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January 9, 2019  
File No. 20.0153134.30

Mayor James Grigg  
404 East Lake Street  
Horicon, Wisconsin 53032

Re: Verification Post-Mitigation Indoor Air Test Results

Dear Mayor Grigg:

With this letter, GZA GeoEnvironmental, Inc. (GZA) is informing you of the results of recent indoor air sampling conducted at 267 Kansas Street in Horicon, Wisconsin.

**BACKGROUND**

As you are aware, Gardner Manufacturing Company, Inc. (Gardner) hired GZA GeoEnvironmental, Inc. (GZA) to conduct environmental investigation and remediation of its former property at 263 Kansas Street, including the assessment of chemical vapors near area homes. The Wisconsin Department of Natural Resources (WDNR) provides oversight of the investigation activities being conducted by Gardner and provides file information under BRRTS No. 02-14-55423.

Due to the detection of trichloroethene (TCE) in an indoor air sample collected in March 2015 at a concentration greater than the TCE residential Vapor Action Level (VAL), GZA installed a mitigation system in the building on the property with the City's permission in June 2015. Post-mitigation indoor air samples collected by GZA in August 2015 confirmed that the mitigation system was effectively reducing TCE concentrations to below the TCE residential VAL.

**INDOOR AIR SAMPLING AND RESULTS**

To further verify the effectiveness of the mitigation system, two indoor air samples were collected from the building over a 24-hour period between December 14 and 15, 2018. Samples were collected from two locations in the building and from background outside air. The three air samples were collected in 6-liter canisters and were submitted to TestAmerica of Knoxville, Tennessee for testing. The analytical report for the air samples is provided as Attachment 1. The data are summarized on the attached table and include historical results.

TCE was not detected in the December 2018 indoor air samples and confirms the mitigation system is operating as designed. Tetrachloroethene was detected in one indoor air sample at a concentration below the residential VAL and similar to the outside air sample, indicating an outside source was likely the cause.


**CLOSING**

If you are looking for more information, please contact the undersigned (262-754-2560 or [bernard.fenelon@gza.com](mailto:bernard.fenelon@gza.com)). You may also contact Mr. Jeff Ackerman of the WDNR (608-275-3323) if you have any questions related to the investigation, or Mr. Ryan Wozniak of the WDHS (608-267-3227) if you have any health-related questions associated with this investigation.

Very truly yours,

**GZA GeoEnvironmental, Inc.**

  
Bernard G. Fenelon, P.G.  
Senior Consultant/Hydrogeologist

  
John C. Osborne, P.G.  
Senior Principal/Hydrogeologist

J:\153100to153199\153134 263 Kansas\30 Remediation\Correspondence\2018 IAQ Results Letters\  
2019 01 09 FINAL OWNER Results of Verification Post-Mitigation Indoor Air Sampling 267 Kansas Street - Mayor Grigg.docx

**Attachments**

c: Mr. Jeff Ackerman, WDNR  
Mr. Ryan J. Wozniak, MPH, Ph.D., Wisconsin Department of Health Services



**TABLE 1  
SUB-SLAB AND INDOOR AIR ANALYTICAL RESULTS  
267 Kansas Street  
Horicon, Wisconsin**

	Wisconsin Department of Natural Resources Vapor Action Levels									
	Chloro-ethane	1,2-DCA	1,1-DCE	cis-1,2-DCE	trans-1,2-DCE	1,1,2,2-TCA	PCE	TCE	1,1,2-TCA	Vinyl Chloride
Sub-Slab Vapor Action Level (ppbv)	37,900	2.7	520	NA	NA	0.6	62	3.9	0.39	6.5
Indoor Air Action Level (ppbv)	3,790	0.27	52	NA	NA	0.06	6.2	0.39	0.039	0.65

Sample Location	Date	Sub-Slab Vapor Sample Results									
		Chloro-ethane	1,2-DCA	1,1-DCE	cis-1,2-DCE	trans-1,2-DCE	1,1,2,2-TCA	PCE	TCE	1,1,2-TCA	Vinyl Chloride
267 Kansas Street SS-1 (NW)	2/11/15	<4.2	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<b>6.6</b>	<1.0	<1.0
267 Kansas Street SS-2 (NE)	2/11/15	<4.2	<1.0	<1.0	3.8	4.3	<1.0	<1.0	<b>300</b>	<1.0	<1.0
267 Kansas Street SS-3 (SE)	2/11/15	<4.1	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	1.1	<1.0	<1.0
267 Kansas Street SS-4 (SW)	2/11/15	<4.4	<1.1	<1.1	<1.1	<1.1	<1.1	<1.1	<1.1	<1.1	<1.1
		Pre-Ventilation Indoor Air Sample Results									
267 Kansas Street IA-1	3/14/15	NA	NA	NA	NA	NA	NA	NA	<b>0.22</b>	NA	NA
267 Kansas Street IA-2	3/14/15	NA	NA	NA	NA	NA	NA	NA	<b>1.4</b>	NA	NA
Outside Background	3/14/15	NA	NA	NA	NA	NA	NA	NA	<0.28	NA	NA
		Post-Ventilation Indoor Air Sample Results									
267 Kansas Street West	8/13/15	NA	NA	NA	NA	NA	NA	NA	<0.18	NA	NA
267 Kansas Street East	8/13/15	NA	NA	NA	NA	NA	NA	NA	<0.18	NA	NA
267 Kansas Street Background	8/13/15	NA	NA	NA	NA	NA	NA	NA	<0.18	NA	NA
267 Kansas Street West IA	12/14/18	NA	NA	NA	<0.060	<0.050	NA	<b>0.15 J</b>	<0.036	NA	<0.071
267 Kansas Street East IA	12/14/18	NA	NA	NA	<0.060	<0.050	NA	<0.040	<0.036	NA	<0.071
267 Kansas Street Background	12/14/18	NA	NA	NA	<0.060	<0.050	NA	<b>0.046 J</b>	<0.036	NA	<0.071

Notes:

- Sample results from February 2015 are for sub-slab vapor samples collected by GZA GeoEnvironmental, Inc. (GZA) of Waukesha, Wisconsin and analyzed by Eurofins Air Toxics, Inc. (Eurofins) of Folsom, California for the listed VOCs in accordance with USEPA Method TO-15. Results are reported to the Reporting Limit (RL) or Limit of Quantification (LOQ).
- Sample results from March and August 2015 are for indoor air samples collected by GZA GeoEnvironmental, Inc. of Waukesha, Wisconsin and analyzed by Eurofins for trichloroethene (TCE) in accordance with USEPA Method TO-15. Results are reported to the Reporting Limit (RL) or Limit of Quantification (LOQ).
- A ventilation system was installed at the Site on May 20, 2015.
- Analytical results are provided in units of parts per billion by volume (ppbv). Only detected constituents were included in the table.
- The WDNR obtains its residential indoor air action levels from USEPA regional screening levels accessed at: [http://www.epa.gov/reg3hwmd/risk/human/rb-concentration\\_table/index.htm](http://www.epa.gov/reg3hwmd/risk/human/rb-concentration_table/index.htm) using a 10<sup>-5</sup> cancer risk and a hazard index of 1.
- Samples results with a reported detection are provided in **bold font** and results that exceed an action level are provided in **bold and underlined font**.
- "<" denotes that the constituent was not detected. "NA" denotes that the constituent was not included in the analysis.
- Constituent abbreviations are used as follows:  

1,2-DCA denotes 1,2-dichloroethane	cis-1,2-DCE denotes cis-1,2-dichloroethane	1,1,2,2 TCA denotes 1,1,2,2-Tetrachloroethane
TCE denotes trichloroethene	1,1-DCE denotes 1,1-dichloroethene	trans-1,2-DCE denotes trans-1,2-dichloroethene
PCE denotes tetrachloroethene	1,1,2-TCE denotes 1,1,2-Trichloroethane	



**ATTACHMENT 1**

**Post-Mitigation Indoor Air Laboratory Analytical Report**

# TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

## ANALYTICAL REPORT

TestAmerica Laboratories, Inc.  
TestAmerica Knoxville  
5815 Middlebrook Pike  
Knoxville, TN 37921  
Tel: (865)291-3000

TestAmerica Job ID: 140-13726-1

Client Project/Site: Former Gardner, Horicon - 20.0153134.20

For:

GZA GeoEnvironmental, Inc.  
20900 Swenson Drive Suite 150  
Waukesha, Wisconsin 53186

Attn: Mr. Bernard Fenelon



Authorized for release by:  
12/29/2018 5:03:52 PM

Sandie Fredrick, Project Manager II  
(920)261-1660  
[sandie.fredrick@testamericainc.com](mailto:sandie.fredrick@testamericainc.com)

### LINKS

Review your project  
results through  
**TotalAccess**

Have a Question?



Visit us at:  
[www.testamericainc.com](http://www.testamericainc.com)

*The test results in this report meet all 2003 NELAC and 2009 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.*

*This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.*

*Results relate only to the items tested and the sample(s) as received by the laboratory.*

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# Definitions/Glossary

Client: GZA GeoEnvironmental, Inc.  
Project/Site: Former Gardner, Horicon - 20.0153134.20

TestAmerica Job ID: 140-13726-1

## Qualifiers

### Air - GC/MS VOA

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

## Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

# Case Narrative

Client: GZA GeoEnvironmental, Inc.  
Project/Site: Former Gardner, Horicon - 20.0153134.20

TestAmerica Job ID: 140-13726-1

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## Job ID: 140-13726-1

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### Laboratory: TestAmerica Knoxville

#### Narrative

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#### Job Narrative 140-13726-1

#### Comments

No additional comments.

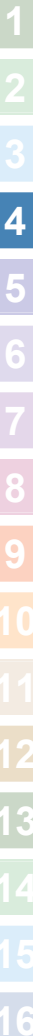
#### Receipt

The samples were received on 12/19/2018 10:20 AM; the samples arrived in good condition, properly preserved and, where required, on ice.

#### Air - GC/MS VOA

Method(s) TO 15 LL, TO-15: EPA methods TO-14A and TO-15 specify the use of humidified "zero air" as the blank reagent for canister cleaning, instrument calibration and sample analysis. Ultra-high purity humidified nitrogen from a cryogenic reservoir is used in place of "zero air" by TestAmerica Knoxville.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.



# Client Sample Results

Client: GZA GeoEnvironmental, Inc.  
Project/Site: Former Gardner, Horicon - 20.0153134.20

TestAmerica Job ID: 140-13726-1

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**Client Sample ID: 267 KANSAS-BACKGROUND IA**

**Lab Sample ID: 140-13726-4**

Date Collected: 12/14/18 13:38

Matrix: Air

Date Received: 12/19/18 10:20

Sample Container: Summa Canister 6L

**Method: TO-15 - Volatile Organic Compounds in Ambient Air**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
cis-1,2-Dichloroethene	<0.060		0.20	0.060	ppb v/v			12/27/18 23:45	1
<b>Tetrachloroethene</b>	<b>0.046</b>	<b>J</b>	0.20	0.040	ppb v/v			12/27/18 23:45	1

TestAmerica Knoxville



# Client Sample Results

Client: GZA GeoEnvironmental, Inc.  
 Project/Site: Former Gardner, Horicon - 20.0153134.20

TestAmerica Job ID: 140-13726-1

## Client Sample ID: 267 KANSAS-BACKGROUND IA

Lab Sample ID: 140-13726-4

Date Collected: 12/14/18 13:38

Matrix: Air

Date Received: 12/19/18 10:20

Sample Container: Summa Canister 6L

### Method: TO-15 - Volatile Organic Compounds in Ambient Air (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
trans-1,2-Dichloroethene	<0.050		0.20	0.050	ppb v/v			12/27/18 23:45	1
Trichloroethene	<0.036		0.20	0.036	ppb v/v			12/27/18 23:45	1
Vinyl chloride	<0.071		0.40	0.071	ppb v/v			12/27/18 23:45	1
<b>Surrogate</b>	<b>%Recovery</b>	<b>Qualifier</b>	<b>Limits</b>				<b>Prepared</b>	<b>Analyzed</b>	<b>Dil Fac</b>
4-Bromofluorobenzene (Surr)	102		60 - 140					12/27/18 23:45	1

## Client Sample ID: 267 KANSAS-WEST IA

Lab Sample ID: 140-13726-5

Date Collected: 12/14/18 13:43

Matrix: Air

Date Received: 12/19/18 10:20

Sample Container: Summa Canister 6L

### Method: TO-15 - Volatile Organic Compounds in Ambient Air

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
cis-1,2-Dichloroethene	<0.060		0.20	0.060	ppb v/v			12/28/18 00:27	1
<b>Tetrachloroethene</b>	<b>0.15</b>	<b>J</b>	0.20	0.040	ppb v/v			12/28/18 00:27	1
trans-1,2-Dichloroethene	<0.050		0.20	0.050	ppb v/v			12/28/18 00:27	1
Trichloroethene	<0.036		0.20	0.036	ppb v/v			12/28/18 00:27	1
Vinyl chloride	<0.071		0.40	0.071	ppb v/v			12/28/18 00:27	1
<b>Surrogate</b>	<b>%Recovery</b>	<b>Qualifier</b>	<b>Limits</b>				<b>Prepared</b>	<b>Analyzed</b>	<b>Dil Fac</b>
4-Bromofluorobenzene (Surr)	104		60 - 140					12/28/18 00:27	1

## Client Sample ID: 267 KANSAS-EAST IA

Lab Sample ID: 140-13726-6

Date Collected: 12/14/18 13:43

Matrix: Air

Date Received: 12/19/18 10:20

Sample Container: Summa Canister 6L

### Method: TO-15 - Volatile Organic Compounds in Ambient Air

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
cis-1,2-Dichloroethene	<0.060		0.20	0.060	ppb v/v			12/28/18 01:10	1
Tetrachloroethene	<0.040		0.20	0.040	ppb v/v			12/28/18 01:10	1
trans-1,2-Dichloroethene	<0.050		0.20	0.050	ppb v/v			12/28/18 01:10	1
Trichloroethene	<0.036		0.20	0.036	ppb v/v			12/28/18 01:10	1
Vinyl chloride	<0.071		0.40	0.071	ppb v/v			12/28/18 01:10	1
<b>Surrogate</b>	<b>%Recovery</b>	<b>Qualifier</b>	<b>Limits</b>				<b>Prepared</b>	<b>Analyzed</b>	<b>Dil Fac</b>
4-Bromofluorobenzene (Surr)	105		60 - 140					12/28/18 01:10	1

# Default Detection Limits

Client: GZA GeoEnvironmental, Inc.  
Project/Site: Former Gardner, Horicon - 20.0153134.20

TestAmerica Job ID: 140-13726-1

## Method: TO-15 - Volatile Organic Compounds in Ambient Air

Analyte	RL	MDL	Units	Method
cis-1,2-Dichloroethene	0.20	0.060	ppb v/v	TO-15
Tetrachloroethene	0.20	0.040	ppb v/v	TO-15
trans-1,2-Dichloroethene	0.20	0.050	ppb v/v	TO-15
Trichloroethene	0.20	0.036	ppb v/v	TO-15
Vinyl chloride	0.40	0.071	ppb v/v	TO-15

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# Surrogate Summary

Client: GZA GeoEnvironmental, Inc.  
Project/Site: Former Gardner, Horicon - 20.0153134.20

TestAmerica Job ID: 140-13726-1

## Method: TO-15 - Volatile Organic Compounds in Ambient Air

Matrix: Air

Prep Type: Total/NA

### Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	BFB (60-140)
140-13726-1	316 BARSTOW-BACKGROUND	91
140-13726-2	316 BARSTOW-BASEMENT IA	92
140-13726-3	316 BARSTOW-1ST FLOOR IA	103
140-13726-4	267 KANSAS-BACKGROUND IA	102
140-13726-5	267 KANSAS-WEST IA	104
140-13726-6	267 KANSAS-EAST IA	105
140-13726-7	150 LARABEE-BASEMENT IA	104
140-13726-8	150 LARABEE-1ST FLOOR IA	94
140-13726-9	150 LARABEE-BACKGROUND IA	88
140-13726-10	142 LARABEE-BACKGROUND IA	89
140-13726-11	142 LARABEE-BASEMENT IA	94
140-13726-12	142 LARABEE-1ST FLOOR IA	100
LCS 140-26434/1002	Lab Control Sample	103
LCS 140-26435/1002	Lab Control Sample	90
LCS 140-26516/1002	Lab Control Sample	102
MB 140-26434/5	Method Blank	90
MB 140-26435/4	Method Blank	88
MB 140-26516/4	Method Blank	103

#### Surrogate Legend

BFB = 4-Bromofluorobenzene (Surr)

# QC Sample Results

Client: GZA GeoEnvironmental, Inc.  
 Project/Site: Former Gardner, Horicon - 20.0153134.20

TestAmerica Job ID: 140-13726-1

## Method: TO-15 - Volatile Organic Compounds in Ambient Air

**Lab Sample ID: MB 140-26434/5**  
**Matrix: Air**  
**Analysis Batch: 26434**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
cis-1,2-Dichloroethene	<0.060		0.20	0.060	ppb v/v			12/21/18 11:4V	1
Tetrachloroethene	<0.040		0.20	0.040	ppb v/v			12/21/18 11:4V	1
trans-1,2-Dichloroethene	<0.050		0.20	0.050	ppb v/v			12/21/18 11:4V	1
Trichloroethene	<0.036		0.20	0.036	ppb v/v			12/21/18 11:4V	1
γ inKl chloride	<0.071		0.40	0.071	ppb v/v			12/21/18 11:4V	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	91		61 - 041		02/20/08 00:49	0

**Lab Sample ID: LCS 140-26434/1002**  
**Matrix: Air**  
**Analysis Batch: 26434**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
cis-1,2-Dichloroethene	2.00	1.V4		ppb v/v		V7	70 - 130
Tetrachloroethene	2.00	2.15		ppb v/v		108	70 - 130
trans-1,2-Dichloroethene	2.00	1.V7		ppb v/v		V8	70 - 130
Trichloroethene	2.00	2.03		ppb v/v		101	70 - 130
γ inKl chloride	2.00	1.V2		ppb v/v		V6	70 - 130

Surrogate	LCS %Recovery	LCS Qualifier	Limits
4-Bromofluorobenzene (Surr)	013		61 - 041

**Lab Sample ID: MB 140-26435/4**  
**Matrix: Air**  
**Analysis Batch: 26435**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
cis-1,2-Dichloroethene	<0.060		0.20	0.060	ppb v/v			12/24/18 14:2V	1
Tetrachloroethene	<0.040		0.20	0.040	ppb v/v			12/24/18 14:2V	1
trans-1,2-Dichloroethene	<0.050		0.20	0.050	ppb v/v			12/24/18 14:2V	1
Trichloroethene	<0.036		0.20	0.036	ppb v/v			12/24/18 14:2V	1
γ inKl chloride	<0.071		0.40	0.071	ppb v/v			12/24/18 14:2V	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	88		61 - 041		02/24/08 04:29	0

**Lab Sample ID: LCS 140-26435/1002**  
**Matrix: Air**  
**Analysis Batch: 26435**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
cis-1,2-Dichloroethene	2.00	1.V5		ppb v/v		V7	70 - 130
Tetrachloroethene	2.00	2.02		ppb v/v		101	70 - 130
trans-1,2-Dichloroethene	2.00	1.V8		ppb v/v		VV	70 - 130
Trichloroethene	2.00	1.V8		ppb v/v		VV	70 - 130
γ inKl chloride	2.00	1.80		ppb v/v		V0	70 - 130

TestAmerica x noxville

# QC Sample Results

Client: GZA GeoEnvironmental, Inc.  
 Project/Site: Former Gardner, Horicon - 20.0153134.20

TestAmerica Job ID: 140-13726-1

## Method: TO-15 - Volatile Organic Compounds in Ambient Air (Continued)

**Lab Sample ID: LCS 140-26435/1002**  
**Matrix: Air**  
**Analysis Batch: 26435**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**

	LCS	LCS	
Surrogate	%Recovery	Qualifier	Limits
4-Bromofluorobenzene (Surr)	91		61 - 041

**Lab Sample ID: MB 140-26516/4**  
**Matrix: Air**  
**Analysis Batch: 26516**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**

Analyte	MB MB		RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
cis-1,2-Dichloroethene	<0.060		0.20	0.060	ppb v/v			12/27/18 12:56	1
Tetrachloroethene	<0.040		0.20	0.040	ppb v/v			12/27/18 12:56	1
trans-1,2-Dichloroethene	<0.050		0.20	0.050	ppb v/v			12/27/18 12:56	1
Trichloroethene	<0.036		0.20	0.036	ppb v/v			12/27/18 12:56	1
γ inK chloride	<0.071		0.40	0.071	ppb v/v			12/27/18 12:56	1

	MB MB							
Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac		
4-Bromofluorobenzene (Surr)	013		61 - 041		02/27/08 02:56	0		

**Lab Sample ID: LCS 140-26516/1002**  
**Matrix: Air**  
**Analysis Batch: 26516**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**

Analyte	Spike Added	LCS LCS		Unit	D	%Rec	%Rec. Limits
		Result	Qualifier				
cis-1,2-Dichloroethene	2.00	2.16		ppb v/v		108	70 - 130
Tetrachloroethene	2.00	2.10		ppb v/v		105	70 - 130
trans-1,2-Dichloroethene	2.00	2.13		ppb v/v		106	70 - 130
Trichloroethene	2.00	1.77		ppb v/v		88	70 - 130
γ inK chloride	2.00	2.13		ppb v/v		107	70 - 130

	LCS LCS		
Surrogate	%Recovery	Qualifier	Limits
4-Bromofluorobenzene (Surr)	012		61 - 041

# QC Association Summary

Client: GZA GeoEnvironmental, Inc.  
Project/Site: Former Gardner, Horicon - 20.0153134.20

TestAmerica Job ID: 140-13726-1

## Air - GC/MS VOA

### Analysis Batch: 26434

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
140-13726-1	316 BARSTOW-BACKGROUND IA	Total/NA	Air	TO-15	
140-13726-2	316 BARSTOW-BASEMENT IA	Total/NA	Air	TO-15	
MB 140-26434/5	Method Blank	Total/NA	Air	TO-15	
LCS 140-26434/1002	Lab Control Sample	Total/NA	Air	TO-15	

### Analysis Batch: 26435

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
140-13726-8	150 LARABEE-1ST FLOOR IA	Total/NA	Air	TO-15	
140-13726-9	150 LARABEE-BACKGROUND IA	Total/NA	Air	TO-15	
140-13726-10	142 LARABEE-BACKGROUND IA	Total/NA	Air	TO-15	
140-13726-11	142 LARABEE-BASEMENT IA	Total/NA	Air	TO-15	
MB 140-26435/4	Method Blank	Total/NA	Air	TO-15	
LCS 140-26435/1002	Lab Control Sample	Total/NA	Air	TO-15	

### Analysis Batch: 26516

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
140-13726-3	316 BARSTOW-1ST FLOOR IA	Total/NA	Air	TO-15	
140-13726-4	267 KANSAS-BACKGROUND IA	Total/NA	Air	TO-15	
140-13726-5	267 KANSAS-WEST IA	Total/NA	Air	TO-15	
140-13726-6	267 KANSAS-EAST IA	Total/NA	Air	TO-15	
140-13726-7	150 LARABEE-BASEMENT IA	Total/NA	Air	TO-15	
140-13726-12	142 LARABEE-1ST FLOOR IA	Total/NA	Air	TO-15	
MB 140-26516/4	Method Blank	Total/NA	Air	TO-15	
LCS 140-26516/1002	Lab Control Sample	Total/NA	Air	TO-15	

# Lab Chronicle

Client: GZA GeoEnvironmental, Inc.  
 Project/Site: Former Gardner, Horicon - 20.0153134.20

TestAmerica Job ID: 140-13726-1

## Client Sample ID: 316 BARSTOW-BACKGROUND IA

Lab Sample ID: 140-13726-1

Date Collected: 12/14/18 12:47

Matrix: Air

Date Received: 12/19/18 10:20

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	TO-15		1	200 mL	500 mL	26434	12/21/18 20:18	S1K	TAL KNX
Instrument ID: MH										

## Client Sample ID: 316 BARSTOW-BASEMENT IA

Lab Sample ID: 140-13726-2

Date Collected: 12/14/18 12:55

Matrix: Air

Date Received: 12/19/18 10:20

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	TO-15		1	200 mL	500 mL	26434	12/21/18 21:12	S1K	TAL KNX
Instrument ID: MH										

## Client Sample ID: 316 BARSTOW-1ST FLOOR IA

Lab Sample ID: 140-13726-3

Date Collected: 12/14/18 12:52

Matrix: Air

Date Received: 12/19/18 10:20

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	TO-15		1	200 mL	500 mL	26516	12/27/18 23:02	S1K	TAL KNX
Instrument ID: MG										

## Client Sample ID: 267 KANSAS-BACKGROUND IA

Lab Sample ID: 140-13726-4

Date Collected: 12/14/18 13:38

Matrix: Air

Date Received: 12/19/18 10:20

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	TO-15		1	200 mL	500 mL	26516	12/27/18 23:45	S1K	TAL KNX
Instrument ID: MG										

## Client Sample ID: 267 KANSAS-WEST IA

Lab Sample ID: 140-13726-5

Date Collected: 12/14/18 13:43

Matrix: Air

Date Received: 12/19/18 10:20

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	TO-15		1	200 mL	500 mL	26516	12/28/18 00:27	S1K	TAL KNX
Instrument ID: MG										

## Client Sample ID: 267 KANSAS-EAST IA

Lab Sample ID: 140-13726-6

Date Collected: 12/14/18 13:43

Matrix: Air

Date Received: 12/19/18 10:20

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	TO-15		1	200 mL	500 mL	26516	12/28/18 01:10	S1K	TAL KNX
Instrument ID: MG										

TestAmerica Knoxville

# Lab Chronicle

Client: GZA GeoEnvironmental, Inc.  
Project/Site: Former Gardner, Horicon - 20.0153134.20

TestAmerica Job ID: 140-13726-1

## Client Sample ID: 150 LARABEE-BASEMENT IA

Lab Sample ID: 140-13726-7

Date Collected: 12/18/18 13:34

Matrix: Air

Date Received: 12/19/18 10:20

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	TO-15		1	200 mL	500 mL	26516	12/28/18 01:55	S1K	TAL KNX
Instrument ID: MG										

## Client Sample ID: 150 LARABEE-1ST FLOOR IA

Lab Sample ID: 140-13726-8

Date Collected: 12/18/18 13:35

Matrix: Air

Date Received: 12/19/18 10:20

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	TO-15		1	200 mL	500 mL	26435	12/25/18 02:13	S1K	TAL KNX
Instrument ID: MH										

## Client Sample ID: 150 LARABEE-BACKGROUND IA

Lab Sample ID: 140-13726-9

Date Collected: 12/18/18 13:39

Matrix: Air

Date Received: 12/19/18 10:20

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	TO-15		1	200 mL	500 mL	26435	12/25/18 03:07	S1K	TAL KNX
Instrument ID: MH										

## Client Sample ID: 142 LARABEE-BACKGROUND IA

Lab Sample ID: 140-13726-10

Date Collected: 12/18/18 15:11

Matrix: Air

Date Received: 12/19/18 10:20

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	TO-15		1	200 mL	500 mL	26435	12/25/18 04:02	S1K	TAL KNX
Instrument ID: MH										

## Client Sample ID: 142 LARABEE-BASEMENT IA

Lab Sample ID: 140-13726-11

Date Collected: 12/18/18 15:17

Matrix: Air

Date Received: 12/19/18 10:20

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	TO-15		1	200 mL	500 mL	26435	12/25/18 04:57	S1K	TAL KNX
Instrument ID: MH										

## Client Sample ID: 142 LARABEE-1ST FLOOR IA

Lab Sample ID: 140-13726-12

Date Collected: 12/18/18 15:16

Matrix: Air

Date Received: 12/19/18 10:20

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	TO-15		1	200 mL	500 mL	26516	12/28/18 02:39	S1K	TAL KNX
Instrument ID: MG										

TestAmerica Knoxville



# Lab Chronicle

Client: GZA GeoEnvironmental, Inc.  
Project/Site: Former Gardner, Horicon - 20.0153134.20

TestAmerica Job ID: 140-13726-1

## Client Sample ID: Method Blank

Lab Sample ID: MB 140-26434/5

Date Collected: N/A

Matrix: Air

Date Received: N/A

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	TO-15		1	200 mL	500 mL	26434	12/21/18 11:49	S1K	TAL KNX
Instrument ID: MH										

## Client Sample ID: Method Blank

Lab Sample ID: MB 140-26435/4

Date Collected: N/A

Matrix: Air

Date Received: N/A

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	TO-15		1	200 mL	500 mL	26435	12/24/18 14:29	S1K	TAL KNX
Instrument ID: MH										

## Client Sample ID: Method Blank

Lab Sample ID: MB 140-26516/4

Date Collected: N/A

Matrix: Air

Date Received: N/A

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	TO-15		1	200 mL	500 mL	26516	12/27/18 12:56	S1K	TAL KNX
Instrument ID: MG										

## Client Sample ID: Lab Control Sample

Lab Sample ID: LCS 140-26434/1002

Date Collected: N/A

Matrix: Air

Date Received: N/A

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	TO-15		1	500 mL	500 mL	26434	12/21/18 10:21	S1K	TAL KNX
Instrument ID: MH										

## Client Sample ID: Lab Control Sample

Lab Sample ID: LCS 140-26435/1002

Date Collected: N/A

Matrix: Air

Date Received: N/A

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	TO-15		1	500 mL	500 mL	26435	12/24/18 12:35	S1K	TAL KNX
Instrument ID: MH										

## Client Sample ID: Lab Control Sample

Lab Sample ID: LCS 140-26516/1002

Date Collected: N/A

Matrix: Air

Date Received: N/A

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	TO-15		1	500 mL	500 mL	26516	12/27/18 11:14	S1K	TAL KNX
Instrument ID: MG										

TestAmerica Knoxville

# Lab Chronicle

Client: GZA GeoEnvironmental, Inc.  
Project/Site: Former Gardner, Horicon - 20.0153134.20

TestAmerica Job ID: 140-13726-1

**Laboratory References:**

TAL KNX = TestAmerica Knoxville, 5815 Middlebrook Pike, Knoxville, TN 37921, TEL (865)291-3000

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# Accreditation/Certification Summary

Client: GZA GeoEnvironmental, Inc.  
Project/Site: Former Gardner, Horicon - 20.0153134.20

TestAmerica Job ID: 140-13726-1

## Laboratory: TestAmerica Knoxville

The accreditations/certifications listed below are applicable to this report.

Authority	Program	EPA Region	Identification Number	Expiration Date
Wisconsin	State Program	5	998044300	08-31-19

## Laboratory: TestAmerica Chicago

The accreditations/certifications listed below are applicable to this report.

Authority	Program	EPA Region	Identification Number	Expiration Date
Wisconsin	State Program	5	999580010	08-31-19

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# Method Summary

Client: GZA GeoEnvironmental, Inc.  
Project/Site: Former Gardner, Horicon - 20.0153134.20

TestAmerica Job ID: 140-13726-1

Method	Method Description	Protocol	Laboratory
TO-15	Volatile Organic Compounds in Ambient Air	EPA	TAL KNX

**Protocol References:**

EPA = US Environmental Protection Agency

**Laboratory References:**

TAL KNX = TestAmerica Knoxville, 5815 Middlebrook Pike, Knoxville, TN 37921, TEL (865)291-3000

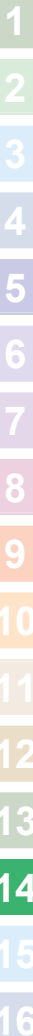
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# Sample Summary

Client: GZA GeoEnvironmental, Inc.  
Project/Site: Former Gardner, Horicon - 20.0153134.20

TestAmerica Job ID: 140-13726-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
140-13726-1	316 BARSTOW-BACKGROUND IA	Air	12/14/18 12:47	12/19/18 10:20
140-13726-2	316 BARSTOW-BASEMENT IA	Air	12/14/18 12:55	12/19/18 10:20
140-13726-3	316 BARSTOW-1ST FLOOR IA	Air	12/14/18 12:52	12/19/18 10:20
140-13726-4	267 KANSAS-BACKGROUND IA	Air	12/14/18 13:38	12/19/18 10:20
140-13726-5	267 KANSAS-WEST IA	Air	12/14/18 13:43	12/19/18 10:20
140-13726-6	267 KANSAS-EAST IA	Air	12/14/18 13:43	12/19/18 10:20
140-13726-7	150 LARABEE-BASEMENT IA	Air	12/18/18 13:34	12/19/18 10:20
140-13726-8	150 LARABEE-1ST FLOOR IA	Air	12/18/18 13:35	12/19/18 10:20
140-13726-9	150 LARABEE-BACKGROUND IA	Air	12/18/18 13:39	12/19/18 10:20
140-13726-10	142 LARABEE-BACKGROUND IA	Air	12/18/18 15:11	12/19/18 10:20
140-13726-11	142 LARABEE-BASEMENT IA	Air	12/18/18 15:17	12/19/18 10:20
140-13726-12	142 LARABEE-1ST FLOOR IA	Air	12/18/18 15:16	12/19/18 10:20



TAL Knoxville  
5815 Middlebrook Pike  
Knoxville, TN 37921  
phone 865-291-3000 fax 865-584-4315

### Canister Samples Chain of Custody Record

# TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

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

Client Contact Information		Project Manager: <u>Bernard Fenelon</u>		Sampled By: <u>C. Kingworetta</u>		1 of 2 COCs	
Company: <u>East Georgia Industrial Inc.</u>		Phone:		EPA 25C		Other (Please specify in notes section)	
Address: <u>2080 SWANSON DRIVE SUITE 150</u>		Site Contact:		EPA 3C		Other (Please specify in notes section)	
City/State/Zip: <u>WALKERSVILLE, TN 37186</u>		TAL Contact: <u>SHARLE FEOBRICK</u>		TO-14A		Other (Please specify in notes section)	
Phone: <u>762-154-2560</u>		Analysis Turnaround Time		TO-15		Other (Please specify in notes section)	
FAX: <u>762-154-2711</u>		Standard (Specify) <u>X</u>		TO-15		Other (Please specify in notes section)	
Project Name: <u>FORNER GREENER MANUFACTURING</u>		Rush (Specify)		TO-15		Other (Please specify in notes section)	
Site/location: <u>WALKER, TN</u>		Sample Date(s)		TO-15		Other (Please specify in notes section)	
PO #		Time Start		TO-15		Other (Please specify in notes section)	
		Time Stop		TO-15		Other (Please specify in notes section)	
		Canister Vacuum in Field, "Hg (Start)		TO-15		Other (Please specify in notes section)	
		Canister Vacuum in Field, "Hg (Stop)		TO-15		Other (Please specify in notes section)	
		Flow Controller ID		TO-15		Other (Please specify in notes section)	
		Canister ID		TO-15		Other (Please specify in notes section)	
316 BARSTOW - BACKGROUNDA	12/13/18	12:39	12:47	-29.5	09847	09671	X
316 BARSTOW - BASEMENT IA	12/14/18	12:49	12:55	-27.5	10304	11562	X
316 BARSTOW - 1ST FLOOR IA	12/14/18	12:54	12:52	-28	09550	09603	X
267 KANSAS - BACKGROUNDA	12/14/18	13:40	13:38	-27	10588	10261	X
267 KANSAS - WEST IA	12/14/18	13:47	13:43	-30	7162	10830	X
267 KANSAS - EAST IA	12/14/18	13:49	13:43	-30	11488	11963	X
Sampled by:		Temperature (Fahrenheit)		TO-15		Other (Please specify in notes section)	
		Interior		TO-15		Other (Please specify in notes section)	
		Ambient		TO-15		Other (Please specify in notes section)	
		Start		TO-15		Other (Please specify in notes section)	
		Stop		TO-15		Other (Please specify in notes section)	
		Interior		TO-15		Other (Please specify in notes section)	
		Ambient		TO-15		Other (Please specify in notes section)	
		Start		TO-15		Other (Please specify in notes section)	
		Stop		TO-15		Other (Please specify in notes section)	
Special Instructions/QC Requirements & Comments:		Pressure (Inches of Hg)		TO-15		Other (Please specify in notes section)	
		Ambient		TO-15		Other (Please specify in notes section)	
		Start		TO-15		Other (Please specify in notes section)	
		Stop		TO-15		Other (Please specify in notes section)	
Canisters Shipped by: <u>[Signature]</u>		Date/Time: <u>12/18/18 1730</u>		TO-15		Other (Please specify in notes section)	
Samples Relinquished by:		Date/Time:		TO-15		Other (Please specify in notes section)	
Relinquished by:		Date/Time:		TO-15		Other (Please specify in notes section)	
Lab Use Only		Shipper Name:		TO-15		Other (Please specify in notes section)	
		Condition:		TO-15		Other (Please specify in notes section)	
		Opened by:		TO-15		Other (Please specify in notes section)	
		Canisters Received by: <u>PAR FEA</u>		TO-15		Other (Please specify in notes section)	
		Received by: <u>[Signature]</u>		TO-15		Other (Please specify in notes section)	
		Received by: <u>[Signature]</u>		TO-15		Other (Please specify in notes section)	

ANALYZE FOR: TCE, CIS AND TRANS  
1,2 DCE AND VINYL CHLORIDE

Received ambient 3 boxes  
TRK # 7845 3404 2397, Fedex 50  
" 3398 8971  
" 3390 1031

Custody seal intact

13 CANJ  
13 FLOWS



140-13726 Chain of Custody

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TAL Knoxville  
5815 Middlebrook Pike  
Knoxville, TN 37921  
phone 865-291-3000 fax 865-584-4315

### Canister Samples Chain of Custody Record

**TestAmerica**  
THE LEADER IN ENVIRONMENTAL TESTING

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

Client Contact Information		Project Manager: <b>Bernard Fencelon</b>		Sampled By: <b>C. Ainsworth</b>		2 of 2 COCs															
Company: <b>GRACE ENVIRONMENTAL INC.</b>		Phone:		TO-15		Other (Please specify in notes section)															
Address: <b>2000 S. BRUNNEN DRIVE SUITE 200</b>		Site Contact: <b>SHARON FEORUCK</b>		EPA 3C		Soil Gas															
City/State/Zip: <b>WANKESITA, WI 53186</b>		TAL Contact: <b>SHARON FEORUCK</b>		TO-14A		Ambient Air															
Phone: <b>262-754-2560</b>				EPA 25C		Landfill Gas															
FAX: <b>262-754-9711</b>				ASTM D-1946		Other (Please specify in notes section)															
Project Name: <b>FORMER CIGARETTE MANUFACTURING</b>		Analysis Turnaround Time																			
Site/location: <b>HEARON, WI</b>		Standard (Specify) <b>X</b>																			
PO #		Rush (Specify)																			
Sample Identification	Sample Date(s)	Time Start	Time Stop	Canister Vacuum in Field, "Hg (Start)	Canister Vacuum in Field, "Hg (Stop)	Flow Controller ID	Canister ID	TO-15	TO-14A	EPA 3C	EPA 25C	ASTM D-1946	Other (Please specify in notes section)	Sample Type	Indoor Air	Ambient Air	Soil Gas	Landfill Gas	Other (Please specify in notes section)		
																				Interior	Ambient
150 LARABEE - BASEMENT IA	12/18/18	1335	1334	-28	-3	11467	11227	X													
150 LARABEE - 1ST FLOOR IA	12/18/18	1339	1335	-29	-5	11816	10529	X													
150 LARABEE - BACKGROUND IA	12/18/18	1341	1339	-29.5	-2	09955	10562	X													
142 LARABEE - BACKGROUND IA	12/18/18	1517	1511	-30	-3	11937	11534	X													
142 LARABEE - BASEMENT IA	12/18/18	1520	1517	-30	-3	11932	10716	X													
142 LARABEE - 1ST FLOOR IA	12/18/18	1522	1516	-29	-4	10467	11559	X													
Sampled by:		Temperature (Fahrenheit)																			
		Interior		Ambient																	
Start																					
Stop																					
		Pressure (inches of Hg)																			
		Interior		Ambient																	
Start																					
Stop																					
Special Instructions/QC Requirements & Comments:																					
Analyze for: TCE; Cis and TRANS 1,2 DCE. AND VINYL CHLORIDE																					
Canisters Shipped by:		Date/Time: 12/18/18 1730		Canisters Received by:		Date/Time:		Received by:		Date/Time:		Received by:		Date/Time:		Received by:		Date/Time:		Received by:	
				PBB FEO EX				JAN 12/19/18 1020 TALKIN													
Samples Relinquished by:		Date/Time:		Relinquished by:		Date/Time:		Relinquished by:		Date/Time:		Relinquished by:		Date/Time:		Relinquished by:		Date/Time:		Relinquished by:	
Lab Use Only		Shipper Name:		Opened by:		Condition:		15		16		17		18		19		20		21	



TESTAMERICA KNOXVILLE SAMPLE RECEIPT/CONDITION UPON RECEIPT ANOMALY CHECKLIST

Review Items	Yes	No	NA	If No, what was the problem?	Comments/Actions Taken
1. Are the shipping containers intact?	/			<input type="checkbox"/> Containers, Broken	
2. Were ambient air containers received intact?			/	<input checked="" type="checkbox"/> Checked in lab	
3. The coolers/containers custody seal if present, is it intact?	/			<input type="checkbox"/> Yes <input type="checkbox"/> NA	
4. Is the cooler temperature within limits? (> freezing temp. of water to 6 °C, VOST: 10°C) Thermometer ID: _____ Correction factor: _____			/	<input type="checkbox"/> Cooler Out of Temp, Client Contacted, Proceed/Cancel <input type="checkbox"/> Cooler Out of Temp, Same Day Receipt	
5. Were all of the sample containers received intact?	/			<input type="checkbox"/> Containers, Broken	
6. Were samples received in appropriate containers?	/			<input type="checkbox"/> Containers, Improper; Client Contacted; Proceed/Cancel	
7. Do sample container labels match COC? (IDs, Dates, Times)	/			<input type="checkbox"/> COC & Samples Do Not Match <input type="checkbox"/> COC Incorrect/Incomplete <input type="checkbox"/> COC Not Received	
8. Were all of the samples listed on the COC received?	/			<input type="checkbox"/> Sample Received, Not on COC <input type="checkbox"/> Sample on COC, Not Received	
9. Is the date/time of sample collection noted?	/			<input type="checkbox"/> COC; No Date/Time; Client Contacted	Labeling Verified by: _____ Date: _____
10. Was the sampler identified on the COC?	/			<input type="checkbox"/> Sampler Not Listed on COC	
11. Is the client and project name/# identified?	/			<input type="checkbox"/> COC Incorrect/Incomplete	
12. Are tests/parameters listed for each sample?	/			<input type="checkbox"/> COC No tests on COC	pH test strip lot number: _____
13. Is the matrix of the samples noted?	/			<input type="checkbox"/> COC Incorrect/Incomplete	
14. Was COC relinquished? (Signed/Dated/Timed)	/			<input type="checkbox"/> COC Incorrect/Incomplete	Box 16A: pH Preservation Box 18A: Residual Chlorine
15. Were samples received within holding time?	/			<input type="checkbox"/> Holding Time - Receipt	Preservative: _____
16. Were samples received with correct chemical preservative (excluding Encore)?				<input type="checkbox"/> pH Adjusted, pH Included (See box 16A) <input type="checkbox"/> Incorrect Preservative	Lot Number: _____ Exp Date: _____ Analyst: _____ Date: _____ Time: _____
17. Were VOA samples received without headspace?			/	<input type="checkbox"/> Headspace (VOA only) <input type="checkbox"/> Residual Chlorine	
18. Did you check for residual chlorine, if necessary? (e.g. 1613B, 1668) Chlorine test strip lot number: _____			/		
19. For 1613B water samples is pH<9?			/	<input type="checkbox"/> If no, notify lab to adjust	
20. For rad samples was sample activity info. Provided?			/	<input type="checkbox"/> Project missing info	
Project #: <u>Seo10928</u> PM Instructions: _____					

Sample Receiving Associate: Ken Wink Date: 12/19/18 QA026R31.doc, 112618





TestAmerica Knoxville - Air Canister Initial Pressure Check

Gauge ID:         G5          
 Date:         12/19/2018        

Analyst	Sample ID	Asset #	Cleaning Job	Cert	Size (L)	Pressure @ Receipt (-in Hg or +psig)	Time	Comments
BKK	140-13726-A-1	09671	13419	B	6	-2.6	16:55	
BKK	140-13726-A-2	11562	13419	B	6	-4.1	16:56	
BKK	140-13726-A-3	09603	13393	B	6	-5.0	16:57	
BKK	140-13726-A-4	10261	13419	B	6	-2.9	16:58	
BKK	140-13726-A-5	10830	13477	B	6	-2.6	16:59	
BKK	140-13726-A-6	11963	13490	B	6	-4.0	17:00	
BKK	140-13726-A-7	11227	13393	B	6	-4.7	17:01	
BKK	140-13726-A-8	10529	13393	B	6	-4.8	17:02	
BKK	140-13726-A-9	10562	13419	B	6	-1.3	17:03	
BKK	140-13726-A-10	11534	13393	B	6	-3.1	17:04	
BKK	140-13726-A-11	10716	13419	B	6	-5.0	17:05	
BKK	140-13726-A-12	11559	13393	B	6	-5.4	17:06	
<input type="checkbox"/> Receiving -Air Can -Calve Open (NCM # _____) <input type="checkbox"/> Air - Can P -24 to -25 " - Flow Contr. Works (NCM# _____) <input type="checkbox"/> Air - Can P -24 to -25 " - Flow Contr. Faulty (NCM# _____) <input type="checkbox"/> Air - Can P Out -26" - Flow Contr. Works (NCM# _____)						<input type="checkbox"/> Air - Can P Out -26" - Flow Contr. Faulty (NCM# _____) <input type="checkbox"/> Air - Can P Low -24 to -25 " - Grab Sample (NCM# _____) <input type="checkbox"/> Air - Can P Low -26 "- Grab Sample (NCM# _____)		



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T: 262.754.2560  
F: 262.754.9711  
www.gza.com

January 9, 2019  
File No. 20.0153134.30

Ms. Elizabeth Tillema  
Tillema Properties LLC  
W3889 Decora Road  
Horicon, Wisconsin 53032

Re: Verification Post-Mitigation Indoor Air Test Results

Dear Ms. Tillema:

With this letter, GZA GeoEnvironmental, Inc. (GZA) is informing you of the results of recent indoor air sampling conducted at the home at your 316 Barstow Street property in Horicon, Wisconsin.

### BACKGROUND

Gardner Manufacturing Company, Inc. (Gardner) hired GZA GeoEnvironmental, Inc. (GZA) to conduct environmental investigation and remediation of its former property at 263 Kansas Street, including the assessment of chemical vapors near area homes. The Wisconsin Department of Natural Resources (WDNR) provides oversight of the investigation activities being conducted by Gardner and provides file information under BRRS No. 02-14-55423.

Due to the detection of trichloroethene (TCE) in air samples collected from beneath the basement floor slab, GZA installed a mitigation system for the former owner of the home in October 2013. Post-mitigation indoor air samples collected in June 2014 confirmed that the mitigation system was effectively reducing TCE concentrations to less than the TCE residential vapor action level (VAL).

### INDOOR AIR SAMPLING AND RESULTS

To further verify the effectiveness of the mitigation system, three indoor air samples were collected from the home on your property over a 24-hour period between December 13 and 14, 2018. Samples were collected from the basement and first floor and from background outside air. The three air samples were collected in 6-liter canisters and were submitted to TestAmerica of Knoxville, Tennessee for testing. The analytical report for the air samples is provided as Attachment 1. The data are summarized on the attached table and include historical results.

TCE was not detected in the December 2018 indoor air samples and confirms the mitigation system is operating as designed.

### CLOSING

If you are looking for more information, please contact the undersigned (262-754-2560 or [bernard.fenelon@gza.com](mailto:bernard.fenelon@gza.com)). You may also contact Mr. Jeff Ackerman of the WDNR (608-275-3323) if you have any questions related to the investigation, or Mr. Ryan Wozniak of the WDHS (608-267-3227) if you have any health-related questions associated with this investigation.

Very truly yours,

**GZA GeoEnvironmental, Inc.**

Bernard G. Fenelon, P.G.  
Senior Consultant/Hydrogeologist

John C. Osborne, P.G.  
Senior Principal/Hydrogeologist

J:\153100to153199\153134 263 Kansas\30 Remediation\Correspondence\2018 IAQ Results Letters\  
2019 01 09 FINAL OWNER Results of Verification Post-Mitigation Indoor Air Sampling 316 Barstow - Tillema.docx

### Attachments

c: Mr. Jeff Ackerman, WDNR  
Mr. Ryan J. Wozniak, MPH, Ph.D., Wisconsin Department of Health Services



**TABLE 1  
SUB-SLAB AIR AND INDOOR AIR ANALYTICAL RESULTS  
316 Barstow Street  
Horicon, Wisconsin**

	Wisconsin Department of Natural Resources Vapor Action Levels									
	Chloro-ethane	1,2-DCA	1,1-DCE	cis-1,2-DCE	trans-1,2-DCE	1,1,2,2-TCA	PCE	TCE	1,1,2-TCA	Vinyl Chloride
Sub-Slab Vapor Action Level (ppbv)	12,000	9	1,700	NE	NE	2.3	210	13	1.3	22
Indoor Air Action Level (ppbv)	370	0.27	52	NE	NE	0.068	6.2	0.39	0.038	0.65

Sample Location	Date	Sub-Slab Vapor Sample Results									
		Chloro-ethane	1,2-DCA	1,1-DCE	cis-1,2-DCE	trans-1,2-DCE	1,1,2,2-TCA	PCE	TCE	1,1,2-TCA	Vinyl Chloride
316 Barstow Street	4/27/11	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	9.38	<2.5	<2.5
		Pre-Ventilation Indoor Air Sample Results									
316 Barstow Street		Pre-Mitigation Indoor Air Quality Samples Were Not Collected									
		Post-Ventilation Indoor Air Sample Results									
316 Barstow-Basement	6/10/14	NA	NA	NA	NA	NA	NA	NA	<0.16	NA	NA
316 Barstow-1st Floor	6/10/14	NA	NA	NA	NA	NA	NA	NA	<0.15	NA	NA
316 Barstow-2nd Floor	6/10/14	NA	NA	NA	NA	NA	NA	NA	<0.18	NA	NA
316 Barstow-Background IA (Outside)	6/10/14	NA	NA	NA	NA	NA	NA	NA	<u>0.92</u>	NA	NA
316 Barstow-Basement IA	12/14/18	NA	NA	NA	<0.060	<0.050	NA	<0.040	<0.036	NA	<0.071
316 Barstow-1st Floor IA	12/14/18	NA	NA	NA	<0.060	<0.050	NA	<0.040	<0.036	NA	<0.071
316 Barstow-Background (Outside)	12/14/18	NA	NA	NA	<0.060	<0.050	NA	<0.040	<0.036	NA	<0.071

Notes:

- Sample results from 2011 are for sub-slab and indoor air samples collected by SCS BT Squared of Madison, Wisconsin and analyzed by the Wisconsin State Hygiene Laboratory of Madison, Wisconsin for VOCs in accordance with USEPA Method TO-15. Results are reported to the Limit of Detection (LOD).
- Sample results from 2015 are indoor air samples collected by GZA GeoEnvironmental, Inc. of Waukesha, Wisconsin and analyzed by Eurofins Air Toxics, Inc. of Folsom, California for the listed VOCs in accordance with USEPA Method TO-15. Results are reported to the Reporting Limit (RL), Limit of Quantification (LOQ) or Method Detection Limit (MDL).
- Analytical results are provided in units of parts per billion by volume (ppbv).
- "J" denotes an estimated concentration between the method detection limit and the reporting limit. "NA" denotes the sample was not analyzed for the constituent.
- The sub-slab and indoor air vapor action levels (VALs) were obtained from USEPA regional screening levels accessed at: [http://www.epa.gov/reg3hwmd/risk/human/rb-concentration\\_table/index.htm](http://www.epa.gov/reg3hwmd/risk/human/rb-concentration_table/index.htm) and using a 10-5 cancer risk and a hazard index of 1 with a 0.1 attenuation factor for the building slab.
- Samples that exceed the applicable sub-slab or indoor VAL are provided in **bold/underlined** font.
- Constituent abbreviations are used as follows:

1,2-DCA denotes 1,2-dichloroethane  
TCE denotes trichloroethene  
PCE denotes tetrachloroethene

cis-1,2-DCE denotes cis-1,2-dichloroethene  
1,1-DCE denotes 1,1-dichloroethene  
1,1,2-TCE denotes 1,1,2-Trichloroethane

1,1,2,2 TCA denotes 1,1,2,2-Tetrachloroethane  
trans-1,2-DCE denotes trans-1,2-dichloroethene



**ATTACHMENT 1**

**Post-Mitigation Indoor Air Laboratory Analytical Report**

# TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

## ANALYTICAL REPORT

TestAmerica Laboratories, Inc.  
TestAmerica Knoxville  
5815 Middlebrook Pike  
Knoxville, TN 37921  
Tel: (865)291-3000

TestAmerica Job ID: 140-13726-1

Client Project/Site: Former Gardner, Horicon - 20.0153134.20

For:

GZA GeoEnvironmental, Inc.  
20900 Swenson Drive Suite 150  
Waukesha, Wisconsin 53186

Attn: Mr. Bernard Fenelon



Authorized for release by:  
12/29/2018 5:03:52 PM

Sandie Fredrick, Project Manager II  
(920)261-1660  
[sandie.fredrick@testamericainc.com](mailto:sandie.fredrick@testamericainc.com)

### LINKS

Review your project  
results through  
**TotalAccess**

Have a Question?



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*The test results in this report meet all 2003 NELAC and 2009 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.*

*This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.*

*Results relate only to the items tested and the sample(s) as received by the laboratory.*

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# Definitions/Glossary

Client: GZA GeoEnvironmental, Inc.  
Project/Site: Former Gardner, Horicon - 20.0153134.20

TestAmerica Job ID: 140-13726-1

## Qualifiers

### Air - GC/MS VOA

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

## Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

# Case Narrative

Client: GZA GeoEnvironmental, Inc.  
Project/Site: Former Gardner, Horicon - 20.0153134.20

TestAmerica Job ID: 140-13726-1

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## Job ID: 140-13726-1

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### Laboratory: TestAmerica Knoxville

#### Narrative

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#### Job Narrative 140-13726-1

#### Comments

No additional comments.

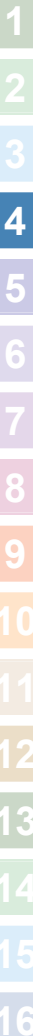
#### Receipt

The samples were received on 12/19/2018 10:20 AM; the samples arrived in good condition, properly preserved and, where required, on ice.

#### Air - GC/MS VOA

Method(s) TO 15 LL, TO-15: EPA methods TO-14A and TO-15 specify the use of humidified "zero air" as the blank reagent for canister cleaning, instrument calibration and sample analysis. Ultra-high purity humidified nitrogen from a cryogenic reservoir is used in place of "zero air" by TestAmerica Knoxville.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.





# Client Sample Results

Client: GZA GeoEnvironmental, Inc.  
 Project/Site: Former Gardner, Horicon - 20.0153134.20

TestAmerica Job ID: 140-13726-1

## Client Sample ID: 316 BARSTOW-BACKGROUND IA

Lab Sample ID: 140-13726-1

Date Collected: 12/14/18 12:47

Matrix: Air

Date Received: 12/19/18 10:20

Sample Container: Summa Canister 6L

### Method: TO-15 - Volatile Organic Compounds in Ambient Air

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
cis-1,2-Dichloroethene	<0.060		0.20	0.060	ppb v/v			12/21/18 20:18	1
Tetrachloroethene	<0.040		0.20	0.040	ppb v/v			12/21/18 20:18	1
trans-1,2-Dichloroethene	<0.050		0.20	0.050	ppb v/v			12/21/18 20:18	1
Trichloroethene	<0.036		0.20	0.036	ppb v/v			12/21/18 20:18	1
Vinyl chloride	<0.071		0.40	0.071	ppb v/v			12/21/18 20:18	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	91		60 - 140		12/21/18 20:18	1

## Client Sample ID: 316 BARSTOW-BASEMENT IA

Lab Sample ID: 140-13726-2

Date Collected: 12/14/18 12:55

Matrix: Air

Date Received: 12/19/18 10:20

Sample Container: Summa Canister 6L

### Method: TO-15 - Volatile Organic Compounds in Ambient Air

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
cis-1,2-Dichloroethene	<0.060		0.20	0.060	ppb v/v			12/21/18 21:12	1
Tetrachloroethene	<0.040		0.20	0.040	ppb v/v			12/21/18 21:12	1
trans-1,2-Dichloroethene	<0.050		0.20	0.050	ppb v/v			12/21/18 21:12	1
Trichloroethene	<0.036		0.20	0.036	ppb v/v			12/21/18 21:12	1
Vinyl chloride	<0.071		0.40	0.071	ppb v/v			12/21/18 21:12	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	92		60 - 140		12/21/18 21:12	1

## Client Sample ID: 316 BARSTOW-1ST FLOOR IA

Lab Sample ID: 140-13726-3

Date Collected: 12/14/18 12:52

Matrix: Air

Date Received: 12/19/18 10:20

Sample Container: Summa Canister 6L

### Method: TO-15 - Volatile Organic Compounds in Ambient Air

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
cis-1,2-Dichloroethene	<0.060		0.20	0.060	ppb v/v			12/27/18 23:02	1
Tetrachloroethene	<0.040		0.20	0.040	ppb v/v			12/27/18 23:02	1
trans-1,2-Dichloroethene	<0.050		0.20	0.050	ppb v/v			12/27/18 23:02	1
Trichloroethene	<0.036		0.20	0.036	ppb v/v			12/27/18 23:02	1
Vinyl chloride	<0.071		0.40	0.071	ppb v/v			12/27/18 23:02	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	103		60 - 140		12/27/18 23:02	1

# Default Detection Limits

Client: GZA GeoEnvironmental, Inc.  
Project/Site: Former Gardner, Horicon - 20.0153134.20

TestAmerica Job ID: 140-13726-1

## Method: TO-15 - Volatile Organic Compounds in Ambient Air

Analyte	RL	MDL	Units	Method
cis-1,2-Dichloroethene	0.20	0.060	ppb v/v	TO-15
Tetrachloroethene	0.20	0.040	ppb v/v	TO-15
trans-1,2-Dichloroethene	0.20	0.050	ppb v/v	TO-15
Trichloroethene	0.20	0.036	ppb v/v	TO-15
Vinyl chloride	0.40	0.071	ppb v/v	TO-15

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# Surrogate Summary

Client: GZA GeoEnvironmental, Inc.  
Project/Site: Former Gardner, Horicon - 20.0153134.20

TestAmerica Job ID: 140-13726-1

## Method: TO-15 - Volatile Organic Compounds in Ambient Air

Matrix: Air

Prep Type: Total/NA

### Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	BFB (60-140)
140-13726-1	316 BARSTOW-BACKGROUND	91
140-13726-2	316 BARSTOW-BASEMENT IA	92
140-13726-3	316 BARSTOW-1ST FLOOR IA	103
140-13726-4	267 KANSAS-BACKGROUND IA	102
140-13726-5	267 KANSAS-WEST IA	104
140-13726-6	267 KANSAS-EAST IA	105
140-13726-7	150 LARABEE-BASEMENT IA	104
140-13726-8	150 LARABEE-1ST FLOOR IA	94
140-13726-9	150 LARABEE-BACKGROUND IA	88
140-13726-10	142 LARABEE-BACKGROUND IA	89
140-13726-11	142 LARABEE-BASEMENT IA	94
140-13726-12	142 LARABEE-1ST FLOOR IA	100
LCS 140-26434/1002	Lab Control Sample	103
LCS 140-26435/1002	Lab Control Sample	90
LCS 140-26516/1002	Lab Control Sample	102
MB 140-26434/5	Method Blank	90
MB 140-26435/4	Method Blank	88
MB 140-26516/4	Method Blank	103

#### Surrogate Legend

BFB = 4-Bromofluorobenzene (Surr)

# QC Sample Results

Client: GZA GeoEnvironmental, Inc.  
 Project/Site: Former Gardner, Horicon - 20.0153134.20

TestAmerica Job ID: 140-13726-1

## Method: TO-15 - Volatile Organic Compounds in Ambient Air

**Lab Sample ID: MB 140-26434/5**  
**Matrix: Air**  
**Analysis Batch: 26434**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
cis-1,2-Dichloroethene	<0.060		0.20	0.060	ppb v/v			12/21/18 11:4V	1
Tetrachloroethene	<0.040		0.20	0.040	ppb v/v			12/21/18 11:4V	1
trans-1,2-Dichloroethene	<0.050		0.20	0.050	ppb v/v			12/21/18 11:4V	1
Trichloroethene	<0.036		0.20	0.036	ppb v/v			12/21/18 11:4V	1
γ inKl chloride	<0.071		0.40	0.071	ppb v/v			12/21/18 11:4V	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	91		61 - 041		02/20/08 00:49	0

**Lab Sample ID: LCS 140-26434/1002**  
**Matrix: Air**  
**Analysis Batch: 26434**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
cis-1,2-Dichloroethene	2.00	1.V4		ppb v/v		V7	70 - 130
Tetrachloroethene	2.00	2.15		ppb v/v		108	70 - 130
trans-1,2-Dichloroethene	2.00	1.V7		ppb v/v		V8	70 - 130
Trichloroethene	2.00	2.03		ppb v/v		101	70 - 130
γ inKl chloride	2.00	1.V2		ppb v/v		V6	70 - 130

Surrogate	LCS %Recovery	LCS Qualifier	Limits
4-Bromofluorobenzene (Surr)	013		61 - 041

**Lab Sample ID: MB 140-26435/4**  
**Matrix: Air**  
**Analysis Batch: 26435**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
cis-1,2-Dichloroethene	<0.060		0.20	0.060	ppb v/v			12/24/18 14:2V	1
Tetrachloroethene	<0.040		0.20	0.040	ppb v/v			12/24/18 14:2V	1
trans-1,2-Dichloroethene	<0.050		0.20	0.050	ppb v/v			12/24/18 14:2V	1
Trichloroethene	<0.036		0.20	0.036	ppb v/v			12/24/18 14:2V	1
γ inKl chloride	<0.071		0.40	0.071	ppb v/v			12/24/18 14:2V	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	88		61 - 041		02/24/08 04:29	0

**Lab Sample ID: LCS 140-26435/1002**  
**Matrix: Air**  
**Analysis Batch: 26435**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
cis-1,2-Dichloroethene	2.00	1.V5		ppb v/v		V7	70 - 130
Tetrachloroethene	2.00	2.02		ppb v/v		101	70 - 130
trans-1,2-Dichloroethene	2.00	1.V8		ppb v/v		VV	70 - 130
Trichloroethene	2.00	1.V8		ppb v/v		VV	70 - 130
γ inKl chloride	2.00	1.80		ppb v/v		V0	70 - 130

TestAmerica x noxville

# QC Sample Results

Client: GZA GeoEnvironmental, Inc.  
 Project/Site: Former Gardner, Horicon - 20.0153134.20

TestAmerica Job ID: 140-13726-1

## Method: TO-15 - Volatile Organic Compounds in Ambient Air (Continued)

**Lab Sample ID: LCS 140-26435/1002**  
**Matrix: Air**  
**Analysis Batch: 26435**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**

	LCS	LCS	
Surrogate	%Recovery	Qualifier	Limits
4-Bromofluorobenzene (Surr)	91		61 - 041

**Lab Sample ID: MB 140-26516/4**  
**Matrix: Air**  
**Analysis Batch: 26516**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**

Analyte	MB MB		RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
cis-1,2-Dichloroethene	<0.060		0.20	0.060	ppb v/v			12/27/18 12:56	1
Tetrachloroethene	<0.040		0.20	0.040	ppb v/v			12/27/18 12:56	1
trans-1,2-Dichloroethene	<0.050		0.20	0.050	ppb v/v			12/27/18 12:56	1
Trichloroethene	<0.036		0.20	0.036	ppb v/v			12/27/18 12:56	1
γ inK chloride	<0.071		0.40	0.071	ppb v/v			12/27/18 12:56	1

	MB MB						
Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac	
4-Bromofluorobenzene (Surr)	013		61 - 041		02/27/08 02:56	0	

**Lab Sample ID: LCS 140-26516/1002**  
**Matrix: Air**  
**Analysis Batch: 26516**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**

Analyte	Spike Added	LCS LCS		Unit	D	%Rec	%Rec. Limits
		Result	Qualifier				
cis-1,2-Dichloroethene	2.00	2.16		ppb v/v		108	70 - 130
Tetrachloroethene	2.00	2.10		ppb v/v		105	70 - 130
trans-1,2-Dichloroethene	2.00	2.13		ppb v/v		106	70 - 130
Trichloroethene	2.00	1.77		ppb v/v		88	70 - 130
γ inK chloride	2.00	2.13		ppb v/v		107	70 - 130

	LCS LCS		
Surrogate	%Recovery	Qualifier	Limits
4-Bromofluorobenzene (Surr)	012		61 - 041

# QC Association Summary

Client: GZA GeoEnvironmental, Inc.  
Project/Site: Former Gardner, Horicon - 20.0153134.20

TestAmerica Job ID: 140-13726-1

## Air - GC/MS VOA

### Analysis Batch: 26434

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
140-13726-1	316 BARSTOW-BACKGROUND IA	Total/NA	Air	TO-15	
140-13726-2	316 BARSTOW-BASEMENT IA	Total/NA	Air	TO-15	
MB 140-26434/5	Method Blank	Total/NA	Air	TO-15	
LCS 140-26434/1002	Lab Control Sample	Total/NA	Air	TO-15	

### Analysis Batch: 26435

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
140-13726-8	150 LARABEE-1ST FLOOR IA	Total/NA	Air	TO-15	
140-13726-9	150 LARABEE-BACKGROUND IA	Total/NA	Air	TO-15	
140-13726-10	142 LARABEE-BACKGROUND IA	Total/NA	Air	TO-15	
140-13726-11	142 LARABEE-BASEMENT IA	Total/NA	Air	TO-15	
MB 140-26435/4	Method Blank	Total/NA	Air	TO-15	
LCS 140-26435/1002	Lab Control Sample	Total/NA	Air	TO-15	

### Analysis Batch: 26516

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
140-13726-3	316 BARSTOW-1ST FLOOR IA	Total/NA	Air	TO-15	
140-13726-4	267 KANSAS-BACKGROUND IA	Total/NA	Air	TO-15	
140-13726-5	267 KANSAS-WEST IA	Total/NA	Air	TO-15	
140-13726-6	267 KANSAS-EAST IA	Total/NA	Air	TO-15	
140-13726-7	150 LARABEE-BASEMENT IA	Total/NA	Air	TO-15	
140-13726-12	142 LARABEE-1ST FLOOR IA	Total/NA	Air	TO-15	
MB 140-26516/4	Method Blank	Total/NA	Air	TO-15	
LCS 140-26516/1002	Lab Control Sample	Total/NA	Air	TO-15	

# Lab Chronicle

Client: GZA GeoEnvironmental, Inc.  
 Project/Site: Former Gardner, Horicon - 20.0153134.20

TestAmerica Job ID: 140-13726-1

## Client Sample ID: 316 BARSTOW-BACKGROUND IA

Lab Sample ID: 140-13726-1

Date Collected: 12/14/18 12:47

Matrix: Air

Date Received: 12/19/18 10:20

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	TO-15		1	200 mL	500 mL	26434	12/21/18 20:18	S1K	TAL KNX
Instrument ID: MH										

## Client Sample ID: 316 BARSTOW-BASEMENT IA

Lab Sample ID: 140-13726-2

Date Collected: 12/14/18 12:55

Matrix: Air

Date Received: 12/19/18 10:20

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	TO-15		1	200 mL	500 mL	26434	12/21/18 21:12	S1K	TAL KNX
Instrument ID: MH										

## Client Sample ID: 316 BARSTOW-1ST FLOOR IA

Lab Sample ID: 140-13726-3

Date Collected: 12/14/18 12:52

Matrix: Air

Date Received: 12/19/18 10:20

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	TO-15		1	200 mL	500 mL	26516	12/27/18 23:02	S1K	TAL KNX
Instrument ID: MG										

## Client Sample ID: 267 KANSAS-BACKGROUND IA

Lab Sample ID: 140-13726-4

Date Collected: 12/14/18 13:38

Matrix: Air

Date Received: 12/19/18 10:20

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	TO-15		1	200 mL	500 mL	26516	12/27/18 23:45	S1K	TAL KNX
Instrument ID: MG										

## Client Sample ID: 267 KANSAS-WEST IA

Lab Sample ID: 140-13726-5

Date Collected: 12/14/18 13:43

Matrix: Air

Date Received: 12/19/18 10:20

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	TO-15		1	200 mL	500 mL	26516	12/28/18 00:27	S1K	TAL KNX
Instrument ID: MG										

## Client Sample ID: 267 KANSAS-EAST IA

Lab Sample ID: 140-13726-6

Date Collected: 12/14/18 13:43

Matrix: Air

Date Received: 12/19/18 10:20

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	TO-15		1	200 mL	500 mL	26516	12/28/18 01:10	S1K	TAL KNX
Instrument ID: MG										

TestAmerica Knoxville

# Lab Chronicle

Client: GZA GeoEnvironmental, Inc.  
Project/Site: Former Gardner, Horicon - 20.0153134.20

TestAmerica Job ID: 140-13726-1

## Client Sample ID: 150 LARABEE-BASEMENT IA

Lab Sample ID: 140-13726-7

Date Collected: 12/18/18 13:34

Matrix: Air

Date Received: 12/19/18 10:20

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	TO-15		1	200 mL	500 mL	26516	12/28/18 01:55	S1K	TAL KNX
Instrument ID: MG										

## Client Sample ID: 150 LARABEE-1ST FLOOR IA

Lab Sample ID: 140-13726-8

Date Collected: 12/18/18 13:35

Matrix: Air

Date Received: 12/19/18 10:20

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	TO-15		1	200 mL	500 mL	26435	12/25/18 02:13	S1K	TAL KNX
Instrument ID: MH										

## Client Sample ID: 150 LARABEE-BACKGROUND IA

Lab Sample ID: 140-13726-9

Date Collected: 12/18/18 13:39

Matrix: Air

Date Received: 12/19/18 10:20

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	TO-15		1	200 mL	500 mL	26435	12/25/18 03:07	S1K	TAL KNX
Instrument ID: MH										

## Client Sample ID: 142 LARABEE-BACKGROUND IA

Lab Sample ID: 140-13726-10

Date Collected: 12/18/18 15:11

Matrix: Air

Date Received: 12/19/18 10:20

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	TO-15		1	200 mL	500 mL	26435	12/25/18 04:02	S1K	TAL KNX
Instrument ID: MH										

## Client Sample ID: 142 LARABEE-BASEMENT IA

Lab Sample ID: 140-13726-11

Date Collected: 12/18/18 15:17

Matrix: Air

Date Received: 12/19/18 10:20

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	TO-15		1	200 mL	500 mL	26435	12/25/18 04:57	S1K	TAL KNX
Instrument ID: MH										

## Client Sample ID: 142 LARABEE-1ST FLOOR IA

Lab Sample ID: 140-13726-12

Date Collected: 12/18/18 15:16

Matrix: Air

Date Received: 12/19/18 10:20

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	TO-15		1	200 mL	500 mL	26516	12/28/18 02:39	S1K	TAL KNX
Instrument ID: MG										

TestAmerica Knoxville



# Lab Chronicle

Client: GZA GeoEnvironmental, Inc.  
Project/Site: Former Gardner, Horicon - 20.0153134.20

TestAmerica Job ID: 140-13726-1

## Client Sample ID: Method Blank

Lab Sample ID: MB 140-26434/5

Date Collected: N/A

Matrix: Air

Date Received: N/A

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	TO-15		1	200 mL	500 mL	26434	12/21/18 11:49	S1K	TAL KNX
Instrument ID: MH										

## Client Sample ID: Method Blank

Lab Sample ID: MB 140-26435/4

Date Collected: N/A

Matrix: Air

Date Received: N/A

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	TO-15		1	200 mL	500 mL	26435	12/24/18 14:29	S1K	TAL KNX
Instrument ID: MH										

## Client Sample ID: Method Blank

Lab Sample ID: MB 140-26516/4

Date Collected: N/A

Matrix: Air

Date Received: N/A

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	TO-15		1	200 mL	500 mL	26516	12/27/18 12:56	S1K	TAL KNX
Instrument ID: MG										

## Client Sample ID: Lab Control Sample

Lab Sample ID: LCS 140-26434/1002

Date Collected: N/A

Matrix: Air

Date Received: N/A

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	TO-15		1	500 mL	500 mL	26434	12/21/18 10:21	S1K	TAL KNX
Instrument ID: MH										

## Client Sample ID: Lab Control Sample

Lab Sample ID: LCS 140-26435/1002

Date Collected: N/A

Matrix: Air

Date Received: N/A

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	TO-15		1	500 mL	500 mL	26435	12/24/18 12:35	S1K	TAL KNX
Instrument ID: MH										

## Client Sample ID: Lab Control Sample

Lab Sample ID: LCS 140-26516/1002

Date Collected: N/A

Matrix: Air

Date Received: N/A

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	TO-15		1	500 mL	500 mL	26516	12/27/18 11:14	S1K	TAL KNX
Instrument ID: MG										

TestAmerica Knoxville

# Lab Chronicle

Client: GZA GeoEnvironmental, Inc.  
Project/Site: Former Gardner, Horicon - 20.0153134.20

TestAmerica Job ID: 140-13726-1

**Laboratory References:**

TAL KNX = TestAmerica Knoxville, 5815 Middlebrook Pike, Knoxville, TN 37921, TEL (865)291-3000

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# Accreditation/Certification Summary

Client: GZA GeoEnvironmental, Inc.  
Project/Site: Former Gardner, Horicon - 20.0153134.20

TestAmerica Job ID: 140-13726-1

## Laboratory: TestAmerica Knoxville

The accreditations/certifications listed below are applicable to this report.

Authority	Program	EPA Region	Identification Number	Expiration Date
Wisconsin	State Program	5	998044300	08-31-19

## Laboratory: TestAmerica Chicago

The accreditations/certifications listed below are applicable to this report.

Authority	Program	EPA Region	Identification Number	Expiration Date
Wisconsin	State Program	5	999580010	08-31-19

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# Method Summary

Client: GZA GeoEnvironmental, Inc.  
Project/Site: Former Gardner, Horicon - 20.0153134.20

TestAmerica Job ID: 140-13726-1

Method	Method Description	Protocol	Laboratory
TO-15	Volatile Organic Compounds in Ambient Air	EPA	TAL KNX

**Protocol References:**

EPA = US Environmental Protection Agency

**Laboratory References:**

TAL KNX = TestAmerica Knoxville, 5815 Middlebrook Pike, Knoxville, TN 37921, TEL (865)291-3000

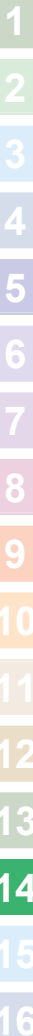


# Sample Summary

Client: GZA GeoEnvironmental, Inc.  
Project/Site: Former Gardner, Horicon - 20.0153134.20

TestAmerica Job ID: 140-13726-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
140-13726-1	316 BARSTOW-BACKGROUND IA	Air	12/14/18 12:47	12/19/18 10:20
140-13726-2	316 BARSTOW-BASEMENT IA	Air	12/14/18 12:55	12/19/18 10:20
140-13726-3	316 BARSTOW-1ST FLOOR IA	Air	12/14/18 12:52	12/19/18 10:20
140-13726-4	267 KANSAS-BACKGROUND IA	Air	12/14/18 13:38	12/19/18 10:20
140-13726-5	267 KANSAS-WEST IA	Air	12/14/18 13:43	12/19/18 10:20
140-13726-6	267 KANSAS-EAST IA	Air	12/14/18 13:43	12/19/18 10:20
140-13726-7	150 LARABEE-BASEMENT IA	Air	12/18/18 13:34	12/19/18 10:20
140-13726-8	150 LARABEE-1ST FLOOR IA	Air	12/18/18 13:35	12/19/18 10:20
140-13726-9	150 LARABEE-BACKGROUND IA	Air	12/18/18 13:39	12/19/18 10:20
140-13726-10	142 LARABEE-BACKGROUND IA	Air	12/18/18 15:11	12/19/18 10:20
140-13726-11	142 LARABEE-BASEMENT IA	Air	12/18/18 15:17	12/19/18 10:20
140-13726-12	142 LARABEE-1ST FLOOR IA	Air	12/18/18 15:16	12/19/18 10:20



TAL Knoxville  
5815 Middlebrook Pike  
Knoxville, TN 37921  
phone 865-291-3000 fax 865-584-4315

# Canister Samples Chain of Custody Record

# TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

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

Client Contact Information		Project Manager: <b>Bernard Fenelon</b>		Sampled By: <b>C. Kingworetta</b>		1 of 2 COCs	
Company: <b>East Georgia Industrial Inc.</b>		Phone:		EPA 25C		Other (Please specify in notes section)	
Address: <b>2080 SWANSON DRIVE SUITE 150</b>		Site Contact:		EPA 3C		Other (Please specify in notes section)	
City/State/Zip: <b>WALKERSVILLE, TN 37188</b>		TAL Contact: <b>GAMBLE FEORUCK</b>		TO-14A		Other (Please specify in notes section)	
Phone: <b>762-154-2560</b>				TO-15		Other (Please specify in notes section)	
FAX: <b>762-154-2711</b>				TO-15		Other (Please specify in notes section)	
Project Name: <b>FORNER GREENER MANUFACTURING</b>		Analysis Turnaround Time		Flow Controller ID		Sample Type	
Site/location: <b>WALKER, TN</b>		Standard (Specify) <b>X</b>		Canister Vacuum in Field, "Hg (Start)		Indoor Air	
PO #		Rush (Specify)		Canister Vacuum in Field, "Hg (Stop)		Ambient Air	
				Time Stop		Soil Gas	
				Time Start		Landfill Gas	
				Sample Date(s)		Other (Please specify in notes section)	
316 BARSTOW - BACKGROUNDA		12/13/18	12:39	12:47	09847	09671	X
316 BARSTOW - BASEMENT IA		12/14/18	12:49	12:55	10304	11562	X
316 BARSTOW - 1ST FLOOR IA			12:54	12:52	09550	09603	X
267 KANSAS - BACKGROUNDA			13:40	13:38	10588	10261	X
267 KANSAS - WEST IA			13:47	13:43	7162	10830	X
267 KANSAS - EAST IA			13:49	13:43	11488	11963	X
Sampled by:		Temperature (Fahrenheit)					
		Interior		Ambient			
		Start					
		Stop					
		Interior		Pressure (Inches of Hg)			
		Start		Ambient			
		Stop					
Special Instructions/QC Requirements & Comments: ANALYZE FOR: TCE, CIS AND TRANS 1,2 DCE AND VINYL CHLORIDE Received ambient 3 boxes TRK#7845 3404 2397, FedEx 50 " 3398 8971 " 3390 1031 Custody seal intact							
Canisters Shipped by:		Date/Time: 12/18/18 1730		Canisters Received by: <b>PAR FENON</b>		13 CANJ	
Samples Relinquished by:		Date/Time:		Received by: <b>John</b>		13 Flows	
Relinquished by:		Date/Time:		Received by:			



140-13726 Chain of Custody

Lab Use Only Shipper Name: Condition: Opened by: 15  
16



TAL Knoxville  
5815 Middlebrook Pike  
Knoxville, TN 37921  
phone 865-291-3000 fax 865-584-4315

### Canister Samples Chain of Custody Record

**TestAmerica**  
THE LEADER IN ENVIRONMENTAL TESTING

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

Client Contact Information		Project Manager: <b>Bernard Fenelon</b>		Sampled By: <b>C. Ainsworth</b>		2 of 2 COCs			
Company: <b>GRACE ENVIRONMENTAL INC.</b>		Phone:		TO-15		Other (Please specify in notes section)			
Address: <b>2000 S. BRUNNIN PERE SUITE B</b>		Site Contact: <b>SHARON FEORUCK</b>		EPA 3C		Soil Gas			
City/State/Zip: <b>WALKERSVILLE, WI 53186</b>		TAL Contact: <b>SHARON FEORUCK</b>		TO-14A		Ambient Air			
Phone: <b>262-754-2560</b>		Project Name: <b>FORMER CIGARETTE MANUFACTURING</b>		EPA 25C		Landfill Gas			
FAX: <b>262-754-9711</b>		Analysis Turnaround Time		ASTM D-1946		Other (Please specify in notes section)			
Site/location: <b>HERCON, WI</b>		Standard (Specify) <b>X</b>		TO-15		Indoor Air			
PO #		Rush (Specify)		SEE BELOW		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	Canister ID	Temperature (Fahrenheit)	
								Interior	Ambient
150 LARABEE - BASEMENT IA	12/17/18	1335	1334	-28	-3	11467	11227		
150 LARABEE - 1ST FLOOR IA	12/17/18	1339	1335	-29	-5	11816	10529		
150 LARABEE - BACKGROUND IA	12/17/18	1341	1339	-29.5	-2	09955	10562		
142 LARABEE - BACKGROUND IA	12/17/18	1517	1511	-30	-3	11937	11534		
142 LARABEE - BASEMENT IA	12/17/18	1520	1517	-30	-3	11932	10716		
142 LARABEE - 1ST FLOOR IA	12/17/18	1522	1516	-29	-4	10467	11559		
Sampled by:		Temperature (Fahrenheit)		Pressure (Inches of Hg)		ANALYZE FOR: TCE; CIS AND TRANS 1,2 DCE. AND VINYL CHLORIDE			
		Interior		Ambient					
Start									
Stop									
Interior									
Ambient									
Special Instructions/QC Requirements & Comments:		Date/Time: 12/18/18 1730		Canisters Received by: <b>SEE FEORUCK</b>					
Relinquished by:		Date/Time:		Received by: <b>See below 12/19/18 1020 TAFM</b>					
Relinquished by:		Date/Time:		Received by:					

Lab Use Only Shipper Name: Condition: Opened by: 15 16



TESTAMERICA KNOXVILLE SAMPLE RECEIPT/CONDITION UPON RECEIPT ANOMALY CHECKLIST

Review Items	Yes	No	NA	If No, what was the problem?	Comments/Actions Taken
1. Are the shipping containers intact?	/			<input type="checkbox"/> Containers, Broken	
2. Were ambient air containers received intact?			/	<input checked="" type="checkbox"/> Checked in lab	
3. The coolers/containers custody seal if present, is it intact?	/			<input type="checkbox"/> Yes <input type="checkbox"/> NA	
4. Is the cooler temperature within limits? (> freezing temp. of water to 6 °C, VOST: 10°C) Thermometer ID: _____ Correction factor: _____			/	<input type="checkbox"/> Cooler Out of Temp, Client Contacted, Proceed/Cancel <input type="checkbox"/> Cooler Out of Temp, Same Day Receipt	
5. Were all of the sample containers received intact?	/			<input type="checkbox"/> Containers, Broken	
6. Were samples received in appropriate containers?	/			<input type="checkbox"/> Containers, Improper; Client Contacted; Proceed/Cancel	
7. Do sample container labels match COC? (IDs, Dates, Times)	/			<input type="checkbox"/> COC & Samples Do Not Match <input type="checkbox"/> COC Incorrect/Incomplete <input type="checkbox"/> COC Not Received	
8. Were all of the samples listed on the COC received?	/			<input type="checkbox"/> Sample Received, Not on COC <input type="checkbox"/> Sample on COC, Not Received	
9. Is the date/time of sample collection noted?	/			<input type="checkbox"/> COC; No Date/Time; Client Contacted	Labeling Verified by: _____ Date: _____
10. Was the sampler identified on the COC?	/			<input type="checkbox"/> Sampler Not Listed on COC	
11. Is the client and project name/# identified?	/			<input type="checkbox"/> COC Incorrect/Incomplete	
12. Are tests/parameters listed for each sample?	/			<input type="checkbox"/> COC No tests on COC	pH test strip lot number: _____
13. Is the matrix of the samples noted?	/			<input type="checkbox"/> COC Incorrect/Incomplete	
14. Was COC relinquished? (Signed/Dated/Timed)	/			<input type="checkbox"/> COC Incorrect/Incomplete	Box 16A: pH Preservation Box 18A: Residual Chlorine
15. Were samples received within holding time?	/			<input type="checkbox"/> Holding Time - Receipt	Preservative: _____
16. Were samples received with correct chemical preservative (excluding Encore)?				<input type="checkbox"/> pH Adjusted, pH Included (See box 16A) <input type="checkbox"/> Incorrect Preservative	Lot Number: _____ Exp Date: _____ Analyst: _____ Date: _____ Time: _____
17. Were VOA samples received without headspace?			/	<input type="checkbox"/> Headspace (VOA only) <input type="checkbox"/> Residual Chlorine	
18. Did you check for residual chlorine, if necessary? (e.g. 1613B, 1668) Chlorine test strip lot number: _____			/		
19. For 1613B water samples is pH<9?			/	<input type="checkbox"/> If no, notify lab to adjust	
20. For rad samples was sample activity info. Provided?			/	<input type="checkbox"/> Project missing info	
Project #: <u>Seo10928</u> PM Instructions: _____					

Sample Receiving Associate: Ken Wink Date: 12/19/18 QA026R31.doc, 112618



**TestAmerica Knoxville - Air Canister Initial Pressure Check**

Gauge ID:           G5            
 Date:          12/19/2018         

Analyst	Sample ID	Asset #	Cleaning Job	Cert	Size (L)	Pressure @ Receipt (-in Hg or +psig)	Time	Comments
BKK	140-13726-A-1	09671	13419	B	6	-2.6	16:55	
BKK	140-13726-A-2	11562	13419	B	6	-4.1	16:56	
BKK	140-13726-A-3	09603	13393	B	6	-5.0	16:57	
BKK	140-13726-A-4	10261	13419	B	6	-2.9	16:58	
BKK	140-13726-A-5	10830	13477	B	6	-2.6	16:59	
BKK	140-13726-A-6	11963	13490	B	6	-4.0	17:00	
BKK	140-13726-A-7	11227	13393	B	6	-4.7	17:01	
BKK	140-13726-A-8	10529	13393	B	6	-4.8	17:02	
BKK	140-13726-A-9	10562	13419	B	6	-1.3	17:03	
BKK	140-13726-A-10	11534	13393	B	6	-3.1	17:04	
BKK	140-13726-A-11	10716	13419	B	6	-5.0	17:05	
BKK	140-13726-A-12	11559	13393	B	6	-5.4	17:06	
<input type="checkbox"/> Receiving -Air Can -Calve Open (NCM# _____) <input type="checkbox"/> Air - Can P -24 to -25 " - Flow Contr. Works (NCM# _____) <input type="checkbox"/> Air - Can P -24 to -25 " - Flow Contr. Faulty (NCM# _____) <input type="checkbox"/> Air - Can P Out -26" - Flow Contr. Works (NCM# _____)						<input type="checkbox"/> Air - Can P Out -26" - Flow Contr. Faulty (NCM# _____) <input type="checkbox"/> Air - Can P Low -24 to -25 " - Grab Sample (NCM# _____) <input type="checkbox"/> Air - Can P Low -26 "- Grab Sample (NCM# _____)		





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F: 262.754.9711  
www.gza.com

January 9, 2019  
File No. 20.0153134.30

Mr. Jason and Ms. Jennifer Dockery  
140 Oakwood Drive  
Horicon, Wisconsin 53032

Re: Verification Post-Mitigation Indoor Air Test Results

Dear Mr. Jason and Ms. Jennifer Dockery:

With this letter, GZA GeoEnvironmental, Inc. (GZA) is informing you of the results of recent indoor air sampling conducted at your home at 140 Oakwood Drive in Horicon, Wisconsin.

### BACKGROUND

Gardner Manufacturing Company, Inc. (Gardner) hired GZA GeoEnvironmental, Inc. (GZA) to conduct environmental investigation and remediation of its former property at 263 Kansas Street, including the assessment of chemical vapors near area homes. The Wisconsin Department of Natural Resources (WDNR) provides oversight of the investigation activities being conducted by Gardner and provides file information under BRRTS No. 02-14-55423.

Due to the detection of trichloroethene (TCE) in a sub-slab air sample collected in October 2011 at a concentration greater than the TCE residential sub-slab vapor risk action level, the WDNR had a mitigation system installed in your home for the prior owner in March 2012. Post-mitigation indoor air samples collected by GZA in October 2012 confirmed that TCE concentrations were below the TCE residential Vapor Action Level.

### INDOOR AIR SAMPLING AND RESULTS

To further verify the effectiveness of the mitigation system, two indoor air samples were collected from your home over a 24-hour period between December 13 and 14, 2018. Samples were collected from the basement and first floor and from background outside air. The three air samples were collected in 6-liter canisters and were submitted to TestAmerica of Knoxville, Tennessee for testing. The analytical report for the air samples is provided as Attachment 1. The data are summarized on the attached table and include historical results.

TCE was not detected in the December 2018 indoor air samples and confirms the mitigation system is operating as designed.


### CLOSING

If you are looking for more information, please contact the undersigned (262-754-2560 or [bernard.fenelon@gza.com](mailto:bernard.fenelon@gza.com)). You may also contact Mr. Jeff Ackerman of the WDNR (608-275-3323) if you have any questions related to the investigation, or Mr. Ryan Wozniak of the WDHS (608-267-3227) if you have any health-related questions associated with this investigation.

Very truly yours,

**GZA GeoEnvironmental, Inc.**

  
Bernard G. Fenelon, P.G.  
Senior Consultant/Hydrogeologist

  
John C. Osborne, P.G.  
Senior Principal/Hydrogeologist

J:\153100to153199\153134 263 Kansas\30 Remediation\Correspondence\2018 IAQ Results Letters\  
2019 01 09 FINAL Results of Verification Post-Mitigation Indoor Air Sampling 140 Oakwood Drive - Dockery.docx

### Attachments

c: Mr. Jeff Ackerman, WDNR  
Mr. Ryan J. Wozniak, MPH, Ph.D., Wisconsin Department of Health Services



**TABLE 1  
SUB-SLAB AIR AND INDOOR AIR ANALYTICAL RESULTS  
140 Oakwood Drive  
Horicon, Wisconsin**

	Wisconsin Department of Natural Resources Vapor Action Levels									
	Chloro-ethane	1,2-DCA	1,1-DCE	cis-1,2-DCE	trans-1,2-DCE	1,1,2,2-TCA	PCE	TCE	1,1,2-TCA	Vinyl Chloride
Sub-Slab Vapor Action Level (ppbv)	12,000	9	1,700	NE	NE	2.3	210	13	1.3	22
Indoor Air Action Level (ppbv)	370	0.27	52	NE	NE	0.068	6.2	0.39	0.038	0.65

Sample Location	Date	Sub-Slab Vapor Sample Results									
		Chloro-ethane	1,2-DCA	1,1-DCE	cis-1,2-DCE	trans-1,2-DCE	1,1,2,2-TCA	PCE	TCE	1,1,2-TCA	Vinyl Chloride
140 Oakwood Drive	10/10/11	<100	<100	<100	<100	<100	<100	<100	<b>188</b>	<100	<100
		Pre-Ventilation Indoor Air Sample Results									
140 Oakwood Drive		Pre-Mitigation Indoor Air Quality Samples Were Not Collected									
		Post-Ventilation Indoor Air Sample Results									
140 Oakwood Dr-IA-Basement	10/17/12	NA	NA	NA	NA	NA	NA	NA	<0.17	NA	NA
140 Oakwood Dr-IA-Grade	10/17/12	NA	NA	NA	NA	NA	NA	NA	<0.18	NA	NA
140 Oakwood Dr-IA-Upper	10/17/12	NA	NA	NA	NA	NA	NA	NA	<0.24	NA	NA
140 Oakwood-Basement IA	12/13/18	NA	NA	NA	<0.060	<0.050	NA	NA	<0.036	NA	<0.071
140 Oakwood-1st Floor IA	12/13/18	NA	NA	NA	<0.060	<0.050	NA	NA	<0.036	NA	<0.071
140 Oakwood-Background IA (Outside)	12/13/18	NA	NA	NA	<0.060	<0.050	NA	NA	<0.036	NA	<0.071

Notes:

- Sample results from 2011 are for sub-slab and indoor air samples collected by SCS BT Squared of Madison, Wisconsin and analyzed by the Wisconsin State Hygiene Laboratory of Madison, Wisconsin for VOCs in accordance with USEPA Method TO-15. Results are reported to the Limit of Detection (LOD).
- Sample results from 2015 are indoor air samples collected by GZA GeoEnvironmental, Inc. of Waukesha, Wisconsin and analyzed by Eurofins Air Toxics, Inc. of Folsom, California for the listed VOCs in accordance with USEPA Method TO-15. Results are reported to the Reporting Limit (RL), Limit of Quantification (LOQ) or Method Detection Limit (MDL).
- Analytical results are provided in units of parts per billion by volume (ppbv).
- "J" denotes an estimated concentration between the method detection limit and the reporting limit. "NA" denotes the sample was not analyzed for the constituent.
- The sub-slab and indoor air vapor action levels (VALs) were obtained from USEPA regional screening levels accessed at: [http://www.epa.gov/reg3hwmd/risk/human/rb-concentration\\_table/index.htm](http://www.epa.gov/reg3hwmd/risk/human/rb-concentration_table/index.htm) and using a 10<sup>-5</sup> cancer risk and a hazard index of 1 with a 0.1 attenuation factor for the building slab.
- Samples that exceed the applicable sub-slab or indoor VAL are provided in **bold/underlined** font.
- Constituent abbreviations are used as follows:

1,2-DCA denotes 1,2-dichloroethane  
TCE denotes trichloroethene  
PCE denotes tetrachloroethene

cis-1,2-DCE denotes cis-1,2-dichloroethene  
1,1-DCE denotes 1,1-dichloroethene  
1,1,2-TCE denotes 1,1,2-Trichloroethane

1,1,2,2 TCA denotes 1,1,2,2-Tetrachloroethane  
trans-1,2-DCE denotes trans-1,2-dichloroethene



**ATTACHMENT 1**

**Post-Mitigation Indoor Air Laboratory Analytical Report**



# TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

## ANALYTICAL REPORT

TestAmerica Laboratories, Inc.  
TestAmerica Knoxville  
5815 Middlebrook Pike  
Knoxville, TN 37921  
Tel: (865)291-3000

TestAmerica Job ID: 140-13678-1

Client Project/Site: Former Gardner, Horicon - 20.0153134.20

For:

GZA GeoEnvironmental, Inc.  
20900 Swenson Drive Suite 150  
Waukesha, Wisconsin 53186

Attn: Mr. Bernard Fenelon



Authorized for release by:  
12/24/2018 8:04:23 AM

Sandie Fredrick, Project Manager II  
(920)261-1660  
[sandie.fredrick@testamericainc.com](mailto:sandie.fredrick@testamericainc.com)

### LINKS

Review your project  
results through  
**TotalAccess**

Have a Question?



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[www.testamericainc.com](http://www.testamericainc.com)

*The test results in this report meet all 2003 NELAC and 2009 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.*

*This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.*

*Results relate only to the items tested and the sample(s) as received by the laboratory.*

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# Definitions/Glossary

Client: GZA GeoEnvironmental, Inc.  
Project/Site: Former Gardner, Horicon - 20.0153134.20

TestAmerica Job ID: 140-13678-1

## Qualifiers

### Air - GC/MS VOA

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

## Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

# Case Narrative

Client: GZA GeoEnvironmental, Inc.  
Project/Site: Former Gardner, Horicon - 20.0153134.20

TestAmerica Job ID: 140-13678-1

---

**Job ID: 140-13678-1**

**Laboratory: TestAmerica Knoxville**

---

**Narrative**

**Job Narrative  
140-13678-1**

**Comments**

No additional comments.

**Receipt**

The samples were received on 12/14/2018 10:00 AM; the samples arrived in good condition, properly preserved and, where required, on ice.

**Air - GC/MS VOA**

Method(s) TO 15 LL, TO-15: EPA methods TO-14A and TO-15 specify the use of humidified "zero air" as the blank reagent for canister cleaning, instrument calibration and sample analysis. Ultra-high purity humidified nitrogen from a cryogenic reservoir is used in place of "zero air" by TestAmerica Knoxville.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.



# Client Sample Results

Client: GZA GeoEnvironmental, Inc.  
 Project/Site: Former Gardner, Horicon - 20.0153134.20

TestAmerica Job ID: 140-13678-1

## Client Sample ID: 140 OAKWOOD-BACKGROUND IA

Lab Sample ID: 140-13678-4

Date Collected: 12/13/18 14:46

Matrix: Air

Date Received: 12/14/18 10:00

Sample Container: Summa Canister 6L

### Method: TO-15 - Volatile Organic Compounds in Ambient Air

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
cis-1,2-Dichloroethene	<0.060		0.20	0.060	ppb v/v			12/19/18 01:22	1
trans-1,2-Dichloroethene	<0.050		0.20	0.050	ppb v/v			12/19/18 01:22	1
Trichloroethene	<0.036		0.20	0.036	ppb v/v			12/19/18 01:22	1
Vinyl chloride	<0.071		0.20	0.071	ppb v/v			12/19/18 01:22	1

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
cis-1,2-Dichloroethene	<0.24		0.79	0.24	ug/m3			12/19/18 01:22	1
trans-1,2-Dichloroethene	<0.20		0.79	0.20	ug/m3			12/19/18 01:22	1
Trichloroethene	<0.19		1.1	0.19	ug/m3			12/19/18 01:22	1
Vinyl chloride	<0.18		0.51	0.18	ug/m3			12/19/18 01:22	1

## Client Sample ID: 140 OAKWOOD-BASEMENT IA

Lab Sample ID: 140-13678-5

Date Collected: 12/13/18 14:43

Matrix: Air

Date Received: 12/14/18 10:00

Sample Container: Summa Canister 6L

### Method: TO-15 - Volatile Organic Compounds in Ambient Air

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
cis-1,2-Dichloroethene	<0.060		0.20	0.060	ppb v/v			12/19/18 02:05	1
trans-1,2-Dichloroethene	<0.050		0.20	0.050	ppb v/v			12/19/18 02:05	1
Trichloroethene	<0.036		0.20	0.036	ppb v/v			12/19/18 02:05	1
Vinyl chloride	<0.071		0.20	0.071	ppb v/v			12/19/18 02:05	1

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
cis-1,2-Dichloroethene	<0.24		0.79	0.24	ug/m3			12/19/18 02:05	1
trans-1,2-Dichloroethene	<0.20		0.79	0.20	ug/m3			12/19/18 02:05	1
Trichloroethene	<0.19		1.1	0.19	ug/m3			12/19/18 02:05	1
Vinyl chloride	<0.18		0.51	0.18	ug/m3			12/19/18 02:05	1

## Client Sample ID: 140 OAKWOOD-1ST FLOOR IA

Lab Sample ID: 140-13678-6

Date Collected: 12/13/18 14:44

Matrix: Air

Date Received: 12/14/18 10:00

Sample Container: Summa Canister 6L

### Method: TO-15 - Volatile Organic Compounds in Ambient Air

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
cis-1,2-Dichloroethene	<0.060		0.20	0.060	ppb v/v			12/19/18 02:48	1
trans-1,2-Dichloroethene	<0.050		0.20	0.050	ppb v/v			12/19/18 02:48	1
Trichloroethene	<0.036		0.20	0.036	ppb v/v			12/19/18 02:48	1
Vinyl chloride	<0.071		0.20	0.071	ppb v/v			12/19/18 02:48	1

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
cis-1,2-Dichloroethene	<0.24		0.79	0.24	ug/m3			12/19/18 02:48	1
trans-1,2-Dichloroethene	<0.20		0.79	0.20	ug/m3			12/19/18 02:48	1
Trichloroethene	<0.19		1.1	0.19	ug/m3			12/19/18 02:48	1
Vinyl chloride	<0.18		0.51	0.18	ug/m3			12/19/18 02:48	1

TestAmerica Knoxville

# Default Detection Limits

Client: GZA GeoEnvironmental, Inc.  
Project/Site: Former Gardner, Horicon - 20.0153134.20

TestAmerica Job ID: 140-13678-1

## Method: TO-15 - Volatile Organic Compounds in Ambient Air

Analyte	RL	MDL	Units	Method
cis-1,2-Dichloroethene	0.20	0.060	ppb v/v	TO-15
cis-1,2-Dichloroethene	0.79	0.24	ug/m3	TO-15
trans-1,2-Dichloroethene	0.20	0.050	ppb v/v	TO-15
trans-1,2-Dichloroethene	0.79	0.20	ug/m3	TO-15
Trichloroethene	0.20	0.036	ppb v/v	TO-15
Trichloroethene	1.1	0.19	ug/m3	TO-15
Vinyl chloride	0.20	0.071	ppb v/v	TO-15
Vinyl chloride	0.51	0.18	ug/m3	TO-15

# QC Sample Results

Client: GZA GeoEnvironmental, Inc.  
 Project/Site: Former Gardner, Horicon - 20.0153134.20

TestAmerica Job ID: 140-13678-1

## Method: TO-15 - Volatile Organic Compounds in Ambient Air

**Lab Sample ID: MB 140-26245/8**

**Matrix: Air**

**Analysis Batch: 26245**

**Client Sample ID: Method Blank**

**Prep Type: Total/NA**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
cis-1,2-Dichloroethene	<0.060		0.20	0.060	ppb v/v			12/18/18 17:28	1
trans-1,2-Dichloroethene	<0.050		0.20	0.050	ppb v/v			12/18/18 17:28	1
Trichloroethene	<0.036		0.20	0.036	ppb v/v			12/18/18 17:28	1
Vinyl chloride	<0.071		0.20	0.071	ppb v/v			12/18/18 17:28	1

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
cis-1,2-Dichloroethene	<0.24		0.79	0.24	ug/m3			12/18/18 17:28	1
trans-1,2-Dichloroethene	<0.20		0.79	0.20	ug/m3			12/18/18 17:28	1
Trichloroethene	<0.19		1.1	0.19	ug/m3			12/18/18 17:28	1
Vinyl chloride	<0.18		0.51	0.18	ug/m3			12/18/18 17:28	1

**Lab Sample ID: LCS 140-26245/1006**

**Matrix: Air**

**Analysis Batch: 26245**

**Client Sample ID: Lab Control Sample**

**Prep Type: Total/NA**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
cis-1,2-Dichloroethene	2.00	2.09		ppb v/v		105	70 - 130
trans-1,2-Dichloroethene	2.00	2.20		ppb v/v		110	70 - 130
Trichloroethene	2.00	2.06		ppb v/v		103	70 - 130
Vinyl chloride	2.00	2.47		ppb v/v		124	70 - 130

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
cis-1,2-Dichloroethene	7.9	8.30		ug/m3		105	70 - 130
trans-1,2-Dichloroethene	7.9	8.71		ug/m3		110	70 - 130
Trichloroethene	11	11.1		ug/m3		103	70 - 130
Vinyl chloride	5.1	6.32		ug/m3		124	70 - 130

# QC Association Summary

Client: GZA GeoEnvironmental, Inc.  
Project/Site: Former Gardner, Horicon - 20.0153134.20

TestAmerica Job ID: 140-13678-1

## Air - GC/MS VOA

### Analysis Batch: 26245

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
140-13678-1	146 LARABEE-BACKGROUND IA	Total/NA	Air	TO-15	
140-13678-2	146 LARABEE-BASEMENT IA	Total/NA	Air	TO-15	
140-13678-3	146 LARABEE-1ST FLOOR IA	Total/NA	Air	TO-15	
140-13678-4	140 OAKWOOD-BACKGROUND IA	Total/NA	Air	TO-15	
140-13678-5	140 OAKWOOD-BASEMENT IA	Total/NA	Air	TO-15	
140-13678-6	140 OAKWOOD-1ST FLOOR IA	Total/NA	Air	TO-15	
140-13678-7	205 KANSAS-BACKGROUND IA	Total/NA	Air	TO-15	
140-13678-8	205 KANSAS-BASEMENT IA	Total/NA	Air	TO-15	
140-13678-9	205 KANSAS-1ST FLOOR IA	Total/NA	Air	TO-15	
MB 140-26245/8	Method Blank	Total/NA	Air	TO-15	
LCS 140-26245/1006	Lab Control Sample	Total/NA	Air	TO-15	

# Lab Chronicle

Client: GZA GeoEnvironmental, Inc.  
Project/Site: Former Gardner, Horicon - 20.0153134.20

TestAmerica Job ID: 140-13678-1

## Client Sample ID: 146 LARABEE-BACKGROUND IA

Lab Sample ID: 140-13678-1

Date Collected: 12/13/18 09:14

Matrix: Air

Date Received: 12/14/18 10:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	TO-15		1	200 mL	500 mL	26245	12/18/18 23:12	S1K	TAL KNX
Instrument ID: MG										

## Client Sample ID: 146 LARABEE-BASEMENT IA

Lab Sample ID: 140-13678-2

Date Collected: 12/13/18 09:16

Matrix: Air

Date Received: 12/14/18 10:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	TO-15		1	200 mL	500 mL	26245	12/18/18 23:56	S1K	TAL KNX
Instrument ID: MG										

## Client Sample ID: 146 LARABEE-1ST FLOOR IA

Lab Sample ID: 140-13678-3

Date Collected: 12/13/18 09:17

Matrix: Air

Date Received: 12/14/18 10:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	TO-15		1	200 mL	500 mL	26245	12/19/18 00:39	S1K	TAL KNX
Instrument ID: MG										

## Client Sample ID: 140 OAKWOOD-BACKGROUND IA

Lab Sample ID: 140-13678-4

Date Collected: 12/13/18 14:46

Matrix: Air

Date Received: 12/14/18 10:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	TO-15		1	200 mL	500 mL	26245	12/19/18 01:22	S1K	TAL KNX
Instrument ID: MG										

## Client Sample ID: 140 OAKWOOD-BASEMENT IA

Lab Sample ID: 140-13678-5

Date Collected: 12/13/18 14:43

Matrix: Air

Date Received: 12/14/18 10:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	TO-15		1	200 mL	500 mL	26245	12/19/18 02:05	S1K	TAL KNX
Instrument ID: MG										

## Client Sample ID: 140 OAKWOOD-1ST FLOOR IA

Lab Sample ID: 140-13678-6

Date Collected: 12/13/18 14:44

Matrix: Air

Date Received: 12/14/18 10:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	TO-15		1	200 mL	500 mL	26245	12/19/18 02:48	S1K	TAL KNX
Instrument ID: MG										

TestAmerica Knoxville



# Lab Chronicle

Client: GZA GeoEnvironmental, Inc.  
Project/Site: Former Gardner, Horicon - 20.0153134.20

TestAmerica Job ID: 140-13678-1

## Client Sample ID: 205 KANSAS-BACKGROUND IA

Lab Sample ID: 140-13678-7

Date Collected: 12/13/18 15:53

Matrix: Air

Date Received: 12/14/18 10:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	TO-15		1	200 mL	500 mL	26245	12/19/18 03:32	S1K	TAL KNX
Instrument ID: MG										

## Client Sample ID: 205 KANSAS-BASEMENT IA

Lab Sample ID: 140-13678-8

Date Collected: 12/13/18 15:56

Matrix: Air

Date Received: 12/14/18 10:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	TO-15		1	200 mL	500 mL	26245	12/19/18 04:16	S1K	TAL KNX
Instrument ID: MG										

## Client Sample ID: 205 KANSAS-1ST FLOOR IA

Lab Sample ID: 140-13678-9

Date Collected: 12/13/18 15:58

Matrix: Air

Date Received: 12/14/18 10:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	TO-15		1	200 mL	500 mL	26245	12/19/18 05:42	S1K	TAL KNX
Instrument ID: MG										

## Client Sample ID: Method Blank

Lab Sample ID: MB 140-26245/8

Date Collected: N/A

Matrix: Air

Date Received: N/A

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	TO-15		1	200 mL	500 mL	26245	12/18/18 17:28	S1K	TAL KNX
Instrument ID: MG										

## Client Sample ID: Lab Control Sample

Lab Sample ID: LCS 140-26245/1006

Date Collected: N/A

Matrix: Air

Date Received: N/A

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	TO-15		1	500 mL	500 mL	26245	12/18/18 14:02	S1K	TAL KNX
Instrument ID: MG										

### Laboratory References:

TAL KNX = TestAmerica Knoxville, 5815 Middlebrook Pike, Knoxville, TN 37921, TEL (865)291-3000

# Accreditation/Certification Summary

Client: GZA GeoEnvironmental, Inc.  
Project/Site: Former Gardner, Horicon - 20.0153134.20

TestAmerica Job ID: 140-13678-1

## Laboratory: TestAmerica Knoxville

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	EPA Region	Identification Number	Expiration Date
Wisconsin	State Program	5	998044300	08-31-19

The following analytes are included in this report, but the laboratory is not certified by the governing authority. This list may include analytes for which the agency does not offer certification.

Analysis Method	Prep Method	Matrix	Analyte
TO-15		Air	cis-1,2-Dichloroethene
TO-15		Air	trans-1,2-Dichloroethene
TO-15		Air	Trichloroethene
TO-15		Air	Vinyl chloride

## Laboratory: TestAmerica Chicago

The accreditations/certifications listed below are applicable to this report.

Authority	Program	EPA Region	Identification Number	Expiration Date
Wisconsin	State Program	5	999580010	08-31-19

# Method Summary

Client: GZA GeoEnvironmental, Inc.  
Project/Site: Former Gardner, Horicon - 20.0153134.20

TestAmerica Job ID: 140-13678-1

Method	Method Description	Protocol	Laboratory
TO-15	Volatile Organic Compounds in Ambient Air	EPA	TAL KNX

**Protocol References:**

EPA = US Environmental Protection Agency

**Laboratory References:**

TAL KNX = TestAmerica Knoxville, 5815 Middlebrook Pike, Knoxville, TN 37921, TEL (865)291-3000

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# Sample Summary

Client: GZA GeoEnvironmental, Inc.  
Project/Site: Former Gardner, Horicon - 20.0153134.20

TestAmerica Job ID: 140-13678-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
140-13678-1	146 LARABEE-BACKGROUND IA	Air	12/13/18 09:14	12/14/18 10:00
140-13678-2	146 LARABEE-BASEMENT IA	Air	12/13/18 09:16	12/14/18 10:00
140-13678-3	146 LARABEE-1ST FLOOR IA	Air	12/13/18 09:17	12/14/18 10:00
140-13678-4	140 OAKWOOD-BACKGROUND IA	Air	12/13/18 14:46	12/14/18 10:00
140-13678-5	140 OAKWOOD-BASEMENT IA	Air	12/13/18 14:43	12/14/18 10:00
140-13678-6	140 OAKWOOD-1ST FLOOR IA	Air	12/13/18 14:44	12/14/18 10:00
140-13678-7	205 KANSAS-BACKGROUND IA	Air	12/13/18 15:53	12/14/18 10:00
140-13678-8	205 KANSAS-BASEMENT IA	Air	12/13/18 15:56	12/14/18 10:00
140-13678-9	205 KANSAS-1ST FLOOR IA	Air	12/13/18 15:58	12/14/18 10:00



**TAL Knoxville**


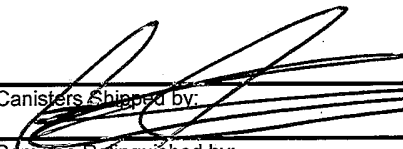
5815 Middlebrook Pike  
 Knoxville, TN 37921  
 phone 865-291-3000 fax 865-584-4315

**Canister Samples Chain of Custody Record**

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



THE LEADER IN ENVIRONMENTAL TESTING

Client Contact Information				Project Manager: <b>BERNARD FERRON</b>				Sampled By: <b>C. ANSWORTH</b>				1 of 2 COCs							
Company: <b>GRACIA ENVIRONMENTAL INC.</b>				Phone:															
Address: <b>20900 SWENSON DRIVE STE 150</b>				Site Contact:															
City/State/Zip: <b>WARRICK, IN 46786</b>				TAL Contact: <b>GANDY FREDERICK</b>															
Phone: <b>762-754-2560</b>																			
FAX: <b>762-754-9711</b>																			
Project Name: <b>FORMER GARDNER MANUFACTURING</b>				Analysis Turnaround Time															
Site/location: <b>HOZCOM, IN</b>				Standard (Specify) <b>X</b>															
PO #				Rush (Specify)															
								TCE ONLY											
												 140-13678 Chain of Custody							
Sample Identification	Sample Date(s)	Time Start	Time Stop	Canister Vacuum in Field, "Hg (Start)	Canister Vacuum in Field, "Hg (Stop)	Flow Controller ID	Canister ID	TO-15	TO-14A	EPA 3C	EPA 25C	ASTM D-1946	Other (Please sp)	Sample Type	Indoor Air	Ambient Air	Soil Gas	Landfill Gas	Other (Please spec
146 LARABEE-BACKGROUND IA	12/12-12/13/18	925	914	-28	-4	11275	11157	X							X				
146 LARABEE-BASEMENT IA		933	916	-30	-6	11757	10182	X							X				
146 LARABEE-1 <sup>ST</sup> FLOOR IA		935	917	-29	-4	7587	10405	X							X				
140 OAKWOOD-BACKGROUND IA		1458	1446	-29	-4	8701	09930	X							X				
140 OAKWOOD-BASEMENT IA		1502	1443	-30	-3	11289	10627	X							X				
140 OAKWOOD-1 <sup>ST</sup> FLOOR IA		1508	1444	-30	-6	7365	10069	X							X				
Sampled by:				Temperature (Fahrenheit)				CUSTODY SEALS INTACT RECEIVED AMBIENT 6:50 <del>12-14-18</del> 12-16-18											
		Interior		Ambient															
Start																			
Stop																			
Sampled by:				Pressure (inches of Hg)				2 BOXES FLOW # 8116 7060 9212 SD " " 9223 SD 12 CANS / 12 FLOWS											
		Interior		Ambient															
Start																			
Stop																			
Special Instructions/QC Requirements & Comments:																			
Canisters Shipped by: 				Date/Time: <b>12/13/18 11:50</b>				Canisters Received by: <b>PER FERRON</b>											
Samples Relinquished by:				Date/Time:				Received by: <b>Handwritten</b>				7A Kw X 12-14-18 10:00							
Relinquished by:				Date/Time:				Received by:											

Lab Use Only

Shipper Name:

Opened by:

Condition:



TAL Knoxville

5815 Middlebrook Pike  
 Knoxville, TN 37921  
 phone 865-291-3000 fax 865-584-4315

Canister Samples Chain of Custody Record

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



THE LEADER IN ENVIRONMENTAL TESTING

Client Contact Information		Project Manager: <b>Bernard Fenelon</b>		Sampled By: <b>C. Ainsworth</b>		2 of 2 COCs													
Company: <b>ETA Environmental Inc.</b>		Phone:																	
Address: <b>20000 SWENSON DRIVE SUITE 100</b>		Site Contact:																	
City/State/Zip: <b>WARRICK, IN 46786</b>		TAL Contact: <b>GARRETT FREDRICK</b>																	
Phone: <b>262-754-2560</b>																			
FAX: <b>262-754-9711</b>																			
Project Name: <b>FENCE GARDEN MANUFACTURING</b>		Analysis Turnaround Time																	
Site/location: <b>HOLCOM, IN</b>		Standard (Specify) <b>X</b>																	
PO #		Rush (Specify)																	
Sample Identification	Sample Date(s)	Time Start	Time Stop	Canister Vacuum in Field, "Hg (Start)	Canister Vacuum in Field, "Hg (Stop)	Flow Controller ID	Canister ID	TO-15 TCE ONLY	TO-14A	EPA 3C	EPA 25C	ASTM D-1946	Other (Please specify in notes section)	Sample Type	Indoor Air	Ambient Air	Soil Gas	Landfill Gas	Other (Please specify in notes section)
205 KANSAS - BACKYARD IA	12/12/18 12/13/18	1559	1553	-28.5	-3	09855	10377	X							X				
205 KANSAS - BASEMENT IA	1	1603	1556	-26	-2	10357	11209	X							X				
205 KANSAS - 1 <sup>ST</sup> FLOOR IA	1	1605	1558	-27	-3	10160	10325	X							X				
Sampled by:		Temperature (Fahrenheit)																	
		Interior		Ambient															
Start																			
Stop																			
Pressure (inches of Hg)																			
		Interior		Ambient															
Start																			
Stop																			
Special Instructions/QC Requirements & Comments:																			
Canisters Shipped by:		Date/Time: <b>12/13/18 1730</b>		Canisters Received by: <b>PER FEN</b>															
Samples Relinquished by:		Date/Time:		Received by: <b>AMALIA JAKX</b>															
Relinquished by:		Date/Time:		Received by:															

Lab Use Only

Shipper Name:

Opened by:

Condition:



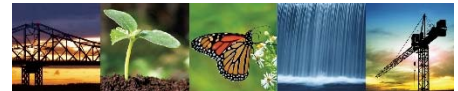
TESTAMERICA KNOXVILLE SAMPLE RECEIPT/CONDITION UPON RECEIPT ANOMALY CHECKLIST

Review Items	Yes	No	NA	If No, what was the problem?	Comments/Actions Taken
1. Are the shipping containers intact?	/			<input type="checkbox"/> Containers, Broken	
2. Were ambient air containers received intact?		/		<input checked="" type="checkbox"/> Checked in lab	
3. The coolers/containers custody seal if present, is it intact?	/			<input type="checkbox"/> Yes <input type="checkbox"/> NA	
4. Is the cooler temperature within limits? (> freezing temp. of water to 6°C, VOST: 10°C) Thermometer ID: _____ Correction factor: _____	/			<input type="checkbox"/> Cooler Out of Temp, Client Contacted, Proceed/Cancel <input type="checkbox"/> Cooler Out of Temp, Same Day Receipt	
5. Were all of the sample containers received intact?	/			<input type="checkbox"/> Containers, Broken	
6. Were samples received in appropriate containers?	/			<input type="checkbox"/> Containers, Improper; Client Contacted; Proceed/Cancel	
7. Do sample container labels match COC? (IDs, Dates, Times)	/			<input type="checkbox"/> COC & Samples Do Not Match <input type="checkbox"/> COC Incorrect/Incomplete <input type="checkbox"/> COC Not Received	
8. Were all of the samples listed on the COC received?	/			<input type="checkbox"/> Sample Received, Not on COC <input type="checkbox"/> Sample on COC, Not Received	
9. Is the date/time of sample collection noted?	/			<input type="checkbox"/> COC; No Date/Time; Client Contacted	<u>Labeling Verified by:</u> _____ <u>Date:</u> _____
10. Was the sampler identified on the COC?	/			<input type="checkbox"/> Sampler Not Listed on COC	
11. Is the client and project name/# identified?	/			<input type="checkbox"/> COC Incorrect/Incomplete	
12. Are tests/parameters listed for each sample?	/			<input type="checkbox"/> COC No tests on COC	
13. Is the matrix of the samples noted?	/			<input type="checkbox"/> COC Incorrect/Incomplete	
14. Was COC relinquished? (Signed/Dated/Timed)	/			<input type="checkbox"/> COC Incorrect/Incomplete	Box 16A: pH Preservation Box 18A: Residual Chlorine
15. Were samples received within holding time?	/			<input type="checkbox"/> Holding Time - Receipt	Preservative: _____
16. Were samples received with correct chemical preservative (excluding Encore)?	/			<input type="checkbox"/> pH Adjusted, pH Included (See box 16A) <input type="checkbox"/> Incorrect Preservative	Lot Number: _____
17. Were VOA samples received without headspace?	/			<input type="checkbox"/> Headspace (VOA only)	Exp Date: _____
18. Did you check for residual chlorine, if necessary? (e.g. 1613B, 1668) Chlorine test strip lot number: _____	/			<input type="checkbox"/> Residual Chlorine	Analyst: _____
19. For 1613B water samples is pH<9?	/			<input type="checkbox"/> If no, notify lab to adjust	Date: _____
20. For rad samples was sample activity info. Provided?	/			<input type="checkbox"/> Project missing info	Time: _____
Project #: <u>500 16128</u> PM Instructions: <u>NA</u>					









January 9, 2019  
File No. 20.0153134.30

Mr. Blake and Ms. Jenny Janiszewski  
142 Larabee Street  
Horicon, Wisconsin 53032

Re: Verification Post-Mitigation Indoor Air Test Results

Dear Mr. Blake and Ms. Jenny Janiszewski:

With this letter, GZA GeoEnvironmental, Inc. (GZA) is informing you of the results of recent indoor air sampling conducted at your home at 142 Larabee Street in Horicon, Wisconsin.

**BACKGROUND**

As you are aware, Gardner Manufacturing Company, Inc. (Gardner) hired GZA GeoEnvironmental, Inc. (GZA) to conduct environmental investigation and remediation of its former property at 263 Kansas Street, including the assessment of chemical vapors near area homes. The Wisconsin Department of Natural Resources (WDNR) provides oversight of the investigation activities being conducted by Gardner and provides file information under BRRTS No. 02-14-55423.

Due to the detection of trichloroethene (TCE) in an indoor air sample collected in October 2011 at a concentration greater than the TCE residential vapor action level (VAL), the WDNR had a mitigation system installed in your home for the prior owner in March 2012. Post-mitigation indoor air samples collected by GZA in April 2015 confirmed that TCE concentrations were less than the TCE residential VAL.

**INDOOR AIR SAMPLING AND RESULTS**

To further verify the effectiveness of the mitigation system, two indoor air samples were collected from your home over a 24-hour period between December 17 and 18, 2018. Samples were collected from the basement and first floor and from background outside air. The three air samples were collected in 6-liter canisters and were submitted to TestAmerica of Knoxville, Tennessee for testing. The analytical report for the air samples is provided as Attachment 1. The data are summarized on the attached table and include historical results.


TCE was detected in the basement sample at a concentration less than the TCE residential VAL and was not detected in the first-floor indoor air sample and confirms the mitigation system is operating as designed. Tetrachloroethene (PCE) was also detected in the basement sample at a concentration less than the PCE residential VAL and at the same concentration as the outside background sample indicating the PCE source was likely from outside air.

**CLOSING**

If you are looking for more information, please contact the undersigned (262-754-2560 or [bernard.fenelon@gza.com](mailto:bernard.fenelon@gza.com)). You may also contact Mr. Jeff Ackerman of the WDNR (608-275-3323) if you have any questions related to the investigation, or Mr. Ryan Wozniak of the WDHS (608-267-3227) if you have any health-related questions associated with this investigation.

Very truly yours,  
**GZA GeoEnvironmental, Inc.**

  
Bernard G. Fenelon, P.G.  
Senior Consultant/Hydrogeologist

  
John C. Osborne, P.G.  
Senior Principal/Hydrogeologist

J:\153100to153199\153134 263 Kansas\30 Remediation\Correspondence\2018 IAQ Results Letters\  
2019 01 09 FINAL Results of Verification Post-Mitigation Indoor Air Sampling 142 Larabee - Janiszewski.docx

**Attachments**

c: Mr. Jeff Ackerman, WDNR  
Mr. Ryan J. Wozniak, MPH, Ph.D., Wisconsin Department of Health Services



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20900 Swenson Drive  
Suite 150  
Waukesha, WI 53186  
T: 262.754.2560  
F: 262.754.9711  
[www.gza.com](http://www.gza.com)



**TABLE 1  
SUB-SLAB AIR AND INDOOR AIR ANALYTICAL RESULTS  
142 Larabee Street  
Horicon, Wisconsin**

	Wisconsin Department of Natural Resources Vapor Action Levels									
	Chloro-ethane	1,2-DCA	1,1-DCE	cis-1,2-DCE	trans-1,2-DCE	1,1,2,2-TCA	PCE	TCE	1,1,2-TCA	Vinyl Chloride
Sub-Slab Vapor Action Level (ppbv)	37,900	2.7	520	NA	NA	0.6	62	3.9	0.39	6.5
Indoor Air Action Level (ppbv)	3,790	0.27	52	NA	NA	0.06	6.2	0.39	0.039	0.65

Sample Location	Date	Sub-Slab Vapor Sample Results									
		Chloro-ethane	1,2-DCA	1,1-DCE	cis-1,2-DCE	trans-1,2-DCE	1,1,2,2-TCA	PCE	TCE	1,1,2-TCA	Vinyl Chloride
142 Larabee Street	8/5/11	<4,000	<4,000	<4,000	<4,000	<4,000	<4,000	<4,000	<u>12,200</u>	<4,000	<4,000
	10/11/11	<8,000	<8,000	<8,000	<8,000	<8,000	<8,000	<8,000	<u>10,200</u>	<8,000	<8,000
Pre-Ventilation Indoor Air Sample Results											
142 Larabee Street - Basement	10/10/11	<0.085	<b>0.343</b>	<0.085	<0.085	<0.085	<0.085	<0.085	<b>3.61</b>	<0.085	<0.085
142 Larabee - 1st Floor	10/10/11	<0.085	<0.085	<0.085	<0.085	<0.085	<0.085	<0.085	<b>0.254</b>	<0.085	<0.085
Post-Ventilation Indoor Air Sample Results											
142 Larabee Street - Basement	4/3/15	<0.56	<b>0.21</b>	<0.18	<0.19	<0.39	<0.078	<0.23	<0.22	<0.2	<0.38
142 Larabee Street - 1st Floor	4/3/15	<0.59	<b>0.44</b>	<0.19	<0.19	<0.42	<0.083	<0.25	<0.24	<0.25	<0.38
142 Larabee Street - Background	4/3/15	<0.59	<0.17	<0.19	<0.19	<0.42	<0.081	<0.25	<0.24	<0.23	<0.38
142 Larabee - Basement	12/18/18	NA	NA	NA	<0.060	<0.050	NA	<b>0.056 J</b>	<b>0.17 J</b>	NA	<0.071
142 Larabee - 1st Floor IA	12/18/18	NA	NA	NA	<0.060	<0.050	NA	<0.040	<0.036	NA	<0.071
142 Larabee - Background	12/18/18	NA	NA	NA	<0.060	<0.050	NA	<b>0.056 J</b>	<0.036	NA	<0.071

Notes:

- Sample results from 2011 are for sub-slab and indoor air samples collected by SCS BT Squared of Madison, Wisconsin and analyzed by the Wisconsin State Hygiene Laboratory of Madison, Wisconsin for VOCs in accordance with USEPA Method TO-15. Results are reported to the Limit of Detection (LOD).
- Sample results from 2015 are indoor air samples collected by GZA GeoEnvironmental, Inc. of Waukesha, Wisconsin and analyzed by Eurofins Air Toxics, Inc. of Folsom, California for the listed VOCs in accordance with USEPA Method TO-15. Results are reported to the Reporting Limit (RL), Limit of Quantification (LOQ) or Method Detection Limit (MDL).
- Analytical results are provided in units of parts per billion by volume (ppbv).
- "J" denotes an estimated concentration between the method detection limit and the reporting limit. "NA" denotes the sample was not analyzed for the constituent.
- The sub-slab and indoor air vapor action levels (VALs) were obtained from USEPA regional screening levels accessed at: [http://www.epa.gov/reg3hwmd/risk/human/rb-concentration\\_table/index.htm](http://www.epa.gov/reg3hwmd/risk/human/rb-concentration_table/index.htm) and using a 10<sup>-5</sup> cancer risk and a hazard index of 1 with a 0.1 attenuation factor for the building slab.
- Samples that exceed the applicable sub-slab or indoor VAL are provided in **bold/underlined** font.
- Constituent abbreviations are used as follows:

1,2-DCA denotes 1,2-dichloroethane  
TCE denotes trichloroethene  
PCE denotes tetrachloroethene

cis-1,2-DCE denotes cis-1,2-dichloroethene  
1,1-DCE denotes 1,1-dichloroethene  
1,1,2-TCE denotes 1,1,2-Trichloroethane

1,1,2,2 TCA denotes 1,1,2,2-Tetrachloroethane  
trans-1,2-DCE denotes trans-1,2-dichloroethene



**ATTACHMENT 1**

**Post-Mitigation Indoor Air Laboratory Analytical Report**

# TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

## ANALYTICAL REPORT

TestAmerica Laboratories, Inc.  
TestAmerica Knoxville  
5815 Middlebrook Pike  
Knoxville, TN 37921  
Tel: (865)291-3000

TestAmerica Job ID: 140-13726-1

Client Project/Site: Former Gardner, Horicon - 20.0153134.20

For:

GZA GeoEnvironmental, Inc.  
20900 Swenson Drive Suite 150  
Waukesha, Wisconsin 53186

Attn: Mr. Bernard Fenelon



Authorized for release by:  
12/29/2018 5:03:52 PM

Sandie Fredrick, Project Manager II  
(920)261-1660  
[sandie.fredrick@testamericainc.com](mailto:sandie.fredrick@testamericainc.com)

### LINKS

Review your project  
results through  
**TotalAccess**

Have a Question?



Visit us at:  
[www.testamericainc.com](http://www.testamericainc.com)

*The test results in this report meet all 2003 NELAC and 2009 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.*

*This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.*

*Results relate only to the items tested and the sample(s) as received by the laboratory.*

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# Definitions/Glossary

Client: GZA GeoEnvironmental, Inc.  
Project/Site: Former Gardner, Horicon - 20.0153134.20

TestAmerica Job ID: 140-13726-1

## Qualifiers

### Air - GC/MS VOA

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

## Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)



# Case Narrative

Client: GZA GeoEnvironmental, Inc.  
Project/Site: Former Gardner, Horicon - 20.0153134.20

TestAmerica Job ID: 140-13726-1

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## Job ID: 140-13726-1

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### Laboratory: TestAmerica Knoxville

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#### Narrative

#### Job Narrative 140-13726-1

#### Comments

No additional comments.

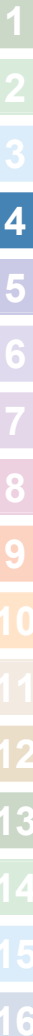
#### Receipt

The samples were received on 12/19/2018 10:20 AM; the samples arrived in good condition, properly preserved and, where required, on ice.

#### Air - GC/MS VOA

Method(s) TO 15 LL, TO-15: EPA methods TO-14A and TO-15 specify the use of humidified "zero air" as the blank reagent for canister cleaning, instrument calibration and sample analysis. Ultra-high purity humidified nitrogen from a cryogenic reservoir is used in place of "zero air" by TestAmerica Knoxville.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.



# Client Sample Results

Client: GZA GeoEnvironmental, Inc.  
Project/Site: Former Gardner, Horicon - 20.0153134.20

TestAmerica Job ID: 140-13726-1

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- 2
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- 14
- 15
- 16

**Client Sample ID: 142 LARABEE-BACKGROUND IA**

**Lab Sample ID: 140-13726-10**

**Date Collected: 12/18/18 15:11**

**Matrix: Air**

**Date Received: 12/19/18 10:20**

**Sample Container: Summa Canister 6L**

**Method: TO-15 - Volatile Organic Compounds in Ambient Air**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
cis-1,2-Dichloroethene	<0.060		0.20	0.060	ppb v/v			12/25/18 04:02	1
<b>Tetrachloroethene</b>	<b>0.056</b>	<b>J</b>	0.20	0.040	ppb v/v			12/25/18 04:02	1
trans-1,2-Dichloroethene	<0.050		0.20	0.050	ppb v/v			12/25/18 04:02	1
Trichloroethene	<0.036		0.20	0.036	ppb v/v			12/25/18 04:02	1
Vinyl chloride	<0.071		0.40	0.071	ppb v/v			12/25/18 04:02	1

TestAmerica Knoxville

# Client Sample Results

Client: GZA GeoEnvironmental, Inc.  
 Project/Site: Former Gardner, Horicon - 20.0153134.20

TestAmerica Job ID: 140-13726-1

## Client Sample ID: 142 LARABEE-BACKGROUND IA

Lab Sample ID: 140-13726-10

Date Collected: 12/18/18 15:11

Matrix: Air

Date Received: 12/19/18 10:20

Sample Container: Summa Canister 6L

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	89		60 - 140		12/25/18 04:02	1

## Client Sample ID: 142 LARABEE-BASEMENT IA

Lab Sample ID: 140-13726-11

Date Collected: 12/18/18 15:17

Matrix: Air

Date Received: 12/19/18 10:20

Sample Container: Summa Canister 6L

### Method: TO-15 - Volatile Organic Compounds in Ambient Air

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
cis-1,2-Dichloroethene	<0.060		0.20	0.060	ppb v/v			12/25/18 04:57	1
<b>Tetrachloroethene</b>	<b>0.056</b>	<b>J</b>	0.20	0.040	ppb v/v			12/25/18 04:57	1
trans-1,2-Dichloroethene	<0.050		0.20	0.050	ppb v/v			12/25/18 04:57	1
<b>Trichloroethene</b>	<b>0.17</b>	<b>J</b>	0.20	0.036	ppb v/v			12/25/18 04:57	1
Vinyl chloride	<0.071		0.40	0.071	ppb v/v			12/25/18 04:57	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	94		60 - 140		12/25/18 04:57	1

## Client Sample ID: 142 LARABEE-1ST FLOOR IA

Lab Sample ID: 140-13726-12

Date Collected: 12/18/18 15:16

Matrix: Air

Date Received: 12/19/18 10:20

Sample Container: Summa Canister 6L

### Method: TO-15 - Volatile Organic Compounds in Ambient Air

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
cis-1,2-Dichloroethene	<0.060		0.20	0.060	ppb v/v			12/28/18 02:39	1
Tetrachloroethene	<0.040		0.20	0.040	ppb v/v			12/28/18 02:39	1
trans-1,2-Dichloroethene	<0.050		0.20	0.050	ppb v/v			12/28/18 02:39	1
Trichloroethene	<0.036		0.20	0.036	ppb v/v			12/28/18 02:39	1
Vinyl chloride	<0.071		0.40	0.071	ppb v/v			12/28/18 02:39	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	100		60 - 140		12/28/18 02:39	1

# Default Detection Limits

Client: GZA GeoEnvironmental, Inc.  
Project/Site: Former Gardner, Horicon - 20.0153134.20

TestAmerica Job ID: 140-13726-1

## Method: TO-15 - Volatile Organic Compounds in Ambient Air

Analyte	RL	MDL	Units	Method
cis-1,2-Dichloroethene	0.20	0.060	ppb v/v	TO-15
Tetrachloroethene	0.20	0.040	ppb v/v	TO-15
trans-1,2-Dichloroethene	0.20	0.050	ppb v/v	TO-15
Trichloroethene	0.20	0.036	ppb v/v	TO-15
Vinyl chloride	0.40	0.071	ppb v/v	TO-15

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# Surrogate Summary

Client: GZA GeoEnvironmental, Inc.  
Project/Site: Former Gardner, Horicon - 20.0153134.20

TestAmerica Job ID: 140-13726-1

## Method: TO-15 - Volatile Organic Compounds in Ambient Air

Matrix: Air

Prep Type: Total/NA

### Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	BFB (60-140)
140-13726-1	316 BARSTOW-BACKGROUND	91
140-13726-2	316 BARSTOW-BASEMENT IA	92
140-13726-3	316 BARSTOW-1ST FLOOR IA	103
140-13726-4	267 KANSAS-BACKGROUND IA	102
140-13726-5	267 KANSAS-WEST IA	104
140-13726-6	267 KANSAS-EAST IA	105
140-13726-7	150 LARABEE-BASEMENT IA	104
140-13726-8	150 LARABEE-1ST FLOOR IA	94
140-13726-9	150 LARABEE-BACKGROUND IA	88
140-13726-10	142 LARABEE-BACKGROUND IA	89
140-13726-11	142 LARABEE-BASEMENT IA	94
140-13726-12	142 LARABEE-1ST FLOOR IA	100
LCS 140-26434/1002	Lab Control Sample	103
LCS 140-26435/1002	Lab Control Sample	90
LCS 140-26516/1002	Lab Control Sample	102
MB 140-26434/5	Method Blank	90
MB 140-26435/4	Method Blank	88
MB 140-26516/4	Method Blank	103

#### Surrogate Legend

BFB = 4-Bromofluorobenzene (Surr)

# QC Sample Results

Client: GZA GeoEnvironmental, Inc.  
 Project/Site: Former Gardner, Horicon - 20.0153134.20

TestAmerica Job ID: 140-13726-1

## Method: TO-15 - Volatile Organic Compounds in Ambient Air

**Lab Sample ID: MB 140-26434/5**  
**Matrix: Air**  
**Analysis Batch: 26434**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
cis-1,2-Dichloroethene	<0.060		0.20	0.060	ppb v/v			12/21/18 11:4V	1
Tetrachloroethene	<0.040		0.20	0.040	ppb v/v			12/21/18 11:4V	1
trans-1,2-Dichloroethene	<0.050		0.20	0.050	ppb v/v			12/21/18 11:4V	1
Trichloroethene	<0.036		0.20	0.036	ppb v/v			12/21/18 11:4V	1
γ inKl chloride	<0.071		0.40	0.071	ppb v/v			12/21/18 11:4V	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	91		61 - 041		02/20/08 00:49	0

**Lab Sample ID: LCS 140-26434/1002**  
**Matrix: Air**  
**Analysis Batch: 26434**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
cis-1,2-Dichloroethene	2.00	1.V4		ppb v/v		V7	70 - 130
Tetrachloroethene	2.00	2.15		ppb v/v		108	70 - 130
trans-1,2-Dichloroethene	2.00	1.V7		ppb v/v		V8	70 - 130
Trichloroethene	2.00	2.03		ppb v/v		101	70 - 130
γ inKl chloride	2.00	1.V2		ppb v/v		V6	70 - 130

Surrogate	LCS %Recovery	LCS Qualifier	Limits
4-Bromofluorobenzene (Surr)	013		61 - 041

**Lab Sample ID: MB 140-26435/4**  
**Matrix: Air**  
**Analysis Batch: 26435**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
cis-1,2-Dichloroethene	<0.060		0.20	0.060	ppb v/v			12/24/18 14:2V	1
Tetrachloroethene	<0.040		0.20	0.040	ppb v/v			12/24/18 14:2V	1
trans-1,2-Dichloroethene	<0.050		0.20	0.050	ppb v/v			12/24/18 14:2V	1
Trichloroethene	<0.036		0.20	0.036	ppb v/v			12/24/18 14:2V	1
γ inKl chloride	<0.071		0.40	0.071	ppb v/v			12/24/18 14:2V	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	88		61 - 041		02/24/08 04:29	0

**Lab Sample ID: LCS 140-26435/1002**  
**Matrix: Air**  
**Analysis Batch: 26435**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
cis-1,2-Dichloroethene	2.00	1.V5		ppb v/v		V7	70 - 130
Tetrachloroethene	2.00	2.02		ppb v/v		101	70 - 130
trans-1,2-Dichloroethene	2.00	1.V8		ppb v/v		VV	70 - 130
Trichloroethene	2.00	1.V8		ppb v/v		VV	70 - 130
γ inKl chloride	2.00	1.80		ppb v/v		V0	70 - 130

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# QC Sample Results

Client: GZA GeoEnvironmental, Inc.  
 Project/Site: Former Gardner, Horicon - 20.0153134.20

TestAmerica Job ID: 140-13726-1

## Method: TO-15 - Volatile Organic Compounds in Ambient Air (Continued)

**Lab Sample ID: LCS 140-26435/1002**  
**Matrix: Air**  
**Analysis Batch: 26435**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**

	LCS	LCS	
Surrogate	%Recovery	Qualifier	Limits
4-Bromofluorobenzene (Surr)	91		61 - 041

**Lab Sample ID: MB 140-26516/4**  
**Matrix: Air**  
**Analysis Batch: 26516**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
cis-1,2-Dichloroethene	<0.060		0.20	0.060	ppb v/v			12/27/18 12:56	1
Tetrachloroethene	<0.040		0.20	0.040	ppb v/v			12/27/18 12:56	1
trans-1,2-Dichloroethene	<0.050		0.20	0.050	ppb v/v			12/27/18 12:56	1
Trichloroethene	<0.036		0.20	0.036	ppb v/v			12/27/18 12:56	1
γ inK chloride	<0.071		0.40	0.071	ppb v/v			12/27/18 12:56	1

	MB	MB		Prepared	Analyzed	Dil Fac
Surrogate	%Recovery	Qualifier	Limits			
4-Bromofluorobenzene (Surr)	013		61 - 041		02/27/08 02:56	0

**Lab Sample ID: LCS 140-26516/1002**  
**Matrix: Air**  
**Analysis Batch: 26516**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**

Analyte	Spike	LCS	LCS	Unit	D	%Rec	%Rec.	Limits
	Added	Result	Qualifier					
cis-1,2-Dichloroethene	2.00	2.16		ppb v/v		108		70 - 130
Tetrachloroethene	2.00	2.10		ppb v/v		105		70 - 130
trans-1,2-Dichloroethene	2.00	2.13		ppb v/v		106		70 - 130
Trichloroethene	2.00	1.77		ppb v/v		88		70 - 130
γ inK chloride	2.00	2.13		ppb v/v		107		70 - 130

	LCS	LCS	
Surrogate	%Recovery	Qualifier	Limits
4-Bromofluorobenzene (Surr)	012		61 - 041



# QC Association Summary

Client: GZA GeoEnvironmental, Inc.  
Project/Site: Former Gardner, Horicon - 20.0153134.20

TestAmerica Job ID: 140-13726-1

## Air - GC/MS VOA

### Analysis Batch: 26434

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
140-13726-1	316 BARSTOW-BACKGROUND IA	Total/NA	Air	TO-15	
140-13726-2	316 BARSTOW-BASEMENT IA	Total/NA	Air	TO-15	
MB 140-26434/5	Method Blank	Total/NA	Air	TO-15	
LCS 140-26434/1002	Lab Control Sample	Total/NA	Air	TO-15	

### Analysis Batch: 26435

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
140-13726-8	150 LARABEE-1ST FLOOR IA	Total/NA	Air	TO-15	
140-13726-9	150 LARABEE-BACKGROUND IA	Total/NA	Air	TO-15	
140-13726-10	142 LARABEE-BACKGROUND IA	Total/NA	Air	TO-15	
140-13726-11	142 LARABEE-BASEMENT IA	Total/NA	Air	TO-15	
MB 140-26435/4	Method Blank	Total/NA	Air	TO-15	
LCS 140-26435/1002	Lab Control Sample	Total/NA	Air	TO-15	

### Analysis Batch: 26516

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
140-13726-3	316 BARSTOW-1ST FLOOR IA	Total/NA	Air	TO-15	
140-13726-4	267 KANSAS-BACKGROUND IA	Total/NA	Air	TO-15	
140-13726-5	267 KANSAS-WEST IA	Total/NA	Air	TO-15	
140-13726-6	267 KANSAS-EAST IA	Total/NA	Air	TO-15	
140-13726-7	150 LARABEE-BASEMENT IA	Total/NA	Air	TO-15	
140-13726-12	142 LARABEE-1ST FLOOR IA	Total/NA	Air	TO-15	
MB 140-26516/4	Method Blank	Total/NA	Air	TO-15	
LCS 140-26516/1002	Lab Control Sample	Total/NA	Air	TO-15	

# Lab Chronicle

Client: GZA GeoEnvironmental, Inc.  
 Project/Site: Former Gardner, Horicon - 20.0153134.20

TestAmerica Job ID: 140-13726-1

## Client Sample ID: 316 BARSTOW-BACKGROUND IA

Lab Sample ID: 140-13726-1

Date Collected: 12/14/18 12:47

Matrix: Air

Date Received: 12/19/18 10:20

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	TO-15		1	200 mL	500 mL	26434	12/21/18 20:18	S1K	TAL KNX
Instrument ID: MH										

## Client Sample ID: 316 BARSTOW-BASEMENT IA

Lab Sample ID: 140-13726-2

Date Collected: 12/14/18 12:55

Matrix: Air

Date Received: 12/19/18 10:20

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	TO-15		1	200 mL	500 mL	26434	12/21/18 21:12	S1K	TAL KNX
Instrument ID: MH										

## Client Sample ID: 316 BARSTOW-1ST FLOOR IA

Lab Sample ID: 140-13726-3

Date Collected: 12/14/18 12:52

Matrix: Air

Date Received: 12/19/18 10:20

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	TO-15		1	200 mL	500 mL	26516	12/27/18 23:02	S1K	TAL KNX
Instrument ID: MG										

## Client Sample ID: 267 KANSAS-BACKGROUND IA

Lab Sample ID: 140-13726-4

Date Collected: 12/14/18 13:38

Matrix: Air

Date Received: 12/19/18 10:20

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	TO-15		1	200 mL	500 mL	26516	12/27/18 23:45	S1K	TAL KNX
Instrument ID: MG										

## Client Sample ID: 267 KANSAS-WEST IA

Lab Sample ID: 140-13726-5

Date Collected: 12/14/18 13:43

Matrix: Air

Date Received: 12/19/18 10:20

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	TO-15		1	200 mL	500 mL	26516	12/28/18 00:27	S1K	TAL KNX
Instrument ID: MG										

## Client Sample ID: 267 KANSAS-EAST IA

Lab Sample ID: 140-13726-6

Date Collected: 12/14/18 13:43

Matrix: Air

Date Received: 12/19/18 10:20

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	TO-15		1	200 mL	500 mL	26516	12/28/18 01:10	S1K	TAL KNX
Instrument ID: MG										

TestAmerica Knoxville

# Lab Chronicle

Client: GZA GeoEnvironmental, Inc.  
Project/Site: Former Gardner, Horicon - 20.0153134.20

TestAmerica Job ID: 140-13726-1

## Client Sample ID: 150 LARABEE-BASEMENT IA

Lab Sample ID: 140-13726-7

Date Collected: 12/18/18 13:34

Matrix: Air

Date Received: 12/19/18 10:20

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	TO-15		1	200 mL	500 mL	26516	12/28/18 01:55	S1K	TAL KNX
Instrument ID: MG										

## Client Sample ID: 150 LARABEE-1ST FLOOR IA

Lab Sample ID: 140-13726-8

Date Collected: 12/18/18 13:35

Matrix: Air

Date Received: 12/19/18 10:20

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	TO-15		1	200 mL	500 mL	26435	12/25/18 02:13	S1K	TAL KNX
Instrument ID: MH										

## Client Sample ID: 150 LARABEE-BACKGROUND IA

Lab Sample ID: 140-13726-9

Date Collected: 12/18/18 13:39

Matrix: Air

Date Received: 12/19/18 10:20

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	TO-15		1	200 mL	500 mL	26435	12/25/18 03:07	S1K	TAL KNX
Instrument ID: MH										

## Client Sample ID: 142 LARABEE-BACKGROUND IA

Lab Sample ID: 140-13726-10

Date Collected: 12/18/18 15:11

Matrix: Air

Date Received: 12/19/18 10:20

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	TO-15		1	200 mL	500 mL	26435	12/25/18 04:02	S1K	TAL KNX
Instrument ID: MH										

## Client Sample ID: 142 LARABEE-BASEMENT IA

Lab Sample ID: 140-13726-11

Date Collected: 12/18/18 15:17

Matrix: Air

Date Received: 12/19/18 10:20

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	TO-15		1	200 mL	500 mL	26435	12/25/18 04:57	S1K	TAL KNX
Instrument ID: MH										

## Client Sample ID: 142 LARABEE-1ST FLOOR IA

Lab Sample ID: 140-13726-12

Date Collected: 12/18/18 15:16

Matrix: Air

Date Received: 12/19/18 10:20

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	TO-15		1	200 mL	500 mL	26516	12/28/18 02:39	S1K	TAL KNX
Instrument ID: MG										

TestAmerica Knoxville

# Lab Chronicle

Client: GZA GeoEnvironmental, Inc.  
Project/Site: Former Gardner, Horicon - 20.0153134.20

TestAmerica Job ID: 140-13726-1

## Client Sample ID: Method Blank

Lab Sample ID: MB 140-26434/5

Date Collected: N/A

Matrix: Air

Date Received: N/A

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	TO-15		1	200 mL	500 mL	26434	12/21/18 11:49	S1K	TAL KNX
Instrument ID: MH										

## Client Sample ID: Method Blank

Lab Sample ID: MB 140-26435/4

Date Collected: N/A

Matrix: Air

Date Received: N/A

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	TO-15		1	200 mL	500 mL	26435	12/24/18 14:29	S1K	TAL KNX
Instrument ID: MH										

## Client Sample ID: Method Blank

Lab Sample ID: MB 140-26516/4

Date Collected: N/A

Matrix: Air

Date Received: N/A

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	TO-15		1	200 mL	500 mL	26516	12/27/18 12:56	S1K	TAL KNX
Instrument ID: MG										

## Client Sample ID: Lab Control Sample

Lab Sample ID: LCS 140-26434/1002

Date Collected: N/A

Matrix: Air

Date Received: N/A

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	TO-15		1	500 mL	500 mL	26434	12/21/18 10:21	S1K	TAL KNX
Instrument ID: MH										

## Client Sample ID: Lab Control Sample

Lab Sample ID: LCS 140-26435/1002

Date Collected: N/A

Matrix: Air

Date Received: N/A

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	TO-15		1	500 mL	500 mL	26435	12/24/18 12:35	S1K	TAL KNX
Instrument ID: MH										

## Client Sample ID: Lab Control Sample

Lab Sample ID: LCS 140-26516/1002

Date Collected: N/A

Matrix: Air

Date Received: N/A

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	TO-15		1	500 mL	500 mL	26516	12/27/18 11:14	S1K	TAL KNX
Instrument ID: MG										

TestAmerica Knoxville

# Lab Chronicle

Client: GZA GeoEnvironmental, Inc.  
Project/Site: Former Gardner, Horicon - 20.0153134.20

TestAmerica Job ID: 140-13726-1

**Laboratory References:**

TAL KNX = TestAmerica Knoxville, 5815 Middlebrook Pike, Knoxville, TN 37921, TEL (865)291-3000

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# Accreditation/Certification Summary

Client: GZA GeoEnvironmental, Inc.  
Project/Site: Former Gardner, Horicon - 20.0153134.20

TestAmerica Job ID: 140-13726-1

## Laboratory: TestAmerica Knoxville

The accreditations/certifications listed below are applicable to this report.

Authority	Program	EPA Region	Identification Number	Expiration Date
Wisconsin	State Program	5	998044300	08-31-19

## Laboratory: TestAmerica Chicago

The accreditations/certifications listed below are applicable to this report.

Authority	Program	EPA Region	Identification Number	Expiration Date
Wisconsin	State Program	5	999580010	08-31-19

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# Method Summary

Client: GZA GeoEnvironmental, Inc.  
Project/Site: Former Gardner, Horicon - 20.0153134.20

TestAmerica Job ID: 140-13726-1

Method	Method Description	Protocol	Laboratory
TO-15	Volatile Organic Compounds in Ambient Air	EPA	TAL KNX

**Protocol References:**

EPA = US Environmental Protection Agency

**Laboratory References:**

TAL KNX = TestAmerica Knoxville, 5815 Middlebrook Pike, Knoxville, TN 37921, TEL (865)291-3000

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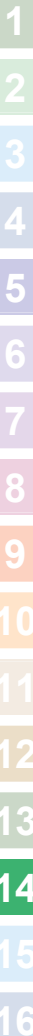


# Sample Summary

Client: GZA GeoEnvironmental, Inc.  
Project/Site: Former Gardner, Horicon - 20.0153134.20

TestAmerica Job ID: 140-13726-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
140-13726-1	316 BARSTOW-BACKGROUND IA	Air	12/14/18 12:47	12/19/18 10:20
140-13726-2	316 BARSTOW-BASEMENT IA	Air	12/14/18 12:55	12/19/18 10:20
140-13726-3	316 BARSTOW-1ST FLOOR IA	Air	12/14/18 12:52	12/19/18 10:20
140-13726-4	267 KANSAS-BACKGROUND IA	Air	12/14/18 13:38	12/19/18 10:20
140-13726-5	267 KANSAS-WEST IA	Air	12/14/18 13:43	12/19/18 10:20
140-13726-6	267 KANSAS-EAST IA	Air	12/14/18 13:43	12/19/18 10:20
140-13726-7	150 LARABEE-BASEMENT IA	Air	12/18/18 13:34	12/19/18 10:20
140-13726-8	150 LARABEE-1ST FLOOR IA	Air	12/18/18 13:35	12/19/18 10:20
140-13726-9	150 LARABEE-BACKGROUND IA	Air	12/18/18 13:39	12/19/18 10:20
140-13726-10	142 LARABEE-BACKGROUND IA	Air	12/18/18 15:11	12/19/18 10:20
140-13726-11	142 LARABEE-BASEMENT IA	Air	12/18/18 15:17	12/19/18 10:20
140-13726-12	142 LARABEE-1ST FLOOR IA	Air	12/18/18 15:16	12/19/18 10:20



TAL Knoxville  
5815 Middlebrook Pike  
Knoxville, TN 37921  
phone 865-291-3000 fax 865-584-4315

### Canister Samples Chain of Custody Record

# TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

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

Client Contact Information		Project Manager: <u>Bernard Fenelon</u>		Sampled By: <u>C. Kingworetta</u>		1 of 2 COCs	
Company: <u>East Georgia Industrial Inc.</u>		Phone:		EPA 25C		Other (Please specify in notes section)	
Address: <u>2080 SWANSON DRIVE SUITE 150</u>		Site Contact:		EPA 3C		Other (Please specify in notes section)	
City/State/Zip: <u>WALKERSVILLE, TN 37186</u>		TAL Contact: <u>SHARLE FEOBRICK</u>		TO-14A		Other (Please specify in notes section)	
Phone: <u>762-154-2560</u>		Analysis Turnaround Time		TO-15		Other (Please specify in notes section)	
FAX: <u>762-154-2711</u>		Standard (Specify) <u>X</u>		TO-15		Other (Please specify in notes section)	
Project Name: <u>FORNER GREENER MANUFACTURING</u>		Rush (Specify)		TO-15		Other (Please specify in notes section)	
Site/location: <u>WALKER, TN</u>		Sample Date(s)		TO-15		Other (Please specify in notes section)	
PO #		Time Start		TO-15		Other (Please specify in notes section)	
		Time Stop		TO-15		Other (Please specify in notes section)	
		Canister Vacuum in Field, "Hg (Start)		TO-15		Other (Please specify in notes section)	
		Canister Vacuum in Field, "Hg (Stop)		TO-15		Other (Please specify in notes section)	
		Flow Controller ID		TO-15		Other (Please specify in notes section)	
		Canister ID		TO-15		Other (Please specify in notes section)	
316 BARSTOW - BACKGROUNDA	12/13/18	12:39	12:47	-29.5	09847	09671	X
316 BARSTOW - BASEMENT IA	12/14/18	12:49	12:55	-27.5	10304	11562	X
316 BARSTOW - 1ST FLOOR IA	12/14/18	12:54	12:52	-28	09550	09603	X
267 KANSAS - BACKGROUNDA	12/14/18	13:40	13:38	-27	10588	10261	X
267 KANSAS - WEST IA	12/14/18	13:47	13:43	-30	7162	10830	X
267 KANSAS - EAST IA	12/14/18	13:49	13:43	-30	11488	11963	X
Sampled by:		Temperature (Fahrenheit)		TO-15		Other (Please specify in notes section)	
		Interior		TO-15		Other (Please specify in notes section)	
		Ambient		TO-15		Other (Please specify in notes section)	
Start		Pressure (Inches of Hg)		TO-15		Other (Please specify in notes section)	
Stop		Interior		TO-15		Other (Please specify in notes section)	
		Ambient		TO-15		Other (Please specify in notes section)	
Start		Canisters Received by:		TO-15		Other (Please specify in notes section)	
Stop		Received by:		TO-15		Other (Please specify in notes section)	
		Received by:		TO-15		Other (Please specify in notes section)	
		Received by:		TO-15		Other (Please specify in notes section)	

ANALYZE FOR: TCE, CIS AND TRANS  
1,2 DCE AND VINYL CHLORIDE

Received ambient 3 boxes  
TRK#7845 3404 2397, Fedex 50  
" 3398 8971  
" 3390 1031

Custody seal intact

Canisters Shipped by: [Signature]  
Date/Time: 12/18/18 1730

Samples Relinquished by: [Signature]  
Date/Time: 12/19/18 1020TA-14

Relinquished by: [Signature]  
Date/Time: 12/19/18 1020TA-14

Canisters Received by: PAR FEA  
Received by: [Signature]  
Received by: [Signature]

13 CANJ  
13 FLOWS



140-13726 Chain of Custody

Special Instructions/QC Requirements & Comments:

Lab Use Only | Shipper Name: | Condition: | Opened by: | 15 | 16



TAL Knoxville  
5815 Middlebrook Pike  
Knoxville, TN 37921  
phone 865-291-3000 fax 865-584-4315

### Canister Samples Chain of Custody Record

**TestAmerica**  
THE LEADER IN ENVIRONMENTAL TESTING

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

Client Contact Information		Project Manager: <b>Bernard Fenelon</b>		Sampled By: <b>C. Ainsworth</b>		2 of 2 COCs			
Company: <b>GRACE ENVIRONMENTAL INC.</b>		Phone:		TO-15		Other (Please specify in notes section)			
Address: <b>2000 S. BRUNN PENNSYLVANIA</b>		Site Contact: <b>SHARON FEORUCK</b>		EPA 3C		Soil Gas			
City/State/Zip: <b>LANCASTER, PA 17602</b>		TAL Contact: <b>SHARON FEORUCK</b>		TO-14A		Ambient Air			
Phone: <b>717-754-2560</b>				EPA 25C		Landfill Gas			
FAX: <b>717-754-9711</b>				ASTM D-1946		Other (Please specify in notes section)			
Project Name: <b>FORMER CIGARETTE MANUFACTURING</b>		Analysis Turnaround Time		TO-15		Indoor Air			
Site/location: <b>HEARON, PA</b>		Standard (Specify) <b>X</b>		SEE BELOW		Sample Type			
PO #		Rush (Specify)				Other (Please specify in notes section)			
Sample Identification	Sample Date(s)	Time Start	Time Stop	Canister Vacuum in Field, "Hg (Start)	Canister Vacuum in Field, "Hg (Stop)	Flow Controller ID	Canister ID	Temperature (Fahrenheit)	
								Interior	Ambient
150 LARABEE - BASEMENT IA	12/18/18	1335	1334	-28	-3	11467	11227		
150 LARABEE - 1ST FLOOR IA	12/18/18	1339	1335	-29	-5	11816	10529		
150 LARABEE - BACKGROUND IA	12/18/18	1341	1339	-29.5	-2	09955	10562		
142 LARABEE - BACKGROUND IA	12/18/18	1517	1511	-30	-3	11937	11534		
142 LARABEE - BASEMENT IA	12/18/18	1520	1517	-30	-3	11932	10716		
142 LARABEE - 1ST FLOOR IA	12/18/18	1522	1516	-29	-4	10467	11559		
Sampled by:								ANALYZE FOR: TCE; CIS AND STREMS 1/2 PCE AND VINYL CHLORIDE	
Special Instructions/QC Requirements & Comments:									
Canisters Shipped by:		Date/Time: 12/18/18 1730		Canisters Received by:		Date/Time:			
Samples Relinquished by:		Date/Time:		Received by:		Date/Time:			
Relinquished by:		Date/Time:		Received by:		Date/Time:			

Lab Use Only Shipper Name: \_\_\_\_\_ Condition: \_\_\_\_\_

Opened by: \_\_\_\_\_

Canisters Shipped by: **SHARON FEORUCK**

Samples Relinquished by: **SHARON FEORUCK**

Relinquished by: **SHARON FEORUCK**

Date/Time: 12/19/18 1020 TALK



TESTAMERICA KNOXVILLE SAMPLE RECEIPT/CONDITION UPON RECEIPT ANOMALY CHECKLIST

Review Items	Yes	No	NA	If No, what was the problem?	Comments/Actions Taken
1. Are the shipping containers intact?	/			<input type="checkbox"/> Containers, Broken	
2. Were ambient air containers received intact?			/	<input checked="" type="checkbox"/> Checked in lab	
3. The coolers/containers custody seal if present, is it intact?	/			<input type="checkbox"/> Yes <input type="checkbox"/> NA	
4. Is the cooler temperature within limits? (> freezing temp. of water to 6 °C, VOST: 10°C) Thermometer ID: _____ Correction factor: _____			/	<input type="checkbox"/> Cooler Out of Temp, Client Contacted, Proceed/Cancel <input type="checkbox"/> Cooler Out of Temp, Same Day Receipt	
5. Were all of the sample containers received intact?	/			<input type="checkbox"/> Containers, Broken	
6. Were samples received in appropriate containers?	/			<input type="checkbox"/> Containers, Improper; Client Contacted; Proceed/Cancel	
7. Do sample container labels match COC? (IDs, Dates, Times)	/			<input type="checkbox"/> COC & Samples Do Not Match <input type="checkbox"/> COC Incorrect/Incomplete <input type="checkbox"/> COC Not Received	
8. Were all of the samples listed on the COC received?	/			<input type="checkbox"/> Sample Received, Not on COC <input type="checkbox"/> Sample on COC, Not Received	
9. Is the date/time of sample collection noted?	/			<input type="checkbox"/> COC; No Date/Time; Client Contacted	Labeling Verified by: _____ Date: _____
10. Was the sampler identified on the COC?	/			<input type="checkbox"/> Sampler Not Listed on COC	
11. Is the client and project name/# identified?	/			<input type="checkbox"/> COC Incorrect/Incomplete	
12. Are tests/parameters listed for each sample?	/			<input type="checkbox"/> COC No tests on COC	pH test strip lot number: _____
13. Is the matrix of the samples noted?	/			<input type="checkbox"/> COC Incorrect/Incomplete	
14. Was COC relinquished? (Signed/Dated/Timed)	/			<input type="checkbox"/> COC Incorrect/Incomplete	Box 16A: pH Preservation Box 18A: Residual Chlorine
15. Were samples received within holding time?	/			<input type="checkbox"/> Holding Time - Receipt	Preservative: _____
16. Were samples received with correct chemical preservative (excluding Encore)?				<input type="checkbox"/> pH Adjusted, pH Included (See box 16A) <input type="checkbox"/> Incorrect Preservative	Lot Number: _____ Exp Date: _____ Analyst: _____ Date: _____ Time: _____
17. Were VOA samples received without headspace?			/	<input type="checkbox"/> Headspace (VOA only) <input type="checkbox"/> Residual Chlorine	
18. Did you check for residual chlorine, if necessary? (e.g. 1613B, 1668) Chlorine test strip lot number: _____			/		
19. For 1613B water samples is pH<9?			/	<input type="checkbox"/> If no, notify lab to adjust	
20. For rad samples was sample activity info. Provided?			/	<input type="checkbox"/> Project missing info	
Project #: <u>Seo10928</u> PM Instructions: _____					

Sample Receiving Associate: Ken Wink Date: 12/19/18 QA026R31.doc, 112618



TestAmerica Knoxville - Air Canister Initial Pressure Check

Gauge ID:     G5      
Date:    12/19/2018  

Analyst	Sample ID	Asset #	Cleaning Job	Cert	Size (L)	Pressure @ Receipt (-in Hg or +psig)	Time	Comments
BKK	140-13726-A-1	09671	13419	B	6	-2.6	16:55	
BKK	140-13726-A-2	11562	13419	B	6	-4.1	16:56	
BKK	140-13726-A-3	09603	13393	B	6	-5.0	16:57	
BKK	140-13726-A-4	10261	13419	B	6	-2.9	16:58	
BKK	140-13726-A-5	10830	13477	B	6	-2.6	16:59	
BKK	140-13726-A-6	11963	13490	B	6	-4.0	17:00	
BKK	140-13726-A-7	11227	13393	B	6	-4.7	17:01	
BKK	140-13726-A-8	10529	13393	B	6	-4.8	17:02	
BKK	140-13726-A-9	10562	13419	B	6	-1.3	17:03	
BKK	140-13726-A-10	11534	13393	B	6	-3.1	17:04	
BKK	140-13726-A-11	10716	13419	B	6	-5.0	17:05	
BKK	140-13726-A-12	11559	13393	B	6	-5.4	17:06	
<input type="checkbox"/> Receiving -Air Can -Calve Open (NCM# _____)					<input type="checkbox"/> Air - Can P Out -26" - Flow Contr. Faulty (NCM# _____)			
<input type="checkbox"/> Air - Can P -24 to -25 " - Flow Contr. Works (NCM# _____)					<input type="checkbox"/> Air - Can P Low -24 to -25 " - Grab Sample (NCM# _____)			
<input type="checkbox"/> Air - Can P -24 to -25 " - Flow Contr. Faulty (NCM# _____)					<input type="checkbox"/> Air - Can P Low -26 "- Grab Sample (NCM# _____)			
<input type="checkbox"/> Air - Can P Out -26" - Flow Contr. Works (NCM# _____)								





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20900 Swenson Drive  
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T: 262.754.2560  
F: 262.754.9711  
www.gza.com

January 9, 2019  
File No. 20.0153134.30

Mr. Randal Goddard  
146 Larabee Street  
Horicon, Wisconsin 53032

Re: Verification Post-Mitigation Indoor Air Test Results

Dear Mr. Randal Goddard:

With this letter, GZA GeoEnvironmental, Inc. (GZA) is informing you of the results of recent indoor air sampling conducted at your home at 146 Larabee Street in Horicon, Wisconsin.

### BACKGROUND

As we explained in prior correspondence, Gardner Manufacturing Company, Inc. (Gardner) hired GZA GeoEnvironmental, Inc. (GZA) to conduct environmental investigation and remediation of its former property at 263 Kansas Street, including the assessment of chemical vapors near area homes. The Wisconsin Department of Natural Resources (WDNR) provides oversight of the investigation activities being conducted by Gardner and provides file information under BRRTS No. 02-14-55423.

Due to the detection of trichloroethene (TCE) in an indoor air sample collected in August 2011 at a concentration greater than the TCE residential vapor action level (VAL), the WDNR arranged to have a mitigation system installed in your home with your permission in March 2012. Post-mitigation indoor air samples collected by GZA in October 2012 confirmed that the mitigation system was effective in reducing TCE concentrations to less than the TCE residential VAL.

### INDOOR AIR SAMPLING AND RESULTS

To further verify the effectiveness of the mitigation system, two indoor air samples were collected from your home over a 24-hour period between December 13 and 14, 2018. Samples were collected from the basement and first floor and from background outside air. The three air samples were collected in 6-liter canisters and were submitted to TestAmerica of Knoxville, Tennessee for testing. The analytical report for the air samples is provided as Attachment 1. The data are summarized on the attached table and include historical sampling results.

TCE was detected in the indoor air samples at concentrations greater than the TCE residential VAL and greater than the pre-mitigation results. The detection of TCE at concentrations greater than pre-mitigation concentrations may indicate the presence of an indoor air source or an outside background source. Although TCE was not detected in the outside background sample, GZA's prior sampling in the neighborhood has occasionally resulted in the detection of TCE in outside air at concentrations similar to or greater than the TCE residential VAL. Based on GZA's visual inspection of the mitigation system at the time the indoor air samples were collected, the mitigation system appeared to be operating normally. As a result of the detection of TCE in indoor air, GZA recommends the following:

1. Conduct sub-slab influence testing to verify the installed system is generating negative pressure with respect to indoor air over the basement floor slab;
2. Re-sample indoor and an outside air background samples; and
3. Evaluate whether any modifications to the mitigation system are required.



The proposed scope of work would be conducted at no cost to you. We will contact you within the next couple of days to discuss the recommended assessment and schedule the work if it is acceptable to you.

**CLOSING**

If you are looking for more information, please contact the undersigned (262-754-2560 or [bernard.fenelon@gza.com](mailto:bernard.fenelon@gza.com)). You may also contact Mr. Jeff Ackerman of the WDNR (608-275-3323) if you have any questions related to the investigation, or Mr. Ryan Wozniak of the WDHS (608-267-3227) if you have any health-related questions associated with this investigation.

Very truly yours,

**GZA GeoEnvironmental, Inc.**

A handwritten signature in blue ink, appearing to read "B. Fenelon".

Bernard G. Fenelon, P.G.  
Senior Consultant/Hydrogeologist

A handwritten signature in blue ink, appearing to read "J. Osborne".

John C. Osborne, P.G.  
Senior Principal/Hydrogeologist

J:\153100to153199\153134 263 Kansas\30 Remediation\Correspondence\2018 IAQ Results Letters\  
2019 01 09 FINAL Results of Verification Post-Mitigation Indoor Air Sampling 146 Larabee - Goddard.docx

**Attachments**

- c: Mr. Jeff Ackerman, WDNR
- Mr. Ryan J. Wozniak, MPH, Ph.D., Wisconsin Department of Health Services





**TABLE 1  
SUB-SLAB AIR AND INDOOR AIR ANALYTICAL RESULTS  
146 Larabee Street  
Horicon, Wisconsin**

	Wisconsin Department of Natural Resources Vapor Action Levels									
	Chloro-ethane	1,2-DCA	1,1-DCE	cis-1,2-DCE	trans-1,2-DCE	1,1,2,2-TCA	PCE	TCE	1,1,2-TCA	Vinyl Chloride
Sub-Slab Vapor Action Level (ppbv)	12,000	9	1,700	NE	NE	2.3	210	13	1.3	22
Indoor Air Action Level (ppbv)	370	0.27	52	NE	NE	0.068	6.2	0.39	0.038	0.65

Sample Location	Date	Sub-Slab Vapor Sample Results									
		Chloro-ethane	1,2-DCA	1,1-DCE	cis-1,2-DCE	trans-1,2-DCE	1,1,2,2-TCA	PCE	TCE	1,1,2-TCA	Vinyl Chloride
146 Larabee Street	4/27/11	<100	<100	<100	<100	<100	<100	<100	<b>709</b>	<100	<100
		Pre-Ventilation Indoor Air Sample Results									
146 Larabee Street - Basement	8/16/11	<0.085	<b>1.21</b>	<0.085	<0.085	<0.085	<0.085	<0.085	<b>0.49</b>	<0.085	<0.085
146 Larabee Street - 1st Floor	8/16/11	<0.085	<b>2.61</b>	<0.085	<0.085	<0.085	<0.085	<0.085	0.303	<0.085	<0.085
146 Larabee - 2nd Floor	8/16/11	<0.085	<b>1.36</b>	<0.085	<0.085	<0.085	<0.085	<0.085	<0.085	<0.085	<0.085
		Post-Ventilation Indoor Air Sample Results									
146 Larabee St-IA-Basement	10/17/12	NA	NA	NA	NA	NA	NA	NA	<0.17	NA	NA
146 Larabee St-IA-Grade	10/17/12	NA	NA	NA	NA	NA	NA	NA	<0.18	NA	NA
146 Larabee St-IA-Upper	10/17/12	NA	NA	NA	NA	NA	NA	NA	0.21	NA	NA
146 Larabee St-IA-Background	10/17/12	NA	NA	NA	NA	NA	NA	NA	<0.18	NA	NA
146 Larabee St-Basement IA	12/13/18	NA	NA	NA	0.18 J	<0.050	NA	NA	<b>0.70</b>	NA	<0.071
146 Larabee St-1st Floor IA	12/13/18	NA	NA	NA	0.12 J	<0.050	NA	NA	<b>1.1</b>	NA	<0.071
146 Larabee St-Background IA (Outside)	12/13/18	NA	NA	NA	<0.060	<0.050	NA	NA	<0.036	NA	<0.071

Notes:

- Sample results from 2011 are for sub-slab and indoor air samples collected by SCS BT Squared of Madison, Wisconsin and analyzed by the Wisconsin State Hygiene Laboratory of Madison, Wisconsin for VOCs in accordance with USEPA Method TO-15. Results are reported to the Limit of Detection (LOD).
- Sample results from 2015 are indoor air samples collected by GZA GeoEnvironmental, Inc. of Waukesha, Wisconsin and analyzed by Eurofins Air Toxics, Inc. of Folsom, California for the listed VOCs in accordance with USEPA Method TO-15. Results are reported to the Reporting Limit (RL), Limit of Quantification (LOQ) or Method Detection Limit (MDL).
- Analytical results are provided in units of parts per billion by volume (ppbv).
- Analytical results are provided in units of parts per billion by volume (ppbv).
- "J" denotes an estimated concentration between the method detection limit and the reporting limit. "NA" denotes the sample was not analyzed for the constituent.
- The sub-slab and indoor air vapor action levels (VALs) were obtained from USEPA regional screening levels accessed at: [http://www.epa.gov/reg3hwmd/risk/human/rb-concentration\\_table/index.htm](http://www.epa.gov/reg3hwmd/risk/human/rb-concentration_table/index.htm) and using a 10<sup>-5</sup> cancer risk and a hazard index of 1 with a 0.1 attenuation factor for the building slab.
- Samples that exceed the applicable sub-slab or indoor VAL are provided in **bold/underlined** font.
- Constituent abbreviations are used as follows:

1,2-DCA denotes 1,2-dichloroethane  
TCE denotes trichloroethene  
PCE denotes tetrachloroethene

cis-1,2-DCE denotes cis-1,2-dichloroethene  
1,1-DCE denotes 1,1-dichloroethene  
1,1,2-TCE denotes 1,1,2-Trichloroethane

1,1,2,2 TCA denotes 1,1,2,2-Tetrachloroethane  
trans-1,2-DCE denotes trans-1,2-dichloroethene



**ATTACHMENT 1**

**Post-Mitigation Indoor Air Laboratory Analytical Report**

# TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

## ANALYTICAL REPORT

TestAmerica Laboratories, Inc.  
TestAmerica Knoxville  
5815 Middlebrook Pike  
Knoxville, TN 37921  
Tel: (865)291-3000

TestAmerica Job ID: 140-13678-1

Client Project/Site: Former Gardner, Horicon - 20.0153134.20

For:

GZA GeoEnvironmental, Inc.  
20900 Swenson Drive Suite 150  
Waukesha, Wisconsin 53186

Attn: Mr. Bernard Fenelon



Authorized for release by:  
12/24/2018 8:04:23 AM

Sandie Fredrick, Project Manager II  
(920)261-1660  
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*The test results in this report meet all 2003 NELAC and 2009 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.*

*This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.*

*Results relate only to the items tested and the sample(s) as received by the laboratory.*

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# Definitions/Glossary

Client: GZA GeoEnvironmental, Inc.  
Project/Site: Former Gardner, Horicon - 20.0153134.20

TestAmerica Job ID: 140-13678-1

## Qualifiers

### Air - GC/MS VOA

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

## Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

# Case Narrative

Client: GZA GeoEnvironmental, Inc.  
Project/Site: Former Gardner, Horicon - 20.0153134.20

TestAmerica Job ID: 140-13678-1

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**Job ID: 140-13678-1**

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**Laboratory: TestAmerica Knoxville**

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**Narrative**

**Job Narrative  
140-13678-1**

**Comments**

No additional comments.

**Receipt**

The samples were received on 12/14/2018 10:00 AM; the samples arrived in good condition, properly preserved and, where required, on ice.

**Air - GC/MS VOA**

Method(s) TO 15 LL, TO-15: EPA methods TO-14A and TO-15 specify the use of humidified "zero air" as the blank reagent for canister cleaning, instrument calibration and sample analysis. Ultra-high purity humidified nitrogen from a cryogenic reservoir is used in place of "zero air" by TestAmerica Knoxville.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.



# Client Sample Results

Client: GZA GeoEnvironmental, Inc.  
 Project/Site: Former Gardner, Horicon - 20.0153134.20

TestAmerica Job ID: 140-13678-1

## Client Sample ID: 146 LARABEE-BACKGROUND IA

## Lab Sample ID: 140-13678-1

Date Collected: 12/13/18 09:14

Matrix: Air

Date Received: 12/14/18 10:00

Sample Container: Summa Canister 6L

### Method: TO-15 - Volatile Organic Compounds in Ambient Air

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
cis-1,2-Dichloroethene	<0.060		0.20	0.060	ppb v/v			12/18/18 23:12	1
trans-1,2-Dichloroethene	<0.050		0.20	0.050	ppb v/v			12/18/18 23:12	1
Trichloroethene	<0.036		0.20	0.036	ppb v/v			12/18/18 23:12	1
Vinyl chloride	<0.071		0.20	0.071	ppb v/v			12/18/18 23:12	1

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
cis-1,2-Dichloroethene	<0.24		0.79	0.24	ug/m3			12/18/18 23:12	1
trans-1,2-Dichloroethene	<0.20		0.79	0.20	ug/m3			12/18/18 23:12	1
Trichloroethene	<0.19		1.1	0.19	ug/m3			12/18/18 23:12	1
Vinyl chloride	<0.18		0.51	0.18	ug/m3			12/18/18 23:12	1

## Client Sample ID: 146 LARABEE-BASEMENT IA

## Lab Sample ID: 140-13678-2

Date Collected: 12/13/18 09:16

Matrix: Air

Date Received: 12/14/18 10:00

Sample Container: Summa Canister 6L

### Method: TO-15 - Volatile Organic Compounds in Ambient Air

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>cis-1,2-Dichloroethene</b>	<b>0.18</b>	<b>J</b>	0.20	0.060	ppb v/v			12/18/18 23:56	1
trans-1,2-Dichloroethene	<0.050		0.20	0.050	ppb v/v			12/18/18 23:56	1
<b>Trichloroethene</b>	<b>0.70</b>		0.20	0.036	ppb v/v			12/18/18 23:56	1
Vinyl chloride	<0.071		0.20	0.071	ppb v/v			12/18/18 23:56	1

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>cis-1,2-Dichloroethene</b>	<b>0.69</b>	<b>J</b>	0.79	0.24	ug/m3			12/18/18 23:56	1
trans-1,2-Dichloroethene	<0.20		0.79	0.20	ug/m3			12/18/18 23:56	1
<b>Trichloroethene</b>	<b>3.7</b>		1.1	0.19	ug/m3			12/18/18 23:56	1
Vinyl chloride	<0.18		0.51	0.18	ug/m3			12/18/18 23:56	1

## Client Sample ID: 146 LARABEE-1ST FLOOR IA

## Lab Sample ID: 140-13678-3

Date Collected: 12/13/18 09:17

Matrix: Air

Date Received: 12/14/18 10:00

Sample Container: Summa Canister 6L

### Method: TO-15 - Volatile Organic Compounds in Ambient Air

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>cis-1,2-Dichloroethene</b>	<b>0.12</b>	<b>J</b>	0.20	0.060	ppb v/v			12/19/18 00:39	1
trans-1,2-Dichloroethene	<0.050		0.20	0.050	ppb v/v			12/19/18 00:39	1
<b>Trichloroethene</b>	<b>1.1</b>		0.20	0.036	ppb v/v			12/19/18 00:39	1
Vinyl chloride	<0.071		0.20	0.071	ppb v/v			12/19/18 00:39	1

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>cis-1,2-Dichloroethene</b>	<b>0.47</b>	<b>J</b>	0.79	0.24	ug/m3			12/19/18 00:39	1
trans-1,2-Dichloroethene	<0.20		0.79	0.20	ug/m3			12/19/18 00:39	1
<b>Trichloroethene</b>	<b>5.8</b>		1.1	0.19	ug/m3			12/19/18 00:39	1
Vinyl chloride	<0.18		0.51	0.18	ug/m3			12/19/18 00:39	1

TestAmerica Knoxville

# QC Sample Results

Client: GZA GeoEnvironmental, Inc.  
 Project/Site: Former Gardner, Horicon - 20.0153134.20

TestAmerica Job ID: 140-13678-1

## Method: TO-15 - Volatile Organic Compounds in Ambient Air

**Lab Sample ID: MB 140-26245/8**

**Matrix: Air**

**Analysis Batch: 26245**

**Client Sample ID: Method Blank**

**Prep Type: Total/NA**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
cis-1,2-Dichloroethene	<0.060		0.20	0.060	ppb v/v			12/18/18 17:28	1
trans-1,2-Dichloroethene	<0.050		0.20	0.050	ppb v/v			12/18/18 17:28	1
Trichloroethene	<0.036		0.20	0.036	ppb v/v			12/18/18 17:28	1
Vinyl chloride	<0.071		0.20	0.071	ppb v/v			12/18/18 17:28	1

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
cis-1,2-Dichloroethene	<0.24		0.79	0.24	ug/m3			12/18/18 17:28	1
trans-1,2-Dichloroethene	<0.20		0.79	0.20	ug/m3			12/18/18 17:28	1
Trichloroethene	<0.19		1.1	0.19	ug/m3			12/18/18 17:28	1
Vinyl chloride	<0.18		0.51	0.18	ug/m3			12/18/18 17:28	1

**Lab Sample ID: LCS 140-26245/1006**

**Matrix: Air**

**Analysis Batch: 26245**

**Client Sample ID: Lab Control Sample**

**Prep Type: Total/NA**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
cis-1,2-Dichloroethene	2.00	2.09		ppb v/v		105	70 - 130
trans-1,2-Dichloroethene	2.00	2.20		ppb v/v		110	70 - 130
Trichloroethene	2.00	2.06		ppb v/v		103	70 - 130
Vinyl chloride	2.00	2.47		ppb v/v		124	70 - 130

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
cis-1,2-Dichloroethene	7.9	8.30		ug/m3		105	70 - 130
trans-1,2-Dichloroethene	7.9	8.71		ug/m3		110	70 - 130
Trichloroethene	11	11.1		ug/m3		103	70 - 130
Vinyl chloride	5.1	6.32		ug/m3		124	70 - 130



# QC Association Summary

Client: GZA GeoEnvironmental, Inc.  
Project/Site: Former Gardner, Horicon - 20.0153134.20

TestAmerica Job ID: 140-13678-1

## Air - GC/MS VOA

### Analysis Batch: 26245

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
140-13678-1	146 LARABEE-BACKGROUND IA	Total/NA	Air	TO-15	
140-13678-2	146 LARABEE-BASEMENT IA	Total/NA	Air	TO-15	
140-13678-3	146 LARABEE-1ST FLOOR IA	Total/NA	Air	TO-15	
140-13678-4	140 OAKWOOD-BACKGROUND IA	Total/NA	Air	TO-15	
140-13678-5	140 OAKWOOD-BASEMENT IA	Total/NA	Air	TO-15	
140-13678-6	140 OAKWOOD-1ST FLOOR IA	Total/NA	Air	TO-15	
140-13678-7	205 KANSAS-BACKGROUND IA	Total/NA	Air	TO-15	
140-13678-8	205 KANSAS-BASEMENT IA	Total/NA	Air	TO-15	
140-13678-9	205 KANSAS-1ST FLOOR IA	Total/NA	Air	TO-15	
MB 140-26245/8	Method Blank	Total/NA	Air	TO-15	
LCS 140-26245/1006	Lab Control Sample	Total/NA	Air	TO-15	

# Lab Chronicle

Client: GZA GeoEnvironmental, Inc.  
Project/Site: Former Gardner, Horicon - 20.0153134.20

TestAmerica Job ID: 140-13678-1

## Client Sample ID: 146 LARABEE-BACKGROUND IA

Lab Sample ID: 140-13678-1

Date Collected: 12/13/18 09:14

Matrix: Air

Date Received: 12/14/18 10:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	TO-15		1	200 mL	500 mL	26245	12/18/18 23:12	S1K	TAL KNX
Instrument ID: MG										

## Client Sample ID: 146 LARABEE-BASEMENT IA

Lab Sample ID: 140-13678-2

Date Collected: 12/13/18 09:16

Matrix: Air

Date Received: 12/14/18 10:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	TO-15		1	200 mL	500 mL	26245	12/18/18 23:56	S1K	TAL KNX
Instrument ID: MG										

## Client Sample ID: 146 LARABEE-1ST FLOOR IA

Lab Sample ID: 140-13678-3

Date Collected: 12/13/18 09:17

Matrix: Air

Date Received: 12/14/18 10:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	TO-15		1	200 mL	500 mL	26245	12/19/18 00:39	S1K	TAL KNX
Instrument ID: MG										

## Client Sample ID: 140 OAKWOOD-BACKGROUND IA

Lab Sample ID: 140-13678-4

Date Collected: 12/13/18 14:46

Matrix: Air

Date Received: 12/14/18 10:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	TO-15		1	200 mL	500 mL	26245	12/19/18 01:22	S1K	TAL KNX
Instrument ID: MG										

## Client Sample ID: 140 OAKWOOD-BASEMENT IA

Lab Sample ID: 140-13678-5

Date Collected: 12/13/18 14:43

Matrix: Air

Date Received: 12/14/18 10:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	TO-15		1	200 mL	500 mL	26245	12/19/18 02:05	S1K	TAL KNX
Instrument ID: MG										

## Client Sample ID: 140 OAKWOOD-1ST FLOOR IA

Lab Sample ID: 140-13678-6

Date Collected: 12/13/18 14:44

Matrix: Air

Date Received: 12/14/18 10:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	TO-15		1	200 mL	500 mL	26245	12/19/18 02:48	S1K	TAL KNX
Instrument ID: MG										

TestAmerica Knoxville

# Lab Chronicle

Client: GZA GeoEnvironmental, Inc.  
Project/Site: Former Gardner, Horicon - 20.0153134.20

TestAmerica Job ID: 140-13678-1

## Client Sample ID: 205 KANSAS-BACKGROUND IA

Lab Sample ID: 140-13678-7

Date Collected: 12/13/18 15:53

Matrix: Air

Date Received: 12/14/18 10:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	TO-15		1	200 mL	500 mL	26245	12/19/18 03:32	S1K	TAL KNX
Instrument ID: MG										

## Client Sample ID: 205 KANSAS-BASEMENT IA

Lab Sample ID: 140-13678-8

Date Collected: 12/13/18 15:56

Matrix: Air

Date Received: 12/14/18 10:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	TO-15		1	200 mL	500 mL	26245	12/19/18 04:16	S1K	TAL KNX
Instrument ID: MG										

## Client Sample ID: 205 KANSAS-1ST FLOOR IA

Lab Sample ID: 140-13678-9

Date Collected: 12/13/18 15:58

Matrix: Air

Date Received: 12/14/18 10:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	TO-15		1	200 mL	500 mL	26245	12/19/18 05:42	S1K	TAL KNX
Instrument ID: MG										

## Client Sample ID: Method Blank

Lab Sample ID: MB 140-26245/8

Date Collected: N/A

Matrix: Air

Date Received: N/A

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	TO-15		1	200 mL	500 mL	26245	12/18/18 17:28	S1K	TAL KNX
Instrument ID: MG										

## Client Sample ID: Lab Control Sample

Lab Sample ID: LCS 140-26245/1006

Date Collected: N/A

Matrix: Air

Date Received: N/A

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	TO-15		1	500 mL	500 mL	26245	12/18/18 14:02	S1K	TAL KNX
Instrument ID: MG										

### Laboratory References:

TAL KNX = TestAmerica Knoxville, 5815 Middlebrook Pike, Knoxville, TN 37921, TEL (865)291-3000

# Accreditation/Certification Summary

Client: GZA GeoEnvironmental, Inc.  
Project/Site: Former Gardner, Horicon - 20.0153134.20

TestAmerica Job ID: 140-13678-1

## Laboratory: TestAmerica Knoxville

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	EPA Region	Identification Number	Expiration Date
Wisconsin	State Program	5	998044300	08-31-19

The following analytes are included in this report, but the laboratory is not certified by the governing authority. This list may include analytes for which the agency does not offer certification.

Analysis Method	Prep Method	Matrix	Analyte
TO-15		Air	cis-1,2-Dichloroethene
TO-15		Air	trans-1,2-Dichloroethene
TO-15		Air	Trichloroethene
TO-15		Air	Vinyl chloride

## Laboratory: TestAmerica Chicago

The accreditations/certifications listed below are applicable to this report.

Authority	Program	EPA Region	Identification Number	Expiration Date
Wisconsin	State Program	5	999580010	08-31-19

# Method Summary

Client: GZA GeoEnvironmental, Inc.  
Project/Site: Former Gardner, Horicon - 20.0153134.20

TestAmerica Job ID: 140-13678-1

Method	Method Description	Protocol	Laboratory
TO-15	Volatile Organic Compounds in Ambient Air	EPA	TAL KNX

**Protocol References:**

EPA = US Environmental Protection Agency

**Laboratory References:**

TAL KNX = TestAmerica Knoxville, 5815 Middlebrook Pike, Knoxville, TN 37921, TEL (865)291-3000



# Sample Summary

Client: GZA GeoEnvironmental, Inc.  
Project/Site: Former Gardner, Horicon - 20.0153134.20

TestAmerica Job ID: 140-13678-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
140-13678-1	146 LARABEE-BACKGROUND IA	Air	12/13/18 09:14	12/14/18 10:00
140-13678-2	146 LARABEE-BASEMENT IA	Air	12/13/18 09:16	12/14/18 10:00
140-13678-3	146 LARABEE-1ST FLOOR IA	Air	12/13/18 09:17	12/14/18 10:00
140-13678-4	140 OAKWOOD-BACKGROUND IA	Air	12/13/18 14:46	12/14/18 10:00
140-13678-5	140 OAKWOOD-BASEMENT IA	Air	12/13/18 14:43	12/14/18 10:00
140-13678-6	140 OAKWOOD-1ST FLOOR IA	Air	12/13/18 14:44	12/14/18 10:00
140-13678-7	205 KANSAS-BACKGROUND IA	Air	12/13/18 15:53	12/14/18 10:00
140-13678-8	205 KANSAS-BASEMENT IA	Air	12/13/18 15:56	12/14/18 10:00
140-13678-9	205 KANSAS-1ST FLOOR IA	Air	12/13/18 15:58	12/14/18 10:00



**TAL Knoxville**

5815 Middlebrook Pike  
 Knoxville, TN 37921  
 phone 865-291-3000 fax 865-584-4315

**Canister Samples Chain of Custody Record**

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



THE LEADER IN ENVIRONMENTAL TESTING

Client Contact Information				Project Manager: <b>BERNARD FERRON</b>				Sampled By: <b>C. ANSWORTH</b>				1 of 2 COCs			
Company: <b>GRACIA ENVIRONMENTAL INC.</b>				Phone:											
Address: <b>20900 SWENSON DRIVE STE 150</b>				Site Contact:											
City/State/Zip: <b>WARRICK, IN 46786</b>				TAL Contact: <b>GANDY FREDERICK</b>											
Phone: <b>762-754-2560</b>															
FAX: <b>762-754-9711</b>															
Project Name: <b>FORMER GARDNER MANUFACTURING</b>				Analysis Turnaround Time											
Site/location: <b>HOZCOM, IN</b>				Standard (Specify) <b>X</b>											
PO #				Rush (Specify)											

Sample Identification	Sample Date(s)	Time Start	Time Stop	Canister Vacuum in Field, "Hg (Start)	Canister Vacuum in Field, "Hg (Stop)	Flow Controller ID	Canister ID	TO-15	TO-14A	EPA 3C	EPA 25C	ASTM D-1946	Other (Please sp)	Sample Type	Indoor Air	Ambient Air	Soil Gas	Landfill Gas	Other (Please spec)
146 LARABEE-BACKGROUND IA	12/12-12/13/18	925	914	-28	-4	11275	11157	X							X				
146 LARABEE-BASEMENT IA		933	916	-30	-6	11757	10182	X							X				
146 LARABEE-1 <sup>ST</sup> FLOOR IA		935	917	-29	-4	7587	10405	X							X				
140 OAKWOOD-BACKGROUND IA		1458	1446	-29	-4	8701	09930	X							X				
140 OAKWOOD-BASEMENT IA		1502	1443	-30	-3	11289	10627	X							X				
140 OAKWOOD-1 <sup>ST</sup> FLOOR IA		1508	1444	-30	-6	7365	10069	X							X				

Sampled by:	Temperature (Fahrenheit)				CUSTODY SEALS INTACT RECEIVED AMBIENT 6:50 <del>12-14-18</del> 12-16-18
		Interior	Ambient		
	Start				
	Stop				
	Pressure (inches of Hg)				2 BOXES FOX# 8116 7060 9212 SD " " 9223 SD 12 CANS / 12 FLOWS
		Interior	Ambient		
	Start				
	Stop				

Special Instructions/QC Requirements & Comments:

Canisters Shipped by:	Date/Time: <b>12/13/18 11:50</b>	Canisters Received by: <b>PER FERRON</b>
Samples Relinquished by:	Date/Time:	Received by: <b>XXXXXXXXXX TA KW X 12-14-18 10:00</b>
Relinquished by:	Date/Time:	Received by:

Lab Use Only Shipper Name: \_\_\_\_\_ Opened by: \_\_\_\_\_ Condition: \_\_\_\_\_



TAL Knoxville

5815 Middlebrook Pike  
 Knoxville, TN 37921  
 phone 865-291-3000 fax 865-584-4315

Canister Samples Chain of Custody Record

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



THE LEADER IN ENVIRONMENTAL TESTING

Client Contact Information		Project Manager: <b>Bernard Fenelon</b>		Sampled By: <b>C. Ainsworth</b>		2 of 2 COCs													
Company: <b>ETA Environmental Inc.</b>		Phone:																	
Address: <b>20000 SWENSON DRIVE SUITE 100</b>		Site Contact:																	
City/State/Zip: <b>WARRICK, IN 46786</b>		TAL Contact: <b>GARRETT FREDRICK</b>																	
Phone: <b>262-754-2560</b>																			
FAX: <b>262-754-9711</b>																			
Project Name: <b>Fence Garden Manufacturing</b>		Analysis Turnaround Time																	
Site/location: <b>Harlan, IN</b>		Standard (Specify) <b>X</b>																	
PO #		Rush (Specify)																	
Sample Identification	Sample Date(s)	Time Start	Time Stop	Canister Vacuum in Field, "Hg (Start)	Canister Vacuum in Field, "Hg (Stop)	Flow Controller ID	Canister ID	TO-15 TCE ONLY	TO-14A	EPA 3C	EPA 25C	ASTM D-1946	Other (Please specify in notes section)	Sample Type	Indoor Air	Ambient Air	Soil Gas	Landfill Gas	Other (Please specify in notes section)
205 KANSAS - BACKGROUNDA IA	12/12/18 12/13/18	1559	1553	-28.5	-3	09855	10377	X							X				
205 KANSAS - BASEMENT IA	1	1603	1556	-26	-2	10357	11209	X							X				
205 KANSAS - 1ST FLOOR IA	1	1605	1558	-27	-3	10160	10325	X							X				
Sampled by:		Temperature (Fahrenheit)																	
		Interior		Ambient															
Start																			
Stop																			
Sampled by:		Pressure (inches of Hg)																	
		Interior		Ambient															
Start																			
Stop																			
Special Instructions/QC Requirements & Comments:																			
Canisters Shipped by:		Date/Time: <b>12/13/18 1730</b>		Canisters Received by: <b>PER FEN</b>															
Samples Relinquished by:		Date/Time:		Received by: <b>Harlan IA INX 12-14-18 10:00</b>															
Relinquished by:		Date/Time:		Received by:															

Lab Use Only Shipper Name: Opened by: Condition:





TESTAMERICA KNOXVILLE SAMPLE RECEIPT/CONDITION UPON RECEIPT ANOMALY CHECKLIST

Review Items	Yes	No	NA	If No, what was the problem?	Comments/Actions Taken
1. Are the shipping containers intact?	/			<input type="checkbox"/> Containers, Broken	
2. Were ambient air containers received intact?			/	<input checked="" type="checkbox"/> Checked in lab	
3. The coolers/containers custody seal if present, is it intact?	/			<input type="checkbox"/> Yes <input type="checkbox"/> NA	
4. Is the cooler temperature within limits? (> freezing temp. of water to 6°C, VOST: 10°C) Thermometer ID: _____ Correction factor: _____			/	<input type="checkbox"/> Cooler Out of Temp, Client Contacted, Proceed/Cancel <input type="checkbox"/> Cooler Out of Temp, Same Day Receipt	
5. Were all of the sample containers received intact?	/			<input type="checkbox"/> Containers, Broken	
6. Were samples received in appropriate containers?	/			<input type="checkbox"/> Containers, Improper; Client Contacted; Proceed/Cancel	
7. Do sample container labels match COC? (IDs, Dates, Times)	/			<input type="checkbox"/> COC & Samples Do Not Match <input type="checkbox"/> COC Incorrect/Incomplete <input type="checkbox"/> COC Not Received	
8. Were all of the samples listed on the COC received?	/			<input type="checkbox"/> Sample Received, Not on COC <input type="checkbox"/> Sample on COC, Not Received	
9. Is the date/time of sample collection noted?	/			<input type="checkbox"/> COC; No Date/Time; Client Contacted	<u>Labeling Verified by:</u> _____ <u>Date:</u> _____
10. Was the sampler identified on the COC?	/			<input type="checkbox"/> Sampler Not Listed on COC	
11. Is the client and project name/# identified?	/			<input type="checkbox"/> COC Incorrect/Incomplete	
12. Are tests/parameters listed for each sample?	/			<input type="checkbox"/> COC No tests on COC	
13. Is the matrix of the samples noted?	/			<input type="checkbox"/> COC Incorrect/Incomplete	
14. Was COC relinquished? (Signed/Dated/Timed)	/			<input type="checkbox"/> COC Incorrect/Incomplete	Box 16A: pH Preservation Box 18A: Residual Chlorine
15. Were samples received within holding time?	/			<input type="checkbox"/> Holding Time - Receipt	Preservative: _____
16. Were samples received with correct chemical preservative (excluding Encore)?			/	<input type="checkbox"/> pH Adjusted, pH Included (See box 16A) <input type="checkbox"/> Incorrect Preservative	Lot Number: _____
17. Were VOA samples received without headspace?			/	<input type="checkbox"/> Headspace (VOA only)	Exp Date: _____
18. Did you check for residual chlorine, if necessary? (e.g. 1613B, 1668) Chlorine test strip lot number: _____			/	<input type="checkbox"/> Residual Chlorine	Analyst: _____
19. For 1613B water samples is pH<9?			/	<input type="checkbox"/> If no, notify lab to adjust	Date: _____
20. For rad samples was sample activity info. Provided?			/	<input type="checkbox"/> Project missing info	Time: _____
Project #: <u>500 16128</u> PM Instructions: <u>NA</u>					



**TestAmerica Knoxville - Air Canister Initial Pressure Check**

Gauge ID:         G5          
 Date:       12/17/2018      

<b>Analyst</b>	<b>Sample ID</b>	<b>Asset #</b>	<b>Cleaning Job</b>	<b>Cert</b>	<b>Size (L)</b>	<b>Pressure @ Receipt (-in Hg or +psig)</b>	<b>Time</b>	<b>Comments</b>
afb	140-13678-A-1	11157	13477	b	6	-3.1	1050	
afb	140-13678-A-2	10182	13490	b	6	-5.3	1051	
afb	140-13678-A-3	10405	13490	b	6	-5.1	1052	
afb	140-13678-A-4	09930	13476	b	6	-3.8	1053	
afb	140-13678-A-5	10627	13490	b	6	-3.1	1054	
afb	140-13678-A-6	10069	13477	b	6	-4.9	1055	
afb	140-13678-A-7	10377	13490	b	6	-2.2	1056	
afb	140-13678-A-8	11209	13477	b	6	-4.3	1057	
afb	140-13678-A-9	10325	13490	b	6	-5.3	1058	
<input type="checkbox"/> Receiving -Air Can -Calve Open (NCM # _____) <input type="checkbox"/> Air - Can P -24 to -25 " - Flow Contr. Works (NCM# _____) <input type="checkbox"/> Air - Can P -24 to -25 " - Flow Contr. Faulty (NCM# _____) <input type="checkbox"/> Air - Can P Out -26" - Flow Contr. Works (NCM# _____)						<input type="checkbox"/> Air - Can P Out -26" - Flow Contr. Faulty (NCM# _____) <input type="checkbox"/> Air - Can P Low -24 to -25 " - Grab Sample (NCM# _____) <input type="checkbox"/> Air - Can P Low -26 " - Grab Sample (NCM# _____)		

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20900 Swenson Drive  
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T: 262.754.2560  
F: 262.754.9711  
www.gza.com

January 9, 2019  
File No. 20.0153134.30

Mr. Kenneth Maas, Mr. Carl Maas, Ms. Suzanne Bintzler and Ms. Betty Michaels  
150 Larabee Street  
Horicon, Wisconsin 53032

Re: Verification Post-Mitigation Indoor Air Test Results

Dear Mr. Kenneth Maas, Mr. Carl Maas, Ms. Bintzler and Ms. Michaels:

With this letter, GZA GeoEnvironmental, Inc. (GZA) is informing you of the results of recent indoor air sampling conducted at your home at 150 Larabee Street in Horicon, Wisconsin.

**BACKGROUND**

As we explained in prior correspondence, Gardner Manufacturing Company, Inc. (Gardner) hired GZA GeoEnvironmental, Inc. (GZA) to conduct environmental investigation and remediation of its former property at 263 Kansas Street, including the assessment of chemical vapors near area homes. The Wisconsin Department of Natural Resources (WDNR) provides oversight of the investigation activities being conducted by Gardner and provides file information under BRRTS No. 02-14-55423.

Due to the detection of trichloroethene (TCE) in indoor air samples collected in February 2016 at concentrations greater than the TCE residential vapor action level (VAL), GZA installed a mitigation system in your home with your permission in April 2016. Post-mitigation indoor air samples collected in July 2016 confirmed that the mitigation system was effectively reducing TCE concentrations to less than the TCE residential VAL.

**INDOOR AIR SAMPLING AND RESULTS**

To further verify the effectiveness of the mitigation system, two indoor air samples were collected from your home over a 24-hour period between December 17 and 18, 2018. Samples were collected from the basement and first floor and from background outside air. The three air samples were collected in 6-liter canisters and were submitted to TestAmerica of Knoxville, Tennessee for testing. The analytical report for the air samples is provided as Attachment 1. The data are summarized on the attached table and include historical results.

TCE was not detected in the December 2018 indoor air samples and confirms the mitigation system is operating as designed.


**CLOSING**

If you are looking for more information, please contact the undersigned (262-754-2560 or [bernard.fenelon@gza.com](mailto:bernard.fenelon@gza.com)). You may also contact Mr. Jeff Ackerman of the WDNR (608-275-3323) if you have any questions related to the investigation, or Mr. Ryan Wozniak of the WDHS (608-267-3227) if you have any health-related questions associated with this investigation.

Very truly yours,

**GZA GeoEnvironmental, Inc.**

  
Bernard G. Fenelon, P.G.  
Senior Consultant/Hydrogeologist

  
John C. Osborne, P.G.  
Senior Principal/Hydrogeologist

J:\153100to153199\153134 263 Kansas\30 Remediation\Correspondence\2018 IAQ Results Letters\  
2019 01 09 FINAL Results of Verification Post-Mitigation Indoor Air Sampling 150 Larabee - Maas.docx

**Attachments**

c: Mr. Jeff Ackerman, WDNR  
Mr. Ryan J. Wozniak, MPH, Ph.D., Wisconsin Department of Health Services



**TABLE 1  
SUB-SLAB AND INDOOR AIR ANALYTICAL RESULTS  
150 Larabee Street  
Horicon, Wisconsin**

		Wisconsin Department of Natural Resources Vapor Action Levels										
		Chloro-ethane	1,2-DCA	1,1-DCE	1,1-DCA	cis-1,2-DCE	trans-1,2-DCE	1,1,2,2-TCA	PCE	TCE	1,1,2-TCA	Vinyl Chloride
Sub-Slab Vapor Action Level (ppbv)		12,000	9	1,700	150	NE	NE	2.3	210	13	1.3	22
Indoor Air Action Level (ppbv)		370	0.27	52	4.4	NE	NE	0.068	6.2	0.39	0.038	0.65
Sample Location	Date	Sub-Slab Sample Results (Samples Collected by the WDNR)										
		Chloro-ethane	1,2-DCA	1,1-DCE	1,1-DCA	cis-1,2-DCE	trans-1,2-DCE	1,1,2,2-TCA	PCE	TCE	1,1,2-TCA	Vinyl Chloride
150 Larabee Street	4/28/11	<0.085	<0.085	<0.085	<0.085	<b>0.188</b>	<0.085	<0.085	<0.085	<b>1.4</b>	<0.085	<0.085
		Sub-Slab Vapor Sample Results (Samples Collected by Gardner)										
150 Larabee Street SS-1	2/26/16	<5.0	<1.3	<1.3	<1.3	<b>3.5</b>	<1.3	<1.3	<1.3	<b>4.1</b>	<1.3	<1.3
150 Larabee Street SS-2	2/26/16	<4.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
		Pre-Mitigation Indoor Air Sample Results (Samples Collected by Gardner)										
150 Larabee-Basement-IA	2/25-26/16	<b>0.024 J</b>	<b>0.29</b>	<b>0.039</b>	<0.010	<b>3.3</b>	<b>0.045 J</b>	<0.024	<0.016	<b>3.4</b>	<0.021	<b>0.47</b>
150 Larabee-1st Floor-IA	2/25-26/16	<b>0.027 J</b>	<b>0.72</b>	<0.014	<0.010	<b>0.57</b>	<0.020	<0.024	<0.016	<b>0.54</b>	<0.021	<b>0.078 J</b>
150 Larabee-2nd Floor-IA	2/25-26/16	<0.014	<b>0.81</b>	<0.014	<0.010	<b>0.54</b>	<0.020	<0.024	<0.016	<b>0.52</b>	<0.021	<b>0.072 J</b>
150/154 Larabee-Background-IA	2/25-26/16	<b>0.049 J</b>	<0.019	<0.014	<0.010	<0.024	<0.020	<0.024	<0.016	<0.014	<0.021	<0.029
		Post-Mitigation Indoor Air Sample Results (Samples Collected by Gardner)										
150 Larabee-Basement-IA	7/27-28/16	<0.93	<b>0.26</b>	<0.19	<0.19	<0.19	<0.19	<0.19	<0.19	<0.19	<0.19	<0.19
150 Larabee-1st Floor-IA	7/27-28/16	<1.2	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25
150 Larabee-2nd Floor-IA	7/27-28/16	<0.84	<b>0.48</b>	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17
150 Larabee-Basement-IA	12/17-18/18	NA	NA	NA	NA	<0.060	<0.050	NA	<b>0.072 J</b>	<0.036	NA	<0.071
150 Larabee-1st Floor-IA	12/17-18/18	NA	NA	NA	NA	<0.060	<0.050	NA	<b>0.092 J</b>	<0.036	NA	<0.071
150 Larabee-Background (Outside)	12/17-18/18	NA	NA	NA	NA	<0.060	<0.050	NA	<b>0.080 J</b>	<0.036	NA	<0.071

Notes:

- Results from April 2011 are for sub-slab vapor samples collected by SCS BT Squared of Madison, Wisconsin and analyzed by the Wisconsin State Laboratory of Hygiene of Madison, Wisconsin for volatile organic compounds (VOCs) in accordance with USEPA Method TO-15. Results are reported to the Limit of Detection (LOD).
- Sample results from February 26, 2016 are for sub-slab vapor samples collected by GZA GeoEnvironmental, Inc. (GZA) of Waukesha, Wisconsin and analyzed by Eurofins Air Toxics, Inc. (Eurofins) of Folsom, California for the listed VOCs in accordance with USEPA Method TO-15. Results are reported to the Limit of Quantification (LOQ).
- Sample results from February 25-26, 2016 and July 27-28, 2016 are for indoor air samples collected by GZA and analyzed by Test America of Knoxville, Tennessee for the listed VOCs in accordance with USEPA Method TO-15. Results are reported to the Method Detection Limit (MDL).
- Analytical results are provided in units of parts per billion by volume (ppbv).
- "J" denotes an estimated concentration between the method detection limit and the reporting limit. "NA" denotes the sample was not analyzed for the constituent.
- The WDNR obtains its residential indoor air action levels from USEPA regional screening levels accessed at: [http://www.epa.gov/reg3hwmd/risk/human/rb-concentration\\_table/index.htm](http://www.epa.gov/reg3hwmd/risk/human/rb-concentration_table/index.htm) using a 10<sup>-5</sup> cancer risk and a hazard index of 1. NE denotes that a screening or action level has not been established for the constituent.
- Samples results with a reported detection are provided in **bold font** and results that exceed an action level are provided in **bold and underlined font**.
- "<" denotes that the constituent was not detected and "NA" denotes that the constituent was not analyzed.
- Constituent abbreviations are used as follows:
 

1,2-DCA denotes 1,2-dichloroethane	cis-1,2-DCE denotes cis-1,2-dichloroethene	1,1,2,2 TCA denotes 1,1,2,2-Tetrachloroethane
TCE denotes trichloroethene	1,1-DCE denotes 1,1-dichloroethene	trans-1,2-DCE denotes trans-1,2-dichloroethene
PCE denotes tetrachloroethene	1,1,2-TCE denotes 1,1,2-Trichloroethane	



**ATTACHMENT 1**

**Post-Mitigation Indoor Air Laboratory Analytical Report**

# TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

## ANALYTICAL REPORT

TestAmerica Laboratories, Inc.  
TestAmerica Knoxville  
5815 Middlebrook Pike  
Knoxville, TN 37921  
Tel: (865)291-3000

TestAmerica Job ID: 140-13726-1

Client Project/Site: Former Gardner, Horicon - 20.0153134.20

For:

GZA GeoEnvironmental, Inc.  
20900 Swenson Drive Suite 150  
Waukesha, Wisconsin 53186

Attn: Mr. Bernard Fenelon



Authorized for release by:  
12/29/2018 5:03:52 PM

Sandie Fredrick, Project Manager II  
(920)261-1660  
[sandie.fredrick@testamericainc.com](mailto:sandie.fredrick@testamericainc.com)

### LINKS

Review your project  
results through  
**TotalAccess**

Have a Question?



Visit us at:  
[www.testamericainc.com](http://www.testamericainc.com)

*The test results in this report meet all 2003 NELAC and 2009 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.*

*This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.*

*Results relate only to the items tested and the sample(s) as received by the laboratory.*

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# Definitions/Glossary

Client: GZA GeoEnvironmental, Inc.  
Project/Site: Former Gardner, Horicon - 20.0153134.20

TestAmerica Job ID: 140-13726-1

## Qualifiers

### Air - GC/MS VOA

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

## Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)



# Case Narrative

Client: GZA GeoEnvironmental, Inc.  
Project/Site: Former Gardner, Horicon - 20.0153134.20

TestAmerica Job ID: 140-13726-1

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## Job ID: 140-13726-1

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### Laboratory: TestAmerica Knoxville

#### Narrative

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#### Job Narrative 140-13726-1

#### Comments

No additional comments.

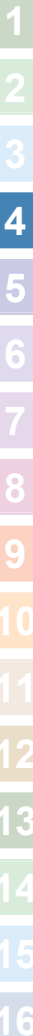
#### Receipt

The samples were received on 12/19/2018 10:20 AM; the samples arrived in good condition, properly preserved and, where required, on ice.

#### Air - GC/MS VOA

Method(s) TO 15 LL, TO-15: EPA methods TO-14A and TO-15 specify the use of humidified "zero air" as the blank reagent for canister cleaning, instrument calibration and sample analysis. Ultra-high purity humidified nitrogen from a cryogenic reservoir is used in place of "zero air" by TestAmerica Knoxville.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.



# Client Sample Results

Client: GZA GeoEnvironmental, Inc.  
Project/Site: Former Gardner, Horicon - 20.0153134.20

TestAmerica Job ID: 140-13726-1

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**Client Sample ID: 150 LARABEE-BASEMENT IA**

**Lab Sample ID: 140-13726-7**

**Date Collected: 12/18/18 13:34**

**Matrix: Air**

**Date Received: 12/19/18 10:20**

**Sample Container: Summa Canister 6L**

**Method: TO-15 - Volatile Organic Compounds in Ambient Air**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
cis-1,2-Dichloroethene	<0.060		0.20	0.060	ppb v/v			12/28/18 01:55	1
<b>Tetrachloroethene</b>	<b>0.072</b>	<b>J</b>	0.20	0.040	ppb v/v			12/28/18 01:55	1
trans-1,2-Dichloroethene	<0.050		0.20	0.050	ppb v/v			12/28/18 01:55	1
Trichloroethene	<0.036		0.20	0.036	ppb v/v			12/28/18 01:55	1

TestAmerica Knoxville

# Client Sample Results

Client: GZA GeoEnvironmental, Inc.  
 Project/Site: Former Gardner, Horicon - 20.0153134.20

TestAmerica Job ID: 140-13726-1

## Client Sample ID: 150 LARABEE-BASEMENT IA

Lab Sample ID: 140-13726-7

Date Collected: 12/18/18 13:34

Matrix: Air

Date Received: 12/19/18 10:20

Sample Container: Summa Canister 6L

### Method: TO-15 - Volatile Organic Compounds in Ambient Air (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Vinyl chloride	<0.071		0.40	0.071	ppb v/v			12/28/18 01:55	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	104		60 - 140					12/28/18 01:55	1

## Client Sample ID: 150 LARABEE-1ST FLOOR IA

Lab Sample ID: 140-13726-8

Date Collected: 12/18/18 13:35

Matrix: Air

Date Received: 12/19/18 10:20

Sample Container: Summa Canister 6L

### Method: TO-15 - Volatile Organic Compounds in Ambient Air

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
cis-1,2-Dichloroethene	<0.060		0.20	0.060	ppb v/v			12/25/18 02:13	1
<b>Tetrachloroethene</b>	<b>0.092</b>	<b>J</b>	0.20	0.040	ppb v/v			12/25/18 02:13	1
trans-1,2-Dichloroethene	<0.050		0.20	0.050	ppb v/v			12/25/18 02:13	1
Trichloroethene	<0.036		0.20	0.036	ppb v/v			12/25/18 02:13	1
Vinyl chloride	<0.071		0.40	0.071	ppb v/v			12/25/18 02:13	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	94		60 - 140					12/25/18 02:13	1

## Client Sample ID: 150 LARABEE-BACKGROUND IA

Lab Sample ID: 140-13726-9

Date Collected: 12/18/18 13:39

Matrix: Air

Date Received: 12/19/18 10:20

Sample Container: Summa Canister 6L

### Method: TO-15 - Volatile Organic Compounds in Ambient Air

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
cis-1,2-Dichloroethene	<0.060		0.20	0.060	ppb v/v			12/25/18 03:07	1
<b>Tetrachloroethene</b>	<b>0.080</b>	<b>J</b>	0.20	0.040	ppb v/v			12/25/18 03:07	1
trans-1,2-Dichloroethene	<0.050		0.20	0.050	ppb v/v			12/25/18 03:07	1
Trichloroethene	<0.036		0.20	0.036	ppb v/v			12/25/18 03:07	1
Vinyl chloride	<0.071		0.40	0.071	ppb v/v			12/25/18 03:07	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	88		60 - 140					12/25/18 03:07	1

# Client Sample Results

Client: GZA GeoEnvironmental, Inc.  
Project/Site: Former Gardner, Horicon - 20.0153134.20

TestAmerica Job ID: 140-13726-1

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# Default Detection Limits

Client: GZA GeoEnvironmental, Inc.  
Project/Site: Former Gardner, Horicon - 20.0153134.20

TestAmerica Job ID: 140-13726-1

## Method: TO-15 - Volatile Organic Compounds in Ambient Air

Analyte	RL	MDL	Units	Method
cis-1,2-Dichloroethene	0.20	0.060	ppb v/v	TO-15
Tetrachloroethene	0.20	0.040	ppb v/v	TO-15
trans-1,2-Dichloroethene	0.20	0.050	ppb v/v	TO-15
Trichloroethene	0.20	0.036	ppb v/v	TO-15
Vinyl chloride	0.40	0.071	ppb v/v	TO-15

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# Surrogate Summary

Client: GZA GeoEnvironmental, Inc.  
Project/Site: Former Gardner, Horicon - 20.0153134.20

TestAmerica Job ID: 140-13726-1

## Method: TO-15 - Volatile Organic Compounds in Ambient Air

Matrix: Air

Prep Type: Total/NA

### Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	BFB (60-140)
140-13726-1	316 BARSTOW-BACKGROUND	91
140-13726-2	316 BARSTOW-BASEMENT IA	92
140-13726-3	316 BARSTOW-1ST FLOOR IA	103
140-13726-4	267 KANSAS-BACKGROUND IA	102
140-13726-5	267 KANSAS-WEST IA	104
140-13726-6	267 KANSAS-EAST IA	105
140-13726-7	150 LARABEE-BASEMENT IA	104
140-13726-8	150 LARABEE-1ST FLOOR IA	94
140-13726-9	150 LARABEE-BACKGROUND IA	88
140-13726-10	142 LARABEE-BACKGROUND IA	89
140-13726-11	142 LARABEE-BASEMENT IA	94
140-13726-12	142 LARABEE-1ST FLOOR IA	100
LCS 140-26434/1002	Lab Control Sample	103
LCS 140-26435/1002	Lab Control Sample	90
LCS 140-26516/1002	Lab Control Sample	102
MB 140-26434/5	Method Blank	90
MB 140-26435/4	Method Blank	88
MB 140-26516/4	Method Blank	103

#### Surrogate Legend

BFB = 4-Bromofluorobenzene (Surr)

# QC Sample Results

Client: GZA GeoEnvironmental, Inc.  
 Project/Site: Former Gardner, Horicon - 20.0153134.20

TestAmerica Job ID: 140-13726-1

## Method: TO-15 - Volatile Organic Compounds in Ambient Air

**Lab Sample ID: MB 140-26434/5**  
**Matrix: Air**  
**Analysis Batch: 26434**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
cis-1,2-Dichloroethene	<0.060		0.20	0.060	ppb v/v			12/21/18 11:4V	1
Tetrachloroethene	<0.040		0.20	0.040	ppb v/v			12/21/18 11:4V	1
trans-1,2-Dichloroethene	<0.050		0.20	0.050	ppb v/v			12/21/18 11:4V	1
Trichloroethene	<0.036		0.20	0.036	ppb v/v			12/21/18 11:4V	1
γ inKl chloride	<0.071		0.40	0.071	ppb v/v			12/21/18 11:4V	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	91		61 - 041		02/20/08 00:49	0

**Lab Sample ID: LCS 140-26434/1002**  
**Matrix: Air**  
**Analysis Batch: 26434**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
cis-1,2-Dichloroethene	2.00	1.V4		ppb v/v		V7	70 - 130
Tetrachloroethene	2.00	2.15		ppb v/v		108	70 - 130
trans-1,2-Dichloroethene	2.00	1.V7		ppb v/v		V8	70 - 130
Trichloroethene	2.00	2.03		ppb v/v		101	70 - 130
γ inKl chloride	2.00	1.V2		ppb v/v		V6	70 - 130

Surrogate	LCS %Recovery	LCS Qualifier	Limits
4-Bromofluorobenzene (Surr)	013		61 - 041

**Lab Sample ID: MB 140-26435/4**  
**Matrix: Air**  
**Analysis Batch: 26435**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
cis-1,2-Dichloroethene	<0.060		0.20	0.060	ppb v/v			12/24/18 14:2V	1
Tetrachloroethene	<0.040		0.20	0.040	ppb v/v			12/24/18 14:2V	1
trans-1,2-Dichloroethene	<0.050		0.20	0.050	ppb v/v			12/24/18 14:2V	1
Trichloroethene	<0.036		0.20	0.036	ppb v/v			12/24/18 14:2V	1
γ inKl chloride	<0.071		0.40	0.071	ppb v/v			12/24/18 14:2V	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	88		61 - 041		02/24/08 04:29	0

**Lab Sample ID: LCS 140-26435/1002**  
**Matrix: Air**  
**Analysis Batch: 26435**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
cis-1,2-Dichloroethene	2.00	1.V5		ppb v/v		V7	70 - 130
Tetrachloroethene	2.00	2.02		ppb v/v		101	70 - 130
trans-1,2-Dichloroethene	2.00	1.V8		ppb v/v		VV	70 - 130
Trichloroethene	2.00	1.V8		ppb v/v		VV	70 - 130
γ inKl chloride	2.00	1.80		ppb v/v		V0	70 - 130

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# QC Sample Results

Client: GZA GeoEnvironmental, Inc.  
 Project/Site: Former Gardner, Horicon - 20.0153134.20

TestAmerica Job ID: 140-13726-1

## Method: TO-15 - Volatile Organic Compounds in Ambient Air (Continued)

**Lab Sample ID: LCS 140-26435/1002**  
**Matrix: Air**  
**Analysis Batch: 26435**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**

	LCS	LCS	
Surrogate	%Recovery	Qualifier	Limits
4-Bromofluorobenzene (Surr)	91		61 - 041

**Lab Sample ID: MB 140-26516/4**  
**Matrix: Air**  
**Analysis Batch: 26516**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**

Analyte	MB MB		RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
cis-1,2-Dichloroethene	<0.060		0.20	0.060	ppb v/v			12/27/18 12:56	1
Tetrachloroethene	<0.040		0.20	0.040	ppb v/v			12/27/18 12:56	1
trans-1,2-Dichloroethene	<0.050		0.20	0.050	ppb v/v			12/27/18 12:56	1
Trichloroethene	<0.036		0.20	0.036	ppb v/v			12/27/18 12:56	1
γ inK chloride	<0.071		0.40	0.071	ppb v/v			12/27/18 12:56	1

	MB MB				
Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed
4-Bromofluorobenzene (Surr)	013		61 - 041		02/27/08 02:56

**Lab Sample ID: LCS 140-26516/1002**  
**Matrix: Air**  
**Analysis Batch: 26516**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**

Analyte	Spike Added	LCS LCS		Unit	D	%Rec	%Rec. Limits
		Result	Qualifier				
cis-1,2-Dichloroethene	2.00	2.16		ppb v/v		108	70 - 130
Tetrachloroethene	2.00	2.10		ppb v/v		105	70 - 130
trans-1,2-Dichloroethene	2.00	2.13		ppb v/v		106	70 - 130
Trichloroethene	2.00	1.77		ppb v/v		88	70 - 130
γ inK chloride	2.00	2.13		ppb v/v		107	70 - 130

	LCS LCS		
Surrogate	%Recovery	Qualifier	Limits
4-Bromofluorobenzene (Surr)	012		61 - 041

# QC Association Summary

Client: GZA GeoEnvironmental, Inc.  
Project/Site: Former Gardner, Horicon - 20.0153134.20

TestAmerica Job ID: 140-13726-1

## Air - GC/MS VOA

### Analysis Batch: 26434

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
140-13726-1	316 BARSTOW-BACKGROUND IA	Total/NA	Air	TO-15	
140-13726-2	316 BARSTOW-BASEMENT IA	Total/NA	Air	TO-15	
MB 140-26434/5	Method Blank	Total/NA	Air	TO-15	
LCS 140-26434/1002	Lab Control Sample	Total/NA	Air	TO-15	

### Analysis Batch: 26435

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
140-13726-8	150 LARABEE-1ST FLOOR IA	Total/NA	Air	TO-15	
140-13726-9	150 LARABEE-BACKGROUND IA	Total/NA	Air	TO-15	
140-13726-10	142 LARABEE-BACKGROUND IA	Total/NA	Air	TO-15	
140-13726-11	142 LARABEE-BASEMENT IA	Total/NA	Air	TO-15	
MB 140-26435/4	Method Blank	Total/NA	Air	TO-15	
LCS 140-26435/1002	Lab Control Sample	Total/NA	Air	TO-15	

### Analysis Batch: 26516

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
140-13726-3	316 BARSTOW-1ST FLOOR IA	Total/NA	Air	TO-15	
140-13726-4	267 KANSAS-BACKGROUND IA	Total/NA	Air	TO-15	
140-13726-5	267 KANSAS-WEST IA	Total/NA	Air	TO-15	
140-13726-6	267 KANSAS-EAST IA	Total/NA	Air	TO-15	
140-13726-7	150 LARABEE-BASEMENT IA	Total/NA	Air	TO-15	
140-13726-12	142 LARABEE-1ST FLOOR IA	Total/NA	Air	TO-15	
MB 140-26516/4	Method Blank	Total/NA	Air	TO-15	
LCS 140-26516/1002	Lab Control Sample	Total/NA	Air	TO-15	

# Lab Chronicle

Client: GZA GeoEnvironmental, Inc.  
Project/Site: Former Gardner, Horicon - 20.0153134.20

TestAmerica Job ID: 140-13726-1

## Client Sample ID: 316 BARSTOW-BACKGROUND IA

Lab Sample ID: 140-13726-1

Date Collected: 12/14/18 12:47

Matrix: Air

Date Received: 12/19/18 10:20

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	TO-15		1	200 mL	500 mL	26434	12/21/18 20:18	S1K	TAL KNX
Instrument ID: MH										

## Client Sample ID: 316 BARSTOW-BASEMENT IA

Lab Sample ID: 140-13726-2

Date Collected: 12/14/18 12:55

Matrix: Air

Date Received: 12/19/18 10:20

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	TO-15		1	200 mL	500 mL	26434	12/21/18 21:12	S1K	TAL KNX
Instrument ID: MH										

## Client Sample ID: 316 BARSTOW-1ST FLOOR IA

Lab Sample ID: 140-13726-3

Date Collected: 12/14/18 12:52

Matrix: Air

Date Received: 12/19/18 10:20

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	TO-15		1	200 mL	500 mL	26516	12/27/18 23:02	S1K	TAL KNX
Instrument ID: MG										

## Client Sample ID: 267 KANSAS-BACKGROUND IA

Lab Sample ID: 140-13726-4

Date Collected: 12/14/18 13:38

Matrix: Air

Date Received: 12/19/18 10:20

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	TO-15		1	200 mL	500 mL	26516	12/27/18 23:45	S1K	TAL KNX
Instrument ID: MG										

## Client Sample ID: 267 KANSAS-WEST IA

Lab Sample ID: 140-13726-5

Date Collected: 12/14/18 13:43

Matrix: Air

Date Received: 12/19/18 10:20

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	TO-15		1	200 mL	500 mL	26516	12/28/18 00:27	S1K	TAL KNX
Instrument ID: MG										

## Client Sample ID: 267 KANSAS-EAST IA

Lab Sample ID: 140-13726-6

Date Collected: 12/14/18 13:43

Matrix: Air

Date Received: 12/19/18 10:20

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	TO-15		1	200 mL	500 mL	26516	12/28/18 01:10	S1K	TAL KNX
Instrument ID: MG										

TestAmerica Knoxville

# Lab Chronicle

Client: GZA GeoEnvironmental, Inc.  
Project/Site: Former Gardner, Horicon - 20.0153134.20

TestAmerica Job ID: 140-13726-1

## Client Sample ID: 150 LARABEE-BASEMENT IA

Lab Sample ID: 140-13726-7

Date Collected: 12/18/18 13:34

Matrix: Air

Date Received: 12/19/18 10:20

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	TO-15		1	200 mL	500 mL	26516	12/28/18 01:55	S1K	TAL KNX
Instrument ID: MG										

## Client Sample ID: 150 LARABEE-1ST FLOOR IA

Lab Sample ID: 140-13726-8

Date Collected: 12/18/18 13:35

Matrix: Air

Date Received: 12/19/18 10:20

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	TO-15		1	200 mL	500 mL	26435	12/25/18 02:13	S1K	TAL KNX
Instrument ID: MH										

## Client Sample ID: 150 LARABEE-BACKGROUND IA

Lab Sample ID: 140-13726-9

Date Collected: 12/18/18 13:39

Matrix: Air

Date Received: 12/19/18 10:20

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	TO-15		1	200 mL	500 mL	26435	12/25/18 03:07	S1K	TAL KNX
Instrument ID: MH										

## Client Sample ID: 142 LARABEE-BACKGROUND IA

Lab Sample ID: 140-13726-10

Date Collected: 12/18/18 15:11

Matrix: Air

Date Received: 12/19/18 10:20

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	TO-15		1	200 mL	500 mL	26435	12/25/18 04:02	S1K	TAL KNX
Instrument ID: MH										

## Client Sample ID: 142 LARABEE-BASEMENT IA

Lab Sample ID: 140-13726-11

Date Collected: 12/18/18 15:17

Matrix: Air

Date Received: 12/19/18 10:20

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	TO-15		1	200 mL	500 mL	26435	12/25/18 04:57	S1K	TAL KNX
Instrument ID: MH										

## Client Sample ID: 142 LARABEE-1ST FLOOR IA

Lab Sample ID: 140-13726-12

Date Collected: 12/18/18 15:16

Matrix: Air

Date Received: 12/19/18 10:20

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	TO-15		1	200 mL	500 mL	26516	12/28/18 02:39	S1K	TAL KNX
Instrument ID: MG										

TestAmerica Knoxville

# Lab Chronicle

Client: GZA GeoEnvironmental, Inc.  
Project/Site: Former Gardner, Horicon - 20.0153134.20

TestAmerica Job ID: 140-13726-1

**Client Sample ID: Method Blank**

**Lab Sample ID: MB 140-26434/5**

Date Collected: N/A

Matrix: Air

Date Received: N/A

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	TO-15		1	200 mL	500 mL	26434	12/21/18 11:49	S1K	TAL KNX
Instrument ID: MH										

**Client Sample ID: Method Blank**

**Lab Sample ID: MB 140-26435/4**

Date Collected: N/A

Matrix: Air

Date Received: N/A

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	TO-15		1	200 mL	500 mL	26435	12/24/18 14:29	S1K	TAL KNX
Instrument ID: MH										

**Client Sample ID: Method Blank**

**Lab Sample ID: MB 140-26516/4**

Date Collected: N/A

Matrix: Air

Date Received: N/A

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	TO-15		1	200 mL	500 mL	26516	12/27/18 12:56	S1K	TAL KNX
Instrument ID: MG										

**Client Sample ID: Lab Control Sample**

**Lab Sample ID: LCS 140-26434/1002**

Date Collected: N/A

Matrix: Air

Date Received: N/A

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	TO-15		1	500 mL	500 mL	26434	12/21/18 10:21	S1K	TAL KNX
Instrument ID: MH										

**Client Sample ID: Lab Control Sample**

**Lab Sample ID: LCS 140-26435/1002**

Date Collected: N/A

Matrix: Air

Date Received: N/A

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	TO-15		1	500 mL	500 mL	26435	12/24/18 12:35	S1K	TAL KNX
Instrument ID: MH										

**Client Sample ID: Lab Control Sample**

**Lab Sample ID: LCS 140-26516/1002**

Date Collected: N/A

Matrix: Air

Date Received: N/A

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	TO-15		1	500 mL	500 mL	26516	12/27/18 11:14	S1K	TAL KNX
Instrument ID: MG										

TestAmerica Knoxville

# Lab Chronicle

Client: GZA GeoEnvironmental, Inc.  
Project/Site: Former Gardner, Horicon - 20.0153134.20

TestAmerica Job ID: 140-13726-1

**Laboratory References:**

TAL KNX = TestAmerica Knoxville, 5815 Middlebrook Pike, Knoxville, TN 37921, TEL (865)291-3000

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# Accreditation/Certification Summary

Client: GZA GeoEnvironmental, Inc.  
Project/Site: Former Gardner, Horicon - 20.0153134.20

TestAmerica Job ID: 140-13726-1

## Laboratory: TestAmerica Knoxville

The accreditations/certifications listed below are applicable to this report.

Authority	Program	EPA Region	Identification Number	Expiration Date
Wisconsin	State Program	5	998044300	08-31-19

## Laboratory: TestAmerica Chicago

The accreditations/certifications listed below are applicable to this report.

Authority	Program	EPA Region	Identification Number	Expiration Date
Wisconsin	State Program	5	999580010	08-31-19

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# Method Summary

Client: GZA GeoEnvironmental, Inc.  
Project/Site: Former Gardner, Horicon - 20.0153134.20

TestAmerica Job ID: 140-13726-1

Method	Method Description	Protocol	Laboratory
TO-15	Volatile Organic Compounds in Ambient Air	EPA	TAL KNX

**Protocol References:**

EPA = US Environmental Protection Agency

**Laboratory References:**

TAL KNX = TestAmerica Knoxville, 5815 Middlebrook Pike, Knoxville, TN 37921, TEL (865)291-3000

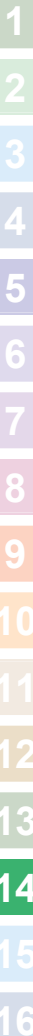


# Sample Summary

Client: GZA GeoEnvironmental, Inc.  
Project/Site: Former Gardner, Horicon - 20.0153134.20

TestAmerica Job ID: 140-13726-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
140-13726-1	316 BARSTOW-BACKGROUND IA	Air	12/14/18 12:47	12/19/18 10:20
140-13726-2	316 BARSTOW-BASEMENT IA	Air	12/14/18 12:55	12/19/18 10:20
140-13726-3	316 BARSTOW-1ST FLOOR IA	Air	12/14/18 12:52	12/19/18 10:20
140-13726-4	267 KANSAS-BACKGROUND IA	Air	12/14/18 13:38	12/19/18 10:20
140-13726-5	267 KANSAS-WEST IA	Air	12/14/18 13:43	12/19/18 10:20
140-13726-6	267 KANSAS-EAST IA	Air	12/14/18 13:43	12/19/18 10:20
140-13726-7	150 LARABEE-BASEMENT IA	Air	12/18/18 13:34	12/19/18 10:20
140-13726-8	150 LARABEE-1ST FLOOR IA	Air	12/18/18 13:35	12/19/18 10:20
140-13726-9	150 LARABEE-BACKGROUND IA	Air	12/18/18 13:39	12/19/18 10:20
140-13726-10	142 LARABEE-BACKGROUND IA	Air	12/18/18 15:11	12/19/18 10:20
140-13726-11	142 LARABEE-BASEMENT IA	Air	12/18/18 15:17	12/19/18 10:20
140-13726-12	142 LARABEE-1ST FLOOR IA	Air	12/18/18 15:16	12/19/18 10:20



TAL Knoxville  
5815 Middlebrook Pike  
Knoxville, TN 37921  
phone 865-291-3000 fax 865-584-4315

### Canister Samples Chain of Custody Record

**TestAmerica**  
THE LEADER IN ENVIRONMENTAL TESTING

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

Client Contact Information		Project Manager: <u>Bernard Fawcett</u>		Sampled By: <u>C. Kinsworth</u>		1 of 2 COCs													
Company: <u>BAK GROUP HOLDINGS INC.</u>		Phone:		TO-15		Other (Please specify in notes section)													
Address: <u>2090 SWANSON DRIVE SUITE 150</u>		Site Contact: <u>JANIE FEORUCK</u>		TO-14A		EPA 3C													
City/State/Zip: <u>WILKES-BARE, WVA 25166</u>		TAL Contact: <u>JANIE FEORUCK</u>		TO-14B		EPA 25C													
Phone: <u>762-154-2560</u>		Analysis Turnaround Time		TO-15		ASTM D-1946													
FAX: <u>762-154-2911</u>		Standard (Specify) <u>X</u>		TO-15		Other (Please specify in notes section)													
Project Name: <u>FORMER GREENSBORO MANUFACTURING</u>		Rush (Specify)		TO-15		Other (Please specify in notes section)													
Site/location: <u>WOMERS, WVA</u>		Sample Date(s)		TO-15		Other (Please specify in notes section)													
PO #		Time Start		TO-15		Other (Please specify in notes section)													
		Time Stop		TO-15		Other (Please specify in notes section)													
		Canister Vacuum in Field, "Hg (Start)		TO-15		Other (Please specify in notes section)													
		Canister Vacuum in Field, "Hg (Stop)		TO-15		Other (Please specify in notes section)													
		Temperature (Fahrenheit)		TO-15		Other (Please specify in notes section)													
		Interior		TO-15		Other (Please specify in notes section)													
		Ambient		TO-15		Other (Please specify in notes section)													
		Pressure (Inches of Hg)		TO-15		Other (Please specify in notes section)													
		Interior		TO-15		Other (Please specify in notes section)													
		Ambient		TO-15		Other (Please specify in notes section)													
		Start		TO-15		Other (Please specify in notes section)													
		Stop		TO-15		Other (Please specify in notes section)													
		Start		TO-15		Other (Please specify in notes section)													
		Stop		TO-15		Other (Please specify in notes section)													
316 BARSTOW - BACKGROUNDA	12/13/18	12:39	12:47	-29.5	-3.5	09847	09671	X											
316 BARSTOW - BASEMENT IA	12/14/18	12:49	12:55	-27.5	-3	10304	11562	X											
316 BARSTOW - 1ST FLOOR IA	12/14/18	12:54	12:52	-28	-4	09550	09603	X											
267 KANSAS - BACKGROUNDA	12/14/18	13:40	13:38	-27	-2	10588	10261	X											
267 KANSAS - WEST IA	12/14/18	13:47	13:43	-30	-5	7162	10830	X											
267 KANSAS - EAST IA	12/14/18	13:49	13:43	-30	-7	11488	11963	X											
Sampled by:		Temperature (Fahrenheit)		TO-15		TO-15		TO-15		TO-15		TO-15		TO-15		TO-15		TO-15	
		Interior		TO-15		TO-15		TO-15		TO-15		TO-15		TO-15		TO-15		TO-15	
		Ambient		TO-15		TO-15		TO-15		TO-15		TO-15		TO-15		TO-15		TO-15	
		Pressure (Inches of Hg)		TO-15		TO-15		TO-15		TO-15		TO-15		TO-15		TO-15		TO-15	
		Interior		TO-15		TO-15		TO-15		TO-15		TO-15		TO-15		TO-15		TO-15	
		Ambient		TO-15		TO-15		TO-15		TO-15		TO-15		TO-15		TO-15		TO-15	
		Start		TO-15		TO-15		TO-15		TO-15		TO-15		TO-15		TO-15		TO-15	
		Stop		TO-15		TO-15		TO-15		TO-15		TO-15		TO-15		TO-15		TO-15	
		Start		TO-15		TO-15		TO-15		TO-15		TO-15		TO-15		TO-15		TO-15	
		Stop		TO-15		TO-15		TO-15		TO-15		TO-15		TO-15		TO-15		TO-15	
Special Instructions/QC Requirements & Comments:		Canisters Received by:		TO-15		TO-15		TO-15		TO-15		TO-15		TO-15		TO-15		TO-15	
		PAR FEORUCK		TO-15		TO-15		TO-15		TO-15		TO-15		TO-15		TO-15		TO-15	
		Received by:		TO-15		TO-15		TO-15		TO-15		TO-15		TO-15		TO-15		TO-15	
		JANIE FEORUCK		TO-15		TO-15		TO-15		TO-15		TO-15		TO-15		TO-15		TO-15	
		Received by:		TO-15		TO-15		TO-15		TO-15		TO-15		TO-15		TO-15		TO-15	
		JANIE FEORUCK		TO-15		TO-15		TO-15		TO-15		TO-15		TO-15		TO-15		TO-15	
		Received by:		TO-15		TO-15		TO-15		TO-15		TO-15		TO-15		TO-15		TO-15	
		JANIE FEORUCK		TO-15		TO-15		TO-15		TO-15		TO-15		TO-15		TO-15		TO-15	



140-13726 Chain of Custody

Special Instructions/QC Requirements & Comments:

ANALYZE FOR: TCE, CIS AND TRANS  
1,2 DCE AND VINYL CHLORIDE

Received ambient 3 boxes  
TRK # 7845 3404 2397, Fedex 50  
" 3398 8971  
" 3390 1031

Custody seal intact

Canisters Shipped by: PAR FEORUCK  
Samples Relinquished by: JANIE FEORUCK  
Relinquished by: JANIE FEORUCK

Date/Time: 12/18/18 1730  
Date/Time: 12/19/18 1020A-14  
Date/Time: 12/19/18 1020A-14

13 CANJ  
13 FLOWS

Lab Use Only Shipper Name:

Opened by:

Condition:

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TAL Knoxville  
5815 Middlebrook Pike  
Knoxville, TN 37921  
phone 865-291-3000 fax 865-584-4315

### Canister Samples Chain of Custody Record

# TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

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

Client Contact Information		Project Manager: <b>BERNARD FENCION</b>		Sampled By: <b>C. Ainsworth</b>		2 of 2 COCs	
Company: <b>GRACE ENVIRONMENTAL INC.</b>		Phone:		EPA 25C		Other (Please specify in notes section)	
Address: <b>2000 S. RYAN PINE SUITE 200</b>		Site Contact: <b>SHARON FREDRICK</b>		EPA 3C		Landfill Gas	
City/State/Zip: <b>WALKERSVILLE, WI 53186</b>		TAL Contact: <b>SHARON FREDRICK</b>		TO-14A		Soil Gas	
Phone: <b>262-754-2560</b>		Project Name: <b>FORMER CIGARETTE MANUFACTURING</b>		TO-15		Ambient Air	
FAX: <b>262-754-9711</b>		Standard (Specify) <b>X</b>		SEE BELOW		Indoor Air	
Site/location: <b>HAYCON, WI</b>		Rush (Specify)		Canister ID		Sample Type	
PO #		Canister Vacuum in Field, "Hg (Start)		Flow Controller ID		Other (Please specify in notes section)	
Sample Identification		Canister Vacuum in Field, "Hg (Stop)		ASTM D-1946		Other (Please specify in notes section)	
150 LARABEE - BASEMENT IA		-28		11467		ASTM D-1946	
150 LARABEE - 1ST FLOOR IA		-29		11816		ASTM D-1946	
150 LARABEE - BACKGROUND IA		-29.5		09955		ASTM D-1946	
142 LARABEE - BACKGROUND IA		-30		11937		ASTM D-1946	
142 LARABEE - BASEMENT IA		-30		11932		ASTM D-1946	
142 LARABEE - 1ST FLOOR IA		-29		10467		ASTM D-1946	
Sample Date(s)		Time Start		Time Stop		Other (Please specify in notes section)	
12/18/18		1335		1334		Other (Please specify in notes section)	
12/18/18		1339		1335		Other (Please specify in notes section)	
12/18/18		1341		1339		Other (Please specify in notes section)	
12/18/18		1517		1511		Other (Please specify in notes section)	
12/18/18		1520		1517		Other (Please specify in notes section)	
12/18/18		1522		1516		Other (Please specify in notes section)	
Sampled by:		Temperature (Fahrenheit)		Interior		Other (Please specify in notes section)	
		Ambient		Start		Other (Please specify in notes section)	
		Pressure (inches of Hg)		Stop		Other (Please specify in notes section)	
		Ambient		Start		Other (Please specify in notes section)	
				Stop		Other (Please specify in notes section)	
Special Instructions/QC Requirements & Comments:							
ANALYZE FOR: TCE; CIS AND TRANS 1,2 DCE. AND VINYL CHLORIDE							
Canisters Shipped by:		Date/Time: 12/18/18 1730		Canisters Received by:		Date/Time:	
Samples Relinquished by:		Date/Time:		Received by:		Date/Time:	
Relinquished by:		Date/Time:		Received by:		Date/Time:	
Lab Use Only		Shipper Name:		Opened by:		Condition:	

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TESTAMERICA KNOXVILLE SAMPLE RECEIPT/CONDITION UPON RECEIPT ANOMALY CHECKLIST

Review Items	Yes	No	NA	If No, what was the problem?	Comments/Actions Taken
1. Are the shipping containers intact?	/			<input type="checkbox"/> Containers, Broken	
2. Were ambient air containers received intact?			/	<input checked="" type="checkbox"/> Checked in lab	
3. The coolers/containers custody seal if present, is it intact?	/			<input type="checkbox"/> Yes <input type="checkbox"/> NA	
4. Is the cooler temperature within limits? (> freezing temp. of water to 6 °C, VOST: 10°C) Thermometer ID: _____ Correction factor: _____			/	<input type="checkbox"/> Cooler Out of Temp, Client Contacted, Proceed/Cancel <input type="checkbox"/> Cooler Out of Temp, Same Day Receipt	
5. Were all of the sample containers received intact?	/			<input type="checkbox"/> Containers, Broken	
6. Were samples received in appropriate containers?	/			<input type="checkbox"/> Containers, Improper; Client Contacted; Proceed/Cancel	
7. Do sample container labels match COC? (IDs, Dates, Times)	/			<input type="checkbox"/> COC & Samples Do Not Match <input type="checkbox"/> COC Incorrect/Incomplete <input type="checkbox"/> COC Not Received	
8. Were all of the samples listed on the COC received?	/			<input type="checkbox"/> Sample Received, Not on COC <input type="checkbox"/> Sample on COC, Not Received	
9. Is the date/time of sample collection noted?	/			<input type="checkbox"/> COC; No Date/Time; Client Contacted	Labeling Verified by: _____ Date: _____
10. Was the sampler identified on the COC?	/			<input type="checkbox"/> Sampler Not Listed on COC	
11. Is the client and project name/# identified?	/			<input type="checkbox"/> COC Incorrect/Incomplete	
12. Are tests/parameters listed for each sample?	/			<input type="checkbox"/> COC No tests on COC	
13. Is the matrix of the samples noted?	/			<input type="checkbox"/> COC Incorrect/Incomplete	
14. Was COC relinquished? (Signed/Dated/Timed)	/			<input type="checkbox"/> COC Incorrect/Incomplete	Box 16A: pH Preservation Box 18A: Residual Chlorine
15. Were samples received within holding time?	/			<input type="checkbox"/> Holding Time - Receipt	Preservative: _____
16. Were samples received with correct chemical preservative (excluding Encore)?				<input type="checkbox"/> pH Adjusted, pH Included (See box 16A) <input type="checkbox"/> Incorrect Preservative	Lot Number: _____ Exp Date: _____ Analyst: _____ Date: _____ Time: _____
17. Were VOA samples received without headspace?			/	<input type="checkbox"/> Headspace (VOA only)	
18. Did you check for residual chlorine, if necessary? (e.g. 1613B, 1668) Chlorine test strip lot number: _____			/	<input type="checkbox"/> Residual Chlorine	
19. For 1613B water samples is pH<9?			/	<input type="checkbox"/> If no, notify lab to adjust	
20. For rad samples was sample activity info. Provided?			/	<input type="checkbox"/> Project missing info	
Project #: <u>Seo10928</u> PM Instructions: _____					

Sample Receiving Associate: Ken Wink Date: 12/19/18 QA026R31.doc, 112618







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20900 Swenson Drive  
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Waukesha, WI 53186  
T: 262.754.2560  
F: 262.754.9711  
www.gza.com

January 9, 2019  
File No. 20.0153134.30

Mr. Gary and Ms. Susana Kahlhamer  
205 Kansas Street  
Horicon, Wisconsin 53032

Re: Verification Post-Mitigation Indoor Air Test Results

Dear Mr. and Ms. Kahlhamer:

With this letter, GZA GeoEnvironmental, Inc. (GZA) is informing you of the results of recent indoor air sampling conducted at your home at 205 Kansas Street in Horicon, Wisconsin.

### BACKGROUND

As we explained in prior correspondence, Gardner Manufacturing Company, Inc. (Gardner) hired GZA GeoEnvironmental, Inc. (GZA) to conduct environmental investigation and remediation of its former property at 263 Kansas Street, including the assessment of chemical vapors near area homes. The Wisconsin Department of Natural Resources (WDNR) provides oversight of the investigation activities being conducted by Gardner and provides file information under BRRTS No. 02-14-55423.

Due to the detection of trichloroethene (TCE) in a sub-slab air sample collected in August 2011 at a concentration greater than the TCE residential sub-slab Vapor Action Level (VAL), GZA installed a mitigation system in your home with your permission in February 2013. Post-mitigation indoor air samples collected in August and December 2015 confirmed that the mitigation system was effectively maintaining TCE concentrations below the TCE residential VAL.

### INDOOR AIR SAMPLING AND RESULTS

To further verify the effectiveness of the mitigation system, two indoor air samples were collected from your home over a 24-hour period between December 13 and 14, 2018. Samples were collected from the basement and first floor and from background outside air. The three air samples were collected in 6-liter canisters and were submitted to TestAmerica of Knoxville, Tennessee for testing. The analytical report for the air samples is provided as Attachment 1. The data are summarized on the attached table and include historical results.

TCE was not detected in the December 2018 indoor air samples and confirms the mitigation system is operating as designed.


### CLOSING

If you are looking for more information, please contact the undersigned (262-754-2560 or [bernard.fenelon@gza.com](mailto:bernard.fenelon@gza.com)). You may also contact Mr. Jeff Ackerman of the WDNR (608-275-3323) if you have any questions related to the investigation, or Mr. Ryan Wozniak of the WDHS (608-267-3227) if you have any health-related questions associated with this investigation.

Very truly yours,

**GZA GeoEnvironmental, Inc.**

  
Bernard G. Fenelon, P.G.  
Senior Consultant/Hydrogeologist

  
John C. Osborne, P.G.  
Senior Principal/Hydrogeologist

J:\153100to153199\153134 263 Kansas\30 Remediation\Correspondence\2018 IAQ Results Letters\  
2019 01 09 FINAL Results of Verification Post-Mitigation Indoor Air Sampling 205 Kansas - Kahlhamer.docx

### Attachments

c: Mr. Jeff Ackerman, WDNR  
Mr. Ryan J. Wozniak, MPH, Ph.D., Wisconsin Department of Health Services





**TABLE 1  
SUB-SLAB AND INDOOR AIR ANALYTICAL RESULTS  
205 Kansas Street  
Horicon, Wisconsin**

		Wisconsin Department of Natural Resources Vapor Action Levels									
		Chloro-ethane	1,2-DCA	1,1-DCE	cis-1,2-DCE	trans-1,2-DCE	1,1,2,2-TCA	PCE	TCE	1,1,2-TCA	Vinyl Chloride
<b>Sub-Slab Vapor Risk Screening Level (ppbv)</b>		<b>126,300</b>	<b>9</b>	<b>1,700</b>	<b>NA</b>	<b>NA</b>	<b>2</b>	<b>210</b>	<b>13</b>	<b>1.3</b>	<b>22</b>
<b>Indoor Air Vapor Action Level (ppbv)</b>		<b>3,790</b>	<b>0.27</b>	<b>52</b>	<b>NA</b>	<b>NA</b>	<b>0.06</b>	<b>6.2</b>	<b>0.39</b>	<b>0.039</b>	<b>0.65</b>

Sample Location	Date	Sub-Slab Vapor Sample Results									
		Chloro-ethane	1,2-DCA	1,1-DCE	cis-1,2-DCE	trans-1,2-DCE	1,1,2,2-TCA	PCE	TCE	1,1,2-TCA	Vinyl Chloride
205 Kansas Street	8/16/11	<b>1.71</b>	<0.085	<0.085	<0.085	<0.085	<0.085	<b>0.461</b>	<b>39.6</b>	<0.085	<0.085
Mitigation System Effluent	8/27/15	<1.0	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
		Pre-Ventilation Indoor-Air Sample Results									
205 Kansas Street - Basement	10/10/11	<0.085	0.387	<0.085	<0.085	<0.085	<0.085	<0.085	<0.085	<0.085	<0.085
205 Kansas Street - 1st Floor	10/10/11	<0.085	<0.085	<0.085	<0.085	<0.085	<0.085	<0.085	<b>0.331</b>	<0.085	<0.085
Outside Background	10/10/11	<0.085	<0.085	<0.085	<0.085	<0.085	<0.085	<0.085	<0.085	<0.085	<0.085
		1 <sup>st</sup> Round Post-Ventilation Indoor-Air Sample Results									
205 Kansas Street - Basement	7/16/15	<0.38	<0.24	<0.20	<0.12	<0.15	<0.16	<b>0.36 J</b>	<b>0.29 J</b>	<0.29	<0.16
205 Kansas Street - Living Room	7/16/15	<0.45	<0.28	<0.23	<0.14	<0.18	<0.98	<b>0.39 J</b>	<b>1.1</b>	<0.34	<0.19
Outside Background	7/16/15	<0.44	<0.27	<0.23	<b>0.19 J</b>	<0.17	<b>0.51 J</b>	<b>0.46 J</b>	<b>0.38 J</b>	<0.33	<0.18
		2 <sup>nd</sup> Round Post-Ventilation Indoor-Air Sample Results									
Basement	8/27/15	<0.76	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15
First Floor - NE/Master Bedroom	8/27/15	<0.71	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14
First Floor - NW Bedroom	8/27/15	<0.79	<0.16	<0.16	<0.16	<0.16	<0.16	<0.16	<0.16	<0.16	<0.16
First Floor - Living Room	8/27/15	<0.93	<0.19	<0.19	<0.19	<0.19	<0.19	<0.19	<0.19	<0.19	<0.19
First Floor - Kitchen	8/27/15	<1.5	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30
Outside Background	8/27/15	<1.3	<0.26	<0.26	<0.26	<0.26	<0.26	<0.26	<0.26	<0.26	<0.26
		3 <sup>rd</sup> Round Post-Ventilation Indoor-Air Sample Results									
205 Kansas Street - Basement	12/22/15	<0.83	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17
205 Kansas Street - Living Room	12/22/15	<0.79	<0.16	<0.16	<0.16	<0.16	<0.16	<0.16	<0.16	<0.16	<0.16
Outside Background	12/22/15	<0.78	<0.16	<0.16	<0.16	<0.16	<0.16	<0.16	<0.16	<0.16	<0.16
205 Kansas Street - Basement	12/13/18	NA	NA	NA	<0.060	<0.050	NA	NA	<0.036	NA	<0.071
205 Kansas Street - 1st Floor	12/13/18	NA	NA	NA	<0.060	<0.050	NA	NA	<0.036	NA	<0.071
Outside Background	12/23/18	NA	NA	NA	<0.060	<0.050	NA	NA	<0.036	NA	<0.071

Notes:

- Sample results from 2011 are for indoor air samples collected by SCS BT Squared of Madison, Wisconsin and analyzed by the Wisconsin State Hygiene Laboratory of Madison, Wisconsin for VOCs in accordance with USEPA Method TO-15. Results are reported to the Limit of Detection (LOD).
- Sample results from 2015 are for indoor air samples collected by GZA GeoEnvironmental, Inc. of Waukesha, Wisconsin and analyzed by Eurofins Air Toxics, Inc. of Folsom, California for the listed VOCs in accordance with USEPA Method TO-15. Results are reported to the Reporting Limit (RL) or Limit of Quantification (LOQ).
- The ventilation system was installed on February 13, 2013.
- Analytical results are provided in units of parts per billion by volume (ppbv). Only the primary constituents detected in soil and groundwater during the investigation of the former Gardner property are included in the table.
- The WDNR obtains its residential indoor-air action levels from USEPA regional screening levels accessed at: [http://www.epa.gov/reg3hwmd/risk/human/rb-concentration\\_table/index.htm](http://www.epa.gov/reg3hwmd/risk/human/rb-concentration_table/index.htm) using a 10<sup>-5</sup> cancer risk and a hazard index of 1. The sub-slab vapor risk screening level is equal to the indoor-air action level divided by the 2015 USEPA attenuation factor of 0.03.
- Samples results with a reported detection are provided in **bold font** and results that exceed an action level are provided in **bold and underlined font**.
- "<" denotes that the constituent was not detected.
- "J" denotes that the reported concentration is an estimated value. "NA" denotes the sample was not analyzed for the constituent.
- Constituent abbreviations are used as follows:
 

1,2-DCA denotes 1,2-dichloroethane	cis-1,2-DCE denotes cis-1,2-dichloroethene	1,1,2 TCA denotes 1,1,2-Trichloroethane
TCE denotes trichloroethene	1,1-DCE denotes 1,1-dichloroethene	trans-1,2-DCE denotes trans-1,2-dichloroethene
PCE denotes tetrachloroethene	1,1,2-TCE denotes 1,1,2-Trichloroethane	



**ATTACHMENT 1**

**Post-Mitigation Indoor Air Laboratory Analytical Report**

# TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

## ANALYTICAL REPORT

TestAmerica Laboratories, Inc.  
TestAmerica Knoxville  
5815 Middlebrook Pike  
Knoxville, TN 37921  
Tel: (865)291-3000

TestAmerica Job ID: 140-13678-1

Client Project/Site: Former Gardner, Horicon - 20.0153134.20

For:

GZA GeoEnvironmental, Inc.  
20900 Swenson Drive Suite 150  
Waukesha, Wisconsin 53186

Attn: Mr. Bernard Fenelon



Authorized for release by:  
12/24/2018 8:04:23 AM

Sandie Fredrick, Project Manager II  
(920)261-1660  
[sandie.fredrick@testamericainc.com](mailto:sandie.fredrick@testamericainc.com)

### LINKS

Review your project  
results through  
**TotalAccess**

Have a Question?



Visit us at:  
[www.testamericainc.com](http://www.testamericainc.com)

*The test results in this report meet all 2003 NELAC and 2009 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.*

*This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.*

*Results relate only to the items tested and the sample(s) as received by the laboratory.*

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# Definitions/Glossary

Client: GZA GeoEnvironmental, Inc.  
Project/Site: Former Gardner, Horicon - 20.0153134.20

TestAmerica Job ID: 140-13678-1

## Qualifiers

### Air - GC/MS VOA

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

## Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

# Case Narrative

Client: GZA GeoEnvironmental, Inc.  
Project/Site: Former Gardner, Horicon - 20.0153134.20

TestAmerica Job ID: 140-13678-1

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**Job ID: 140-13678-1**

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**Laboratory: TestAmerica Knoxville**

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**Narrative**

**Job Narrative  
140-13678-1**

**Comments**

No additional comments.

**Receipt**

The samples were received on 12/14/2018 10:00 AM; the samples arrived in good condition, properly preserved and, where required, on ice.

**Air - GC/MS VOA**

Method(s) TO 15 LL, TO-15: EPA methods TO-14A and TO-15 specify the use of humidified "zero air" as the blank reagent for canister cleaning, instrument calibration and sample analysis. Ultra-high purity humidified nitrogen from a cryogenic reservoir is used in place of "zero air" by TestAmerica Knoxville.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.



# Client Sample Results

Client: GZA GeoEnvironmental, Inc.  
 Project/Site: Former Gardner, Horicon - 20.0153134.20

TestAmerica Job ID: 140-13678-1

## Client Sample ID: 205 KANSAS-BACKGROUND IA

Lab Sample ID: 140-13678-7

Date Collected: 12/13/18 15:53

Matrix: Air

Date Received: 12/14/18 10:00

Sample Container: Summa Canister 6L

### Method: TO-15 - Volatile Organic Compounds in Ambient Air

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
cis-1,2-Dichloroethene	<0.060		0.20	0.060	ppb v/v			12/19/18 03:32	1
trans-1,2-Dichloroethene	<0.050		0.20	0.050	ppb v/v			12/19/18 03:32	1
Trichloroethene	<0.036		0.20	0.036	ppb v/v			12/19/18 03:32	1
Vinyl chloride	<0.071		0.20	0.071	ppb v/v			12/19/18 03:32	1

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
cis-1,2-Dichloroethene	<0.24		0.79	0.24	ug/m3			12/19/18 03:32	1
trans-1,2-Dichloroethene	<0.20		0.79	0.20	ug/m3			12/19/18 03:32	1
Trichloroethene	<0.19		1.1	0.19	ug/m3			12/19/18 03:32	1
Vinyl chloride	<0.18		0.51	0.18	ug/m3			12/19/18 03:32	1

## Client Sample ID: 205 KANSAS-BASEMENT IA

Lab Sample ID: 140-13678-8

Date Collected: 12/13/18 15:56

Matrix: Air

Date Received: 12/14/18 10:00

Sample Container: Summa Canister 6L

### Method: TO-15 - Volatile Organic Compounds in Ambient Air

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
cis-1,2-Dichloroethene	<0.060		0.20	0.060	ppb v/v			12/19/18 04:16	1
trans-1,2-Dichloroethene	<0.050		0.20	0.050	ppb v/v			12/19/18 04:16	1
Trichloroethene	<0.036		0.20	0.036	ppb v/v			12/19/18 04:16	1
Vinyl chloride	<0.071		0.20	0.071	ppb v/v			12/19/18 04:16	1

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
cis-1,2-Dichloroethene	<0.24		0.79	0.24	ug/m3			12/19/18 04:16	1
trans-1,2-Dichloroethene	<0.20		0.79	0.20	ug/m3			12/19/18 04:16	1
Trichloroethene	<0.19		1.1	0.19	ug/m3			12/19/18 04:16	1
Vinyl chloride	<0.18		0.51	0.18	ug/m3			12/19/18 04:16	1

## Client Sample ID: 205 KANSAS-1ST FLOOR IA

Lab Sample ID: 140-13678-9

Date Collected: 12/13/18 15:58

Matrix: Air

Date Received: 12/14/18 10:00

Sample Container: Summa Canister 6L

### Method: TO-15 - Volatile Organic Compounds in Ambient Air

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
cis-1,2-Dichloroethene	<0.060		0.20	0.060	ppb v/v			12/19/18 05:42	1
trans-1,2-Dichloroethene	<0.050		0.20	0.050	ppb v/v			12/19/18 05:42	1
Trichloroethene	<0.036		0.20	0.036	ppb v/v			12/19/18 05:42	1
Vinyl chloride	<0.071		0.20	0.071	ppb v/v			12/19/18 05:42	1

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
cis-1,2-Dichloroethene	<0.24		0.79	0.24	ug/m3			12/19/18 05:42	1
trans-1,2-Dichloroethene	<0.20		0.79	0.20	ug/m3			12/19/18 05:42	1
Trichloroethene	<0.19		1.1	0.19	ug/m3			12/19/18 05:42	1
Vinyl chloride	<0.18		0.51	0.18	ug/m3			12/19/18 05:42	1

TestAmerica Knoxville



# Default Detection Limits

Client: GZA GeoEnvironmental, Inc.  
Project/Site: Former Gardner, Horicon - 20.0153134.20

TestAmerica Job ID: 140-13678-1

## Method: TO-15 - Volatile Organic Compounds in Ambient Air

Analyte	RL	MDL	Units	Method
cis-1,2-Dichloroethene	0.20	0.060	ppb v/v	TO-15
cis-1,2-Dichloroethene	0.79	0.24	ug/m3	TO-15
trans-1,2-Dichloroethene	0.20	0.050	ppb v/v	TO-15
trans-1,2-Dichloroethene	0.79	0.20	ug/m3	TO-15
Trichloroethene	0.20	0.036	ppb v/v	TO-15
Trichloroethene	1.1	0.19	ug/m3	TO-15
Vinyl chloride	0.20	0.071	ppb v/v	TO-15
Vinyl chloride	0.51	0.18	ug/m3	TO-15

# QC Sample Results

Client: GZA GeoEnvironmental, Inc.  
 Project/Site: Former Gardner, Horicon - 20.0153134.20

TestAmerica Job ID: 140-13678-1

## Method: TO-15 - Volatile Organic Compounds in Ambient Air

**Lab Sample ID: MB 140-26245/8**

**Matrix: Air**

**Analysis Batch: 26245**

**Client Sample ID: Method Blank**

**Prep Type: Total/NA**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
cis-1,2-Dichloroethene	<0.060		0.20	0.060	ppb v/v			12/18/18 17:28	1
trans-1,2-Dichloroethene	<0.050		0.20	0.050	ppb v/v			12/18/18 17:28	1
Trichloroethene	<0.036		0.20	0.036	ppb v/v			12/18/18 17:28	1
Vinyl chloride	<0.071		0.20	0.071	ppb v/v			12/18/18 17:28	1

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
cis-1,2-Dichloroethene	<0.24		0.79	0.24	ug/m3			12/18/18 17:28	1
trans-1,2-Dichloroethene	<0.20		0.79	0.20	ug/m3			12/18/18 17:28	1
Trichloroethene	<0.19		1.1	0.19	ug/m3			12/18/18 17:28	1
Vinyl chloride	<0.18		0.51	0.18	ug/m3			12/18/18 17:28	1

**Lab Sample ID: LCS 140-26245/1006**

**Matrix: Air**

**Analysis Batch: 26245**

**Client Sample ID: Lab Control Sample**

**Prep Type: Total/NA**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
cis-1,2-Dichloroethene	2.00	2.09		ppb v/v		105	70 - 130
trans-1,2-Dichloroethene	2.00	2.20		ppb v/v		110	70 - 130
Trichloroethene	2.00	2.06		ppb v/v		103	70 - 130
Vinyl chloride	2.00	2.47		ppb v/v		124	70 - 130

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
cis-1,2-Dichloroethene	7.9	8.30		ug/m3		105	70 - 130
trans-1,2-Dichloroethene	7.9	8.71		ug/m3		110	70 - 130
Trichloroethene	11	11.1		ug/m3		103	70 - 130
Vinyl chloride	5.1	6.32		ug/m3		124	70 - 130

# QC Association Summary

Client: GZA GeoEnvironmental, Inc.  
Project/Site: Former Gardner, Horicon - 20.0153134.20

TestAmerica Job ID: 140-13678-1

## Air - GC/MS VOA

### Analysis Batch: 26245

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
140-13678-1	146 LARABEE-BACKGROUND IA	Total/NA	Air	TO-15	
140-13678-2	146 LARABEE-BASEMENT IA	Total/NA	Air	TO-15	
140-13678-3	146 LARABEE-1ST FLOOR IA	Total/NA	Air	TO-15	
140-13678-4	140 OAKWOOD-BACKGROUND IA	Total/NA	Air	TO-15	
140-13678-5	140 OAKWOOD-BASEMENT IA	Total/NA	Air	TO-15	
140-13678-6	140 OAKWOOD-1ST FLOOR IA	Total/NA	Air	TO-15	
140-13678-7	205 KANSAS-BACKGROUND IA	Total/NA	Air	TO-15	
140-13678-8	205 KANSAS-BASEMENT IA	Total/NA	Air	TO-15	
140-13678-9	205 KANSAS-1ST FLOOR IA	Total/NA	Air	TO-15	
MB 140-26245/8	Method Blank	Total/NA	Air	TO-15	
LCS 140-26245/1006	Lab Control Sample	Total/NA	Air	TO-15	

# Lab Chronicle

Client: GZA GeoEnvironmental, Inc.  
Project/Site: Former Gardner, Horicon - 20.0153134.20

TestAmerica Job ID: 140-13678-1

## Client Sample ID: 146 LARABEE-BACKGROUND IA

Lab Sample ID: 140-13678-1

Date Collected: 12/13/18 09:14

Matrix: Air

Date Received: 12/14/18 10:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	TO-15		1	200 mL	500 mL	26245	12/18/18 23:12	S1K	TAL KNX
Instrument ID: MG										

## Client Sample ID: 146 LARABEE-BASEMENT IA

Lab Sample ID: 140-13678-2

Date Collected: 12/13/18 09:16

Matrix: Air

Date Received: 12/14/18 10:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	TO-15		1	200 mL	500 mL	26245	12/18/18 23:56	S1K	TAL KNX
Instrument ID: MG										

## Client Sample ID: 146 LARABEE-1ST FLOOR IA

Lab Sample ID: 140-13678-3

Date Collected: 12/13/18 09:17

Matrix: Air

Date Received: 12/14/18 10:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	TO-15		1	200 mL	500 mL	26245	12/19/18 00:39	S1K	TAL KNX
Instrument ID: MG										

## Client Sample ID: 140 OAKWOOD-BACKGROUND IA

Lab Sample ID: 140-13678-4

Date Collected: 12/13/18 14:46

Matrix: Air

Date Received: 12/14/18 10:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	TO-15		1	200 mL	500 mL	26245	12/19/18 01:22	S1K	TAL KNX
Instrument ID: MG										

## Client Sample ID: 140 OAKWOOD-BASEMENT IA

Lab Sample ID: 140-13678-5

Date Collected: 12/13/18 14:43

Matrix: Air

Date Received: 12/14/18 10:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	TO-15		1	200 mL	500 mL	26245	12/19/18 02:05	S1K	TAL KNX
Instrument ID: MG										

## Client Sample ID: 140 OAKWOOD-1ST FLOOR IA

Lab Sample ID: 140-13678-6

Date Collected: 12/13/18 14:44

Matrix: Air

Date Received: 12/14/18 10:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	TO-15		1	200 mL	500 mL	26245	12/19/18 02:48	S1K	TAL KNX
Instrument ID: MG										

TestAmerica Knoxville

# Lab Chronicle

Client: GZA GeoEnvironmental, Inc.  
Project/Site: Former Gardner, Horicon - 20.0153134.20

TestAmerica Job ID: 140-13678-1

## Client Sample ID: 205 KANSAS-BACKGROUND IA

Lab Sample ID: 140-13678-7

Date Collected: 12/13/18 15:53

Matrix: Air

Date Received: 12/14/18 10:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	TO-15		1	200 mL	500 mL	26245	12/19/18 03:32	S1K	TAL KNX
Instrument ID: MG										

## Client Sample ID: 205 KANSAS-BASEMENT IA

Lab Sample ID: 140-13678-8

Date Collected: 12/13/18 15:56

Matrix: Air

Date Received: 12/14/18 10:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	TO-15		1	200 mL	500 mL	26245	12/19/18 04:16	S1K	TAL KNX
Instrument ID: MG										

## Client Sample ID: 205 KANSAS-1ST FLOOR IA

Lab Sample ID: 140-13678-9

Date Collected: 12/13/18 15:58

Matrix: Air

Date Received: 12/14/18 10:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	TO-15		1	200 mL	500 mL	26245	12/19/18 05:42	S1K	TAL KNX
Instrument ID: MG										

## Client Sample ID: Method Blank

Lab Sample ID: MB 140-26245/8

Date Collected: N/A

Matrix: Air

Date Received: N/A

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	TO-15		1	200 mL	500 mL	26245	12/18/18 17:28	S1K	TAL KNX
Instrument ID: MG										

## Client Sample ID: Lab Control Sample

Lab Sample ID: LCS 140-26245/1006

Date Collected: N/A

Matrix: Air

Date Received: N/A

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	TO-15		1	500 mL	500 mL	26245	12/18/18 14:02	S1K	TAL KNX
Instrument ID: MG										

### Laboratory References:

TAL KNX = TestAmerica Knoxville, 5815 Middlebrook Pike, Knoxville, TN 37921, TEL (865)291-3000

# Accreditation/Certification Summary

Client: GZA GeoEnvironmental, Inc.  
Project/Site: Former Gardner, Horicon - 20.0153134.20

TestAmerica Job ID: 140-13678-1

## Laboratory: TestAmerica Knoxville

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	EPA Region	Identification Number	Expiration Date
Wisconsin	State Program	5	998044300	08-31-19

The following analytes are included in this report, but the laboratory is not certified by the governing authority. This list may include analytes for which the agency does not offer certification.

Analysis Method	Prep Method	Matrix	Analyte
TO-15		Air	cis-1,2-Dichloroethene
TO-15		Air	trans-1,2-Dichloroethene
TO-15		Air	Trichloroethene
TO-15		Air	Vinyl chloride

## Laboratory: TestAmerica Chicago

The accreditations/certifications listed below are applicable to this report.

Authority	Program	EPA Region	Identification Number	Expiration Date
Wisconsin	State Program	5	999580010	08-31-19

# Method Summary

Client: GZA GeoEnvironmental, Inc.  
Project/Site: Former Gardner, Horicon - 20.0153134.20

TestAmerica Job ID: 140-13678-1

Method	Method Description	Protocol	Laboratory
TO-15	Volatile Organic Compounds in Ambient Air	EPA	TAL KNX

**Protocol References:**

EPA = US Environmental Protection Agency

**Laboratory References:**

TAL KNX = TestAmerica Knoxville, 5815 Middlebrook Pike, Knoxville, TN 37921, TEL (865)291-3000





# Sample Summary

Client: GZA GeoEnvironmental, Inc.  
Project/Site: Former Gardner, Horicon - 20.0153134.20

TestAmerica Job ID: 140-13678-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
140-13678-1	146 LARABEE-BACKGROUND IA	Air	12/13/18 09:14	12/14/18 10:00
140-13678-2	146 LARABEE-BASEMENT IA	Air	12/13/18 09:16	12/14/18 10:00
140-13678-3	146 LARABEE-1ST FLOOR IA	Air	12/13/18 09:17	12/14/18 10:00
140-13678-4	140 OAKWOOD-BACKGROUND IA	Air	12/13/18 14:46	12/14/18 10:00
140-13678-5	140 OAKWOOD-BASEMENT IA	Air	12/13/18 14:43	12/14/18 10:00
140-13678-6	140 OAKWOOD-1ST FLOOR IA	Air	12/13/18 14:44	12/14/18 10:00
140-13678-7	205 KANSAS-BACKGROUND IA	Air	12/13/18 15:53	12/14/18 10:00
140-13678-8	205 KANSAS-BASEMENT IA	Air	12/13/18 15:56	12/14/18 10:00
140-13678-9	205 KANSAS-1ST FLOOR IA	Air	12/13/18 15:58	12/14/18 10:00



TAL Knoxville

5815 Middlebrook Pike  
 Knoxville, TN 37921  
 phone 865-291-3000 fax 865-584-4315

Canister Samples Chain of Custody Record

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



THE LEADER IN ENVIRONMENTAL TESTING

Client Contact Information				Project Manager: <b>BERNARD FERRAN</b>				Sampled By: <b>C. ANSWORTH</b>				1 of 2 COCs			
Company: <b>GRACIA ENVIRONMENTAL INC.</b>				Phone:											
Address: <b>20900 SWENSON DRIVE STE 150</b>				Site Contact:											
City/State/Zip: <b>WARRASATA, WI 53186</b>				TAL Contact: <b>GANDY FREDERICK</b>											
Phone: <b>762-754-2560</b>															
FAX: <b>762-754-9711</b>															
Project Name: <b>FORMER GARDNER MANUFACTURING</b>				Analysis Turnaround Time											
Site/location: <b>HOZICOM, WI</b>				Standard (Specify) <b>X</b>											
PO #				Rush (Specify)											

Sample Identification	Sample Date(s)	Time Start	Time Stop	Canister Vacuum in Field, "Hg (Start)	Canister Vacuum in Field, "Hg (Stop)	Flow Controller ID	Canister ID	TO-15	TO-14A	EPA 3C	EPA 25C	ASTM D-1946	Other (Please sp)	Sample Type	Indoor Air	Ambient Air	Soil Gas	Landfill Gas	Other (Please spec)
146 LARABEE-BACKGROUND IA	12/12-12/13/18	925	914	-28	-4	11275	11157	X							X				
146 LARABEE-BASEMENT IA		933	916	-30	-6	11757	10182	X							X				
146 LARABEE-1 <sup>ST</sup> FLOOR IA		935	917	-29	-4	7587	10405	X							X				
140 OAKWOOD-BACKGROUND IA		1458	1446	-29	-4	8701	09930	X							X				
140 OAKWOOD-BASEMENT IA		1502	1443	-30	-3	11289	10627	X							X				
140 OAKWOOD-1 <sup>ST</sup> FLOOR IA		1508	1444	-30	-6	7365	10069	X							X				

Sampled by:	Temperature (Fahrenheit)				CUSTODY SEALS INTACT RECEIVED AMBIENT 6:50 <del>12-14-18</del> 12-16-18
	Interior	Ambient			
	Start				
	Stop				
	Pressure (inches of Hg)				2 BOXES FOX# 8116 7060 9212 SD " " 9223 SD 12 CANS / 12 FLOWS
	Interior	Ambient			
	Start				
	Stop				

Special Instructions/QC Requirements & Comments:

Canisters Shipped by:	Date/Time: <b>12/13/18 17:50</b>	Canisters Received by: <b>PER FERRAN</b>
Samples Relinquished by:	Date/Time:	Received by: <b>XXXXXXXX 7A Kw X 12-14-18 10:00</b>
Relinquished by:	Date/Time:	Received by:

Lab Use Only Shipper Name: Opened by: Condition:



**TAL Knoxville**

5815 Middlebrook Pike  
 Knoxville, TN 37921  
 phone 865-291-3000 fax 865-584-4315

**Canister Samples Chain of Custody Record**

*TestAmerica assumes no liability with respect to the collection and shipment of these samples.*



THE LEADER IN ENVIRONMENTAL TESTING

Client Contact Information		Project Manager: <b>BERNARD FENEON</b>		Sampled By: <b>C. AINSWORTH</b>		2 of 2 COCs														
Company: <b>ETA Environmental Inc.</b>		Phone:																		
Address: <b>20000 SWENSON DRIVE SUITE 100</b>		Site Contact:																		
City/State/Zip: <b>WARRASOTA, WI 53186</b>		TAL Contact: <b>GANAE FREDRICK</b>																		
Phone: <b>262-754-2560</b>																				
FAX: <b>262-754-9711</b>																				
Project Name: <b>FENCE GARDEN MANUFACTURING</b>		Analysis Turnaround Time																		
Site/location: <b>HOLCOM, WI</b>		Standard (Specify) <b>X</b>																		
PO #		Rush (Specify)																		
Sample Identification	Sample Date(s)	Time Start	Time Stop	Canister Vacuum in Field, "Hg (Start)	Canister Vacuum in Field, "Hg (Stop)	Flow Controller ID	Canister ID	TO-15 <i>TCE ONLY</i>	TO-14A	EPA 3C	EPA 25C	ASTM D-1946	Other (Please specify in notes section)	Sample Type	Indoor Air	Ambient Air	Soil Gas	Landfill Gas	Other (Please specify in notes section)	
205 KANSAS - BACKGROUNDA IA	12/12/18 12/13/18	1559	1553	-28.5	-3	09855	10377	X							X					
205 KANSAS - BASEMENT IA		1603	1556	-26	-2	10357	11209	X							X					
205 KANSAS - 1ST FLOOR IA		1605	1558	-27	-3	10160	10325	X							X					
Sampled by:		Temperature (Fahrenheit)																		
		Interior		Ambient																
Start																				
Stop																				
Sampled by:		Pressure (inches of Hg)																		
		Interior		Ambient																
Start																				
Stop																				
Special Instructions/QC Requirements & Comments:																				
Canisters Shipped by:		Date/Time: <b>12/13/18 1730</b>		Canisters Received by: <b>PER FEN EA</b>																
Samples Relinquished by:		Date/Time:		Received by: <b>AMALIA JAKX 12-14-18 10:00</b>																
Relinquished by:		Date/Time:		Received by:																

Lab Use Only Shipper Name: \_\_\_\_\_ Opened by: \_\_\_\_\_ Condition: \_\_\_\_\_



TESTAMERICA KNOXVILLE SAMPLE RECEIPT/CONDITION UPON RECEIPT ANOMALY CHECKLIST

Review Items	Yes	No	NA	If No, what was the problem?	Comments/Actions Taken
1. Are the shipping containers intact?	<input checked="" type="checkbox"/>			<input type="checkbox"/> Containers, Broken	
2. Were ambient air containers received intact?	<input checked="" type="checkbox"/>			<input checked="" type="checkbox"/> Checked in lab	
3. The coolers/containers custody seal if present, is it intact?	<input checked="" type="checkbox"/>			<input type="checkbox"/> Yes <input type="checkbox"/> NA	
4. Is the cooler temperature within limits? (> freezing temp. of water to 6°C, VOST: 10°C) Thermometer ID: _____ Correction factor: _____	<input checked="" type="checkbox"/>			<input type="checkbox"/> Cooler Out of Temp, Client Contacted, Proceed/Cancel <input type="checkbox"/> Cooler Out of Temp, Same Day Receipt	
5. Were all of the sample containers received intact?	<input checked="" type="checkbox"/>			<input type="checkbox"/> Containers, Broken	
6. Were samples received in appropriate containers?	<input checked="" type="checkbox"/>			<input type="checkbox"/> Containers, Improper; Client Contacted; Proceed/Cancel	
7. Do sample container labels match COC? (IDs, Dates, Times)	<input checked="" type="checkbox"/>			<input type="checkbox"/> COC & Samples Do Not Match <input type="checkbox"/> COC Incorrect/Incomplete <input type="checkbox"/> COC Not Received	
8. Were all of the samples listed on the COC received?	<input checked="" type="checkbox"/>			<input type="checkbox"/> Sample Received, Not on COC <input type="checkbox"/> Sample on COC, Not Received	
9. Is the date/time of sample collection noted?	<input checked="" type="checkbox"/>			<input type="checkbox"/> COC; No Date/Time; Client Contacted	<u>Labeling Verified by:</u> _____ <u>Date:</u> _____
10. Was the sampler identified on the COC?	<input checked="" type="checkbox"/>			<input type="checkbox"/> Sampler Not Listed on COC	
11. Is the client and project name/# identified?	<input checked="" type="checkbox"/>			<input type="checkbox"/> COC Incorrect/Incomplete	
12. Are tests/parameters listed for each sample?	<input checked="" type="checkbox"/>			<input type="checkbox"/> COC No tests on COC	<u>pH test strip lot number:</u> _____
13. Is the matrix of the samples noted?	<input checked="" type="checkbox"/>			<input type="checkbox"/> COC Incorrect/Incomplete	
14. Was COC relinquished? (Signed/Dated/Timed)	<input checked="" type="checkbox"/>			<input type="checkbox"/> COC Incorrect/Incomplete	Box 16A: pH Preservation Box 18A: Residual Chlorine
15. Were samples received within holding time?	<input checked="" type="checkbox"/>			<input type="checkbox"/> Holding Time - Receipt	Preservative: _____
16. Were samples received with correct chemical preservative (excluding Encore)?	<input checked="" type="checkbox"/>			<input type="checkbox"/> pH Adjusted, pH Included (See box 16A) <input type="checkbox"/> Incorrect Preservative	Lot Number: _____
17. Were VOA samples received without headspace?	<input checked="" type="checkbox"/>			<input type="checkbox"/> Headspace (VOA only)	Exp Date: _____
18. Did you check for residual chlorine, if necessary? (e.g. 1613B, 1668) Chlorine test strip lot number: _____	<input checked="" type="checkbox"/>			<input type="checkbox"/> Residual Chlorine	Analyst: _____
19. For 1613B water samples is pH<9?	<input checked="" type="checkbox"/>			<input type="checkbox"/> If no, notify lab to adjust	Date: _____
20. For rad samples was sample activity info. Provided?	<input checked="" type="checkbox"/>			<input type="checkbox"/> Project missing info	Time: _____
Project #: <u>500 16128</u> PM Instructions: <u>NA</u>					
Sample Receiving Associate: <u>[Signature]</u> Date: <u>12-16-16</u>					



TestAmerica Knoxville - Air Canister Initial Pressure Check

Gauge ID: G5  
 Date: 12/17/2018

Analyst	Sample ID	Asset #	Cleaning Job	Cert	Size (L)	Pressure @ Receipt (-in Hg or +psig)	Time	Comments
afb	140-13678-A-1	11157	13477	b	6	-3.1	1050	
afb	140-13678-A-2	10182	13490	b	6	-5.3	1051	
afb	140-13678-A-3	10405	13490	b	6	-5.1	1052	
afb	140-13678-A-4	09930	13476	b	6	-3.8	1053	
afb	140-13678-A-5	10627	13490	b	6	-3.1	1054	
afb	140-13678-A-6	10069	13477	b	6	-4.9	1055	
afb	140-13678-A-7	10377	13490	b	6	-2.2	1056	
afb	140-13678-A-8	11209	13477	b	6	-4.3	1057	
afb	140-13678-A-9	10325	13490	b	6	-5.3	1058	
<input type="checkbox"/> Receiving -Air Can -Calve Open (NCM # _____)						<input type="checkbox"/> Air - Can P Out -26" - Flow Contr. Faulty (NCM# _____)		
<input type="checkbox"/> Air - Can P -24 to -25 " - Flow Contr. Works (NCM# _____)						<input type="checkbox"/> Air - Can P Low -24 to -25 " - Grab Sample (NCM# _____)		
<input type="checkbox"/> Air - Can P -24 to -25 " - Flow Contr. Faulty (NCM# _____)						<input type="checkbox"/> Air - Can P Low -26 " - Grab Sample (NCM# _____)		
<input type="checkbox"/> Air - Can P Out -26" - Flow Contr. Works (NCM# _____)								



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F: 262.754.9711  
www.gza.com

January 9, 2019  
File No. 20.0153134.30

Mr. Roger Schliewe  
267 Kansas Street  
Horicon, Wisconsin 53032

Re: Verification Post-Mitigation Indoor Air Test Results

Dear Mr. Schliewe:

With this letter, GZA GeoEnvironmental, Inc. (GZA) is informing you of the results of recent indoor air sampling conducted in the building you lease at 267 Kansas Street in Horicon, Wisconsin.

**BACKGROUND**

As you are aware, Gardner Manufacturing Company, Inc. (Gardner) hired GZA GeoEnvironmental, Inc. (GZA) to conduct environmental investigation and remediation of its former property at 263 Kansas Street, including the assessment of chemical vapors near area homes. The Wisconsin Department of Natural Resources (WDNR) provides oversight of the investigation activities being conducted by Gardner and provides file information under BRRTS No. 02-14-55423.

Due to the detection of trichloroethene (TCE) in an indoor air sample collected in March 2015 at a concentration greater than the TCE residential Vapor Action Level (VAL), GZA installed a mitigation system in the building on the property with the City's permission in June 2015. Post-mitigation indoor air samples collected by GZA in August 2015 confirmed that the mitigation system was effectively reducing TCE concentrations to below the TCE residential VAL.

**INDOOR AIR SAMPLING AND RESULTS**

To further verify the effectiveness of the mitigation system, two indoor air samples were collected from the 267 Kansas Street building over a 24-hour period between December 14 and 15, 2018. Samples were collected from two locations in the building and from background outside air. The three air samples were collected in 6-liter canisters and were submitted to TestAmerica of Knoxville, Tennessee for testing. The analytical report for the air samples is provided as Attachment 1. The data are summarized on the attached table and include historical results.

TCE was not detected in the December 2018 indoor air samples and confirms the mitigation system is operating as designed. Tetrachloroethene was detected in one indoor air sample at a concentration below the residential VAL and similar to the outside air sample, indicating an outside source was likely the cause.

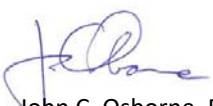
**CLOSING**

If you are looking for more information, please contact the undersigned (262-754-2560 or [bernard.fenelon@gza.com](mailto:bernard.fenelon@gza.com)). You may also contact Mr. Jeff Ackerman of the WDNR (608-275-3323) if you have any questions related to the investigation, or Mr. Ryan Wozniak of the WDHS (608-267-3227) if you have any health-related questions associated with this investigation.

Very truly yours,

**GZA GeoEnvironmental, Inc.**

  
Bernard G. Fenelon, P.G.  
Senior Consultant/Hydrogeologist

  
John C. Osborne, P.G.  
Senior Principal/Hydrogeologist

J:\153100to153199\153134 263 Kansas\30 Remediation\Correspondence\2018 IAQ Results Letters\  
2019 01 09 FINAL TENANT Results of Verification Post-Mitigation Indoor Air Sampling 267 Kansas Street - Schliewe.docx

**Attachments**

c: Mr. Jeff Ackerman, WDNR  
Mr. Ryan J. Wozniak, MPH, Ph.D., Wisconsin Department of Health Services





**TABLE 1  
SUB-SLAB AND INDOOR AIR ANALYTICAL RESULTS  
267 Kansas Street  
Horicon, Wisconsin**

	Wisconsin Department of Natural Resources Vapor Action Levels									
	Chloro-ethane	1,2-DCA	1,1-DCE	cis-1,2-DCE	trans-1,2-DCE	1,1,2,2-TCA	PCE	TCE	1,1,2-TCA	Vinyl Chloride
Sub-Slab Vapor Action Level (ppbv)	37,900	2.7	520	NA	NA	0.6	62	3.9	0.39	6.5
Indoor Air Action Level (ppbv)	3,790	0.27	52	NA	NA	0.06	6.2	0.39	0.039	0.65

Sample Location	Date	Sub-Slab Vapor Sample Results									
		Chloro-ethane	1,2-DCA	1,1-DCE	cis-1,2-DCE	trans-1,2-DCE	1,1,2,2-TCA	PCE	TCE	1,1,2-TCA	Vinyl Chloride
267 Kansas Street SS-1 (NW)	2/11/15	<4.2	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<b>6.6</b>	<1.0	<1.0
267 Kansas Street SS-2 (NE)	2/11/15	<4.2	<1.0	<1.0	3.8	4.3	<1.0	<1.0	<b>300</b>	<1.0	<1.0
267 Kansas Street SS-3 (SE)	2/11/15	<4.1	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	1.1	<1.0	<1.0
267 Kansas Street SS-4 (SW)	2/11/15	<4.4	<1.1	<1.1	<1.1	<1.1	<1.1	<1.1	<1.1	<1.1	<1.1
		Pre-Ventilation Indoor Air Sample Results									
267 Kansas Street IA-1	3/14/15	NA	NA	NA	NA	NA	NA	NA	<b>0.22</b>	NA	NA
267 Kansas Street IA-2	3/14/15	NA	NA	NA	NA	NA	NA	NA	<b>1.4</b>	NA	NA
Outside Background	3/14/15	NA	NA	NA	NA	NA	NA	NA	<0.28	NA	NA
		Post-Ventilation Indoor Air Sample Results									
267 Kansas Street West	8/13/15	NA	NA	NA	NA	NA	NA	NA	<0.18	NA	NA
267 Kansas Street East	8/13/15	NA	NA	NA	NA	NA	NA	NA	<0.18	NA	NA
267 Kansas Street Background	8/13/15	NA	NA	NA	NA	NA	NA	NA	<0.18	NA	NA
267 Kansas Street West IA	12/14/18	NA	NA	NA	<0.060	<0.050	NA	<b>0.15 J</b>	<0.036	NA	<0.071
267 Kansas Street East IA	12/14/18	NA	NA	NA	<0.060	<0.050	NA	<0.040	<0.036	NA	<0.071
267 Kansas Street Background	12/14/18	NA	NA	NA	<0.060	<0.050	NA	<b>0.046 J</b>	<0.036	NA	<0.071

Notes:

- Sample results from February 2015 are for sub-slab vapor samples collected by GZA GeoEnvironmental, Inc. (GZA) of Waukesha, Wisconsin and analyzed by Eurofins Air Toxics, Inc. (Eurofins) of Folsom, California for the listed VOCs in accordance with USEPA Method TO-15. Results are reported to the Reporting Limit (RL) or Limit of Quantification (LOQ).
- Sample results from March and August 2015 are for indoor air samples collected by GZA GeoEnvironmental, Inc. of Waukesha, Wisconsin and analyzed by Eurofins for trichloroethene (TCE) in accordance with USEPA Method TO-15. Results are reported to the Reporting Limit (RL) or Limit of Quantification (LOQ).
- A ventilation system was installed at the Site on May 20, 2015.
- Analytical results are provided in units of parts per billion by volume (ppbv). Only detected constituents were included in the table.
- The WDNR obtains its residential indoor air action levels from USEPA regional screening levels accessed at: [http://www.epa.gov/reg3hwmd/risk/human/rb-concentration\\_table/index.htm](http://www.epa.gov/reg3hwmd/risk/human/rb-concentration_table/index.htm) using a 10<sup>-5</sup> cancer risk and a hazard index of 1.
- Samples results with a reported detection are provided in **bold font** and results that exceed an action level are provided in **bold and underlined font**.
- "<" denotes that the constituent was not detected. "NA" denotes that the constituent was not included in the analysis.
- Constituent abbreviations are used as follows:
 

1,2-DCA denotes 1,2-dichloroethane	cis-1,2-DCE denotes cis-1,2-dichloroethane	1,1,2,2 TCA denotes 1,1,2,2-Tetrachloroethane
TCE denotes trichloroethene	1,1-DCE denotes 1,1-dichloroethene	trans-1,2-DCE denotes trans-1,2-dichloroethene
PCE denotes tetrachloroethene	1,1,2-TCE denotes 1,1,2-Trichloroethane	





**ATTACHMENT 1**

**Post-Mitigation Indoor Air Laboratory Analytical Report**

# TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

## ANALYTICAL REPORT

TestAmerica Laboratories, Inc.  
TestAmerica Knoxville  
5815 Middlebrook Pike  
Knoxville, TN 37921  
Tel: (865)291-3000

TestAmerica Job ID: 140-13726-1

Client Project/Site: Former Gardner, Horicon - 20.0153134.20

For:

GZA GeoEnvironmental, Inc.  
20900 Swenson Drive Suite 150  
Waukesha, Wisconsin 53186

Attn: Mr. Bernard Fenelon



Authorized for release by:  
12/29/2018 5:03:52 PM

Sandie Fredrick, Project Manager II  
(920)261-1660  
[sandie.fredrick@testamericainc.com](mailto:sandie.fredrick@testamericainc.com)

### LINKS

Review your project  
results through  
**TotalAccess**

Have a Question?



Visit us at:  
[www.testamericainc.com](http://www.testamericainc.com)

*The test results in this report meet all 2003 NELAC and 2009 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.*

*This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.*

*Results relate only to the items tested and the sample(s) as received by the laboratory.*

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# Definitions/Glossary

Client: GZA GeoEnvironmental, Inc.  
Project/Site: Former Gardner, Horicon - 20.0153134.20

TestAmerica Job ID: 140-13726-1

## Qualifiers

### Air - GC/MS VOA

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

## Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

# Case Narrative

Client: GZA GeoEnvironmental, Inc.  
Project/Site: Former Gardner, Horicon - 20.0153134.20

TestAmerica Job ID: 140-13726-1

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## Job ID: 140-13726-1

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### Laboratory: TestAmerica Knoxville

#### Narrative

---

#### Job Narrative 140-13726-1

#### Comments

No additional comments.

#### Receipt

The samples were received on 12/19/2018 10:20 AM; the samples arrived in good condition, properly preserved and, where required, on ice.

#### Air - GC/MS VOA

Method(s) TO 15 LL, TO-15: EPA methods TO-14A and TO-15 specify the use of humidified "zero air" as the blank reagent for canister cleaning, instrument calibration and sample analysis. Ultra-high purity humidified nitrogen from a cryogenic reservoir is used in place of "zero air" by TestAmerica Knoxville.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

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# Client Sample Results

Client: GZA GeoEnvironmental, Inc.  
Project/Site: Former Gardner, Horicon - 20.0153134.20

TestAmerica Job ID: 140-13726-1

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**Client Sample ID: 267 KANSAS-BACKGROUND IA**

**Lab Sample ID: 140-13726-4**

Date Collected: 12/14/18 13:38

Matrix: Air

Date Received: 12/19/18 10:20

Sample Container: Summa Canister 6L

**Method: TO-15 - Volatile Organic Compounds in Ambient Air**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
cis-1,2-Dichloroethene	<0.060		0.20	0.060	ppb v/v			12/27/18 23:45	1
<b>Tetrachloroethene</b>	<b>0.046</b>	<b>J</b>	0.20	0.040	ppb v/v			12/27/18 23:45	1

TestAmerica Knoxville

# Client Sample Results

Client: GZA GeoEnvironmental, Inc.  
 Project/Site: Former Gardner, Horicon - 20.0153134.20

TestAmerica Job ID: 140-13726-1

## Client Sample ID: 267 KANSAS-BACKGROUND IA

Lab Sample ID: 140-13726-4

Date Collected: 12/14/18 13:38

Matrix: Air

Date Received: 12/19/18 10:20

Sample Container: Summa Canister 6L

### Method: TO-15 - Volatile Organic Compounds in Ambient Air (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
trans-1,2-Dichloroethene	<0.050		0.20	0.050	ppb v/v			12/27/18 23:45	1
Trichloroethene	<0.036		0.20	0.036	ppb v/v			12/27/18 23:45	1
Vinyl chloride	<0.071		0.40	0.071	ppb v/v			12/27/18 23:45	1
<b>Surrogate</b>	<b>%Recovery</b>	<b>Qualifier</b>	<b>Limits</b>				<b>Prepared</b>	<b>Analyzed</b>	<b>Dil Fac</b>
4-Bromofluorobenzene (Surr)	102		60 - 140					12/27/18 23:45	1

## Client Sample ID: 267 KANSAS-WEST IA

Lab Sample ID: 140-13726-5

Date Collected: 12/14/18 13:43

Matrix: Air

Date Received: 12/19/18 10:20

Sample Container: Summa Canister 6L

### Method: TO-15 - Volatile Organic Compounds in Ambient Air

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
cis-1,2-Dichloroethene	<0.060		0.20	0.060	ppb v/v			12/28/18 00:27	1
<b>Tetrachloroethene</b>	<b>0.15</b>	<b>J</b>	0.20	0.040	ppb v/v			12/28/18 00:27	1
trans-1,2-Dichloroethene	<0.050		0.20	0.050	ppb v/v			12/28/18 00:27	1
Trichloroethene	<0.036		0.20	0.036	ppb v/v			12/28/18 00:27	1
Vinyl chloride	<0.071		0.40	0.071	ppb v/v			12/28/18 00:27	1
<b>Surrogate</b>	<b>%Recovery</b>	<b>Qualifier</b>	<b>Limits</b>				<b>Prepared</b>	<b>Analyzed</b>	<b>Dil Fac</b>
4-Bromofluorobenzene (Surr)	104		60 - 140					12/28/18 00:27	1

## Client Sample ID: 267 KANSAS-EAST IA

Lab Sample ID: 140-13726-6

Date Collected: 12/14/18 13:43

Matrix: Air

Date Received: 12/19/18 10:20

Sample Container: Summa Canister 6L

### Method: TO-15 - Volatile Organic Compounds in Ambient Air

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
cis-1,2-Dichloroethene	<0.060		0.20	0.060	ppb v/v			12/28/18 01:10	1
Tetrachloroethene	<0.040		0.20	0.040	ppb v/v			12/28/18 01:10	1
trans-1,2-Dichloroethene	<0.050		0.20	0.050	ppb v/v			12/28/18 01:10	1
Trichloroethene	<0.036		0.20	0.036	ppb v/v			12/28/18 01:10	1
Vinyl chloride	<0.071		0.40	0.071	ppb v/v			12/28/18 01:10	1
<b>Surrogate</b>	<b>%Recovery</b>	<b>Qualifier</b>	<b>Limits</b>				<b>Prepared</b>	<b>Analyzed</b>	<b>Dil Fac</b>
4-Bromofluorobenzene (Surr)	105		60 - 140					12/28/18 01:10	1



# Default Detection Limits

Client: GZA GeoEnvironmental, Inc.  
Project/Site: Former Gardner, Horicon - 20.0153134.20

TestAmerica Job ID: 140-13726-1

## Method: TO-15 - Volatile Organic Compounds in Ambient Air

Analyte	RL	MDL	Units	Method
cis-1,2-Dichloroethene	0.20	0.060	ppb v/v	TO-15
Tetrachloroethene	0.20	0.040	ppb v/v	TO-15
trans-1,2-Dichloroethene	0.20	0.050	ppb v/v	TO-15
Trichloroethene	0.20	0.036	ppb v/v	TO-15
Vinyl chloride	0.40	0.071	ppb v/v	TO-15

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# Surrogate Summary

Client: GZA GeoEnvironmental, Inc.  
Project/Site: Former Gardner, Horicon - 20.0153134.20

TestAmerica Job ID: 140-13726-1

## Method: TO-15 - Volatile Organic Compounds in Ambient Air

Matrix: Air

Prep Type: Total/NA

### Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	BFB (60-140)
140-13726-1	316 BARSTOW-BACKGROUND	91
140-13726-2	316 BARSTOW-BASEMENT IA	92
140-13726-3	316 BARSTOW-1ST FLOOR IA	103
140-13726-4	267 KANSAS-BACKGROUND IA	102
140-13726-5	267 KANSAS-WEST IA	104
140-13726-6	267 KANSAS-EAST IA	105
140-13726-7	150 LARABEE-BASEMENT IA	104
140-13726-8	150 LARABEE-1ST FLOOR IA	94
140-13726-9	150 LARABEE-BACKGROUND IA	88
140-13726-10	142 LARABEE-BACKGROUND IA	89
140-13726-11	142 LARABEE-BASEMENT IA	94
140-13726-12	142 LARABEE-1ST FLOOR IA	100
LCS 140-26434/1002	Lab Control Sample	103
LCS 140-26435/1002	Lab Control Sample	90
LCS 140-26516/1002	Lab Control Sample	102
MB 140-26434/5	Method Blank	90
MB 140-26435/4	Method Blank	88
MB 140-26516/4	Method Blank	103

#### Surrogate Legend

BFB = 4-Bromofluorobenzene (Surr)

# QC Sample Results

Client: GZA GeoEnvironmental, Inc.  
 Project/Site: Former Gardner, Horicon - 20.0153134.20

TestAmerica Job ID: 140-13726-1

## Method: TO-15 - Volatile Organic Compounds in Ambient Air

**Lab Sample ID: MB 140-26434/5**  
**Matrix: Air**  
**Analysis Batch: 26434**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
cis-1,2-Dichloroethene	<0.060		0.20	0.060	ppb v/v			12/21/18 11:4V	1
Tetrachloroethene	<0.040		0.20	0.040	ppb v/v			12/21/18 11:4V	1
trans-1,2-Dichloroethene	<0.050		0.20	0.050	ppb v/v			12/21/18 11:4V	1
Trichloroethene	<0.036		0.20	0.036	ppb v/v			12/21/18 11:4V	1
γ inKl chloride	<0.071		0.40	0.071	ppb v/v			12/21/18 11:4V	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	91		61 - 041		02/20/08 00:49	0

**Lab Sample ID: LCS 140-26434/1002**  
**Matrix: Air**  
**Analysis Batch: 26434**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
cis-1,2-Dichloroethene	2.00	1.V4		ppb v/v		V7	70 - 130
Tetrachloroethene	2.00	2.15		ppb v/v		108	70 - 130
trans-1,2-Dichloroethene	2.00	1.V7		ppb v/v		V8	70 - 130
Trichloroethene	2.00	2.03		ppb v/v		101	70 - 130
γ inKl chloride	2.00	1.V2		ppb v/v		V6	70 - 130

Surrogate	LCS %Recovery	LCS Qualifier	Limits
4-Bromofluorobenzene (Surr)	013		61 - 041

**Lab Sample ID: MB 140-26435/4**  
**Matrix: Air**  
**Analysis Batch: 26435**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
cis-1,2-Dichloroethene	<0.060		0.20	0.060	ppb v/v			12/24/18 14:2V	1
Tetrachloroethene	<0.040		0.20	0.040	ppb v/v			12/24/18 14:2V	1
trans-1,2-Dichloroethene	<0.050		0.20	0.050	ppb v/v			12/24/18 14:2V	1
Trichloroethene	<0.036		0.20	0.036	ppb v/v			12/24/18 14:2V	1
γ inKl chloride	<0.071		0.40	0.071	ppb v/v			12/24/18 14:2V	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	88		61 - 041		02/24/08 04:29	0

**Lab Sample ID: LCS 140-26435/1002**  
**Matrix: Air**  
**Analysis Batch: 26435**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
cis-1,2-Dichloroethene	2.00	1.V5		ppb v/v		V7	70 - 130
Tetrachloroethene	2.00	2.02		ppb v/v		101	70 - 130
trans-1,2-Dichloroethene	2.00	1.V8		ppb v/v		VV	70 - 130
Trichloroethene	2.00	1.V8		ppb v/v		VV	70 - 130
γ inKl chloride	2.00	1.80		ppb v/v		V0	70 - 130

TestAmerica x noxville

# QC Sample Results

Client: GZA GeoEnvironmental, Inc.  
 Project/Site: Former Gardner, Horicon - 20.0153134.20

TestAmerica Job ID: 140-13726-1

## Method: TO-15 - Volatile Organic Compounds in Ambient Air (Continued)

**Lab Sample ID: LCS 140-26435/1002**  
**Matrix: Air**  
**Analysis Batch: 26435**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**

	LCS	LCS	
Surrogate	%Recovery	Qualifier	Limits
4-Bromofluorobenzene (Surr)	91		61 - 041

**Lab Sample ID: MB 140-26516/4**  
**Matrix: Air**  
**Analysis Batch: 26516**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
cis-1,2-Dichloroethene	<0.060		0.20	0.060	ppb v/v			12/27/18 12:56	1
Tetrachloroethene	<0.040		0.20	0.040	ppb v/v			12/27/18 12:56	1
trans-1,2-Dichloroethene	<0.050		0.20	0.050	ppb v/v			12/27/18 12:56	1
Trichloroethene	<0.036		0.20	0.036	ppb v/v			12/27/18 12:56	1
γ inK chloride	<0.071		0.40	0.071	ppb v/v			12/27/18 12:56	1

	MB	MB		Prepared	Analyzed	Dil Fac
Surrogate	%Recovery	Qualifier	Limits			
4-Bromofluorobenzene (Surr)	013		61 - 041		02/27/08 02:56	0

**Lab Sample ID: LCS 140-26516/1002**  
**Matrix: Air**  
**Analysis Batch: 26516**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**

Analyte	Spike	LCS	LCS	Unit	D	%Rec	%Rec.
	Added	Result	Qualifier				Limits
cis-1,2-Dichloroethene	2.00	2.16		ppb v/v		108	70 - 130
Tetrachloroethene	2.00	2.10		ppb v/v		105	70 - 130
trans-1,2-Dichloroethene	2.00	2.13		ppb v/v		106	70 - 130
Trichloroethene	2.00	1.77		ppb v/v		88	70 - 130
γ inK chloride	2.00	2.13		ppb v/v		107	70 - 130

	LCS	LCS	
Surrogate	%Recovery	Qualifier	Limits
4-Bromofluorobenzene (Surr)	012		61 - 041

# QC Association Summary

Client: GZA GeoEnvironmental, Inc.  
Project/Site: Former Gardner, Horicon - 20.0153134.20

TestAmerica Job ID: 140-13726-1

## Air - GC/MS VOA

### Analysis Batch: 26434

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
140-13726-1	316 BARSTOW-BACKGROUND IA	Total/NA	Air	TO-15	
140-13726-2	316 BARSTOW-BASEMENT IA	Total/NA	Air	TO-15	
MB 140-26434/5	Method Blank	Total/NA	Air	TO-15	
LCS 140-26434/1002	Lab Control Sample	Total/NA	Air	TO-15	

### Analysis Batch: 26435

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
140-13726-8	150 LARABEE-1ST FLOOR IA	Total/NA	Air	TO-15	
140-13726-9	150 LARABEE-BACKGROUND IA	Total/NA	Air	TO-15	
140-13726-10	142 LARABEE-BACKGROUND IA	Total/NA	Air	TO-15	
140-13726-11	142 LARABEE-BASEMENT IA	Total/NA	Air	TO-15	
MB 140-26435/4	Method Blank	Total/NA	Air	TO-15	
LCS 140-26435/1002	Lab Control Sample	Total/NA	Air	TO-15	

### Analysis Batch: 26516

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
140-13726-3	316 BARSTOW-1ST FLOOR IA	Total/NA	Air	TO-15	
140-13726-4	267 KANSAS-BACKGROUND IA	Total/NA	Air	TO-15	
140-13726-5	267 KANSAS-WEST IA	Total/NA	Air	TO-15	
140-13726-6	267 KANSAS-EAST IA	Total/NA	Air	TO-15	
140-13726-7	150 LARABEE-BASEMENT IA	Total/NA	Air	TO-15	
140-13726-12	142 LARABEE-1ST FLOOR IA	Total/NA	Air	TO-15	
MB 140-26516/4	Method Blank	Total/NA	Air	TO-15	
LCS 140-26516/1002	Lab Control Sample	Total/NA	Air	TO-15	

# Lab Chronicle

Client: GZA GeoEnvironmental, Inc.  
 Project/Site: Former Gardner, Horicon - 20.0153134.20

TestAmerica Job ID: 140-13726-1

## Client Sample ID: 316 BARSTOW-BACKGROUND IA

Lab Sample ID: 140-13726-1

Date Collected: 12/14/18 12:47

Matrix: Air

Date Received: 12/19/18 10:20

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	TO-15		1	200 mL	500 mL	26434	12/21/18 20:18	S1K	TAL KNX
Instrument ID: MH										

## Client Sample ID: 316 BARSTOW-BASEMENT IA

Lab Sample ID: 140-13726-2

Date Collected: 12/14/18 12:55

Matrix: Air

Date Received: 12/19/18 10:20

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	TO-15		1	200 mL	500 mL	26434	12/21/18 21:12	S1K	TAL KNX
Instrument ID: MH										

## Client Sample ID: 316 BARSTOW-1ST FLOOR IA

Lab Sample ID: 140-13726-3

Date Collected: 12/14/18 12:52

Matrix: Air

Date Received: 12/19/18 10:20

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	TO-15		1	200 mL	500 mL	26516	12/27/18 23:02	S1K	TAL KNX
Instrument ID: MG										

## Client Sample ID: 267 KANSAS-BACKGROUND IA

Lab Sample ID: 140-13726-4

Date Collected: 12/14/18 13:38

Matrix: Air

Date Received: 12/19/18 10:20

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	TO-15		1	200 mL	500 mL	26516	12/27/18 23:45	S1K	TAL KNX
Instrument ID: MG										

## Client Sample ID: 267 KANSAS-WEST IA

Lab Sample ID: 140-13726-5

Date Collected: 12/14/18 13:43

Matrix: Air

Date Received: 12/19/18 10:20

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	TO-15		1	200 mL	500 mL	26516	12/28/18 00:27	S1K	TAL KNX
Instrument ID: MG										

## Client Sample ID: 267 KANSAS-EAST IA

Lab Sample ID: 140-13726-6

Date Collected: 12/14/18 13:43

Matrix: Air

Date Received: 12/19/18 10:20

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	TO-15		1	200 mL	500 mL	26516	12/28/18 01:10	S1K	TAL KNX
Instrument ID: MG										

TestAmerica Knoxville

# Lab Chronicle

Client: GZA GeoEnvironmental, Inc.  
Project/Site: Former Gardner, Horicon - 20.0153134.20

TestAmerica Job ID: 140-13726-1

## Client Sample ID: 150 LARABEE-BASEMENT IA

Lab Sample ID: 140-13726-7

Date Collected: 12/18/18 13:34

Matrix: Air

Date Received: 12/19/18 10:20

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	TO-15		1	200 mL	500 mL	26516	12/28/18 01:55	S1K	TAL KNX
Instrument ID: MG										

## Client Sample ID: 150 LARABEE-1ST FLOOR IA

Lab Sample ID: 140-13726-8

Date Collected: 12/18/18 13:35

Matrix: Air

Date Received: 12/19/18 10:20

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	TO-15		1	200 mL	500 mL	26435	12/25/18 02:13	S1K	TAL KNX
Instrument ID: MH										

## Client Sample ID: 150 LARABEE-BACKGROUND IA

Lab Sample ID: 140-13726-9

Date Collected: 12/18/18 13:39

Matrix: Air

Date Received: 12/19/18 10:20

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	TO-15		1	200 mL	500 mL	26435	12/25/18 03:07	S1K	TAL KNX
Instrument ID: MH										

## Client Sample ID: 142 LARABEE-BACKGROUND IA

Lab Sample ID: 140-13726-10

Date Collected: 12/18/18 15:11

Matrix: Air

Date Received: 12/19/18 10:20

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	TO-15		1	200 mL	500 mL	26435	12/25/18 04:02	S1K	TAL KNX
Instrument ID: MH										

## Client Sample ID: 142 LARABEE-BASEMENT IA

Lab Sample ID: 140-13726-11

Date Collected: 12/18/18 15:17

Matrix: Air

Date Received: 12/19/18 10:20

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	TO-15		1	200 mL	500 mL	26435	12/25/18 04:57	S1K	TAL KNX
Instrument ID: MH										

## Client Sample ID: 142 LARABEE-1ST FLOOR IA

Lab Sample ID: 140-13726-12

Date Collected: 12/18/18 15:16

Matrix: Air

Date Received: 12/19/18 10:20

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	TO-15		1	200 mL	500 mL	26516	12/28/18 02:39	S1K	TAL KNX
Instrument ID: MG										

TestAmerica Knoxville



# Lab Chronicle

Client: GZA GeoEnvironmental, Inc.  
Project/Site: Former Gardner, Horicon - 20.0153134.20

TestAmerica Job ID: 140-13726-1

## Client Sample ID: Method Blank

Lab Sample ID: MB 140-26434/5

Date Collected: N/A

Matrix: Air

Date Received: N/A

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	TO-15		1	200 mL	500 mL	26434	12/21/18 11:49	S1K	TAL KNX
Instrument ID: MH										

## Client Sample ID: Method Blank

Lab Sample ID: MB 140-26435/4

Date Collected: N/A

Matrix: Air

Date Received: N/A

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	TO-15		1	200 mL	500 mL	26435	12/24/18 14:29	S1K	TAL KNX
Instrument ID: MH										

## Client Sample ID: Method Blank

Lab Sample ID: MB 140-26516/4

Date Collected: N/A

Matrix: Air

Date Received: N/A

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	TO-15		1	200 mL	500 mL	26516	12/27/18 12:56	S1K	TAL KNX
Instrument ID: MG										

## Client Sample ID: Lab Control Sample

Lab Sample ID: LCS 140-26434/1002

Date Collected: N/A

Matrix: Air

Date Received: N/A

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	TO-15		1	500 mL	500 mL	26434	12/21/18 10:21	S1K	TAL KNX
Instrument ID: MH										

## Client Sample ID: Lab Control Sample

Lab Sample ID: LCS 140-26435/1002

Date Collected: N/A

Matrix: Air

Date Received: N/A

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	TO-15		1	500 mL	500 mL	26435	12/24/18 12:35	S1K	TAL KNX
Instrument ID: MH										

## Client Sample ID: Lab Control Sample

Lab Sample ID: LCS 140-26516/1002

Date Collected: N/A

Matrix: Air

Date Received: N/A

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	TO-15		1	500 mL	500 mL	26516	12/27/18 11:14	S1K	TAL KNX
Instrument ID: MG										

TestAmerica Knoxville

# Lab Chronicle

Client: GZA GeoEnvironmental, Inc.  
Project/Site: Former Gardner, Horicon - 20.0153134.20

TestAmerica Job ID: 140-13726-1

**Laboratory References:**

TAL KNX = TestAmerica Knoxville, 5815 Middlebrook Pike, Knoxville, TN 37921, TEL (865)291-3000

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# Accreditation/Certification Summary

Client: GZA GeoEnvironmental, Inc.  
Project/Site: Former Gardner, Horicon - 20.0153134.20

TestAmerica Job ID: 140-13726-1

## Laboratory: TestAmerica Knoxville

The accreditations/certifications listed below are applicable to this report.

Authority	Program	EPA Region	Identification Number	Expiration Date
Wisconsin	State Program	5	998044300	08-31-19

## Laboratory: TestAmerica Chicago

The accreditations/certifications listed below are applicable to this report.

Authority	Program	EPA Region	Identification Number	Expiration Date
Wisconsin	State Program	5	999580010	08-31-19

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# Method Summary

Client: GZA GeoEnvironmental, Inc.  
Project/Site: Former Gardner, Horicon - 20.0153134.20

TestAmerica Job ID: 140-13726-1

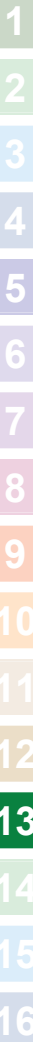
Method	Method Description	Protocol	Laboratory
TO-15	Volatile Organic Compounds in Ambient Air	EPA	TAL KNX

**Protocol References:**

EPA = US Environmental Protection Agency

**Laboratory References:**

TAL KNX = TestAmerica Knoxville, 5815 Middlebrook Pike, Knoxville, TN 37921, TEL (865)291-3000

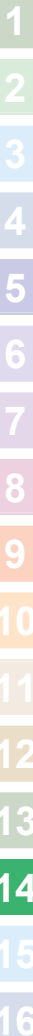


# Sample Summary

Client: GZA GeoEnvironmental, Inc.  
Project/Site: Former Gardner, Horicon - 20.0153134.20

TestAmerica Job ID: 140-13726-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
140-13726-1	316 BARSTOW-BACKGROUND IA	Air	12/14/18 12:47	12/19/18 10:20
140-13726-2	316 BARSTOW-BASEMENT IA	Air	12/14/18 12:55	12/19/18 10:20
140-13726-3	316 BARSTOW-1ST FLOOR IA	Air	12/14/18 12:52	12/19/18 10:20
140-13726-4	267 KANSAS-BACKGROUND IA	Air	12/14/18 13:38	12/19/18 10:20
140-13726-5	267 KANSAS-WEST IA	Air	12/14/18 13:43	12/19/18 10:20
140-13726-6	267 KANSAS-EAST IA	Air	12/14/18 13:43	12/19/18 10:20
140-13726-7	150 LARABEE-BASEMENT IA	Air	12/18/18 13:34	12/19/18 10:20
140-13726-8	150 LARABEE-1ST FLOOR IA	Air	12/18/18 13:35	12/19/18 10:20
140-13726-9	150 LARABEE-BACKGROUND IA	Air	12/18/18 13:39	12/19/18 10:20
140-13726-10	142 LARABEE-BACKGROUND IA	Air	12/18/18 15:11	12/19/18 10:20
140-13726-11	142 LARABEE-BASEMENT IA	Air	12/18/18 15:17	12/19/18 10:20
140-13726-12	142 LARABEE-1ST FLOOR IA	Air	12/18/18 15:16	12/19/18 10:20



TAL Knoxville  
5815 Middlebrook Pike  
Knoxville, TN 37921  
phone 865-291-3000 fax 865-584-4315

### Canister Samples Chain of Custody Record

# TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

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

Client Contact Information		Project Manager: <b>Bernard Fester</b>		Sampled By: <b>C. Kingworetta</b>		1 of 2 COCs	
Company: <b>East Georgia Industrial Inc.</b>		Phone:		EPA 25C		Other (Please specify in notes section)	
Address: <b>2080 SWANSON DRIVE SUITE 150</b>		Site Contact:		EPA 3C		Other (Please specify in notes section)	
City/State/Zip: <b>WALKERSVILLE, TN 37188</b>		TAL Contact: <b>ANDIE FEORUCK</b>		TO-14A		Other (Please specify in notes section)	
Phone: <b>762-154-2560</b>		Analysis Turnaround Time		TO-15		Other (Please specify in notes section)	
FAX: <b>762-154-2711</b>		Standard (Specify) <input checked="" type="checkbox"/> Rush (Specify)		TO-15		Other (Please specify in notes section)	
Project Name: <b>FORNER GREENER MANUFACTURING</b>		Sample Date(s)		Time Start		Time Stop	
Site/location: <b>WALKER, TN</b>		Canister Vacuum in Field, "Hg (Start)		Canister Vacuum in Field, "Hg (Stop)		Flow Controller ID	
PO #		Temperature (Fahrenheit)		Interior		Ambient	
316 BARSTOW - BACKGROUND IA	12/13/18	12:39	12:47	-29.5	-3.5	09847	09671
316 BARSTOW - BASEMENT IA	12/14/18	12:49	12:55	-27.5	-3	10304	11562
316 BARSTOW - 1ST FLOOR IA	12/14/18	12:54	12:52	-28	-4	09550	09603
267 KANSAS - BACKGROUND IA	12/14/18	13:40	13:38	-27	-2	10588	10261
267 KANSAS - WEST IA	12/14/18	13:47	13:43	-30	-5	7162	10830
267 KANSAS - EAST IA	12/14/18	13:49	13:43	-30	-7	11488	11963
Sampled by:		Temperature (Fahrenheit)		Interior		Ambient	
		Pressure (Inches of Hg)		Interior		Ambient	
		Start		Stop		Start	
		Stop		Start		Stop	
Special Instructions/QC Requirements & Comments:		Date/Time: 12/18/18 1730		Canisters Received by: <b>PAR Fester</b>		Canisters Received by: <b>13 CANJ</b>	
Samples Relinquished by:		Date/Time:		Received by: <b>John 12/19/18 1020A-14</b>		Received by: <b>13 Flows</b>	
Relinquished by:		Date/Time:		Received by:		Received by:	
Lab Use Only		Shipper Name:		Condition:		Opened by:	

ANALYZE FOR: TCE, CIS AND TRANS  
1,2 DCE AND VINYL CHLORIDE

Received ambient 3 boxes  
TRK#7845 3404 2397, Fedex 50  
" 3398 8971  
" 3390 1031

Custody seal intact



140-13726 Chain of Custody

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TAL Knoxville  
5815 Middlebrook Pike  
Knoxville, TN 37921  
phone 865-291-3000 fax 865-584-4315

### Canister Samples Chain of Custody Record

**TestAmerica**  
THE LEADER IN ENVIRONMENTAL TESTING

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

Client Contact Information		Project Manager: <b>Bernard Fenelon</b>		Sampled By: <b>C. Ainsworth</b>		2 of 2 COCs	
Company: <b>GRACE ENVIRONMENTAL INC.</b>		Phone:		TO-15		Other (Please specify in notes section)	
Address: <b>2000 S. BRIDGES BLVD SUITE 100</b>		Site Contact: <b>SHARON FEORUCK</b>		EPA 3C		Soil Gas	
City/State/Zip: <b>WANKESITA, WI 53186</b>		TAL Contact: <b>SHARON FEORUCK</b>		TO-14A		Ambient Air	
Phone: <b>262-754-2560</b>				EPA 25C		Landfill Gas	
FAX: <b>262-754-9711</b>				ASTM D-1946		Other (Please specify in notes section)	
Project Name: <b>FORMER CIGARETTE MANUFACTURING</b>		Analysis Turnaround Time					
Site/location: <b>HERCON, WI</b>		Standard (Specify) <b>X</b>					
PO #		Rush (Specify)					
Sample Identification	Sample Date(s)	Time Start	Time Stop	Canister Vacuum in Field, "Hg (Start)	Canister Vacuum in Field, "Hg (Stop)	Flow Controller ID	Canister ID
150 LARABEE - BASEMENT IA	12/17/18	1335	1334	-28	-3	11467	11227
150 LARABEE - 1ST FLOOR IA		1339	1335	-29	-5	11816	10529
150 LARABEE - BACKGROUND IA		1341	1339	-29.5	-2	09955	10562
142 LARABEE - BACKGROUND IA		1517	1511	-30	-3	11937	11534
142 LARABEE - BASEMENT IA		1520	1517	-30	-3	11932	10716
142 LARABEE - 1ST FLOOR IA		1522	1516	-29	-4	10467	11559
Sampled by: <b>ANALYZE FOR: TCE; CIS AND TRIAS 1/2 PCE AND VINYL CHLORIDE</b>							
Special Instructions/QC Requirements & Comments:		Temperature (Fahrenheit)		Pressure (inches of Hg)			
		Ambient		Ambient			
		Interior		Interior			
		Start		Start			
		Stop		Stop			
Canisters Shipped by:		Date/Time: 12/18/18 1730		Canisters Received by: <b>SEE FGD EX</b>			
Samples Relinquished by:		Date/Time:		Received by: <b>ANALYZE 12/19/18 1020 TAFM</b>			
Relinquished by:		Date/Time:		Received by:			

Lab Use Only Shipper Name: \_\_\_\_\_ Condition: \_\_\_\_\_  
Opened by: \_\_\_\_\_



TESTAMERICA KNOXVILLE SAMPLE RECEIPT/CONDITION UPON RECEIPT ANOMALY CHECKLIST

Review Items	Yes	No	NA	If No, what was the problem?	Comments/Actions Taken
1. Are the shipping containers intact?	/			<input type="checkbox"/> Containers, Broken	
2. Were ambient air containers received intact?			/	<input checked="" type="checkbox"/> Checked in lab	
3. The coolers/containers custody seal if present, is it intact?	/			<input type="checkbox"/> Yes <input type="checkbox"/> NA	
4. Is the cooler temperature within limits? (> freezing temp. of water to 6 °C, VOST: 10°C) Thermometer ID: _____ Correction factor: _____			/	<input type="checkbox"/> Cooler Out of Temp, Client Contacted, Proceed/Cancel <input type="checkbox"/> Cooler Out of Temp, Same Day Receipt	
5. Were all of the sample containers received intact?	/			<input type="checkbox"/> Containers, Broken	
6. Were samples received in appropriate containers?	/			<input type="checkbox"/> Containers, Improper; Client Contacted; Proceed/Cancel	
7. Do sample container labels match COC? (IDs, Dates, Times)	/			<input type="checkbox"/> COC & Samples Do Not Match <input type="checkbox"/> COC Incorrect/Incomplete <input type="checkbox"/> COC Not Received	
8. Were all of the samples listed on the COC received?	/			<input type="checkbox"/> Sample Received, Not on COC <input type="checkbox"/> Sample on COC, Not Received	
9. Is the date/time of sample collection noted?	/			<input type="checkbox"/> COC; No Date/Time; Client Contacted	Labeling Verified by: _____ Date: _____
10. Was the sampler identified on the COC?	/			<input type="checkbox"/> Sampler Not Listed on COC	
11. Is the client and project name/# identified?	/			<input type="checkbox"/> COC Incorrect/Incomplete	
12. Are tests/parameters listed for each sample?	/			<input type="checkbox"/> COC No tests on COC	pH test strip lot number: _____
13. Is the matrix of the samples noted?	/			<input type="checkbox"/> COC Incorrect/Incomplete	
14. Was COC relinquished? (Signed/Dated/Timed)	/			<input type="checkbox"/> COC Incorrect/Incomplete	Box 16A: pH Preservation Box 18A: Residual Chlorine
15. Were samples received within holding time?	/			<input type="checkbox"/> Holding Time - Receipt	Preservative: _____
16. Were samples received with correct chemical preservative (excluding Encore)?				<input type="checkbox"/> pH Adjusted, pH Included (See box 16A) <input type="checkbox"/> Incorrect Preservative	Lot Number: _____ Exp Date: _____ Analyst: _____ Date: _____ Time: _____
17. Were VOA samples received without headspace?			/	<input type="checkbox"/> Headspace (VOA only) <input type="checkbox"/> Residual Chlorine	
18. Did you check for residual chlorine, if necessary? (e.g. 1613B, 1668) Chlorine test strip lot number: _____			/		
19. For 1613B water samples is pH<9?			/	<input type="checkbox"/> If no, notify lab to adjust	
20. For rad samples was sample activity info. Provided?			/	<input type="checkbox"/> Project missing info	
Project #: <u>Seo10928</u> PM Instructions: _____					

Sample Receiving Associate: Ken Wink Date: 12/19/18 QA026R31.doc, 112618







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Waukesha, WI 53186  
T: 262.754.2560  
F: 262.754.9711  
www.gza.com

January 9, 2019  
File No. 20.0153134.30

Mr. and Ms. Lopez  
316 Barstow Street  
Horicon, Wisconsin 53032

Re: Verification Post-Mitigation Indoor Air Test Results

Dear Mr. and Ms. Lopez:

With this letter, GZA GeoEnvironmental, Inc. (GZA) is informing you of the results of recent indoor air sampling conducted at your home at 316 Barstow Street in Horicon, Wisconsin.

### BACKGROUND

Gardner Manufacturing Company, Inc. (Gardner) hired GZA GeoEnvironmental, Inc. (GZA) to conduct environmental investigation and remediation of its former property at 263 Kansas Street, including the assessment of chemical vapors near area homes. The Wisconsin Department of Natural Resources (WDNR) provides oversight of the investigation activities being conducted by Gardner and provides file information under BRRS No. 02-14-55423.

Due to the detection of trichloroethene (TCE) in air samples collected from beneath the basement floor slab, GZA installed a mitigation system in the home for the former owner in October 2013. Post-mitigation indoor air samples collected in June 2014 confirmed that the mitigation system was effectively maintaining indoor air TCE concentrations below the TCE residential vapor action level (VAL).

### INDOOR AIR SAMPLING AND RESULTS

To further verify the effectiveness of the mitigation system, three indoor air samples were collected from your home over a 24-hour period between December 13 and 14, 2018. Samples were collected from the basement and first floor and from background outside air. The three air samples were collected in 6-liter canisters and were submitted to TestAmerica of Knoxville, Tennessee for testing. The analytical report for the air samples is provided as Attachment 1. The data are summarized on the attached table and include historical results.

TCE was not detected in the December 2018 indoor air samples and confirms the mitigation system is operating as designed.


### CLOSING

If you are looking for more information, please contact the undersigned (262-754-2560 or [bernard.fenelon@gza.com](mailto:bernard.fenelon@gza.com)). You may also contact Mr. Jeff Ackerman of the WDNR (608-275-3323) if you have any questions related to the investigation, or Mr. Ryan Wozniak of the WDHS (608-267-3227) if you have any health-related questions associated with this investigation.

Very truly yours,

**GZA GeoEnvironmental, Inc.**

  
Bernard G. Fenelon, P.G.  
Senior Consultant/Hydrogeologist

  
John C. Osborne, P.G.  
Senior Principal/Hydrogeologist

J:\153100to153199\153134 263 Kansas\30 Remediation\Correspondence\2018 IAQ Results Letters\  
2019 01 09 FINAL TENANT Results of Verification Post-Mitigation Indoor Air Sampling 316 Barstow - Lopez.docx

### Attachments

c: Mr. Jeff Ackerman, WDNR  
Mr. Ryan J. Wozniak, MPH, Ph.D., Wisconsin Department of Health Services



**TABLE 1  
SUB-SLAB AIR AND INDOOR AIR ANALYTICAL RESULTS  
316 Barstow Street  
Horicon, Wisconsin**

	Wisconsin Department of Natural Resources Vapor Action Levels									
	Chloroethane	1,2-DCA	1,1-DCE	cis-1,2-DCE	trans-1,2-DCE	1,1,2,2-TCA	PCE	TCE	1,1,2-TCA	Vinyl Chloride
Sub-Slab Vapor Action Level (ppbv)	12,000	9	1,700	NE	NE	2.3	210	13	1.3	22
Indoor Air Action Level (ppbv)	370	0.27	52	NE	NE	0.068	6.2	0.39	0.038	0.65

Sample Location	Date	Sub-Slab Vapor Sample Results									
		Chloroethane	1,2-DCA	1,1-DCE	cis-1,2-DCE	trans-1,2-DCE	1,1,2,2-TCA	PCE	TCE	1,1,2-TCA	Vinyl Chloride
316 Barstow Street	4/27/11	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	9.38	<2.5	<2.5
		Pre-Ventilation Indoor Air Sample Results									
316 Barstow Street		Pre-Mitigation Indoor Air Quality Samples Were Not Collected									
		Post-Ventilation Indoor Air Sample Results									
316 Barstow-Basement	6/10/14	NA	NA	NA	NA	NA	NA	NA	<0.16	NA	NA
316 Barstow-1st Floor	6/10/14	NA	NA	NA	NA	NA	NA	NA	<0.15	NA	NA
316 Barstow-2nd Floor	6/10/14	NA	NA	NA	NA	NA	NA	NA	<0.18	NA	NA
316 Barstow-Background IA (Outside)	6/10/14	NA	NA	NA	NA	NA	NA	NA	<b>0.92</b>	NA	NA
316 Barstow-Basement IA	12/14/18	NA	NA	NA	<0.060	<0.050	NA	<0.040	<0.036	NA	<0.071
316 Barstow-1st Floor IA	12/14/18	NA	NA	NA	<0.060	<0.050	NA	<0.040	<0.036	NA	<0.071
316 Barstow-Background (Outside)	12/14/18	NA	NA	NA	<0.060	<0.050	NA	<0.040	<0.036	NA	<0.071

Notes:

- Sample results from 2011 are for sub-slab and indoor air samples collected by SCS BT Squared of Madison, Wisconsin and analyzed by the Wisconsin State Hygiene Laboratory of Madison, Wisconsin for VOCs in accordance with USEPA Method TO-15. Results are reported to the Limit of Detection (LOD).
- Sample results from 2015 are indoor air samples collected by GZA GeoEnvironmental, Inc. of Waukesha, Wisconsin and analyzed by Eurofins Air Toxics, Inc. of Folsom, California for the listed VOCs in accordance with USEPA Method TO-15. Results are reported to the Reporting Limit (RL), Limit of Quantification (LOQ) or Method Detection Limit (MDL).
- Analytical results are provided in units of parts per billion by volume (ppbv).
- "J" denotes an estimated concentration between the method detection limit and the reporting limit. "NA" denotes the sample was not analyzed for the constituent.
- The sub-slab and indoor air vapor action levels (VALs) were obtained from USEPA regional screening levels accessed at: [http://www.epa.gov/reg3hwmd/risk/human/rb-concentration\\_table/index.htm](http://www.epa.gov/reg3hwmd/risk/human/rb-concentration_table/index.htm) and using a 10-5 cancer risk and a hazard index of 1 with a 0.1 attenuation factor for the building slab.
- Samples that exceed the applicable sub-slab or indoor VAL are provided in **bold/underlined** font.
- Constituent abbreviations are used as follows:

1,2-DCA denotes 1,2-dichloroethane  
TCE denotes trichloroethene  
PCE denotes tetrachloroethene

cis-1,2-DCE denotes cis-1,2-dichloroethene  
1,1-DCE denotes 1,1-dichloroethene  
1,1,2-TCE denotes 1,1,2-Trichloroethane

1,1,2,2 TCA denotes 1,1,2,2-Tetrachloroethane  
trans-1,2-DCE denotes trans-1,2-dichloroethene



**ATTACHMENT 1**

**Post-Mitigation Indoor Air Laboratory Analytical Report**



# TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

## ANALYTICAL REPORT

TestAmerica Laboratories, Inc.  
TestAmerica Knoxville  
5815 Middlebrook Pike  
Knoxville, TN 37921  
Tel: (865)291-3000

TestAmerica Job ID: 140-13726-1

Client Project/Site: Former Gardner, Horicon - 20.0153134.20

For:

GZA GeoEnvironmental, Inc.  
20900 Swenson Drive Suite 150  
Waukesha, Wisconsin 53186

Attn: Mr. Bernard Fenelon



Authorized for release by:  
12/29/2018 5:03:52 PM

Sandie Fredrick, Project Manager II  
(920)261-1660  
[sandie.fredrick@testamericainc.com](mailto:sandie.fredrick@testamericainc.com)

### LINKS

Review your project  
results through  
**TotalAccess**

Have a Question?



Visit us at:  
[www.testamericainc.com](http://www.testamericainc.com)

*The test results in this report meet all 2003 NELAC and 2009 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.*

*This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.*

*Results relate only to the items tested and the sample(s) as received by the laboratory.*

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# Definitions/Glossary

Client: GZA GeoEnvironmental, Inc.  
Project/Site: Former Gardner, Horicon - 20.0153134.20

TestAmerica Job ID: 140-13726-1

## Qualifiers

### Air - GC/MS VOA

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

## Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

# Case Narrative

Client: GZA GeoEnvironmental, Inc.  
Project/Site: Former Gardner, Horicon - 20.0153134.20

TestAmerica Job ID: 140-13726-1

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## Job ID: 140-13726-1

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### Laboratory: TestAmerica Knoxville

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#### Narrative

#### Job Narrative 140-13726-1

#### Comments

No additional comments.

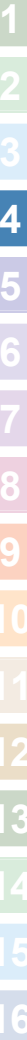
#### Receipt

The samples were received on 12/19/2018 10:20 AM; the samples arrived in good condition, properly preserved and, where required, on ice.

#### Air - GC/MS VOA

Method(s) TO 15 LL, TO-15: EPA methods TO-14A and TO-15 specify the use of humidified "zero air" as the blank reagent for canister cleaning, instrument calibration and sample analysis. Ultra-high purity humidified nitrogen from a cryogenic reservoir is used in place of "zero air" by TestAmerica Knoxville.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.



# Client Sample Results

Client: GZA GeoEnvironmental, Inc.  
 Project/Site: Former Gardner, Horicon - 20.0153134.20

TestAmerica Job ID: 140-13726-1

## Client Sample ID: 316 BARSTOW-BACKGROUND IA

Lab Sample ID: 140-13726-1

Date Collected: 12/14/18 12:47

Matrix: Air

Date Received: 12/19/18 10:20

Sample Container: Summa Canister 6L

### Method: TO-15 - Volatile Organic Compounds in Ambient Air

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
cis-1,2-Dichloroethene	<0.060		0.20	0.060	ppb v/v			12/21/18 20:18	1
Tetrachloroethene	<0.040		0.20	0.040	ppb v/v			12/21/18 20:18	1
trans-1,2-Dichloroethene	<0.050		0.20	0.050	ppb v/v			12/21/18 20:18	1
Trichloroethene	<0.036		0.20	0.036	ppb v/v			12/21/18 20:18	1
Vinyl chloride	<0.071		0.40	0.071	ppb v/v			12/21/18 20:18	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	91		60 - 140		12/21/18 20:18	1

## Client Sample ID: 316 BARSTOW-BASEMENT IA

Lab Sample ID: 140-13726-2

Date Collected: 12/14/18 12:55

Matrix: Air

Date Received: 12/19/18 10:20

Sample Container: Summa Canister 6L

### Method: TO-15 - Volatile Organic Compounds in Ambient Air

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
cis-1,2-Dichloroethene	<0.060		0.20	0.060	ppb v/v			12/21/18 21:12	1
Tetrachloroethene	<0.040		0.20	0.040	ppb v/v			12/21/18 21:12	1
trans-1,2-Dichloroethene	<0.050		0.20	0.050	ppb v/v			12/21/18 21:12	1
Trichloroethene	<0.036		0.20	0.036	ppb v/v			12/21/18 21:12	1
Vinyl chloride	<0.071		0.40	0.071	ppb v/v			12/21/18 21:12	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	92		60 - 140		12/21/18 21:12	1

## Client Sample ID: 316 BARSTOW-1ST FLOOR IA

Lab Sample ID: 140-13726-3

Date Collected: 12/14/18 12:52

Matrix: Air

Date Received: 12/19/18 10:20

Sample Container: Summa Canister 6L

### Method: TO-15 - Volatile Organic Compounds in Ambient Air

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
cis-1,2-Dichloroethene	<0.060		0.20	0.060	ppb v/v			12/27/18 23:02	1
Tetrachloroethene	<0.040		0.20	0.040	ppb v/v			12/27/18 23:02	1
trans-1,2-Dichloroethene	<0.050		0.20	0.050	ppb v/v			12/27/18 23:02	1
Trichloroethene	<0.036		0.20	0.036	ppb v/v			12/27/18 23:02	1
Vinyl chloride	<0.071		0.40	0.071	ppb v/v			12/27/18 23:02	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	103		60 - 140		12/27/18 23:02	1

TestAmerica Knoxville

# Default Detection Limits

Client: GZA GeoEnvironmental, Inc.  
Project/Site: Former Gardner, Horicon - 20.0153134.20

TestAmerica Job ID: 140-13726-1

## Method: TO-15 - Volatile Organic Compounds in Ambient Air

Analyte	RL	MDL	Units	Method
cis-1,2-Dichloroethene	0.20	0.060	ppb v/v	TO-15
Tetrachloroethene	0.20	0.040	ppb v/v	TO-15
trans-1,2-Dichloroethene	0.20	0.050	ppb v/v	TO-15
Trichloroethene	0.20	0.036	ppb v/v	TO-15
Vinyl chloride	0.40	0.071	ppb v/v	TO-15

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# Surrogate Summary

Client: GZA GeoEnvironmental, Inc.  
Project/Site: Former Gardner, Horicon - 20.0153134.20

TestAmerica Job ID: 140-13726-1

## Method: TO-15 - Volatile Organic Compounds in Ambient Air

Matrix: Air

Prep Type: Total/NA

### Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	BFB (60-140)
140-13726-1	316 BARSTOW-BACKGROUND	91
140-13726-2	316 BARSTOW-BASEMENT IA	92
140-13726-3	316 BARSTOW-1ST FLOOR IA	103
140-13726-4	267 KANSAS-BACKGROUND IA	102
140-13726-5	267 KANSAS-WEST IA	104
140-13726-6	267 KANSAS-EAST IA	105
140-13726-7	150 LARABEE-BASEMENT IA	104
140-13726-8	150 LARABEE-1ST FLOOR IA	94
140-13726-9	150 LARABEE-BACKGROUND IA	88
140-13726-10	142 LARABEE-BACKGROUND IA	89
140-13726-11	142 LARABEE-BASEMENT IA	94
140-13726-12	142 LARABEE-1ST FLOOR IA	100
LCS 140-26434/1002	Lab Control Sample	103
LCS 140-26435/1002	Lab Control Sample	90
LCS 140-26516/1002	Lab Control Sample	102
MB 140-26434/5	Method Blank	90
MB 140-26435/4	Method Blank	88
MB 140-26516/4	Method Blank	103

#### Surrogate Legend

BFB = 4-Bromofluorobenzene (Surr)

# QC Sample Results

Client: GZA GeoEnvironmental, Inc.  
 Project/Site: Former Gardner, Horicon - 20.0153134.20

TestAmerica Job ID: 140-13726-1

## Method: TO-15 - Volatile Organic Compounds in Ambient Air

**Lab Sample ID: MB 140-26434/5**  
**Matrix: Air**  
**Analysis Batch: 26434**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
cis-1,2-Dichloroethene	<0.060		0.20	0.060	ppb v/v			12/21/18 11:4V	1
Tetrachloroethene	<0.040		0.20	0.040	ppb v/v			12/21/18 11:4V	1
trans-1,2-Dichloroethene	<0.050		0.20	0.050	ppb v/v			12/21/18 11:4V	1
Trichloroethene	<0.036		0.20	0.036	ppb v/v			12/21/18 11:4V	1
γ inKl chloride	<0.071		0.40	0.071	ppb v/v			12/21/18 11:4V	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	91		61 - 041		02/20/08 00:49	0

**Lab Sample ID: LCS 140-26434/1002**  
**Matrix: Air**  
**Analysis Batch: 26434**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
cis-1,2-Dichloroethene	2.00	1.V4		ppb v/v		V7	70 - 130
Tetrachloroethene	2.00	2.15		ppb v/v		108	70 - 130
trans-1,2-Dichloroethene	2.00	1.V7		ppb v/v		V8	70 - 130
Trichloroethene	2.00	2.03		ppb v/v		101	70 - 130
γ inKl chloride	2.00	1.V2		ppb v/v		V6	70 - 130

Surrogate	LCS %Recovery	LCS Qualifier	Limits
4-Bromofluorobenzene (Surr)	013		61 - 041

**Lab Sample ID: MB 140-26435/4**  
**Matrix: Air**  
**Analysis Batch: 26435**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
cis-1,2-Dichloroethene	<0.060		0.20	0.060	ppb v/v			12/24/18 14:2V	1
Tetrachloroethene	<0.040		0.20	0.040	ppb v/v			12/24/18 14:2V	1
trans-1,2-Dichloroethene	<0.050		0.20	0.050	ppb v/v			12/24/18 14:2V	1
Trichloroethene	<0.036		0.20	0.036	ppb v/v			12/24/18 14:2V	1
γ inKl chloride	<0.071		0.40	0.071	ppb v/v			12/24/18 14:2V	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	88		61 - 041		02/24/08 04:29	0

**Lab Sample ID: LCS 140-26435/1002**  
**Matrix: Air**  
**Analysis Batch: 26435**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
cis-1,2-Dichloroethene	2.00	1.V5		ppb v/v		V7	70 - 130
Tetrachloroethene	2.00	2.02		ppb v/v		101	70 - 130
trans-1,2-Dichloroethene	2.00	1.V8		ppb v/v		VV	70 - 130
Trichloroethene	2.00	1.V8		ppb v/v		VV	70 - 130
γ inKl chloride	2.00	1.80		ppb v/v		V0	70 - 130

TestAmerica x noxville

# QC Sample Results

Client: GZA GeoEnvironmental, Inc.  
 Project/Site: Former Gardner, Horicon - 20.0153134.20

TestAmerica Job ID: 140-13726-1

## Method: TO-15 - Volatile Organic Compounds in Ambient Air (Continued)

**Lab Sample ID: LCS 140-26435/1002**  
**Matrix: Air**  
**Analysis Batch: 26435**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**

	LCS	LCS	
Surrogate	%Recovery	Qualifier	Limits
4-Bromofluorobenzene (Surr)	91		61 - 041

**Lab Sample ID: MB 140-26516/4**  
**Matrix: Air**  
**Analysis Batch: 26516**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**

Analyte	MB MB		RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
cis-1,2-Dichloroethene	<0.060		0.20	0.060	ppb v/v			12/27/18 12:56	1
Tetrachloroethene	<0.040		0.20	0.040	ppb v/v			12/27/18 12:56	1
trans-1,2-Dichloroethene	<0.050		0.20	0.050	ppb v/v			12/27/18 12:56	1
Trichloroethene	<0.036		0.20	0.036	ppb v/v			12/27/18 12:56	1
γ inK chloride	<0.071		0.40	0.071	ppb v/v			12/27/18 12:56	1

	MB MB				
Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed
4-Bromofluorobenzene (Surr)	013		61 - 041		02/27/08 02:56

**Lab Sample ID: LCS 140-26516/1002**  
**Matrix: Air**  
**Analysis Batch: 26516**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**

Analyte	Spike Added	LCS LCS		Unit	D	%Rec	%Rec. Limits
		Result	Qualifier				
cis-1,2-Dichloroethene	2.00	2.16		ppb v/v		108	70 - 130
Tetrachloroethene	2.00	2.10		ppb v/v		105	70 - 130
trans-1,2-Dichloroethene	2.00	2.13		ppb v/v		106	70 - 130
Trichloroethene	2.00	1.77		ppb v/v		88	70 - 130
γ inK chloride	2.00	2.13		ppb v/v		107	70 - 130

	LCS LCS		
Surrogate	%Recovery	Qualifier	Limits
4-Bromofluorobenzene (Surr)	012		61 - 041



# QC Association Summary

Client: GZA GeoEnvironmental, Inc.  
Project/Site: Former Gardner, Horicon - 20.0153134.20

TestAmerica Job ID: 140-13726-1

## Air - GC/MS VOA

### Analysis Batch: 26434

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
140-13726-1	316 BARSTOW-BACKGROUND IA	Total/NA	Air	TO-15	
140-13726-2	316 BARSTOW-BASEMENT IA	Total/NA	Air	TO-15	
MB 140-26434/5	Method Blank	Total/NA	Air	TO-15	
LCS 140-26434/1002	Lab Control Sample	Total/NA	Air	TO-15	

### Analysis Batch: 26435

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
140-13726-8	150 LARABEE-1ST FLOOR IA	Total/NA	Air	TO-15	
140-13726-9	150 LARABEE-BACKGROUND IA	Total/NA	Air	TO-15	
140-13726-10	142 LARABEE-BACKGROUND IA	Total/NA	Air	TO-15	
140-13726-11	142 LARABEE-BASEMENT IA	Total/NA	Air	TO-15	
MB 140-26435/4	Method Blank	Total/NA	Air	TO-15	
LCS 140-26435/1002	Lab Control Sample	Total/NA	Air	TO-15	

### Analysis Batch: 26516

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
140-13726-3	316 BARSTOW-1ST FLOOR IA	Total/NA	Air	TO-15	
140-13726-4	267 KANSAS-BACKGROUND IA	Total/NA	Air	TO-15	
140-13726-5	267 KANSAS-WEST IA	Total/NA	Air	TO-15	
140-13726-6	267 KANSAS-EAST IA	Total/NA	Air	TO-15	
140-13726-7	150 LARABEE-BASEMENT IA	Total/NA	Air	TO-15	
140-13726-12	142 LARABEE-1ST FLOOR IA	Total/NA	Air	TO-15	
MB 140-26516/4	Method Blank	Total/NA	Air	TO-15	
LCS 140-26516/1002	Lab Control Sample	Total/NA	Air	TO-15	

# Lab Chronicle

Client: GZA GeoEnvironmental, Inc.  
 Project/Site: Former Gardner, Horicon - 20.0153134.20

TestAmerica Job ID: 140-13726-1

## Client Sample ID: 316 BARSTOW-BACKGROUND IA

Lab Sample ID: 140-13726-1

Date Collected: 12/14/18 12:47

Matrix: Air

Date Received: 12/19/18 10:20

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	TO-15		1	200 mL	500 mL	26434	12/21/18 20:18	S1K	TAL KNX
Instrument ID: MH										

## Client Sample ID: 316 BARSTOW-BASEMENT IA

Lab Sample ID: 140-13726-2

Date Collected: 12/14/18 12:55

Matrix: Air

Date Received: 12/19/18 10:20

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	TO-15		1	200 mL	500 mL	26434	12/21/18 21:12	S1K	TAL KNX
Instrument ID: MH										

## Client Sample ID: 316 BARSTOW-1ST FLOOR IA

Lab Sample ID: 140-13726-3

Date Collected: 12/14/18 12:52

Matrix: Air

Date Received: 12/19/18 10:20

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	TO-15		1	200 mL	500 mL	26516	12/27/18 23:02	S1K	TAL KNX
Instrument ID: MG										

## Client Sample ID: 267 KANSAS-BACKGROUND IA

Lab Sample ID: 140-13726-4

Date Collected: 12/14/18 13:38

Matrix: Air

Date Received: 12/19/18 10:20

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	TO-15		1	200 mL	500 mL	26516	12/27/18 23:45	S1K	TAL KNX
Instrument ID: MG										

## Client Sample ID: 267 KANSAS-WEST IA

Lab Sample ID: 140-13726-5

Date Collected: 12/14/18 13:43

Matrix: Air

Date Received: 12/19/18 10:20

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	TO-15		1	200 mL	500 mL	26516	12/28/18 00:27	S1K	TAL KNX
Instrument ID: MG										

## Client Sample ID: 267 KANSAS-EAST IA

Lab Sample ID: 140-13726-6

Date Collected: 12/14/18 13:43

Matrix: Air

Date Received: 12/19/18 10:20

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	TO-15		1	200 mL	500 mL	26516	12/28/18 01:10	S1K	TAL KNX
Instrument ID: MG										

TestAmerica Knoxville

# Lab Chronicle

Client: GZA GeoEnvironmental, Inc.  
Project/Site: Former Gardner, Horicon - 20.0153134.20

TestAmerica Job ID: 140-13726-1

## Client Sample ID: 150 LARABEE-BASEMENT IA

Lab Sample ID: 140-13726-7

Date Collected: 12/18/18 13:34

Matrix: Air

Date Received: 12/19/18 10:20

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	TO-15		1	200 mL	500 mL	26516	12/28/18 01:55	S1K	TAL KNX
Instrument ID: MG										

## Client Sample ID: 150 LARABEE-1ST FLOOR IA

Lab Sample ID: 140-13726-8

Date Collected: 12/18/18 13:35

Matrix: Air

Date Received: 12/19/18 10:20

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	TO-15		1	200 mL	500 mL	26435	12/25/18 02:13	S1K	TAL KNX
Instrument ID: MH										

## Client Sample ID: 150 LARABEE-BACKGROUND IA

Lab Sample ID: 140-13726-9

Date Collected: 12/18/18 13:39

Matrix: Air

Date Received: 12/19/18 10:20

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	TO-15		1	200 mL	500 mL	26435	12/25/18 03:07	S1K	TAL KNX
Instrument ID: MH										

## Client Sample ID: 142 LARABEE-BACKGROUND IA

Lab Sample ID: 140-13726-10

Date Collected: 12/18/18 15:11

Matrix: Air

Date Received: 12/19/18 10:20

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	TO-15		1	200 mL	500 mL	26435	12/25/18 04:02	S1K	TAL KNX
Instrument ID: MH										

## Client Sample ID: 142 LARABEE-BASEMENT IA

Lab Sample ID: 140-13726-11

Date Collected: 12/18/18 15:17

Matrix: Air

Date Received: 12/19/18 10:20

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	TO-15		1	200 mL	500 mL	26435	12/25/18 04:57	S1K	TAL KNX
Instrument ID: MH										

## Client Sample ID: 142 LARABEE-1ST FLOOR IA

Lab Sample ID: 140-13726-12

Date Collected: 12/18/18 15:16

Matrix: Air

Date Received: 12/19/18 10:20

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	TO-15		1	200 mL	500 mL	26516	12/28/18 02:39	S1K	TAL KNX
Instrument ID: MG										

TestAmerica Knoxville

# Lab Chronicle

Client: GZA GeoEnvironmental, Inc.  
Project/Site: Former Gardner, Horicon - 20.0153134.20

TestAmerica Job ID: 140-13726-1

## Client Sample ID: Method Blank

Lab Sample ID: MB 140-26434/5

Date Collected: N/A

Matrix: Air

Date Received: N/A

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	TO-15		1	200 mL	500 mL	26434	12/21/18 11:49	S1K	TAL KNX
Instrument ID: MH										

## Client Sample ID: Method Blank

Lab Sample ID: MB 140-26435/4

Date Collected: N/A

Matrix: Air

Date Received: N/A

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	TO-15		1	200 mL	500 mL	26435	12/24/18 14:29	S1K	TAL KNX
Instrument ID: MH										

## Client Sample ID: Method Blank

Lab Sample ID: MB 140-26516/4

Date Collected: N/A

Matrix: Air

Date Received: N/A

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	TO-15		1	200 mL	500 mL	26516	12/27/18 12:56	S1K	TAL KNX
Instrument ID: MG										

## Client Sample ID: Lab Control Sample

Lab Sample ID: LCS 140-26434/1002

Date Collected: N/A

Matrix: Air

Date Received: N/A

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	TO-15		1	500 mL	500 mL	26434	12/21/18 10:21	S1K	TAL KNX
Instrument ID: MH										

## Client Sample ID: Lab Control Sample

Lab Sample ID: LCS 140-26435/1002

Date Collected: N/A

Matrix: Air

Date Received: N/A

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	TO-15		1	500 mL	500 mL	26435	12/24/18 12:35	S1K	TAL KNX
Instrument ID: MH										

## Client Sample ID: Lab Control Sample

Lab Sample ID: LCS 140-26516/1002

Date Collected: N/A

Matrix: Air

Date Received: N/A

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	TO-15		1	500 mL	500 mL	26516	12/27/18 11:14	S1K	TAL KNX
Instrument ID: MG										

TestAmerica Knoxville

# Lab Chronicle

Client: GZA GeoEnvironmental, Inc.  
Project/Site: Former Gardner, Horicon - 20.0153134.20

TestAmerica Job ID: 140-13726-1

**Laboratory References:**

TAL KNX = TestAmerica Knoxville, 5815 Middlebrook Pike, Knoxville, TN 37921, TEL (865)291-3000

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# Accreditation/Certification Summary

Client: GZA GeoEnvironmental, Inc.  
Project/Site: Former Gardner, Horicon - 20.0153134.20

TestAmerica Job ID: 140-13726-1

## Laboratory: TestAmerica Knoxville

The accreditations/certifications listed below are applicable to this report.

Authority	Program	EPA Region	Identification Number	Expiration Date
Wisconsin	State Program	5	998044300	08-31-19

## Laboratory: TestAmerica Chicago

The accreditations/certifications listed below are applicable to this report.

Authority	Program	EPA Region	Identification Number	Expiration Date
Wisconsin	State Program	5	999580010	08-31-19

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# Method Summary

Client: GZA GeoEnvironmental, Inc.  
Project/Site: Former Gardner, Horicon - 20.0153134.20

TestAmerica Job ID: 140-13726-1

Method	Method Description	Protocol	Laboratory
TO-15	Volatile Organic Compounds in Ambient Air	EPA	TAL KNX

**Protocol References:**

EPA = US Environmental Protection Agency

**Laboratory References:**

TAL KNX = TestAmerica Knoxville, 5815 Middlebrook Pike, Knoxville, TN 37921, TEL (865)291-3000



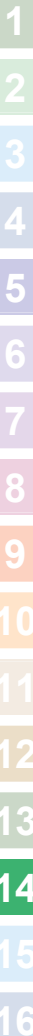


# Sample Summary

Client: GZA GeoEnvironmental, Inc.  
Project/Site: Former Gardner, Horicon - 20.0153134.20

TestAmerica Job ID: 140-13726-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
140-13726-1	316 BARSTOW-BACKGROUND IA	Air	12/14/18 12:47	12/19/18 10:20
140-13726-2	316 BARSTOW-BASEMENT IA	Air	12/14/18 12:55	12/19/18 10:20
140-13726-3	316 BARSTOW-1ST FLOOR IA	Air	12/14/18 12:52	12/19/18 10:20
140-13726-4	267 KANSAS-BACKGROUND IA	Air	12/14/18 13:38	12/19/18 10:20
140-13726-5	267 KANSAS-WEST IA	Air	12/14/18 13:43	12/19/18 10:20
140-13726-6	267 KANSAS-EAST IA	Air	12/14/18 13:43	12/19/18 10:20
140-13726-7	150 LARABEE-BASEMENT IA	Air	12/18/18 13:34	12/19/18 10:20
140-13726-8	150 LARABEE-1ST FLOOR IA	Air	12/18/18 13:35	12/19/18 10:20
140-13726-9	150 LARABEE-BACKGROUND IA	Air	12/18/18 13:39	12/19/18 10:20
140-13726-10	142 LARABEE-BACKGROUND IA	Air	12/18/18 15:11	12/19/18 10:20
140-13726-11	142 LARABEE-BASEMENT IA	Air	12/18/18 15:17	12/19/18 10:20
140-13726-12	142 LARABEE-1ST FLOOR IA	Air	12/18/18 15:16	12/19/18 10:20



TAL Knoxville  
5815 Middlebrook Pike  
Knoxville, TN 37921  
phone 865-291-3000 fax 865-584-4315

### Canister Samples Chain of Custody Record

# TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

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

Client Contact Information		Project Manager: <u>Bernard Fenelon</u>		Sampled By: <u>C. Kingworetta</u>		1 of 2 COCs	
Company: <u>East Georgia Industrial Inc.</u>		Phone: _____		EPA 3C		Other (Please specify in notes section)	
Address: <u>2080 SWANSON DRIVE SUITE 150</u>		Site Contact: _____		EPA 25C		Other (Please specify in notes section)	
City/State/Zip: <u>WALKERSVILLE, TN 37188</u>		TAL Contact: <u>ANDIE FEORUCK</u>		TO-14A		Other (Please specify in notes section)	
Phone: <u>762-154-2500</u>		Analysis Turnaround Time		TO-15		Other (Please specify in notes section)	
FAX: <u>762-154-2711</u>		Standard (Specify) <u>X</u>		TO-15		Other (Please specify in notes section)	
Project Name: <u>FORNER GREENER MANUFACTURING</u>		Rush (Specify)		TO-15		Other (Please specify in notes section)	
Site/location: <u>WALKER, TN</u>		Sample Date(s)		TO-15		Other (Please specify in notes section)	
PO #		Time Start		TO-15		Other (Please specify in notes section)	
		Time Stop		TO-15		Other (Please specify in notes section)	
		Canister Vacuum in Field, "Hg (Start)		TO-15		Other (Please specify in notes section)	
		Canister Vacuum in Field, "Hg (Stop)		TO-15		Other (Please specify in notes section)	
		Flow Controller ID		TO-15		Other (Please specify in notes section)	
		Canister ID		TO-15		Other (Please specify in notes section)	
316 BARSTOW - BACKGROUNDA	12/13/18	12:39	12:47	-29.5	09847	09671	X
316 BARSTOW - BASEMENT IA	12/14/18	12:49	12:55	-27.5	10304	11562	X
316 BARSTOW - 1ST FLOOR IA	12/14/18	12:54	12:52	-28	09550	09603	X
267 KANSAS - BACKGROUNDA	12/14/18	13:40	13:38	-27	10588	10261	X
267 KANSAS - WEST IA	12/14/18	13:47	13:43	-30	7162	10830	X
267 KANSAS - EAST IA	12/14/18	13:49	13:43	-30	11488	11963	X
Sampled by:		Temperature (Fahrenheit)		TO-15		Other (Please specify in notes section)	
		Interior		TO-15		Other (Please specify in notes section)	
		Ambient		TO-15		Other (Please specify in notes section)	
		Start		TO-15		Other (Please specify in notes section)	
		Stop		TO-15		Other (Please specify in notes section)	
		Interior		TO-15		Other (Please specify in notes section)	
		Ambient		TO-15		Other (Please specify in notes section)	
		Start		TO-15		Other (Please specify in notes section)	
		Stop		TO-15		Other (Please specify in notes section)	
Special Instructions/QC Requirements & Comments:		Pressure (Inches of Hg)		TO-15		Other (Please specify in notes section)	
		Ambient		TO-15		Other (Please specify in notes section)	
		Start		TO-15		Other (Please specify in notes section)	
		Stop		TO-15		Other (Please specify in notes section)	
Canisters Shipped by: <u>[Signature]</u>		Date/Time: <u>12/18/18 1730</u>		TO-15		Other (Please specify in notes section)	
Samples Relinquished by: _____		Date/Time: _____		TO-15		Other (Please specify in notes section)	
Relinquished by: _____		Date/Time: _____		TO-15		Other (Please specify in notes section)	
Lab Use Only		Shipper Name:		TO-15		Other (Please specify in notes section)	
		Shipper Name:		TO-15		Other (Please specify in notes section)	
		Shipper Name:		TO-15		Other (Please specify in notes section)	

ANALYZE FOR: TCE, CIS AND TRANS  
1,2 DCE AND VINYL CHLORIDE

Received ambient 3 boxes  
TRK # 7845 3404 2397, Fedex 50  
" 3398 8971  
" 3390 1031

Custody seal intact

Canisters Received by: PAR FEORUCK  
Received by: John 12/19/18 1020TA-14  
Received by: \_\_\_\_\_

Canisters Shipped by: [Signature]  
Samples Relinquished by: \_\_\_\_\_  
Relinquished by: \_\_\_\_\_

140-13726 Chain of Custody

Opened by: \_\_\_\_\_ Condition: \_\_\_\_\_

Shipper Name: \_\_\_\_\_

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TAL Knoxville  
5815 Middlebrook Pike  
Knoxville, TN 37921  
phone 865-291-3000 fax 865-584-4315

### Canister Samples Chain of Custody Record

**TestAmerica**  
THE LEADER IN ENVIRONMENTAL TESTING

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

Client Contact Information		Project Manager: <b>Bernard Fencelon</b>		Sampled By: <b>C. Ainsworth</b>		2 of 2 COCs				
Company: <b>GRACE ENVIRONMENTAL INC.</b>		Phone:		EPA 25C		Other (Please specify in notes section)				
Address: <b>2000 S. BRUNNIN PERE SUITE 200</b>		Site Contact: <b>SHARON FEORUCK</b>		EPA 3C		Landfill Gas				
City/State/Zip: <b>WANKESITA, WI 53186</b>		TAL Contact: <b>SHARON FEORUCK</b>		TO-14A		Soil Gas				
Phone: <b>262-754-2560</b>		Project Name: <b>FORMER CIGARETTE MANUFACTURING</b>		TO-15		Ambient Air				
FAX: <b>262-754-9711</b>		Analysis Turnaround Time		TO-15		Indoor Air				
Site/location: <b>HERCON, WI</b>		Standard (Specify) <b>X</b>		SEE BELOW		Sample Type				
PO #		Rush (Specify)		TO-15		Other (Please specify in notes section)				
Sample Identification	Sample Date(s)	Time Start	Time Stop	Canister Vacuum in Field, "Hg (Start)	Canister Vacuum in Field, "Hg (Stop)	Flow Controller ID	Canister ID	Temperature (Fahrenheit)		Other (Please specify in notes section)
								Interior	Ambient	
150 LARABEE - BASEMENT IA	12/17/18	1335	1334	-28	-3	11467	11227			
150 LARABEE - 1ST FLOOR IA	12/17/18	1339	1335	-29	-5	11816	10529			
150 LARABEE - BACKGROUND IA	12/17/18	1341	1339	-29.5	-2	09955	10562			
142 LARABEE - BACKGROUND IA	12/17/18	1517	1511	-30	-3	11937	11534			
142 LARABEE - BASEMENT IA	12/17/18	1520	1517	-30	-3	11932	10716			
142 LARABEE - 1ST FLOOR IA	12/17/18	1522	1516	-29	-4	10467	11559			
Sampled by:		Temperature (Fahrenheit)		Pressure (inches of Hg)		Ambient		Interior		ANALYZE FOR: TCE; CIS AND TRANS 1,2 DCE. AND VINYL CHLORIDE
Special Instructions/QC Requirements & Comments:		Date/Time: 12/18/18 1730		Date/Time:		Date/Time:		Date/Time:		
Canisters Shipped by:		Date/Time:		Date/Time:		Date/Time:		Date/Time:		Canisters Received by:
Samples Relinquished by:		Date/Time:		Date/Time:		Date/Time:		Date/Time:		Received by:
Relinquished by:		Date/Time:		Date/Time:		Date/Time:		Date/Time:		Received by:

Lab Use Only Shipper Name: \_\_\_\_\_ Condition: \_\_\_\_\_  
 Opened by: \_\_\_\_\_  
 Date/Time: 12/18/18 1730  
 Received by: **SHARON FEORUCK**  
 Date/Time: 12/19/18 1020 TALK



TESTAMERICA KNOXVILLE SAMPLE RECEIPT/CONDITION UPON RECEIPT ANOMALY CHECKLIST

Review Items	Yes	No	NA	If No, what was the problem?	Comments/Actions Taken
1. Are the shipping containers intact?	/			<input type="checkbox"/> Containers, Broken	
2. Were ambient air containers received intact?			/	<input checked="" type="checkbox"/> Checked in lab	
3. The coolers/containers custody seal if present, is it intact?	/			<input type="checkbox"/> Yes <input type="checkbox"/> NA	
4. Is the cooler temperature within limits? (> freezing temp. of water to 6 °C, VOST: 10°C) Thermometer ID : _____ Correction factor: _____			/	<input type="checkbox"/> Cooler Out of Temp, Client Contacted, Proceed/Cancel <input type="checkbox"/> Cooler Out of Temp, Same Day Receipt	
5. Were all of the sample containers received intact?	/			<input type="checkbox"/> Containers, Broken	
6. Were samples received in appropriate containers?	/			<input type="checkbox"/> Containers, Improper; Client Contacted; Proceed/Cancel	
7. Do sample container labels match COC? (IDs, Dates, Times)	/			<input type="checkbox"/> COC & Samples Do Not Match <input type="checkbox"/> COC Incorrect/Incomplete <input type="checkbox"/> COC Not Received	
8. Were all of the samples listed on the COC received?	/			<input type="checkbox"/> Sample Received, Not on COC <input type="checkbox"/> Sample on COC, Not Received	
9. Is the date/time of sample collection noted?	/			<input type="checkbox"/> COC; No Date/Time; Client Contacted	Labeling Verified by: _____ Date: _____
10. Was the sampler identified on the COC?	/			<input type="checkbox"/> Sampler Not Listed on COC	
11. Is the client and project name/# identified?	/			<input type="checkbox"/> COC Incorrect/Incomplete	
12. Are tests/parameters listed for each sample?	/			<input type="checkbox"/> COC No tests on COC	
13. Is the matrix of the samples noted?	/			<input type="checkbox"/> COC Incorrect/Incomplete	
14. Was COC relinquished? (Signed/Dated/Timed)	/			<input type="checkbox"/> COC Incorrect/Incomplete	Box 16A: pH Preservation Box 18A: Residual Chlorine
15. Were samples received within holding time?	/			<input type="checkbox"/> Holding Time - Receipt	Preservative: _____
16. Were samples received with correct chemical preservative (excluding Encore)?				<input type="checkbox"/> pH Adjusted, pH Included (See box 16A) <input type="checkbox"/> Incorrect Preservative	Lot Number: _____ Exp Date: _____ Analyst: _____ Date: _____ Time: _____
17. Were VOA samples received without headspace?			/	<input type="checkbox"/> Headspace (VOA only) <input type="checkbox"/> Residual Chlorine	
18. Did you check for residual chlorine, if necessary? (e.g. 1613B, 1668) Chlorine test strip lot number: _____			/		
19. For 1613B water samples is pH<9?			/	<input type="checkbox"/> If no, notify lab to adjust	
20. For rad samples was sample activity info. Provided?			/	<input type="checkbox"/> Project missing info	
Project #: <u>Seo10928</u> PM Instructions: _____					

Sample Receiving Associate: Ken Wink Date: 12/19/18 QA026R31.doc, 112618



**TestAmerica Knoxville - Air Canister Initial Pressure Check**

Gauge ID:     G5      
 Date:     12/19/2018    

Analyst	Sample ID	Asset #	Cleaning Job	Cert	Size (L)	Pressure @ Receipt (-in Hg or +psig)	Time	Comments
BKK	140-13726-A-1	09671	13419	B	6	-2.6	16:55	
BKK	140-13726-A-2	11562	13419	B	6	-4.1	16:56	
BKK	140-13726-A-3	09603	13393	B	6	-5.0	16:57	
BKK	140-13726-A-4	10261	13419	B	6	-2.9	16:58	
BKK	140-13726-A-5	10830	13477	B	6	-2.6	16:59	
BKK	140-13726-A-6	11963	13490	B	6	-4.0	17:00	
BKK	140-13726-A-7	11227	13393	B	6	-4.7	17:01	
BKK	140-13726-A-8	10529	13393	B	6	-4.8	17:02	
BKK	140-13726-A-9	10562	13419	B	6	-1.3	17:03	
BKK	140-13726-A-10	11534	13393	B	6	-3.1	17:04	
BKK	140-13726-A-11	10716	13419	B	6	-5.0	17:05	
BKK	140-13726-A-12	11559	13393	B	6	-5.4	17:06	
<input type="checkbox"/> Receiving - Air Can - Calve Open (NCM # _____) <input type="checkbox"/> Air - Can P -24 to -25 " - Flow Contr. Works (NCM# _____) <input type="checkbox"/> Air - Can P -24 to -25 " - Flow Contr. Faulty (NCM# _____) <input type="checkbox"/> Air - Can P Out -26" - Flow Contr. Works (NCM# _____)						<input type="checkbox"/> Air - Can P Out -26" - Flow Contr. Faulty (NCM# _____) <input type="checkbox"/> Air - Can P Low -24 to -25 " - Grab Sample (NCM# _____) <input type="checkbox"/> Air - Can P Low -26 " - Grab Sample (NCM# _____)		