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Vapor Intrusion Interim Measures Quarterly Report No. 3

Chamberlain Manufacturing Corporation
Former Facility at
550 Esther Street
Waterloo Iowa
EPA Docket Nos.
RCRA-07-2010-002
CERCLA-07-2010-0005

April 19, 2012
Terracon Project No. 07107020

515287
RCRA

Prepared for:
Chamberlain Manufacturing Corporation
Elmhurst, Illinois

Prepared by:
Terracon Consultants, Inc.
Bettendorf, Iowa

Offices Nationwide Established in 1965
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Geotechnical ■ Environmental ■ Construction Materials ■ Facilities

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April 19, 2012

United States Environmental Protection Agency
Region 7
Air, RCRA and Toxics Division
901 North 5th Street
Kansas City, KS 66101

Attention: Mr. Bruce Morrison

Re: Vapor Intrusion Interim Measures Quarterly Report No. 3
Chamberlain Manufacturing Corporation
Former Facility at 550 Esther Street
Waterloo Iowa
EPA Docket Nos. RCRA-07-2010-002 and CERCLA-07-2010-0005

Dear Mr. Morrison:

Terracon Consultants, Inc. (Terracon) is pleased to submit this Vapor Intrusion Interim Measures (VIIM) Quarterly Report for activities completed between January 1, 2012 and March 30, 2012 in conjunction with the site referenced above. The VIIM Quarterly Report presents a summary of completed activities related to the installation of vapor mitigation systems in residential structures as requested by the EPA.

Should you have any questions or require additional information, please do not hesitate to contact our office.

Sincerely,
Terracon Consultants, Inc.

John F. Brimeyer, PE
Environmental Manager

Dennis R. Sensenbrenner, PG
Senior Associate

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ACRONYMS & ABBREVIATIONS

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CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
City	City of Waterloo
COC	Chain of Custody
EPA	Environmental Protection Agency
Facility	Chamberlain Manufacturing facility
HASP	Health and Safety Plan
NELAC	National Environmental Laboratory Accreditation Conference
PCE	Tetrachloroethene (or Perchloroethene)
PID	Photoionization Detector
ppm	parts per million
QA	Quality Assurance
QAM	Quality Assurance Manual
QAPP	Quality Assurance Project Plan
QC	Quality Control
RCRA	Resource Conservation and Recovery Act
RSL	Regional Screening Level
SOP	Standard Operating Procedure
SOW	Statement of Work
TCE	Trichloroethene
TestAmerica	TestAmerica, Inc.
TSOP	Terracon Standard Operating Procedure
UAO	Unilateral Administrative Order
USEPA	United States Environmental Protection Agency
VIC	Vapor Intrusion Characterization
VIIM	Vapor Intrusion Interim Measures
VOC	Volatile Organic Compound

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VAPOR INTRUSION INTERIM MEASURES QUARTERLY REPORT NO. 3
CHAMBERLAIN MANUFACTURING CORPORATION
FORMER FACILITY AT
550 ESTHER STREET
WATERLOO, IOWA

Project No. 07107020
April 19, 2012

1.0 INTRODUCTION

Terracon has developed this VIIM Quarterly Report to identify interim remedial measures completed in residential structures in which vapor concentrations related to shallow groundwater contamination from the former Chamberlain Manufacturing Facility (Facility) exceed indoor air screening levels for the period of January 1, 2012 and March 30, 2012. This VIIM Quarterly Report is submitted in accordance with the requirements of the UAO, Docket Nos. RCRA 07-2010-002 and CERCLA 07-2010-005 dated April 20, 2010 and Task IA of the SOW attached to the UAO. Capitalized terms not defined herein have the definitions set for the in the UAO or the SOW.

1.1 Site Conditions

The Facility is an irregularly shaped parcel containing approximately 22.8 acres and located at 550 Esther Street in Waterloo, Iowa. A Topographic Vicinity Map is included as Exhibit 1 in Appendix A. A Site Diagram is included as Exhibit 2.

The Facility manufactured metal washer wringers and projectile metal parts from approximately 1919 until 1996 when it was sold to Atlas Warehouse L.C. for use as a storage facility. The Facility was subsequently abandoned and is currently vacant. The City of Waterloo (City) acquired the Facility from Atlas Warehouse L.C in 2005 in an effort to facilitate redevelopment and has demolished a significant portion of the Facility.

The Facility is zoned Heavy Industrial (M-2) by the City. The Facility is adjoined by park land to the north and south, single family residential housing to the west, and Virden Creek followed by a golf course to the east. Virden Creek is within approximately 100 feet of the Facility at its closest point. Gates Park adjoins the Facility to the north across Louise Street, to the east across Virden Creek, and to the south across the railroad tracks. Single family residences are located across East 4th Street to the west of the Facility. Single family residences are also located along the east side of East 4th between Anita and Louise Streets.

1.2 Previous Assessment Activities

Beginning in 2004, the City conducted an environmental assessment of the site using a USEPA Brownfields Grant. Results of assessment activities identified impacts to soil and groundwater at the site including a chlorinated solvent plume that extends offsite to the south and west. Site assessment activities were not completed due to funding restrictions of the Brownfields Grant program.

Subsequently, environmental assessment activities of onsite soil and groundwater conditions and the offsite chlorinated solvent plume were completed by Chamberlain. The lateral extent of the chlorinated solvent plume has been determined to extend south and west from the Facility into an area of residential development. USEPA's preliminary evaluation of the vapor intrusion to indoor air pathway resulting from the groundwater plume identified the potential for vapor intrusion into residential structures.

To further evaluate the vapor intrusion pathway, the USEPA conducted subslab vapor sampling of selected residences in November 2008. Due to problems with the sampling and analysis equipment, the sampling activities were repeated in April/May 2009. Subslab vapor samples were collected from ten homes located along and near East 4th Street and analyzed for VOCs. In addition, one indoor air sample was collected from one of the ten homes. The results of sampling activities identified PCE and TCE in excess of subslab vapor screening levels. The elevated concentrations were generally located within the 2200, 2300, and 2400 block of East 4th Street.

In accordance with the approved VIC Work Plan, Terracon initially completed vapor intrusion characterization at 22 Residences that responded with completed Sampling Request Forms and Access Agreements from both the property owner and current renter. Initial subslab, indoor air, and ambient air sampling was conducted between April 25, 2011 and May 3, 2011. Additional indoor air samples were collected from four Residences on June 16, 2011 and from one Residence on September 14, 2011. Based on the analytical results, the reported concentrations of indoor air samples in seven Residences were greater than the indoor air screening level. Subslab and indoor air sample results were presented in the VIC Report dated July 5, 2011.

In accordance with the approved VIC Report, Terracon offered vapor sampling to 14 additional Residences located on the west side of the 300 block of Boston Avenue and the east side of the 400 block of Boston Avenue. Terracon also reoffered vapor sampling to those Residences that did not respond to previous submittals and contacted Residences that requested sampling through the USEPA or that had previously authorized sampling, but could not be reached to schedule an appointment. Supplemental subslab, indoor air, and ambient air sampling was conducted at nine Residences between December 12, and December 14, 2011. Analytical results for subslab samples collected from two Residences exceeded subslab screening levels.

and as such, additional indoor air samples were collected at these locations on March 23, 2012. Analytical results for supplemental sampling activities are being reviewed and validated by Terracon and will be submitted to the USEPA in accordance with the approved schedule.

1.3 Project Objectives

The objective of this VIIM Quarterly Report is to present the information required by Section 4.0 of the approved VIIM Work Plan dated October 14, 2010, revised on August 1, 2011, and amended July 19, 2011. This information includes system design "as-builts," information on the expected operational life of the system, a recommendation for the frequency for monitoring and maintaining the system, criteria for determining its effectiveness, a schedule for system replacement in whole or in part (as appropriate), the frequency of system inspection by the Respondent, the results of post-installation system monitoring and any approved deviations from the approved VIIM Work Plan.

2.0 SCOPE OF SERVICES

2.1 Mitigation Determination

In February 2012, The USEPA updated the RSL Summary Table. The February 2012 updates resulted in an increase of the PCE indoor air screening level from 0.41 $\mu g/m^3$ to 9.4 $\mu g/m^3$. Based on the revisions to the RSL Summary Table and the decision matrix, three Residences were identified during this quarterly reporting period with indoor air concentrations that no longer exceed the indoor air screening level. EPA has approved shutdown of the mitigation systems installed at Residence No. 37, Residence No. 38, and Residence No. 48 and Terracon plans to contact the Residences and complete system shutdown during the next calendar quarter.

2.2 Mitigation Activities

Based on the revisions to the RSL Summary Table in November 2011 and as directed by the USEPA, a soil vapor mitigation system, similar to a radon mitigation system, was installed as a preventive measure beneath the existing slab at Residence No. 4. The system functions as a subslab depressurization system to induce a negative pressure in the subslab soils (relative to the pressure within the residence) in order to provide a preferential pathway for subslab soil vapors to bypass the residence.

2.2.1 Site Access

Notification was provided to Residence No. 4 on November 14, 2011. The notification provided an offer to complete the installation of a vapor mitigation system and included a Mitigation

System Request Form and a Permission to Install and Inspect Mitigation System form. Terracon received the executed forms on December 5, 2011.

2.2.2 System Installation Activities

The vapor mitigation system was installed by Crystal Heating & Plumbing, Inc. (Crystal), an Iowa Department of Public Health credentialed radon mitigation specialist, under sub-contract agreement with Terracon.

2.3 Site Access Protocol

Upon receipt of the executed Mitigation System Request Form and a Permission to Install and Inspect Mitigation System form, Terracon contacted the resident to arrange a time and date for installation services. At the request of the resident, installation services were delayed until January 2012. Crystal installed the system on January 19, 2012

3.0 PROCEDURES FOR SYSTEM DESIGN, INSTALLATION AND COMMISSIONING

This section presents the approach to design, install, and commission the vapor mitigation system in the Residence accepting Chamberlain's offer for a system.

3.1 System Design

Upon arrival, Crystal reviewed the Residence with Terracon and the resident to identify possible locations for system components including withdrawal points, piping, exhaust fan, and vent stack. A preliminary design was developed and approved by the resident prior to the start of system installation. The system design was dependent on actual site conditions and was developed accordingly. A drawing was developed and provided to the resident, who signed the drawing indicating their approval of the placement of system apparatus with respect to esthetics and living-space interference. Crystal completed the installation in accordance with the design drawing.

3.2 Diagnostic Tests

Diagnostic testing was performed prior to the installation of the mitigation system to evaluate the air flow characteristics and observe the capacity of the material beneath the slab. Diagnostic testing consisted of drilling two 3-inch diameter holes through the slab, applying a vacuum to one hole, and placing a smoke bomb in the other hole. The objective of the diagnostic testing was to investigate, evaluate, and document the development of negative pressure field, via the

induced movement of the air flow beneath the slab as demonstrated by the (downward) advection of smoke (air), under negative pressure, into the subsurface media.

Test holes were separated to the extent possible so that the pressure field under the slab could be evaluated. A "shop vac" unit was used to pump air from the extraction hole. Following the test, the test holes were converted to system extraction points.

3.3 System Installation

Based on the size of the Residence (less than 1,000 square feet each) and the results of the diagnostic testing, it was determined that two extraction points would meet project goals. The extraction system consists of the cored holes in the concrete slab with vertical pipes which are sealed at the floor and exit the building to draw and expel soil vapor from beneath the concrete slab of the building. The mitigation system was installed with a pressure gage (U-tube manometer) to allow the Residence occupant to monitor for a system malfunction. Labels were placed on system components to provide a telephone number of a Terracon contact that the occupant can call for questions and repairs.

Floor slab cracks, holes, or other openings requiring sealing were identified. Floor drains that were not connected to the municipal sewer were not identified. An inline electric fan was installed to provide a vacuum to draw potential vapors to the preferential pathway.

3.4 System Commissioning

Upon completion, Terracon reviewed the system installation to document that it was installed properly, was achieving the design criteria, and was performing in accordance with defined performance specifications. Results of the commissioning were recorded on the *Installation and Operation Commissioning Checklist*. An as-built drawing was prepared for the commissioned system, showing locations of suction points, piping, and fans on a plan view of the Residence. Copies of *Installation and Operation Commissioning Checklist* and completed design drawing are included in Appendix C.

The static pressure in the extraction piping (u-tube manometer readings) was observed and generally ranged from one to two inches of mercury (in. Hg.). These measurements define the operating performance of the systems as they achieve depressurization across the slab.

System components were reviewed with the resident following completion of system installation.

The expected operational life of the mitigation system is limited only by the in-line exhaust fan. PVC piping and the inline manometer have no operating components and would be expected to last indefinitely. The expected life of the in-line exhaust fan is 10 years. Terracon proposes to replace exhaust fans after 10 years if interim measures are still required.

3.5 System Operations

A system inspection was conducted within 30 days after completion of the system installation to document continued operation of the system.

3.6 Post-Installation Monitoring

Following the completion of system installation, periodic monitoring and sampling will be completed to document continued performance of the system. System monitoring will consist of observation of the exterior portions of the vapor mitigation system for indications of damage, deterioration, or other visible problems. System monitoring will include reading the in-line manometer and observing blower motor operation. Results of the periodic system monitoring will be documented on a data form specific to each system installed. To verify that the system is maintaining indoor air concentrations below indoor air screening levels, indoor air samples will be collected and analyzed consistent with the procedures identified in the VIC Work Plan. Ambient air samples will be collected at a rate of one per every five indoor air samples.

Post installation monitoring will be performed in accordance with Table 3-1.

Table 3-1 Post-Installation Monitoring Schedule

Monitoring Activity	Schedule
Initial Indoor Air Sampling	Within 30 days after completion of system installation
System Inspection	Annually beginning one year after system installation
Indoor Air Monitoring	Every three years beginning three years after system installation

Indoor air monitoring results will be evaluated to determine if interim measures can be discontinued if results are results are below the risk management criteria in the VIC Work Plan.

4.0 COMPLETED SYSTEM INSTALLATIONS

An interim mitigation system was previously offered to and accepted by one Residence. The system installation was completed during the 1st calendar quarter of 2012. A summary of the system installation, including deviations from the VIIM Work Plan is presented below.

4.1 Residence No. 4

A vapor mitigation system was installed at Residence No. 4 on January 19, 2012. Two extraction points were installed near the south basement wall and approximately 8-feet south of the north basement wall of the Residence based on observation of site conditions and the results of diagnostic testing. After reviewing the layout of the structure, and following

discussions with the resident, it was decided that the exhaust system would exit the building through the basement wall and run up the exterior of the structure. The exhaust fan was located outside of the house at a location approximately three feet above ground level.

Due to the spacing of windows and conflicts with ductwork and other obstacles in the basement, the exhaust stack could not be located more than ten feet from openings into conditioned spaces; however, the stack was extended approximately three feet above the eave. Extension of the stack beyond three feet would have increased the unsupported length excessively resulting in a possible hazard to the system operation or to occupants of the site.

Photographs of the system installation are included in Appendix D.

5.0 INITIAL INDOOR AIR MONITORING RESULTS

5.1 Sampling Activities

Initial indoor air monitoring was conducted within approximately 30-days following completion of system installation in accordance with the VIIM Work Plan and ITRC Guidance. Indoor air sampling was conducted at Residence No. 4 during this quarterly reporting period following system installation. In addition, indoor air sampling was repeated at Residence No. 37 and Residence No. 48 where the results of initial post-installation monitoring continued to exceed indoor air screening levels. During a site visit, Terracon observed that the clean-out plugs were missing from the basement floor drains at Residence No. 48. Terracon replaced the plugs and allowed conditions to stabilize prior to collecting the indoor air sample.

Semi-annual indoor air monitoring was conducted at Residence Nos. 20, 33, and 40 in accordance with the approved VIC Report where sub-slab concentrations exceeded sub-slab screening levels, but indoor air concentrations were below indoor air screening levels.

Indoor air samples were collected using laboratory prepared six-liter Summa canisters and flow controllers. The flow controllers were pre-set by the laboratory to collect samples over a 24-hour period. Terracon requested that occupants close doors and windows and operate the heating, ventilating, and air conditioning (HVAC) system for the period beginning 24-hours prior to the start of sample collection to the end of sample collection.

Consistent with VIC activities and in accordance with the USEPA approval letter dated January 6, 2011, indoor air sampling was conducted in the basement and in the lowest occupied living area of each Residence. A finished basement is considered to be an occupied living space. Terracon attempted to position sample containers in the same general location used for previous indoor air sampling.

Terracon field personnel connected the flow controller to the Summa canister by removing the brass cap on the canister and tightening the stainless steel Swagelok fitting on the flow controller to the threads on the canister. A wrench was used to firmly tighten the fitting.

Once sample containers were positioned, air sampling forms (project information, equipment identifiers, sample location, and start time) were filled out and attached to the canisters. A Soil Vapor/Indoor Air Sampling Information Form indicating pertinent project and sample collection information was completed for each indoor air sample. A COC was completed indicating the start time for the samples.

To open the canister, the valve was rotated counter-clockwise at least one full turn or otherwise opened. After the 24-hours, Terracon personnel returned to the Residence, closed the valve on the canister and recorded the time and vacuum remaining in the Summa canister on the Terracon sampling forms and on the COC. The canisters and flow controllers were then transported to the laboratory.

Indoor air monitoring activities are summarized in Table 5-1 and Table 5-2.

Table 5-1 Post-Installation Indoor Air Monitoring

Residence No.	Sample Date	Basement Sample	1st Floor Sample
4	2/21/12	X	X
37	2/10/12	X	X
48	2/10/12	X	X

Table 5-2 Semi-Annual Indoor Air Monitoring

Residence No.	Sample Date	Basement Sample	1st Floor Sample
20	3/30/12	X	---[1]
33	3/23/12	X	X
40	3/23/12	X	X

[1] – Basement contains a finished family room; therefore, the basement is the lowest occupied level. Per the USEPA letter of January 6, 2011, sampling is not required on the first floor.

5.2 Air Monitoring Results

Indoor air samples were collected using six-liter Summa canisters. The Summa canisters were submitted for analysis of PCE, TCE, vinyl chloride, trans-1,2-dichloroethene (trans-DCE), cis-1,2-dichloroethene (cis-DCE), 1,1-dichloroethene, 1,1-dichloroethane, 1,1,1-trichloroethane (TCA), and 1,1,2- trichloroethane, using EPA Method TO-15.

Laboratory procedures were performed by TestAmerica, Knoxville, Tennessee. TestAmerica is NELAC accredited for the laboratory methods referenced above. The laboratory QAM is on file with the USEPA. A copy of the SOPs for the specified method was included as Appendix F of

the VIC Work Plan. The TestAmerica data is reported in accordance with the QAM and SOP. Results of pre-installation and post-installation monitoring are summarized in Table 1 through Table 3, Appendix B. Results of initial sub-slab and indoor air sampling and semi-annual monitoring are summarized in Table 4 through Table 6, Appendix B. Copies of analytical reports are provided in Appendix C.

Analytical results indicate that the reported concentration of contaminants of concern in post-installation indoor air samples are less than the pre-installation system indoor air concentrations and are below indoor air screening levels identified in the VIC Work Plan at Residence Nos. 4, 37, and 48. Monitoring activities at these Residences will continue in accordance with the post-installation monitoring schedule.

Analytical results indicate that the reported concentration of contaminants of concern in semi-annual monitoring indoor air samples are below indoor air screening levels identified in the VIC Work Plan at Residence Nos. 20, 33, and 40. Semi-annual monitoring activities at these Residences will continue in accordance with the monitoring schedule in the VIC Report.

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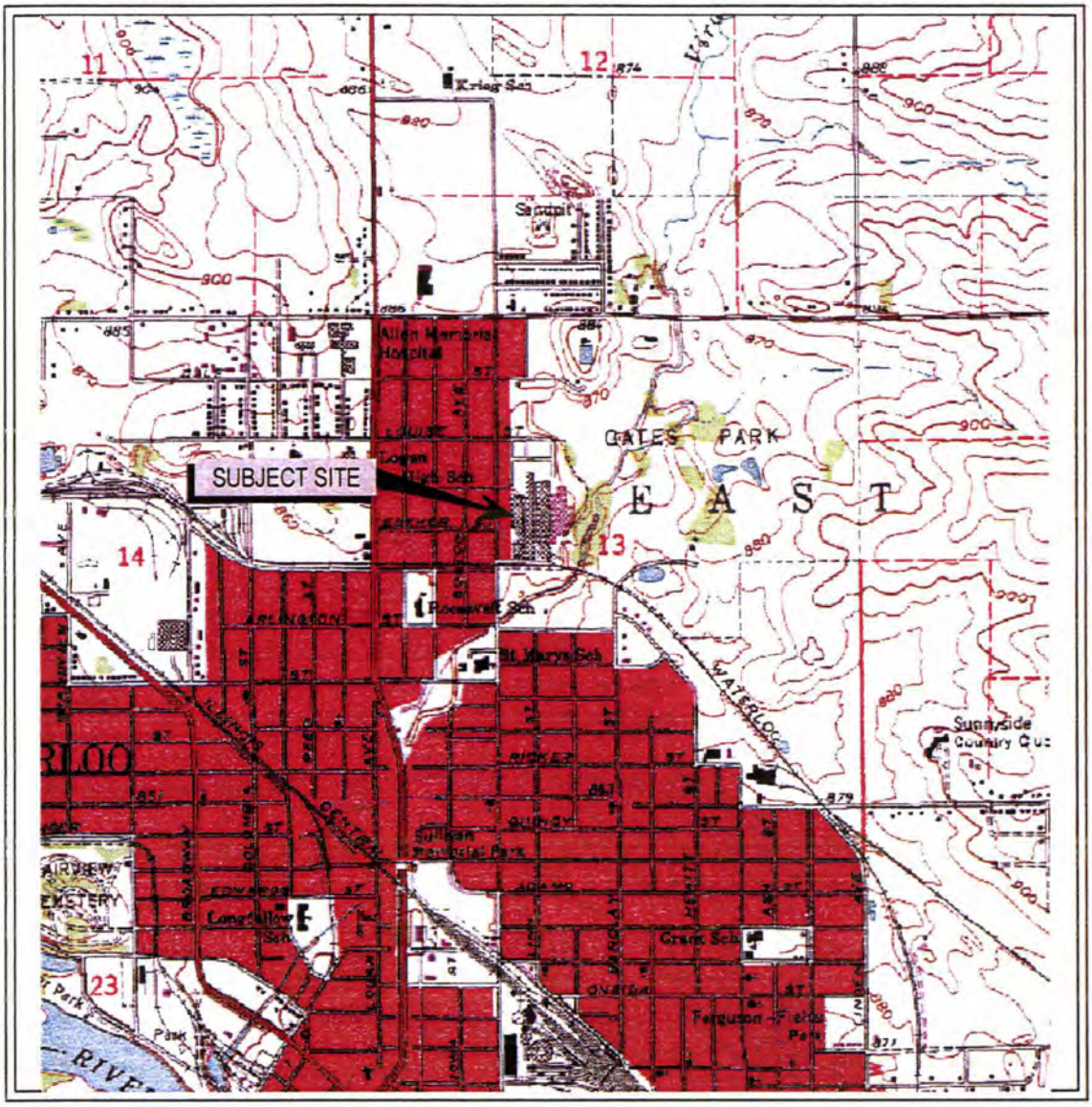
Appendix A – Exhibits

Exhibit 1 – Topographic Vicinity Map

Exhibit 2 – Site Diagram

UNITED STATES – DEPARTMENT OF THE INTERIOR – GEOLOGICAL SURVEY



SCALE 1:24 000

KILOMETERS: 1 .5 0 1 2

METERS: 1000 0 1000 2000

MILES: 1 .5 0 1

FEET: 1000 0 1000 2000 3000 4000 5000 6000 7000 8000 9000 10 000

CONTOUR INTERVAL FEET

NATIONAL GEODETIC VERTICAL DATUM OF 1929

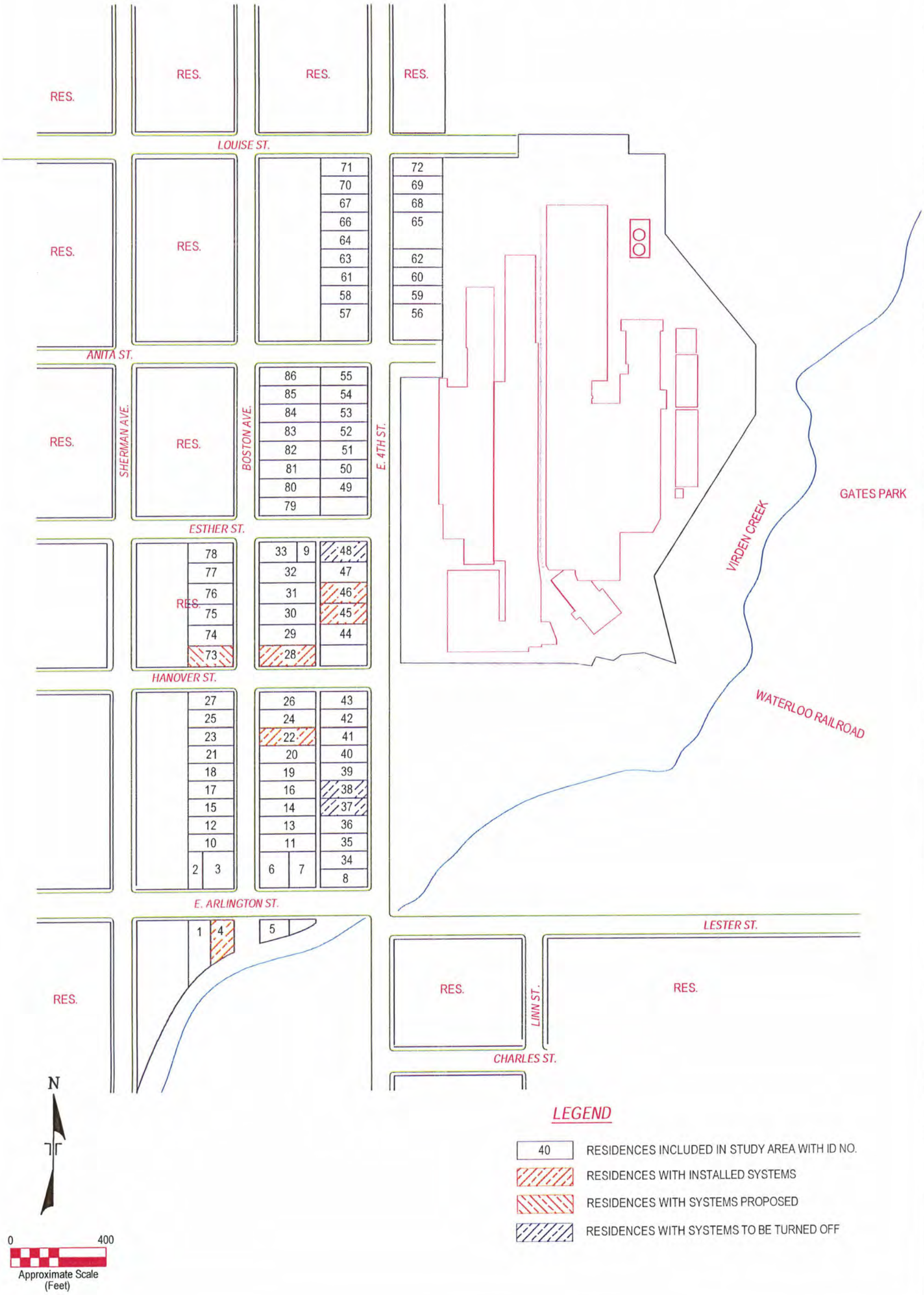
TOPO LINES REPRESENT 10–FOOT CONTOURS

N

WATERLOO NORTH QUADRANGLE

7.5 MINUTE SERIES (TOPOGRAPHIC)

Project Mngr: JFB	Project No. 07107020	Terracon Consulting Engineers and Scientists	TOPOGRAPHIC VICINITY MAP	FIG. No
Drawn By: JFB	Scale: AS SHOWN		VIIM QUARTERLY REPORT NO 3	
Checked By: JFB	File No. 07107020-VIIMQR3-FIG1		FORMER CHAMBERLAIN MANUFACTURING FACILITY	
Approved By: JFB	Date: APR 2012	370 40th Avenue Bettendorf, Iowa 52722	550 ESTHER ST. WATERLOO, IOWA	1



REV.	DATE	BY	DESCRIPTION

Terracon
Consulting Engineers and Scientists
870 40th Avenue, Battendorf, Iowa 52722
(563) 355-0702, (563) 355-4789

SITE PLAN

VIIM QUARTERLY REPORT NO 3
FORMER CHAMBERLAIN MANUFACTURING FACILITY
550 ESTHER STREET
WATERLOO IOWA

EXHIBIT 2

PROJECT MGR:	JFB
DRAWN BY:	JFB
APPVD. BY:	JFB
SCALE:	AS SHOWN
DATE:	APR 2012
PROJECT NO.	07107020
FILE NAME:	07107020-VIIM
SHEET NO:	2 OF 2

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Appendix B –Tables

Table 1 – Indoor Air Analytical Results – Residence No. 4
Table 2 – Indoor Air Analytical Results – Residence No. 37
Table 3 – Indoor Air Analytical Results – Residence No. 48
Table 4 – Indoor Air Analytical Results – Residence No. 20
Table 5 – Indoor Air Analytical Results – Residence No. 33
Table 6 – Indoor Air Analytical Results – Residence No. 40

TABLE 1
INDOOR AIR ANALYTICAL RESULTS
RESIDENCE NO. 4
VAPOR INTRUSION INTERIM MEASURES QUARTERLY REPORT NO. 3
CHAMBERLAIN MANUFACTURING

		Pre-installation		Post Installation		Reporting Limit	Analytical Method Detection Limit	Indoor Air Screening Level[2]
	Sample ID	IA-4-B	IA-4-1	IA-1-4-2	IA-B-4-2			
	Date	4/29/2011	4/29/2011	2/21/2012	2/21/2012			
Analyte	Units							
Tetrachloroethene	$\mu g/m^3$	0.15	0.26	<0.54	<0.54	0.54	0.11	9.4[3]
Trichloroethene	$\mu g/m^3$	0.42	1.00 J	<0.21	<0.21	0.215	0.075	0.43[4]
Vinyl chloride	$\mu g/m^3$	<0.2	<0.2	<0.2	<0.2	0.204[1]	0.074	0.165
trans-1,2-Dichloroethene	$\mu g/m^3$	<0.32	<0.32	<0.32	<0.32	0.317	0.079	63
cis-1,2-Dichloroethene	$\mu g/m^3$	<0.32	0.35	<0.32	<0.32	0.317	0.095	63
1,1-Dichloroethene	$\mu g/m^3$	<0.32	<0.32	<0.32	<0.32	0.317	0.052	210
1,1-Dichloroethane	$\mu g/m^3$	<0.32	<0.32	<0.32	<0.32	0.324	0.040	1.5
1,1,1-Trichloroethane	$\mu g/m^3$	0.09 J	0.087	<0.44	<0.44	0.436	0.065	5200
1,1,2-Trichloroethane	$\mu g/m^3$	<0.44	<0.44	<0.44	<0.44	0.36[1]	0.11	0.15

NOTES: µg/m3 - micrograms per cubic meter
ppm - parts per million
J - The contaminant is present at a concentration greater than the Analytical Method Detection Limit, but less than the Reporting Limit.
[1] - Indoor Air Screening Level is less than Reporting Limit. The USEPA has approved the use of the Reporting Limit as the screening level for this site due to the technical inability to accurately quantify the detection of these compounds at the current USEPA screening level.
[2] - Per USEPA approved VIC Work Plan
[3] - Revised Action Threshold for PCE per USEPA e-mail dated February 17, 2012
[4] - Revised per USEPA's letter dated October 27, 2011 and as an accommodation to USEPA without waiver of Chamberlain's concerns expressed in its email to USEPA dated November 14, 2011.

SAMPLE ID NOMENCLATURE: First 2 letters identify sample type: SS - Sub-Slab, IA - Indoor Air, AA - Ambient Air, and EB - Equipment Blank
A "D" following the first two letters or at the end of the Sample ID designates a sample duplicate
The numeric value following the sample type identify the Residence ID Number

TABLE 2
INDOOR AIR ANALYTICAL RESULTS
RESIDENCE NO. 37
VAPOR INTRUSION INTERIM MEASURES QUARTERLY REPORT NO. 3
CHAMBERLAIN MANUFACTURING

		Pre-Installation		Post Installation		Post Installation		Reporting Limit	Analytical Method Detection Limit	Indoor Air Screening Level[2]
	Sample ID	IA-37-ML	IA-37-LL	IA-B-37-2	IA-1-37-2	IA-B-37-3	IA-1-37-3			
	Date	6/16/2011	6/16/2011	10/13/2011	10/13/2011	2/10/2012	2/10/2012			
Analyte	Units									
Tetrachloroethene	$\mu g/m^3$	1.7	0.84	0.33 J	0.72	0.14 J	0.33 J	0.54	0.11	9.4[3]
Trichloroethene	$\mu g/m^3$	0.20 J	0.28	0.23	<0.21	<0.21	<0.21	0.215	0.075	0.43[4]
Vinyl chloride	$\mu g/m^3$	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	0.204[1]	0.074	0.165
trans-1,2-Dichloroethene	$\mu g/m^3$	<0.32	<0.32	<0.32	<0.32	<0.32	<0.32	0.317	0.079	63
cis-1,2-Dichloroethene	$\mu g/m^3$	<0.32	<0.32	0.23 J	<0.32	<0.32	<0.32	0.317	0.095	63
1,1-Dichloroethene	$\mu g/m^3$	<0.32	<0.32	0.079 J	<0.32	<0.32	<0.32	0.317	0.052	210
1,1-Dichloroethane	$\mu g/m^3$	<0.32	<0.32	<0.32	<0.32	<0.32	<0.32	0.324	0.040	1.5
1,1,1-Trichloroethane	$\mu g/m^3$	7	3.5	1.9	3.9	0.69	0.91	0.436	0.065	5200
1,1,2-Trichloroethane	$\mu g/m^3$	<0.44	<0.44	<0.44	<0.44	<0.44	<0.44	0.36[1]	0.11	0.15

NOTES: µg/m3 - micrograms per cubic meter
ppm - parts per million
J - The contaminant is present at a concentration greater than the Analytical Method Detection Limit, but less than the Reporting Limit.
[1] - Indoor Air Screening Level is less than Reporting Limit. The USEPA has approved the use of the Reporting Limit as the screening level for this site due to the technical inability to accurately quantify the detection of these compounds at the current USEPA screening level.
[2] - Per USEPA approved VIC Work Plan
[3] - Revised Action Threshold for PCE per USEPA e-mail dated February 17, 2012
[4] - Revised per USEPA's letter dated October 27, 2011 and as an accommodation to USEPA without waiver of Chamberlain's concerns expressed in its email to USEPA dated November 14, 2011.

SAMPLE ID NOMENCLATURE: First 2 letters identify sample type: SS - Sub-Slab, IA - Indoor Air, AA - Ambient Air, and EB - Equipment Blank
A "D" following the first two letters or at the end of the Sample ID designates a sample duplicate
The numeric value following the sample type identify the Residence ID Number

TABLE 3
INDOOR AIR ANALYTICAL RESULTS
RESIDENCE NO. 48
VAPOR INTRUSION INTERIM MEASURES QUARTERLY REPORT NO. 3
CHAMBERLAIN MANUFACTURING

		Pre-Installation			Post Installation		Post Installation		Post Installation		Reporting Limit	Analytical Method Detection Limit	Indoor Air Screening Level[2]
	Sample ID	IA-48-B	IA-48-B-D	IA-48-MF	IA-B-48-2	IA-1-48-2	IA-B-48-3	IA-1-48-3	IA-B-48-4	IA-1-48-4			
	Date	4/29/11	4/29/11	4/29/11	8/30/11	8/30/11	11/15/11	11/15/11	2/10/12	2/10/12			
Analyte	Units												
Tetrachloroethene	$\mu g/m^3$	1.7	2.5	0.69	0.81	0.91	0.42 J	0.42 J	0.18 J	0.19 J	0.54	0.11	9.4[3]
Trichloroethene	$\mu g/m^3$	0.18 J	0.2 J	0.16 J	0.095 J	0.27	0.15 J	0.49	<0.21	<0.21	0.215	0.075	0.43[4]
Vinyl chloride	$\mu g/m^3$	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	0.204[1]	0.074	0.165
trans-1,2-Dichloroethene	$\mu g/m^3$	<0.32	<0.32	<0.32	<0.32	<0.32	<0.32	<0.32	<0.32	<0.32	0.317	0.079	63
cis-1,2-Dichloroethene	$\mu g/m^3$	<0.32	<0.32	<0.32	<0.32	<0.32	<0.32	0.19 J	<0.32	<0.32	0.317	0.095	63
1,1-Dichloroethene	$\mu g/m^3$	<0.32	<0.32	<0.32	<0.32	<0.32	<0.32	<0.32	<0.32	<0.32	0.317	0.052	210
1,1-Dichloroethane	$\mu g/m^3$	<0.32	<0.32	<0.32	<0.32	<0.32	<0.32	<0.32	<0.32	<0.32	0.324	0.040	1.5
1,1,1-Trichloroethane	$\mu g/m^3$	0.13 J	0.12 J	0.12 J	<0.44	0.069 J	<0.44	<0.44	<0.44	<0.44	0.436	0.065	5200
1,1,2-Trichloroethane	$\mu g/m^3$	<0.44	<0.44	<0.44	<0.44	<0.44	<0.44	<0.44	<0.44	<0.44	0.36[1]	0.11	0.15

NOTES: µg/m3 - micrograms per cubic meter
ppm - parts per million
J - The contaminant is present at a concentration greater than the Analytical Method Detection Limit, but less than the Reporting Limit.
[1] - Indoor Air Screening Level is less than Reporting Limit. The USEPA has approved the use of the Reporting Limit as the screening level for this site due to the technical inability to accurately quantify the detection of these compounds at the current USEPA screening level.
[2] - Per USEPA approved VIC Work Plan
[3] - Revised Action Threshold for PCE per USEPA e-mail dated February 17, 2012
[4] - Revised per USEPA's letter dated October 27, 2011 and as an accommodation to USEPA without waiver of Chamberlain's concerns expressed in its email to USEPA dated November 14, 2011.

SAMPLE ID NOMENCLATURE: First 2 letters identify sample type: SS - Sub-Slab, IA - Indoor Air, AA - Ambient Air, and EB - Equipment Blank
A "D" following the first two letters or at the end of the Sample ID designates a sample duplicate
The numeric value following the sample type identify the Residence ID Number
The letter or number ndicates the location for Indoor Air samples: B - Basement, 1 or MF - 1st or Main Floor

TABLE 4
INDOOR AIR ANALYTICAL RESULTS
RESIDENCE NO. 20
VAPOR INTRUSION INTERIM MEASURES QUARTERLY REPORT NO. 3
CHAMBERLAIN MANUFACTURING

		Sub-Slab	Indoor Air		Indoor Air		Semi-Annual	Reporting Limit	Analytical Method Detection Limit	Indoor Air Screening Level[2]
	Sample ID	SS-20	IA-20	IA-20-DUP	IA-20-B-3	IA-20-B-3-D	IA-20-B-4			
	Date	4/29/2011	6/16/2011	6/16/2011	9/14/2011	9/14/2011	3/30/2012			
Analyte	Units									
Tetrachloroethene	µg/m³	4.5	0.37 J	0.36 J	<0.54	0.16 J	0.11 J	0.54	0.11	9.4[3]
Trichloroethene	µg/m³	8.3	0.15 J	1.4	0.35	0.37	<0.21	0.215	0.075	0.43[4]
Vinyl chloride	µg/m³	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	0.204[1]	0.074	0.165
trans-1,2-Dichloroethene	µg/m³	0.27	<0.32	<0.32	<0.32	<0.32	<0.32	0.317	0.079	63
cis-1,2-Dichloroethene	µg/m³	<0.32	<0.32	0.15 J	<0.32	<0.32	<0.32	0.317	0.095	63
1,1-Dichloroethene	µg/m³	<0.32	<0.32	<0.32	<0.32	<0.32	<0.32	0.317	0.052	210
1,1-Dichloroethane	µg/m³	<0.32	<0.32	<0.32	<0.32	<0.32	<0.32	0.324	0.040	1.5
1,1,1-Trichloroethane	µg/m³	0.36 J	2.2	2.5	0.45	0.31 J	1.5	0.436	0.065	5200
1,1,2-Trichloroethane	µg/m³	<0.44	<0.44	<0.44	<0.44	<0.44	<0.44	0.36[1]	0.11	0.15

NOTES: µg/m3 - micrograms per cubic meter
ppm - parts per million
J - The contaminant is present at a concentration greater than the Analytical Method Detection Limit, but less than the Reporting Limit.
[1] - Indoor Air Screening Level is less than Reporting Limit. The USEPA has approved the use of the Reporting Limit as the screening level for this site due to the technical inability to accurately quantify the detection of these compounds at the current USEPA screening level.
[2] - Per USEPA approved VIC Work Plan
[3] - Revised Action Threshold for PCE per USEPA e-mail dated February 17, 2012
[4] - Revised per USEPA's letter dated October 27, 2011 and as an accommodation to USEPA without waiver of Chamberlain's concerns expressed in its email to USEPA dated November 14, 2011.

SAMPLE ID NOMENCLATURE: First 2 letters identify sample type: SS - Sub-Slab, IA - Indoor Air, AA - Ambient Air, and EB - Equipment Blank
A "D" following the first two letters or at the end of the Sample ID designates a sample duplicate
The numeric value following the sample type identify the Residence ID Number

TABLE 5
INDOOR AIR ANALYTICAL RESULTS
RESIDENCE NO. 33
VAPOR INTRUSION INTERIM MEASURES QUARTERLY REPORT NO. 3
CHAMBERLAIN MANUFACTURING

		Sub-Slab	Indoor Air		Semi-Annual		Reporting Limit	Analytical Method Detection Limit	Indoor Air Screening Level[2]
	Sample ID	SS-33	IA-33-B	IA-33-1	IA-1-33-2	IA-B-33-2			
	Date	4/29/2011	4/29/2011	4/29/2011	3/23/2012	3/23/2012			
Analyte	Units								
Tetrachloroethene	$\mu g/m^3$	11	0.19 J	0.16 J	0.16 J	<0.54	0.54	0.11	9.4[3]
Trichloroethene	$\mu g/m^3$	61	0.22	0.33	0.10 J	0.12 J	0.215	0.075	0.43[4]
Vinyl chloride	$\mu g/m^3$	<1	<0.2	<0.2	<0.2	<0.2	0.204[1]	0.074	0.165
trans-1,2-Dichloroethene	$\mu g/m^3$	<1.6	<0.32	<0.32	<0.32	<0.32	0.317	0.079	63
cis-1,2-Dichloroethene	$\mu g/m^3$	<1.6	<0.32	<0.32	<0.32	<0.32	0.317	0.095	63
1,1-Dichloroethene	$\mu g/m^3$	<1.6	<0.32	<0.32	<0.32	<0.32	0.317	0.052	210
1,1-Dichloroethane	$\mu g/m^3$	<1.6	<0.32	<0.32	<0.32	<0.32	0.324	0.040	1.5
1,1,1-Trichloroethane	$\mu g/m^3$	58	0.094 J	0.067 J	0.10 J	0.11 J	0.436	0.065	5200
1,1,2-Trichloroethane	$\mu g/m^3$	<2.2	<0.44	<0.44	<0.44	<0.44	0.36[1]	0.11	0.15

NOTES: µg/m3 - micrograms per cubic meter
ppm - parts per million
J - The contaminant is present at a concentration greater than the Analytical Method Detection Limit, but less than the Reporting Limit.
[1] - Indoor Air Screening Level is less than Reporting Limit. The USEPA has approved the use of the Reporting Limit as the screening level for this site due to the technical inability to accurately quantify the detection of these compounds at the current USEPA screening level.
[2] - Per USEPA approved VIC Work Plan
[3] - Revised Action Threshold for PCE per USEPA e-mail dated February 17, 2012
[4] - Revised per USEPA's letter dated October 27, 2011 and as an accommodation to USEPA without waiver of Chamberlain's concerns expressed in its email to USEPA dated November 14, 2011.

SAMPLE ID NOMENCLATURE: First 2 letters identify sample type: SS - Sub-Slab, IA - Indoor Air, AA - Ambient Air, and EB - Equipment Blank
A "D" following the first two letters or at the end of the Sample ID designates a sample duplicate
The numeric value following the sample type identify the Residence ID Number

TABLE 6
INDOOR AIR ANALYTICAL RESULTS
RESIDENCE NO. 40
VAPOR INTRUSION INTERIM MEASURES QUARTERLY REPORT NO. 3
CHAMBERLAIN MANUFACTURING

		Sub-Slab	Indoor Air		Semi-Annual		Reporting Limit	Analytical Method Detection Limit	Indoor Air Screening Level[2]
	Sample ID	SS-40	IA-B-40	IA-1-40	IA-1-40-2	IA-B-40-2			
	Date	5/3/2011	5/3/2011	5/3/2011	3/23/2012	3/23/2012			
Analyte	Units								
Tetrachloroethene	$\mu g/m^3$	13	0.13 J	<0.54	0.73	1.1	0.54	0.11	9.4[3]
Trichloroethene	$\mu g/m^3$	99	0.18 J	0.18 J	0.093 J	0.26	0.215	0.075	0.43[4]
Vinyl chloride	$\mu g/m^3$	<0.41	<0.2	<0.2	<0.2	<0.2	0.204[1]	0.074	0.165
trans-1,2-Dichloroethene	$\mu g/m^3$	<0.63	<0.32	<0.32	<0.32	<0.32	0.317	0.079	63
cis-1,2-Dichloroethene	$\mu g/m^3$	<0.63	<0.32	<0.32	<0.32	0.33	0.317	0.095	63
1,1-Dichloroethene	$\mu g/m^3$	<0.63	<0.32	<0.32	<0.32	<0.32	0.317	0.052	210
1,1-Dichloroethane	$\mu g/m^3$	<0.65	<0.32	<0.32	<0.32	<0.32	0.324	0.040	1.5
1,1,1-Trichloroethane	$\mu g/m^3$	5.0	<0.44	<0.44	<0.44	<0.44	0.436	0.065	5200
1,1,2-Trichloroethane	$\mu g/m^3$	<0.87	<0.44	<0.44	<0.44	<0.44	0.36[1]	0.11	0.15

NOTES: µg/m3 - micrograms per cubic meter
ppm - parts per million
J - The contaminant is present at a concentration greater than the Analytical Method Detection Limit, but less than the Reporting Limit.
[1] - Indoor Air Screening Level is less than Reporting Limit. The USEPA has approved the use of the Reporting Limit as the screening level for this site due to the technical inability to accurately quantify the detection of these compounds at the current USEPA screening level.
[2] - Per USEPA approved VIC Work Plan
[3] - Revised Action Threshold for PCE per USEPA e-mail dated February 17, 2012
[4] - Revised per USEPA's letter dated October 27, 2011 and as an accommodation to USEPA without waiver of Chamberlain's concerns expressed in its email to USEPA dated November 14, 2011.

SAMPLE ID NOMENCLATURE: First 2 letters identify sample type: SS - Sub-Slab, IA - Indoor Air, AA - Ambient Air, and EB - Equipment Blank
A "D" following the first two letters or at the end of the Sample ID designates a sample duplicate
The numeric value following the sample type identify the Residence ID Number

Terracon

Appendix C – Analytical Reports

US EPA ARCHIVE DOCUMENT

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica Cedar Falls
704 Enterprise Drive
Cedar Falls, IA 50613
Tel: 800-750-2401

TestAmerica Job ID: CVB0730
Client Project/Site: Chamberlain Vapor Sampling
Client Project Description: TO-15 Scans

For:
TERRACON - BETTENDORF
870 40th Avenue
Bettendorf, IA 52722

Attn: John Brimeyer

Brian C. Graettinger

Authorized for release by:
2/20/2012 2:27:52 PM

Brian C. Graettinger
Operations Manager
brian.graettinger@testamericainc.com

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.

Case Narrative

Job ID: CVB0730

Laboratory: TestAmerica Cedar Falls

Narrative

Analyzed by TestAmerica - Knoxville, TN.

US EPA ARCHIVE DOCUMENT

Sample Summary

Client: TERRACON - BETTENDORF
Project/Site: Chamberlain Vapor Sampling

TestAmerica Job ID: CVB0730

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
CVB0730-01	IA-B-37-3	Air	02/10/12 15:30	02/10/12 16:15
CVB0730-02	IA-1-37-3	Air	02/10/12 15:30	02/10/12 16:15
CVB0730-03	IA-B-48-4	Air	02/10/12 15:50	02/10/12 16:15
CVB0730-04	IA-1-48-4	Air	02/10/12 15:50	02/10/12 16:15

Client Sample Results

Client: TERRACON - BETTENDORF
Project/Site: Chamberlain Vapor Sampling

TestAmerica Job ID: CVB0730

Client Sample ID: IA-B-37-3

Lab Sample ID: CVB0730-01
Matrix: Air

Date Collected: 02/10/12 15:30
Date Received: 02/10/12 16:15
Sample Container: Summa Canister

Method: EPA TO-15 - Air Sample Analysis - Subcontract

Analyte	Result	Qualifier	RL	MDL	Unit	D	Analyst	Analyzed	Dil Fac
Volatile Organic Compounds	See Attached Report.		0.10		mg		BCG	02/15/12 00:08	1.0

Client Sample ID: IA-1-37-3

Lab Sample ID: CVB0730-02
Matrix: Air

Date Collected: 02/10/12 15:30
Date Received: 02/10/12 16:15
Sample Container: Summa Canister

Method: EPA TO-15 - Air Sample Analysis - Subcontract

Analyte	Result	Qualifier	RL	MDL	Unit	D	Analyst	Analyzed	Dil Fac
Volatile Organic Compounds	See Attached Report.		0.10		mg		BCG	02/15/12 00:59	1.0

Client Sample ID: IA-B-48-4

Lab Sample ID: CVB0730-03
Matrix: Air

Date Collected: 02/10/12 15:50
Date Received: 02/10/12 16:15
Sample Container: Summa Canister

Method: EPA TO-15 - Air Sample Analysis - Subcontract

Analyte	Result	Qualifier	RL	MDL	Unit	D	Analyst	Analyzed	Dil Fac
Volatile Organic Compounds	See Attached Report.		0.10		mg		BCG	02/15/12 01:51	1.0

Client Sample ID: IA-1-48-4

Lab Sample ID: CVB0730-04
Matrix: Air

Date Collected: 02/10/12 15:50
Date Received: 02/10/12 16:15
Sample Container: Summa Canister

Method: EPA TO-15 - Air Sample Analysis - Subcontract

Analyte	Result	Qualifier	RL	MDL	Unit	D	Analyst	Analyzed	Dil Fac
Volatile Organic Compounds	See Attached Report.		0.10		mg		BCG	02/15/12 02:45	1.0

US EPA ARCHIVE DOCUMENT

H2B130450 Analytical Report 1
Sample Receipt Documentation 12
Total Number of Pages 14

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

TestAmerica Laboratories, Inc.

ANALYTICAL REPORT

Terracon

Lot #: H2B130450

Brian Graettinger

TestAmerica Cedar Falls
704 Enterprise Drive
Cedar Falls, IA 50613-0625

TESTAMERICA LABORATORIES, INC.

Jamie A. McKinney
Project Manager

February 16, 2012

US EPA ARCHIVE DOCUMENT

ANALYTICAL METHODS SUMMARY

H2B130450

PARAMETER	ANALYTICAL METHOD
Volatile Organics by TO15	EPA-2 TO-15

References:

EPA-2 "Compendium of Methods for the Determination of Toxic Organic Compounds in Ambient Air", EPA-625/R-96/010b, January 1999.

SAMPLE SUMMARY

H2B130450

WO #	SAMPLE#	CLIENT SAMPLE ID	SAMPLED DATE	SAMP TIME
MQR8D	001	IA-B-37-3	02/10/12	15:30
MQR8L	002	IA-1-37-3	02/10/12	15:30
MQR8P	003	IA-B-48-4	02/10/12	15:50
MQR8T	004	IA-1-48-4	02/10/12	15:50

NOTE(S):

- The analytical results of the samples listed above are presented on the following pages.
- All calculations are performed before rounding to avoid round-off errors in calculated results.
- Results noted as "ND" were not detected at or above the stated limit.
- This report must not be reproduced, except in full, without the written approval of the laboratory.
- Results for the following parameters are never reported on a dry weight basis: color, corrosivity, density, flashpoint, ignitability, layers, odor, paint filter test, pH, porosity pressure, reactivity, redox potential, specific gravity, spot tests, solids, solubility, temperature, viscosity, and weight.

US EPA ARCHIVE DOCUMENT

PROJECT NARRATIVE
H2B130450

The results reported herein are applicable to the samples submitted for analysis only. If you have any questions about this report, please call (865) 291-3000 to speak with the TestAmerica project manager listed on the cover page.

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

The original chain of custody documentation is included with this report.

Sample Receipt

There were no problems with the condition of the samples received.

Quality Control and Data Interpretation

Unless otherwise noted, all holding times and QC criteria were met and the test results shown in this report meet all applicable NELAC requirements.

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.

CERTIFICATION SUMMARY

Laboratory	Authority	Program	EPA Region	Certification ID
TestAmerica Knoxville	ACLASS	DoD ELAP		ADE-1434
TestAmerica Knoxville	Arkansas	State Program	6	88-0688
TestAmerica Knoxville	California	State Program	9	2423
TestAmerica Knoxville	Colorado	State Program	8	N/A
TestAmerica Knoxville	Connecticut	State Program	1	PH-0223
TestAmerica Knoxville	Florida	NELAC	4	E87177
TestAmerica Knoxville	Georgia	State Program	4	906
TestAmerica Knoxville	Hawaii	State Program	9	N/A
TestAmerica Knoxville	Indiana	State Program	5	C-TN-02
TestAmerica Knoxville	Iowa	State Program	7	375
TestAmerica Knoxville	Kansas	NELAC	7	E-10349
TestAmerica Knoxville	Kentucky	State Program	4	90101
TestAmerica Knoxville	Louisiana	NELAC	6	LA110001
TestAmerica Knoxville	Louisiana	NELAC	6	83979
TestAmerica Knoxville	Maryland	State Program	3	277
TestAmerica Knoxville	Michigan	State Program	5	9933
TestAmerica Knoxville	Minnesota	NELAC	5	047-999-429
TestAmerica Knoxville	Nevada	State Program	9	TN00009
TestAmerica Knoxville	New Jersey	NELAC	2	TN001
TestAmerica Knoxville	New York	NELAC	2	10781
TestAmerica Knoxville	North Carolina	North Carolina DENR	4	64
TestAmerica Knoxville	North Carolina	North Carolina PHL	4	21705
TestAmerica Knoxville	Ohio	OVAP	5	CL0059
TestAmerica Knoxville	Oklahoma	State Program	6	9415
TestAmerica Knoxville	Pennsylvania	NELAC	3	68-00576
TestAmerica Knoxville	South Carolina	State Program	4	84001
TestAmerica Knoxville	Tennessee	State Program	4	2014
TestAmerica Knoxville	Texas	NELAC	6	T104704380-TX
TestAmerica Knoxville	USDA	USDA		P330-11-00035
TestAmerica Knoxville	Utah	NELAC	8	QUAN3
TestAmerica Knoxville	Virginia	State Program	3	165
TestAmerica Knoxville	Washington	State Program	10	C593
TestAmerica Knoxville	West Virginia	West Virginia DEP	3	345
TestAmerica Knoxville	West Virginia	West Virginia DHHR (DW)	3	9955C
TestAmerica Knoxville	Wisconsin	State Program	5	998044300

Accreditation may not be offered or required for all methods and analytes reported in this package. Please contact your project manager for the laboratory's current list of certified methods and analytes.

US EPA ARCHIVE DOCUMENT

TestAmerica Cedar Falls

Client Sample ID: IA-B-37-3

GC/MS Volatiles

Lot-Sample #	H2B130450 - 001	**Work Order #**	MQR8D1AA	**Matrix.....:**	AIR

Date Sampled...:	02/10/2012	**Date Received..:**	02/13/2012
Prep Date.....:	02/14/2012	**Analysis Time....:**	02/15/2012
Prep Batch #.....:	2046025	**Analysis Time....:**	00:08
Dilution Factor.:	1	**Method.....:**	TO-15

PARAMETER	RESULTS (ppb(v/v))	REPORTING LIMIT (ppb(v/v))	MDL (ppb(v/v))	RESULTS (ug/m3)	REPORTING LIMIT (ug/m3)	MDL (ug/m3)
Vinyl chloride	ND	0.080	0.029	ND	0.20	0.074
1,1-Dichloroethane	ND	0.080	0.010	ND	0.32	0.040
1,1,1-Trichloroethane	**0.13**	**0.080**	**0.012**	**0.69**	**0.44**	**0.065**
Trichloroethene	ND	0.040	0.014	ND	0.21	0.075
cis-1,2-Dichloroethene	ND	0.080	0.024	ND	0.32	0.095
Tetrachloroethene	**0.021 J**	**0.080**	**0.016**	**0.14 J**	**0.54**	**0.11**
1,1,2-Trichloroethane	ND	0.080	0.021	ND	0.44	0.11
1,1-Dichloroethene	ND	0.080	0.013	ND	0.32	0.052
trans-1,2-Dichloroethene	ND	0.080	0.020	ND	0.32	0.079

SURROGATE	PERCENT RECOVERY	LABORATORY CONTROL LIMITS (%)
4-Bromofluorobenzene	97	60 - 140

Qualifiers

J Estimated result. Result is less than RL.

Result (ug/m3) = Result (ppb(v/v))[unrounded] * (Molecular Weight/24.45)

Reporting Limit (ug/m3) = Reporting Limit (ppb(v/v))[unrounded] * (Molecular Weight/24.45)

MDL (ug/m3) = MDL (ppb(v/v))[unrounded] * (Molecular Weight/24.45)

TO-14 _rev5MDL_DOD.rpt version 5.004 09/13/2011

TestAmerica Cedar Falls

Client Sample ID: IA-1-37-3

GC/MS Volatiles

Lot-Sample # H2B130450 - 002 **Work Order #** MQR8L1AA **Matrix.....:** AIR

Date Sampled...: 02/10/2012 **Date Received..:** 02/13/2012
Prep Date.....: 02/14/2012 **Analysis Time....:** 02/15/2012
Prep Batch #.....: 2046025 **Analysis Time....:** 00:59
Dilution Factor.: 1 **Method.....:** TO-15

PARAMETER	RESULTS (ppb(v/v))	REPORTING LIMIT (ppb(v/v))	MDL (ppb(v/v))	RESULTS (ug/m3)	REPORTING LIMIT (ug/m3)	MDL (ug/m3)
1,1-Dichloroethene	ND	0.080	0.013	ND	0.32	0.052
trans-1,2-Dichloroethene	ND	0.080	0.020	ND	0.32	0.079
1,1,2-Trichloroethane	ND	0.080	0.021	ND	0.44	0.11
Tetrachloroethene	**0.048 J**	**0.080**	**0.016**	**0.33 J**	**0.54**	**0.11**
cis-1,2-Dichloroethene	ND	0.080	0.024	ND	0.32	0.095
Trichloroethene	ND	0.040	0.014	ND	0.21	0.075
1,1,1-Trichloroethane	**0.17**	**0.080**	**0.012**	**0.91**	**0.44**	**0.065**
1,1-Dichloroethane	ND	0.080	0.010	ND	0.32	0.040
Vinyl chloride	ND	0.080	0.029	ND	0.20	0.074

SURROGATE	PERCENT RECOVERY	LABORATORY CONTROL LIMITS (%)
4-Bromofluorobenzene	99	60 - 140

Qualifiers

J Estimated result. Result is less than RL.

Result (ug/m3) = Result (ppb(v/v))[unrounded] * (Molecular Weight/24.45)

Reporting Limit (ug/m3) = Reporting Limit (ppb(v/v))[unrounded] * (Molecular Weight/24.45)

MDL (ug/m3) = MDL (ppb(v/v))[unrounded] * (Molecular Weight/24.45)

TO-14 _rev5MDL_DOD.rpt version 5.004 09/13/2011

US EPA ARCHIVE DOCUMENT

TestAmerica Cedar Falls

Client Sample ID: IA-B-48-4

GC/MS Volatiles

Lot-Sample # H2B130450 - 003 **Work Order #** MQR8P1AA **Matrix.....:** AIR

Date Sampled...: 02/10/2012 **Date Received..:** 02/13/2012
Prep Date.....: 02/14/2012 **Analysis Time....:** 02/15/2012
Prep Batch #.....: 2046025 **Analysis Time....:** 01:51
Dilution Factor.: 1 **Method.....:** TO-15

PARAMETER	RESULTS (ppb(v/v))	REPORTING LIMIT (ppb(v/v))	MDL (ppb(v/v))	RESULTS (ug/m3)	REPORTING LIMIT (ug/m3)	MDL (ug/m3)
Vinyl chloride	ND	0.080	0.029	ND	0.20	0.074
1,1,1-Trichloroethane	ND	0.080	0.012	ND	0.44	0.065
1,1-Dichloroethane	ND	0.080	0.010	ND	0.32	0.040
Trichloroethene	ND	0.040	0.014	ND	0.21	0.075
cis-1,2-Dichloroethene	ND	0.080	0.024	ND	0.32	0.095
Tetrachloroethene	**0.027 J**	**0.080**	**0.016**	**0.18 J**	**0.54**	**0.11**
1,1,2-Trichloroethane	ND	0.080	0.021	ND	0.44	0.11
1,1-Dichloroethene	ND	0.080	0.013	ND	0.32	0.052
trans-1,2-Dichloroethene	ND	0.080	0.020	ND	0.32	0.079

SURROGATE	PERCENT RECOVERY	LABORATORY CONTROL LIMITS (%)
4-Bromofluorobenzene	95	60 - 140

Qualifiers

J Estimated result. Result is less than RL.

Result (ug/m3) = Result (ppb(v/v))[unrounded] * (Molecular Weight/24.45)

Reporting Limit (ug/m3) = Reporting Limit (ppb(v/v))[unrounded] * (Molecular Weight/24.45)

MDL (ug/m3) = MDL (ppb(v/v))[unrounded] * (Molecular Weight/24.45)

TO-14 _rev5MDL_DOD.rpt version 5.004 09/13/2011

TestAmerica Cedar Falls

Client Sample ID: IA-1-48-4

GC/MS Volatiles

Lot-Sample # H2B130450 - 004 **Work Order #** MQR8T1AA **Matrix.....:** AIR

Date Sampled...: 02/10/2012 **Date Received..:** 02/13/2012
Prep Date.....: 02/14/2012 **Analysis Time....:** 02/15/2012
Prep Batch #.....: 2046025 **Analysis Time....:** 02:45
Dilution Factor.: 1 **Method.....:** TO-15

PARAMETER	RESULTS (ppb(v/v))	REPORTING LIMIT (ppb(v/v))	MDL (ppb(v/v))	RESULTS (ug/m3)	REPORTING LIMIT (ug/m3)	MDL (ug/m3)
1,1-Dichloroethene	ND	0.080	0.013	ND	0.32	0.052
trans-1,2-Dichloroethene	ND	0.080	0.020	ND	0.32	0.079
1,1,2-Trichloroethane	ND	0.080	0.021	ND	0.44	0.11
Tetrachloroethene	**0.029 J**	**0.080**	**0.016**	**0.19 J**	**0.54**	**0.11**
cis-1,2-Dichloroethene	ND	0.080	0.024	ND	0.32	0.095
Trichloroethene	ND	0.040	0.014	ND	0.21	0.075
1,1-Dichloroethane	ND	0.080	0.010	ND	0.32	0.040
1,1,1-Trichloroethane	ND	0.080	0.012	ND	0.44	0.065
Vinyl chloride	ND	0.080	0.029	ND	0.20	0.074

SURROGATE	PERCENT RECOVERY	LABORATORY CONTROL LIMITS (%)
4-Bromofluorobenzene	97	60 - 140

Qualifiers.

J Estimated result. Result is less than RL.

Result (ug/m3) = Result (ppb(v/v))[unrounded] * (Molecular Weight/24.45)

Reporting Limit (ug/m3) = Reporting Limit (ppb(v/v))[unrounded] * (Molecular Weight/24.45)

MDL (ug/m3) = MDL (ppb(v/v))[unrounded] * (Molecular Weight/24.45)

TO-14 _rev5MDL_DOD.rpt version 5.004 09/13/2011

US EPA ARCHIVE DOCUMENT

TestAmerica Cedar Falls

Client Sample ID: INTRA-LAB BLANK

GC/MS Volatiles

Lot-Sample #	H2B150000 - 025B	**Work Order #**	MQVF71AA	**Matrix.....:**	AIR
	02/10/2012	**Date Received..:**	02/13/2012		
Prep Date.....:	02/14/2012	**Analysis Time....:**	02/14/2012		
Prep Batch #.....:	2046025	**Analysis Time....:**	12:11		
Dilution Factor.:	1	**Method.....:**	TO-15		

PARAMETER	RESULTS (ppb(v/v))	REPORTING LIMIT (ppb(v/v))	MDL (ppb(v/v))	RESULTS (ug/m3)	REPORTING LIMIT (ug/m3)	MDL (ug/m3)
Vinyl chloride	ND	0.080	0.029	ND	0.20	0.074
1,1-Dichloroethane	ND	0.080	0.010	ND	0.32	0.040
1,1,1-Trichloroethane	ND	0.080	0.012	ND	0.44	0.065
Trichloroethene	ND	0.040	0.014	ND	0.21	0.075
cis-1,2-Dichloroethene	ND	0.080	0.024	ND	0.32	0.095
Tetrachloroethene	ND	0.080	0.016	ND	0.54	0.11
1,1,2-Trichloroethane	ND	0.080	0.021	ND	0.44	0.11
trans-1,2-Dichloroethene	ND	0.080	0.020	ND	0.32	0.079
1,1-Dichloroethene	ND	0.080	0.013	ND	0.32	0.052

SURROGATE	PERCENT RECOVERY	LABORATORY CONTROL LIMITS (%)
4-Bromofluorobenzene	97	60 - 140

Result (ug/m3) = Result (ppb(v/v))[unrounded] * (Molecular Weight/24.45)

Reporting Limit (ug/m3) = Reporting Limit (ppb(v/v))[unrounded] * (Molecular Weight/24.45)

MDL (ug/m3) = MDL (ppb(v/v))[unrounded] * (Molecular Weight/24.45)

TO-14 _rev5MDL_DOD.rpt version 5.004 09/13/2011

TestAmerica Cedar Falls

Client Sample ID: CHECK SAMPLE

GC/MS Volatiles

Lot-Sample # H2B150000 - 025C **Work Order #** MQVF71AC **Matrix.....:** AIR

	02/10/2012	**Date Received..:**	02/13/2012
Prep Date.....:	02/14/2012	**Analysis Time....:**	02/14/2012
Prep Batch #.....:	2046025	**Analysis Time....:**	11:01
Dilution Factor.:	1	**Method.....:**	TO-15

PARAMETER	SPIKE AMOUNT (ppb(v/v))	MEASURED AMOUNT (ppb(v/v))	SPIKE AMOUNT (ug/m3)	MEASURED AMOUNT (ug/m3)	PERCENT RECOVERY	RECOVERY LIMITS
1,1-Dichloroethene	5.00	5.22	19.8	20.7	104	70 - 130
trans-1,2-Dichloroethene	5.00	4.54	19.8	18.0	91	70 - 130
1,1,2-Trichloroethane	5.00	4.13	27.3	22.5	83	70 - 130
Tetrachloroethene	5.00	5.33	33.9	36.1	107	70 - 130
cis-1,2-Dichloroethene	5.00	4.97	19.8	19.7	99	70 - 130
1,1,1-Trichloroethane	5.00	5.81	27.3	31.7	116	70 - 130
Trichloroethene	5.00	6.03	26.9	32.4	121	70 - 130
1,1-Dichloroethane	5.00	4.80	20.2	19.4	96	70 - 130
Vinyl chloride	5.00	5.07	12.8	12.9	101	70 - 130

SURROGATE	PERCENT RECOVERY	LABORATORY CONTROL LIMITS (%)
4-Bromofluorobenzene	98	60 - 140

Result (ug/m3) = Result (ppb(v/v))[unrounded] * (Molecular Weight/24.45)

Reporting Limit (ug/m3) = Reporting Limit (ppb(v/v))[unrounded] * (Molecular Weight/24.45)

MDL (ug/m3) = MDL (ppb(v/v))[unrounded] * (Molecular Weight/24.45)

TO-14 _rev5MDL_DOD.rpt version 5.004 09/13/2011

US EPA ARCHIVE DOCUMENT

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

M2B130450

Canister Samples Chain of Custody Record

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

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Contact Information	**Project Manager:** John Brimeyer	**Sampled By:** Dave Cleary	1 of 1 COCs
Company: Terracon	Phone: 563-355-0702		
Address: 870 40th Avenue	Site Contact:		
City/State/Zip Bettendorf, IA 52722	TAL Contact:		
Phone: 563-355-0702			
FAX:			
Project Name: Chamberlain Mfg	**Analysis Turnaround Time**		
Site/location: Waterloo Iowa	Standard (Specify) X		
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 Matrix	Indoor Air	Ambient Air	Soil Gas	Landfill Gas	Other (Please specify in notes section)
IA-B-37-3	2-9-12 2-10-12	330	330	-30	-5	K496	6618	X							X				
IA-1-37-3	2-9-12 2-10-12	330	330	-30	-1	K162	2979	X							X				
IA-B-48-4	2-9-12 2-10-12	350	350	-30	-3	K475	6354	X							X				
IA-1-48-4	2-9-12 2-10-12	350	350	-30	-8	K444	6636	X							X				

Sampled by: Dave Cleary	Temperature (Fahrenheit)	Interior	Ambient	
	Start			
	Stop			
	Pressure (Inches of Hg)	**Interior**	**Ambient**	
	Start			
	Stop			

1 Box Reid @ Ambient Temp with custody seal intact 2/13/12

1 Box FedEx # 4208 2709 1110

4 cans / 4 Flows

Special Instructions/QC Requirements & Comments:

email Results to JFBRIMEYER@TERRACON.COM

Canisters Shipped by: Dropped @ TestAmerica	Date/Time: 2/10/12	Canisters Received by: 2/13/12	940
Samples Relinquished by: Dave Cly	Date/Time: 2/10/12 ~~4:50~~ 4:15	Received by:	
Relinquished by:	Date/Time:	Received by:	

TESTAMERICA KNOXVILLE SAMPLE RECEIPT/CONDITION UPON RECEIPT ANOMALY CHECKLIST

Lot Number: H2B130450

Review Items	Yes	No	NA	If No, what was the problem?	Comments/Actions Taken
1. Do sample container labels match COC? (IDs, Dates, Times)	✓			☐ 1a Do not match COC ☐ 1b Incomplete information ☐ 1c Marking smeared ☐ 1d Label torn ☐ 1e No label ☐ 1f COC not received ☐ 1g Other:	
2. Is the cooler temperature within limits? (> freezing temp. of water to 6 °C, VOST: 10°C)	✓			☐ 2a Temp Blank = _____ ☐ 2b Cooler Temp = _____ ☐ 2c Cooling initiated for recently collected samples, ice present.	
3. Were samples received with correct chemical preservative (excluding Encore)?			✓	☐ 3a Sample preservative =	
4. Were custody seals present/intact on cooler and/or containers?	✓			☐ 4a Not present ☐ 4b Not intact ☐ 4c Other:	
5. Were all of the samples listed on the COC received?	✓			☐ 5a Samples received-not on COC ☐ 5b Samples not received-on COC	
6. Were all of the sample containers received intact?	✓			☐ 6a Leaking ☐ 6b Broken	
7. Were VOA samples received without headspace?			✓	☐ 7a Headspace (VOA only)	
8. Were samples received in appropriate containers?	✓			☐ 8a Improper container	
9. Did you check for residual chlorine, if necessary?			✓	☐ 9a Could not be determined due to matrix interference	
10. Were samples received within holding time?	✓			☐ 10a Holding time expired	
11. For rad samples, was sample activity info. provided?			✓	☐ Incomplete information	
12. For 1613B water samples is pH<9?			✓	If no, was pH adjusted to pH 7 - 9 with sulfuric acid? _____	
13. Are the shipping containers intact?	✓			☐ 13a Leaking ☐ 13b Other:	
14. Was COC relinquished? (Signed/Dated/Timed)	✓			☐ 14a Not relinquished	
15. Are tests/parameters listed for each sample?	✓			☐ 15a Incomplete information	
16. Is the matrix of the samples noted?	✓			☐ 15a Incomplete information	
17. Is the date/time of sample collection noted?	✓			☐ 15a Incomplete information	
18. Is the client and project name/# identified?	✓			☐ 15a Incomplete information	
19. Was the sampler identified on the COC?	✓				

Quote #: 87209 PM Instructions: _____

Sample Receiving Associate: [signature] Date: 2/13/12

QA026R22.doc, 012811

Test America - Knoxville ---- Air Canister Dilution Log

Lot Number: *H2B130450*

Initial Can Pressure							Subsequent Dilutions											
Analyst/Date	Tedlar Bag Time	Pbarr (in)	Sample ID	Can #	Pres. upon receipt (-in or + psig)	Adj. Initial Pres. (-in or + psig)	Analyst/Date	I / S	Pbarr (in)	Initial Pres. Pi (in)	Final Pres. Pf (psig)	First InCan Final Pres. Pf (psig)	Second In-can Final Pres. Pf (psig)	Third InCan Final Pres. Pf (psig)	Serial Dilution Can #	Vol (mL)	Final Pres. Pf (psig)	Comments
2/13/12	NA	28.96	MQR8D	6618 ✓	-5.1	—												9577
			MQR8L	2979 ✓	-2.4	—												
			MQR8P	6354 ✓	-3.4	—												9564
			MQR8T	6636 ✓	-4.9	—												9577

H2A240442 Analytical Report 1
Total Number of Pages 8

US EPA ARCHIVE DOCUMENT

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

TestAmerica Laboratories, Inc.

ANALYTICAL REPORT

Terracon

Lot #: H2A240442

Brian Graettinger

TestAmerica Cedar Falls
704 Enterprise Drive
Cedar Falls, IA 50613-0625

TESTAMERICA LABORATORIES, INC.

Jamie A. McKinney
Project Manager

January 30, 2012

ANALYTICAL METHODS SUMMARY

H2A240442

PARAMETER	ANALYTICAL METHOD
Volatile Organics by TO15	EPA-2 TO-15

References:

EPA-2 "Compendium of Methods for the Determination of Toxic Organic Compounds in Ambient Air", EPA-625/R-96/010b, January 1999.

US EPA ARCHIVE DOCUMENT

SAMPLE SUMMARY

H2A240442

WO #	SAMPLE#	CLIENT SAMPLE ID	SAMPLED DATE	SAMP TIME
MQDM1	001	CAN# 6636/ BATCH# 9577	12/03/11	09:06
MQDM3	002	CAN# 2979 / BATCH# 9577	12/03/11	09:04
MQDNM	003	CAN# 6618 / BATCH# 9577	12/03/11	09:05

NOTE(S):

- The analytical results of the samples listed above are presented on the following pages.
- All calculations are performed before rounding to avoid round-off errors in calculated results.
- Results noted as "ND" were not detected at or above the stated limit.
- This report must not be reproduced, except in full, without the written approval of the laboratory.
- Results for the following parameters are never reported on a dry weight basis: color, corrosivity, density, flashpoint, ignitability, layers, odor, paint filter test, pH, porosity pressure, reactivity, redox potential, specific gravity, spot tests, solids, solubility, temperature, viscosity, and weight.

PROJECT NARRATIVE
H2A240442

The results reported herein are applicable to the samples submitted for analysis only. If you have any questions about this report, please call (865) 291-3000 to speak with the TestAmerica project manager listed on the cover page.

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

Quality Control and Data Interpretation

Unless otherwise noted, all holding times and QC criteria were met and the test results shown in this report meet all applicable NELAC requirements.

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.

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CERTIFICATION SUMMARY

Laboratory	Authority	Program	EPA Region	Certification ID
TestAmerica Knoxville	ACLASS	DoD ELAP		ADE-1434
TestAmerica Knoxville	Arkansas	State Program	6	88-0688
TestAmerica Knoxville	California	State Program	9	2423
TestAmerica Knoxville	Colorado	State Program	8	N/A
TestAmerica Knoxville	Connecticut	State Program	1	PH-0223
TestAmerica Knoxville	Florida	NELAC	4	E87177
TestAmerica Knoxville	Georgia	State Program	4	906
TestAmerica Knoxville	Hawaii	State Program	9	N/A
TestAmerica Knoxville	Indiana	State Program	5	C-TN-02
TestAmerica Knoxville	Iowa	State Program	7	375
TestAmerica Knoxville	Kansas	NELAC	7	E-10349
TestAmerica Knoxville	Kentucky	State Program	4	90101
TestAmerica Knoxville	Louisiana	NELAC	6	LA110001
TestAmerica Knoxville	Louisiana	NELAC	6	83979
TestAmerica Knoxville	Maryland	State Program	3	277
TestAmerica Knoxville	Michigan	State Program	5	9933
TestAmerica Knoxville	Minnesota	NELAC	5	047-999-429
TestAmerica Knoxville	Nevada	State Program	9	TN00009
TestAmerica Knoxville	New Jersey	NELAC	2	TN001
TestAmerica Knoxville	New York	NELAC	2	10781
TestAmerica Knoxville	North Carolina	North Carolina DENR	4	64
TestAmerica Knoxville	North Carolina	North Carolina PHL	4	21705
TestAmerica Knoxville	Ohio	OVAP	5	CL0059
TestAmerica Knoxville	Oklahoma	State Program	6	9415
TestAmerica Knoxville	Pennsylvania	NELAC	3	68-00576
TestAmerica Knoxville	South Carolina	State Program	4	84001
TestAmerica Knoxville	Tennessee	State Program	4	2014
TestAmerica Knoxville	Texas	NELAC	6	T104704380-TX
TestAmerica Knoxville	USDA	USDA		P330-11-00035
TestAmerica Knoxville	Utah	NELAC	8	QUAN3
TestAmerica Knoxville	Virginia	State Program	3	165
TestAmerica Knoxville	Washington	State Program	10	C593
TestAmerica Knoxville	West Virginia	West Virginia DEP	3	345
TestAmerica Knoxville	West Virginia	West Virginia DHHR (DW)	3	9955C
TestAmerica Knoxville	Wisconsin	State Program	5	998044300

Accreditation may not be offered or required for all methods and analytes reported in this package. Please contact your project manager for the laboratory's current list of certified methods and analytes.

TestAmerica Cedar Falls

Client Sample ID: CAN# 6636/ BATCH# 9577

GC/MS Volatiles

Lot-Sample # H2A240442 - 001 **Work Order #** MQDM11AA **Matrix.....:** AIR

Date Sampled...: 12/03/2011 **Date Received..:** 01/24/2012
Prep Date.....: 12/03/2011 **Analysis Date...** 12/03/2011
Prep Batch #.....: 2024089
Dilution Factor.: 1 **Method.....:** TO-15

PARAMETER	RESULTS (ppb(v/v))	REPORTING LIMIT (ppb(v/v))	RESULTS (ug/m3)	REPORTING LIMIT (ug/m3)
Tetrachloroethene	ND	0.080	ND	0.54
1,1,1-Trichloroethane	ND	0.080	ND	0.44
1,1,2-Trichloroethane	ND	0.080	ND	0.44
Trichloroethene	ND	0.040	ND	0.21
Vinyl chloride	ND	0.080	ND	0.20
1,1-Dichloroethane	ND	0.080	ND	0.32
1,1-Dichloroethene	ND	0.080	ND	0.32
cis-1,2-Dichloroethene	ND	0.080	ND	0.32
trans-1,2-Dichloroethene	ND	0.080	ND	0.32

The 'Result' in ug/m3 is calculated using the following equation: Amount Found(before rounding)*(Molecular Weight/24.45)

The 'Reporting Limit' in ug/m3 is calculated using the following equation: (Reporting Limit(before rounding) * Dilution Factor) * (Molecular Weight/24.45)

TO-14_rev5.rpt Rev 1.0.9 09/01/2011

US EPA ARCHIVE DOCUMENT

TestAmerica Cedar Falls

Client Sample ID: CAN# 2979 / BATCH# 9577

GC/MS Volatiles

Lot-Sample #	H2A240442 - 002	**Work Order #**	MQDM31AA	**Matrix.....:**	AIR

Date Sampled...:	12/03/2011	**Date Received..:**	01/24/2012
Prep Date.....:	12/03/2011	**Analysis Date...**	12/04/2011
Prep Batch #.....:	2024089		
Dilution Factor.:	1	**Method.....:**	TO-15

PARAMETER	RESULTS (ppb(v/v))	REPORTING LIMIT (ppb(v/v))	RESULTS (ug/m3)	REPORTING LIMIT (ug/m3)
Tetrachloroethene	ND	0.080	ND	0.54
1,1,1-Trichloroethane	ND	0.080	ND	0.44
1,1,2-Trichloroethane	ND	0.080	ND	0.44
Trichloroethene	ND	0.040	ND	0.21
Vinyl chloride	ND	0.080	ND	0.20
1,1-Dichloroethane	ND	0.080	ND	0.32
1,1-Dichloroethene	ND	0.080	ND	0.32
cis-1,2-Dichloroethene	ND	0.080	ND	0.32
trans-1,2-Dichloroethene	ND	0.080	ND	0.32

The 'Result' in ug/m3 is calculated using the following equation: Amount Found(before rounding)*(Molecular Weight/24.45)

The 'Reporting Limit' in ug/m3 is calculated using the following equation: (Reporting Limit(before rounding) * Dilution Factor) * (Molecular Weight/24.45)

TO-14_rev5.rpt Rev 1.0.9 09/01/2011

TestAmerica Cedar Falls

Client Sample ID: CAN# 6618 / BATCH# 9577

GC/MS Volatiles

Lot-Sample # H2A240442 - 003 **Work Order #** MQDNM1AA **Matrix.....:** AIR

Date Sampled...: 12/03/2011 **Date Received..:** 01/24/2012
Prep Date.....: 12/03/2011 **Analysis Date...** 12/04/2011
Prep Batch #.....: 2024089
Dilution Factor.: 1 **Method.....:** TO-15

PARAMETER	RESULTS (ppb(v/v))	REPORTING LIMIT (ppb(v/v))	RESULTS (ug/m3)	REPORTING LIMIT (ug/m3)
Tetrachloroethene	ND	0.080	ND	0.54
1,1,1-Trichloroethane	ND	0.080	ND	0.44
1,1,2-Trichloroethane	ND	0.080	ND	0.44
Trichloroethene	ND	0.040	ND	0.21
Vinyl chloride	ND	0.080	ND	0.20
1,1-Dichloroethane	ND	0.080	ND	0.32
1,1-Dichloroethene	ND	0.080	ND	0.32
cis-1,2-Dichloroethene	ND	0.080	ND	0.32
trans-1,2-Dichloroethene	ND	0.080	ND	0.32

The 'Result' in ug/m3 is calculated using the following equation: Amount Found(before rounding)*(Molecular Weight/24.45)

The 'Reporting Limit' in ug/m3 is calculated using the following equation: (Reporting Limit(before rounding) * Dilution Factor) * (Molecular Weight/24.45)

TO-14_rev5.rpt Rev 1.0.9 09/01/2011

US EPA ARCHIVE DOCUMENT

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.

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Contact Information	**Project Manager:** John Brimeyer	**Sampled By:** Dave Cleary	1 of 1 COCs
Company: Terracon	Phone: 563-355-0702		
Address: 870 40th Avenue	Site Contact:		
City/State/Zip Bettendorf, IA 52722	TAL Contact:		
Phone: 563-355-0702			
FAX:			
Project Name: Chamberlain Mfg	**Analysis Turnaround Time**		
Site/location: Waterloo Iowa	Standard (Specify) X		
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)
IA-B-37-3	2-9-12 2-10-12	330	330	-30	-5	K496	6618	X							X				
IA-1-37-3	2-9-12 2-10-12	330	330	-30	-1	K162	2979	X							X				
IA-B-48-4	2-9-12 2-10-12	350	350	-30	-3	K475	6354	X							X				
IA-1-48-4	2-9-12 2-10-12	350	350	-30	-8	K444	6636	X							X				

Sampled by : Dave Cleary

Temperature (Fahrenheit)	Interior	Ambient
Start		
Stop		

Pressure (inches of Hg)	Interior	Ambient
Start		
Stop		

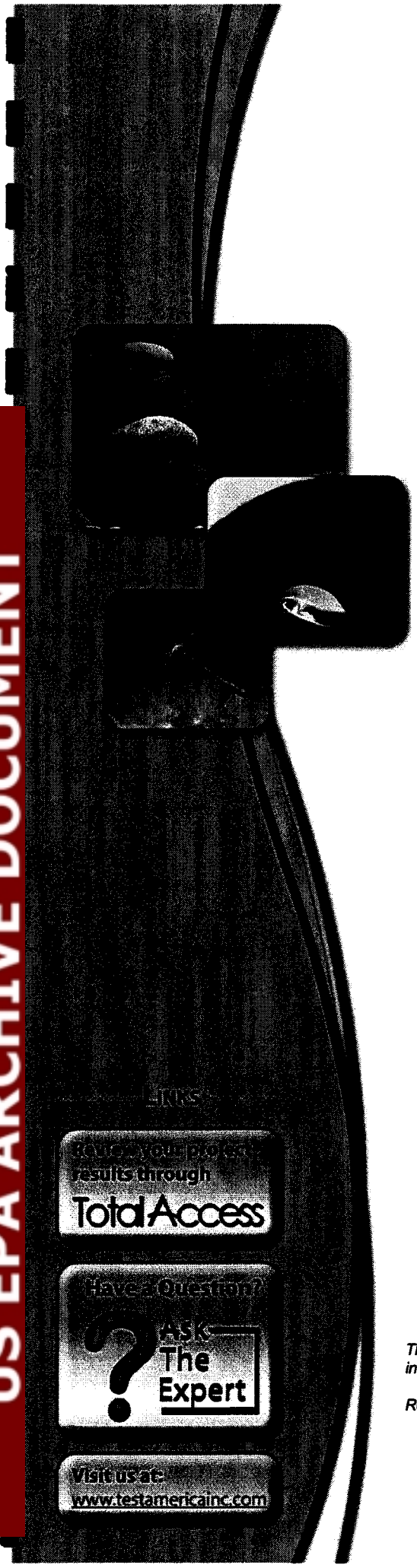
Special Instructions/QC Requirements & Comments:

email Results to JFBRIMEYER@TERRACON.COM

Canisters Shipped by: Dropped @ Test America	Date/Time: 2/10/12	Canisters Received by:
Samples Relinquished by: Dave Cly	Date/Time: 2/10/12 ~~4:50~~ 4:15	Received by: Milen Tarlianii
Relinquished by:	Date/Time:	Received by:

2/20/2012

US EPA ARCHIVE DOCUMENT



TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica Cedar Falls
704 Enterprise Drive
Cedar Falls, IA 50613
Tel: 800-750-2401

TestAmerica Job ID: CVB1316
Client Project/Site: Chamberlain Vapor Sampling
Client Project Description: TO-15 Scans

For:
TERRACON - BETTENDORF
870 40th Avenue
Bettendorf, IA 52722

Attn: John Brimeyer

Authorized for release by:
2/29/2012 3:48:34 PM

Brian C. Graettinger
Operations Manager
brian.graettinger@testamericainc.com

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.

Job ID: CVB1316

Laboratory: TestAmerica Cedar Falls

Narrative

Analyzed by TestAmerica - Knoxville, TN.

US EPA ARCHIVE DOCUMENT

Sample Summary

Client: TERRACON - BETTENDORF
Project/Site: Chamberlain Vapor Sampling

TestAmerica Job ID: CVB1316

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
CVB1316-01	IA-1-4-2	Air	02/21/12 10:08	02/21/12 12:00
CVB1316-02	IA-B-4-2	Air	02/21/12 10:10	02/21/12 12:00

Client Sample Results

Client: TERRACON - BETTENDORF
Project/Site: Chamberlain Vapor Sampling

TestAmerica Job ID: CVB1316

Client Sample ID: IA-1-4-2

Lab Sample ID: CVB1316-01
Matrix: Air

Date Collected: 02/21/12 10:08
Date Received: 02/21/12 12:00
Sample Container: Summa Canister

Method: EPA TO-15 - Air Sample Analysis - Subcontract

Analyte	Result	Qualifier	RL	MDL	Unit	D	Analyst	Analyzed	Dil Fac
Volatile Organic Compounds	See Attached Report.		0.10		mg		BCG	02/27/12 04:01	1.0

Client Sample ID: IA-B-4-2

Lab Sample ID: CVB1316-02
Matrix: Air

Date Collected: 02/21/12 10:10
Date Received: 02/21/12 12:00
Sample Container: Summa Canister

Method: EPA TO-15 - Air Sample Analysis - Subcontract

Analyte	Result	Qualifier	RL	MDL	Unit	D	Analyst	Analyzed	Dil Fac
Volatile Organic Compounds	See Attached Report.		0.10		mg		BCG	02/27/12 04:58	1.0

US EPA ARCHIVE DOCUMENT

H2B220440 Analytical Report 1
Sample Receipt Documentation 10
Total Number of Pages 12

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

TestAmerica Laboratories, Inc.

ANALYTICAL REPORT

PROJECT NO. CVB1316

Terracon / Chamberlain

Lot #: H2B220440

Brian Graettinger

TestAmerica Cedar Falls
704 Enterprise Drive
Cedar Falls, IA 50613-0625

TESTAMERICA LABORATORIES, INC.

Ryan Henry
- For -

Jamie A. McKinney
Project Manager

February 29, 2012

US EPA ARCHIVE DOCUMENT

ANALYTICAL METHODS SUMMARY

H2B220440

PARAMETER	ANALYTICAL METHOD
Volatile Organics by TO15	EPA-2 TO-15

References:

EPA-2 "Compendium of Methods for the Determination of Toxic Organic Compounds in Ambient Air", EPA-625/R-96/010b, January 1999.

SAMPLE SUMMARY

H2B220440

WO #	SAMPLE#	CLIENT SAMPLE ID	SAMPLED DATE	SAMP TIME
MQ10P	001	IA-1-4-2	02/21/12	10:08
MQ10Q	002	IA-B-4-2	02/21/12	10:10

NOTE(S):

- The analytical results of the samples listed above are presented on the following pages.
- All calculations are performed before rounding to avoid round-off errors in calculated results.
- Results noted as "ND" were not detected at or above the stated limit.
- This report must not be reproduced, except in full, without the written approval of the laboratory.
- Results for the following parameters are never reported on a dry weight basis: color, corrosivity, density, flashpoint, ignitability, layers, odor, paint filter test, pH, porosity pressure, reactivity, redox potential, specific gravity, spot tests, solids, solubility, temperature, viscosity, and weight.

US EPA ARCHIVE DOCUMENT

PROJECT NARRATIVE
H2B220440

The results reported herein are applicable to the samples submitted for analysis only. If you have any questions about this report, please call (865) 291-3000 to speak with the TestAmerica project manager listed on the cover page.

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

The original chain of custody documentation is included with this report.

Sample Receipt

There were no problems with the condition of the samples received.

Quality Control and Data Interpretation

Unless otherwise noted, all holding times and QC criteria were met and the test results shown in this report meet all applicable NELAC requirements.

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.

CERTIFICATION SUMMARY

Laboratory	Authority	Program	EPA Region	Certification ID
TestAmerica Knoxville	ACLASS	DoD ELAP		ADE-1434
TestAmerica Knoxville	Arkansas	State Program	6	88-0688
TestAmerica Knoxville	California	State Program	9	2423
TestAmerica Knoxville	Colorado	State Program	8	N/A
TestAmerica Knoxville	Connecticut	State Program	1	PH-0223
TestAmerica Knoxville	Florida	NELAC	4	E87177
TestAmerica Knoxville	Georgia	State Program	4	906
TestAmerica Knoxville	Hawaii	State Program	9	N/A
TestAmerica Knoxville	Indiana	State Program	5	C-TN-02
TestAmerica Knoxville	Iowa	State Program	7	375
TestAmerica Knoxville	Kansas	NELAC	7	E-10349
TestAmerica Knoxville	Kentucky	State Program	4	90101
TestAmerica Knoxville	Louisiana	NELAC	6	LA110001
TestAmerica Knoxville	Louisiana	NELAC	6	83979
TestAmerica Knoxville	Maryland	State Program	3	277
TestAmerica Knoxville	Michigan	State Program	5	9933
TestAmerica Knoxville	Minnesota	NELAC	5	047-999-429
TestAmerica Knoxville	Nevada	State Program	9	TN00009
TestAmerica Knoxville	New Jersey	NELAC	2	TN001
TestAmerica Knoxville	New York	NELAC	2	10781
TestAmerica Knoxville	North Carolina	North Carolina DENR	4	64
TestAmerica Knoxville	North Carolina	North Carolina PHL	4	21705
TestAmerica Knoxville	Ohio	OVAP	5	CL0059
TestAmerica Knoxville	Oklahoma	State Program	6	9415
TestAmerica Knoxville	Pennsylvania	NELAC	3	68-00576
TestAmerica Knoxville	South Carolina	State Program	4	84001
TestAmerica Knoxville	Tennessee	State Program	4	2014
TestAmerica Knoxville	Texas	NELAC	6	T104704380-TX
TestAmerica Knoxville	USDA	USDA		P330-11-00035
TestAmerica Knoxville	Utah	NELAC	8	QUAN3
TestAmerica Knoxville	Virginia	State Program	3	165
TestAmerica Knoxville	Washington	State Program	10	C593
TestAmerica Knoxville	West Virginia	West Virginia DEP	3	345
TestAmerica Knoxville	West Virginia	West Virginia DHHR (DW)	3	9955C
TestAmerica Knoxville	Wisconsin	State Program	5	998044300

Accreditation may not be offered or required for all methods and analytes reported in this package. Please contact your project manager for the laboratory's current list of certified methods and analytes.

US EPA ARCHIVE DOCUMENT

TestAmerica Cedar Falls

Client Sample ID: IA-1-4-2

GC/MS Volatiles

Lot-Sample # H2B220440 - 001 **Work Order #** MQ10P1AA **Matrix.....:** AIR

Date Sampled...: 02/21/2012 **Date Received..:** 02/22/2012
Prep Date.....: 02/26/2012 **Analysis Time....:** 02/27/2012
Prep Batch #.....: 2058130 **Analysis Time....:** 04:01
Dilution Factor.: 1 **Method.....:** TO-15

PARAMETER	RESULTS (ppb(v/v))	REPORTING LIMIT (ppb(v/v))	MDL (ppb(v/v))	RESULTS (ug/m3)	REPORTING LIMIT (ug/m3)	MDL (ug/m3)
cis-1,2-Dichloroethene	ND	0.080	0.024	ND	0.32	0.095
1,1-Dichloroethene	ND	0.080	0.013	ND	0.32	0.052
Vinyl chloride	ND	0.080	0.029	ND	0.20	0.074
1,1-Dichloroethane	ND	0.080	0.010	ND	0.32	0.040
1,1,1-Trichloroethane	ND	0.080	0.012	ND	0.44	0.065
Trichloroethene	ND	0.040	0.014	ND	0.21	0.075
trans-1,2-Dichloroethene	ND	0.080	0.020	ND	0.32	0.079
Tetrachloroethene	ND	0.080	0.016	ND	0.54	0.11
1,1,2-Trichloroethane	ND	0.080	0.021	ND	0.44	0.11

SURROGATE	PERCENT RECOVERY	LABORATORY CONTROL LIMITS (%)
4-Bromofluorobenzene	111	60 - 140

Result (ug/m3) = Result (ppb(v/v))[unrounded] * (Molecular Weight/24.45)

Reporting Limit (ug/m3) = Reporting Limit (ppb(v/v))[unrounded] * (Molecular Weight/24.45)

MDL (ug/m3) = MDL (ppb(v/v))[unrounded] * (Molecular Weight/24.45)

TestAmerica Cedar Falls

Client Sample ID: IA-B-4-2

GC/MS Volatiles

Lot-Sample # H2B220440 - 002 **Work Order #** MQ10Q1AA **Matrix.....:** AIR

Date Sampled...: 02/21/2012 **Date Received..:** 02/22/2012
Prep Date.....: 02/26/2012 **Analysis Time....:** 02/27/2012
Prep Batch #.....: 2058130 **Analysis Time....:** 04:58
Dilution Factor.: 1 **Method.....:** TO-15

PARAMETER	RESULTS (ppb(v/v))	REPORTING LIMIT (ppb(v/v))	MDL (ppb(v/v))	RESULTS (ug/m3)	REPORTING LIMIT (ug/m3)	MDL (ug/m3)
1,1,2-Trichloroethane	ND	0.080	0.021	ND	0.44	0.11
Tetrachloroethene	ND	0.080	0.016	ND	0.54	0.11
trans-1,2-Dichloroethene	ND	0.080	0.020	ND	0.32	0.079
Trichloroethene	ND	0.040	0.014	ND	0.21	0.075
1,1,1-Trichloroethane	ND	0.080	0.012	ND	0.44	0.065
1,1-Dichloroethane	ND	0.080	0.010	ND	0.32	0.040
Vinyl chloride	ND	0.080	0.029	ND	0.20	0.074
1,1-Dichloroethene	ND	0.080	0.013	ND	0.32	0.052
cis-1,2-Dichloroethene	ND	0.080	0.024	ND	0.32	0.095

SURROGATE	PERCENT RECOVERY	LABORATORY CONTROL LIMITS (%)
4-Bromofluorobenzene	111	60 - 140

Result (ug/m3) = Result (ppb(v/v))[unrounded] * (Molecular Weight/24.45)

Reporting Limit (ug/m3) = Reporting Limit (ppb(v/v))[unrounded] * (Molecular Weight/24.45)

MDL (ug/m3) = MDL (ppb(v/v))[unrounded] * (Molecular Weight/24.45)

US EPA ARCHIVE DOCUMENT

TestAmerica Cedar Falls

Client Sample ID: INTRA-LAB BLANK

GC/MS Volatiles

Lot-Sample # H2B270000 - 130B **Work Order #** MQ4L21AA **Matrix.....:** AIR

	02/21/2012	**Date Received..:**	02/22/2012
Prep Date.....:	02/26/2012	**Analysis Time....:**	02/26/2012
Prep Batch #.....:	2058130	**Analysis Time....:**	16:08
Dilution Factor.:	1	**Method.....:**	TO-15

PARAMETER	RESULTS (ppb(v/v))	REPORTING LIMIT (ppb(v/v))	MDL (ppb(v/v))	RESULTS (ug/m3)	REPORTING LIMIT (ug/m3)	MDL (ug/m3)
cis-1,2-Dichloroethene	ND	0.080	0.024	ND	0.32	0.095
1,1-Dichloroethene	ND	0.080	0.013	ND	0.32	0.052
Vinyl chloride	ND	0.080	0.029	ND	0.20	0.074
1,1-Dichloroethane	ND	0.080	0.010	ND	0.32	0.040
1,1,1-Trichloroethane	ND	0.080	0.012	ND	0.44	0.065
Trichloroethene	ND	0.040	0.014	ND	0.21	0.075
trans-1,2-Dichloroethene	ND	0.080	0.020	ND	0.32	0.079
Tetrachloroethene	ND	0.080	0.016	ND	0.54	0.11
1,1,2-Trichloroethane	ND	0.080	0.021	ND	0.44	0.11

SURROGATE	PERCENT RECOVERY	LABORATORY CONTROL LIMITS (%)
4-Bromofluorobenzene	103	60 - 140

Result (ug/m3) = Result (ppb(v/v))[unrounded] * (Molecular Weight/24.45)

Reporting Limit (ug/m3) = Reporting Limit (ppb(v/v))[unrounded] * (Molecular Weight/24.45)

MDL (ug/m3) = MDL (ppb(v/v))[unrounded] * (Molecular Weight/24.45)

TestAmerica Cedar Falls

Client Sample ID: CHECK SAMPLE

GC/MS Volatiles

Lot-Sample # H2B270000 - 130C **Work Order #** MQ4L21AC **Matrix.....:** AIR

	02/21/2012	**Date Received..:**	02/22/2012
Prep Date.....:	02/26/2012	**Analysis Time....:**	02/26/2012
Prep Batch #.....:	2058130	**Analysis Time....:**	13:57
Dilution Factor.:	1	**Method.....:**	TO-15

PARAMETER	SPIKE AMOUNT (ppb(v/v))	MEASURED AMOUNT (ppb(v/v))	SPIKE AMOUNT (ug/m3)	MEASURED AMOUNT (ug/m3)	PERCENT RECOVERY	RECOVERY LIMITS
Tetrachloroethene	2.00	1.97	13.6	13.3	98	70 - 130
1,1,2-Trichloroethane	2.00	1.84	10.9	10.0	92	70 - 130
trans-1,2-Dichloroethene	2.00	1.77	7.93	7.01	88	70 - 130
Trichloroethene	2.00	2.01	10.7	10.8	101	70 - 130
1,1,1-Trichloroethane	2.00	2.46	10.9	13.4	123	70 - 130
1,1-Dichloroethane	2.00	1.90	8.09	7.68	95	70 - 130
cis-1,2-Dichloroethene	2.00	1.86	7.93	7.37	93	70 - 130
1,1-Dichloroethene	2.00	1.70	7.93	6.72	85	70 - 130
Vinyl chloride	2.00	1.73	5.11	4.43	87	70 - 130

SURROGATE	PERCENT RECOVERY	LABORATORY CONTROL LIMITS (%)
4-Bromofluorobenzene	106	60 - 140

Result (ug/m3) = Result (ppb(v/v))[unrounded] * (Molecular Weight/24.45)

Reporting Limit (ug/m3) = Reporting Limit (ppb(v/v))[unrounded] * (Molecular Weight/24.45)

MDL (ug/m3) = MDL (ppb(v/v))[unrounded] * (Molecular Weight/24.45)

US EPA ARCHIVE DOCUMENT

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

42B220440

Canister Samples Chain of Custody Record

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

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Contact Information	Project Manager: John Brimeyer	Rob Bergman	1 of 1 COCs
Company: Terracon	Phone: 563-355-0702		
Address: 870 40th Ave.	Site Contact:		
City/State/Zip Bettendorf, IA 52722	TAL Contact:		
Phone: 563-355-0702			
FAX:			
Project Name: Chamberlain	Analysis Turnaround Time		
Site/location: Chamberlain/Waterloo, IA	Standard (Specify) 5 day		
PO # 07107020	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)
IA-1-4-2	2-20-12 to 2-21-12	1017	1008	-29.3	-4.0	K277	1364	X							X				
IA-B-4-2	↓	1034	1010	-30.0	-4.3	K257	04337	X							X				

Sampled by: Rob Bergman

Temperature (Fahrenheit)	Interior	Ambient	
Start			
Stop			

1 Box Rec'd @ Ambient Temp without custody seal
[illegible] 2/22/12
1 Box Fed X # 4208 2705 1543

Pressure (Inches of Hg)	Interior	Ambient	
Start			
Stop			

2 CBNS / 2 Flows

Special Instructions/QC Requirements & Comments:

Please e-mail results to John Brimeyer jfbrimeyer@terracon.com

Canisters Shipped by:	Date/Time:	Canisters Received by: [signature] 2/22/12	950
Samples Relinquished by: Rob Bergman	Date/Time: 2/21/12 11:10	Received by: [signature] 2-21-12 11:10	
Relinquished by: [signature]	Date/Time: 2/21/12 12:00	Received by:	

Lab Use Only Shipper Name: Opened by: Condition:

10

6 5 4 3 2 1

2/29/2012

TESTAMERICA KNOXVILLE SAMPLE RECEIPT/CONDITION UPON RECEIPT ANOMALY CHECKLIST

Lot Number: H2B220440

Review Items	Yes	No	NA	If No, what was the problem?	Comments/Actions Taken
1. Do sample container labels match COC? (IDs, Dates, Times)	✓			☐ 1a Do not match COC ☐ 1b Incomplete information ☐ 1c Marking smeared ☐ 1d Label torn ☐ 1e No label ☐ 1f COC not received ☐ 1g Other:	4A
2. Is the cooler temperature within limits? (> freezing temp. of water to 6°C, VOST: 10°C)	✓			☐ 2a Temp Blank = _____ ☐ 2b Cooler Temp = _____ ☐ 2c Cooling initiated for recently collected samples, ice present.	
3. Were samples received with correct chemical preservative (excluding Encore)?			✓	☐ 3a Sample preservative =	
4. Were custody seals present/intact on cooler and/or containers?		✓		☐ 4a Not present ☐ 4b Not intact ☐ 4c Other:	
5. Were all of the samples listed on the COC received?	✓			☐ 5a Samples received-not on COC ☐ 5b Samples not received-on COC	
6. Were all of the sample containers received intact?	✓			☐ 6a Leaking ☐ 6b Broken	
7. Were VOA samples received without headspace?			✓	☐ 7a Headspace (VOA only)	
8. Were samples received in appropriate containers?	✓			☐ 8a Improper container	
9. Did you check for residual chlorine, if necessary?			✓	☐ 9a Could not be determined due to matrix interference	
10. Were samples received within holding time?	✓			☐ 10a Holding time expired	
11. For rad samples, was sample activity info. provided?			✓	☐ Incomplete information	
12. For 1613B water samples is pH<9?			✓	If no, was pH adjusted to pH 7 - 9 with sulfuric acid? _____	
13. Are the shipping containers intact?	✓			☐ 13a Leaking ☐ 13b Other:	
14. Was COC relinquished? (Signed/Dated/Timed)	✓			☐ 14a Not relinquished	
15. Are tests/parameters listed for each sample?	✓			☐ 15a Incomplete information	
16. Is the matrix of the samples noted?	✓			☐ 15a Incomplete information	
17. Is the date/time of sample collection noted?	✓			☐ 15a Incomplete information	
18. Is the client and project name/# identified?	✓			☐ 15a Incomplete information	
19. Was the sampler identified on the COC?	✓				

Quote #: 87205 PM Instructions: _____

Sample Receiving Associate: [signature] Date: 2/22/12

QA026R22.doc, 012811

Test America - Knoxville ---- Air Canister Dilution Log

Lot Number: *H2B220440*

Initial Can Pressure							Subsequent Dilutions											
Analyst/Date	Tedlar Bag Time	Pbarr (in)	Sample ID	Can #	Pres. upon receipt (-in or + psig)	Adj. Initial Pres. (-in or + psig)	Analyst/Date	I / S	Pbarr (in)	Initial Pres. Pi (in)	Final Pres. Pf (psig)	First InCan Final Pres. Pf (psig)	Second In-can Final Pres. Pf (psig)	Third InCan Final Pres. Pf (psig)	Serial Dilution Can #	Vol (mL)	Final Pres. Pf (psig)	Comments
2/27/12	NA	29.49	MQ10P	1364 ✓	-3.9	—												9567
↓	↓	↓	MQ10Q	04337 ✓	-3.3	-												9556

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

42B22044D

Canister Samples Chain of Custody Record

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

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Contact Information
Company: Terracon
Address: 870 40th Ave.
City/State/Zip Bettendorf, IA 52722
Phone: 563-355-0702
FAX:
Project Name: Chamberlain
Site/location: Chamberlain/Waterloo, IA
PO # 07107020

Project Manager: John Brimeyer
Phone: 563-355-0702
Site Contact:
TAL Contact:

Analysis Turnaround Time
Standard (Specify) 5 day
Rush (Specify)

Rob Bergman

1 of 1 COCs

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)	[illegible]	Indoor Air	Ambient Air	Soil Gas	Landfill Gas	Other (Please specify in notes section)
IA-1-4-2	2-20-12 to 2-21-12	1017	1008	-29.3	-4.0	K277	1364	X							X				
IA-B-4-2	↓	1034	1010	-30.0	-4.3	K257	04337	X							X				

Sampled by: Rob Bergman

Temperature (Fahrenheit)

	Interior	Ambient	
Start			
Stop			

1 Box Rec'd @ Ambient Temp without custody seal [illegible] 2/22/12
1 Box Fed X # 4209 2705 1543

Pressure (Inches of Hg)

	Interior	Ambient	
Start			
Stop			

2 cans / 2 flows

Special Instructions/QC Requirements & Comments:

Please e-mail results to John Brimeyer jfbrimeyer@terracon.com

Canisters Shipped by:	Date/Time:	Canisters Received by: [signature] 2/22/12	950
Samples Relinquished by: Rob Bergman	Date/Time: 2/21/12 11:10	Received by: [signature] 2-21-12 11:10	
Relinquished by: [signature]	Date/Time: 2/21/12 12:00	Received by:	

Lab Use Only Shipper Name Opened by Condition

2/29/2012

US EPA ARCHIVE DOCUMENT

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica Cedar Falls
704 Enterprise Drive
Cedar Falls, IA 50613
Tel: 800-750-2401

TestAmerica Job ID: CVC1453
Client Project/Site: Chamberlain Vapor Sampling
Client Project Description: TO-15 Scans

For:
TERRACON - BETTENDORF
870 40th Avenue
Bettendorf, IA 52722

Attn: John Brimeyer

Authorized for release by:
4/12/2012 4:08:49 PM

Brian C. Graettinger
Operations Manager
brian.graettinger@testamericainc.com

LINKS

Review your project results through TotalAccess

Have a Question? Ask The Expert

Visit us at: www.testamericainc.com

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.

Job ID: CVC1453

Laboratory: TestAmerica Cedar Falls

Narrative

Analyzed by TestAmerica - Knoxville, TN.

US EPA ARCHIVE DOCUMENT

Sample Summary

Client: TERRACON - BETTENDORF
Project/Site: Chamberlain Vapor Sampling

TestAmerica Job ID: CVC1453

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
CVC1453-01	IA-1-33-2	Air	03/23/12 10:58	03/23/12 15:02
CVC1453-02	IA-B-33-2	Air	03/23/12 11:00	03/23/12 15:02
CVC1453-03	IA-1-60	Air	03/23/12 11:22	03/23/12 15:02
CVC1453-04	IA-B-60	Air	03/23/12 11:26	03/23/12 15:02
CVC1453-05	IA-1-47	Air	03/23/12 11:57	03/23/12 15:02
CVC1453-06	IA-B-47	Air	03/23/12 12:00	03/23/12 15:02
CVC1453-07	IA-B-73	Air	03/23/12 12:25	03/23/12 15:02
CVC1453-08	IA-B-73 Duplicate	Air	03/23/12 12:24	03/23/12 15:02
CVC1453-09	IA-1-40-2	Air	03/23/12 12:41	03/23/12 15:02
CVC1453-10	IA-B-40-2	Air	03/23/12 12:45	03/23/12 15:02
CVC1453-11	IA-B-76	Air	03/23/12 12:57	03/23/12 15:02

Client Sample Results

Client: TERRACON - BETTENDORF
Project/Site: Chamberlain Vapor Sampling

TestAmerica Job ID: CVC1453

Client Sample ID: IA-1-33-2

Lab Sample ID: CVC1453-01
Matrix: Air

Date Collected: 03/23/12 10:58
Date Received: 03/23/12 15:02
Sample Container: Summa Canister

Method: EPA TO-15 - Air Sample Analysis - Subcontract

Analyte	Result	Qualifier	RL	MDL	Unit	D	Analyst	Analyzed	Dil Fac
Volatile Organic Compounds	See Attached Report.		0.10		mg		BCG	03/27/12 18:14	1.0

Client Sample ID: IA-B-33-2

Lab Sample ID: CVC1453-02
Matrix: Air

Date Collected: 03/23/12 11:00
Date Received: 03/23/12 15:02
Sample Container: Summa Canister

Method: EPA TO-15 - Air Sample Analysis - Subcontract

Analyte	Result	Qualifier	RL	MDL	Unit	D	Analyst	Analyzed	Dil Fac
Volatile Organic Compounds	See Attached Report.		0.10		mg		BCG	03/27/12 19:08	1.0

Client Sample ID: IA-1-60

Lab Sample ID: CVC1453-03
Matrix: Air

Date Collected: 03/23/12 11:22
Date Received: 03/23/12 15:02
Sample Container: Summa Canister

Method: EPA TO-15 - Air Sample Analysis - Subcontract

Analyte	Result	Qualifier	RL	MDL	Unit	D	Analyst	Analyzed	Dil Fac
Volatile Organic Compounds	See Attached Report.		0.10		mg		BCG	03/27/12 20:01	1.0

Client Sample ID: IA-B-60

Lab Sample ID: CVC1453-04
Matrix: Air

Date Collected: 03/23/12 11:26
Date Received: 03/23/12 15:02
Sample Container: Summa Canister

Method: EPA TO-15 - Air Sample Analysis - Subcontract

Analyte	Result	Qualifier	RL	MDL	Unit	D	Analyst	Analyzed	Dil Fac
Volatile Organic Compounds	See Attached Report.		0.10		mg		BCG	03/27/12 20:55	1.0

Client Sample ID: IA-1-47

Lab Sample ID: CVC1453-05
Matrix: Air

Date Collected: 03/23/12 11:57
Date Received: 03/23/12 15:02
Sample Container: Summa Canister

Method: EPA TO-15 - Air Sample Analysis - Subcontract

Analyte	Result	Qualifier	RL	MDL	Unit	D	Analyst	Analyzed	Dil Fac
Volatile Organic Compounds	See Attached Report.		0.10		mg		BCG	03/27/12 17:19	1.0

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Client Sample Results

Client: TERRACON - BETTENDORF
Project/Site: Chamberlain Vapor Sampling

TestAmerica Job ID: CVC1453

Client Sample ID: IA-B-47

Lab Sample ID: CVC1453-06
Matrix: Air

Date Collected: 03/23/12 12:00
Date Received: 03/23/12 15:02
Sample Container: Summa Canister

Method: EPA TO-15 - Air Sample Analysis - Subcontract

Analyte	Result	Qualifier	RL	MDL	Unit	D	Analyst	Analyzed	Dil Fac
Volatile Organic Compounds	See Attached Report.		0.10		mg		BCG	03/27/12 21:50	1.0

Client Sample ID: IA-B-73

Lab Sample ID: CVC1453-07
Matrix: Air

Date Collected: 03/23/12 12:25
Date Received: 03/23/12 15:02
Sample Container: Summa Canister

Method: EPA TO-15 - Air Sample Analysis - Subcontract

Analyte	Result	Qualifier	RL	MDL	Unit	D	Analyst	Analyzed	Dil Fac
Volatile Organic Compounds	See Attached Report.		0.10		mg		BCG	03/27/12 22:45	1.0

Client Sample ID: IA-B-73 Duplicate

Lab Sample ID: CVC1453-08
Matrix: Air

Date Collected: 03/23/12 12:24
Date Received: 03/23/12 15:02
Sample Container: Summa Canister

Method: EPA TO-15 - Air Sample Analysis - Subcontract

Analyte	Result	Qualifier	RL	MDL	Unit	D	Analyst	Analyzed	Dil Fac
Volatile Organic Compounds	See Attached Report.		0.10		mg		BCG	03/27/12 23:39	1.0

Client Sample ID: IA-1-40-2

Lab Sample ID: CVC1453-09
Matrix: Air

Date Collected: 03/23/12 12:41
Date Received: 03/23/12 15:02
Sample Container: Summa Canister

Method: EPA TO-15 - Air Sample Analysis - Subcontract

Analyte	Result	Qualifier	RL	MDL	Unit	D	Analyst	Analyzed	Dil Fac
Volatile Organic Compounds	See Attached Report.		0.10		mg		BCG	03/28/12 00:34	1.0

Client Sample ID: IA-B-40-2

Lab Sample ID: CVC1453-10
Matrix: Air

Date Collected: 03/23/12 12:45
Date Received: 03/23/12 15:02
Sample Container: Summa Canister

Method: EPA TO-15 - Air Sample Analysis - Subcontract

Analyte	Result	Qualifier	RL	MDL	Unit	D	Analyst	Analyzed	Dil Fac
Volatile Organic Compounds	See Attached Report.		0.10		mg		BCG	03/28/12 01:30	1.0

Client Sample Results

Client: TERRACON - BETTENDORF
Project/Site: Chamberlain Vapor Sampling

TestAmerica Job ID: CVC1453

Client Sample ID: IA-B-76
Date Collected: 03/23/12 12:57
Date Received: 03/23/12 15:02
Sample Container: Summa Canister

Lab Sample ID: CVC1453-11
Matrix: Air

Method: EPA TO-15 - Air Sample Analysis - Subcontract

Analyte	Result	Qualifier	RL	MDL	Unit	D	Analyst	Analyzed	Dil Fac
Volatile Organic Compounds	See Attached Report.		0.10		mg		BCG	03/28/12 02:25	1.0

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H2C260406 Analytical Report 1
Sample Receipt Documentation 30
Total Number of Pages 33

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

TestAmerica Laboratories, Inc.

ANALYTICAL REPORT

Terracon

Lot #: H2C260406

Brian Graettinger

TestAmerica Cedar Falls
704 Enterprise Drive
Cedar Falls, IA 50613-0625

TESTAMERICA LABORATORIES, INC.

Jamie A. McKinney
Project Manager

April 12, 2012

US EPA ARCHIVE DOCUMENT

ANALYTICAL METHODS SUMMARY

H2C260406

PARAMETER	ANALYTICAL METHOD
Volatile Organics by TO15	EPA-2 TO-15

References:

EPA-2 "Compendium of Methods for the Determination of Toxic Organic Compounds in Ambient Air", EPA-625/R-96/010b, January 1999.

SAMPLE SUMMARY

H2C260406

WO #	SAMPLE#	CLIENT SAMPLE ID	SAMPLED DATE	SAMP TIME
MRLEL	001	IA-1-33-2	03/23/12	10:58
MRLEN	002	IA-B-33-2	03/23/12	11:00
MRLEP	003	IA-1-60	03/23/12	11:22
MRLEQ	004	IA-B-60	03/23/12	11:26
MRLER	005	IA-1-47	03/23/12	11:57
MRLET	006	IA-B-47	03/23/12	12:00
MRLEV	007	IA-B-73	03/23/12	12:25
MRLEW	008	IA-B-73 DUPLICATE	03/23/12	12:24
MRLEX	009	IA-1-40-2	03/23/12	12:41
MRLE0	010	IA-B-40-2	03/23/12	12:45
MRLE1	011	IA-B-76	03/23/12	12:57

NOTE(S):

- The analytical results of the samples listed above are presented on the following pages.
- All calculations are performed before rounding to avoid round-off errors in calculated results.
- Results noted as "ND" were not detected at or above the stated limit.
- This report must not be reproduced, except in full, without the written approval of the laboratory.
- Results for the following parameters are never reported on a dry weight basis: color, corrosivity, density, flashpoint, ignitability, layers, odor, paint filter test, pH, porosity pressure, reactivity, redox potential, specific gravity, spot tests, solids, solubility, temperature, viscosity, and weight.

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PROJECT NARRATIVE
H2C260406

The results reported herein are applicable to the samples submitted for analysis only. If you have any questions about this report, please call (865) 291-3000 to speak with the TestAmerica project manager listed on the cover page.

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The original chain of custody documentation is included with this report.

Sample Receipt

There were no problems with the condition of the samples received.

Quality Control and Data Interpretation

Unless otherwise noted, all holding times and QC criteria were met and the test results shown in this report meet all applicable NELAC requirements.

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.

Sample IA-1-47 was reported with elevated reporting limits for all analytes due to the presence of non-target compounds. A dilution was necessary prior to analysis, and the reporting limits were adjusted accordingly.

CERTIFICATION SUMMARY

Laboratory	Authority	Program	EPA Region	Certification ID
TestAmerica Knoxville	ACLASS	DoD ELAP		ADE-1434
TestAmerica Knoxville	Arkansas	State Program	6	88-0688
TestAmerica Knoxville	California	State Program	9	2423
TestAmerica Knoxville	Colorado	State Program	8	N/A
TestAmerica Knoxville	Connecticut	State Program	1	PH-0223
TestAmerica Knoxville	Florida	NELAC	4	E87177
TestAmerica Knoxville	Georgia	State Program	4	906
TestAmerica Knoxville	Hawaii	State Program	9	N/A
TestAmerica Knoxville	Indiana	State Program	5	C-TN-02
TestAmerica Knoxville	Iowa	State Program	7	375
TestAmerica Knoxville	Kansas	NELAC	7	E-10349
TestAmerica Knoxville	Kentucky	State Program	4	90101
TestAmerica Knoxville	Louisiana	NELAC	6	LA110001
TestAmerica Knoxville	Louisiana	NELAC	6	83979
TestAmerica Knoxville	Maryland	State Program	3	277
TestAmerica Knoxville	Michigan	State Program	5	9933
TestAmerica Knoxville	Minnesota	NELAC	5	047-999-429
TestAmerica Knoxville	Nevada	State Program	9	TN00009
TestAmerica Knoxville	New Jersey	NELAC	2	TN001
TestAmerica Knoxville	New York	NELAC	2	10781
TestAmerica Knoxville	North Carolina	North Carolina DENR	4	64
TestAmerica Knoxville	North Carolina	North Carolina PHL	4	21705
TestAmerica Knoxville	Ohio	OVAP	5	CL0059
TestAmerica Knoxville	Oklahoma	State Program	6	9415
TestAmerica Knoxville	Pennsylvania	NELAC	3	68-00576
TestAmerica Knoxville	South Carolina	State Program	4	84001
TestAmerica Knoxville	Tennessee	State Program	4	2014
TestAmerica Knoxville	Texas	NELAC	6	T104704380-TX
TestAmerica Knoxville	USDA	USDA		P330-11-00035
TestAmerica Knoxville	Utah	NELAC	8	QUAN3
TestAmerica Knoxville	Virginia	State Program	3	165
TestAmerica Knoxville	Washington	State Program	10	C593
TestAmerica Knoxville	West Virginia	West Virginia DEP	3	345
TestAmerica Knoxville	West Virginia	West Virginia DHHR (DW)	3	9955C
TestAmerica Knoxville	Wisconsin	State Program	5	998044300

Accreditation may not be offered or required for all methods and analytes reported in this package. Please contact your project manager for the laboratory's current list of certified methods and analytes.

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TestAmerica Cedar Falls

Client Sample ID: IA-1-33-2

GC/MS Volatiles

Lot-Sample #	H2C260406 - 001	**Work Order #**	MRLEL1AD	**Matrix.....:**	AIR

Date Sampled...:	03/23/2012	**Date Received..:**	03/26/2012
Prep Date.....:	03/27/2012	**Analysis Time....:**	03/27/2012
Prep Batch #.....:	2087124	**Analysis Time....:**	18:14
Dilution Factor.:	1	**Method.....:**	TO-15

PARAMETER	RESULTS (ppb(v/v))	REPORTING LIMIT (ppb(v/v))	MDL (ppb(v/v))	RESULTS (ug/m3)	REPORTING LIMIT (ug/m3)	MDL (ug/m3)
1,1,2-Trichloroethane	ND	0.080	0.021	ND	0.44	0.11
cis-1,2-Dichloroethene	ND	0.080	0.024	ND	0.32	0.095
Tetrachloroethene	**0.023 J**	**0.080**	**0.016**	**0.16 J**	**0.54**	**0.11**
1,1-Dichloroethene	ND	0.080	0.013	ND	0.32	0.052
trans-1,2-Dichloroethene	ND	0.080	0.020	ND	0.32	0.079
Vinyl chloride	ND	0.080	0.029	ND	0.20	0.074
1,1-Dichloroethane	ND	0.080	0.010	ND	0.32	0.040
1,1,1-Trichloroethane	**0.018 J**	**0.080**	**0.012**	**0.10 J**	**0.44**	**0.065**
Trichloroethene	**0.019 J**	**0.040**	**0.014**	**0.10 J**	**0.21**	**0.075**

SURROGATE	PERCENT RECOVERY	LABORATORY CONTROL LIMITS (%)
4-Bromofluorobenzene	98	60 - 140

Qualifiers

J	Estimated result. Result is less than RL.

Result (ug/m3) = Result (ppb(v/v))[unrounded] * (Molecular Weight/24.45)

Reporting Limit (ug/m3) = Reporting Limit (ppb(v/v))[unrounded] * (Molecular Weight/24.45)

MDL (ug/m3) = MDL (ppb(v/v))[unrounded] * (Molecular Weight/24.45)

TO-14 _rev5MDL_DOD.rpt version 5.004 09/13/2011

TestAmerica Cedar Falls

Client Sample ID: IA-B-33-2

GC/MS Volatiles

Lot-Sample # H2C260406 - 002 **Work Order #** MRLEN1AD **Matrix.....:** AIR

Date Sampled...: 03/23/2012 **Date Received..:** 03/26/2012
Prep Date.....: 03/27/2012 **Analysis Time....:** 03/27/2012
Prep Batch #.....: 2087124 **Analysis Time....:** 19:08
Dilution Factor.: 1 **Method.....:** TO-15

PARAMETER	RESULTS (ppb(v/v))	REPORTING LIMIT (ppb(v/v))	MDL (ppb(v/v))	RESULTS (ug/m3)	REPORTING LIMIT (ug/m3)	MDL (ug/m3)
Trichloroethene	**0.023 J**	**0.040**	**0.014**	**0.12 J**	**0.21**	**0.075**
1,1,1-Trichloroethane	**0.019 J**	**0.080**	**0.012**	**0.11 J**	**0.44**	**0.065**
1,1-Dichloroethane	ND	0.080	0.010	ND	0.32	0.040
Vinyl chloride	ND	0.080	0.029	ND	0.20	0.074
trans-1,2-Dichloroethene	ND	0.080	0.020	ND	0.32	0.079
1,1-Dichloroethene	ND	0.080	0.013	ND	0.32	0.052
Tetrachloroethene	ND	0.080	0.016	ND	0.54	0.11
cis-1,2-Dichloroethene	ND	0.080	0.024	ND	0.32	0.095
1,1,2-Trichloroethane	ND	0.080	0.021	ND	0.44	0.11

SURROGATE	PERCENT RECOVERY	LABORATORY CONTROL LIMITS (%)
4-Bromofluorobenzene	97	60 - 140

Qualifiers

J Estimated result. Result is less than RL.

Result (ug/m3) = Result (ppb(v/v))[unrounded] * (Molecular Weight/24.45)

Reporting Limit (ug/m3) = Reporting Limit (ppb(v/v))[unrounded] * (Molecular Weight/24.45)

MDL (ug/m3) = MDL (ppb(v/v))[unrounded] * (Molecular Weight/24.45)

TO-14 _rev5MDL_DOD.rpt version 5.004 09/13/2011

US EPA ARCHIVE DOCUMENT

TestAmerica Cedar Falls

Client Sample ID: IA-1-60

GC/MS Volatiles

Lot-Sample #	H2C260406 - 003	**Work Order #**	MRLEP1AD	**Matrix.....:**	AIR

Date Sampled...:	03/23/2012	**Date Received..:**	03/26/2012
Prep Date.....:	03/27/2012	**Analysis Time....:**	03/27/2012
Prep Batch #.....:	2087124	**Analysis Time....:**	20:01
Dilution Factor.:	1	**Method.....:**	TO-15

PARAMETER	RESULTS (ppb(v/v))	REPORTING LIMIT (ppb(v/v))	MDL (ppb(v/v))	RESULTS (ug/m3)	REPORTING LIMIT (ug/m3)	MDL (ug/m3)
1,1,2-Trichloroethane	ND	0.080	0.021	ND	0.44	0.11
cis-1,2-Dichloroethene	ND	0.080	0.024	ND	0.32	0.095
Tetrachloroethene	ND	0.080	0.016	ND	0.54	0.11
1,1-Dichloroethene	ND	0.080	0.013	ND	0.32	0.052
trans-1,2-Dichloroethene	ND	0.080	0.020	ND	0.32	0.079
Vinyl chloride	ND	0.080	0.029	ND	0.20	0.074
1,1-Dichloroethane	ND	0.080	0.010	ND	0.32	0.040
1,1,1-Trichloroethane	**0.013 J**	**0.080**	**0.012**	**0.072 J**	**0.44**	**0.065**
Trichloroethene	ND	0.040	0.014	ND	0.21	0.075

SURROGATE	PERCENT RECOVERY	LABORATORY CONTROL LIMITS (%)
4-Bromofluorobenzene	101	60 - 140

Qualifiers

J	Estimated result. Result is less than RL.

Result (ug/m3) = Result (ppb(v/v))[unrounded] * (Molecular Weight/24.45)

Reporting Limit (ug/m3) = Reporting Limit (ppb(v/v))[unrounded] * (Molecular Weight/24.45)

MDL (ug/m3) = MDL (ppb(v/v))[unrounded] * (Molecular Weight/24.45)

TO-14 _rev5MDL_DOD.rpt version 5.004 09/13/2011

TestAmerica Cedar Falls

Client Sample ID: IA-B-60

GC/MS Volatiles

Lot-Sample #	H2C260406 - 004	**Work Order #**	MRLEQ1AD	**Matrix.....:**	AIR

Date Sampled...:	03/23/2012	**Date Received..:**	03/26/2012
Prep Date.....:	03/27/2012	**Analysis Time....:**	03/27/2012
Prep Batch #.....:	2087124	**Analysis Time....:**	20:55
Dilution Factor.:	1	**Method.....:**	TO-15

PARAMETER	RESULTS (ppb(v/v))	REPORTING LIMIT (ppb(v/v))	MDL (ppb(v/v))	RESULTS (ug/m3)	REPORTING LIMIT (ug/m3)	MDL (ug/m3)
Trichloroethene	ND	0.040	0.014	ND	0.21	0.075
1,1,1-Trichloroethane	ND	0.080	0.012	ND	0.44	0.065
Vinyl chloride	ND	0.080	0.029	ND	0.20	0.074
1,1-Dichloroethane	ND	0.080	0.010	ND	0.32	0.040
1,1-Dichloroethene	ND	0.080	0.013	ND	0.32	0.052
trans-1,2-Dichloroethene	ND	0.080	0.020	ND	0.32	0.079
Tetrachloroethene	ND	0.080	0.016	ND	0.54	0.11
cis-1,2-Dichloroethene	ND	0.080	0.024	ND	0.32	0.095
1,1,2-Trichloroethane	ND	0.080	0.021	ND	0.44	0.11

SURROGATE	PERCENT RECOVERY	LABORATORY CONTROL LIMITS (%)
4-Bromofluorobenzene	101	60 - 140

Result (ug/m3) = Result (ppb(v/v))[unrounded] * (Molecular Weight/24.45)

Reporting Limit (ug/m3) = Reporting Limit (ppb(v/v))[unrounded] * (Molecular Weight/24.45)

MDL (ug/m3) = MDL (ppb(v/v))[unrounded] * (Molecular Weight/24.45)

TO-14 _rev5MDL_DOD.rpt version 5.004 09/13/2011

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TestAmerica Cedar Falls

Client Sample ID: IA-1-47

GC/MS Volatiles

Lot-Sample #	H2C260406 - 005	**Work Order #**	MRLER1AD	**Matrix.....:**	AIR

Date Sampled...:	03/23/2012	**Date Received..:**	03/26/2012
Prep Date.....:	03/27/2012	**Analysis Time....:**	03/27/2012
Prep Batch #.....:	2087124	**Analysis Time....:**	17:19
Dilution Factor.:	4	**Method.....:**	TO-15

PARAMETER	RESULTS (ppb(v/v))	REPORTING LIMIT (ppb(v/v))	MDL (ppb(v/v))	RESULTS (ug/m3)	REPORTING LIMIT (ug/m3)	MDL (ug/m3)
1,1,2-Trichloroethane	ND	0.32	0.084	ND	1.7	0.46
cis-1,2-Dichloroethene	ND	0.32	0.096	ND	1.3	0.38
Tetrachloroethene	ND	0.32	0.064	ND	2.2	0.43
1,1-Dichloroethene	ND	0.32	0.052	ND	1.3	0.21
trans-1,2-Dichloroethene	ND	0.32	0.080	ND	1.3	0.32
Vinyl chloride	ND	0.32	0.12	ND	0.82	0.30
1,1,1-Trichloroethane	ND	0.32	0.048	ND	1.7	0.26
1,1-Dichloroethane	ND	0.32	0.040	ND	1.3	0.16
Trichloroethene	ND	0.16	0.056	ND	0.86	0.30

SURROGATE	PERCENT RECOVERY	LABORATORY CONTROL LIMITS (%)
4-Bromofluorobenzene	91	60 - 140

Result (ug/m3) = Result (ppb(v/v))[unrounded] * (Molecular Weight/24.45)

Reporting Limit (ug/m3) = Reporting Limit (ppb(v/v))[unrounded] * (Molecular Weight/24.45)

MDL (ug/m3) = MDL (ppb(v/v))[unrounded] * (Molecular Weight/24.45)

TO-14 _rev5MDL_DOD.rpt version 5.004 09/13/2011

TestAmerica Cedar Falls

Client Sample ID: IA-B-47

GC/MS Volatiles

Lot-Sample #	H2C260406 - 006	**Work Order #**	MRLET1AD	**Matrix.....:**	AIR

Date Sampled...:	03/23/2012	**Date Received..:**	03/26/2012
Prep Date.....:	03/27/2012	**Analysis Time....:**	03/27/2012
Prep Batch #.....:	2087124	**Analysis Time....:**	21:50
Dilution Factor.:	1	**Method.....:**	TO-15

PARAMETER	RESULTS (ppb(v/v))	REPORTING LIMIT (ppb(v/v))	MDL (ppb(v/v))	RESULTS (ug/m3)	REPORTING LIMIT (ug/m3)	MDL (ug/m3)
Trichloroethene	ND	0.040	0.014	ND	0.21	0.075
1,1,1-Trichloroethane	ND	0.080	0.012	ND	0.44	0.065
1,1-Dichloroethane	ND	0.080	0.010	ND	0.32	0.040
Vinyl chloride	ND	0.080	0.029	ND	0.20	0.074
trans-1,2-Dichloroethene	ND	0.080	0.020	ND	0.32	0.079
1,1-Dichloroethene	ND	0.080	0.013	ND	0.32	0.052
Tetrachloroethene	ND	0.080	0.016	ND	0.54	0.11
cis-1,2-Dichloroethene	ND	0.080	0.024	ND	0.32	0.095
1,1,2-Trichloroethane	ND	0.080	0.021	ND	0.44	0.11

SURROGATE	PERCENT RECOVERY	LABORATORY CONTROL LIMITS (%)
4-Bromofluorobenzene	96	60 - 140

Result (ug/m3) = Result (ppb(v/v))[unrounded] * (Molecular Weight/24.45)

Reporting Limit (ug/m3) = Reporting Limit (ppb(v/v))[unrounded] * (Molecular Weight/24.45)

MDL (ug/m3) = MDL (ppb(v/v))[unrounded] * (Molecular Weight/24.45)

TO-14 _rev5MDL_DOD.rpt version 5.004 09/13/2011

US EPA ARCHIVE DOCUMENT

TestAmerica Cedar Falls

Client Sample ID: IA-B-73

GC/MS Volatiles

Lot-Sample #	H2C260406 - 007	**Work Order #**	MRLEV1AD	**Matrix.....:**	AIR

Date Sampled...:	03/23/2012	**Date Received..:**	03/26/2012
Prep Date.....:	03/27/2012	**Analysis Time....:**	03/27/2012
Prep Batch #.....:	2087124	**Analysis Time....:**	22:45
Dilution Factor.:	1	**Method.....:**	TO-15

PARAMETER	RESULTS (ppb(v/v))	REPORTING LIMIT (ppb(v/v))	MDL (ppb(v/v))	RESULTS (ug/m3)	REPORTING LIMIT (ug/m3)	MDL (ug/m3)
1,1,2-Trichloroethane	ND	0.080	0.021	ND	0.44	0.11
cis-1,2-Dichloroethene	ND	0.080	0.024	ND	0.32	0.095
Tetrachloroethene	**0.038 J**	**0.080**	**0.016**	**0.26 J**	**0.54**	**0.11**
1,1-Dichloroethene	ND	0.080	0.013	ND	0.32	0.052
trans-1,2-Dichloroethene	ND	0.080	0.020	ND	0.32	0.079
Vinyl chloride	ND	0.080	0.029	ND	0.20	0.074
1,1-Dichloroethane	ND	0.080	0.010	ND	0.32	0.040
1,1,1-Trichloroethane	**0.020 J**	**0.080**	**0.012**	**0.11 J**	**0.44**	**0.065**
Trichloroethene	**0.22**	**0.040**	**0.014**	**1.2**	**0.21**	**0.075**

SURROGATE	PERCENT RECOVERY	LABORATORY CONTROL LIMITS (%)
4-Bromofluorobenzene	100	60 - 140

Qualifiers

J	Estimated result. Result is less than RL.

Result (ug/m3) = Result (ppb(v/v))[unrounded] * (Molecular Weight/24.45)

Reporting Limit (ug/m3) = Reporting Limit (ppb(v/v))[unrounded] * (Molecular Weight/24.45)

MDL (ug/m3) = MDL (ppb(v/v))[unrounded] * (Molecular Weight/24.45)

TO-14 _rev5MDL_DOD.rpt version 5.004 09/13/2011

TestAmerica Cedar Falls

Client Sample ID: IA-B-73 DUPLICATE

GC/MS Volatiles

Lot-Sample #	H2C260406 - 008	**Work Order #**	MRLEW1AD	**Matrix.....:**	AIR

Date Sampled...:	03/23/2012	**Date Received..:**	03/26/2012
Prep Date.....:	03/27/2012	**Analysis Time....:**	03/27/2012
Prep Batch #.....:	2087124	**Analysis Time....:**	23:39
Dilution Factor.:	1	**Method.....:**	TO-15

PARAMETER	RESULTS (ppb(v/v))	REPORTING LIMIT (ppb(v/v))	MDL (ppb(v/v))	RESULTS (ug/m3)	REPORTING LIMIT (ug/m3)	MDL (ug/m3)
Trichloroethene	**0.22**	**0.040**	**0.014**	**1.2**	**0.21**	**0.075**
1,1,1-Trichloroethane	**0.020 J**	**0.080**	**0.012**	**0.11 J**	**0.44**	**0.065**
Vinyl chloride	ND	0.080	0.029	ND	0.20	0.074
1,1-Dichloroethane	ND	0.080	0.010	ND	0.32	0.040
1,1-Dichloroethene	ND	0.080	0.013	ND	0.32	0.052
trans-1,2-Dichloroethene	ND	0.080	0.020	ND	0.32	0.079
Tetrachloroethene	**0.050 J**	**0.080**	**0.016**	**0.34 J**	**0.54**	**0.11**
cis-1,2-Dichloroethene	ND	0.080	0.024	ND	0.32	0.095
1,1,2-Trichloroethane	ND	0.080	0.021	ND	0.44	0.11

SURROGATE	PERCENT RECOVERY	LABORATORY CONTROL LIMITS (%)
4-Bromofluorobenzene	101	60 - 140

Qualifiers

J Estimated result. Result is less than RL.

Result (ug/m3) = Result (ppb(v/v))[unrounded] * (Molecular Weight/24.45)

Reporting Limit (ug/m3) = Reporting Limit (ppb(v/v))[unrounded] * (Molecular Weight/24.45)

MDL (ug/m3) = MDL (ppb(v/v))[unrounded] * (Molecular Weight/24.45)

TO-14 _rev5MDL_DOD.rpt version 5.004 09/13/2011

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TestAmerica Cedar Falls

Client Sample ID: IA-1-40-2

GC/MS Volatiles

Lot-Sample # H2C260406 - 009 **Work Order #** MRLEX1AD **Matrix.....:** AIR

Date Sampled...: 03/23/2012 **Date Received..:** 03/26/2012
Prep Date.....: 03/27/2012 **Analysis Time....:** 03/28/2012
Prep Batch #.....: 2087124 **Analysis Time....:** 00:34
Dilution Factor.: 1 **Method.....:** TO-15

PARAMETER	RESULTS (ppb(v/v))	REPORTING LIMIT (ppb(v/v))	MDL (ppb(v/v))	RESULTS (ug/m3)	REPORTING LIMIT (ug/m3)	MDL (ug/m3)
1,1,2-Trichloroethane	ND	0.080	0.021	ND	0.44	0.11
cis-1,2-Dichloroethene	ND	0.080	0.024	ND	0.32	0.095
Tetrachloroethene	**0.11**	**0.080**	**0.016**	**0.73**	**0.54**	**0.11**
1,1-Dichloroethene	ND	0.080	0.013	ND	0.32	0.052
trans-1,2-Dichloroethene	ND	0.080	0.020	ND	0.32	0.079
Vinyl chloride	ND	0.080	0.029	ND	0.20	0.074
1,1,1-Trichloroethane	ND	0.080	0.012	ND	0.44	0.065
1,1-Dichloroethane	ND	0.080	0.010	ND	0.32	0.040
Trichloroethene	**0.017 J**	**0.040**	**0.014**	**0.093 J**	**0.21**	**0.075**

SURROGATE	PERCENT RECOVERY	LABORATORY CONTROL LIMITS (%)
4-Bromofluorobenzene	102	60 - 140

Qualifiers

J Estimated result. Result is less than RL.

Result (ug/m3) = Result (ppb(v/v))[unrounded] * (Molecular Weight/24.45)

Reporting Limit (ug/m3) = Reporting Limit (ppb(v/v))[unrounded] * (Molecular Weight/24.45)

MDL (ug/m3) = MDL (ppb(v/v))[unrounded] * (Molecular Weight/24.45)

TO-14 _rev5MDL_DOD.rpt version 5.004 09/13/2011

TestAmerica Cedar Falls

Client Sample ID: IA-B-40-2

GC/MS Volatiles

Lot-Sample # H2C260406 - 010 **Work Order #** MRLE01AD **Matrix.....:** AIR

Date Sampled...: 03/23/2012 **Date Received..:** 03/26/2012
Prep Date.....: 03/27/2012 **Analysis Time....:** 03/28/2012
Prep Batch #.....: 2087124 **Analysis Time....:** 01:30
Dilution Factor.: 1 **Method.....:** TO-15

PARAMETER	RESULTS (ppb(v/v))	REPORTING LIMIT (ppb(v/v))	MDL (ppb(v/v))	RESULTS (ug/m3)	REPORTING LIMIT (ug/m3)	MDL (ug/m3)
1,1,1-Trichloroethane	ND	0.080	0.012	ND	0.44	0.065
Trichloroethene	**0.048**	**0.040**	**0.014**	**0.26**	**0.21**	**0.075**
1,1-Dichloroethane	ND	0.080	0.010	ND	0.32	0.040
Vinyl chloride	ND	0.080	0.029	ND	0.20	0.074
trans-1,2-Dichloroethene	ND	0.080	0.020	ND	0.32	0.079
1,1-Dichloroethene	ND	0.080	0.013	ND	0.32	0.052
Tetrachloroethene	**0.16**	**0.080**	**0.016**	**1.1**	**0.54**	**0.11**
cis-1,2-Dichloroethene	**0.083**	**0.080**	**0.024**	**0.33**	**0.32**	**0.095**
1,1,2-Trichloroethane	ND	0.080	0.021	ND	0.44	0.11

SURROGATE	PERCENT RECOVERY	LABORATORY CONTROL LIMITS (%)
4-Bromofluorobenzene	102	60 - 140

Result (ug/m3) = Result (ppb(v/v))[unrounded] * (Molecular Weight/24.45)

Reporting Limit (ug/m3) = Reporting Limit (ppb(v/v))[unrounded] * (Molecular Weight/24.45)

MDL (ug/m3) = MDL (ppb(v/v))[unrounded] * (Molecular Weight/24.45)

TO-14 _rev5MDL_DOD.rpt version 5.004 09/13/2011

TestAmerica Cedar Falls

Client Sample ID: IA-B-76

GC/MS Volatiles

Lot-Sample # H2C260406 - 011 **Work Order #** MRLE11AD **Matrix.....:** AIR

Date Sampled...: 03/23/2012 **Date Received..:** 03/26/2012
Prep Date.....: 03/27/2012 **Analysis Time....:** 03/28/2012
Prep Batch #.....: 2087124 **Analysis Time....:** 02:25
Dilution Factor.: 1 **Method.....:** TO-15

PARAMETER	RESULTS (ppb(v/v))	REPORTING LIMIT (ppb(v/v))	MDL (ppb(v/v))	RESULTS (ug/m3)	REPORTING LIMIT (ug/m3)	MDL (ug/m3)
1,1,2-Trichloroethane	ND	0.080	0.021	ND	0.44	0.11
cis-1,2-Dichloroethene	ND	0.080	0.024	ND	0.32	0.095
Tetrachloroethene	ND	0.080	0.016	ND	0.54	0.11
1,1-Dichloroethene	ND	0.080	0.013	ND	0.32	0.052
trans-1,2-Dichloroethene	ND	0.080	0.020	ND	0.32	0.079
Vinyl chloride	ND	0.080	0.029	ND	0.20	0.074
1,1-Dichloroethane	ND	0.080	0.010	ND	0.32	0.040
1,1,1-Trichloroethane	**0.031 J**	**0.080**	**0.012**	**0.17 J**	**0.44**	**0.065**
Trichloroethene	ND	0.040	0.014	ND	0.21	0.075

SURROGATE	PERCENT RECOVERY	LABORATORY CONTROL LIMITS (%)
4-Bromofluorobenzene	102	60 - 140

Qualifiers

J Estimated result. Result is less than RL.

Result (ug/m3) = Result (ppb(v/v))[unrounded] * (Molecular Weight/24.45)

Reporting Limit (ug/m3) = Reporting Limit (ppb(v/v))[unrounded] * (Molecular Weight/24.45)

MDL (ug/m3) = MDL (ppb(v/v))[unrounded] * (Molecular Weight/24.45)

TO-14 _rev5MDL_DOD.rpt version 5.004 09/13/2011

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Client Sample ID: INTRA-LAB BLANK

GC/MS Volatiles

Lot-Sample #	H2C270000 - 124B	**Work Order #**	MRMED1AA	**Matrix.....:**	AIR
	03/23/2012	**Date Received..:**	03/26/2012		
Prep Date.....:	03/27/2012	**Analysis Time....:**	03/27/2012		
Prep Batch #.....:	2087124	**Analysis Time....:**	16:18		
Dilution Factor.:	1	**Method.....:**	TO-15		

PARAMETER	RESULTS (ppb(v/v))	REPORTING LIMIT (ppb(v/v))	MDL (ppb(v/v))	RESULTS (ug/m3)	REPORTING LIMIT (ug/m3)	MDL (ug/m3)
Trichloroethene	ND	0.040	0.014	ND	0.21	0.075
1,1,1-Trichloroethane	ND	0.080	0.012	ND	0.44	0.065
Vinyl chloride	ND	0.080	0.029	ND	0.20	0.074
1,1-Dichloroethane	ND	0.080	0.010	ND	0.32	0.040
1,1-Dichloroethene	ND	0.080	0.013	ND	0.32	0.052
trans-1,2-Dichloroethene	ND	0.080	0.020	ND	0.32	0.079
Tetrachloroethene	ND	0.080	0.016	ND	0.54	0.11
cis-1,2-Dichloroethene	ND	0.080	0.024	ND	0.32	0.095
1,1,2-Trichloroethane	ND	0.080	0.021	ND	0.44	0.11

SURROGATE	PERCENT RECOVERY	LABORATORY CONTROL LIMITS (%)
4-Bromofluorobenzene	99	60 - 140

Result (ug/m3) = Result (ppb(v/v))[unrounded] * (Molecular Weight/24.45)

Reporting Limit (ug/m3) = Reporting Limit (ppb(v/v))[unrounded] * (Molecular Weight/24.45)

MDL (ug/m3) = MDL (ppb(v/v))[unrounded] * (Molecular Weight/24.45)

TO-14 _rev5MDL_DOD.rpt version 5.004 09/13/2011

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Client Sample ID: CHECK SAMPLE

GC/MS Volatiles

Lot-Sample # H2C270000 - 124C **Work Order #** MRMED1AC **Matrix.....:** AIR

	03/23/2012	**Date Received..:**	03/26/2012
Prep Date.....:	03/27/2012	**Analysis Time....:**	03/27/2012
Prep Batch #.....:	2087124	**Analysis Time....:**	13:35
Dilution Factor.:	1	**Method.....:**	TO-15

PARAMETER	SPIKE AMOUNT (ppb(v/v))	MEASURED AMOUNT (ppb(v/v))	SPIKE AMOUNT (ug/m3)	MEASURED AMOUNT (ug/m3)	PERCENT RECOVERY	RECOVERY LIMITS
1,1,2-Trichloroethane	2.50	2.42	13.6	13.2	97	70 - 130
cis-1,2-Dichloroethene	2.50	2.67	9.91	10.6	107	70 - 130
Tetrachloroethene	2.50	2.32	17.0	15.7	93	70 - 130
1,1-Dichloroethene	2.50	3.07	9.91	12.2	123	70 - 130
trans-1,2-Dichloroethene	2.50	2.63	9.91	10.4	105	70 - 130
1,1-Dichloroethane	2.50	2.72	10.1	11.0	109	70 - 130
Vinyl chloride	2.50	2.78	6.39	7.12	111	70 - 130
1,1,1-Trichloroethane	2.50	2.41	13.6	13.2	97	70 - 130
Trichloroethene	2.50	2.43	13.4	13.0	97	70 - 130

SURROGATE	PERCENT RECOVERY	LABORATORY CONTROL LIMITS (%)
4-Bromofluorobenzene	99	60 - 140

Result (ug/m3) = Result (ppb(v/v))[unrounded] * (Molecular Weight/24.45)

Reporting Limit (ug/m3) = Reporting Limit (ppb(v/v))[unrounded] * (Molecular Weight/24.45)

MDL (ug/m3) = MDL (ppb(v/v))[unrounded] * (Molecular Weight/24.45)

TO-14 _rev5MDL_DOD.rpt version 5.004 09/13/2011

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Lot ID: H2C260406 **Batch #:** 9747
Matrix: Air **Can #:** 6520
MethCod: 7M
Method: EPA-2 TO-15

Parameter	Result	Reporting Limit	Units
cis-1,2-Dichloroethene	ND	0.080	ppb (v/v)
trans-1,2-Dichloroethene	ND	0.080	ppb (v/v)
Tetrachloroethene	ND	0.080	ppb (v/v)
Trichloroethene	ND	0.040	ppb (v/v)
Vinyl chloride	ND	0.080	ppb (v/v)
1,1-Dichloroethane	ND	0.080	ppb (v/v)
1,1-Dichloroethene	ND	0.080	ppb (v/v)
1,1,1-Trichloroethane	ND	0.080	ppb (v/v)
1,1,2-Trichloroethane	ND	0.080	ppb (v/v)

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Lot ID: H2C260406 **Batch #:** 9769
Matrix: Air **Can #:** 1486
MethCod: 7M
Method: EPA-2 TO-15

Parameter	Result	Reporting Limit	Units
cis-1,2-Dichloroethene	ND	0.080	ppb (v/v)
trans-1,2-Dichloroethene	ND	0.080	ppb (v/v)
Tetrachloroethene	ND	0.080	ppb (v/v)
Trichloroethene	ND	0.040	ppb (v/v)
Vinyl chloride	ND	0.080	ppb (v/v)
1,1-Dichloroethane	ND	0.080	ppb (v/v)
1,1-Dichloroethene	ND	0.080	ppb (v/v)
1,1,1-Trichloroethane	ND	0.080	ppb (v/v)
1,1,2-Trichloroethane	ND	0.080	ppb (v/v)

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Lot ID: H2C260406 **Batch #:** 9771
Matrix: Air **Can #:** 1010B
MethCod: 7M
Method: EPA-2 TO-15

Parameter	Result	Reporting Limit	Units
cis-1,2-Dichloroethene	ND	0.080	ppb (v/v)
trans-1,2-Dichloroethene	ND	0.080	ppb (v/v)
Tetrachloroethene	ND	0.080	ppb (v/v)
Trichloroethene	ND	0.040	ppb (v/v)
Vinyl chloride	ND	0.080	ppb (v/v)
1,1-Dichloroethane	ND	0.080	ppb (v/v)
1,1-Dichloroethene	ND	0.080	ppb (v/v)
1,1,1-Trichloroethane	ND	0.080	ppb (v/v)
1,1,2-Trichloroethane	ND	0.080	ppb (v/v)

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Test America Knoxville GC/MS Volatiles

Lot ID: H2C260406
Matrix: Air
MethCod: 7M
Method: EPA-2 TO-15

Batch #: 9774
Can #: 1524

Parameter	Result	Reporting Limit	Units
cis-1,2-Dichloroethene	ND	0.080	ppb (v/v)
trans-1,2-Dichloroethene	ND	0.080	ppb (v/v)
Tetrachloroethene	ND	0.080	ppb (v/v)
Trichloroethene	ND	0.040	ppb (v/v)
Vinyl chloride	ND	0.080	ppb (v/v)
1,1-Dichloroethane	ND	0.080	ppb (v/v)
1,1-Dichloroethene	ND	0.080	ppb (v/v)
1,1,1-Trichloroethane	ND	0.080	ppb (v/v)
1,1,2-Trichloroethane	ND	0.080	ppb (v/v)

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Lot ID: H2C260406 **Batch #:** 9775
Matrix: Air **Can #:** S1497
MethCod: 7M
Method: EPA-2 TO-15

Parameter	Result	Reporting Limit	Units
cis-1,2-Dichloroethene	ND	0.080	ppb (v/v)
trans-1,2-Dichloroethene	ND	0.080	ppb (v/v)
Tetrachloroethene	ND	0.080	ppb (v/v)
Trichloroethene	ND	0.040	ppb (v/v)
Vinyl chloride	ND	0.080	ppb (v/v)
1,1-Dichloroethane	ND	0.080	ppb (v/v)
1,1-Dichloroethene	ND	0.080	ppb (v/v)
1,1,1-Trichloroethane	ND	0.080	ppb (v/v)
1,1,2-Trichloroethane	ND	0.080	ppb (v/v)

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Lot ID: H2C260406 **Batch #:** 9782
Matrix: Air **Can #:** 6366
MethCod: 7M
Method: EPA-2 TO-15

Parameter	Result	Reporting Limit	Units
cis-1,2-Dichloroethene	ND	0.080	ppb (v/v)
trans-1,2-Dichloroethene	ND	0.080	ppb (v/v)
Tetrachloroethene	ND	0.080	ppb (v/v)
Trichloroethene	ND	0.040	ppb (v/v)
Vinyl chloride	ND	0.080	ppb (v/v)
1,1-Dichloroethane	ND	0.080	ppb (v/v)
1,1-Dichloroethene	ND	0.080	ppb (v/v)
1,1,1-Trichloroethane	ND	0.080	ppb (v/v)
1,1,2-Trichloroethane	ND	0.080	ppb (v/v)

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Test America Knoxville GC/MS Volatiles

Lot ID: H2C260406 **Batch #:** 9787
Matrix: Air **Can #:** 1331N
MethCod: 7M
Method: EPA-2 TO-15

Parameter	Result	Reporting Limit	Units
cis-1,2-Dichloroethene	ND	0.080	ppb (v/v)
trans-1,2-Dichloroethene	ND	0.080	ppb (v/v)
Tetrachloroethene	ND	0.080	ppb (v/v)
Trichloroethene	ND	0.040	ppb (v/v)
Vinyl chloride	ND	0.080	ppb (v/v)
1,1-Dichloroethane	ND	0.080	ppb (v/v)
1,1-Dichloroethene	ND	0.080	ppb (v/v)
1,1,1-Trichloroethane	ND	0.080	ppb (v/v)
1,1,2-Trichloroethane	ND	0.080	ppb (v/v)

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Test America Knoxville GC/MS Volatiles

Lot ID: H2C260406 **Batch #:** 9764
Matrix: Air **Can #:** 6362
MethCod: 7M
Method: EPA-2 TO-15

Parameter	Result	Reporting Limit	Units
cis-1,2-Dichloroethene	ND	0.080	ppb (v/v)
trans-1,2-Dichloroethene	ND	0.080	ppb (v/v)
Tetrachloroethene	ND	0.080	ppb (v/v)
Trichloroethene	ND	0.040	ppb (v/v)
Vinyl chloride	ND	0.080	ppb (v/v)
1,1-Dichloroethane	ND	0.080	ppb (v/v)
1,1-Dichloroethene	ND	0.080	ppb (v/v)
1,1,1-Trichloroethane	ND	0.080	ppb (v/v)
1,1,2-Trichloroethane	ND	0.080	ppb (v/v)

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Lot ID: H2C260406 **Batch #:** 9761
Matrix: Air **Can #:** 6122
MethCod: 7M
Method: EPA-2 TO-15

Parameter	Result	Reporting Limit	Units
cis-1,2-Dichloroethene	ND	0.080	ppb (v/v)
trans-1,2-Dichloroethene	ND	0.080	ppb (v/v)
Tetrachloroethene	ND	0.080	ppb (v/v)
Trichloroethene	ND	0.040	ppb (v/v)
Vinyl chloride	ND	0.080	ppb (v/v)
1,1-Dichloroethane	ND	0.080	ppb (v/v)
1,1-Dichloroethene	ND	0.080	ppb (v/v)
1,1,1-Trichloroethane	ND	0.080	ppb (v/v)
1,1,2-Trichloroethane	ND	0.080	ppb (v/v)

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Lot ID: H2C260406 **Batch #:** 9754
Matrix: Air **Can #:** 6683
MethCod: 7M
Method: EPA-2 TO-15

Parameter	Result	Reporting Limit	Units
cis-1,2-Dichloroethene	ND	0.080	ppb (v/v)
trans-1,2-Dichloroethene	ND	0.080	ppb (v/v)
Tetrachloroethene	ND	0.080	ppb (v/v)
Trichloroethene	ND	0.040	ppb (v/v)
Vinyl chloride	ND	0.080	ppb (v/v)
1,1-Dichloroethane	ND	0.080	ppb (v/v)
1,1-Dichloroethene	ND	0.080	ppb (v/v)
1,1,1-Trichloroethane	ND	0.080	ppb (v/v)
1,1,2-Trichloroethane	ND	0.080	ppb (v/v)

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Test America Knoxville GC/MS Volatiles

Lot ID: H2C260406
Matrix: Air
MethCod: 7M
Method: EPA-2 TO-15

Batch #: 9759
Can #: 1398

Parameter	Result	Reporting Limit	Units
cis-1,2-Dichloroethene	ND	0.080	ppb (v/v)
trans-1,2-Dichloroethene	ND	0.080	ppb (v/v)
Tetrachloroethene	ND	0.080	ppb (v/v)
Trichloroethene	ND	0.040	ppb (v/v)
Vinyl chloride	ND	0.080	ppb (v/v)
1,1-Dichloroethane	ND	0.080	ppb (v/v)
1,1-Dichloroethene	ND	0.080	ppb (v/v)
1,1,1-Trichloroethane	ND	0.080	ppb (v/v)
1,1,2-Trichloroethane	ND	0.080	ppb (v/v)

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H2C260406

Canister Samples Chain of Custody Record

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

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Contact Information	**Project Manager:** John Brimeyer	**Sampled By:** Rob Bergman	1 of 2 COCs
Company: Terracon	Phone: 563-355-0702		
Address: 870 40th Ave	Site Contact:		
City/State/Zip Bettendorf, IA 52722	TAL Contact:		
Phone: 563-355-0702			
FAX:			
Project Name: Chamberlain Mfg.	Analysis Turnaround Time		
Site/location: Waterloo, IA	Standard (Specify) X		
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)
IA-1-33-2	3-22-12 3-23-12	0940	1058	-26.5	-2.5	K292	6362	X							X				
IA-B-33-2		0951	1100	-30.0	0.0	K423	1398	X							X				
IA-1-60		1018	1122	-29.0	0.0	K486	6122	X							X				
IA-B-60		1030	1126	-30.0+	-5.0	K117	6683	X							X				
IA-1-47		1102	1157	-28.5	-4.0	K142	S-1497	X							X				
IA-B-47		1109	1200	-28.9	-2.5	K395	1331N	X							X				

Sampled by: Rob Bergman

Temperature (Fahrenheit)	Interior	Ambient
Start		
Stop		

3 Boxes Rec'd @ Ambient Temp
2 with out custody Seals 1 with custody seal
JPH 3/26/12
3 Boxes Fed x # 42008 2709 3226 M
JPH 3/26/12

Pressure (inches of Hg)	Interior	Ambient
Start		
Stop		

11 Cans / 11 Flows

Special Instructions/QC Requirements & Comments:

email results to jfbrimeyer@terracon.com

Canisters Shipped by:	Date/Time:	Canisters Received by:
Samples Relinquished by: Rob Bergman	Date/Time: 3/23/12 1502	Received by: Connie [illegible]
Relinquished by: [illegible]	Date/Time: 3/23/12 1530	Received by: [illegible] 3/26/12 915

30

4/12/2012

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

H2C260406

Canister Samples Chain of Custody Record

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TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Contact Information	Project Manager: John Brineyer	Sampled By: Rob Bergman	2 of 2 COCs
Company: Terracon	Phone: 563-355-0702		
Address: 870 40th St.	Site Contact:		
City/State/Zip Bettendorf, IA 52722	TAL Contact:		
Phone: 563-355-0702			
FAX:			
Project Name: Chamberlain Mfg.	Analysis Turnaround Time		
Site/location: Waterloo, IA	Standard (Specify) X		
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 Matrix	Indoor Air	Ambient Air	Soil Gas	Landfill Gas	Other (Please specify in notes section)
IA-B-73	3-22-12 3-23-12	1146	1225	-28.0	-3.0	K130	6366	X							X				
IA-B-73 Duplicate	↓	1150	1224	-28.5	-3.0	K122	1524	X							X				
IA-1-40-2		1220	1241	-29.5	-3.0	K381	6520	X							X				
IA-B-40-2		1225	1245	-26.5	-2.0	K318	1486	X							X				
IA-B-76	↓	1247	1257	-30.0	-2.5	K110	1010B	X							X				

Sampled by: Rob Bergman

Temperature (Fahrenheit)	Interior	Ambient
Start		
Stop		

Pressure (Inches of Hg)	Interior	Ambient
Start		
Stop		

Special Instructions/QC Requirements & Comments:

email results to jfbrineyer@terracon.com

Canisters Shipped by:	Date/Time:	Canisters Received by:
Samples Relinquished by: Rob Bergman	Date/Time: 3/23/12 1502	Received by: Connie Holst
Relinquished by: [signature]	Date/Time: 3/23/12 1530	Received by: [signature] 3/26/12 9:15

TESTAMERICA KNOXVILLE SAMPLE RECEIPT/CONDITION UPON RECEIPT ANOMALY CHECKLIST

Lot Number: H2C260406

Review Items	Yes	No	NA	If No, what was the problem?	Comments/Actions Taken
1. Do sample container labels match COC? (IDs, Dates, Times)	✓			☐ 1a Do not match COC ☐ 1b Incomplete information ☐ 1c Marking smeared ☐ 1d Label torn ☐ 1e No label ☐ 1f COC not received ☐ 1g Other:	4B 2 without 1 with custody seal
2. Is the cooler temperature within limits? (> freezing temp. of water to 6 °C, VOST: 10°C)	✓			☐ 2a Temp Blank = ____ ☐ 2b Cooler Temp = ____ ☐ 2c Cooling initiated for recently collected samples, ice present.	
3. Were samples received with correct chemical preservative (excluding Encore)?			✓	☐ 3a Sample preservative =	
4. Were custody seals present/intact on cooler and/or containers?	✓	✓		☑ 4a Not present ☐ 4b Not intact ☐ 4c Other:	
5. Were all of the samples listed on the COC received?	✓			☐ 5a Samples received-not on COC ☐ 5b Samples not received-on COC	
6. Were all of the sample containers received intact?	✓			☐ 6a Leaking ☐ 6b Broken	
7. Were VOA samples received without headspace?			✓	☐ 7a Headspace (VOA only)	
8. Were samples received in appropriate containers?	✓			☐ 8a Improper container	
9. Did you check for residual chlorine, if necessary?			✓	☐ 9a Could not be determined due to matrix interference	
10. Were samples received within holding time?	✓			☐ 10a Holding time expired	
11. For rad samples, was sample activity info. provided?			✓	☐ Incomplete information	
12. For 1613B water samples is pH<9?			✓	If no, was pH adjusted to pH 7 - 9 with sulfuric acid? ____	
13. Are the shipping containers intact?	✓			☐ 13a Leaking ☐ 13b Other:	
14. Was COC relinquished? (Signed/Dated/Timed)	✓			☐ 14a Not relinquished	
15. Are tests/parameters listed for each sample?	✓			☐ 15a Incomplete information	
16. Is the matrix of the samples noted?	✓			☐ 15a Incomplete information	
17. Is the date/time of sample collection noted?	✓			☐ 15a Incomplete information	
18. Is the client and project name/# identified?	✓			☐ 15a Incomplete information	
19. Was the sampler identified on the COC?	✓			☐ 19a Other	

Quote #: 87209 PM Instructions: ____

Sample Receiving Associate: [signature] Date: 3/26/12

QA026R23.doc, 022812

Test America - Knoxville ---- Air Canister Dilution Log

Lot Number: *H2C260406*

Initial Can Pressure							Subsequent Dilutions											
Analyst/Date	Tedlar Bag Time	Pbarr (in)	Sample ID	Can #	Pres. upon receipt (-in or + psig)	Adj. Initial Pres. (-in or + psig)	Analyst/Date	I / S	Pbarr (in)	Initial Pres. Pi (in)	Final Pres. Pf (psig)	First InCan Final Pres. Pf (psig)	Second In-can Final Pres. Pf (psig)	Third InCan Final Pres. Pf (psig)	Serial Dilution Can #	Vol (mL)	Final Pres. Pf (psig)	Comments
KB 3/26/12	MA	28.87	MRLEL	6362 ✓	-3.7	–												9764
			MRLEN	1398 ✓	+0.1	–												9759
			MRLEP	6122 ✓	-0.3	–												9761
			MRLEQ	6683 ✓	-1.9	–												9754
			MRLER	S1497 ✓	-3.0	–												9775
			MRLET	1331N ✓	-2.5	–												9787
			MRLEV	6366 ✓	-3.1	–												9782
			MRLEW	1524 ✓	-3.5	–												9774
			MRLEX	6520 ✓	-3.2	–												9747
			MRLE0	1486 ✓	-3.4	–												9769
			MRLE1	1010B ✓	-3.2	–												9771

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

Canister Samples Chain of Custody Record

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TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Contact Information	**Project Manager:** John Brimeyer	**Sampled By:** Rob Bergman	1 of 2 COCs
Company: Terracon	**Phone:** 563-355-0702		
Address: 870 40th Ave	**Site Contact:**		
City/State/Zip Bettendorf, IA 52722	**TAL Contact:**		
Phone: 563-355-0702			
FAX:			
Project Name: Chamberlain Mfg.	**Analysis Turnaround Time**		
Site/location: Waterloo, IA	**Standard (Specify)** X		
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)
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IA-B-60		1030	1126	-30.0+	-5.0	K117	6683	X							X				
IA-1-47		1102	1157	-28.5	-4.0	K142	S-1497	X							X				
IA-B-47		1109	1200	-28.9	-2.5	K395	1331N	X							X				

Sampled by: Rob Bergman

Temperature (Fahrenheit)	Interior	Ambient
Start		
Stop		

Pressure (inches of Hg)	Interior	Ambient
Start		
Stop		

Special Instructions/QC Requirements & Comments:

email results to jfbrimeyer@terracon.com

Canisters Shipped by:	**Date/Time:**	**Canisters Received by:**
Samples Relinquished by: Rob Bergman	**Date/Time:** 3/23/12 1502	**Received by:** Connie Lobst
Relinquished by: [illegible]	**Date/Time:** 3/23/12 1530	**Received by:**

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

Canister Samples Chain of Custody Record

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TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Contact Information	**Project Manager:** John Brimeyer	**Sampled By:** Rob Bergman	2 of 2 COCs
Company: Terracon	**Phone:** 563-355-0702		
Address: 870 40th St.	**Site Contact:**		
City/State/Zip Bettendorf, IA 52722	**TAL Contact:**		
Phone: ~~[illegible]~~ 563-355-0702			
FAX:			
Project Name: Chamberlain Mfg.	**Analysis Turnaround Time**		
Site/location: Waterloo, IA	Standard (Specify) X		
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)
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IA-B-73 Duplicate	↓	1150	1224	-28.5	-3.0	K122	1524	X							X				
IA-1-40-2	↓	1220	1241	-29.5	-3.0	K381	6520	X							X				
IA-B-40-2	↓	1225	1245	-26.5	-2.0	K318	1486	X							X				
IA-B-76	↓	1247	1257	-30.0	-2.5	K110	1010B	X							X				

Sampled by: Rob Bergman

Temperature (Fahrenheit)	Interior	Ambient
Start		
Stop		

Pressure (inches of Hg)	Interior	Ambient
Start		
Stop		

Special Instructions/QC Requirements & Comments:

email results to jfbrimeyer@terracon.com

Canisters Shipped by:	Date/Time:	Canisters Received by:
Samples Relinquished by: Rob Bergman	Date/Time: 3/23/12 1502	Received by: Connie Holst.
Relinquished by: [signature]	Date/Time: 3/23/12 1530	Received by:

US EPA ARCHIVE DOCUMENT

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica Cedar Falls
704 Enterprise Drive
Cedar Falls, IA 50613
Tel: 800-750-2401

TestAmerica Job ID: CVD0135
Client Project/Site: Chamberlain Vapor Sampling
Client Project Description: TO-15 Scans

For:
TERRACON - BETTENDORF
870 40th Avenue
Bettendorf, IA 52722

Attn: John Brimeyer

Authorized for release by:
4/12/2012 4:05:27 PM

Brian C. Graettinger
Operations Manager
brian.graettinger@testamericainc.com

Access your project results through
TotalAccess

Have a Question?
Ask The Expert

Visit us at:
www.testamericainc.com

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.

Job ID: CVD0135

Laboratory: TestAmerica Cedar Falls

Narrative

Analyzed by TestAmerica - Knoxville, TN.

US EPA ARCHIVE DOCUMENT

Sample Summary

Client: TERRACON - BETTENDORF
Project/Site: Chamberlain Vapor Sampling

TestAmerica Job ID: CVD0135

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
CVD0135-01	IA-20-B-4	Air	03/30/12 13:55	03/30/12 14:33

Client Sample Results

Client: TERRACON - BETTENDORF
Project/Site: Chamberlain Vapor Sampling

TestAmerica Job ID: CVD0135

Client Sample ID: IA-20-B-4
Date Collected: 03/30/12 13:55
Date Received: 03/30/12 14:33
Sample Container: Summa Canister

Lab Sample ID: CVD0135-01
Matrix: Air

Method: EPA TO-15 - Air Sample Analysis - Subcontract

Analyte	Result	Qualifier	RL	MDL	Unit	D	Analyst	Analyzed	Dil Fac
Volatile Organic Compounds	See Attached Report.		0.10		mg		BCG	04/04/12 12:56	1.0

US EPA ARCHIVE DOCUMENT

H2D020407 Analytical Report 1
Sample Receipt Documentation 10
Total Number of Pages 12

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

TestAmerica Laboratories, Inc.

ANALYTICAL REPORT

PROJECT NO. CVD0135

Terracon

Lot #: H2D020407

Brian Graettinger

TestAmerica Cedar Falls
704 Enterprise Drive
Cedar Falls, IA 50613-0625

TESTAMERICA LABORATORIES, INC.

Jamie A. McKinney
Project Manager

April 9, 2012

US EPA ARCHIVE DOCUMENT

ANALYTICAL METHODS SUMMARY

H2D020407

PARAMETER	ANALYTICAL METHOD
Volatile Organics by TO15	EPA-2 TO-15

References:

EPA-2 "Compendium of Methods for the Determination of Toxic Organic Compounds in Ambient Air", EPA-625/R-96/010b, January 1999.

SAMPLE SUMMARY

H2D020407

WO #	SAMPLE#	CLIENT SAMPLE ID	SAMPLED DATE	SAMP TIME
MRQK4	001	IA-20-B-4	03/30/12	13:55

NOTE(S):

- The analytical results of the samples listed above are presented on the following pages.
- All calculations are performed before rounding to avoid round-off errors in calculated results.
- Results noted as "ND" were not detected at or above the stated limit.
- This report must not be reproduced, except in full, without the written approval of the laboratory.
- Results for the following parameters are never reported on a dry weight basis: color, corrosivity, density, flashpoint, ignitability, layers, odor, paint filter test, pH, porosity pressure, reactivity, redox potential, specific gravity, spot tests, solids, solubility, temperature, viscosity, and weight.

US EPA ARCHIVE DOCUMENT

PROJECT NARRATIVE
H2D020407

The results reported herein are applicable to the samples submitted for analysis only. If you have any questions about this report, please call (865) 291-3000 to speak with the TestAmerica project manager listed on the cover page.

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

The original chain of custody documentation is included with this report.

Sample Receipt

There were no problems with the condition of the samples received.

Quality Control and Data Interpretation

Unless otherwise noted, all holding times and QC criteria were met and the test results shown in this report meet all applicable NELAC requirements.

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.

CERTIFICATION SUMMARY

Laboratory	Authority	Program	EPA Region	Certification ID
TestAmerica Knoxville	ACLASS	DoD ELAP		ADE-1434
TestAmerica Knoxville	Arkansas	State Program	6	88-0688
TestAmerica Knoxville	California	State Program	9	2423
TestAmerica Knoxville	Colorado	State Program	8	N/A
TestAmerica Knoxville	Connecticut	State Program	1	PH-0223
TestAmerica Knoxville	Florida	NELAC	4	E87177
TestAmerica Knoxville	Georgia	State Program	4	906
TestAmerica Knoxville	Hawaii	State Program	9	N/A
TestAmerica Knoxville	Indiana	State Program	5	C-TN-02
TestAmerica Knoxville	Iowa	State Program	7	375
TestAmerica Knoxville	Kansas	NELAC	7	E-10349
TestAmerica Knoxville	Kentucky	State Program	4	90101
TestAmerica Knoxville	Louisiana	NELAC	6	LA110001
TestAmerica Knoxville	Louisiana	NELAC	6	83979
TestAmerica Knoxville	Maryland	State Program	3	277
TestAmerica Knoxville	Michigan	State Program	5	9933
TestAmerica Knoxville	Minnesota	NELAC	5	047-999-429
TestAmerica Knoxville	Nevada	State Program	9	TN00009
TestAmerica Knoxville	New Jersey	NELAC	2	TN001
TestAmerica Knoxville	New York	NELAC	2	10781
TestAmerica Knoxville	North Carolina	North Carolina DENR	4	64
TestAmerica Knoxville	North Carolina	North Carolina PHL	4	21705
TestAmerica Knoxville	Ohio	OVAP	5	CL0059
TestAmerica Knoxville	Oklahoma	State Program	6	9415
TestAmerica Knoxville	Pennsylvania	NELAC	3	68-00576
TestAmerica Knoxville	South Carolina	State Program	4	84001
TestAmerica Knoxville	Tennessee	State Program	4	2014
TestAmerica Knoxville	Texas	NELAC	6	T104704380-TX
TestAmerica Knoxville	USDA	USDA		P330-11-00035
TestAmerica Knoxville	Utah	NELAC	8	QUAN3
TestAmerica Knoxville	Virginia	State Program	3	165
TestAmerica Knoxville	Washington	State Program	10	C593
TestAmerica Knoxville	West Virginia	West Virginia DEP	3	345
TestAmerica Knoxville	West Virginia	West Virginia DHHR (DW)	3	9955C
TestAmerica Knoxville	Wisconsin	State Program	5	998044300

Accreditation may not be offered or required for all methods and analytes reported in this package. Please contact your project manager for the laboratory's current list of certified methods and analytes.

US EPA ARCHIVE DOCUMENT

TestAmerica Cedar Falls

Client Sample ID: IA-20-B-4

GC/MS Volatiles

Lot-Sample # H2D020407 - 001 **Work Order #** MRQK41AA **Matrix.....:** AIR

Date Sampled...: 03/30/2012 **Date Received..:** 04/02/2012
Prep Date.....: 04/04/2012 **Analysis Time....:** 04/04/2012
Prep Batch #.....: 2096038 **Analysis Time....:** 12:56
Dilution Factor.: 1 **Method.....:** TO-15

PARAMETER	RESULTS (ppb(v/v))	REPORTING LIMIT (ppb(v/v))	MDL (ppb(v/v))	RESULTS (ug/m3)	REPORTING LIMIT (ug/m3)	MDL (ug/m3)
cis-1,2-Dichloroethene	ND	0.080	0.024	ND	0.32	0.095
Tetrachloroethene	**0.016 J**	**0.080**	**0.016**	**0.11 J**	**0.54**	**0.11**
1,1,2-Trichloroethane	ND	0.080	0.021	ND	0.44	0.11
Vinyl chloride	ND	0.080	0.029	ND	0.20	0.074
1,1-Dichloroethane	ND	0.080	0.010	ND	0.32	0.040
1,1,1-Trichloroethane	**0.27**	**0.080**	**0.012**	**1.5**	**0.44**	**0.065**
Trichloroethene	ND	0.040	0.014	ND	0.21	0.075
1,1-Dichloroethene	ND	0.080	0.013	ND	0.32	0.052
trans-1,2-Dichloroethene	ND	0.080	0.020	ND	0.32	0.079

SURROGATE	PERCENT RECOVERY	LABORATORY CONTROL LIMITS (%)
4-Bromofluorobenzene	107	60 - 140

Qualifiers

J Estimated result. Result is less than RL.

Result (ug/m3) = Result (ppb(v/v))[unrounded] * (Molecular Weight/24.45)

Reporting Limit (ug/m3) = Reporting Limit (ppb(v/v))[unrounded] * (Molecular Weight/24.45)

MDL (ug/m3) = MDL (ppb(v/v))[unrounded] * (Molecular Weight/24.45)

TestAmerica Cedar Falls

Client Sample ID: INTRA-LAB BLANK

GC/MS Volatiles

Lot-Sample #	H2D050000 - 038B	Work Order #	MRTCF1AA	Matrix.....:	AIR
	03/30/2012	Date Received..:	04/02/2012		
Prep Date.....:	04/04/2012	Analysis Time....:	04/04/2012		
Prep Batch #.....:	2096038	Analysis Time....:	11:57		
Dilution Factor.:	1	Method.....:	TO-15		

PARAMETER	RESULTS (ppb(v/v))	REPORTING LIMIT (ppb(v/v))	MDL (ppb(v/v))	RESULTS (ug/m3)	REPORTING LIMIT (ug/m3)	MDL (ug/m3)
trans-1,2-Dichloroethene	ND	0.080	0.020	ND	0.32	0.079
1,1-Dichloroethene	ND	0.080	0.013	ND	0.32	0.052
Trichloroethene	ND	0.040	0.014	ND	0.21	0.075
1,1-Dichloroethane	ND	0.080	0.010	ND	0.32	0.040
1,1,1-Trichloroethane	ND	0.080	0.012	ND	0.44	0.065
Vinyl chloride	ND	0.080	0.029	ND	0.20	0.074
1,1,2-Trichloroethane	ND	0.080	0.021	ND	0.44	0.11
Tetrachloroethene	ND	0.080	0.016	ND	0.54	0.11
cis-1,2-Dichloroethene	ND	0.080	0.024	ND	0.32	0.095

SURROGATE	PERCENT RECOVERY	LABORATORY CONTROL LIMITS (%)
4-Bromofluorobenzene	102	60 - 140

Result (ug/m3) = Result (ppb(v/v))[unrounded] * (Molecular Weight/24.45)

Reporting Limit (ug/m3) = Reporting Limit (ppb(v/v))[unrounded] * (Molecular Weight/24.45)

MDL (ug/m3) = MDL (ppb(v/v))[unrounded] * (Molecular Weight/24.45)

US EPA ARCHIVE DOCUMENT

TestAmerica Cedar Falls

Client Sample ID: CHECK SAMPLE

GC/MS Volatiles

Lot-Sample # H2D050000 - 038C **Work Order #** MRTCF1AC **Matrix.....:** AIR

	03/30/2012	**Date Received..:**	04/02/2012
Prep Date.....:	04/04/2012	**Analysis Time....:**	04/04/2012
Prep Batch #.....:	2096038	**Analysis Time....:**	09:16
Dilution Factor.:	1	**Method.....:**	TO-15

PARAMETER	SPIKE AMOUNT (ppb(v/v))	MEASURED AMOUNT (ppb(v/v))	SPIKE AMOUNT (ug/m3)	MEASURED AMOUNT (ug/m3)	PERCENT RECOVERY	RECOVERY LIMITS
cis-1,2-Dichloroethene	5.00	4.38	19.8	17.4	88	70 - 130
Tetrachloroethene	5.00	4.36	33.9	29.6	87	70 - 130
1,1,2-Trichloroethane	5.00	4.42	27.3	24.1	88	70 - 130
Vinyl chloride	5.00	5.30	12.8	13.5	106	70 - 130
1,1-Dichloroethane	5.00	4.85	20.2	19.6	97	70 - 130
1,1,1-Trichloroethane	5.00	5.45	27.3	29.7	109	70 - 130
Trichloroethene	5.00	3.88	26.9	20.8	78	70 - 130
1,1-Dichloroethene	5.00	4.65	19.8	18.4	93	70 - 130
trans-1,2-Dichloroethene	5.00	4.47	19.8	17.7	89	70 - 130

SURROGATE	PERCENT RECOVERY	LABORATORY CONTROL LIMITS (%)
4-Bromofluorobenzene	109	60 - 140

Result (ug/m3) = Result (ppb(v/v))[unrounded] * (Molecular Weight/24.45)

Reporting Limit (ug/m3) = Reporting Limit (ppb(v/v))[unrounded] * (Molecular Weight/24.45)

MDL (ug/m3) = MDL (ppb(v/v))[unrounded] * (Molecular Weight/24.45)

TestAmerica Cedar Falls

Test America Knoxville GC/MS Volatiles

Lot ID: H2D020407
Matrix: Air
MethCod: 7M
Method: EPA-2 TO-15

Batch #: 9784
Can #: 1514

Parameter	Result	Reporting Limit	Units
cis-1,2-Dichloroethene	ND	0.080	ppb (v/v)
trans-1,2-Dichloroethene	ND	0.080	ppb (v/v)
Tetrachloroethene	ND	0.080	ppb (v/v)
Trichloroethene	ND	0.040	ppb (v/v)
Vinyl chloride	ND	0.080	ppb (v/v)
1,1-Dichloroethane	ND	0.080	ppb (v/v)
1,1-Dichloroethene	ND	0.080	ppb (v/v)
1,1,1-Trichloroethane	ND	0.080	ppb (v/v)
1,1,2-Trichloroethane	ND	0.080	ppb (v/v)

US EPA ARCHIVE DOCUMENT

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

1720020407

Canister Samples Chain of Custody Record

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

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Contact Information	**Project Manager:** John Brimeyer	**Sampled By:** Rob Bergman	1 of 1 COCs
Company: Terracon	**Phone:** 563-355-0702		
Address: 870 40th Ave.	**Site Contact:**		
City/State/Zip Bettendorf, IA 52722	**TAL Contact:**		
Phone: 563-355-0702			
FAX:			
Project Name: Chamberlain Mfg.	**Analysis Turnaround Time**		
Site/location: Waterloo, IA	Standard (Specify) X 5day		
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)
IA-20-B-4	3-29-12 3-30-12	1318	1355	-28.0	-2.0	K508	1514	X							X				

Sampled by: Rob Bergman

Temperature (Fahrenheit)	Interior	Ambient	
Start			
Stop			

1 Box Rec'd @ Ambient Temp with custody seal intact
[illegible] 4/2/12
1 Box Fed x # 4208 2709 3580

Pressure (inches of Hg)	Interior	Ambient	
Start			
Stop			

[illegible] 4/2/12
X 1 cans / 1 Flow

Special Instructions/QC Requirements & Comments:

email results to jfbrimeyer@terracon.com

Canisters Shipped by:	Date/Time:	Canisters Received by: [illegible] 4/2/12 1150
Samples Relinquished by: Rob Bergman	Date/Time: 3/30/12 1433	Received by: Willow Vaccaro - TACF
Relinquished by:	Date/Time:	Received by:

4/12/2012

10

6 5 4 3 2 1

TESTAMERICA KNOXVILLE SAMPLE RECEIPT/CONDITION UPON RECEIPT ANOMALY CHECKLIST

Lot Number: H2D120407

Review Items	Yes	No	NA	If No, what was the problem?	Comments/Actions Taken
1. Do sample container labels match COC? (IDs, Dates, Times)	✓			☐ 1a Do not match COC ☐ 1b Incomplete information ☐ 1c Marking smeared ☐ 1d Label torn ☐ 1e No label ☐ 1f COC not received ☐ 1g Other:	
2. Is the cooler temperature within limits? (> freezing temp. of water to 6 °C, VOST: 10°C)	✓			☐ 2a Temp Blank = _____ ☐ 2b Cooler Temp = _____ ☐ 2c Cooling initiated for recently collected samples, ice present.	
3. Were samples received with correct chemical preservative (excluding Encore)?			✓	☐ 3a Sample preservative =	
4. Were custody seals present/intact on cooler and/or containers?	✓			☐ 4a Not present ☐ 4b Not intact ☐ 4c Other:	
5. Were all of the samples listed on the COC received?	✓			☐ 5a Samples received-not on COC ☐ 5b Samples not received-on COC	
6. Were all of the sample containers received intact?	✓			☐ 6a Leaking ☐ 6b Broken	
7. Were VOA samples received without headspace?			✓	☐ 7a Headspace (VOA only)	
8. Were samples received in appropriate containers?	✓			☐ 8a Improper container	
9. Did you check for residual chlorine, if necessary?			✓	☐ 9a Could not be determined due to matrix interference	
10. Were samples received within holding time?	✓			☐ 10a Holding time expired	
11. For rad samples, was sample activity info. provided?			✓	☐ Incomplete information	
12. For 1613B water samples is pH<9?			✓	If no, was pH adjusted to pH 7 - 9 with sulfuric acid? _____	
13. Are the shipping containers intact?	✓			☐ 13a Leaking ☐ 13b Other:	
14. Was COC relinquished? (Signed/Dated/Timed)	✓			☐ 14a Not relinquished	
15. Are tests/parameters listed for each sample?	✓			☐ 15a Incomplete information	
16. Is the matrix of the samples noted?	✓			☐ 15a Incomplete information	
17. Is the date/time of sample collection noted?	✓			☐ 15a Incomplete information	
18. Is the client and project name/# identified?	✓			☐ 15a Incomplete information	
19. Was the sampler identified on the COC?	✓			☐ 19a Other	

Quote #: 87209 PM Instructions: _____

Sample Receiving Associate: [signature] Date: 4/2/12

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Test America - Knoxville ---- Air Canister Dilution Log

Lot Number: *H2D020407*

Initial Can Pressure							Subsequent Dilutions											
Analyst/Date	Tedlar Bag Time	Pbarr (in)	Sample ID	Can #	Pres. upon receipt (-in or + psig)	Adj. Initial Pres. (-in or + psig)	Analyst/Date	I / S	Pbarr (in)	Initial Pres. PI (in)	Final Pres. Pf (psig)	First InCan Final Pres. Pf (psig)	Second In-can Final Pres. Pf (psig)	Third InCan Final Pres. Pf (psig)	Serial Dilution Can #	Vol (mL)	Final Pres. Pf (psig)	Comments
DDF 4-3-12	NA	28.75	MRQK4	1514	-3.4													9784

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

1720020407

Canister Samples Chain of Custody Record

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

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Contact Information
Company: Terracon
Address: 870 40th Ave.
City/State/Zip Bettendorf, IA 52722
Phone: 563-355-0702
FAX:
Project Name: Chamberlain Mfg.
Site/location: Waterloo, IA
PO #

Project Manager: John Brimeyer
Phone: 563-355-0702
Site Contact:
TAL Contact:

Analysis Turnaround Time
Standard (Specify) X 5day
Rush (Specify)

Sampled By: Rob Bergman

1 of 1 COCs

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 Types	Indoor Air	Ambient Air	Soil Gas	Landfill Gas	Other (Please specify in notes section)
IA-20-B-4	3-29-12 3-30-12	1318	1355	-28.0	-2.0	K508	1514	X							X				

Sampled by: Rob Bergman

Temperature (Fahrenheit)	Interior	Ambient
Start		
Stop		

1 Box Rec'd @ Ambient Temp with custody seal intact
[illegible] 4/2/12
1 Box Fed x # 4208 2709 3590

Pressure (Inches of Hg)	Interior	Ambient
Start		
Stop		

[illegible] 4/2/12
X 1 cans / 1 Flow

Special Instructions/QC Requirements & Comments:

email results to jfbrimeyer@terracon.com

Canisters Shipped by:	Date/Time:	Canisters Received by: [illegible] 4/2/12 1150
Samples Relinquished by: Rob Bergman	Date/Time: 3/30/12 1433	Received by: [illegible] - TACF
Relinquished by:	Date/Time:	Received by:

US EPA ARCHIVE DOCUMENT

TESTAMERICA KNOXVILLE SAMPLE RECEIPT/CONDITION UPON RECEIPT ANOMALY CHECKLIST

Lot Number: H2D0207

Review Items	Yes	No	NA	If No, what was the problem?	Comments/Actions Taken
1. Do sample container labels match COC? (IDs, Dates, Times)	✓			☐ 1a Do not match COC ☐ 1b Incomplete information ☐ 1c Marking smeared ☐ 1d Label torn ☐ 1e No label ☐ 1f COC not received ☐ 1g Other:	
2. Is the cooler temperature within limits? (> freezing temp. of water to 6°C, VOST: 10°C)	✓			☐ 2a Temp Blank = _____ ☐ 2b Cooler Temp = _____ ☐ 2c Cooling initiated for recently collected samples, ice present.	
3. Were samples received with correct chemical preservative (excluding Encore)?			✓	☐ 3a Sample preservative =	
4. Were custody seals present/intact on cooler and/or containers?	✓			☐ 4a Not present ☐ 4b Not intact ☐ 4c Other:	
5. Were all of the samples listed on the COC received?	✓			☐ 5a Samples received-not on COC ☐ 5b Samples not received-on COC	
6. Were all of the sample containers received intact?	✓			☐ 6a Leaking ☐ 6b Broken	
7. Were VOA samples received without headspace?			✓	☐ 7a Headspace (VOA only)	
8. Were samples received in appropriate containers?	✓			☐ 8a Improper container	
9. Did you check for residual chlorine, if necessary?			✓	☐ 9a Could not be determined due to matrix interference	
10. Were samples received within holding time?	✓			☐ 10a Holding time expired	
11. For rad samples, was sample activity info. provided?			✓	☐ Incomplete information	
12. For 1613B water samples is pH<9?			✓	If no, was pH adjusted to pH 7 - 9 with sulfuric acid? _____	
13. Are the shipping containers intact?	✓			☐ 13a Leaking ☐ 13b Other:	
14. Was COC relinquished? (Signed/Dated/Timed)	✓			☐ 14a Not relinquished	
15. Are tests/parameters listed for each sample?	✓			☐ 15a Incomplete information	
16. Is the matrix of the samples noted?	✓			☐ 15a Incomplete information	
17. Is the date/time of sample collection noted?	✓			☐ 15a Incomplete information	
18. Is the client and project name/# identified?	✓			☐ 15a Incomplete information	
19. Was the sampler identified on the COC?	✓			☐ 19a Other	

Quote #: 87209 PM Instructions: _____

Sample Receiving Associate: [signature] Date: 4/2/12

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Terracon

Appendix D – Photographic Documentation

Photo #1 Residence No. 4 – Manometer

Photo #2 Residence No. 4 – Sealed extraction point

Photo #3 Residence No. 4 – Exhaust fan and stack

Photo #4 Residence No. 4 – Exhaust fan

Photo #5 Residence No. 4 – System piping

Photo #6 Residence No. 4 – Extraction point

US EPA ARCHIVE DOCUMENT