

**AIR MONITORING**

**August 26, 2009 Sampling Event**



## ANALYTICAL REPORT

Lab Number:	L0911884
Client:	Shaw E & I 11 Northeastern Blvd. Salem, NH 03079
ATTN:	Ed Van Doren
Project Name:	CROW LANE
Project Number:	124246
Report Date:	09/02/09

Certifications & Approvals: MA (M-MA030), NY (11627), CT (PH-0141), NH (2206), NJ (MA015), RI (LAO00299), ME (MA0030), PA (Registration #68-02089), LA NELAC (03090), FL NELAC (E87814), US Army Corps of Engineers.

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320 Forbes Boulevard, Mansfield, MA 02048-1806  
508-822-9300 (Fax) 508-822-3288 800-624-9220 - [www.alphalab.com](http://www.alphalab.com)



**Project Name:** CROW LANE  
**Project Number:** 124246

**Lab Number:** L0911884  
**Report Date:** 09/02/09

<b>Alpha Sample ID</b>	<b>Client ID</b>	<b>Sample Location</b>	<b>Collection Date/Time</b>
L0911884-01	LOCATION 4	NEWBURYPORT, MA	08/26/09 14:45

**Project Name:** CROW LANE  
**Project Number:** 124246

**Lab Number:** L0911884  
**Report Date:** 09/02/09

### Case Narrative

The samples were received in accordance with the Chain of Custody and no significant deviations were encountered during the preparation or analysis unless otherwise noted. Sample Receipt, Container Information, and the Chain of Custody are located at the back of the report.

Results contained within this report relate only to the samples submitted under this Alpha Lab Number and meet all of the requirements of NELAC, for all NELAC accredited parameters. The data presented in this report is organized by parameter (i.e. VOC, SVOC, etc.). Sample specific Quality Control data (i.e. Surrogate Spike Recovery) is reported at the end of the target analyte list for each individual sample, followed by the Laboratory Batch Quality Control at the end of each parameter. If a sample was re-analyzed or re-extracted due to a required quality control corrective action and if both sets of data are reported, the Laboratory ID of the re-analysis or re-extraction is designated with an "R" or "RE", respectively. When multiple Batch Quality Control elements are reported (e.g. more than one LCS), the associated samples for each element are noted in the grey shaded header line of each data table. Any Laboratory Batch, Sample Specific % recovery or RPD value that is outside the listed Acceptance Criteria is bolded in the report.

Please see the associated ADEx data file for a comparison of laboratory reporting limits that were achieved with the regulatory Numerical Standards requested on the Chain of Custody.

For additional information, please contact Client Services at 800-624-9220.

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### Mercaptans and Sulfides

The WG378092-3 LCS recoveries for Isopropyl mercaptan (135%) and Thiophene (209%) are outside the 70%-130% acceptance limit. These compounds responded high and were not present in associated samples, therefore no further action was taken.

I, the undersigned, attest under the pains and penalties of perjury that, to the best of my knowledge and belief and based upon my personal inquiry of those responsible for providing the information contained in this analytical report, such information is accurate and complete. This certificate of analysis is not complete unless this page accompanies any and all pages of this report.

Authorized Signature:



Title: Technical Director/Representative

Date: 09/02/09

**AIR**

Project Name: CROW LANE

Lab Number: L0911884

Project Number: 124246

Report Date: 09/02/09

## SAMPLE RESULTS

Lab ID: L0911884-01  
 Client ID: LOCATION 4  
 Sample Location: NEWBURYPORT, MA  
 Matrix: Air  
 Analytical Method: 48,TO-15  
 Analytical Date: 08/27/09 17:05  
 Analyst: AR

Date Collected: 08/26/09 14:45  
 Date Received: 08/26/09  
 Field Prep: Not Specified

Parameter	ppbV		ug/m3		Qualifier	Dilution Factor
	Results	RDL	Results	RDL		
<b>Mercaptans &amp; Sulfides in Air - Mansfield Lab</b>						
Hydrogen Sulfide	ND	5.00	ND	6.94		1
Carbonyl sulfide	4.88	1.00	11.9	2.44		1
Methyl mercaptan	ND	5.00	ND	9.80		1
Ethyl mercaptan	ND	5.00	ND	12.8		1
Dimethyl sulfide	ND	1.00	ND	2.56		1
2,5-Dimethylthiophene	ND	0.500	ND	2.29		1
2-Ethylthiophene	ND	0.500	ND	2.29		1
3-Methylthiophene	ND	0.500	ND	2.00		1
n-Butyl Mercaptan	ND	5.00	ND	18.4		1
Diethyl disulfide	ND	1.00	ND	5.00		1
Ethyl Methyl Sulfide	ND	0.500	ND	1.56		1
Isobutyl Mercaptan	ND	5.00	ND	18.4		1
Isopropyl Mercaptan	ND	2.50	ND	7.78		1
N-Propyl Mercaptan	ND	1.00	ND	3.11		1
tert-Butyl Mercaptan	ND	2.50	ND	9.21		1
Tetrahydrothiophene	ND	2.00	ND	7.21		1
Carbon disulfide	1.65	0.500	5.14	1.56		1
Diethyl Sulfide	ND	0.500	ND	1.84		1
Dimethyl Disulfide	ND	0.500	ND	1.92		1
Thiophene	ND	0.500	ND	1.72		1

Project Name: CROW LANE

Lab Number: L0911884

Project Number: 124246

Report Date: 09/02/09

### Method Blank Analysis Batch Quality Control

Analytical Method: 48,TO-15

Analytical Date: 08/27/09 16:36

Parameter	ppbV		ug/m3		Qualifier	Dilution Factor
	Results	RDL	Results	RDL		
Mercaptans & Sulfides in Air - Mansfield Lab for sample(s): 01 Batch: WG378092-4						
Hydrogen Sulfide	ND	5.00	ND	6.94		1
Carbonyl sulfide	ND	1.00	ND	2.44		1
Methyl mercaptan	ND	5.00	ND	9.80		1
Ethyl mercaptan	ND	5.00	ND	12.8		1
Dimethyl sulfide	ND	1.00	ND	2.56		1
2,5-Dimethylthiophene	ND	0.500	ND	2.29		1
2-Ethylthiophene	ND	0.500	ND	2.29		1
3-Methylthiophene	ND	0.500	ND	2.00		1
n-Butyl Mercaptan	ND	5.00	ND	18.4		1
Diethyl disulfide	ND	1.00	ND	5.00		1
Ethyl Methyl Sulfide	ND	0.500	ND	1.56		1
Isobutyl Mercaptan	ND	5.00	ND	18.4		1
Isopropyl Mercaptan	ND	2.50	ND	7.78		1
N-Propyl Mercaptan	ND	1.00	ND	3.11		1
tert-Butyl Mercaptan	ND	2.50	ND	9.21		1
Tetrahydrothiophene	ND	2.00	ND	7.21		1
Carbon disulfide	ND	0.500	ND	1.56		1
Diethyl Sulfide	ND	0.500	ND	1.84		1
Dimethyl Disulfide	ND	0.500	ND	1.92		1
Thiophene	ND	0.500	ND	1.72		1

## Lab Control Sample Analysis

Batch Quality Control

**Project Name:** CROW LANE  
**Project Number:** 124246

**Lab Number:** L0911884  
**Report Date:** 09/02/09

Parameter	LCS %Recovery	LCSD %Recovery	%Recovery Limits	RPD	RPD Limits
Mercaptans & Sulfides in Air - Mansfield Lab Associated sample(s): 01 Batch: WG378092-3					
Hydrogen Sulfide	107	-	70-130	-	
Carbonyl sulfide	99	-	70-130	-	
Methyl mercaptan	114	-	70-130	-	
Ethyl mercaptan	122	-	70-130	-	
Dimethyl sulfide	117	-	70-130	-	
2,5-Dimethylthiophene	111	-	70-130	-	
2-Ethylthiophene	122	-	70-130	-	
3-Methylthiophene	126	-	70-130	-	
n-Butyl Mercaptan	93	-	70-130	-	
Diethyl disulfide	121	-	70-130	-	
Ethyl Methyl Sulfide	130	-	70-130	-	
Isobutyl Mercaptan	106	-	70-130	-	
Isopropyl Mercaptan	135	-	70-130	-	
N-Propyl Mercaptan	115	-	70-130	-	
tert-Butyl Mercaptan	130	-	70-130	-	
Tetrahydrothiophene	103	-	70-130	-	
Carbon disulfide	102	-	70-130	-	
Diethyl Sulfide	110	-	70-130	-	
Dimethyl Disulfide	97	-	70-130	-	
Thiophene	209	-	70-130	-	

## Lab Duplicate Analysis

Batch Quality Control

Project Name: CROW LANE

Project Number: 124246

Lab Number: L0911884

Report Date: 09/02/09

Parameter	Native Sample	Duplicate Sample	Units	RPD	RPD Limits
Mercaptans & Sulfides in Air - Mansfield Lab Associated sample(s): 01 QC Batch ID: WG378092-5 QC Sample: L0911884-01 Client ID: LOCATION 4					
Hydrogen Sulfide	ND	ND	ppbV	NC	25
Carbonyl sulfide	4.88	5.29	ppbV	8	25
Methyl mercaptan	ND	ND	ppbV	NC	25
Ethyl mercaptan	ND	ND	ppbV	NC	25
Dimethyl sulfide	ND	ND	ppbV	NC	25
2,5-Dimethylthiophene	ND	ND	ppbV	NC	25
2-Ethylthiophene	ND	ND	ppbV	NC	25
3-Methylthiophene	ND	ND	ppbV	NC	25
n-Butyl Mercaptan	ND	ND	ppbV	NC	25
Diethyl disulfide	ND	ND	ppbV	NC	25
Ethyl Methyl Sulfide	ND	ND	ppbV	NC	25
Isobutyl Mercaptan	ND	ND	ppbV	NC	25
Isopropyl Mercaptan	ND	ND	ppbV	NC	25
N-Propyl Mercaptan	ND	ND	ppbV	NC	25
tert-Butyl Mercaptan	ND	ND	ppbV	NC	25
Tetrahydrothiophene	ND	ND	ppbV	NC	25
Carbon disulfide	1.65	1.70	ppbV	3	25
Diethyl Sulfide	ND	ND	ppbV	NC	25
Dimethyl Disulfide	ND	ND	ppbV	NC	25

**Lab Duplicate Analysis**  
Batch Quality Control

Project Name: CROW LANE

Project Number: 124246

Lab Number: L0911884

Report Date: 09/02/09

Parameter	Native Sample	Duplicate Sample	Units	RPD	RPD Limits
Mercaptans & Sulfides in Air - Mansfield Lab Associated sample(s): 01 QC Batch ID: WG378092-5 QC Sample: L0911884-01 Client ID: LOCATION 4					
Thiophene	ND	ND	ppbV	NC	25

**Project Name:** CROW LANE**Lab Number:** L0911884**Project Number:** 124246**Report Date:** 09/02/09**Sample Receipt and Container Information**

Were project specific reporting limits specified? YES

**Cooler Information**

Cooler	Custody Seal
A	Absent

**Container Information**

Container ID	Container Type	Cooler	pH	Temp deg C	Pres	Seal	Analysis
L0911884-01A	Tedlar Bag 5 liter-Polypropylene	A	N/A		NA	Absent	TO15-CTD(2)

\*Hold days indicated by values in parentheses

**Project Name:** CROW LANE  
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## GLOSSARY

### Acronyms

- EPA** - Environmental Protection Agency.
- LCS** - Laboratory Control Sample: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
- LCSD** - Laboratory Control Sample Duplicate: Refer to LCS.
- MS** - Matrix Spike Sample: A sample prepared by adding a known mass of target analyte to a specified amount of matrix sample for which an independent estimate of target analyte concentration is available.
- MSD** - Matrix Spike Sample Duplicate: Refer to MS.
- NA** - Not Applicable.
- NC** - Not Calculated: Term is utilized when one or more of the results utilized in the calculation are non-detect at the parameter's reporting unit.
- ND** - Not detected at the reported detection limit for the sample.
- NI** - Not Ignitable.
- RDL** - Reported Detection Limit: The value at which an instrument can accurately measure an analyte at a specific concentration. The RDL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
- RPD** - Relative Percent Difference: The results from matrix and/or matrix spike duplicates are primarily designed to assess the precision of analytical results in a given matrix and are expressed as relative percent difference (RPD). Values which are less than five times the reporting limit for any individual parameter are evaluated by utilizing the absolute difference between the values; although the RPD value will be provided in the report.

### Terms

**Analytical Method:** Both the document from which the method originates and the analytical reference method. (Example: EPA 8260B is shown as 1,8260B.) The codes for the reference method documents are provided in the References section of the Addendum.

### Data Qualifiers

- A** - Spectra identified as "Aldol Condensation Product".
- B** - The analyte was detected above the reporting limit in the associated method blank. Flag only applies to associated field samples that have detectable concentrations of the analyte at less than five times (5x) the concentration found in the blank. For DOD-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank AND the analyte was detected above one-half the reporting limit (or above the reporting limit for common lab contaminants) in the associated method blank.
- D** - Concentration of analyte was quantified from diluted analysis. Flag only applies to field samples that have detectable concentrations of the analyte.
- E** - Concentration of analyte exceeds the range of the calibration curve and/or linear range of the instrument.
- H** - The analysis of pH was performed beyond the regulatory-required holding time of 15 minutes from the time of sample collection.
- P** - The RPD between the results for the two columns exceeds the method-specified criteria.
- Q** - The quality control sample exceeds the associated acceptance criteria. Note: This flag is not applicable for matrix spike recoveries when the sample concentration is greater than 4x the spike added or for batch duplicate RPD when the sample concentrations are less than 5x the RDL. (Metals only.)
- R** - Analytical results are from sample re-analysis.
- RE** - Analytical results are from sample re-extraction.
- J** - Estimated value. This represents an estimated concentration for Tentatively Identified Compounds (TICs).

Report Format: Data Usability Report



**Project Name:** CROW LANE  
**Project Number:** 124246

**Lab Number:** L0911884  
**Report Date:** 09/02/09

## REFERENCES

- 48 Compendium of Methods for the Determination of Toxic Organic Compounds in Ambient Air. Second Edition. EPA/625/R-96/010b, January 1999.

## LIMITATION OF LIABILITIES

Alpha Analytical performs services with reasonable care and diligence normal to the analytical testing laboratory industry. In the event of an error, the sole and exclusive responsibility of Alpha Woods Hole Labs shall be to re-perform the work at it's own expense. In no event shall Alpha Analytical be held liable for any incidental, consequential or special damages, including but not limited to, damages in any way connected with the use of, interpretation of, information or analysis provided by Alpha Woods Hole Labs.

We strongly urge our clients to comply with EPA protocol regarding sample volume, preservation, cooling, containers, sampling procedures, holding time and splitting of samples in the field.



## Certificate/Approval Program Summary

Last revised June 17, 2009 – Mansfield Facility

The following list includes only those analytes/methods for which certification/approval is currently held. For a complete listing of analytes for the referenced methods, please contact your Alpha Customer Service Representative.

### **Connecticut Department of Public Health Certificate/Lab ID: PH-0141.**

*Wastewater/Non-Potable Water* (Inorganic Parameters: pH, Turbidity, Conductivity, Alkalinity, Aluminum, Antimony, Arsenic, Barium, Beryllium, Boron, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Mercury, Molybdenum, Nickel, Potassium, Selenium, Silver, Sodium, Strontium, Thallium, Tin, Vanadium, Zinc, Total Residue (Solids), Total Suspended Solids (non-filterable), Total Cyanide. Organic Parameters: PCBs, Organochlorine Pesticides, Technical Chlordane, Toxaphene, Acid Extractables, Benzidines, Phthalate Esters, Nitrosamines, Nitroaromatics & Isophorone, PAHs, Haloethers, Chlorinated Hydrocarbons, Volatile Organics.)

*Solid Waste/Soil* (Inorganic Parameters: pH, Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Hexavalent Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Mercury, Molybdenum, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc, Total Organic Carbon, Total Cyanide, Corrosivity, TCLP 1311. Organic Parameters: PCBs, Organochlorine Pesticides, Technical Chlordane, Toxaphene, Volatile Organics, Acid Extractables, Benzidines, Phthalates, Nitrosamines, Nitroaromatics & Cyclic Ketones, PAHs, Haloethers, Chlorinated Hydrocarbons.)

### **Florida Department of Health Certificate/Lab ID: E87814. *NELAP Accredited.***

*Non-Potable Water* (Inorganic Parameters: SM2320B, 4500NH3-F, EPA 120.1, SM2510B, 2340B, EPA 245.1, EPA 150.1, EPA 160.2, SM2540D, EPA 335.2, 420.1, SM2540G, EPA 180.1. Organic Parameters: EPA 625, 608.)

*Solid & Chemical Materials* (Inorganic Parameters: 6020, 7470, 7471, 9045, 9014. Organic Parameters: EPA 8260, 8270, 8082, 8081.)

*Air & Emissions* (EPA TO-15.)

### **Louisiana Department of Environmental Quality Certificate/Lab ID: 03090. *NELAP Accredited.***

*Non-Potable Water* (Inorganic Parameters: EPA 120.1, 150.1, 160.2, 180.1, 200.8, 245.1, 310.1, 335.2, 608, 625, 1631, 3010, 3015, 3020, 6020, 9010, 9014, 9040, SM2320B, 2510B, 2540D, 2540G, 4500CN-E, 4500H-B, Organic Parameters: EPA 3510, 3580, 3630, 3640, 3660, 3665, 5030, 8015 (mod), 3570, 8081, 8082, 8260, 8270, )

*Solid & Chemical Materials* (Inorganic Parameters: 6020, 7196, 7470, 7471, 7474, 9010, 9014, 9040, 9045, 9060. Organic Parameters: EPA 8015 (mod), EPA 3570, 1311, 3050, 3051, 3060, 3580, 3630, 3640, 3660, 3665, 5035, 8081, 8082, 8260, 8270.)

*Biological Tissue* (Inorganic Parameters: EPA 6020. Organic Parameters: EPA 3570, 3510, 3610, 3630, 3640, 8270.)

### **Maine Department of Human Services Certificate/Lab ID: MA0030.**

*Wastewater* (Inorganic Parameters: EPA 120.1, 300.0, SM 2320, 2510B, 2540C, 2540D, EPA 245.1. Organic Parameters: 608, 624.)

### **Massachusetts Department of Environmental Protection Certificate/Lab ID: M-MA030.**

*Non-Potable Water* (Inorganic Parameters: SM4500H+B. Organic Parameters: EPA 624.)

### **New Hampshire Department of Environmental Services Certificate/Lab ID: 2206. *NELAP Accredited.***

*Non-Potable Water* (Inorganic Parameters: EPA 200.8, 245.1, 1631E, 120.1, 150.1, 180.1, 310.1, 335.2, 160.2, SM2540D, 2540G, 4500CN-E, 4500H+B, 2320B, 2510B. Organic Parameters: EPA 625, 608.)

**New Jersey Department of Environmental Protection Certificate/Lab ID: MA015. *NELAP Accredited.***

*Non-Potable Water* (Inorganic Parameters: SW-846 1312, 3010, 3020A, 3015, 6020, SM2320B, EPA 200.8, SM2540C, 2540D, 2540G, EPA 120.1, SM2510B, EPA 180.1, 245.1, 1631E, SW-846 9040B, 6020, 9010B, 9014 Organic Parameters: EPA 608, 625, SW-846 3510C, 3580A, 5030B, 3035L, 5035H, 3630C, 3640A, 3660B, 3665A, 8081A, 8082 8260B, 8270C)

*Solid & Chemical Materials* (Inorganic Parameters: SW-846 6020, 9010B, 9014, 1311, 1312, 3050B, 3051, 3060A, 7196A, 7470A, 7471A, 9045C, 9060. Organic Parameters: SW-846 3580A, 5030B, 3035L, 5035H, 3630C, 3640A, 3660B, 3665A, 8081A, 8082, 8260B, 8270C, 3570, 8015B.)

*Atmospheric Organic Parameters* (EPA TO-15)

*Biological Tissue* (Inorganic Parameters: SW-846 6020 Organic Parameters: SW-846 8270C, 3510C, 3570, 3610B, 3630C, 3640A)

**New York Department of Health Certificate/Lab ID: 11627. *NELAP Accredited.***

*Non-Potable Water* (Inorganic Parameters: EPA 310.1, SM2320B, EPA 365.2, 160.1, EPA 160.2, SM2540D, EPA 200.8, 6020, 1631E, 245.1, 335.2, 9014, 150.1, 9040B, 120.1, SM2510B, EPA 376.2, 180.1, 9010B. Organic Parameters: EPA 624, 8260B, 8270C, 608, 8081A, 625, 8082, 3510C, 3511, 5030B.)

*Solid & Hazardous Waste* (Inorganic Parameters: EPA 9040B, 9045C, SW-846 Ch7 Sec 7.3, EPA 6020, 7196A, 7471A, 7474, 9014, 9040B, 9045C, 9010B. Organic Parameters: EPA 8260B, 8270C, 8081A, DRO 8015B, 8082, 1311, 3050B, 3580, 3050B, 3035, 3570, 3051, 5035, 5030B.)

*Air & Emissions* (EPA TO-15.)

**Pennsylvania Department of Environmental Protection Certificate/Lab ID: 68-02089. *NELAP Accredited.***

*Non-Potable Water* (Organic Parameters: EPA 5030B, EPA 8260)

**Rhode Island Department of Health Certificate/Lab ID: LAO00299. *NELAP Accredited via LA-DEQ.***

Refer to MA-DEP Certificate for Non-Potable Water.

Refer to LA-DEQ Certificate for Non-Potable Water.

**Texas Commission of Environmental Quality Certificate/Lab ID: T104704419-08-TX. *NELAP Accredited.***

*Solid & Chemical Materials* (Inorganic Parameters: EPA 6020, 7471. Organic Parameters: EPA 8015, 8270.)

**U.S. Army Corps of Engineers**



TestAmerica Laboratories, Inc.

September 28, 2009

Mr. Edward Van Doren  
Shaw Env. & Infrastructure  
11 Northeastern Blvd.  
Salem, NH 03079

Re: Laboratory Project No. 29000  
ETR: 133322

Dear Mr. Van Doren:

Enclosed are the analytical results for the samples that were received by TestAmerica Burlington on August 28<sup>th</sup>, 2009. Laboratory identification numbers were assigned, and designated as follows:

<u>Lab ID</u>	<u>Client Sample ID</u>	<u>Sample Date</u>	<u>Sample Matrix</u>
	Received: 08/28/09 ETR No: 133322		
805061	LOCATION 4	08/26/09	AIR

Documentation of the condition of the samples at the time of their receipt and any exception to the laboratory's Sample Acceptance Policy is documented in the Sample Handling section of this submittal.

The Arsenic by NIOSH 6001 and Sulfur Dioxide by OSHA ID 200 analyses for the samples referenced above were performed by Wisconsin Occupational Health Laboratory (WOHL) in Madison, WI. The reports prepared by WOHL are provided in their entirety at the end of this submittal.

During the TO-15 canister pressure check performed upon receipt, it was observed that the sample referenced above was received at nearly full vacuum. The analysis of this sample was cancelled at the client's request.

The mercury analysis of the blank tube that was prepared with this sample set yielded a concentration of Mercury that exceeded the reporting limit. Mercury was not detected in the sample referenced above. This elevated concentration in the blank resulted in a percent recovery for the tube spike that was slightly below the lower control limit.



THE LEADER IN ENVIRONMENTAL TESTING

Any reference within this report to Severn Trent Laboratories, Inc. or STL, should be understood to refer to TestAmerica Laboratories, Inc. (formerly known as Severn Trent Laboratories, Inc.) The analytical results associated with the samples presented in this test report were generated under a quality system that adheres to requirements specified in the NELAC standard. Release of the data in this test report and any associated electronic deliverables is authorized by the Laboratory Director's designee as verified by the following signature.

If there are any questions regarding this submittal, please contact me at 802 660-1990.

Sincerely,

A handwritten signature in black ink, appearing to read "D. Dawicki".

Don Dawicki  
Project Manager

**TAL Burlington  
Results Summary  
SDG 133322**

SDG	Lab ID	Client ID	Date Collected	Date Analyzed	Compound	Result (ug/Air Tube)	Qualifier	Low Reporting Limit (ug/Air Tube)	High Reporting Limit (ug/Air Tube)	Results (ug/m3)
133322	805061	LOCATION 4	08/26/2009	09/02/2009	Mercury	0.050	UN	0.050	0.050	6.6
133322	TUBE	TUBE BLANK HG		09/02/2009	Mercury	0.073		0.050	0.050	

## TestAmerica Burlington Data Qualifier Definitions

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### Organic

- U: Compound analyzed but not detected at a concentration above the reporting limit.
- J: Estimated value.
- N: Indicates presumptive evidence of a compound. This flag is used only for tentatively identified compounds (TICs) where the identification of a compound is based on a mass spectral library search.
- P: SW-846: The relative percent difference for detected concentrations between two GC columns is greater than 40%. Unless otherwise specified the higher of the two values is reported on the Form I.  
  
CLP SOW: Greater than 25% difference for detected concentrations between two GC columns. Unless otherwise specified the lower of the two values is reported on the Form I.
- C: Pesticide result whose identification has been confirmed by GC/MS.
- B: Analyte is found in the sample and the associated method blank. The flag is used for tentatively identified compounds as well as positively identified compounds.
- E: Compounds whose concentrations exceed the upper limit of the calibration range of the instrument for that specific analysis.
- D: Concentrations identified from analysis of the sample at a secondary dilution.
- A: Tentatively identified compound is a suspected aldol condensation product.
- X,Y,Z: Laboratory defined flags that may be used alone or combined, as needed. If used, the description of the flag is defined in the project narrative.

### Inorganic/Metals

- E: Reported value is estimated due to the presence of interference.
- N: Matrix spike sample recovery is not within control limits.
- \* Duplicate sample analysis is not within control limits.
- B: The result reported is less than the reporting limit but greater than the instrument detection limit.
- U: Analyte was analyzed for but not detected above the reporting limit.

#### Method Codes:

- P ICP-AES  
MS ICP-MS  
CV Cold Vapor AA  
AS Semi-Automated Spectrophotometric

FQA009:02.18.08:4  
TestAmerica Burlington

TOTAL METALS

- 1 -

INORGANIC ANALYSIS DATA PACKAGE

Client: SHAWSA SDG No.: 133322 Method Type: 600.9M

Sample ID: 805061

Client ID: LOCATION 4

Contract: 29000 Lab Code: STLV Case No.: 29000 SAS No.: \_\_\_\_\_

Matrix: AIRTUBE Date Received: 08/28/09 Level: LOW

% Solids: \_\_\_\_\_

CAS No.	Analyte	Concentration	Units	C	Qual	M	DL	Instrument ID	Analytical Run
7439-97-6	Mercury	0.050	ug/L	U	N	CV	0.050	Leeman Hydra AA (2)	090209BB

Color Before: \_\_\_\_\_ Clarity Before: \_\_\_\_\_ Texture: \_\_\_\_\_

Color After: \_\_\_\_\_ Clarity After: \_\_\_\_\_ Artifacts: \_\_\_\_\_

Comments: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

**TOTAL METALS**  
**- 3b -**  
**PREPARATION BLANK SUMMARY**

Client: SHAWSA SDG No.: 133322  
Contract: 29000 Lab Code: STLV Case No.: 29000 SAS No.: \_\_\_\_\_

Sample ID	Analyte	Result (ug/L)	Acceptance Limit	Conc Qual	PQL	PQL	M	Analysis Date	Analysis Time	Run
<b>TUBE BLANK HG</b>			<b>AIRTUBE</b>							
	Mercury	0.073	+/-0.050		0.050	0.050	CV	09/02/09	13:11	090209BB

TOTAL METALS

- 5a -

MATRIX SPIKE SUMMARY

Client: SHAWSA Level: LOW SDG No.: 133322

Contract: 29000 Lab Code: STLV Case No.: 29000 SAS No.: \_\_\_\_\_

Matrix: AIRTUBE Sample ID: TUBE BLANK HG Client ID: TUBE SPIKE HG

Percent Solids for Sample: 0.00 Spiked ID: TUBE SPIKE HG Percent Solids for Spike Sample: 0.00

Analyte	Units	Acceptance Limit %R	Spiked Result	C	Sample Result	C	Spike Added	% Recovery	Qual	M
Mercury	ug/L	75 - 125	0.2525		0.0733		0.25	71.7	N	CV

TOTAL METALS  
- 13 -  
SAMPLE PREPARATION SUMMARY

Client: SHAWSA \_\_\_\_\_ SDG No.: 133322 \_\_\_\_\_  
Contract: 29000 \_\_\_\_\_ Lab Code: STLV \_\_\_\_\_ Method: CV \_\_\_\_\_  
Case No.: 29000 \_\_\_\_\_ SAS No.: \_\_\_\_\_

Sample ID	Client ID	Sample Type	Matrix	Prep Date	Initial Sample Size(g)	Final Sample Volume (mL)	Percent Solids
<b>Batch Number:</b>	PBHGA090209A						
TUBE BLANK HG	TUBE BLANK HG	MB	AIRTUB	9/2/09	1.00	100.0	
TUBE SPIKE HG	TUBE SPIKE HG	MS	AIRTUB	9/2/09	1.00	100.0	
805061	LOCATION 4	SAM	AIRTUB	9/2/09	1.00	100.0	

TOTAL METALS  
14  
ANALYSIS RUN LOG

Client: SHAWSA Contract: 29000  
 Lab Code: STLV Case No.: 29000 SAS No.: \_\_\_\_\_ SDG No.: 133322  
 Instrument ID Number: Leeman Hydra AA (2) Method: CV Run Number: 090209BB  
 Start Date: 09/02/09 End Date: 09/02/09

EPA Sample No.	D/F	Time	% R	Analytes																						
				A L	S B	A S	B A	B E	C D	C A	C R	C O	C U	F E	P B	M G	M N	H G	N I	K E	S E	A G	N A	T L	V	Z N
S0	1.00	1244															X									
S0.2	1.00	1246															X									
S0.5	1.00	1248															X									
S1	1.00	1251															X									
S5	1.00	1253															X									
S10	1.00	1255															X									
ICV	1.00	1258															X									
ICB	1.00	1300															X									
CCV	1.00	1302															X									
CCB	1.00	1305															X									
ZZZZZZ	1.00	1307																								
ZZZZZZ	1.00	1309																								
TUBE BLANK HG	2.50	1311															X									
TUBE SPIKE HG	2.50	1314															X									
LOCATION 4	2.50	1316															X									
ZZZZZZ	1.00	1318																								
ZZZZZZ	1.00	1320																								
ZZZZZZ	1.00	1322																								
ZZZZZZ	1.00	1325																								
CCV	1.00	1327															X									
CCB	1.00	1329															X									

TestAmerica Burlington  
 30 Community Drive  
 Suite 11

South Burlington, VT 05403  
 phone 802-660-1990 fax 802-660-1919

### Canister Samples Chain of Custody Record

TestAmerica Analytical Testing Corp. assumes no liability with respect to the collection and shipment of these samples.

Client Contact Information		Project Manager: Ed Vandoren		Samples Collected By: Jim Lafond		1 of 1 COCs	
Company: Shaw Env. Inc.	Phone: 603-870-4530	Project Manager: Ed Vandoren	Phone: 603-870-4530	EPA 25C	ASTM D-1946	Other (Please specify in notes section)	Other (Please specify in notes section)
Address: 11 Northeastern Blvd	City/State/Zip: Salem, NH	Email: ed.vandoren@shawenv.com	Site Contact: shawenv.com	EPA 3C	TO-14A	Landfill Gas	Soil Gas
Phone: 603-870-4530	FAX: 603-870-4501	TA Contact:	Analysis Turnaround Time	TO-15	TO-15 plus VOCs in air	Ambient Air	Ambient Air
Project Name: Crow Lane Landfill	Site: Newburyport, MA	Standard (Specify) X	Rush (Specify)	Canister ID	Flow Controller ID	Indoor Air	Indoor Air
PAN# 124246				Canister Vacuum in Field, "Hg (Start)	Canister Vacuum in Field, "Hg (Stop)	Sample Type	Sample Type
Sample Identification	Sample Date(s)	Time Start	Time Stop	Canister Vacuum in Field, "Hg (Start)	Canister Vacuum in Field, "Hg (Stop)	Flow Controller ID	Flow Controller ID
Location 4	8/26/09 0245	0245	0315	28	4	4797	4797
Location 4	"	0245	0315	-	-	251 ml/min	251 ml/min
Location 4	"	0245	0315	-	-	198 ml/min	198 ml/min
Location 4	"	0245	0315	-	-	102 ml/min	102 ml/min
Special Instructions/QC Requirements & Comments:	1. Hg by NIOSH 6009-251 ml/min 2. As by NIOSH 6001-198 ml/min 3. SO2 by OSHA ID 200-102 ml/min						
Samples Shipped by:	Date/Time:	Samples Received by:					
Edmund Flynn	8/27/09 1050	Jerry Dal					
Relinquished by:	Date/Time:	Received by:					
Jerry Dal	8/27/09 1650	Newburyport					
Shipper Name:	Condition:	Opened by:					

244-6000-106 km elvel 09

Lab Use Only

**TestAmerica Burlington**  
**SAMPLE RECEIPT & LOG IN CHECKLIST**

Client: <u>SHAWSA</u>	Date Received: <u>08/28/09</u>	Log In Date: <u>08/29/09</u>
ETR: <u>133322</u>	Time Received: <u>1030</u>	By: <u>[Signature]</u>
SDG:	Received By: <u>CK</u>	Signature: <u>[Signature]</u>
Project: <u>29000</u>	# Coolers Received: <u>1 Box</u>	PM Signature: <u>[Signature]</u>
Samples Delivered By: <input checked="" type="checkbox"/> Shipping Service <input type="checkbox"/> Courier <input type="checkbox"/> Hand <input type="checkbox"/> Other (specify)		Date: <u>9/10/09</u>

List Air bill Number(s) or Attach a photocopy of the Air Bill:

COOLER SCREEN	YES	NO	NA	COMMENTS
There is <b>no</b> evidence to indicate tampering	<input checked="" type="checkbox"/>			
Custody seals are present and intact		<input checked="" type="checkbox"/>		
Custody seal numbers are present			<input checked="" type="checkbox"/>	
If yes, list custody seal numbers:				

Thermal Preservation Type:  Wet Ice  Blue Ice  None  Other (specify)

IR Gun ID: 96 Correction Factor (CF) = 0 °C

Cooler 1: <u>ATR</u> °C	Cooler 6 °C	Cooler 11 °C	Cooler 16 °C
Cooler 2: °C	Cooler 7 °C	Cooler 12 °C	Cooler 17 °C
Cooler 3: °C	Cooler 8 °C	Cooler 13 °C	Cooler 18 °C
Cooler 4: °C	Cooler 9 °C	Cooler 14 °C	Cooler 19 °C
Cooler 5: °C	Cooler 10 °C	Cooler 15 °C	Cooler 20 °C

Unless otherwise documented, the recorded temperature readings are adjusted readings to account for the CF of the IR Gun  
 EPA Criteria: 0-6°C, except for air and geo samples which should be at ambient temperature and tissue samples, which may be frozen.  
 Some clients require thermal preservation criteria of 2-4°C or other such criteria. The PM must notify SM when alternate criteria is specified.

SAMPLE CONDITION	YES	NO	NA	COMMENTS
Sample containers were received intact	<input checked="" type="checkbox"/>			
Legible sample labels are affixed to each container	<input checked="" type="checkbox"/>			

CHAIN OF CUSTODY (COC)	YES	NO	NA	COMMENTS
COC is present and includes the following information for each container:				
• Sample ID / Sample Description	<input checked="" type="checkbox"/>			
• Date of Sample Collection	<input checked="" type="checkbox"/>			
• Time of Sample Collection	<input checked="" type="checkbox"/>			
• Identification of the Sampler	<input checked="" type="checkbox"/>			
• Preservation Type			<input checked="" type="checkbox"/>	
• Requested Tests Method(s)	<input checked="" type="checkbox"/>			
• Necessary Signatures	<input checked="" type="checkbox"/>			
Internal Chain of Custody (ICOC) Required		<input checked="" type="checkbox"/>		
If yes to above, ICOC Record initiated for every Worksheet			<input checked="" type="checkbox"/>	

SAMPLE INTEGRITY / USABILITY	YES	NO	NA	COMMENTS
The sample container matches the COC		<input checked="" type="checkbox"/>		<u>See below</u>
Appropriate sample containers were received for the tests requested	<input checked="" type="checkbox"/>			
Samples were received within holding time	<input checked="" type="checkbox"/>			
Sufficient amount of sample is provided for requested analyses	<input checked="" type="checkbox"/>			
VOA vials do not have headspace or a bubble >6mm (1/4" diameter)			<input checked="" type="checkbox"/>	
Appropriate preservatives were used for the tests requested			<input checked="" type="checkbox"/>	
pH of inorganic samples checked and is within method specification			<input checked="" type="checkbox"/>	
If no, attach Inorganic Sample pH Adjustment Form			<input checked="" type="checkbox"/>	

**ANOMALY / NCR SUMMARY**

Summary consists lists on IO of CLLF-04-01 on label; IO in COC used E log in. Hg tubes don't list sig on COC, but E log used E log in. Hg tube received 08/29/09, see attached check list. Tubes received 08/29/09, just attached email, which was signed/dated as if it were a COC. COC lists would be for Sigma, tubes list ed time of 0315, samples listed w/ date of 0845.





## **Subcontract Data**

# Analytical Laboratory Report

September 04, 2009

Report ID: 9239041

DON DAWICKI  
TEST AMERICA  
STE 11  
30 COMMUNITY DR  
SOUTH BURLINGTON VT 05403

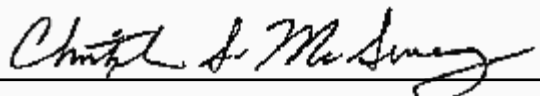
Company Number: 31790

**JOB 133322 SHAW SALEM CROW LANE LANDFILL**

**PO TBD**

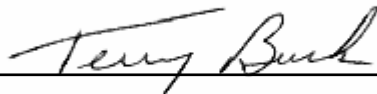
Date Collected: 8/26/2009  
Date Received: 9/1/2009  
Date of Analysis: 9/3/2009  
Date Reported: 9/4/2009

Analyst:



**CHRISTOPHER MCSWEENY, Advanced Chemist**  
csm@mail.slh.wisc.edu

Reviewe



**TERRY L BURK, CIH - WOHL Lab Director**  
tb@mail.slh.wisc.edu

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If you have any questions regarding this report please feel free to contact the laboratory via email (as listed above) or via telephone at 800-446-0403

## Analytical Results

LAB NUMBER	DESCRIPTION	AIR VOLUME
1395650	SKC 226-80	liters
805061		
Sulfur Dioxide	<3.0 µg/sample	

Displayed values on report have been rounded; however all calculations are performed using raw, unrounded intermediate results. Please contact the laboratory if you have any questions regarding our result calculation or rounding. All samples were received by the laboratory in acceptable condition unless otherwise noted.

<: Less Than. The analyte, if present, is at a level too low to be accurately quantitated by the method used.  
The actual amount is less than the reported value.

## Analytical Methodology

### SULFUR DIOXIDE/TREATED CHARCOAL TUBES:

Samples for sulfur dioxide were collected on treated charcoal tubes and analyzed as per WOHL method WI018so.6 based on OSHA ID-200. The tubes were desorbed with a dilute, basic hydrogen peroxide solution and analyzed by ion chromatography with conductivity detector for sulfate. The results for sulfate were converted gravimetrically to sulfur dioxide.

Results are reported as ppm of SO<sub>2</sub> for samples with air volumes and as µg/sample for samples with no air volumes. Results are not blank corrected unless noted in analytical comments.

### REPORTING LIMITS:

This table contains the WOHL determined reporting limits for the compounds specified in this report. These numbers are based on the historical statistical data for a particular analyte or are based on WOHL determined values.

<u>Analyte</u>	<u>Reporting Limit</u>
Sulfur Dioxide on SKC 226-80	3 µg/sample

## Analytical Quality Control

Laboratory prepared quality control (QC) samples were analyzed along with the samples included in the analytical report. The analysis results for these QC samples are listed below.

Instrument Used for Analysis: Dionex IC

### Laboratory Control Sample: 137273

QC Sample Media: Washed silica gel SKC 226-10-03

<u>Analyte</u>	<u>Target Value</u>	<u>Recovery (%)</u>	<u>Acceptable Recovery (%)</u>	<u>Pass/Fail</u>
Chloride (IC)	4.2 µg/sample	109.5	76 - 124	PASS
Nitrate (IC)	25 µg/sample	94.0	88 - 112	PASS
Sulfate (IC)	25.1 µg/sample	107.0	70 - 130	PASS

### Laboratory Control Sample: 137274

QC Sample Media: Washed silica gel SKC 226-10-03

<u>Analyte</u>	<u>Target Value</u>	<u>Recovery (%)</u>	<u>Acceptable Recovery (%)</u>	<u>Pass/Fail</u>
Chloride (IC)	8.5 µg/sample	104.6	76 - 124	PASS
Nitrate (IC)	50 µg/sample	97.9	88 - 112	PASS
Sulfate (IC)	50.2 µg/sample	108.1	70 - 130	PASS

---

The acceptable range for an analyte is based on the standard deviation of each analyte, which has been determined from statistical evaluation of the historical performance of the assay. The acceptable range includes up to 3 standard deviations, so a result within 3 standard deviations is considered to have passed the QC requirements. A result outside of the acceptable range is considered to have failed QC and may indicate the direction of possible bias for the samples included in the analytical report. The analytes used for QC determination will not always be the same analytes that appear in the samples for the report, however they are representative of the compounds found in the samples and indicative of overall assay performance.

---

## End of Analytical Report

The results in this report apply only to the samples, specifically listed above, tested at the Wisconsin Occupational Health Laboratory .

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# Analytical Laboratory Report

September 24, 2009

Report ID: 9245744

DON DAWICKI  
TEST AMERICA  
STE 11  
30 COMMUNITY DR  
SOUTH BURLINGTON VT 05403


Company Number: 31790

**JOB 133322 SHAW SALEM CROW LANE LANDFILL**

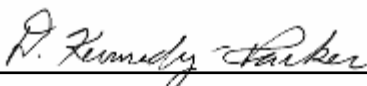
**PO TBD**

Date Collected: 8/26/2009  
Date Received: 9/1/2009  
Date Reported: 9/24/2009

Analyst:

  
\_\_\_\_\_  
**ROGER W SCHULTZ, Senior Chemist**  
rws@mail.slh.wisc.edu

Reviewer:

  
\_\_\_\_\_  
**DEWAYNE R KENNEDY-PARKER, Chemist Supervisor**  
fess@mail.slh.wisc.edu

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If you have any questions regarding this report please feel free to contact the laboratory via email (as listed above) or via telephone at 800-446-0403

## Analytical Results

LAB NUMBER	DESCRIPTION	AIR VOLUME
------------	-------------	------------

1395649	CHARCOAL TUB	liters
---------	--------------	--------

805061

Arsine <0.0060 µg/sample

**COMMENTS:** The recovery for a quality control sample digested with your samples was outside our acceptance limits. After correction for this possible bias, the sample result was not affected.

Displayed values on report have been rounded; however all calculations are performed using raw, unrounded intermediate results. Please contact the laboratory if you have any questions regarding our result calculation or rounding. All samples were received by the laboratory in acceptable condition unless otherwise noted.

<: Less Than. The analyte, if present, is at a level too low to be accurately quantitated by the method used. The actual amount is less than the reported value.

## Analytical Methodology

### ARSINE: AsH<sub>3</sub>:

Samples are analyzed by WOHL in-house method WM011.2.0, based on NIOSH S229 and NIOSH 6001 for Arsine.

Air samples are collected on charcoal tubes to trap the arsine vapor. The charcoal is transferred to a test tube and desorbed with .01M Nitric acid. The sample is analyzed using Atomic Absorption Stabilized Temperature Platform Graphite Furnace.

Results are expressed as milligrams per cubic meter of air if the air collection volume was provided; otherwise, as micrograms per tube. Results are not blank corrected unless otherwise noted in the comments section of the report.

Reporting Limit: .006 µg/sample  
This value is based upon a total digestion volume of 2 ml.

### REPORTING LIMITS:

This table contains the WOHL determined reporting limits for the compounds specified in this report. These numbers are based on the historical statistical data for a particular analyte or are based on WOHL determined values.

Analyte	Reporting Limit
Arsine on CHARCOAL TUB	0.006 µg/sample

## **Analytical Quality Control**

Due to technical considerations related to the production of known spiked control samples, no external quality control samples were analyzed with this study. However, all other quality assurance measures such as daily calibration, linearity checks, reporting limit and desorption determination and peer and supervisory review of the data have been performed. The results in this report conform to the high quality standards set forth at The Wisconsin Occupational Health Laboratory.

## **End of Analytical Report**

The results in this report apply only to the samples, specifically listed above, tested at the Wisconsin Occupational Health Laboratory .  
This report is not to be reproduced except in full.