US EPA ARCHIVE DOCUMENT

Vapor Intrusion Interim Measures Quarterly Report No. 9

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

October 31, 2013
Terracon Project No. 07107020

Prepared for:
Chamberlain Manufacturing Corporation
Elmhurst, Illinois

Prepared by:
Terracon Consultants, Inc.
Omaha, Nebraska

RCRA
526796

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Terracon

October 31, 2013

United States Environmental Protection Agency
Region 7 - Air and Waste Management Division
11201 Renner Blvd
Lenexa, Kansas 66219

Attn: Mr. Bruce Morrison

Re: Vapor Intrusion Interim Measures Quarterly Report No. 9
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 conducted between July 1, 2013 and September 30, 2013 in conjunction with the site referenced above. The VIIM Quarterly Report presents a summary of activities related to the installation, operation, and monitoring of vapor mitigation systems in residential structures as requested by the USEPA. This report also presents analytical results from a routine indoor air quality sampling event as well as sub-slab vapor results from two homes per a request from Mr. Morrison.

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

Sincerely,

Terracon Consultants, Inc.

Michael E. Hagemeister, P.E.*
Senior Principal
**Licensed in NE*

David M. Svingen, P.E.
Senior Principal
Iowa No. 11802

STW/MEH/DMS:stw/leb

Distribution: Addressee (1 bound)

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ACRONYMS & ABBREVIATIONS

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
HVAC ..... Heating, Ventilating, and Air Conditioning
IAQ ..... Indoor Air Quality
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
VMS ..... Vapor Mitigation System
VOC ..... Volatile Organic Compound

VAPOR INTRUSION INTERIM MEASURES
QUARTERLY REPORT NO. 9
CHAMBERLAIN MANUFACTURING CORPORATION
FORMER FACILITY AT
550 ESTHER STREET
WATERLOO, IOWA

Terracon Project No. 07107020
October 31, 2013

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 July 1, 2013, through September 30, 2013. 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.

This VIIM Quarterly Report also provides a summary of indoor analytical results that have been obtained from the residences sampled during the period from July 1, 2013 through September 30, 2013. The residences sampled this period have not required the installation of vapor mitigation based on concentrations observed at these properties or the resident (Residence No. 73) preference to continue monitoring.

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, Appendix A. A Site Diagram is included as Exhibit 2, Appendix A.

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 conducted by Chamberlain. The lateral extent of the chlorinated solvent plume extends south and west from the Facility into an area of residential development. The USEPA's preliminary evaluation identified the potential for vapor intrusion into residential structures based on the vapor intrusion to indoor air pathway resulting from the groundwater contaminant plume.

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 and 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 conducted 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 applicable indoor air screening levels. 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 were submitted to the USEPA on April 19, 2012. During the second quarter 2012, indoor air samples were collected at Residences 48 and 73 and were reported in Terracon's July 19, 2012, VIIM Quarterly Report No. 4.

Terracon has been conducting routine indoor air sampling of select homes consistent with the requirements of the UAO and July 5, 2011 VIC Report. In addition to indoor air sampling, Chamberlain has periodically checked required vapor mitigation systems for proper operation. Results of this work has been summarized in Terracon's Quarterly VIIM reports. This report covers the period of July 1, 2013 to September 30, 2013.

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

The scope of services for the Third Quarter 2013 period included the following services:

- Collecting sub-slab vapor samples from residence No. 57 and 61. This sampling was conducted in response to resident requests to Mr. Bruce Morrison of the USEPA.
- Conducting an indoor air monitoring event at residences No. 20, 33, 38, 40, 47, 60, 73, and 76. Residence No. 48 was also scheduled to have an indoor air sample collected

but the resident requested that sampling not be conducted during the September 2013 monitoring event.

- Conducting routine vapor mitigation system checks at residences that are subject to continued system operation requirements. These include residences No. 22, 28, 45, and 46.

2.1 Site Access

2.1.1 Sub-Slab Sampling Activities

Based upon requests from residences No. 57 and 61 to Mr. Bruce Morrison for sampling of their homes, Chamberlain initiated securing site access to conduct sub-slab sampling. On behalf of Chamberlain, Terracon sent letters (dated September 6, 2013) to the residents explaining sampling activities that would be occurring along with an access agreement to allow for reasonable entry to the property for sampling. Terracon also made in-home visits to check for a location to install the sub-slab sampling implant and to assist the resident with completing an indoor air quality survey (for potential chlorinated VOC artifacts to the home). Access agreements and the surveys were secured with both parties in September 2013 so that sub-slab vapor sampling could be conducted during the routine September 2013 indoor air quality monitoring event. Copies of the September 6, 2013 letter, executed access agreements and the survey for residence No. 57 and 61 are contained in Appendix D.

2.1.2 Indoor Air Quality Sampling Activities

Residents were contacted at least 48 hours in advance of sampling to arrange a time and date for conducting the proposed activities. With the exception of residence No. 48, residents provided access to collect routine indoor air samples. Residence No. 48 did not allow access as they wanted to leave their windows open and requested that sampling be deferred until late fall or winter of 2013.

2.1.3 Routine Mitigation System Inspections

Residents were contacted at least 48 hours in advance of planned mitigation system inspections to arrange a time and date for conducting the proposed activities.

2.2 Mitigation Determination

During the 3rd quarter of 2013, indoor air samples were collected from eight residences. The results of residence No. 73 exceeded indoor air screening level for TCE. The remaining homes sampled had results that were below indoor air screening levels for each chemical of concern (residence No. 38 had a first floor TCE exceedence with a compliant basement result). The USEPA has previously offered a mitigation system to Residence No. 73 but the homeowner elected to have continued routine indoor air monitoring. Based on sampling activities this period

and the stated preference of residence No. 73, no residences are proposed to have mitigation systems installed.

3.0 PROCEDURES FOR SYSTEM DESIGN, INSTALLATION AND COMMISSIONING

Vapor mitigation systems were not designed, installed, commissioned or decommissioned during the 3rd calendar quarter of 2013.

4.0 COMPLETED SYSTEM INSTALLATIONS

Interim mitigation systems were previously offered to, accepted by, and installed at eight residences. Interim mitigation systems were subsequently shut off at three residences. System installations were not conducted during the 3rd calendar quarter of 2013.

5.0 COMPLETED SYSTEM INSPECTION AND REPAIR

In accordance with the approved VIIM Work Plan, system inspections are to occur on an annual basis following installation through the period of required operation. The purpose of the site inspection is to check each operating system for general condition using visual observation. The inspection includes checking for: proper operation of the blower, possible cracks or disconnections in visible piping, piping attachments, and checking manometer to confirm system vacuum. Routine system inspections at residence Nos. 4, 22, 28, 45, and 46 were scheduled for the 3rd quarter of 2013 period.

Residence No. 4 also has an active system but resident information has not been known so inspections have not been conducted. Recently, Terracon checked the County Assessor website to obtain ownership information which was provided in the last monthly email report to the USEPA. Terracon will wait USEPA's instructions on contacting the new homeowner.
A Terracon field professional conducted inspections at residence Nos. 22, 28, 45, and 46 on September 25 and 26, 2013. Based on observations, each system was noted to be in good repair for the above items and appeared to be operating as intended. A field inspection form was completed for each residence by the field professional during the inspection visit and signed by tenant. These forms are not included herein but are available upon request.

6.0 SUB-SLAB MONITORING RESULTS

6.1 Sampling Activities

Sub-slab sampling ports were installed on September 23, 2013 at residences No. 57 and 61 consistent with the protocol set-forth in the USEPA approved VIC Work Plan. A Sampling Port Installation Checklist was completed by Terracon and signed by the occupant following completion of sample port installation. The purpose of the Sampling Port Installation Checklist was to document proper completion of procedural activities, including identification of sample port location with the concurrence of the occupant, sample port installation in accordance with VIC Work Plan procedures, clean-up of work area, and observation of completed port installation by occupant. The Sampling Port Installation Checklist is not included within this report but is available upon request.

Terracon returned to the homes on September 26, 2013 to set 6-liter Summa canisters with flow controllers to collect approximate 30-minute sub-slab vapor samples. 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, pertinent information on the air sampling forms (i.e. project information, equipment identifiers, sample location, and start time) was entered and the forms were attached to the canisters. A Soil Vapor/Indoor Air Sampling Information Form indicating appropriate project and sample collection information was executed for each indoor air sample. A chain-of-custody indicating the collection date and times for each sample was also executed and maintained throughout the sampling event.

To open the canister, the valve was rotated counter-clockwise at least one full turn or otherwise opened. Approximately 30-minutes after opening the canisters, Terracon personnel returned to the residences, closed the valve on each canister and recorded the time and vacuum remaining in the Summa canister on the Terracon sampling forms and on the chain-of-custody. The canisters and flow controllers were then transported to the laboratory.

As part of the sampling program a blind duplicate sub-slab sample was collected at residence No. 61 for above analysis. The blind duplicate was collected by installing a tee in line to allow vapors to be collected from the sampling port at the same time.

6.2 Sub-slab Analytical Results

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 conducted by TestAmerica of 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 indoor air monitoring activities conducted over this current period are summarized in Table 1, Appendix B. Copies of analytical reports for samples collected over this period are provided in Appendix C.

The sub-slab analytical results as presented in Table 1 of Appendix B did not show exceedences of applicable sub-slab screening levels. The blind duplicate collected from residence No. 61 was comparable with the actual sample. The data has been reviewed and validated in accordance with the USEPA-approved QAPP and is considered valid for use. Based on the analytical results and consistent with the approved VIC Work Plan, Chamberlain does not propose further sampling of residences No. 57 and 61 at this time and proposes to remove the sub-slab sampling ports.

7.0 INDOOR MONITORING RESULTS

7.1 Sampling Activities

Indoor air sampling was conducted at No. 20, 33, 38, 40, 47, 60, 73, and 76 on September 24 or September 26, 2013. These residences do not have active mitigation systems. Periodic indoor air monitoring is required by the approved VIC Report where sub-slab concentrations exceed sub-slab screening levels, but indoor air concentrations are below indoor air screening levels.

Residence No. 73 indoor air concentrations exceeded applicable screening levels and the resident previously has been offered a mitigation system by the USEPA. The resident has elected to continue with routine indoor air monitoring.

Terracon was unable to collect indoor air samples at Home No. 48 during the September 2013 monitoring event based on the resident requesting that sampling not be conducted at that time. The resident did not want to close windows and asked that sampling be deferred until late fall or winter of 2013. Terracon plans to conduct this sampling during the fourth quarter of 2013, assuming the resident provides access.

Indoor air samples were collected using laboratory prepared 6-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 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 EPA 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, pertinent information on the air sampling forms (i.e. project information, equipment identifiers, sample location, and start time) was entered and the forms were attached to the canisters. A Soil Vapor/Indoor Air Sampling Information Form indicating appropriate project and sample collection information was executed for each indoor air sample. A chain-of-custody indicating the collection date and times for each sample was also executed and maintained throughout the sampling event.

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

Indoor air monitoring activities are summarized in Table 6-1.

Table 7-1 Semiannual Indoor Air Monitoring

Residence No.	Sample Date	Basement Sample	1st Floor Sample
20	09/26/13	X	---[1]
33	09/26/13	X	X
38	09/26/13	X	X
40	09/24/13	X	X
47	09/24/13	X	X
60	09/26/13	X	X

Residence No.	Sample Date	Basement Sample	1st Floor Sample
73	09/24/13	X	---[1]
76	09/24/13	X	---[1]

[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.

7.2 Indoor Air Monitoring Results

Indoor air samples were collected using 6-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. A blind duplicate collected from residence No. 73 was comparable with the actual sample and the equipment blank did not indicate positive detections of target chemicals of concern. The data has been reviewed and validated in accordance with the USEPA-approved QAPP and is considered valid for use.

Laboratory procedures were conducted by TestAmerica of 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 indoor air monitoring activities conducted over this current period are summarized in Table 2, Appendix B. Copies of analytical reports for samples collected over this period are provided in Appendix C.

The analytical results for air samples collected at residence Nos. 20, 33, 40, 47, 60, and 76 had reported concentrations that were below applicable thresholds established in the VIC Work Plan and subsequent USEPA-approved modifications. As such, the installation of additional vapor mitigation systems is not required at these residences based on analytical results covered under this report.

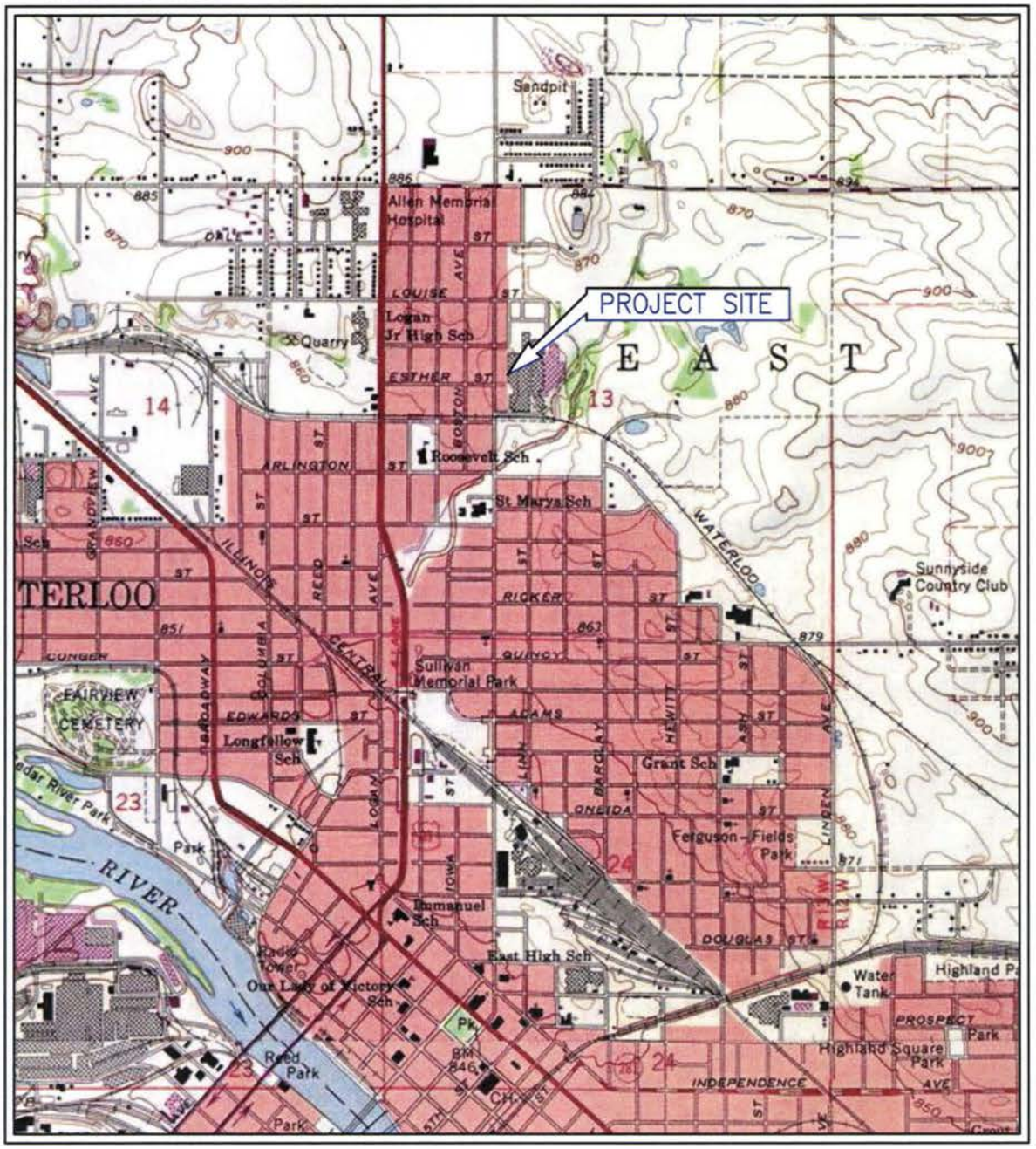
The air sample collected from the basement of residence No. 38 was below applicable thresholds though the first floor sample had an exceedence of TCE. As such, the basement concentrations at residence No. 38 (where higher concentrations would be anticipated from a subsurface source) indicate compliance.

The air sample collected at residence No. 73 exceeded the applicable threshold for TCE. The resident has previously been offered a mitigation system but elected continued routine monitoring. In accordance with the resident's previous preference for continued monitoring, Terracon intends to continue with routine semi-annual indoor air monitoring at this time.

Since sub-slab samples at 20, 33, 38, 40, 47, 60, and 76 have exceeded sub-slab screening levels, routine monitoring will continue in accordance with the approved VIC Report. Per the approved VIC Report, the frequency of monitoring is to be reduced to an annual basis after two years of semi-annual monitoring. With this current event, two years of semi-annual monitoring have been conducted at these residences. As such, the next scheduled routine monitoring event will occur during the 3rd quarter of 2014.

Appendix A

UNITED STATES – DEPARTMENT OF THE INTERIOR – GEOLOGICAL SURVEY



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FEET

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NATIONAL GEODETIC VERTICAL DATUM OF 1929

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WATERLOO NORTH, IOWA
QUADRANGLE
1972
7.5 MINUTE SERIES (TOPOGRAPHIC)

Project Mngr: MEH	Project No: 07107020	Terracon Consulting Engineers and Scientists	SITE LOCATION TOPOGRAPHIC MAP
Drawn By: PAI	Scale: AS SHOWN	15080 A CIRCLE OMAHA, NE 68144	VIIM QUARTERLY REPORT NO. 9
Checked By: MEH	File No: 07107020C07	PH. (402) 330-2202 FAX. (402) 330-7606	**FORMER CHAMBERLAIN MANUFACTURING FACILITY**
Approved By: DMS	Date: 10/30/13		550 ESTHER STREET
			WATERLOO IOWA

EXHIBIT 1

P:\2010\07107020\PROJECT DOCUMENTS (Reports-Letters-Drafts To Clients)\Diagrams-Drawings-Figures\DWGS\07107020C07.dwg Layout: TOPO 10/24/2013 9:55 AM

RES.

RES.

RES.

RES.

LOUISE STREET

RES.

RES.

71
70
67
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61
58
57

72
69
68
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59
56

ANITA STREET

RES.

SHERMAN AVENUE

RES.

BOSTON AVENUE

86 55
85 54
84 53
83 52
82 51
81 50
80 49
79

EAST 4TH STREET

ESTHER STREET

RES.

78
77
76
75
74
73

33 9 48
32 47
31 46
30 45
29 44
28

HANOVER STREET

27
25
23
21
18
17
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12
10
2 3

26 43
24 42
22 41
20 40
19 39
16 38
14 37
13 36
11 35
6 7 34
8

EAST ARLINGTON STREET

RES.

1 4

5

VIRDEN CREEK

GATES PARK

APPROXIMATE WESTHERN FENCE BOUNDARY

WATERLOO RAILROAD

LESTHER STREET

RES.

LINN ST.

RES.

CHARLES STREET

N

0 100 200 400

SCALE IN FEET

NOTE: SITE FEATURES SHOWN IN LIGHT GRAY AS THE SITE IS CURRENTLY BEING DEMOLISHED BY THE CITY OF WATERLOO. THE BUILDINGS, RAIL AND A MAJORITY OF THE CONCRETE HAVE BEEN REMOVED AS OF OCTOBER 20, 2013.

LEGEND

40 — RESIDENCES INCLUDED IN STUDY AREA WITH ID NUMBER

REV.	DATE	BY	DESCRIPTION

Terracon
Consulting Engineers and Scientists
15080 A CIRCLE OMAHA, NE 68144
PH. (402) 330-2202 FAX. (402) 330-7606

SITE PLAN

VIIM QUARTERLY REPORT NO. 9

FORMER CHAMBERLAIN MANUFACTURING FACILITY

550 ESTHER STREET

WATERLOO IOWA

EXHIBIT

PROJECT MGR:	MEH
DRAWN BY:	PAI
APPVD. BY:	DMS
SCALE:	AS SHOWN
DATE:	10/30/13
PROJECT NO.	07107020
FILE NAME:	07107020C07
SHEET NO.:	2 OF 2

Appendix B

US EPA ARCHIVE DOCUMENT

TABLE 1
SUB-SLAB VAPOR AIR ANALYTICAL RESULTS
3rd Quarter 2013
VAPOR INTRUSION INTERIM MEASURES QUARTERLY REPORT NO. 9
CHAMBERLAIN MANUFACTURING

	Sample ID	SS-57-1	SS-61-1	SS-61-1 (Dup #2)	Equipment Blank	Reporting Limit	Analytical Method Detection Limit	Sub-Slab Air Screening Level [2]
	Date	9/26/2013	9/26/2013	9/26/2013	9/24/2013			
Analyte	Units							
Tetrachloroethene	µg/m^3	49	2.2	1.2	<0.54	0.54	0.11	94 [3]
Trichloroethene	µg/m^3	<0.21	<0.21	<0.21	<0.21	0.21	0.075	4.3 [4]
Vinyl chloride	µg/m^3	<0.20	<0.20	<0.20	<0.20	0.2 [1]	0.074	1.65
trans-1,2-Dichloroethene	µg/m^3	<0.32	<0.32	<0.32	<0.32	0.32	0.079	630
cis-1,2-Dichloroethene	µg/m^3	<0.32	<0.32	<0.32	<0.32	0.32	0.095	630
1,1-Dichloroethene	µg/m^3	<0.32	<0.32	<0.32	<0.32	0.32	0.052	2,100
1,1-Dichloroethane	µg/m^3	<0.32	<0.32	<0.32	<0.32	0.32	0.04	15
1,1,1-Trichloroethane	µg/m^3	0.85	<0.44	<0.44	<0.44	0.44	0.065	52,000
1,1,2-Trichloroethane	µg/m^3	<0.44	<0.44	<0.44	<0.44	0.44 [1]	0.11	1.5

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 Indoor Action Threshold for PCE per USEPA e-mail dated February 17, 2012 with an applied building attenuation factor of 10.
[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. A building attenuation factor of 10 was applied to the revised indoor air screening level.

SAMPLE ID NOMENCLATURE: First 2 letters identify sample type: SS - Sub-Slab, IA - Indoor Air, AA - Ambient Air, and EB - Equipment Blank
The numeric value following the sample type identify the Residence ID Number

TABLE 2
INDOOR AIR ANALYTICAL RESULTS
3rd Quarter 2013
VAPOR INTRUSION INTERIM MEASURES QUARTERLY REPORT NO. 9
CHAMBERLAIN MANUFACTURING

	Sample ID	IA-B-20-7	IA-I-33-5	IA-B-33-5	IA-I-38-5	IA-B-38-5	IA-I-40-5	IA-B-40-5	IA-I-47-4	Reporting Limit	Analytical Method Detection Limit	Indoor Air Screening Level [2]
	Date	9/26/2013	9/26/2013	9/26/2013	9/26/2013	9/26/2013	9/24/2013	9/24/2013	9/24/2013			
Analyte	Units											
Tetrachloroethene	µg/m³	<0.54	0.29 J	0.36 J	0.22 J	0.36 J	0.14 J	<0.54	0.25 J	0.54	0.11	9.4 [3]
Trichloroethene	µg/m³	0.12 J	0.17 J	0.18 J	0.48	0.24	<0.21	<0.21	0.12 J	0.21	0.075	0.43 [4]
Vinyl chloride	µg/m³	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	0.2 [1]	0.074	0.165
trans-1,2-Dichloroethene	µg/m³	<0.32	<0.32	<0.32	<0.32	<0.32	<0.32	<0.32	<0.32	0.32	0.079	63
cis-1,2-Dichloroethene	µg/m³	<0.32	<0.32	<0.32	<0.32	<0.32	<0.32	<0.32	<0.32	0.32	0.095	63
1,1-Dichloroethene	µg/m³	<0.32	<0.32	<0.32	<0.32	<0.32	<0.32	<0.32	<0.32	0.32	0.052	210
1,1-Dichloroethane	µg/m³	<0.32	<0.32	<0.32	<0.32	<0.32	<0.32	<0.32	<0.32	0.32	0.04	1.5
1,1,1-Trichloroethane	µg/m³	1.9	<0.44	0.066 J	0.57	0.34 J	<0.44	<0.44	<0.44	0.44	0.065	5200
1,1,2-Trichloroethane	µg/m³	<0.44	<0.44	<0.44	<0.44	<0.44	<0.44	<0.44	<0.44	0.44 [1]	0.11	0.15

	Sample ID	IA-B-47-4	IA-I-60-4	IA-B-60-4	IA-B-73-5	IA-B-73-5 (DUP#1)	IA-B-76-4	Equipment Blank	Reporting Limit	Analytical Method Detection Limit	Indoor Air Screening Level [2]
	Date	9/24/2013	9/26/2013	9/26/2013	9/24/2013	9/24/2013	9/24/2013	9/24/2013			
Analyte	Units										
Tetrachloroethene	µg/m³	0.20 J	<0.54	<0.54	0.46 J	0.35 J	0.11 J	<0.54	0.54	0.11	9.4 [3]
Trichloroethene	µg/m³	0.10 J	0.14 J	0.11 J	0.81	0.80	<0.21	<0.21	0.21	0.075	0.43 [4]
Vinyl chloride	µg/m³	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	0.2 [1]	0.074	0.165
trans-1,2-Dichloroethene	µg/m³	<0.32	<0.32	<0.32	<0.32	<0.32	<0.32	<0.32	0.32	0.079	63
cis-1,2-Dichloroethene	µg/m³	<0.32	<0.32	<0.32	<0.32	<0.32	<0.32	<0.32	0.32	0.095	63
1,1-Dichloroethene	µg/m³	<0.32	<0.32	<0.32	<0.32	0.085 J	<0.32	<0.32	0.32	0.052	210
1,1-Dichloroethane	µg/m³	<0.32	<0.32	<0.32	<0.32	<0.32	<0.32	<0.32	0.32	0.04	1.5
1,1,1-Trichloroethane	µg/m³	<0.44	<0.44	<0.44	0.12 J	0.1 J	0.073 J	<0.44	0.44	0.065	5200
1,1,2-Trichloroethane	µg/m³	<0.44	<0.44	<0.44	<0.44	<0.44	<0.44	<0.44	0.44 [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
The numeric value following the sample type identify the Residence ID Number

Appendix C

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: (319)277-2401

TestAmerica Job ID: 310-16253-1
Client Project/Site: Chamberlain Mfg 07107020

For:
Terracon Consulting Eng & Scientists
15080 A Circle
Omaha, Nebraska 68144

Attn: Mr. Mike Hagemeister

Authorized for release by:
10/8/2013 8:03:04 AM

Brian Graettinger, Project Manager I
(319)277-2401
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: 310-16253-1

Laboratory: TestAmerica Cedar Falls

Narrative

Job Narrative
310-16253-1

Comments
No additional comments.

Receipt
The samples were received on 9/24/2013 3:55 PM in good condition.

No analytical or quality issues were noted.

Sample Summary

Client: Terracon Consulting Eng & Scientists
Project/Site: Chamberlain Mfg 07107020

TestAmerica Job ID: 310-16253-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
310-16253-1	IA-1-47-4	Air	09/24/13 09:34	09/24/13 15:55
310-16253-2	IA-B-47-4	Air	09/24/13 09:41	09/24/13 15:55
310-16253-3	IA-1-40-5	Air	09/24/13 09:54	09/24/13 15:55
310-16253-4	IA-B-40-5	Air	09/24/13 09:58	09/24/13 15:55
310-16253-5	IA-B-73-5	Air	09/24/13 14:13	09/24/13 15:55
310-16253-6	IA-B-76-4	Air	09/24/13 14:28	09/24/13 15:55
310-16253-7	Blind Duplicate #1	Air	09/24/13 14:14	09/24/13 15:55
310-16253-8	Equipment Blank	Air	09/24/13 00:00	09/24/13 15:55

H3I250441 Analytical Report 1
Sample Receipt Documentation 24
Total Number of Pages 27

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

TestAmerica Laboratories, Inc.

ANALYTICAL REPORT

Terracon

Lot #: H3I250441

Brian Graettinger

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

TESTAMERICA LABORATORIES, INC.

Jamie A. McKinney
Project Manager

October 2, 2013

ANALYTICAL METHODS SUMMARY

H3I250441

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

H3I250441

WO #	SAMPLE#	CLIENT SAMPLE ID	SAMPLED DATE	SAMP TIME
M13L2	001	IA-1-47-4	09/24/13	09:34
M13L5	002	IA-B-47-4	09/24/13	09:41
M13L6	003	IA-1-40-5	09/24/13	09:54
M13L7	004	IA-B-40-5	09/24/13	09:58
M13L8	005	IA-B-73-5	09/24/13	14:13
M13L9	006	IA-B-76-4	09/24/13	14:28
M13MA	007	BLIND DUPLICATE #1	09/24/13	14:14
M13MC	008	EQUIPMENT BLANK	09/24/13	

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
H3I250441

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	L-A-B	DoD ELAP		L2311
TestAmerica Knoxville	Arkansas DEQ	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 DOHH	State Program	6	LA110001
TestAmerica Knoxville	Louisiana DEQ	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 DENR	State Program	4	64
TestAmerica Knoxville	North Carolina DHHS	State Program	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	Federal	USDA		P330-11-00035
TestAmerica Knoxville	Utah	NELAC	8	QUAN3
TestAmerica Knoxville	Virginia	NELAC	3	460176
TestAmerica Knoxville	Virginia	State Program	3	165
TestAmerica Knoxville	Washington	State Program	10	C593
TestAmerica Knoxville	West Virginia DEP	State Program	3	345
TestAmerica Knoxville	West Virginia DHHR	State Program	3	9955C

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: IA-1-47-4

GC/MS Volatiles

Lot-Sample #	H3I250441 - 001	**Work Order #**	M13L21AA	**Matrix.....:**	AIR
Date Sampled...:	09/24/2013	**Date Received..:**	09/25/2013		
Prep Date.....:	09/26/2013	**Analysis Date...**	09/26/2013		
Prep Batch #.....:	3270027				
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)
Tetrachloroethene	**0.036**	**0.080**	**0.016**	**0.25 J**	**0.54**	**0.11**
1,1,1-Trichloroethane	ND	0.080	0.012	ND	0.44	0.065
1,1,2-Trichloroethane	ND	0.080	0.021	ND	0.44	0.11
Trichloroethene	**0.022**	**0.040**	**0.014**	**0.12 J**	**0.21**	**0.075**
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	0.014	ND	0.32	0.056
cis-1,2-Dichloroethene	ND	0.080	0.024	ND	0.32	0.095
trans-1,2-Dichloroethene	ND	0.080	0.020	ND	0.32	0.079

SURROGATE	PERCENT RECOVERY	LABORATORY CONTROL LIMITS (%)
4-Bromofluorobenzene	89	60 - 140

Qualifiers

J Estimated result. Result is less than RL.

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 _rev5MDL.rpt version 5.001 08/20/2010

TestAmerica Cedar Falls

Client Sample ID: IA-B-47-4

GC/MS Volatiles

Lot-Sample # H3I250441 - 002 **Work Order #** M13L51AA **Matrix.....:** AIR

Date Sampled...: 09/24/2013 **Date Received..:** 09/25/2013
Prep Date.....: 09/26/2013 **Analysis Date...** 09/26/2013
Prep Batch #.....: 3270027
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)
Tetrachloroethene	**0.030**	**0.080**	**0.016**	**0.20 J**	**0.54**	**0.11**
1,1,1-Trichloroethane	ND	0.080	0.012	ND	0.44	0.065
1,1,2-Trichloroethane	ND	0.080	0.021	ND	0.44	0.11
Trichloroethene	**0.019**	**0.040**	**0.014**	**0.10 J**	**0.21**	**0.075**
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	0.014	ND	0.32	0.056
cis-1,2-Dichloroethene	ND	0.080	0.024	ND	0.32	0.095
trans-1,2-Dichloroethene	ND	0.080	0.020	ND	0.32	0.079

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

Qualifiers

J Estimated result. Result is less than RL.

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 _rev5MDL.rpt version 5.001 08/20/2010

TestAmerica Cedar Falls

Client Sample ID: IA-1-40-5

GC/MS Volatiles

Lot-Sample #	H3I250441 - 003	**Work Order #**	M13L61AA	**Matrix.....:**	AIR
Date Sampled...:	09/24/2013	**Date Received..:**	09/25/2013		
Prep Date.....:	09/26/2013	**Analysis Date...**	09/26/2013		
Prep Batch #.....:	3270027				
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)
Tetrachloroethene	**0.021**	**0.080**	**0.016**	**0.14 J**	**0.54**	**0.11**
1,1,1-Trichloroethane	ND	0.080	0.012	ND	0.44	0.065
1,1,2-Trichloroethane	ND	0.080	0.021	ND	0.44	0.11
Trichloroethene	ND	0.040	0.014	ND	0.21	0.075
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	0.014	ND	0.32	0.056
cis-1,2-Dichloroethene	ND	0.080	0.024	ND	0.32	0.095
trans-1,2-Dichloroethene	ND	0.080	0.020	ND	0.32	0.079

SURROGATE	PERCENT RECOVERY	LABORATORY CONTROL LIMITS (%)
4-Bromofluorobenzene	104	60 - 140

Qualifiers

J Estimated result. Result is less than RL.

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 _rev5MDL.rpt version 5.001 08/20/2010

TestAmerica Cedar Falls

Client Sample ID: IA-B-40-5

GC/MS Volatiles

Lot-Sample #	H3I250441 - 004	**Work Order #**	M13L71AA	**Matrix.....:**	AIR
Date Sampled...:	09/24/2013	**Date Received..:**	09/25/2013		
Prep Date.....:	09/26/2013	**Analysis Date...**	09/26/2013		
Prep Batch #.....:	3270027				
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)
Tetrachloroethene	ND	0.080	0.016	ND	0.54	0.11
1,1,1-Trichloroethane	ND	0.080	0.012	ND	0.44	0.065
1,1,2-Trichloroethane	ND	0.080	0.021	ND	0.44	0.11
Trichloroethene	ND	0.040	0.014	ND	0.21	0.075
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	0.014	ND	0.32	0.056
cis-1,2-Dichloroethene	ND	0.080	0.024	ND	0.32	0.095
trans-1,2-Dichloroethene	ND	0.080	0.020	ND	0.32	0.079

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

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 _rev5MDL.rpt version 5.001 08/20/2010

TestAmerica Cedar Falls

Client Sample ID: IA-B-73-5

GC/MS Volatiles

Lot-Sample # H3I250441 - 005 **Work Order #** M13L81AA **Matrix.....:** AIR

Date Sampled...: 09/24/2013 **Date Received..:** 09/25/2013
Prep Date.....: 09/26/2013 **Analysis Date...** 09/27/2013
Prep Batch #.....: 3270027
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)
Tetrachloroethene	**0.067**	**0.080**	**0.016**	**0.46 J**	**0.54**	**0.11**
1,1,1-Trichloroethane	**0.023**	**0.080**	**0.012**	**0.12 J**	**0.44**	**0.065**
1,1,2-Trichloroethane	ND	0.080	0.021	ND	0.44	0.11
Trichloroethene	**0.15**	**0.040**	**0.014**	**0.81**	**0.21**	**0.075**
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	0.014	ND	0.32	0.056
cis-1,2-Dichloroethene	ND	0.080	0.024	ND	0.32	0.095
trans-1,2-Dichloroethene	ND	0.080	0.020	ND	0.32	0.079

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

Qualifiers

J Estimated result. Result is less than RL.

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 _rev5MDL.rpt version 5.001 08/20/2010

TestAmerica Cedar Falls

Client Sample ID: IA-B-76-4

GC/MS Volatiles

Lot-Sample #	H3I250441 - 006	**Work Order #**	M13L91AA	**Matrix.....:**	AIR
Date Sampled...:	09/24/2013	**Date Received..:**	09/25/2013		
Prep Date.....:	09/26/2013	**Analysis Date...**	09/27/2013		
Prep Batch #.....:	3270027				
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)
Tetrachloroethene	**0.017**	**0.080**	**0.016**	**0.11 J**	**0.54**	**0.11**
1,1,1-Trichloroethane	**0.013**	**0.080**	**0.012**	**0.073 J**	**0.44**	**0.065**
1,1,2-Trichloroethane	ND	0.080	0.021	ND	0.44	0.11
Trichloroethene	ND	0.040	0.014	ND	0.21	0.075
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	0.014	ND	0.32	0.056
cis-1,2-Dichloroethene	ND	0.080	0.024	ND	0.32	0.095
trans-1,2-Dichloroethene	ND	0.080	0.020	ND	0.32	0.079

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

Qualifiers

J Estimated result. Result is less than RL.

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 _rev5MDL.rpt version 5.001 08/20/2010

TestAmerica Cedar Falls

Client Sample ID: BLIND DUPLICATE #1

GC/MS Volatiles

Lot-Sample #	H3I250441 - 007	**Work Order #**	M13MA1AA	**Matrix.....:**	AIR
Date Sampled...:	09/24/2013	**Date Received..:**	09/25/2013		
Prep Date.....:	09/26/2013	**Analysis Date...**	09/27/2013		
Prep Batch #.....:	3270027				
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)
Tetrachloroethene	**0.051**	**0.080**	**0.016**	**0.35 J**	**0.54**	**0.11**
1,1,1-Trichloroethane	**0.019**	**0.080**	**0.012**	**0.10 J**	**0.44**	**0.065**
1,1,2-Trichloroethane	ND	0.080	0.021	ND	0.44	0.11
Trichloroethene	**0.15**	**0.040**	**0.014**	**0.80**	**0.21**	**0.075**
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	**0.021**	**0.080**	**0.014**	**0.085 J**	**0.32**	**0.056**
cis-1,2-Dichloroethene	ND	0.080	0.024	ND	0.32	0.095
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.

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 _rev5MDL.rpt version 5.001 08/20/2010

TestAmerica Cedar Falls

Client Sample ID: EQUIPMENT BLANK

GC/MS Volatiles

Lot-Sample # H3I250441 - 008 **Work Order #** M13MC1AA **Matrix.....:** AIR

Date Sampled...: 09/24/2013 **Date Received..:** 09/25/2013
Prep Date.....: 09/26/2013 **Analysis Date...** 09/26/2013
Prep Batch #.....: 3270027
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)
Tetrachloroethene	ND	0.080	0.016	ND	0.54	0.11
1,1,1-Trichloroethane	ND	0.080	0.012	ND	0.44	0.065
1,1,2-Trichloroethane	ND	0.080	0.021	ND	0.44	0.11
Trichloroethene	ND	0.040	0.014	ND	0.21	0.075
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	0.014	ND	0.32	0.056
cis-1,2-Dichloroethene	ND	0.080	0.024	ND	0.32	0.095
trans-1,2-Dichloroethene	ND	0.080	0.020	ND	0.32	0.079

SURROGATE	PERCENT RECOVERY	LABORATORY CONTROL LIMITS (%)
4-Bromofluorobenzene	105	60 - 140

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 _rev5MDL.rpt version 5.001 08/20/2010

TestAmerica Cedar Falls

Client Sample ID: INTRA-LAB BLANK

GC/MS Volatiles

Lot-Sample # H3I270000 - 027B **Work Order #** M139J1AA **Matrix.....:** AIR

	09/24/2013	**Date Received..:**	09/25/2013
Prep Date.....:	09/26/2013	**Analysis Date...**	09/26/2013
Prep Batch #.....:	3270027		
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)
Tetrachloroethene	ND	0.080	0.016	ND	0.54	0.11
1,1,1-Trichloroethane	ND	0.080	0.012	ND	0.44	0.065
1,1,2-Trichloroethane	ND	0.080	0.021	ND	0.44	0.11
Trichloroethene	ND	0.040	0.014	ND	0.21	0.075
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	0.014	ND	0.32	0.056
cis-1,2-Dichloroethene	ND	0.080	0.024	ND	0.32	0.095
trans-1,2-Dichloroethene	ND	0.080	0.020	ND	0.32	0.079

SURROGATE	PERCENT RECOVERY	LABORATORY CONTROL LIMITS (%)
4-Bromofluorobenzene	105	60 - 140

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 _rev5MDL.rpt version 5.001 08/20/2010

TestAmerica Cedar Falls

Client Sample ID: CHECK SAMPLE

GC/MS Volatiles

Lot-Sample # H3I270000 - 027C **Work Order #** M139J1AC **Matrix.....:** AIR

	09/24/2013	**Date Received..:**	09/25/2013
Prep Date.....:	09/26/2013	**Analysis Date...**	09/26/2013
Prep Batch #.....:	3270027		
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	5.00	5.22	34	35	104	70 - 130
1,1,1-Trichloroethane	5.00	5.72	27	31	114	70 - 130
1,1,2-Trichloroethane	5.00	5.02	27	27	100	70 - 130
Trichloroethene	5.00	5.83	27	31	117	70 - 130
Vinyl chloride	5.00	6.21	13	16	124	70 - 130
1,1-Dichloroethane	5.00	5.87	20	24	117	70 - 130
1,1-Dichloroethene	5.00	6.20	20	25	124	70 - 130
cis-1,2-Dichloroethene	5.00	5.44	20	22	109	70 - 130
trans-1,2-Dichloroethene	5.00	5.35	20	21	107	70 - 130

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

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 _rev5MDL.rpt version 5.001 08/20/2010

Test America Knoxville GC/MS Volatiles

Lot ID: H3I250441 **Batch #:** 10744
Matrix: Air **Can #:** 93104
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: H3I250441 **Batch #:** 10746
Matrix: Air **Can #:** 0128
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: H3I250441 **Batch #:** 10763
Matrix: Air **Can #:** 6579
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: H3I250441 **Batch #:** 10767
Matrix: Air **Can #:** 12829
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: H3I250441 **Batch #:** 10771
Matrix: Air **Can #:** 11157
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: H3I250441 **Batch #:** 10772
Matrix: Air **Can #:** 6623
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: H3I250441 **Batch #:** 10776
Matrix: Air **Can #:** 93212
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)

TestAmerica Cedar Falls

Test America Knoxville GC/MS Volatiles

Lot ID: H3I250441 **Batch #:** 10779
Matrix: Air **Can #:** 92090
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)

Test America Knoxville GC/MS Volatiles

Lot ID: H3I250441 **Batch #:** 10779
Matrix: Air **Can #:** 92090
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)

TAL Knoxville HBI250441
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:** Mike Hagemeister	**Sampled By:** Rob Bergman	1 of 2 COCs
Company: Terracon	Phone: 402-330-2202		
Address: 6612 Chancellor Dr. Ste 102	Site Contact:		
City/State/Zip Cedar Falls, IA 50613	TAL Contact:		
Phone: 319-277-4016			
FAX:			
Project Name: Chamberlain Mfg.	**Analysis Turnaround Time**		
Site/location: Waterloo, IA	Standard (Specify)		
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-1-47-4	9-23-13 9-24-13	0943	0934	-29.0	-3.5	K429	93104	X							X				
IA-B-47-4	↓	0950	0941	-27.5	-3.5	K315	0128	X							X				
IA-1-40-5		1007	0954	-30.0	-4.0	K512	11157	X							X				
IA-B-40-5		1015	0958	-27.0	0.0	K186	6623	X							X				
IA-B-73-5		1404	1413	-30.0	-3.0	K117	93212	X							X				
IA-B-76-4	↓	1426	1428	-29.5	-4.5	K126	92090	X							X				

Sampled by : Rob Bergman

Temperature (Fahrenheit)	Interior	Ambient
Start		
Stop		

Pressure (inches of Hg)	Interior	Ambient
Start		
Stop		

2-Boxes with custody seals
Received @ Ambient Temp
RH 9/25/13
2-Boxes Fed Ex 420827121550
420827121540
8-CANS, 8-FLOWS

Special Instructions/QC Requirements & Comments:

e-mail results to dcleary@terracon.com & mehagemeister@terracon.com

Canisters Shipped by: Dropped off @ TestAmerica	Date/Time: 9/24/13 1555	Canisters Received by: Rita Hancock	9/25/13 10:00
Samples Relinquished by: Rob Bergman	Date/Time: 9/24/13 1555	Received by: Connie Lobst	9/24/13 15:55
Relinquished by:	Date/Time:	Received by:	

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

H3I250441

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: Mike Hagemeister	Sampled By: Rob Bergman	2 of 2 COCs
Company: Terracon	Phone: 402-330-2202		
Address: 6612 Chancellor Dr. Ste 102	Site Contact:		
City/State/Zip Cedar Falls, IA 50613	TAL Contact:		
Phone: 319-277-4016			
FAX:			
Project Name: Chamberlain Mfg.	Analysis Turnaround Time		
Site/location: Waterloo, IA	Standard (Specify)		
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)
Blind Duplicate #1	9-23-13	1408	1414	-29.0	-3.5	K152	6579	X							X				
Equipment Blank	9-24-13 ↓	—	—	—	—	—	12889	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:

e-mail results to dcleary@terracon.com & mehagemeister@terracon.com

Canisters Shipped by: Dropped off @ TestAmerica	Date/Time: 9/24/13 1555	Canisters Received by:
Samples Relinquished by: Rob Bergman	Date/Time: 9/24/13 1555	Received by: Connie Uhlar 9/24/13 1555
Relinquished by:	Date/Time:	Received by:

US EPA ARCHIVE DOCUMENT

TESTAMERICA KNOXVILLE SAMPLE RECEIPT/CONDITION UPON RECEIPT ANOMALY CHECKLIST

Lot Number: H3I250441

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** See box 3A for pH Preservation ☐ **3b** Other:	
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? (e.g. 1613B, 1668)			✓	☐ **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	

	Box 3A: pH Preservation	Box 9A: Residual Chlorine
Preservative:		
Lot Number:		
Exp Date:		
Analyst:		
Date:		
Time:		

Quote #: 87209 PM Instructions: _____

Sample Receiving Associate: Rita Hancock Date: 9/25/13

QA026R25.doc, 071813

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

Lot Number: *H3I250441*

Initial Can Pressure							Subsequent Dilutions											
Analyst/Date	Can or Tedlar bag prep Time	Baro ID 32 Pbarr (in)	Sample ID	Can #	Pres. upon receipt (-in or + psig)	Adj. Initial Pres. (-in or + psig)	old can # Analyst/Date	I / S	Baro ID___ 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
JL 9/26/13	8:20	28.25	M13L2	09828	-3.7		93104										8/15	10744
↓	↓	↓	M13L5	09981	-2.8		0128										↓	10746
			M13L6	09783	-3.9		11157										8/29	10771
			M13L7	10508	0.0		6623										↓	10772
			M13L8	09727	-3.2		93212										9/3	10776
			M13L9	10560	-4.5		92090										↓	10779
	↓	↓	M13MA	09601	-2.9		6579										9/26	10763
↓	0815		M13MC	~~12829~~ NS 9261 10423	-29.0	11.5	12829										9/27	10767 (Open valve)

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

HBI250441

Canister Samples Chain of Custody Record

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

310-16253 Chain of Custody

10/8/2013

Client Contact Information	**Project Manager:** Mike Hagemeister	**Sampled By:** Rob Bergman
Company: Terracon	Phone: 402-330-2202	1 of 2 COCs
Address: 6612 Chancellor Dr. Ste 102	Site Contact:	
City/State/Zip Cedar Falls, IA 50613	TAL Contact:	
Phone: 319-277-4016		
FAX:		
Project Name: Chamberlain Mfg.	**Analysis Turnaround Time**	
Site/location: Waterloo, IA	(Standard) (Specify)	
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 Matrix	Indoor Air	Ambient Air	Soil Gas	Landfill Gas	Other (Please specify in notes section)
IA-1-47-4	9-23-13 9-24-13	0943	0934	-29.0	-3.5	K429	93104	X							X				
IA-B-47-4		0950	0941	-27.5	-3.5	K315	0128	X							X				
IA-1-40-5		1007	0954	-30.0	-4.0	K512	11157	X							X				
IA-B-40-5		1015	0958	-27.0	0.0	K186	6623	X							X				
IA-B-73-5		1404	1413	-30.0	-3.0	K117	93212	X							X				
IA-B-76-4	↓	1426	1428	-29.5	-4.5	K126	92090	X							X				

Sampled by : Rob Bergman

Temperature (Fahrenheit)	Interior	Ambient
Start		
Stop		

Pressure (inches of Hg)	Interior	Ambient
Start		
Stop		

2-Boxes with custody seals
Received @ Ambient Temp
RdH 9/25/13
2-Boxes Fed Ex 420827121550
420827121540
8-CANS, 8-FLOWS

Special Instructions/QC Requirements & Comments:

e-mail results to dcleary@terracon.com & mehagemeister@terracon.com

Canisters Shipped by: Dropped off @ TestAmerica	Date/Time: 9/24/13 1555	Canisters Received by: Rita Hancock 9/25/13 10:00
Samples Relinquished by: Rob Bergman	Date/Time: 9/24/13 1555	Received by: Connie Uebel 9/24/13 15:55
Relinquished by:	Date/Time:	Received by:

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

HBI250441

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

10/8/2013

Client Contact Information	Project Manager: Mike Hagemeister	Sampled By: Rob Bergman	2 of 2 COCs
Company: Terracon	Phone: 402-330-2202		
Address: 6612 Chancellor Dr. Ste 102	Site Contact:		
City/State/Zip Cedar Falls, IA 50613	TAL Contact:		
Phone: 319-277-4016			
FAX:			
Project Name: Chamberlain Mfg.	Analysis Turnaround Time		
Site/location: Waterloo, IA	Standard (Specify)		
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)
Blind Duplicate #1	9-23-13 9-24-13	1408	1414	-29.0	-3.5	K152	6579	X							X				
Equipment Blank	↓	—	—	—	—	—	12889	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:

e-mail results to dcleary@terracon.com & mehagemeister@terracon.com

Canisters Shipped by: Dropped off @ TestAmerica	Date/Time: 9/24/13 1555	Canisters Received by:
Samples Relinquished by: Rob Bergman	Date/Time: 9/24/13 1555	Received by: Connie Udas 9/24/13 1555
Relinquished by:	Date/Time:	Received by:

TESTAMERICA KNOXVILLE SAMPLE RECEIPT/CONDITION UPON RECEIPT ANOMALY CHECKLIST

Lot Number: H3I250441

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 See box 3A for pH Preservation ☐ 3b Other:	
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? (e.g. 1613B, 1668)			✓	☐ 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	

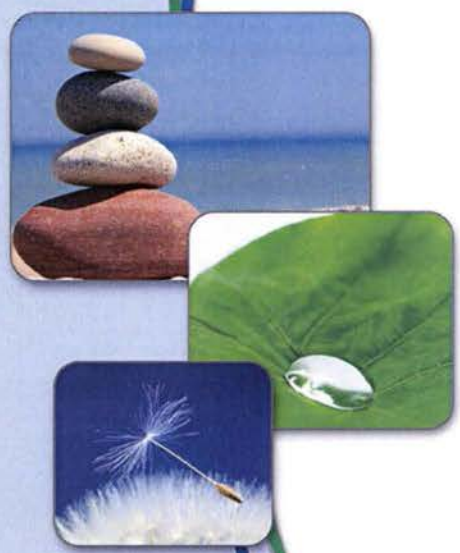
	Box 3A: pH Preservation	Box 9A: Residual Chlorine
Preservative:		
Lot Number:		
Exp Date:		
Analyst:		
Date:		
Time:		

Quote #: 87209 PM Instructions: _____

Sample Receiving Associate: Rita Hancock Date: 9/25/13

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING



ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica Cedar Falls
704 Enterprise Drive
Cedar Falls, IA 50613
Tel: (319)277-2401

TestAmerica Job ID: 310-16607-1
Client Project/Site: Air - Chamberlain Mfg.

For:
Terracon Consulting Eng & Scientists
15080 A Circle
Omaha, Nebraska 68144

Attn: Mr. Mike Hagemeister

Authorized for release by:
10/7/2013 1:25:45 PM

Brian Graettinger, Project Manager I
(319)277-2401
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.

Case Narrative

Client: Terracon Consulting Eng & Scientists
Project/Site: Air - Chamberlain Mfg.

TestAmerica Job ID: 310-16607-1

Job ID: 310-16607-1

Laboratory: TestAmerica Cedar Falls

Narrative

Job Narrative
310-16607-1

Comments
No additional comments.

Receipt
The samples were received on 9/26/2013 6:52 PM; the samples arrived in good condition, properly preserved and, where required, on ice.

No analytical or quality issues were noted.

Sample Summary

Client: Terracon Consulting Eng & Scientists
Project/Site: Air - Chamberlain Mfg.

TestAmerica Job ID: 310-16607-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
310-16607-1	IA-B-33-5	Air	09/26/13 10:29	09/26/13 18:52
310-16607-2	IA-1-33-5	Air	09/26/13 10:24	09/26/13 18:52
310-16607-3	IA-1-38-5	Air	09/26/13 10:45	09/26/13 18:52
310-16607-4	IA-B-38-5	Air	09/26/13 10:37	09/26/13 18:52
310-16607-5	IA-1-60-4	Air	09/26/13 11:05	09/26/13 18:52
310-16607-6	IA-B-60-4	Air	09/26/13 11:10	09/26/13 18:52
310-16607-7	IA-B-20-7	Air	09/26/13 16:23	09/26/13 18:52
310-16607-8	SS-57-1	Air	09/26/13 16:04	09/26/13 18:52
310-16607-9	SS-61-1	Air	09/26/13 17:43	09/26/13 18:52
310-16607-10	Blind Duplicate #2	Air	09/26/13 17:43	09/26/13 18:52

H3J010401 Analytical Report 1
Sample Receipt Documentation 28
Total Number of Pages 33

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

TestAmerica Laboratories, Inc.

ANALYTICAL REPORT

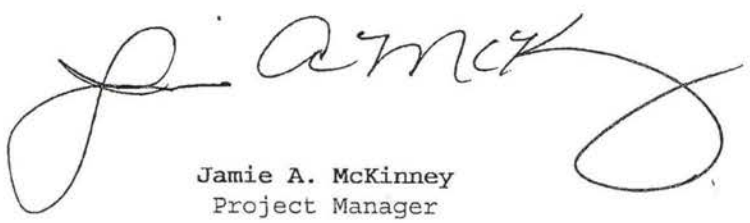
Terracon

Lot #: H3J010401

Brian Graettinger

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

TESTAMERICA LABORATORIES, INC.



Jamie A. McKinney
Project Manager

October 4, 2013

ANALYTICAL METHODS SUMMARY

H3J010401

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

H3J010401

WO #	SAMPLE#	CLIENT SAMPLE ID	SAMPLED DATE	SAMP TIME
M143E	001	IA-B-33-5	09/26/13	10:29
M143F	002	IA-1-33-5	09/26/13	10:24
M143G	003	IA-1-38-5	09/26/13	10:45
M143H	004	IA-B-38-5	09/26/13	10:37
M143J	005	IA-1-60-4	09/26/13	11:05
M143K	006	IA-B-60-4	09/26/13	11:10
M143L	007	IA-B-20-7	09/26/13	16:23
M143M	008	SS-57-1	09/26/13	16:04
M143N	009	SS-61-1	09/26/13	17:43
M143P	010	BLIND DUPLICATE #2	09/26/13	17:43

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
H3J010401

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.

Can Certification Comments:

The EPA method requires that all target analytes in the continuing calibration verification standard be within 30% difference from the initial calibration. The daily standard and laboratory control sample recovery for 1,1,1-trichloroethane was above QC limits on MR 08/22/13. However, since all the recovery was high and this analyte was not detected above the reporting limit in the associated samples, the validity of the data is unaffected.

CERTIFICATION SUMMARY

Laboratory	Authority	Program	EPA Region	Certification ID
TestAmerica Knoxville	L-A-B	DoD ELAP		L2311
TestAmerica Knoxville	Arkansas DEQ	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 DOHH	State Program	6	LA110001
TestAmerica Knoxville	Louisiana DEQ	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 DENR	State Program	4	64
TestAmerica Knoxville	North Carolina DHHS	State Program	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	Federal	USDA		P330-11-00035
TestAmerica Knoxville	Utah	NELAC	8	QUAN3
TestAmerica Knoxville	Virginia	NELAC	3	460176
TestAmerica Knoxville	Virginia	State Program	3	165
TestAmerica Knoxville	Washington	State Program	10	C593
TestAmerica Knoxville	West Virginia DEP	State Program	3	345
TestAmerica Knoxville	West Virginia DHHR	State Program	3	9955C

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: IA-B-33-5

GC/MS Volatiles

Lot-Sample #	H3J010401 - 001	**Work Order #**	M143E1AA	**Matrix.....:**	AIR
Date Sampled...:	09/26/2013	**Date Received..:**	09/30/2013		
Prep Date.....:	10/01/2013	**Analysis Date...**	10/01/2013		
Prep Batch #.....:	3275030				
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)
Tetrachloroethene	**0.053**	**0.080**	**0.016**	**0.36 J**	**0.54**	**0.11**
1,1,1-Trichloroethane	**0.012**	**0.080**	**0.012**	**0.066 J**	**0.44**	**0.065**
1,1,2-Trichloroethane	ND	0.080	0.021	ND	0.44	0.11
Trichloroethene	**0.034**	**0.040**	**0.014**	**0.18 J**	**0.21**	**0.075**
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	0.014	ND	0.32	0.056
cis-1,2-Dichloroethene	ND	0.080	0.024	ND	0.32	0.095
trans-1,2-Dichloroethene	ND	0.080	0.020	ND	0.32	0.079

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

Qualifiers

J Estimated result. Result is less than RL.

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 _rev5MDL.rpt version 5.001 08/20/2010

TestAmerica Cedar Falls

Client Sample ID: IA-1-33-5

GC/MS Volatiles

Lot-Sample #	H3J010401 - 002	**Work Order #**	M143F1AA	**Matrix.....:**	AIR
Date Sampled...:	09/26/2013	**Date Received..:**	09/30/2013		
Prep Date.....:	10/01/2013	**Analysis Date...**	10/01/2013		
Prep Batch #.....:	3275030				
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)
Tetrachloroethene	**0.042**	**0.080**	**0.016**	**0.29 J**	**0.54**	**0.11**
1,1,1-Trichloroethane	ND	0.080	0.012	ND	0.44	0.065
1,1,2-Trichloroethane	ND	0.080	0.021	ND	0.44	0.11
Trichloroethene	**0.032**	**0.040**	**0.014**	**0.17 J**	**0.21**	**0.075**
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	0.014	ND	0.32	0.056
cis-1,2-Dichloroethene	ND	0.080	0.024	ND	0.32	0.095
trans-1,2-Dichloroethene	ND	0.080	0.020	ND	0.32	0.079

SURROGATE	PERCENT RECOVERY	LABORATORY CONTROL LIMITS (%)
4-Bromofluorobenzene	104	60 - 140

Qualifiers

J Estimated result. Result is less than RL.

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 _rev5MDL.rpt version 5.001 08/20/2010

TestAmerica Cedar Falls

Client Sample ID: IA-1-38-5

GC/MS Volatiles

Lot-Sample #	H3J010401 - 003	**Work Order #**	M143G1AA	**Matrix.....:**	AIR
Date Sampled...:	09/26/2013	**Date Received..:**	09/30/2013		
Prep Date.....:	10/01/2013	**Analysis Date...**	10/02/2013		
Prep Batch #.....:	3275030				
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)
Tetrachloroethene	**0.033**	**0.080**	**0.016**	**0.22 J**	**0.54**	**0.11**
1,1,1-Trichloroethane	**0.11**	**0.080**	**0.012**	**0.57**	**0.44**	**0.065**
1,1,2-Trichloroethane	ND	0.080	0.021	ND	0.44	0.11
Trichloroethene	**0.089**	**0.040**	**0.014**	**0.48**	**0.21**	**0.075**
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	0.014	ND	0.32	0.056
cis-1,2-Dichloroethene	ND	0.080	0.024	ND	0.32	0.095
trans-1,2-Dichloroethene	ND	0.080	0.020	ND	0.32	0.079

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

Qualifiers

J Estimated result. Result is less than RL.

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 _rev5MDL.rpt version 5.001 08/20/2010

TestAmerica Cedar Falls

Client Sample ID: IA-B-38-5

GC/MS Volatiles

Lot-Sample #	H3J010401 - 004	**Work Order #**	M143H1AA	**Matrix.....:**	AIR
Date Sampled...:	09/26/2013	**Date Received..:**	09/30/2013		
Prep Date.....:	10/01/2013	**Analysis Date...**	10/02/2013		
Prep Batch #.....:	3275030				
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)
Tetrachloroethene	**0.053**	**0.080**	**0.016**	**0.36 J**	**0.54**	**0.11**
1,1,1-Trichloroethane	**0.063**	**0.080**	**0.012**	**0.34 J**	**0.44**	**0.065**
1,1,2-Trichloroethane	ND	0.080	0.021	ND	0.44	0.11
Trichloroethene	**0.045**	**0.040**	**0.014**	**0.24**	**0.21**	**0.075**
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	0.014	ND	0.32	0.056
cis-1,2-Dichloroethene	ND	0.080	0.024	ND	0.32	0.095
trans-1,2-Dichloroethene	ND	0.080	0.020	ND	0.32	0.079

SURROGATE	PERCENT RECOVERY	LABORATORY CONTROL LIMITS (%)
4-Bromofluorobenzene	104	60 - 140

Qualifiers

J Estimated result. Result is less than RL.

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 _rev5MDL.rpt version 5.001 08/20/2010

TestAmerica Cedar Falls

Client Sample ID: IA-1-60-4

GC/MS Volatiles

Lot-Sample #	H3J010401 - 005	**Work Order #**	M143J1AA	**Matrix.....:**	AIR
Date Sampled...:	09/26/2013	**Date Received..:**	09/30/2013		
Prep Date.....:	10/01/2013	**Analysis Date...**	10/02/2013		
Prep Batch #.....:	3275030				
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)
Tetrachloroethene	ND	0.080	0.016	ND	0.54	0.11
1,1,1-Trichloroethane	ND	0.080	0.012	ND	0.44	0.065
1,1,2-Trichloroethane	ND	0.080	0.021	ND	0.44	0.11
Trichloroethene	**0.026**	**0.040**	**0.014**	**0.14 J**	**0.21**	**0.075**
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	0.014	ND	0.32	0.056
cis-1,2-Dichloroethene	ND	0.080	0.024	ND	0.32	0.095
trans-1,2-Dichloroethene	ND	0.080	0.020	ND	0.32	0.079

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

Qualifiers

J Estimated result. Result is less than RL.

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)

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TestAmerica Cedar Falls

Client Sample ID: IA-B-60-4

GC/MS Volatiles

Lot-Sample #	H3J010401 - 006	**Work Order #**	M143K1AA	**Matrix.....:**	AIR
Date Sampled...:	09/26/2013	**Date Received..:**	09/30/2013		
Prep Date.....:	10/01/2013	**Analysis Date...**	10/02/2013		
Prep Batch #.....:	3275030				
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)
Tetrachloroethene	ND	0.080	0.016	ND	0.54	0.11
1,1,1-Trichloroethane	ND	0.080	0.012	ND	0.44	0.065
1,1,2-Trichloroethane	ND	0.080	0.021	ND	0.44	0.11
Trichloroethene	**0.020**	**0.040**	**0.014**	**0.11 J**	**0.21**	**0.075**
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	0.014	ND	0.32	0.056
cis-1,2-Dichloroethene	ND	0.080	0.024	ND	0.32	0.095
trans-1,2-Dichloroethene	ND	0.080	0.020	ND	0.32	0.079

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

Qualifiers

J	Estimated result. Result is less than RL.

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)

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TestAmerica Cedar Falls

Client Sample ID: IA-B-20-7

GC/MS Volatiles

Lot-Sample #	H3J010401 - 007	**Work Order #**	M143L1AA	**Matrix.....:**	AIR
Date Sampled...:	09/26/2013	**Date Received..:**	09/30/2013		
Prep Date.....:	10/01/2013	**Analysis Date...**	10/02/2013		
Prep Batch #.....:	3275030				
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)
Tetrachloroethene	ND	0.080	0.016	ND	0.54	0.11
1,1,1-Trichloroethane	**0.34**	**0.080**	**0.012**	**1.9**	**0.44**	**0.065**
1,1,2-Trichloroethane	ND	0.080	0.021	ND	0.44	0.11
Trichloroethene	**0.022**	**0.040**	**0.014**	**0.12 J**	**0.21**	**0.075**
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	0.014	ND	0.32	0.056
cis-1,2-Dichloroethene	ND	0.080	0.024	ND	0.32	0.095
trans-1,2-Dichloroethene	ND	0.080	0.020	ND	0.32	0.079

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

Qualifiers

J Estimated result. Result is less than RL.

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)

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TestAmerica Cedar Falls

Client Sample ID: SS-57-1

GC/MS Volatiles

Lot-Sample #	H3J010401 - 008	**Work Order #**	M143M1AA	**Matrix.....:**	AIR
Date Sampled...:	09/26/2013	**Date Received..:**	09/30/2013		
Prep Date.....:	10/01/2013	**Analysis Date...**	10/02/2013		
Prep Batch #.....:	3275030				
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)
Tetrachloroethene	**7.2**	**0.080**	**0.016**	**49**	**0.54**	**0.11**
1,1,1-Trichloroethane	**0.16**	**0.080**	**0.012**	**0.85**	**0.44**	**0.065**
1,1,2-Trichloroethane	ND	0.080	0.021	ND	0.44	0.11
Trichloroethene	ND	0.040	0.014	ND	0.21	0.075
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	0.014	ND	0.32	0.056
cis-1,2-Dichloroethene	ND	0.080	0.024	ND	0.32	0.095
trans-1,2-Dichloroethene	ND	0.080	0.020	ND	0.32	0.079

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

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)

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TestAmerica Cedar Falls

Client Sample ID: SS-61-1

GC/MS Volatiles

Lot-Sample #	H3J010401 - 009	**Work Order #**	M143N1AA	**Matrix.....:**	AIR
Date Sampled...:	09/26/2013	**Date Received..:**	09/30/2013		
Prep Date.....:	10/01/2013	**Analysis Date...**	10/02/2013		
Prep Batch #.....:	3275030				
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)
Tetrachloroethene	**0.33**	**0.080**	**0.016**	**2.2**	**0.54**	**0.11**
1,1,1-Trichloroethane	ND	0.080	0.012	ND	0.44	0.065
1,1,2-Trichloroethane	ND	0.080	0.021	ND	0.44	0.11
Trichloroethene	ND	0.040	0.014	ND	0.21	0.075
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	0.014	ND	0.32	0.056
cis-1,2-Dichloroethene	ND	0.080	0.024	ND	0.32	0.095
trans-1,2-Dichloroethene	ND	0.080	0.020	ND	0.32	0.079

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

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)

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Client Sample ID: BLIND DUPLICATE #2

GC/MS Volatiles

Lot-Sample #	H3J010401 - 010	**Work Order #**	M143P1AA	**Matrix.....:**	AIR
Date Sampled...:	09/26/2013	**Date Received..:**	09/30/2013		
Prep Date.....:	10/01/2013	**Analysis Date...**	10/02/2013		
Prep Batch #.....:	3275030				
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)
Tetrachloroethene	**0.18**	**0.080**	**0.016**	**1.2**	**0.54**	**0.11**
1,1,1-Trichloroethane	ND	0.080	0.012	ND	0.44	0.065
1,1,2-Trichloroethane	ND	0.080	0.021	ND	0.44	0.11
Trichloroethene	ND	0.040	0.014	ND	0.21	0.075
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	0.014	ND	0.32	0.056
cis-1,2-Dichloroethene	ND	0.080	0.024	ND	0.32	0.095
trans-1,2-Dichloroethene	ND	0.080	0.020	ND	0.32	0.079

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

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)

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Client Sample ID: INTRA-LAB BLANK

GC/MS Volatiles

Lot-Sample #	H3J020000 - 030B	**Work Order #**	M15MA1AA	**Matrix.....:**	AIR
	09/26/2013	**Date Received..:**	09/30/2013		
Prep Date.....:	10/01/2013	**Analysis Date...**	10/01/2013		
Prep Batch #.....:	3275030				
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)
Tetrachloroethene	ND	0.080	0.016	ND	0.54	0.11
1,1,1-Trichloroethane	ND	0.080	0.012	ND	0.44	0.065
1,1,2-Trichloroethane	ND	0.080	0.021	ND	0.44	0.11
Trichloroethene	ND	0.040	0.014	ND	0.21	0.075
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	0.014	ND	0.32	0.056
cis-1,2-Dichloroethene	ND	0.080	0.024	ND	0.32	0.095
trans-1,2-Dichloroethene	ND	0.080	0.020	ND	0.32	0.079

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

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)

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TestAmerica Cedar Falls

Client Sample ID: CHECK SAMPLE

GC/MS Volatiles

Lot-Sample # H3J020000 - 030C **Work Order #** M15MA1AC **Matrix.....:** AIR

	09/26/2013	**Date Received..:**	09/30/2013
Prep Date.....:	10/01/2013	**Analysis Date...**	10/01/2013
Prep Batch #.....:	3275030		
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	5.00	4.24	34	29	85	70 - 130
1,1,1-Trichloroethane	5.00	4.78	27	26	96	70 - 130
1,1,2-Trichloroethane	5.00	4.10	27	22	82	70 - 130
Trichloroethene	5.00	4.52	27	24	90	70 - 130
Vinyl chloride	5.00	5.32	13	14	106	70 - 130
1,1-Dichloroethane	5.00	4.89	20	20	98	70 - 130
1,1-Dichloroethene	5.00	5.00	20	20	100	70 - 130
cis-1,2-Dichloroethene	5.00	4.66	20	18	93	70 - 130
trans-1,2-Dichloroethene	5.00	4.86	20	19	97	70 - 130

SURROGATE	PERCENT RECOVERY	LABORATORY CONTROL LIMITS (%)
4-Bromofluorobenzene	104	60 - 140

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)

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Lot ID: H3J010401 **Batch #:** 10752
Matrix: Air **Can #:** S1551
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: H3J010401 **Batch #:** 10764
Matrix: Air **Can #:** 6659
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: H3J010401 **Batch #:** 10774
Matrix: Air **Can #:** 1528
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: H3J010401 **Batch #:** 10749
Matrix: Air **Can #:** 1316N
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: H3J010401 **Batch #:** 10748
Matrix: Air **Can #:** 6390
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)

Test America Knoxville GC/MS Volatiles

Lot ID: H3J010401 **Batch #:** 10750
Matrix: Air **Can #:** 0039
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: H3J010401 **Batch #:** 10721
Matrix: Air **Can #:** S1503
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: H3J010401 **Batch #:** 10746
Matrix: Air **Can #:** 93244
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: H3J010401 **Batch #:** 10750
Matrix: Air **Can #:** 12437
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: H3J010401 **Batch #:** 10722
Matrix: Air **Can #:** 92019
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)

TAL Knoxville
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Knoxville, TN 37921
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H3JD10401

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: Mike Hagemeister	Sampled By: Rob Bergman	1 of 2 COCs
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FAX:			
Project Name: Chamberlain Mfg.	Analysis Turnaround Time		
Site/location: Waterloo, IA	(Standard (Specify)		
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-B-33-5	9/25/13 9/26/13	1011	1029	-26.0	-3.0	K427	S-1551	X							X				
IA-1-33-5	"	1004	1024	-26.5	-5.0	K142	6659	X							X				
IA-1-38-5	"	1046	1045	-29.0	-3.5	K133	1528	X							X				
IA-B-38-5	"	1035	1037	-30.0	-5.0	K171	1316N	X							X				
IA-1-60-4	"	1108	1105	-29.5	-4.5	K143	6390	X							X				
IA-B-60-4	"	1115	1110	-29.0	-4.5	K231	0039	X							X				

Sampled by :
Rob Bergman

Temperature (Fahrenheit)	Interior	Ambient
Start		
Stop		

Pressure (inches of Hg)	Interior	Ambient
Start		
Stop		

Ambient temp (Received @)
Custody seal intact
3 boxes
KV 9/30/13
fedex std ovn
trk# 4208 2712 1713
" 4208 2712 1712
" 4208 2712 1734

Special Instructions/QC Requirements & Comments:

email results to dcleary@terracon.com & mehagemeister@terracon.com

Canisters Shipped by: Dropped off @ TestAmerica	Date/Time: 9/26/13 1852	Canisters Received by:	16 cans 1T 16 flows 3 KR
Samples Relinquished by: Robert Bergman	Date/Time: 9/26/13 1852	Received by:	
Relinquished by:	Date/Time:	Received by: 9/30/13 1000	

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

H3J010401

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: Mike Hagemeister	Sampled By: Rob Bergman	2 of 2 COCs
Company: Terracon	Phone: 402-330-2202		
Address: 6612 Chancellor Dr. Ste 102	Site Contact:		
City/State/Zip Cedar Falls, IA 50613	TAL Contact:		
Phone: 319-277-4016			
FAX:			
Project Name: Chamberlain Mfg.	Analysis Turnaround Time		
Site/location: Waterloo, IA	(Standard) (Specify)		
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-B-20-7	9/25/13 9/26/13	0934	1623	-29.0	-2.5	K124	S-1503	X							X				
SS-57-1	9/26/13	1534	1604	-29.5	-4.0	43	93244	X									X		
SS-61-1	9/26/13	1712	1743	-29.0	-4.0	06	12437	X									X		
Blind Duplicate #2	9/26/13	1712	1743	-29.0	0.0	32	92019	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 dcleary@terracon.com & mehagemeister@terracon.com

Canisters Shipped by: Dropped off @ TestAmerica	Date/Time: 9/26/13 1852	Canisters Received by:
Samples Relinquished by: Rob Bergman	Date/Time: 9/26/13 1852	Received by:
Relinquished by:	Date/Time:	Received by: 9/30/13 1000

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

704 ENTERPRISE DRIVE • CEDAR FALLS, IA 50613
800-750-2401 • 319-277-2425 FAX

H33010401

IH Sample Receipt Form

Client: Terracon Project: _____

City: Cedar Falls

Date: 9/26/13 Receiver's Initials: JMP Time (Delivered): 1852

COC Completed Correctly? ☐ Yes ☐ No
(Cite inconsistencies below)

Sample Checklist (Check indicates conformance failure)

	Received Broken		Information Missing
	Improper Media		Missing Sample
	Missing Label		Sample Past Hold Date
	Temperature		Extra Sample
	COC Discrepancy		Insufficient Sample Volume
	Other:		

Couriers

☐ UPS	☐ TA Courier
☐ FedEx	☐ TA Field Services
☐ FedEx Ground	☒ Client
☐ USPS	☐ Other
☐ Spee-Dee	

☒ Samples Not Received in a Cooler
☒ Temperature Not Taken

Reviewed By _____ Date _____

Comments Custody seal intact -JMP 9/26/13

Remarks/Action Taken: Initial/Date:

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

704 ENTERPRISE DRIVE • CEDAR FALLS, IA 50613
800-750-2401 • 319-277-2425 FAX

43301040)

IH Sample Receipt Form

Client: Terracon Project: _____

City: Cedar Falls

Date: 9/26/13 Receiver's Initials: JMP Time (Delivered): 1852

COC Completed Correctly? ☐ Yes ☐ No
(Cite inconsistencies below)

Sample Checklist (Check indicates conformance failure)

	Received Broken		Information Missing
	Improper Media		Missing Sample
	Missing Label		Sample Past Hold Date
	Temperature		Extra Sample
	COC Discrepancy		Insufficient Sample Volume
	Other:		

Couriers

☐ UPS	☐ TA Courier
☐ FedEx	☐ TA Field Services
☐ FedEx Ground	☒ Client
☐ USPS	☐ Other
☐ Spee-Dee	

☒ Samples Not Received in a Cooler
☒ Temperature Not Taken

Reviewed By _____ Date _____

Comments Custody Seal intact -JMP 9/26/13

Remarks/Action Taken: Initial/Date:

TESTAMERICA KNOXVILLE SAMPLE RECEIPT/CONDITION UPON RECEIPT ANOMALY CHECKLIST

Lot Number: M3J010401

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** See box 3A for pH Preservation ☐ **3b** Other:	
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? (e.g. 1613B, 1668)			/	☐ **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	

	Box 3A: pH Preservation	Box 9A: Residual Chlorine
Preservative:		
Lot Number:		
Exp Date:		
Analyst:		
Date:		
Time:		

Quote #: 87209 PM Instructions: _____

Sample Receiving Associate: _____ Date: 9/30/13

QA026R25.doc, 071813

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

Lot Number: *H3J010401*

Initial Can Pressure							Subsequent Dilutions											
Analyst/Date	Can or Tedlar bag prep Time	Baro ID B2 Pbarr (in)	Sample ID	Can #	Pres. upon receipt (-in or + psig)	Adj. Initial Pres. (-in or + psig)	~~Analyst/Date~~ dil can# 10/2/13	I / S	Baro ID___ 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
NS 10-1-13	9:45	28.99	M143E	09619 6659	-3.6		S-1551				J8/20							10752
			M143F	09619	-4.9		6659				J8/26							10764
			M143G	10544	-3.4		1528				J8/30							10774
			M143H	10038	-3.6		1316N				J8/19							10749
			M143J	10010	-4.1		6390				J8/16							10748
			M143K	10030	-3.6		0039				R8/22							10750
	9:58		M143L	10703	0.0		S-1503				R7/31							10721
			M143M	09986	-4.3		93244				J8/15							10746
			M143N	09539	-4.0		12437				R8/22							10750
			M143P	10706	0.0		92019				R7/31							10722

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

704 ENTERPRISE DRIVE • CEDAR FALLS, IA 50613
800-750-2401 • 319-277-2425 FAX

310-16607 Chain of Custody

IH Sample Receipt Form

Client: Terracon Project: _____

City: Cedar Falls

Date: 9/26/13 Receiver's Initials: JMP Time (Delivered): 1852

COC Completed Correctly? ☐ Yes ☐ No
(Cite inconsistencies below)

Sample Checklist (Check indicates conformance failure)

	Received Broken		Information Missing
	Improper Media		Missing Sample
	Missing Label		Sample Past Hold Date
	Temperature		Extra Sample
	COC Discrepancy		Insufficient Sample Volume
	Other:		

Couriers

☐ UPS	☐ TA Courier
☐ FedEx	☐ TA Field Services
☐ FedEx Ground	☒ Client
☐ USPS	☐ Other
☐ Spee-Dee	

☒ Samples Not Received in a Cooler
☒ Temperature Not Taken

Reviewed By _____ Date _____

Comments: Custody seal intact -JMP 9/26/13

Remarks/Action Taken: Initial/Date:

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

704 ENTERPRISE DRIVE • CEDAR FALLS, IA 50613
800-750-2401 • 319-277-2425 FAX

5

IH Sample Receipt Form

Client: Terracon Project: _____

City: Cedar Falls

Date: 9/26/13 Receiver's Initials: JMP Time (Delivered): 1852

COC Completed Correctly? ☐ Yes ☐ No
(Cite inconsistencies below)

Sample Checklist (Check indicates conformance failure)

	Received Broken		Information Missing
	Improper Media		Missing Sample
	Missing Label		Sample Past Hold Date
	Temperature		Extra Sample
	COC Discrepancy		Insufficient Sample Volume
	Other:		

Couriers

☐ UPS	☐ TA Courier
☐ FedEx	☐ TA Field Services
☐ FedEx Ground	☒ Client
☐ USPS	☐ Other
☐ Spee-Dee	

☒ Samples Not Received in a Cooler
☒ Temperature Not Taken

Reviewed By _____ Date _____

Comments Custody Seal intact -JMP 9/26/13

Remarks/Action Taken: Initial/Date:

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: Mike Hagemeister	Sampled By: Rob Bergman	1 of 2 COCs
Company: Terracon	Phone: 402-330-2202		
Address: 6612 Chancellor Dr. Ste 102	Site Contact:		
City/State/Zip Cedar Falls, IA 50613	TAL Contact:		
Phone: 319-277-4016			
FAX:			
Project Name: Chamberlain Mfg.	Analysis Turnaround Time		
Site/location: Waterloo, IA	(Standard (Specify)		
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-B-33-5	9/25/13 9/26/13	1011	1029	-26.0	-3.0	K427	S-1551	X						X				
IA-1-33-5		1004	1024	-26.5	-5.0	K142	6659	X						X				
IA-1-38-5		1046	1045	-29.0	-3.5	K133	1528	X						X				
IA-B-38-5		1035	1037	-30.0	-5.0	K171	1316N	X						X				
IA-1-60-4		1108	1105	-29.5	-4.5	K143	6390	X						X				
IA-B-60-4		1115	1110	-29.0	-4.5	K231	0039	X						X				

Sampled by :

Rob Bergman

Temperature (Fahrenheit)

	Interior	Ambient	lef: / lep:
Start			
Stop			

Pressure (inches of Hg)

	Ambient	lef: / lep:

lef: / lep:
Date: 27Sep13
Wgt: 56.00 LBS
DV:
SHIPPING: 0.00
SPECIAL: 0.00
HANDLING: 0.00
0.00 TOTAL: 0.00
Svcs: STANDARD OVERNIGHT
TRCK: 4208 2712 1745

lef: / lep:
Date: 27Sep13
Wgt: 37.40 LBS
DV:
SHIPPING: 0.00
SPECIAL: 0.00
HANDLING: 0.00
0.00 TOTAL: 0.00
Svcs: STANDARD OVERNIGHT
TRCK: 4208 2712 1723

lef: / lep:
Date: 27Sep13
Wgt: 51.70 LBS
DV:
SHIPPING: 0.00
SPECIAL: 0.00
HANDLING: 0.00
0.00 TOTAL: 0.00
Svcs: STANDARD OVERNIGHT
TRCK: 4208 2712 1712

lef: / lep:
Date: 27Sep13
Wgt: 5.50 LBS
DV:
SHIPPING: 0.00
SPECIAL: 0.00
HANDLING: 0.00
0.00 TOTAL: 0.00
Svcs: STANDARD OVERNIGHT
TRCK: 4208 2712 1734

Special Instructions/QC Re:

email results to dcleary@terracon.com & mehagemeister@terracon.com

Canisters Shipped by:	Date/Time:	Canisters Received by:
Dropped off @ TestAmerica	9/26/13 1852	
Samples Relinquished by:	Date/Time:	Received by:
Robert Bergman	9/26/13 1852	
Relinquished by:	Date/Time:	Received by:

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: Mike Hagemeister	Sampled By: Rob Bergman	2 of 2 COCs
Company: Terracon	Phone: 402-330-2202		
Address: 6612 Chancellor Dr. Ste 102	Site Contact:		
City/State/Zip Cedar Falls, IA 50613	TAL Contact:		
Phone: 319-277-4016			
FAX:			
Project Name: Chamberlain Mfg.	Analysis Turnaround Time		
Site/location: Waterloo, IA	(Standard) (Specify)		
PO # 0710 7020	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-20-7	9/25/13 9/26/13	0934	1623	-29.0	-2.5	K124	5-1503	X						X				
SS-57-1	9/26/13	1534	1604	-29.5	-4.0	43	93244	X								X		
SS-61-1	9/26/13	1712	1743	-29.0	-4.0	06	12437	X								X		
Blind Duplicate #2	9/26/13	1712	1743	-29.0	0.0	32	92019	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 dcleary@terracon.com & mehagemeister@terracon.com

Canisters Shipped by:	Date/Time:	Canisters Received by:
Dropped off @ TestAmerica	9/26/13 1852	
Samples Relinquished by:	Date/Time:	Received by:
Rob Bergman	9/26/13 1852	
Relinquished by:	Date/Time:	Received by:

Appendix D

US EPA ARCHIVE DOCUMENT

Terracon

September 6, 2013

Ms. Rachelle Grandon
2601 E. 4th St
Waterloo, Iowa 50703

Dear Ms. Grandon:

As you know, the United States Environmental Protection Agency ("EPA") asked Chamberlain Manufacturing Corporation to do environmental testing of soil vapors beneath certain homes in your neighborhood near the 550 Esther Street property, currently owned by the City of Waterloo. We understand from Bruce Morrison of the EPA that you have requested that your home be sampled.

Terracon Consultants, Inc., a licensed and experienced environmental consulting and engineering company, will be in your neighborhood conducting sampling in September 2013. We would like to also conduct sampling of your home at that time to comply with your request to conduct sampling.

The sampling, which is completely voluntary, involves two initial visits of about an hour or less each by courteous and experienced professionals who will display proper identification and respect you and your home.

Here's how it works:

Initial Visit: Sampling Port Installation and Questionnaire

On the first visit, we will install a small sample "port" in your home. The port is installed after wet drilling a 1-inch opening in the concrete floor of your basement or the lowest level of your home such as a crawl-space or slab. After installing the port, the voids are then backfilled with sand and concrete, which will set for at least 48 hours. We will clean-up the work area.

We will also ask for your assistance as our field personnel complete a questionnaire about your home. The questionnaire seeks information regarding your home and the presence of chemicals containing volatile organic compounds, such as paints, glues, stored fuels and dry-cleaned clothes. According to EPA, these household products can contribute to indoor air quality problems.

Additional Visit(s): Sample Collection

About two days after the first visit, we will return for about 45 minutes to collect a sample from the port. These indoor Depending on the results of the sampling, one or more additional

sampling events may be needed to confirm the results of the previous event. If necessary, we will contact you and make arrangements for any additional sampling events.

Once EPA agrees that sampling in the area is complete, we will remove the sampling port and seal the area where the port was installed at your request.

The results of this sampling will be reviewed by EPA. Following EPA review, a copy of the results will be provided for your records. If the sampling identifies any vapors beneath your home that warrant attention, we will contact you and offer you an EPA-approved system, usually located in your basement, that is designed to reduce any vapors. The system would be installed at no cost to you.

It is important to know that this sampling is a precautionary step. The information we obtain will help us gain a fuller understanding of the conditions in your neighborhood and whether any additional action is needed.

Please complete the enclosed request form and access agreement and mail it to:

Terracon Consultants Inc.
6612 Chancellor Dr. Suite 102
Cedar Falls, Iowa 50613

In order to facilitate scheduling, we ask that you return the sampling request form no later than September 17, 2013. After we receive the form, we will call you to schedule a mutually convenient time for us to meet at your home to begin the sampling process.

We appreciate your cooperation in this process.

Sincerely,
Terracon Consultants, Inc.

Rob Bergman
Environmental Scientist

Michael E. Hagemeister
Senior Principal

Sampling Request Form

(Please complete and return by September 17, 2013)

Name: Rachelle Grandon

Address: 2601 E. 4th St
Waterloo, IA 50703

Telephone: (319) 231-4234 (Day)

_____ (Evening)

Are you the owner of the property? X Yes _____ No

If no, please provide contact information for the property owner:

Name: _____

Address: _____

_____

Telephone: _____

We hereby provide the City of Waterloo, Chamberlain Manufacturing Corporation, the United States Environmental Protection Agency and their authorized representatives permission to enter the residence listed above at a mutually convenient time for the purpose of collecting samples and completing the questionnaire as outlined in Terracon's letter dated September 6, 2013 and the enclosed access agreement.

Signature of Owner(s) or Lessee(s):

Rachelle Grandon

_____

Dated: Sept. 23rd, 2013

Terracon

ACCESS AGREEMENT

Date: 9/6/13

DEFINITIONS

The property to which access is granted is: 2601 E. 4th Street ("Property").

The Legal Owner(s) of the Property or person/entity with legal authority to grant access to the Property is: Rachelle Grandon ("Grantor(s)").

The services to be conducted on the Property are generally described as follows: Collection of samples as outlined in the Resident Sampling Request letter dated September 6, 2013. ("Services").

The entity granted access for the purposes of performing the Services is Terracon Consultants, Inc., which shall include its employees, agents, and subcontractors ("Grantee").

The Services are performed for the benefit of Chamberlain Manufacturing Corporation ("Client"), pursuant to the Agreement for Services between Terracon and Client, dated September 23, 2010.

AGREEMENTS

By its signature below, Grantor represents it has authority to, and does, grant access to the Property to Grantee for the purpose of performing the Services. Grantor agrees that:

- Grantee may bring sampling equipment on the Property to recover and collect soil, water, and other samples, and perform other actions related to the exploration of surface or subsurface conditions on the Property, as necessary to perform the Services. Grantee may also photograph portions of the Property and ask Grantor to assist in completing a questionnaire regarding activities at the property.
- Grantee will make reasonable efforts to restore the property and leave it in a condition suitable for its previous use.
- Grantor will not interfere with any of the activities of Grantee or undertake any actions regarding the use of Property that would endanger the health, safety, or welfare of the Grantee employees, agents, or subcontractors, or damage their equipment, materials, or property.
- Grantor will indemnify and hold Grantee harmless with respect to activities of Grantee.

By its signature below, Grantee agrees:

- That upon completion of Services and activities authorized by this Access Agreement, Grantee will remove all material and equipment utilized by Grantee from the Property, with the exception of ground markers that may be placed on the premises to designate sampling areas,
- Grantee will remove boring spoils that accumulate around the bore holes.
- Grantee will make reasonable efforts to restore the property and leave it in a condition suitable for its previous use.

The Services and field activities authorized under this Access Agreement may begin after signature of Grantor. Access is granted until Services are completed.

SIGNATURES

Terracon Consultants, Inc.:
By: Mike E. Hagemeister Date: **9/6/13**
Name/Title: **Mike E. Hagemeister, Environmental Manager**
Address: **15080 A Circle**
Omaha, Nebraska 68144
Phone: **402.384.7019** Fax: **402.330.7606**

Grantor (Owner):
By: Rachelle Grandon Date: 9-23-13
Name/Title:
Address:
Phone: Fax:

Grantor (Co-Owner):
By: Date:
Name/Title:
Address:
Phone: Fax:

OCCUPIED DWELLING QUESTIONNAIRE

Indoor Air Assessment Survey

Date: 9-23-13

1. Name: Rachelle Grandon

   Address: 2601 E. 4th St.
   Waterloo, IA 50703

   Home Phone: (319) 231-4234 Work Phone: (319) 433-2600

2. What is the best time to call to speak with you? After 4pm At: Work ☐ or Home ☒?

3. Are you the Owner ☒, Renter ☐, Other ☐ (please specify)_____ of this Home/Structure?

4. Total number of occupants/persons at this location? 1
   Number of children? Ø Ages?_____

5. How long have you lived at this location? 10 yrs.

General Home Description

6. Type of Home/Structure (check only one): Single Family Home ☒, Duplex ☐, Condominium ☐, Townhouse ☐, Other ☐_____

7. Home/Structure Description: number of floors 2
   Basement? Yes ☒ No ☐
   Crawl Space? Yes ☐ No ☒
   If Yes, under how much of the house's area? ____%

8. Age of Home/Structure: 95 years, Not sure/Unknown ☐

9. General Above-Ground Home/Structure construction (check all that apply):
   Wood ☒, Brick ☐, Concrete ☒, Cement block ☒, Other ☐_____

10. Foundation Construction (check all that apply):
    Concrete slab ☒
    Fieldstone ☐
    Concrete block ☒

Elevated above ground/grade ❑
Other_____

11. What is the source of your drinking water (check all that apply)?
Public water supply ☒
Private well ❑
Bottled water ☒
Other, please specify _____

12. Do you have a private well for purposes other than drinking?
Yes ❑ No ☒
If yes, please describe what you use the well for:_____
_____

13. Do you have a septic system? Yes ❑ No ☒ Not used ❑ Unknown ❑

14. Do you have standing water outside your home (pond, ditch, swale)? Yes ❑ No ☒

Basement Description, please check appropriate boxes.
If you do not have a basement go to question 23.

15. Is the basement finished ❑ or unfinished ☒?
16. If finished, how many rooms are in the basement?_____
How many are used for more than 2 hours/day?_____
17. Is the basement floor (check all that apply) concrete ☒ tile ☒ carpeted ❑, dirt ❑, other❑(describe)_____?
18. Are the basement walls poured concrete ❑, cement block ☒ stone ❑, wood ❑, brick ❑, other❑_____?
19. Does the basement have a moisture problem (check one only)?
Yes, frequently (3 or more times/yr) ☒
Yes, occasionally (1-2 times/yr) ❑
Yes, rarely (less than 1 time/yr) ❑
No ❑

20. Does the basement ever flood (check one only)?
Yes, frequently (3 or more times/yr) ❑
Yes, occasionally (1-2 times/yr) ❑
Yes, rarely (less than 1 time/yr) ❑
No ☒

21. Does the basement have any of the following? (check all that apply) Floor cracks ❑, Wall cracks ☒ Sump ❑, Floor drain ☒ Other hole/opening in floor ❑
(describe)_____

22. Are any of the following used or stored in the basement (check all that apply)
Paint ☒ Paint stripper/remover ☐ Paint thinner ☒
Metal degreaser/cleaner ☐ Gasoline ☐ Diesel fuel ☐ Solvents ☒ Glue ☐
Laundry spot removers ☒ Drain cleaners ☐ Pesticides ☐

23. Have you recently (within the last six months) done any painting or remodeling in your home? Yes ☒ No ☐
If yes, please specify what was done, where in the home, and what month:
Painted bathroom hallway.
Put in new hard wood floor in hallway.

24. Have you installed new carpeting in your home within the last year? Yes ☐ No ☒
If yes, when and where?_____

25. Do you regularly use or work in a dry cleaning service (check only one box)?
Yes, use dry-cleaning regularly (at least weekly) ☐
Yes, use dry-cleaning infrequently (monthly or less) ☐
Yes, work at a dry cleaning service ☐
No ☒

26. Does anyone in your home use solvents at work?
Yes ☐ If yes, how many persons_____
No ☒ If no, go to question 28

27. If yes for question 26 above, are the work clothes washed at home? Yes ☐ No ☐

28. Where is the washer/dryer located?
Basement ☒
Upstairs utility room ☐
Kitchen ☐
Garage ☐
Use a Laundromat ☐
Other, please specify ☐_____

29. If you have a dryer, is it vented to the outdoors? Yes ☒ No ☐

30. What type(s) of home heating do you have (check all that apply)
Fuel type: Gas ☐, Oil ☐, Electric ☒, Wood ☐, Coal ☐, Other_____
Heat conveyance system:
Forced hot air ☒
Forced hot water ☐
Steam ☐
Radiant floor heat ☐
Wood stove ☐
Coal furnace ☐
Fireplace ☐
Other_____

31. Do you have air conditioning? Yes ☒ No ☐. If yes, please check the appropriate type(s)
Central air conditioning ☒
Window air conditioning unit(s) ☐
Other ☐, please specify _____

32. Do you use any of the following? Room fans ☒, Ceiling fans ☒, Attic fan ☐
Do you ventilate using the fan-only mode of your central air conditioning or forced air heating system? Yes ☒ No ☐

33. Has your home had termite or other pesticide treatment: Yes ☒ No ☐ Unknown ☐
If yes, please specify type of pest controlled, mice – 2 yrs ago
and approximate date of service Winter, 2011

34. Water Heater Type: Gas ☒, Electric ☐, By furnace ☐, Other ☐ _____
Water heater location: Basement ☒, Upstairs utility room ☐, Garage ☐, Other ☐ (please describe) _____

35. What type of cooking appliance do you have? Electric ☐, Gas ☒ Other ☐ _____

36. Is there a stove exhaust hood present? Yes ☒ No ☐
Does it vent to the outdoors? Yes ☐ No ☒

37. Smoking in Home:
None ☐, Rare (only guests) ☐, Moderate (residents light smokers) ☒,
Heavy (at least one heavy smoker in household) ☐

38. If yes to above, what do they smoke?
Cigarettes ☒ Cigars ☐
Pipe ☐ Other ☐

39. Do you regularly use air fresheners? Yes ☒ No ☐

40. Does anyone in the home have indoor home hobbies of crafts involving: None ☒
Heating ☐, soldering ☐, welding ☐, model glues ☐, paint ☐, spray paint, wood finishing ☐, Other ☐ Please specify what type of hobby: _____
_____

41. General family/home use of consumer products (please circle appropriate): Assume that **Never** = never used, **Hardly ever** = less than once/month, **Occasionally** = about once/month, **Regularly** = about once/week, and **Often** = more than once/week.

Product	Frequency of Use				
Spray-on deodorant	Never	(Hardly ever)	Occasionally	Regularly	Often

Aerosol deodorizers	Never	Hardly ever	Occasionally	Regularly	Often
Insecticides	Never	Hardly ever	Occasionally	Regularly	Often
Disinfectants	Never	Hardly ever	Occasionally	Regularly	Often

(Question 41, continued)

Product	Frequency of Use				
Window cleaners	Never	Hardly ever	Occasionally	Regularly	Often
Spray-on oven cleaners	Never	Hardly ever	Occasionally	Regularly	Often
Nail polish remover	Never	Hardly ever	Occasionally	Regularly	Often
Hair sprays	Never	Hardly ever	Occasionally	Regularly	Often

42. Please check weekly household cleaning practices:
Dusting ❑
Dry sweeping ☒
Vacuuming ❑
Polishing (furniture, etc) ❑
Washing/waxing floors ❑
Other ❑ _____

43. Other comments: _____

Terracon

September 6, 2013

Mr. Philip Maxey
2617 E. 4th St
Waterloo, Iowa 50703

Dear Mr. Maxey:

As you know, the United States Environmental Protection Agency ("EPA") asked Chamberlain Manufacturing Corporation to do environmental testing of soil vapors beneath certain homes in your neighborhood near the 550 Esther Street property, currently owned by the City of Waterloo. We understand from Bruce Morrison of the EPA that you have requested that your home be sampled.

Terracon Consultants, Inc., a licensed and experienced environmental consulting and engineering company, will be in your neighborhood conducting sampling in September 2013. We would like to also conduct sampling of your home at that time to comply with your request to conduct sampling.

The sampling, which is completely voluntary, involves two initial visits of about an hour or less each by courteous and experienced professionals who will display proper identification and respect you and your home.

Here's how it works:

Initial Visit: Sampling Port Installation and Questionnaire

On the first visit, we will install a small sample "port" in your home. The port is installed after wet drilling a 1-inch opening in the concrete floor of your basement or the lowest level of your home such as a crawl-space or slab. After installing the port, the voids are then backfilled with sand and concrete, which will set for at least 48 hours. We will clean-up the work area.

We will also ask for your assistance as our field personnel complete a questionnaire about your home. The questionnaire seeks information regarding your home and the presence of chemicals containing volatile organic compounds, such as paints, glues, stored fuels and dry-cleaned clothes. According to EPA, these household products can contribute to indoor air quality problems.

Additional Visit(s): Sample Collection

About two days after the first visit, we will return for about 45 minutes to collect a sample from the port. These indoor Depending on the results of the sampling, one or more additional

sampling events may be needed to confirm the results of the previous event. If necessary, we will contact you and make arrangements for any additional sampling events.

Once EPA agrees that sampling in the area is complete, we will remove the sampling port and seal the area where the port was installed at your request.

The results of this sampling will be reviewed by EPA. Following EPA review, a copy of the results will be provided for your records. If the sampling identifies any vapors beneath your home that warrant attention, we will contact you and offer you an EPA-approved system, usually located in your basement, that is designed to reduce any vapors. The system would be installed at no cost to you.

It is important to know that this sampling is a precautionary step. The information we obtain will help us gain a fuller understanding of the conditions in your neighborhood and whether any additional action is needed.

Please complete the enclosed request form and access agreement and mail it to:

Terracon Consultants Inc.
6612 Chancellor Dr. Suite 102
Cedar Falls, Iowa 50613

In order to facilitate scheduling, we ask that you return the sampling request form no later than September 17, 2013. After we receive the form, we will call you to schedule a mutually convenient time for us to meet at your home to begin the sampling process.

We appreciate your cooperation in this process.

Sincerely,
Terracon Consultants, Inc.

Rob Bergman
Rob Bergman
Environmental Scientist

Dan Cz for
Michael E. Hagemeister
Senior Principal

Sampling Request Form

(Please complete and return by September 17, 2013)

Name: Philip Maxey

Address: 2617 E 4th

Waterloo IA 50703

Telephone: 515-851-0447 (Day)

_____ (Evening)

Are you the owner of the property? X Yes _____ No

If no, please provide contact information for the property owner:

Name: _____

Address: _____

_____

Telephone: _____

We hereby provide the City of Waterloo, Chamberlain Manufacturing Corporation, the United States Environmental Protection Agency and their authorized representatives permission to enter the residence listed above at a mutually convenient time for the purpose of collecting samples and completing the questionnaire as outlined in Terracon's letter dated September 6, 2013 and the enclosed access agreement.

Signature of Owner(s) or Lessee(s):

_____

_____

Dated: 9-10, 2013

Terracon

ACCESS AGREEMENT

Date: 9/6/13

DEFINITIONS

The property to which access is granted is: 2617 E. 4th Street ("Property").

The Legal Owner(s) of the Property or person/entity with legal authority to grant access to the Property is: Philip Maxey ("Grantor(s)").

The services to be conducted on the Property are generally described as follows: Collection of samples as outlined in the Resident Sampling Request letter dated September 6, 2013. ("Services").

The entity granted access for the purposes of performing the Services is Terracon Consultants, Inc., which shall include its employees, agents, and subcontractors ("Grantee").

The Services are performed for the benefit of Chamberlain Manufacturing Corporation ("Client"), pursuant to the Agreement for Services between Terracon and Client, dated September 23, 2010.

AGREEMENTS

By its signature below, Grantor represents it has authority to, and does, grant access to the Property to Grantee for the purpose of performing the Services. Grantor agrees that:

- Grantee may bring sampling equipment on the Property to recover and collect soil, water, and other samples, and perform other actions related to the exploration of surface or subsurface conditions on the Property, as necessary to perform the Services. Grantee may also photograph portions of the Property and ask Grantor to assist in completing a questionnaire regarding activities at the property.
- Grantee will make reasonable efforts to restore the property and leave it in a condition suitable for its previous use.
- Grantor will not interfere with any of the activities of Grantee or undertake any actions regarding the use of Property that would endanger the health, safety, or welfare of the Grantee employees, agents, or subcontractors, or damage their equipment, materials, or property.
- Grantor will indemnify and hold Grantee harmless with respect to activities of Grantee.

By its signature below, Grantee agrees:

- That upon completion of Services and activities authorized by this Access Agreement, Grantee will remove all material and equipment utilized by Grantee from the Property, with the exception of ground markers that may be placed on the premises to designate sampling areas,
- Grantee will remove boring spoils that accumulate around the bore holes.
- Grantee will make reasonable efforts to restore the property and leave it in a condition suitable for its previous use.

The Services and field activities authorized under this Access Agreement may begin after signature of Grantor. Access is granted until Services are completed.

SIGNATURES

Terracon Consultants, Inc.:
By: Mike E. Hagemeister Date: **9/6/13**
Name/Title: **Mike E. Hagemeister, Environmental Manager**
Address: **15080 A Circle**
Omaha, Nebraska 68144
Phone: **402.384.7019** Fax: **402.330.7606**

Grantor (Owner):
By: Philip Maxey Date: 9-10-13
Name/Title: Philip Maxey
Address:
Phone: Fax:

Grantor (Co-Owner):
By: Date:
Name/Title:
Address:
Phone: Fax:

OCCUPIED DWELLING QUESTIONNAIRE

Indoor Air Assessment Survey

Date: 9-18-13

1. Name: Philip Mulvey

   Address: 2617 E 4th

   Waterloo IA 50703

   Home Phone: 515-857-0497 Work Phone: 319-234-4423

2. What is the best time to call to speak with you? 5-10 At: Work ☐ or Home ☑?

3. Are you the Owner ☒, Renter ☐, Other ☐ (please specify)_____ of this Home/Structure?

4. Total number of occupants/persons at this location? 1
   Number of children? — Ages? —

5. How long have you lived at this location? 1 yr

General Home Description

6. Type of Home/Structure (check only one): Single Family Home ☑, Duplex ☐, Condominium ☐, Townhouse ☐, Other ☐_____

7. Home/Structure Description: number of floors 1
   Basement? Yes ☑ No ☐
   Crawl Space? Yes ☐ No ☒
   If Yes, under how much of the house's area? ____%

8. Age of Home/Structure: _____ years, Not sure/Unknown ☒

9. General Above-Ground Home/Structure construction (check all that apply):
   Wood ☑, Brick ☐, Concrete ☐, Cement block ☐, Other ☐_____

10. Foundation Construction (check all that apply):
    Concrete slab ☐
    Fieldstone ☐
    Concrete block ☑

Elevated above ground/grade ☐
Other_____

11. What is the source of your drinking water (check all that apply)?
Public water supply ☒
Private well ☐
Bottled water ☐
Other, please specify _____

12. Do you have a private well for purposes other than drinking?
Yes ☐ No ☒
If yes, please describe what you use the well for:_____
_____

13. Do you have a septic system? Yes ☐ No ☒ Not used ☐ Unknown ☐

14. Do you have standing water outside your home (pond, ditch, swale)? Yes ☐ No ☒

Basement Description, please check appropriate boxes.
If you do not have a basement go to question 23.

15. Is the basement finished ☐ or unfinished ☒?
16. If finished, how many rooms are in the basement?_____
How many are used for more than 2 hours/day?_____
17. Is the basement floor (check all that apply) concrete ☒, tile ☐, carpeted ☐, dirt ☐, other☐(describe)_____?
18. Are the basement walls poured concrete ☐, cement block ☒, stone ☐, wood ☐, brick ☐, other☐_____?
19. Does the basement have a moisture problem (check one only)?
Yes, frequently (3 or more times/yr) ☐
Yes, occasionally (1-2 times/yr) ☐
Yes, rarely (less than 1 time/yr) ☐
No ☒

20. Does the basement ever flood (check one only)?
Yes, frequently (3 or more times/yr) ☐
Yes, occasionally (1-2 times/yr) ☐
Yes, rarely (less than 1 time/yr) ☐
No ☒

21. Does the basement have any of the following? (check all that apply) Floor cracks ☐, Wall cracks ☐, Sump ☐, Floor drain ☒, Other hole/opening in floor ☐
(describe)_____

22. Are any of the following used or stored in the basement (check all that apply)
Paint ☒ Paint stripper/remover ☐ Paint thinner ☒
Metal degreaser/cleaner ☐ Gasoline ☐ Diesel fuel ☐ Solvents ☐ Glue ☐
Laundry spot removers ☒ Drain cleaners ☒ Pesticides ☐

23. Have you recently (within the last six months) done any painting or remodeling in your home? Yes ☐ No ☒
If yes, please specify what was done, where in the home, and what month:
_____
_____

24. Have you installed new carpeting in your home within the last year? Yes ☐ No ☒
If yes, when and where?_____

25. Do you regularly use or work in a dry cleaning service (check only one box)?
Yes, use dry-cleaning regularly (at least weekly) ☐
Yes, use dry-cleaning infrequently (monthly or less) ☐
Yes, work at a dry cleaning service ☐
No ☒

26. Does anyone in your home use solvents at work?
Yes ☐ If yes, how many persons_____
No ☒ If no, go to question 28

27. If yes for question 26 above, are the work clothes washed at home? Yes ☐ No ☐

28. Where is the washer/dryer located?
Basement ☐
Upstairs utility room ☐
Kitchen ☐
Garage ☐
Use a Laundromat ☐
Other, please specify ☒ wash at other home

29. If you have a dryer, is it vented to the outdoors? Yes ☐ No ☐

30. What type(s) of home heating do you have (check all that apply)
Fuel type: Gas ☒, Oil ☐, Electric ☐, Wood ☐, Coal ☐, Other_____
Heat conveyance system:
Forced hot air ☒
Forced hot water ☐
Steam ☐
Radiant floor heat ☐
Wood stove ☐
Coal furnace ☐
Fireplace ☐
Other_____

31. Do you have air conditioning? Yes ☒ No ☐. If yes, please check the appropriate type(s)
Central air conditioning ☒
Window air conditioning unit(s) ☐
Other ☐, please specify _____

32. Do you use any of the following? Room fans ☒, Ceiling fans ☒, Attic fan ☐
Do you ventilate using the fan-only mode of your central air conditioning or forced air heating system? Yes ☐ No ☒

33. Has your home had termite or other pesticide treatment: Yes ☐ No ☒ Unknown ☐
If yes, please specify type of pest controlled, _____
and approximate date of service _____

34. Water Heater Type: Gas ☒, Electric ☐, By furnace ☐, Other ☐ _____
Water heater location: Basement ☒, Upstairs utility room ☐, Garage ☐, Other ☐ (please describe) _____

35. What type of cooking appliance do you have? Electric ☒, Gas ☒, Other ☐ _____

36. Is there a stove exhaust hood present? Yes ☒ No ☐
Does it vent to the outdoors? Yes ☐ No ☒

37. Smoking in Home:
None ☒, Rare (only guests) ☐, Moderate (residents light smokers) ☐,
Heavy (at least one heavy smoker in household) ☐

38. If yes to above, what do they smoke?
Cigarettes ☐ Cigars ☐
Pipe ☐ Other ☐

39. Do you regularly use air fresheners? Yes ☒ No ☐

40. Does anyone in the home have indoor home hobbies of crafts involving: None ☒
Heating ☐, soldering ☐, welding ☐, model glues ☐, paint ☐, spray paint, wood finishing ☐, Other ☐ Please specify what type of hobby: _____
_____

41. General family/home use of consumer products (please circle appropriate): Assume that **Never** = never used, **Hardly ever** = less than once/month, **Occasionally** = about once/month, **Regularly** = about once/week, and **Often** = more than once/week.

Product	Frequency of Use				
Spray-on deodorant	(Never)	Hardly ever	Occasionally	Regularly	Often

Aerosol deodorizers	Never	Hardly ever	Occasionally	Regularly	Often
Insecticides	Never	Hardly ever	Occasionally	Regularly	Often
Disinfectants	Never	Hardly ever	Occasionally	Regularly	Often

(Question 41, continued)

Product	Frequency of Use				
Window cleaners	Never	Hardly ever	Occasionally	Regularly	Often
Spray-on oven cleaners	Never	Hardly ever	Occasionally	Regularly	Often
Nail polish remover	Never	Hardly ever	Occasionally	Regularly	Often
Hair sprays	Never	Hardly ever	Occasionally	Regularly	Often

42. Please check weekly household cleaning practices:
Dusting ☒
Dry sweeping ☑
Vacuuming ☑
Polishing (furniture, etc) ☐
Washing/waxing floors ☐
Other ☐ _____

43. Other comments: _____

Pt. No.			Elev., ft	Boring
1576	305590.5	2797450	1120.029	SB 7
1575	300272.9	2797665	1064.603	SB 8
1574	295023.2	2797958	1068.55	SB 9
1572	289752.7	2798240	1060.438	SB10
1573	284459.9	2798545	1088.205	SB11
1568	279190.7	2798876	1029.3	SB12
1567	274029.7	2799162	1047.421	SB13
1566	263445.5	2799786	1124.056	SB15
1549	258146.7	2800150	1128.918	SB16
1548	255525.8	2800340	1073.557	SB17
1547	252917.2	2800535	1058.284	SB18
1546	247607.5	2800844	1035.295	SB19
1516	242396.3	2801058	1028.131	SB20
1515	230869.8	2804082	912.428	SB24
1514	226746.4	2807016	919.064	SB25
1513	221739.5	2810637	909.475	SB26
1446	217998.9	2813280	951.771	SB27
1444	217174.4	2826091	896.432	SB31
1443	217241.6	2827691	898.703	SB32
1442	211848.8	2827954	925.03	SB33
1441	206581.1	2828225	1035.545	SB34
1440	201257.8	2828495	1060.172	SB35
1439	201529.5	2833279	961.883	SB36
1438	201918.1	2839983	981.286	SB37
1437	197366.9	2851991	1005.759	SB40
1433	193135.7	2857530	970.326	SB41
1431	191026.9	2860292	1027.467	SB42
1428	188884	2863094	1037.716	SB43
1427	187173.8	2865325	1070.784	SB44
1426	184332.3	2868557	952.589	SB45
1425	179352	2874115	1074.101	SB46
1422	172416.1	2883770	1096.788	SB48
1421	170141.6	2890572	1050.739	SB50
1420	170414.6	2895871	957.416	SB51
1445	217036.2	2820999	902.069	SBRR1
1512	219311.5	2812360	943.965	SBRR3

OPPD MTP-NT

SOIL BORING LOCATIONS WITH REROUTE LOCATIONS

NAD83

10/8/2013

STATE PLANE 2600 NEBRASKA

BORING LOCATION	Plan Comment	X EASTING	Y NORTHING	DEADEND/ TANGENT	PRIVATE LAND (ROE NEEDED)	BORING DEPTH (ft)
1	SB1	2811422.320	314203.060	Deadend	NO	70
2	SB2	2809339.940	313862.300	Deadend	YES	50
3	SB3	2804634.570	313716.451	Tangent	YES	40
4	SB4	2799540.960	313420.730	Tangent	NO	40
5	SB5	2797456.770	313290.840	Deadend	YES	70
6	SB6	2797559.032	310849.074	Tangent	YES	50
7	SB7	2797440.520	305590.120	Tangent	NO	50
8	SB8	2797664.160	300273.380	Tangent	NO	40
9	SB9	2797957.810	295022.780	Tangent	NO	40
10	SB10	2798239.430	289752.970	Tangent	NO	40
11	SB11	2798566.350	284458.060	Tangent	NO	40
12	SB12	2798876.040	279194.030	Tangent	NO	40
13	SB13	2799161.800	274029.420	Tangent	NO	40
14	SB14	2799304.470	269085.820	Deadend	YES	70
15	SB15	2799786.480	263445.260	Tangent	NO	40
16	SB16	2800150.130	258146.830	Tangent	NO	40
17	SB17	2800340.460	255525.740	Tangent	NO	40
18	SB18	2800535.370	252917.110	Tangent	NO	40
19	SB19	2800844.210	247607.450	Tangent	NO	40
20	SB20	2801058.160	242396.180	Tangent	NO	40
21	SB21	2801314.210	237096.200	Deadend	YES	70
22	SB22	2803898.650	237223.680	Deadend	YES	70
23	SB23	2804057.855	233894.444	Tangent	YES	40
24	SB24	2804081.640	230869.920	Deadend	NO	70
25	SB25	2807016.540	226746.470	Tangent	NO	40
26	SB26	2810636.830	221739.390	Tangent	NO	40
27	SB27	2813279.700	217998.700	Deadend	NO	70
28	SB28	2815404.160	219439.090	Deadend	YES	70
29	SB29	2820637.170	219678.970	Deadend/Tangent	NO	70
30	SB30	2825959.180	219921.510	Deadend	YES	70
31	SB31	2826093.260	217177.340	Deadend	NO	70
32	SB32	2827691.000	217241.700	Deadend	NO	70
33	SB33	2827953.660	211848.750	Tangent	NO	40
34	SB34	2828224.720	206581.090	Tangent	NO	40
35	SB35	2828494.920	201257.900	Deadend	NO	70
36	SB36	2833279.100	201529.610	Tangent	NO	40
37	SB37	2839983.400	201918.040	Tangent	NO	40
38	SB38	2846643.200	202256.770	Deadend	YES	70
39	SB39	2846724.060	201378.450	Deadend	YES	70
40	SB40	2851991.260	197366.850	Tangent	NO	40
41	SB41	2857529.870	193135.730	Tangent	NO	40
42	SB42	2860289.820	191026.420	Tangent	NO	40
43	SB43	2863093.600	188883.850	Tangent	NO	40
44	SB44	2865325.210	187173.760	Deadend	NO	70
45	SB45	2868556.530	184332.150	Tangent	NO	40
46	SB46	2874114.850	179352.050	Tangent	NO	40
47	SB47	2878259.520	175650.880	Deadend	YES	70
48	SB48	2883770.580	172416.080	Tangent	NO	40
49	SB49	2887609.290	169979.740	Deadend	YES	70
50	SB50	2890571.940	170141.630	Tangent	NO	40
51	SB51	2895871.190	170414.530	Tangent	NO	40
52	SB52	2898698.157	170558.402	Tangent	YES	40
53	RR Bor-1	2820995.966	217056.811	Deadend	NO	70
54	RR Bor-2	2845701.132	202166.863	Deadend	YES	70
55	RR Bor-3	2812314.972	219311.882	Deadend	NO	70