 06/30/08

Air Toxics Ltd. certifies that the test results contained in this report meet all requirements of the NELAC standards

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AN ENVIRONMENTAL ANALYTICAL LABORATORY

LABORATORY NARRATIVE
Modified TO-15 Full Scan/SIM
EnSafe, Inc.
Workorder# 0712238



Six 6 Liter Summa Special (100% Certified) samples were received on December 12, 2007. The laboratory performed analysis via modified EPA Method TO-15 using GC/MS in the Full Scan and SIM acquisition modes. The method involves concentrating up to 1.0 liters of air. The concentrated aliquot is then flash vaporized and swept through a water management system to remove water vapor. Following dehumidification, the sample passes directly into the GC/MS for analysis.

This workorder was independently validated prior to submittal using 'USEPA National Functional Guidelines' as generally applied to the analysis of volatile organic compounds in air. A rules-based, logic driven, independent validation engine was employed to assess completeness, evaluate pass/fail of relevant project quality control requirements and verification of all quantified amounts.

Method modifications taken to run these samples are summarized in the table below. Specific project requirements may over-ride the ATL modifications.

<i>Requirement</i>	<i>TO-15</i>	<i>ATL Modifications</i>
ICAL %RSD acceptance criteria	$\leq 30\%$ RSD with 2 compounds allowed out to $< 40\%$ RSD	For Full Scan: 30% RSD with 4 compounds allowed out to $< 40\%$ RSD For SIM: Project specific; default criteria is $\leq 30\%$ RSD with 10% of compounds allowed out to $< 40\%$ RSD
Daily Calibration	$\pm 30\%$ Difference	For Full Scan: $\leq 30\%$ Difference with four allowed out up to $\leq 40\%$; flag and narrate outliers For SIM: Project specific; default criteria is $\leq 30\%$ Difference with 10% of compounds allowed out up to $\leq 40\%$; flag and narrate outliers
Blank and standards	Zero air	Nitrogen
Method Detection Limit	Follow 40CFR Pt.136 App. B	The MDL met all relevant requirements in Method TO-15 (statistical MDL less than the LOQ). The concentration of the spiked replicate may have exceeded 10X the calculated MDL in some cases

Receiving Notes

There were no receiving discrepancies.

Analytical Notes

The results for each sample in this report were acquired from two separate data files originating from the same analytical run. The two data files have the same base file name and are differentiated with a "sim" extension on the SIM data file.



AN ENVIRONMENTAL ANALYTICAL LABORATORY

Definition of Data Qualifying Flags

Eight qualifiers may have been used on the data analysis sheets and indicates as follows:

B - Compound present in laboratory blank greater than reporting limit (background subtraction not performed).

J - Estimated value.

E - Exceeds instrument calibration range.

S - Saturated peak.

Q - Exceeds quality control limits.

U - Compound analyzed for but not detected above the reporting limit.

UJ- Non-detected compound associated with low bias in the CCV

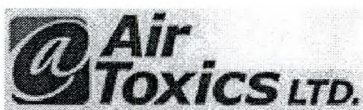
N - The identification is based on presumptive evidence.

File extensions may have been used on the data analysis sheets and indicates as follows:

a-File was requantified

b-File was quantified by a second column and detector

r1-File was requantified for the purpose of reissue



AN ENVIRONMENTAL ANALYTICAL LABORATORY

Summary of Detected Compounds MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN

Client Sample ID: SVS-1

Lab ID#: 0712238-01A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (uG/m3)	Amount (uG/m3)
Benzene	0.13	0.35	0.40	1.1
Toluene	0.13	0.62	0.48	2.3
m,p-Xylene	0.13	0.19	0.55	0.83

Client Sample ID: SVS-1

Lab ID#: 0712238-01B

No Detections Were Found.

Client Sample ID: IAS-12

Lab ID#: 0712238-02A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (uG/m3)	Amount (uG/m3)
Benzene	0.13	0.88	0.43	2.8
Toluene	0.13	3.2	0.50	12
Ethyl Benzene	0.13	0.65	0.58	2.8
m,p-Xylene	0.13	2.7	0.58	12
o-Xylene	0.13	0.90	0.58	3.9

Client Sample ID: IAS-12 Lab Duplicate

Lab ID#: 0712238-02AA

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (uG/m3)	Amount (uG/m3)
Benzene	0.13	0.89	0.43	2.8
Toluene	0.13	3.2	0.50	12
Ethyl Benzene	0.13	0.62	0.58	2.7
m,p-Xylene	0.13	2.6	0.58	12
o-Xylene	0.13	0.75	0.58	3.3

Client Sample ID: IAS-12

Lab ID#: 0712238-02B

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (uG/m3)	Amount (uG/m3)
Trichloroethene	0.027	0.20	0.14	1.1



AN ENVIRONMENTAL ANALYTICAL LABORATORY

Summary of Detected Compounds
MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN

Client Sample ID: IAS-12 Lab Duplicate

Lab ID#: 0712238-02BB

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (uG/m3)	Amount (uG/m3)
Trichloroethene	0.027	0.20	0.14	1.0

Client Sample ID: SSAS-10

Lab ID#: 0712238-03A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (uG/m3)	Amount (uG/m3)
Trichloroethene	0.15	40	0.78	220
1,1-Dichloroethene	0.15	0.37	0.58	1.5
trans-1,2-Dichloroethene	0.15	0.18	0.58	0.72
1,1-Dichloroethane	0.15	0.17	0.59	0.68
cis-1,2-Dichloroethene	0.15	0.91	0.58	3.6
Benzene	0.15	0.21	0.47	0.68
Toluene	0.15	1.4	0.55	5.2
Ethyl Benzene	0.15	2.8	0.63	12
m,p-Xylene	0.15	11	0.63	47
o-Xylene	0.15	2.0	0.63	8.6

Client Sample ID: IAS-10

Lab ID#: 0712238-04A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (uG/m3)	Amount (uG/m3)
Benzene	0.17	0.82	0.54	2.6
Toluene	0.17	6.9	0.63	26
Ethyl Benzene	0.17	14	0.73	59
m,p-Xylene	0.17	52	0.73	230
o-Xylene	0.17	10	0.73	45

Client Sample ID: IAS-10 Lab Duplicate

Lab ID#: 0712238-04AA

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (uG/m3)	Amount (uG/m3)
Benzene	0.13	0.82	0.43	2.6
Toluene	0.13	7.2	0.50	27
Ethyl Benzene	0.13	13	0.58	58
m,p-Xylene	0.13	55 E	0.58	240 E



AN ENVIRONMENTAL ANALYTICAL LABORATORY

Summary of Detected Compounds MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN

Client Sample ID: IAS-10 Lab Duplicate

Lab ID#: 0712238-04AA

o-Xylene	0.13	10	0.58	46
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Client Sample ID: IAS-10

Lab ID#: 0712238-04B

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (uG/m3)	Amount (uG/m3)
Trichloroethene	0.034	0.71	0.18	3.8

Client Sample ID: IAS-10 Lab Duplicate

Lab ID#: 0712238-04BB

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (uG/m3)	Amount (uG/m3)
Trichloroethene	0.027	0.72	0.14	3.9

Client Sample ID: IAS-10-DUP

Lab ID#: 0712238-05A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (uG/m3)	Amount (uG/m3)
Benzene	0.21	0.67	0.67	2.2
Toluene	0.21	6.1	0.79	23
Ethyl Benzene	0.21	13	0.91	57
m,p-Xylene	0.21	52	0.91	230
o-Xylene	0.21	9.9	0.91	43

Client Sample ID: IAS-10-DUP

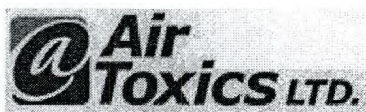
Lab ID#: 0712238-05B

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (uG/m3)	Amount (uG/m3)
Trichloroethene	0.042	0.76	0.22	4.1

Client Sample ID: SSAS-11

Lab ID#: 0712238-06A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (uG/m3)	Amount (uG/m3)
Trichloroethene	0.34	100	1.8	540



AN ENVIRONMENTAL ANALYTICAL LABORATORY

Summary of Detected Compounds MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN

Client Sample ID: SSAS-11

Lab ID#: 0712238-06A

cis-1,2-Dichloroethene

0.34

0.69

1.4

2.8



AN ENVIRONMENTAL ANALYTICAL LABORATORY

Client Sample ID: SVS-1

Lab ID#: 0712238-01A

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN

File Name:	g122008	Date of Collection:	12/11/07
Dil. Factor:	1.27	Date of Analysis:	12/20/07 04:12 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (uG/m3)	Amount (uG/m3)
Vinyl Chloride	0.13	Not Detected	0.32	Not Detected
1,1-Dichloroethene	0.13	Not Detected	0.50	Not Detected
trans-1,2-Dichloroethene	0.13	Not Detected	0.50	Not Detected
1,1-Dichloroethane	0.13	Not Detected	0.51	Not Detected
cis-1,2-Dichloroethene	0.13	Not Detected	0.50	Not Detected
Benzene	0.13	0.35	0.40	1.1
Toluene	0.13	0.62	0.48	2.3
Ethyl Benzene	0.13	Not Detected	0.55	Not Detected
m,p-Xylene	0.13	0.19	0.55	0.83
o-Xylene	0.13	Not Detected	0.55	Not Detected

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

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	106	70-130
Toluene-d8	98	70-130
4-Bromofluorobenzene	104	70-130



AN ENVIRONMENTAL ANALYTICAL LABORATORY

Client Sample ID: SVS-1

Lab ID#: 0712238-01B

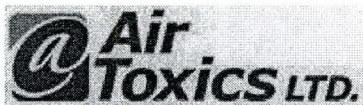
MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN

File Name:	g122008sim	Date of Collection:	12/11/07
Dil. Factor:	1.27	Date of Analysis:	12/20/07 04:12 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (uG/m3)	Amount (uG/m3)
Trichloroethene	0.025	Not Detected	0.14	Not Detected

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

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	106	70-130
Toluene-d8	98	70-130
4-Bromofluorobenzene	104	70-130



AN ENVIRONMENTAL ANALYTICAL LABORATORY

Client Sample ID: IAS-12

Lab ID#: 0712238-02A

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN

File Name:	g122010	Date of Collection:	12/11/07
Dil. Factor:	1.34	Date of Analysis:	12/20/07 06:24 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (uG/m3)	Amount (uG/m3)
Vinyl Chloride	0.13	Not Detected	0.34	Not Detected
1,1-Dichloroethene	0.13	Not Detected	0.53	Not Detected
trans-1,2-Dichloroethene	0.13	Not Detected	0.53	Not Detected
1,1-Dichloroethane	0.13	Not Detected	0.54	Not Detected
cis-1,2-Dichloroethene	0.13	Not Detected	0.53	Not Detected
Benzene	0.13	0.88	0.43	2.8
Toluene	0.13	3.2	0.50	12
Ethyl Benzene	0.13	0.65	0.58	2.8
m,p-Xylene	0.13	2.7	0.58	12
o-Xylene	0.13	0.90	0.58	3.9

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

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	107	70-130
Toluene-d8	97	70-130
4-Bromofluorobenzene	110	70-130



AN ENVIRONMENTAL ANALYTICAL LABORATORY

Client Sample ID: IAS-12 Lab Duplicate

Lab ID#: 0712238-02AA

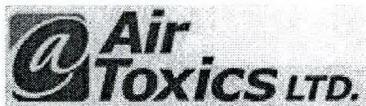
MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN

File Name:	g122021	Date of Collection: 12/11/07
Dil. Factor:	1.34	Date of Analysis: 12/21/07 03:49 AM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (uG/m3)	Amount (uG/m3)
Vinyl Chloride	0.13	Not Detected	0.34	Not Detected
1,1-Dichloroethene	0.13	Not Detected	0.53	Not Detected
trans-1,2-Dichloroethene	0.13	Not Detected	0.53	Not Detected
1,1-Dichloroethane	0.13	Not Detected	0.54	Not Detected
cis-1,2-Dichloroethene	0.13	Not Detected	0.53	Not Detected
Benzene	0.13	0.89	0.43	2.8
Toluene	0.13	3.2	0.50	12
Ethyl Benzene	0.13	0.62	0.58	2.7
m,p-Xylene	0.13	2.6	0.58	12
o-Xylene	0.13	0.75	0.58	3.3

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

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	110	70-130
Toluene-d8	94	70-130
4-Bromofluorobenzene	114	70-130



AN ENVIRONMENTAL ANALYTICAL LABORATORY

Client Sample ID: IAS-12

Lab ID#: 0712238-02B

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN

File Name:	g122010sim	Date of Collection:	12/11/07
Dil. Factor:	1.34	Date of Analysis:	12/20/07 06:24 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (uG/m3)	Amount (uG/m3)
Trichloroethene	0.027	0.20	0.14	1.1

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

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	114	70-130
Toluene-d8	96	70-130
4-Bromofluorobenzene	111	70-130



AN ENVIRONMENTAL ANALYTICAL LABORATORY

Client Sample ID: IAS-12 Lab Duplicate

Lab ID#: 0712238-02BB

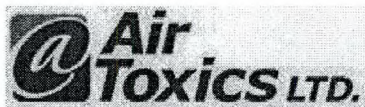
MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN

File Name:	g122021sim	Date of Collection:	12/11/07
Dil. Factor:	1.34	Date of Analysis:	12/21/07 03:49 AM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (uG/m3)	Amount (uG/m3)
Trichloroethene	0.027	0.20	0.14	1.0

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

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	111	70-130
Toluene-d8	96	70-130
4-Bromofluorobenzene	112	70-130



AN ENVIRONMENTAL ANALYTICAL LABORATORY

Client Sample ID: SSAS-10

Lab ID#: 0712238-03A

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN

File Name:	g122011	Date of Collection:	12/11/07
Dil. Factor:	1.46	Date of Analysis:	12/20/07 07:00 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (uG/m3)	Amount (uG/m3)
Trichloroethene	0.15	40	0.78	220
Vinyl Chloride	0.15	Not Detected	0.37	Not Detected
1,1-Dichloroethene	0.15	0.37	0.58	1.5
trans-1,2-Dichloroethene	0.15	0.18	0.58	0.72
1,1-Dichloroethane	0.15	0.17	0.59	0.68
cis-1,2-Dichloroethene	0.15	0.91	0.58	3.6
Benzene	0.15	0.21	0.47	0.68
Toluene	0.15	1.4	0.55	5.2
Ethyl Benzene	0.15	2.8	0.63	12
m,p-Xylene	0.15	11	0.63	47
o-Xylene	0.15	2.0	0.63	8.6

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

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	101	70-130
Toluene-d8	101	70-130
4-Bromofluorobenzene	113	70-130



AN ENVIRONMENTAL ANALYTICAL LABORATORY

Client Sample ID: IAS-10

Lab ID#: 0712238-04A

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN

File Name:	g122017	Date of Collection: 12/11/07
Dil. Factor:	1.68	Date of Analysis: 12/21/07 12:53 AM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (uG/m3)	Amount (uG/m3)
Vinyl Chloride	0.17	Not Detected	0.43	Not Detected
1,1-Dichloroethene	0.17	Not Detected	0.67	Not Detected
trans-1,2-Dichloroethene	0.17	Not Detected	0.67	Not Detected
1,1-Dichloroethane	0.17	Not Detected	0.68	Not Detected
cis-1,2-Dichloroethene	0.17	Not Detected	0.67	Not Detected
Benzene	0.17	0.82	0.54	2.6
Toluene	0.17	6.9	0.63	26
Ethyl Benzene	0.17	14	0.73	59
m,p-Xylene	0.17	52	0.73	230
o-Xylene	0.17	10	0.73	45

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

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	106	70-130
Toluene-d8	95	70-130
4-Bromofluorobenzene	118	70-130



AN ENVIRONMENTAL ANALYTICAL LABORATORY

Client Sample ID: IAS-10 Lab Duplicate

Lab ID#: 0712238-04AA

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN

File Name:	g122013	Date of Collection:	12/11/07
Dil. Factor:	1.34	Date of Analysis:	12/20/07 09:09 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (uG/m3)	Amount (uG/m3)
Vinyl Chloride	0.13	Not Detected	0.34	Not Detected
1,1-Dichloroethene	0.13	Not Detected	0.53	Not Detected
trans-1,2-Dichloroethene	0.13	Not Detected	0.53	Not Detected
1,1-Dichloroethane	0.13	Not Detected	0.54	Not Detected
cis-1,2-Dichloroethene	0.13	Not Detected	0.53	Not Detected
Benzene	0.13	0.82	0.43	2.6
Toluene	0.13	7.2	0.50	27
Ethyl Benzene	0.13	13	0.58	58
m,p-Xylene	0.13	55 E	0.58	240 E
o-Xylene	0.13	10	0.58	46

E = Exceeds instrument calibration range.

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

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	112	70-130
Toluene-d8	97	70-130
4-Bromofluorobenzene	118	70-130



AN ENVIRONMENTAL ANALYTICAL LABORATORY

Client Sample ID: IAS-10

Lab ID#: 0712238-04B

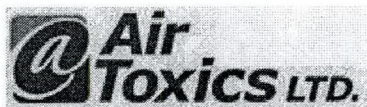
MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN

File Name:	g122017sim	Date of Collection:	12/11/07
Dil. Factor:	1.68	Date of Analysis:	12/21/07 12:53 AM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (uG/m3)	Amount (uG/m3)
Trichloroethene	0.034	0.71	0.18	3.8

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

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	110	70-130
Toluene-d8	98	70-130
4-Bromofluorobenzene	119	70-130



AN ENVIRONMENTAL ANALYTICAL LABORATORY

Client Sample ID: IAS-10 Lab Duplicate

Lab ID#: 0712238-04BB

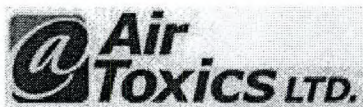
MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN

File Name:	g122013sim	Date of Collection:	12/11/07
Dil. Factor:	1.34	Date of Analysis:	12/20/07 09:09 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (uG/m3)	Amount (uG/m3)
Trichloroethene	0.027	0.72	0.14	3.9

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

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	108	70-130
Toluene-d8	97	70-130
4-Bromofluorobenzene	119	70-130



AN ENVIRONMENTAL ANALYTICAL LABORATORY

Client Sample ID: IAS-10-DUP

Lab ID#: 0712238-05A

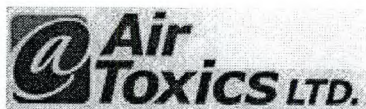
MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN

File Name:	g122018	Date of Collection:	12/11/07
Dil. Factor:	2.10	Date of Analysis:	12/21/07 01:34 AM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (uG/m3)	Amount (uG/m3)
Vinyl Chloride	0.21	Not Detected	0.54	Not Detected
1,1-Dichloroethene	0.21	Not Detected	0.83	Not Detected
trans-1,2-Dichloroethene	0.21	Not Detected	0.83	Not Detected
1,1-Dichloroethane	0.21	Not Detected	0.85	Not Detected
cis-1,2-Dichloroethene	0.21	Not Detected	0.83	Not Detected
Benzene	0.21	0.67	0.67	2.2
Toluene	0.21	6.1	0.79	23
Ethyl Benzene	0.21	13	0.91	57
m,p-Xylene	0.21	52	0.91	230
o-Xylene	0.21	9.9	0.91	43

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

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	107	70-130
Toluene-d8	99	70-130
4-Bromofluorobenzene	116	70-130



AN ENVIRONMENTAL ANALYTICAL LABORATORY

Client Sample ID: IAS-10-DUP

Lab ID#: 0712238-05B

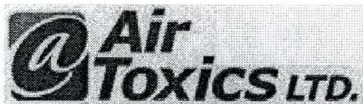
MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN

File Name:	g122018sim	Date of Collection:	12/11/07
Dil. Factor:	2.10	Date of Analysis:	12/21/07 01:34 AM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (uG/m3)	Amount (uG/m3)
Trichloroethene	0.042	0.76	0.22	4.1

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

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	106	70-130
Toluene-d8	98	70-130
4-Bromofluorobenzene	117	70-130



AN ENVIRONMENTAL ANALYTICAL LABORATORY

Client Sample ID: SSAS-11

Lab ID#: 0712238-06A

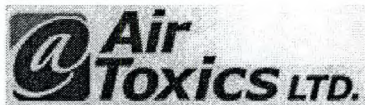
MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN

File Name:	g122019	Date of Collection:	12/11/07
Dil. Factor:	3.42	Date of Analysis:	12/21/07 02:08 AM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (uG/m3)	Amount (uG/m3)
Trichloroethene	0.34	100	1.8	540
Vinyl Chloride	0.34	Not Detected	0.87	Not Detected
1,1-Dichloroethene	0.34	Not Detected	1.4	Not Detected
trans-1,2-Dichloroethene	0.34	Not Detected	1.4	Not Detected
1,1-Dichloroethane	0.34	Not Detected	1.4	Not Detected
cis-1,2-Dichloroethene	0.34	0.69	1.4	2.8
Benzene	0.34	Not Detected	1.1	Not Detected
Toluene	0.34	Not Detected	1.3	Not Detected
Ethyl Benzene	0.34	Not Detected	1.5	Not Detected
m,p-Xylene	0.34	Not Detected	1.5	Not Detected
o-Xylene	0.34	Not Detected	1.5	Not Detected

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

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	111	70-130
Toluene-d8	107	70-130
4-Bromofluorobenzene	108	70-130



AN ENVIRONMENTAL ANALYTICAL LABORATORY

Client Sample ID: Lab Blank

Lab ID#: 0712238-07A

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN

File Name:	g122006	Date of Collection: NA
Dil. Factor:	1.00	Date of Analysis: 12/20/07 03:01 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (uG/m3)	Amount (uG/m3)
Trichloroethene	0.10	Not Detected	0.54	Not Detected
Vinyl Chloride	0.10	Not Detected	0.26	Not Detected
1,1-Dichloroethene	0.10	Not Detected	0.40	Not Detected
trans-1,2-Dichloroethene	0.10	Not Detected	0.40	Not Detected
1,1-Dichloroethane	0.10	Not Detected	0.40	Not Detected
cis-1,2-Dichloroethene	0.10	Not Detected	0.40	Not Detected
Benzene	0.10	Not Detected	0.32	Not Detected
Toluene	0.10	Not Detected	0.38	Not Detected
Ethyl Benzene	0.10	Not Detected	0.43	Not Detected
m,p-Xylene	0.10	Not Detected	0.43	Not Detected
o-Xylene	0.10	Not Detected	0.43	Not Detected

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	105	70-130
Toluene-d8	97	70-130
4-Bromofluorobenzene	105	70-130



AN ENVIRONMENTAL ANALYTICAL LABORATORY

Client Sample ID: Lab Blank

Lab ID#: 0712238-07B

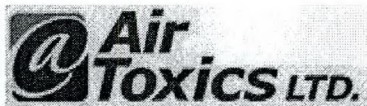
MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN

File Name:	g122006sim	Date of Collection: NA
Dil. Factor:	1.00	Date of Analysis: 12/20/07 03:01 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (uG/m3)	Amount (uG/m3)
Trichloroethene	0.020	Not Detected	0.11	Not Detected

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	106	70-130
Toluene-d8	97	70-130
4-Bromofluorobenzene	106	70-130



AN ENVIRONMENTAL ANALYTICAL LABORATORY

Client Sample ID: CCV

Lab ID#: 0712238-08A

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN

File Name:	g122002	Date of Collection: NA
Dil. Factor:	1.00	Date of Analysis: 12/20/07 12:15 PM

Compound	%Recovery
Trichloroethene	100
Vinyl Chloride	100
1,1-Dichloroethene	85
trans-1,2-Dichloroethene	101
1,1-Dichloroethane	102
cis-1,2-Dichloroethene	91
Benzene	99
Toluene	106
Ethyl Benzene	103
m,p-Xylene	103
o-Xylene	106

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	105	70-130
Toluene-d8	103	70-130
4-Bromofluorobenzene	108	70-130



AN ENVIRONMENTAL ANALYTICAL LABORATORY

Client Sample ID: CCV

Lab ID#: 0712238-08B

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN

File Name:	g122002sim	Date of Collection: NA
Dil. Factor:	1.00	Date of Analysis: 12/20/07 12:15 PM

Compound	%Recovery
Trichloroethene	99

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	104	70-130
Toluene-d8	103	70-130
4-Bromofluorobenzene	112	70-130



AN ENVIRONMENTAL ANALYTICAL LABORATORY

Client Sample ID: LCS

Lab ID#: 0712238-09A

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN

File Name: g122003
Dil. Factor: 1.00

Date of Collection: NA
Date of Analysis: 12/20/07 12:45 PM

Compound	%Recovery
Trichloroethene	108
Vinyl Chloride	101
1,1-Dichloroethene	89
trans-1,2-Dichloroethene	96
1,1-Dichloroethane	108
cis-1,2-Dichloroethene	97
Benzene	100
Toluene	114
Ethyl Benzene	107
m,p-Xylene	111
o-Xylene	113

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	98	70-130
Toluene-d8	98	70-130
4-Bromofluorobenzene	107	70-130



AN ENVIRONMENTAL ANALYTICAL LABORATORY

Client Sample ID: LCS

Lab ID#: 0712238-09B

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN

File Name:	g122003sim	Date of Collection: NA
Dil. Factor:	1.00	Date of Analysis: 12/20/07 12:45 PM

Compound	%Recovery
Trichloroethene	104

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	100	70-130
Toluene-d8	98	70-130
4-Bromofluorobenzene	108	70-130

Appendix B
Data Evaluation and Usability Report
For Air Samples Collected December 2007

1.0 DATA EVALUATION

This section presents analytical data for air samples collected in December 2007 from the Carrier Corporation, Thompson Road Facility and the quality assurance/quality control (QA/QC) evaluation and usability of those data. Samples discussed in this report were collected on December 11 and 12, 2007 and were submitted to Air Toxics LTD of Folsom, California (New York certification number 11291). Samples were reported by the laboratory in two sample delivery groups (SDGs): 0712238 and 0712260. Table 1-1 provides an analytical summary for samples discussed in this report.

Table 1-1
Analytical Summary
Volatile Organic Compounds

Sample Delivery Group	Sample ID	Lab ID	Sample Date
712238	SVS-1	0712238-01A,B	12/11/07
712238	IAS-12	0712238-02A,B	12/11/07
712238	SSAS-10	0712238-03A	12/11/07
712238	IAS-10	0712238-04A,B	12/11/07
712238	IAS-10-DUP	0712238-05A,B	12/11/07
712238	SSAS-11	0712238-06A	12/11/07
712260	IAS-11 (TR-4)	0712260-01A,B	12/12/07

Analyses were conducted in accordance with *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)*, Second Edition, Center for Environmental Research Information Office of Research and Development, U.S. Environmental Protection Agency (USEPA), January 1999, EPA/625/R-96/010b (TO-15).

Samples were analyzed and reported as definitive data and QC forms and raw data were submitted for data review (NYSDEC Category B-equivalent package). The quality assurance criteria used to assess all data were established by the analytical method (TO-15) and was consistent with the relevant guidance provided in *USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review*, October 1999, EPA540/R-99/008. The TO-15 method was modified to report the project specific compounds of concern as documented in the *Quality Assurance Project Plan for the Soil Vapor Intrusion Work Plan*, Carrier Thompson Road Facility Thompson Road, Syracuse, New York, EnSafe Inc., September 2006. The elements of the data package provided by the laboratory are presented in Table 1-2.

Table 1-2
Data Package Elements

- Completed chain-of-custody documentation
- Analytical results
- Sample receipt and log-in information
- Laboratory case narrative
- **Organic QC summaries and raw data:**
 - Organic surrogate recoveries
 - Volatile tuning data
 - Laboratory control samples
 - Laboratory blanks
 - Initial and calibration check data
 - Internal standard areas and retention times
 - Retention time summaries
 - Sample and QC quantitation reports
 - Sample and QC chromatograms
 - Sample and QC spectra
 - Raw calibration data
 - Raw sample preparation bench sheets
 - Analytical run log

When the QC parameters did not fall within the specific method and laboratory guidelines, the data evaluator annotated or "flagged" the corresponding analytes where anomalies were found. The following flags were used to annotate data outside QC criteria during data evaluation.

U	Undetected – The analyte was present in a sample, but at a concentration less than 10 times the blank concentration for common organic constituents (methylene chloride, acetone, and 2-butanone) or five times the blank concentration for other constituents; the associated value shown is the quantitation limit after evaluation of the blank.
J	Estimated Value – At least one QC parameter was outside control limits.
UJ	Undetected and Estimated – The parameter was analyzed but not detected above the listed quantitation limit; the quantitation limit is estimated because one or more QC parameters were outside control limits.
R/UR	Unusable Data – At least one QC parameter grossly exceeded control limits.

These "flags" were applied to data where anomalies are noted during evaluation. The laboratory's "U" qualifier, defined as the target analyte was not detected above the laboratory's reporting limit, remained on the data unless superseded by the evaluation qualifier (e.g., "UJ" or "UR").

2.0 VOLATILE ORGANIC ANALYSES IN AIR

Volatile organic compounds (VOC) data evaluation for the Thompson Road Facility included the following parameters:

- Completeness*
- Holding times*
- Gas chromatograph/mass spectrometry (GC/MS) tuning*
- Surrogate spike recoveries*
- Instrument calibration*
- Laboratory control spike (LCS) results*
- Laboratory method blanks and canister certification*
- GC/MS Internal standard (IS) performance*
- Laboratory duplicate precision*
- Field duplicate precision*

All data were found to be complete to perform data review. An asterisk (*) above indicates that QC results were within criteria for the VOCs. Data meeting QC requirements (denoted with an asterisk above) will not be discussed further in this report.

The project-specific reporting limits were 1 microgram per cubic meter ($\mu\text{g}/\text{m}^3$) for all VOCs, except for trichloroethene, which had a project-specific reporting limit of $0.25 \mu\text{g}/\text{m}^3$. All samples were analyzed using Method TO-15 in the full-scan mode. Because trichloroethene has a project-specific reporting limit below the instrument's capability in the full-scan mode, it was quantitated via selective ion monitoring mode (SIM), as necessary, to meet the project-specific reporting limits. The results for each sample were acquired from two separate data files originating from the same analytical run. The two data files have the same base laboratory identifier and are differentiated with an "A" for compounds not determined via SIM and a "B" for trichloroethene, when quantitated via SIM.

Sample SASS-11 was diluted due to the elevated volatile concentrations, and project-specific reporting limits could not be achieved. The remaining samples had reporting limits below the project-specific levels.

3.0 Conclusions and Data Usability

Data for the December 2007 air samples collected at the Thompson Road Facility were reviewed independently from the laboratory to assess data quality. All of the results for the Thompson Road Facility were determined to be valid with no qualifications and are usable for their intended purpose. Analytical results after data review can be found in Attachment B-1.

Attachment B-1
Analytical Results

**Carrier Corporation, Thompson Road Facility Vapor Intrusion Monitoring
December 2007 Air Results after Data Review**

Sample Delivery Group:	712238	712238	712238	712238	712238	712238	712260
Sample ID:	SVS-1	IAS-12	SSAS-10	IAS-10	IAS-10-DUP	SSAS-11	IAS-11 (TR-4)
Lab ID:	0712238-01AB	0712238-02AB	0712238-03A	0712238-04AB	0712238-05AB	0712238-06A	0712260-01AB
Sample Date:	12/11/07	12/11/07	12/11/07	12/11/07	12/11/07	12/11/07	12/12/07
Dilution Factor:	1.27	1.34	1.46	1.68	2.10	3.42	1.71
Units:	µg/m3	µg/m3	µg/m3	µg/m3	µg/m3	µg/m3	µg/m3
1,1-Dichloroethane	0.51 U	0.54 U	0.68	0.68 U	0.85 U	1.4 U	0.69 U
1,1-Dichloroethene	0.50 U	0.53 U	1.5	0.67 U	0.83 U	1.4 U	0.68 U
Benzene	1.1	2.8	0.68	2.6	2.2	1.1 U	0.60
cis-1,2-Dichloroethene	0.50 U	0.53 U	3.6	0.67 U	0.83 U	2.8	0.68 U
Ethyl Benzene	0.55 U	2.8	12	59	57	1.5 U	0.74 U
m,p-Xylene	0.83	12	47	230	230	1.5 U	0.74 U
o-Xylene	0.55 U	3.9	8.6	45	43	1.5 U	0.74 U
Toluene	2.3	12	5.2	26	23	1.3 U	1.6
trans-1,2-Dichloroethene	0.50 U	0.53 U	0.72	0.67 U	0.83 U	1.4 U	0.68 U
Trichloroethene	0.14 U	1.1	220	3.8	4.1	540	2.7
Vinyl Chloride	0.32 U	0.34 U	0.37 U	0.43 U	0.54 U	0.87 U	0.44 U

Notes:

µg/m3 = micrograms per cubic meter
 U = undetected value
 J = estimated value
 Bolded = detected value