



INTRODUCTION

Analyses were performed according to U.S. EPA 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)," January 1999 (EPA 625/R-96/010b). Results of sample analyses are reported by the laboratory as either qualified or unqualified; various qualifier codes are used to denote specific information regarding the analytical results.

To the extent possible, Trillium's validation was performed in conformance with the "Region I, EPA-New England Data Validation Functional Guidelines for Evaluating Environmental Analysis, 12/96. Where discrepancies were observed between the criteria presented in the validation guidelines and the method specifications, the method specifications took precedence. Professional judgment was applied as necessary and appropriate.

The data validation process is intended to evaluate data on a technical basis rather than a contract compliance basis. This requires that the data package contain sufficient raw data documentation to facilitate the validation effort and allow verification of the reported results. It is assumed that the data package represents the best efforts of the laboratory and has already been subjected to adequate and sufficient quality review prior to submission for validation.

During the validation process, laboratory data are verified against all available supporting documentation. Based on this evaluation, qualifier codes may be added, deleted, or modified by the data validator. Validated results are, therefore, either qualified or unqualified. Unqualified results mean that the reported values may be used without reservation. Final validated results are annotated with the following codes as defined by Region I:

- U - The material was analyzed for, but was not detected. The associated numerical value is the sample quantitation limit.
- J - The associated numerical value is an estimated quantity.
- UJ - The material was analyzed for, but was not detected. The sample quantitation limit is an estimated quantity.
- R - The data are unusable (compound may or may not be present). Resampling and reanalysis is necessary for verification.

These codes are recorded on the data summary form in Attachment A and the laboratory's Volatile Organics Analysis Data Sheets (Form Is) in Attachment B to qualify the results as appropriate according to the review of the data package.

Two facts should be noted by all data users. First, **the “R” qualifier means that the laboratory-reported result is unusable.** In other words, due to significant quality control problems, the analysis is invalid and provides no information as to whether the analyte is present or not. Rejected results should not appear on data tables because they cannot be relied upon, even as a last resort. Second, **no analyte concentration is guaranteed to be accurate even if all associated quality control is acceptable.** Strict quality control conformance serves only to increase confidence in reported results; any analytical result will always contain some error.

The data user is also cautioned that the validation effort is based on the raw data printouts as provided by the laboratory. Software manipulation cannot be routinely detected during validation; unless otherwise stated in the report, these kinds of issues are outside the scope of this review.

I. Holding Times, Preservation and Sample Integrity

The samples were collected on 5/13/04 and 5/14/04. All sample analyses were performed on 6/8/04 and 6/9/04, which is within the 30-day holding time specified by the referenced method.

The laboratory's Log-In Sheet indicates that the samples were received intact and with intact custody seals on 5/15/04. The shipping container was at ambient temperature; no preservation is required for air samples collected in canisters.

II. GC/MS Instrument Performance Checks

Two instrument performance checks using bromofluorobenzene (BFB) were run, representing both shifts (24-hour periods) during which samples, associated standards, and/or associated quality control samples were analyzed. Results for both instrument performance checks were acceptable.

III. Calibration

Sample analyses were performed on a single gas chromatograph/mass spectrometer (GC/MS) system identified as "V." A few target analytes were manually integrated in some of the calibration standards associated with this data set. The documentation provided verifies that these integrations were acceptably performed and accurately incorporated into the applicable quantitation reports. No internal standard or surrogate compounds were manually integrated in any of the calibration standards.

A. Initial Calibration (IC)

One five-point, ambient purge IC was established on 6/8/04 in support of the reported analyses. Standards at concentrations of 0.50, 5.0, 10, 20, and 40 parts per billion by volume (ppbv) were analyzed for all of the target analytes. For hexachlorobutadiene and 1,2,4-trichlorobenzene, a 15 ppbv standard was included and the 40 ppbv standard was dropped, establishing a calibration range of 0.50 ppbv to 20 ppbv for these two analytes. For acetone, isopropyl alcohol, and tetrahydrofuran, a 15 ppbv standard was included and the 0.5 ppbv standard was dropped, establishing a calibration range of 5.0 ppbv to 40 ppbv for these three analytes. Documentation of all individual IC standards analyzed was present in the data package. Relative response factor (RRF) as well as percent relative standard deviation (%RSD) values were correctly calculated and accurately reported in all cases.

The 15 ppbv standard used for the five target analytes listed above also included the other target analytes at this concentration, but the 15 ppbv results for these analytes were not included in the initial calibration. While it is acceptable to drop the high or low concentration standard responses,

exclusion of responses from the middle of the calibration curve is not an acceptable practice, and should not be continued by the laboratory. Based on validator calculations, RRFs from the 15 ppbv standard were consistent with the established IC, and their inclusion would not likely have made a significant difference in the reported sample results. Therefore, based on professional judgment, no action was taken on this basis.

Average RRF values reported by the laboratory were above the applicable minimum acceptance criterion (0.05) and all %RSD values were below the maximum acceptance criterion (30%) for all target analytes.

B. Continuing Calibration (CC)

All samples and associated quality control analyses were analyzed immediately following the IC on 6/8/04. Two diluted re-analyses and associated quality control analyses were run following a continuing calibration standard on 6/9/04. The CC standard was fully documented in the data package. Documentation of the mid-point IC standard (10 ppbv) evaluated as a CC standard was also provided.

All RRF and percent difference (%D) values were correctly calculated and accurately reported for both reported CC standards. All RRFs were above the minimum acceptance criterion (0.05) and all %D values were below the maximum acceptance limit (30%).

IV. Blanks

Two laboratory method blanks (MBs: ABLKW9 and ABLKX1) were analyzed in association with the soil gas samples. No target analytes were detected in either MB.

No field or trip blanks were submitted to the laboratory with this set of samples.

Canister cleaning certification data were provided in the data package. Canister numbers 6384 and 6524, both of which were used to collect samples in this data set, were analyzed after cleaning. Associated tuning, calibration, and method blank data were documented in addition to the canister analyses. Both canisters were free of contamination, and all associated quality control data were acceptable. All canister numbers recorded on the laboratory's run logs for the seven site samples in this SDG were included in the list of canisters associated with each of the certified clean canisters.

V. Surrogate Recoveries

The use of a surrogate compound is not addressed in Method TO-15, and no surrogate compound was employed with the analyses of these samples

VI. Laboratory Control Samples (LCSs)

Two 10 ppbv laboratory control sample pairs (W9ICVLCS/LCSD and X1LCS/LCSD) were associated with the reported samples. Both LCS/LCSD pairs were spiked with all target analytes. All target analyte recoveries were within the 70-130% acceptance limits specified by the laboratory on the summary forms in the data package except for acetone in W9ICV/LCS (160%), X1LCS (150%), and X1LCSD (140%) and for hexachlorobutadiene in X1LCSD (150%).

Since at least one control sample recovery was acceptable for acetone on 6/8/04, no sample results were qualified based on the high recovery in the LCS run on this date. Results for acetone in SG-PACERDL and SG-ABC ROOFINGDL were qualified as estimated (J) based on the high recoveries for acetone in both associated control samples.

The recovery for hexachlorobutadiene was acceptable in one of the two LCSs run on 6/9/04 and this analyte was not detected in any of the site samples. Therefore, no sample results for hexachlorobutadiene warranted qualification based on the high recovery in the LCSD on this date.

Reproducibility between paired concentrations was acceptable (QC \leq 40 relative percent difference [RPD]) in both LCS/LCSD pairs.

VII. Field Duplicate

No field duplicate pair was submitted with this set of samples.

VIII. Internal Standard Performance

All internal standard areas and retention times (RTs) were within the method-specified quality control limits (area \pm 40% of the corresponding CC standard area and RT \pm 0.33 minutes of the corresponding CC standard RT) for all reported sample and quality control analyses.

IX. Target Compound Identification

With the exceptions noted below, reported target analytes in all samples were correctly identified with acceptable supporting mass spectra present in the data package.

For several laboratory-reported positive results, the identified peaks were at RTs that differed from the RTs in the associated CC standard and the mass spectra do not support the identifications. RT comparisons are summarized below:

Sample	Compound	minutes	
		6/8/04 CC RT	Sample RT
SG-ABC ROOFING	methyl tert-butyl ether	8.504	8.599
	methyl ethyl ketone	9.491	9.586
	bromochloromethane (IS)	9.628	9.647
SG-GANGLIANI	methyl ethyl ketone	9.491	9.615
	bromochloromethane (IS)	9.628	9.645
SG-GRAPHIQUE	methyl ethyl ketone	9.491	9.612
	bromochloromethane (IS)	9.628	9.642
SG-SACCO/A	methyl ethyl ketone	9.491	9.658
	bromochloromethane (IS)	9.628	9.643
SG-SACCO/B	methyl tert-butyl ether	8.504	8.671
	methyl ethyl ketone	9.491	9.567
	bromochloromethane (IS)	9.628	9.643

The analyte RT shifts listed above are not supported by the RTs for the associated IS compound, which are very consistent between the CC standard and the samples. In addition, methyl tert-butyl ether and methyl ethyl ketone were identified in SG-PACER at RTs of 8.505 minutes and 9.478 minutes, respectively, with valid supporting mass spectra. These RTs are very consistent with the RTs for these compounds in the CC standard, and there is no reason to expect that they would be significantly different in any of the other samples.

Therefore, based on the RT discrepancies and mass spectra that do not support the reported identifications (see Attachment C), results for the following analytes were corrected to less than the reporting limit (RL) (0.50 U) by the validator:

- Methyl tert-butyl ether and methyl ethyl ketone in SG-ABC ROOFING
- Methyl ethyl ketone in SG-GANGLIANI
- Methyl ethyl ketone in SG-GRAPHIQUE

- Methyl ethyl ketone in SG-SACCO/A
- Methyl tert-butyl ether and methyl ethyl ketone in SG-SACCO/B

X. Compound Quantitation and Reported Detection Limits

Target compound concentrations and sample-specific RLs were correctly calculated and accurately reported by the laboratory, including adjustments for dilutions where applicable.

Results for acetone in SG-ABC ROOFING and SG-PACER were qualified as estimated (J) because the reported concentrations exceeded the established calibration range. Four-fold diluted analyses of both samples were performed and responses for acetone that were within the calibration range were achieved; therefore, results for acetone in these two samples were taken from the diluted analyses. The validator removed the "E" qualifiers applied by the laboratory to indicate sample results that exceeded the calibration range and the "D" qualifiers used to indicate sample results from a diluted analysis.

For SG-ABC ROOFING and SG-PACER, only the results recommended for use by the validator have been reported on the data summary form; as discussed above, these represent a combination of results from the original and diluted analyses of these samples. In Attachment B, the Form Is for the original analyses of SG-ABC ROOFING and SG-PACER have been "hybridized" to reflect the results recommended for use from the two reported analyses of each sample. The Form Is for the analyses that should not be used have been marked "Do Not Use" for clarity.

"J" qualifiers were appropriately applied by the laboratory to positive target analyte results that were below the sample-specific RL; these qualifiers were not removed except where superseded by validator-applied qualifiers.

The unadjusted RLs reported by the laboratory for each target analyte are equal to the lowest IC standard concentration associated with these sample analyses. These values are well supported by the raw data.

The data summary form in Attachment A lists all individual sample analytes affected by the applied qualifications. All positive results are listed on this form, whether or not the value or qualifier was changed as a result of the validation. Where no result is listed, the compound was not detected and the RL was not qualified. Sample-specific RLs may be found on the laboratory-generated Form I for each sample (Attachment B) or may be calculated from the information on the data summary form as follows: unadjusted RL (far left column) multiplied by the dilution factor.

XI. Tentatively Identified Compounds (TIC)

Library searches of non-target compound peaks are not required by the referenced method and were not requested for these samples.

XII. System Performance

The GC/MS system appears to have been working satisfactorily at the time of these analyses, based on review of the available raw data.

XIII. Documentation

A copy of the field COC record listing all site samples was provided in the data package; the following issues were noted:

- The container type used for sample collection was not specified; "P/O," defined as "plastic/other" was recorded. The use of canisters should be clearly documented on the COC record.
- Most of the samples were collected on 5/13/04, with one collected on 5/14/04. All were shipped to the laboratory on 5/14/04. The disposition of the samples collected on 5/13/04 during the delay between collection and shipment was not documented.
- No shipping information was documented, and a copy of the overnight courier airbill was not included in the data package to document the shipping portion of the sample transfers. At a minimum, the use of an overnight courier and the applicable airbill number should be recorded.

These issues do not directly affect the validity of the analytical data generated. However, they could be problematic if the data were to be used for litigation.

XIV. Overall Assessment

Results for volatile organics in the soil gas samples reported in SDG #100226 were determined to be valid as reported with the following exceptions:

- Results for acetone in SG-PACERDL and SG-ABC ROOFINGDL were qualified as estimated (J) based on unacceptably high recoveries for this analyte in both associated laboratory control samples.
- Results for methyl tert-butyl ether and methyl ethyl ketone in SG-ABC ROOFING and SG-SACCO/B were corrected to less than the RL (0.50 U) because the mass spectra provided do not support these identifications and the RTs of the identified peaks are inconsistent with the RTs of these analytes in the associated calibration standards.
- Results for methyl ethyl ketone in SG-GANGLIANI, SG-GRAPHIQUE, and SG-SACCO/A were corrected to less than the RL (0.50 U) because the mass spectra provided do not support these identifications and the RTs of the identified peaks are inconsistent with the RTs of these analytes in the associated calibration standards.
- Results for acetone in SG-ABC ROOFING and SG-PACER were qualified as estimated (J) because the reported concentrations exceeded the established calibration range.

All “D” and “E” qualifiers applied by the laboratory were removed by the validator. “J” qualifiers applied by the laboratory to denote target analyte results below the applicable RL were not removed except where superceded by validation qualifiers.

For SG-ABC ROOFING and SG-PACER, only the results recommended for use by the validator have been reported on the data summary form; these represent a combination of results from the original and diluted analyses of these samples. In Attachment B, the Form Is for the original analyses of SG-ABC ROOFING and SG-PACER have been “hybridized” to reflect the results recommended for use from the two reported analyses of each sample. The Form Is for the analyses that should not be used have been marked “Do Not Use” for clarity.

Documentation issues are discussed in Section XIII.

This validation report should be considered part of the data package for all future distributions of these volatiles data.



ATTACHMENT A

**DATA SUMMARY FORM
SDG #100226
Volatiles in Soil Gas - IndustriPlex
Samples Collected May 13-14, 2004**

DATA SUMMARY FORM: VOLATILES 1

SOIL GAS SAMPLES

parts per billion by volume (ppbv)

Site Name: IndustriPlex

Sampling Dates: May 13-14, 2004

SDG #100226

Trillium Project No. 04864

Sample Number	Lab ID	SG-ABC ROOFING		SG-GANGLIANI		SG-GRAPHIQUE		SG-PACER		SG-SACCO/A		SG-SACCO/B		SG-VINING	
		571912		571914		571916		571918		571915		571917		571913	
		1.0, 4.0*		1.0		1.0		1.0, 4.0*		1.0		1.0		1.0	
0.50	Dichlorodifluoromethane	0.77		24		0.82		0.77		0.75		0.81		0.88	
0.50	Chloromethane	0.69		0.73		0.56		0.57		0.66				0.65	
0.50	Vinyl chloride														
0.50	Bromomethane														
0.50	Chloroethane														
0.50	Trichlorofluoromethane			0.51										0.77	
0.50	Freon TF														
0.50	1,1-Dichloroethene														
0.50	Methylene chloride	2.6												5.8	
0.50	1,1-Dichloroethane														
0.50	cis-1,2-Dichloroethene														
0.50	Chloroform											0.51			
0.50	1,1,1-Trichloroethane														
0.50	Carbon tetrachloride														
0.50	Benzene	0.70				0.76		5.5				0.76			
0.50	1,2-Dichloroethane														
0.50	Trichloroethene														
0.50	1,2-Dichloropropane														
0.50	cis-1,3-Dichloropropene														
0.50	Toluene	4.4		3.8		1.1		6.9				2.1		0.61	
0.50	trans-1,3-dichloropropene														
0.50	1,1,2-Trichloroethane														
0.50	Tetrachloroethene	0.77													
0.50	Chlorobenzene														
0.50	Ethylbenzene	2.4		2.9				0.97				0.61			
0.50	m,p-Xylenes	7.7		11		0.72		2.6				1.8			
0.50	Styrene														
0.50	o-Xylene	2.0		2.8				0.84				0.62			
0.50	1,1,2,2-Tetrachloroethane														
0.50	1,3-Dichlorobenzene														

* Acetone only was taken from the diluted analysis.

Industriplex\soil gas voc

DATA SUMMARY FORM: VOLATILES 1
SOIL GAS SAMPLES
parts per billion by volume (ppbv)

Site Name: IndustriPlex

Sampling Dates: May 13-14, 2004

SDG #100226

Trillium Project No. 04864

Sample Number Lab ID Dilution Factor	SG-ABC ROOFING	SG-GANGLIANI	SG-GRAPHIQUE	SG-PACER	SG-SACCO/A	SG-SACCO/B	SG-VINING
	571912	571914	571916	571918	571915	571917	571913
	1.0, 4.0*	1.0	1.0	1.0, 4.0*	1.0	1.0	1.0
CRQL							
0.50	1,4-Dichlorobenzene						
0.50	1,2-Dichlorobenzene						
0.50	1,2,4-Trichlorobenzene						
0.50	Hexachlorobutadiene						
0.50	1,3,5-Trimethylbenzene	1.0	0.59				
0.50	1,2,4-Trimethylbenzene	2.8	1.8			0.68	
0.50	1,2-Dichlorotetrafluoroethane						
0.50	1,2-Dibromoethane						
0.50	1,3-Butadiene			1.1	9.1	1.4	
0.50	Carbon disulfide				1.0	1.1	
5.0	Acetone	74 J	16	8.4	89 J	20	5.0
5.0	Isopropyl alcohol		7.0				
0.50	Methyl tert-butyl ether	0.50 U			1.3	0.50 U	
0.50	Cyclohexane				0.71		
0.50	Dibromochloromethane						
0.50	Methyl ethyl ketone	0.50 U	0.50 U	0.50 U	39	0.50 U	0.50 U
0.50	Methyl isobutyl ketone						
0.50	Methyl butyl ketone						
0.50	Bromodichloromethane						
0.50	trans-1,2-Dichloroethene						
0.50	4-Ethyltoluene	3.2	1.6			0.51	
0.50	2-Chlorotoluene						
0.50	n-Hexane	4.4	0.97		3.8	0.57	4.1
5.0	Tetrahydrofuran						
0.50	n-Heptane	0.85			2.7		

Industriplex\soil gas voc



ATTACHMENT B

VOLATILE ORGANICS ANALYSIS DATA SHEETS (FORM 1s)

SDG #100226

**Volatiles in Soil Gas - IndustriPlex
Samples Collected May 13-14, 2004**

FORM 1
VOLATILE ORGANICS ANALYSIS DATA SHEET

ROUX2 SAMPLE NO.

SG-ABC ROOFING

Lab Name: STL BURLINGTON

Contract: 24000

Lab Code: STLVT

Case No.: 24000

SAS No.:

SDG No.: 100226

Matrix: (soil/water) AIR

Lab Sample ID: 571912

Sample wt/vol: 200.0 (g/mL) ML

Lab File ID: 571912

Level: (low/med) LOW

Date Received: 05/15/04

% Moisture: not dec. _____

Date Analyzed: 06/09/04

GC Column: RTX-624 ID: 0.32 (mm)

Dilution Factor: 1.0

Soil Extract Volume: _____ (uL)

Soil Aliquot Volume: _____ (uL)

CONCENTRATION UNITS:
(ug/L or ug/Kg) PPBV Q

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) PPBV	Q
75-71-8	Dichlorodifluoromethane	0.77	
74-87-3	Chloromethane	0.69	
75-01-4	Vinyl Chloride	0.50	U
74-83-9	Bromomethane	0.50	U
75-00-3	Chloroethane	0.50	U
75-69-4	Trichlorofluoromethane	0.50	U
76-13-1	Freon TF	0.50	U
75-35-4	1,1-Dichloroethene	0.50	U
75-09-2	Methylene Chloride	2.6	
75-34-3	1,1-Dichloroethane	0.50	U
156-59-2	cis-1,2-Dichloroethene	0.50	U
67-66-3	Chloroform	0.50	U
71-55-6	1,1,1-Trichloroethane	0.50	U
56-23-5	Carbon Tetrachloride	0.50	U
71-43-2	Benzene	0.70	
107-06-2	1,2-Dichloroethane	0.50	U
79-01-6	Trichloroethene	0.50	U
78-87-5	1,2-Dichloropropane	0.50	U
10061-01-5	cis-1,3-Dichloropropene	0.50	U
108-88-3	Toluene	4.4	
10061-02-6	trans-1,3-Dichloropropene	0.50	U
79-00-5	1,1,2-Trichloroethane	0.50	U
127-18-4	Tetrachloroethene	0.77	
108-90-7	Chlorobenzene	0.50	U
100-41-4	Ethylbenzene	2.4	
1330-20-7	Xylene (m,p)	7.7	
100-42-5	Styrene	0.50	U
95-47-6	Xylene (o)	2.0	
79-34-5	1,1,2,2-Tetrachloroethane	0.50	U
541-73-1	1,3-Dichlorobenzene	0.50	U
106-46-7	1,4-Dichlorobenzene	0.50	U
95-50-1	1,2-Dichlorobenzene	0.50	U
120-82-1	1,2,4-Trichlorobenzene	0.50	U

FORM 1
VOLATILE ORGANICS ANALYSIS DATA SHEET

ROUX2 SAMPLE NO.

SG-ABC ROOFING

Lab Name: STL BURLINGTON

Contract: 24000

Lab Code: STLVT

Case No.: 24000

SAS No.:

SDG No.: 100226

Matrix: (soil/water) AIR

Lab Sample ID: 571912

Sample wt/vol: 200.0 (g/mL) ML

Lab File ID: 571912

Level: (low/med) LOW

Date Received: 05/15/04

% Moisture: not dec. _____

Date Analyzed: 06/09/04

GC Column: RTX-624 ID: 0.32 (mm)

Dilution Factor: 1.0

Soil Extract Volume: _____ (uL)

Soil Aliquot Volume: _____ (uL)

CAS NO. COMPOUND CONCENTRATION UNITS:
(ug/L or ug/Kg) PPBV Q

87-68-3	Hexachlorobutadiene	0.50	U
108-67-8	1,3,5-Trimethylbenzene	1.0	
95-63-6	1,2,4-Trimethylbenzene	2.8	
76-14-2	1,2-Dichlorotetrafluoroethan	0.50	U
106-93-4	1,2-Dibromoethane	0.50	U
106-99-0	1,3-Butadiene	0.50	U
75-15-0	Carbon Disulfide	0.50	U
67-64-1	Acetone *	74	66 F J
67-63-0	Isopropyl Alcohol	5.0	U
1634-04-4	Methyl tert-Butyl Ether	0.50	3.4 U
110-82-7	Cyclohexane	0.50	U
124-48-1	Dibromochloromethane	0.50	U
78-93-3	Methyl Ethyl Ketone	0.50	2.4 U
108-10-1	Methyl Isobutyl Ketone	0.50	U
591-78-6	Methyl Butyl Ketone	0.50	U
75-27-4	Bromodichloromethane	0.50	U
156-60-5	trans-1,2-Dichloroethene	0.50	U
622-96-8	4-Ethyltoluene	3.2	
95-49-8	2-Chlorotoluene	0.50	U
110-54-3	n-Hexane	4.4	
109-99-9	Tetrahydrofuran	5.0	U
142-82-5	n-Heptane	0.85	

* Result is from the diluted analysis.

CAERIKSON 6/25/04

FORM 1
VOLATILE ORGANICS ANALYSIS DATA SHEET

ROUX2 SAMPLE NO.

SG-ABC R
OOFINGDL

Lab Name: STL BURLINGTON

Contract: 24000

Lab Code: STLVT

Case No.: 24000

SAS No.:

SDG No.: 100226

Matrix: (soil/water) AIR

Lab Sample ID: 571912D1

Sample wt/vol: 50.00 (g/mL) ML

Lab File ID: 571912D

Level: (low/med) LOW

*** DO NOT USE ***

Date Received: 05/15/04

% Moisture: not dec. _____

*CAE
6/25/04*

Date Analyzed: 06/10/04

GC Column: RTX-624 ID: 0.32 (mm)

Dilution Factor: 4.0

Soil Extract Volume: _____ (uL)

Soil Aliquot Volume: _____ (uL)

CONCENTRATION UNITS:
(ug/L or ug/Kg) PPEV

CAS NO. COMPOUND Q

75-71-8	Dichlorodifluoromethane	2.0	U
74-87-3	Chloromethane	2.0	U
75-01-4	Vinyl Chloride	2.0	U
74-83-9	Bromomethane	2.0	U
75-00-3	Chloroethane	2.0	U
75-69-4	Trichlorofluoromethane	2.0	U
76-13-1	Freon TF	2.0	U
75-35-4	1,1-Dichloroethene	2.0	U
75-09-2	Methylene Chloride	3.7	U
75-34-3	1,1-Dichloroethane	2.0	U
156-59-2	cis-1,2-Dichloroethene	2.0	U
67-66-3	Chloroform	2.0	U
71-55-6	1,1,1-Trichloroethane	2.0	U
56-23-5	Carbon Tetrachloride	2.0	U
71-43-2	Benzene	2.0	U
107-06-2	1,2-Dichloroethane	2.0	U
79-01-6	Trichloroethene	2.0	U
78-87-5	1,2-Dichloropropane	2.0	U
10061-01-5	cis-1,3-Dichloropropene	2.0	U
108-88-3	Toluene	5.1	U
10061-02-6	trans-1,3-Dichloropropene	2.0	U
79-00-5	1,1,2-Trichloroethane	2.0	U
127-18-4	Tetrachloroethene	2.0	U
108-90-7	Chlorobenzene	2.0	U
100-41-4	Ethylbenzene	2.9	U
1330-20-7	Xylene (m,p)	8.6	U
100-42-5	Styrene	2.0	U
95-47-6	Xylene (o)	2.2	U
79-34-5	1,1,2,2-Tetrachloroethane	2.0	U
541-73-1	1,3-Dichlorobenzene	2.0	U
106-46-7	1,4-Dichlorobenzene	2.0	U
95-50-1	1,2-Dichlorobenzene	2.0	U
120-82-1	1,2,4-Trichlorobenzene	2.0	U

CAE 6/25/04

FORM 1
VOLATILE ORGANICS ANALYSIS DATA SHEET

ROUX2 SAMPLE NO.

SG-ABC R
OOFINGDL

Lab Name: STL BURLINGTON

Contract: 24000

Lab Code: STLVT

Case No.: 24000

SAS No.:

SDG No.: 100226

Matrix: (soil/water) AIR

Lab Sample ID: 571912D1

Sample wt/vol: 50.00 (g/mL) ML

Lab File ID: 571912D

Level: (low/med) LOW ** DO NOT USE **

Date Received: 05/15/04

% Moisture; not dec. _____

CAE 6/25/04

Date Analyzed: 06/10/04

GC Column: RTX-624 ID: 0.32 (mm)

Dilution Factor: 4.0

Soil Extract Volume: _____ (uL)

Soil Aliquot Volume: _____ (uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) PPBV	Q
87-68-3	Hexachlorobutadiene	2.0	U
108-67-8	1,3,5-Trimethylbenzene	2.0	U
95-63-6	1,2,4-Trimethylbenzene	2.9	D
76-14-2	1,2-Dichlorotetrafluoroethane	2.0	U
106-93-4	1,2-Dibromoethane	2.0	U
106-99-0	1,3-Butadiene	2.0	U
75-15-0	Carbon Disulfide	2.0	U
67-64-1	Acetone	74	D J
67-63-0	Isopropyl Alcohol	20	U
1634-04-4	Methyl tert-Butyl Ether	2.0	U
110-82-7	Cyclohexane	2.0	U
124-48-1	Dibromochloromethane	2.0	U
78-93-3	Methyl Ethyl Ketone	3.2	D
108-10-1	Methyl Isobutyl Ketone	2.0	U
591-78-6	Methyl Butyl Ketone	2.0	U
75-27-4	Bromodichloromethane	2.0	U
156-60-5	trans-1,2-Dichloroethene	2.0	U
622-96-8	4-Ethyltoluene	3.4	D
95-49-8	2-Chlorotoluene	2.0	U
110-54-3	n-Hexane	3.9	D
109-99-9	Tetrahydrofuran	20	U
142-82-5	n-Heptane	2.0	U

CAE 6/25/04

FORM 1
VOLATILE ORGANICS ANALYSIS DATA SHEET

ROUX2 SAMPLE NO.

SG-GANGLIANI

Lab Name: STL BURLINGTON

Contract: 24000

Lab Code: STLVT

Case No.: 24000

SAS No.:

SDG No.: 100226

Matrix: (soil/water) AIR

Lab Sample ID: 571914

Sample wt/vol: 200.0 (g/mL) ML

Lab File ID: 571914

Level: (low/med) LOW

Date Received: 05/15/04

% Moisture: not dec. _____

Date Analyzed: 06/09/04

GC Column: RTX-624 ID: 0.32 (mm)

Dilution Factor: 1.0

Soil Extract Volume: _____ (uL)

Soil Aliquot Volume: _____ (uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) PPBV	Q
75-71-8	Dichlorodifluoromethane	24	
74-87-3	Chloromethane	0.73	
75-01-4	Vinyl Chloride	0.50	U
74-83-9	Bromomethane	0.50	U
75-00-3	Chloroethane	0.50	U
75-69-4	Trichlorofluoromethane	0.51	
76-13-1	Freon TF	0.50	U
75-35-4	1,1-Dichloroethene	0.50	U
75-09-2	Methylene Chloride	0.50	U
75-34-3	1,1-Dichloroethane	0.50	U
156-59-2	cis-1,2-Dichloroethene	0.50	U
67-66-3	Chloroform	0.50	U
71-55-6	1,1,1-Trichloroethane	0.50	U
56-23-5	Carbon Tetrachloride	0.50	U
71-43-2	Benzene	0.50	U
107-06-2	1,2-Dichloroethane	0.50	U
79-01-6	Trichloroethene	0.50	U
78-87-5	1,2-Dichloropropane	0.50	U
10061-01-5	cis-1,3-Dichloropropene	0.50	U
108-88-3	Toluene	3.8	
10061-02-6	trans-1,3-Dichloropropene	0.50	U
79-00-5	1,1,2-Trichloroethane	0.50	U
127-18-4	Tetrachloroethene	0.50	U
108-90-7	Chlorobenzene	0.50	U
100-41-4	Ethylbenzene	2.9	
1330-20-7	Xylene (m,p)	11	
100-42-5	Styrene	0.50	U
95-47-6	Xylene (o)	2.8	
79-34-5	1,1,2,2-Tetrachloroethane	0.50	U
541-73-1	1,3-Dichlorobenzene	0.50	U
106-46-7	1,4-Dichlorobenzene	0.50	U
95-50-1	1,2-Dichlorobenzene	0.50	U
120-82-1	1,2,4-Trichlorobenzene	0.50	U

FORM 1
VOLATILE ORGANICS ANALYSIS DATA SHEET

ROUX2 SAMPLE NO.

SG-GANGLIANI

Lab Name: STL BURLINGTON

Contract: 24000

Lab Code: STLVT

Case No.: 24000

SAS No.:

SDG No.: 100226

Matrix: (soil/water) AIR

Lab Sample ID: 571914

Sample wt/vol: 200.0 (g/mL) ML

Lab File ID: 571914

Level: (low/med) LOW

Date Received: 05/15/04

% Moisture: not dec. _____

Date Analyzed: 06/09/04

GC Column: RTX-624 ID: 0.32 (mm)

Dilution Factor: 1.0

Soil Extract Volume: _____ (uL)

Soil Aliquot Volume: _____ (uL)

CAS NO. COMPOUND CONCENTRATION UNITS:
(ug/L or ug/Kg) PPBV Q

87-68-3-----	Hexachlorobutadiene	0.50	U
108-67-8-----	1,3,5-Trimethylbenzene	0.59	
95-63-6-----	1,2,4-Trimethylbenzene	1.8	
76-14-2-----	1,2-Dichlorotetrafluoroethan	0.50	U
106-93-4-----	1,2-Dibromoethane	0.50	U
106-99-0-----	1,3-Butadiene	0.50	U
75-15-0-----	Carbon Disulfide	0.50	U
67-64-1-----	Acetone	16	
67-63-0-----	Isopropyl Alcohol	7.0	
1634-04-4-----	Methyl tert-Butyl Ether	0.50	U
110-82-7-----	Cyclohexane	0.50	U
124-48-1-----	Dibromochloromethane	0.50	U
78-93-3-----	Methyl Ethyl Ketone	0.50	U
108-10-1-----	Methyl Isobutyl Ketone	0.50	U
591-78-6-----	Methyl Butyl Ketone	0.50	U
75-27-4-----	Bromodichloromethane	0.50	U
156-60-5-----	trans-1,2-Dichloroethene	0.50	U
622-96-8-----	4-Ethyltoluene	1.6	
95-49-8-----	2-Chlorotoluene	0.50	U
110-54-3-----	n-Hexane	0.97	
109-99-9-----	Tetrahydrofuran	5.0	U
142-82-5-----	n-Heptane	0.50	U

0.50 ~~1.2~~ U

CAE 6/25/04

FORM 1
VOLATILE ORGANICS ANALYSIS DATA SHEET

ROUX2 SAMPLE NO.

SG-GRAPHIQUE

Lab Name: STL BURLINGTON

Contract: 24000

Lab Code: STLVT

Case No.: 24000

SAS No.:

SDG No.: 100226

Matrix: (soil/water) AIR

Lab Sample ID: 571916

Sample wt/vol: 200.0 (g/mL) ML

Lab File ID: 571916

Level: (low/med) LOW

Date Received: 05/15/04

% Moisture: not dec. _____

Date Analyzed: 06/09/04

GC Column: RTX-624 ID: 0.32 (mm)

Dilution Factor: 1.0

Soil Extract Volume: _____ (uL)

Soil Aliquot Volume: _____ (uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) PPBV	Q
---------	----------	--	---

75-71-8	Dichlorodifluoromethane	0.82	
74-87-3	Chloromethane	0.56	
75-01-4	Vinyl Chloride	0.50	U
74-83-9	Bromomethane	0.50	U
75-00-3	Chloroethane	0.50	U
75-69-4	Trichlorofluoromethane	0.50	U
76-13-1	Freon TF	0.50	U
75-35-4	1,1-Dichloroethene	0.50	U
75-09-2	Methylene Chloride	0.50	U
75-34-3	1,1-Dichloroethane	0.50	U
156-59-2	cis-1,2-Dichloroethene	0.50	U
67-66-3	Chloroform	0.50	U
71-55-6	1,1,1-Trichloroethane	0.50	U
56-23-5	Carbon Tetrachloride	0.50	U
71-43-2	Benzene	0.76	
107-06-2	1,2-Dichloroethane	0.50	U
79-01-6	Trichloroethene	0.50	U
78-87-5	1,2-Dichloropropane	0.50	U
10061-01-5	cis-1,3-Dichloropropene	0.50	U
108-88-3	Toluene	1.1	
10061-02-6	trans-1,3-Dichloropropene	0.50	U
79-00-5	1,1,2-Trichloroethane	0.50	U
127-18-4	Tetrachloroethene	0.50	U
108-90-7	Chlorobenzene	0.50	U
100-41-4	Ethylbenzene	0.50	U
1330-20-7	Xylene (m,p)	0.72	
100-42-5	Styrene	0.50	U
95-47-6	Xylene (o)	0.50	U
79-34-5	1,1,2,2-Tetrachloroethane	0.50	U
541-73-1	1,3-Dichlorobenzene	0.50	U
106-46-7	1,4-Dichlorobenzene	0.50	U
95-50-1	1,2-Dichlorobenzene	0.50	U
120-82-1	1,2,4-Trichlorobenzene	0.50	U

FORM 1
VOLATILE ORGANICS ANALYSIS DATA SHEET

ROUX2 SAMPLE NO.

SG-GRAPHIQUE

Lab Name: STL BURLINGTON

Contract: 24000

Lab Code: STLVT

Case No.: 24000

SAS No.:

SDG No.: 100226

Matrix: (soil/water) AIR

Lab Sample ID: 571916

Sample wt/vol: 200.0 (g/mL) ML

Lab File ID: 571916

Level: (low/med) LOW

Date Received: 05/15/04

% Moisture: not dec. _____

Date Analyzed: 06/09/04

GC Column: RTX-624 ID: 0.32 (mm)

Dilution Factor: 1.0

Soil Extract Volume: _____ (uL)

Soil Aliquot Volume: _____ (uL)

CAS NO. COMPOUND CONCENTRATION UNITS: (ug/L or ug/Kg) PPBV Q

87-68-3	Hexachlorobutadiene	0.50	U
108-67-8	1,3,5-Trimethylbenzene	0.50	U
95-63-6	1,2,4-Trimethylbenzene	0.50	U
76-14-2	1,2-Dichlorotetrafluoroethan	0.50	U
106-93-4	1,2-Dibromoethane	0.50	U
106-99-0	1,3-Butadiene	1.1	
75-15-0	Carbon Disulfide	0.50	U
67-64-1	Acetone	8.4	
67-63-0	Isopropyl Alcohol	5.0	U
1634-04-4	Methyl tert-Butyl Ether	0.50	U
110-82-7	Cyclohexane	0.50	U
124-48-1	Dibromochloromethane	0.50	U
78-93-3	Methyl Ethyl Ketone	0.50	U
108-10-1	Methyl Isobutyl Ketone	0.50	U
591-78-6	Methyl Butyl Ketone	0.50	U
75-27-4	Bromodichloromethane	0.50	U
156-60-5	trans-1,2-Dichloroethene	0.50	U
622-96-8	4-Ethyltoluene	0.50	U
95-49-8	2-Chlorotoluene	0.50	U
110-54-3	n-Hexane	0.50	U
109-99-9	Tetrahydrofuran	5.0	U
142-82-5	n-Heptane	0.50	U

CAE 6/25/04

FORM 1
VOLATILE ORGANICS ANALYSIS DATA SHEET

ROUX2 SAMPLE NO.

SG-PACER

Lab Name: STL BURLINGTON

Contract: 24000

Lab Code: STLVT

Case No.: 24000

SAS No.:

SDG No.: 100226

Matrix: (soil/water) AIR

Lab Sample ID: 571918

Sample wt/vol: 200.0 (g/mL) ML

Lab File ID: 571918

Level: (low/med) LOW

Date Received: 05/15/04

% Moisture: not dec. _____

Date Analyzed: 06/09/04

GC Column: RTX-624 ID: 0.32 (mm)

Dilution Factor: 1.0

Soil Extract Volume: _____ (uL)

Soil Aliquot Volume: _____ (uL)

CONCENTRATION UNITS:
(ug/L or ug/Kg) PPBV

CAS NO.

COMPOUND

Q

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) PPBV	Q
75-71-8	Dichlorodifluoromethane	0.77	
74-87-3	Chloromethane	0.57	
75-01-4	Vinyl Chloride	0.50	U
74-83-9	Bromomethane	0.50	U
75-00-3	Chloroethane	0.50	U
75-69-4	Trichlorofluoromethane	0.50	U
76-13-1	Freon TF	0.50	U
75-35-4	1,1-Dichloroethene	0.50	U
75-09-2	Methylene Chloride	0.50	U
75-34-3	1,1-Dichloroethane	0.50	U
156-59-2	cis-1,2-Dichloroethene	0.50	U
67-66-3	Chloroform	0.50	U
71-55-6	1,1,1-Trichloroethane	0.50	U
56-23-5	Carbon Tetrachloride	0.50	U
71-43-2	Benzene	5.5	
107-06-2	1,2-Dichloroethane	0.50	U
79-01-6	Trichloroethene	0.50	U
78-87-5	1,2-Dichloropropane	0.50	U
10061-01-5	cis-1,3-Dichloropropene	0.50	U
108-88-3	Toluene	6.9	
10061-02-6	trans-1,3-Dichloropropene	0.50	U
79-00-5	1,1,2-Trichloroethane	0.50	U
127-18-4	Tetrachloroethene	0.50	U
108-90-7	Chlorobenzene	0.50	U
100-41-4	Ethylbenzene	0.97	
1330-20-7	Xylene (m,p)	2.6	
100-42-5	Styrene	0.50	U
95-47-6	Xylene (o)	0.84	
79-34-5	1,1,2,2-Tetrachloroethane	0.50	U
541-73-1	1,3-Dichlorobenzene	0.50	U
106-46-7	1,4-Dichlorobenzene	0.50	U
95-50-1	1,2-Dichlorobenzene	0.50	U
120-82-1	1,2,4-Trichlorobenzene	0.50	U

FORM 1
VOLATILE ORGANICS ANALYSIS DATA SHEET

ROUX2 SAMPLE NO.

SG-PACER

Lab Name: STL BURLINGTON

Contract: 24000

Lab Code: STLVT

Case No.: 24000

SAS No.:

SDG No.: 100226

Matrix: (soil/water) AIR

Lab Sample ID: 571918

Sample wt/vol: 200.0 (g/mL) ML

Lab File ID: 571918

Level: (low/med) LOW

Date Received: 05/15/04

% Moisture: not dec. _____

Date Analyzed: 06/09/04

GC Column: RTX-624 ID: 0.32 (mm)

Dilution Factor: 1.0

Soil Extract Volume: _____ (uL)

Soil Aliquot Volume: _____ (uL)

CONCENTRATION UNITS:
(ug/L or ug/Kg) PPBV

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) PPBV	Q
87-68-3	Hexachlorobutadiene	0.50	U
108-67-8	1,3,5-Trimethylbenzene	0.50	U
95-63-6	1,2,4-Trimethylbenzene	0.50	U
76-14-2	1,2-Dichlorotetrafluoroethan	0.50	U
106-93-4	1,2-Dibromoethane	0.50	U
106-99-0	1,3-Butadiene	9.1	
75-15-0	Carbon Disulfide	1.0	
67-64-1	Acetone*	89.96	U J
67-63-0	Isopropyl Alcohol	5.0	U
1634-04-4	Methyl tert-Butyl Ether	1.3	
110-82-7	Cyclohexane	0.71	
124-48-1	Dibromochloromethane	0.50	U
78-93-3	Methyl Ethyl Ketone	39	
108-10-1	Methyl Isobutyl Ketone	0.50	U
591-78-6	Methyl Butyl Ketone	0.50	U
75-27-4	Bromodichloromethane	0.50	U
156-60-5	trans-1,2-Dichloroethene	0.50	U
622-96-8	4-Ethyltoluene	0.50	U
95-49-8	2-Chlorotoluene	0.50	U
110-54-3	n-Hexane	3.8	
109-99-9	Tetrahydrofuran	5.0	U
142-82-5	n-Heptane	2.7	

*Result is from the diluted analysis.

CA Erikson 6/25/04

FORM 1
VOLATILE ORGANICS ANALYSIS DATA SHEET

ROUX2 SAMPLE NO.

SG-PACERDL

Lab Name: STL BURLINGTON

Contract: 24000

Lab Code: STLVT

Case No.: 24000

SAS No.:

SDG No.: 100226

Matrix: (soil/water) AIR

Lab Sample ID: 571918D1

Sample wt/vol: 50.00 (g/mL) ML

Lab File ID: 571918D

Level: (low/med) LOW * ~~DO NOT USE~~ *

Date Received: 05/15/04

% Moisture: not dec. _____

*CAE
4/25/04*

Date Analyzed: 06/10/04

GC Column: RTX-624 ID: 0.32 (mm)

Dilution Factor: 4.0

Soil Extract Volume: _____ (uL)

Soil Aliquot Volume: _____ (uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) PPBV	Q
75-71-8	Dichlorodifluoromethane	2.0	U
74-87-3	Chloromethane	2.0	U
75-01-4	Vinyl Chloride	2.0	U
74-83-9	Bromomethane	2.0	U
75-00-3	Chloroethane	2.0	U
75-69-4	Trichlorofluoromethane	2.0	U
76-13-1	Freon TF	2.0	U
75-35-4	1,1-Dichloroethene	2.0	U
75-09-2	Methylene Chloride	2.0	U
75-34-3	1,1-Dichloroethane	2.0	U
156-59-2	cis-1,2-Dichloroethene	2.0	U
67-66-3	Chloroform	2.0	U
71-55-6	1,1,1-Trichloroethane	2.0	U
56-23-5	Carbon Tetrachloride	2.0	U
71-43-2	Benzene	5.2	U
107-06-2	1,2-Dichloroethane	2.0	U
79-01-6	Trichloroethene	2.0	U
78-87-5	1,2-Dichloropropane	2.0	U
10061-01-5	cis-1,3-Dichloropropene	2.0	U
108-88-3	Toluene	6.4	U
10061-02-6	trans-1,3-Dichloropropene	2.0	U
79-00-5	1,1,2-Trichloroethane	2.0	U
127-18-4	Tetrachloroethene	2.0	U
108-90-7	Chlorobenzene	2.0	U
100-41-4	Ethylbenzene	2.0	U
1330-20-7	Xylene (m,p)	2.5	U
100-42-5	Styrene	2.0	U
95-47-6	Xylene (o)	2.0	U
79-34-5	1,1,2,2-Tetrachloroethane	2.0	U
541-73-1	1,3-Dichlorobenzene	2.0	U
106-46-7	1,4-Dichlorobenzene	2.0	U
95-50-1	1,2-Dichlorobenzene	2.0	U
120-82-1	1,2,4-Trichlorobenzene	2.0	U

CAE 4/25/04