Vapor Intrusion Characterization Report

Former Chamberlain Manufacturing Corporation

550 Esther Street

Waterloo Iowa

EPA Docket Nos.

RCRA-07-2010-002

CERCLA-07-2010-0005

July 5, 2011

Terracon Project No. 07107020

Prepared for:

Chamberlain Manufacturing Corporation

Elmhurst, Illinois

Prepared by:

Terracon Consultants, Inc.

Bettendorf, Iowa

Terracon

July 5, 2011

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

Attention: Mr. Bruce Morrison

Re: Vapor Intrusion Characterization Report
Former Chamberlain Manufacturing Corporation
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 revised Vapor Intrusion Characterization Report (VIC Report) for activities in conjunction with the site referenced above. The VIC Report presents results of activities related to the installation of sub-slab vapor sampling points and the collection and analysis of sub-slab vapor, indoor air, and ambient air samples.

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

Sincerely,
Terracon Consultants, Inc.

John F. Brimeyer, PE
Environmental Manager

for John B. Sallman, PG
Principal

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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
HASP	Health and Safety Plan
MDL	Method Detection Limit
$\mu g/m^3$	micrograms per cubic meter
NELAC	National Environmental Laboratory Accreditation Conference
PCE	Tetrachloroethene (or Perchloroethene)
PID	Photoionization Detector
ppm	parts per million
Property	Chamberlain Manufacturing site
QA	Quality Assurance
QAM	Quality Assurance Manual
QAPP	Quality Assurance Project Plan
QC	Quality Control
RCRA	Resource Conservation and Recovery Act
RPD	Relative Percent Difference
SOP	Standard Operating Procedure
SOW	Statement of Work
TCE	Trichloroethene
TestAmerica	TestAmerica, Inc.
TSOP	Terracon Standard Operating Procedure
UAO	Unilateral Administrative Order
USEPA	United States Environmental Protection Agency
VIC	Vapor Intrusion Characterization
VIIM	Vapor Intrusion Interim Measures
VOC	Volatile Organic Compound

Terracon

VAPOR INTRUSION CHARACTERIZATION REPORT
FORMER CHAMBERLAIN MANUFACTURING CORPORATION
550 ESTHER STREET
WATERLOO, IOWA

Project No. 07107020
July 5, 2011

1.0 INTRODUCTION

Terracon has prepared this VIC Report to evaluate the results of vapor intrusion characterization activities conducted in accordance with VIC Work Plan dated May 20, 2010 and revised October 14, 2010. The VIC Work Plan was approved with modifications by the USEPA on January 6, 2011[1]. The intent of the VIC Work Plan was to evaluate the potential existence of a vapor pathway in off-site areas related to shallow groundwater contamination from the former Chamberlain Manufacturing facility. This VIC 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 I of the SOW attached to the UAO. Capitalized terms not defined herein have the definitions set for the in the UAO or the SOW.

The vapor intrusion characterization activities were completed in accordance with USEPA and other applicable guidance including, but not limited to:

- CalEPA (California Environmental Protection Agency). 2004. *Guidance for the Evaluation and Mitigation of Subsuface Vapor Intrusion to Indoor Air*. Interim Final. Department of Toxic Substances Control. Sacramento, CA. (Revised February 7, 2005) ("California Guidance")
- ITRC (The Interstate Technology & Regulatory Council). 2007. *Vapor Intrusion Pathway: A Practical Guideline*. Vapor Intrusion Team. Washington, DC. ("ITRC Guidance")
- U.S. EPA. 2002. *Draft Guidance for Evaluating the Vapor Intrusion to Indoor Air Pathway From Groundwater and Soils (Subsurface Vapor Intrusion Guidance)*. Office of Solid Waste and Emergency Response, Washington, DC.
- U.S. EPA. 2008: *US. EPA's Vapor Intrusion Database: Preliminary Evaluation of Attenuation Factors*. Draft. Office of Solid Waste, Washington, DC.
- U.S. EPA "Development of a Sub-Slab Gas Sampling Protocol to Support Assessment of Vapor Intrusion." (http://www.epa.gov/ahaazvuc/research/waste/research_40.pdf.)

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[1] *We understand that the USEPA is currently considering amendments to the VIC Work Plan. The activities described in this VIC Report were completed prior to amendments incorporated after January 6, 2011.*

1.1 Site Conditions

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

Chamberlain Manufacturing produced 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 warehousing facility. The City acquired the Property from Atlas Warehouse L.C in 2005 in an effort to facilitate redevelopment and has demolished the buildings on the Property.

The Property is zoned Heavy Industrial (M-2) by the City. The Property 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 Property at its closest point. Gates Park adjoins the Property 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 Property. 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 to the south and west. Site assessment activities were not completed due to funding restrictions of the Brownfields Grant program.

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

To further evaluate the vapor intrusion pathway, the USEPA conducted sub-slab vapor sampling of selected residences in November 2008. Due to problems with the sampling and analysis equipment, the sampling activities were repeated in April/May 2009. Sub-slab 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 sub-slab vapor screening levels in seven of the ten residences sampled. The elevated concentrations were generally located within the 2200, 2300, and 2400 blocks of East 4th Street.

1.3 Project Objectives

The objective of the VIC Report is to evaluate the nature and extent of sub-slab soil gas impact in residential areas adjoining the Property to the south and west. Results of sub-slab vapor sampling will be used to evaluate the need for vapor intrusion interim measures and corrective actions.

2.0 SCOPE OF SERVICES

The VIC Report for the area south and west of the Property evaluates the potential vapor intrusion pathway. Activities included the installation of sub-slab vapor sampling ports and the collection of sub-slab vapor samples. In addition, indoor air samples and corresponding ambient air samples were collected at representative locations.

2.1 Study Area

Sub-slab soil gas sampling and analysis began with those homes within the limits identified in the SOW, Exhibit 2, included as Figure 3, Appendix A. The area identified includes approximately 72 Residences. The ten homes sampled by the USEPA in April/May 2009 are included in the study area and were offered the opportunity to be resampled for a consistent baseline.

2.2 Sampling Activities

2.2.1 Site Access

Prior to site mobilization, the names and addresses for those Residences within the limits identified on Figure 3 were obtained from a review of City of Waterloo directory and the Blackhawk County Real Estate Mapping website. Based on a review of the city directory and county website records, it was determined that 29 of the 72 Residences were rental properties. Each identified property owner and resident was sent a certified letter explaining the availability of the vapor sampling program, details concerning the procedures to be followed, schedule of proposed activities, and availability of results. A Sampling Request Form and a standard Terracon Access Agreement were included with the letters. Copies of the letter, Sampling Request Form, and Terracon Access Agreement for owner-occupied Residences and for renter-occupied Residences are included as Appendix C. A spreadsheet identifying the 72 Residences and the owners and occupants of each was provided to the USEPA on March 30, 2011. A copy of the spreadsheet is also included in Appendix C.

Terracon received responses from 21 owner-occupied Residences and 12 renter-occupied Residences. Each owner and renter submitting a response was contacted in an attempt to

schedule site visits for vapor characterization activities or to obtain fully completed Sampling Request Forms and Access Agreements from both the property owner and the renter. Sampling activities were completed at 17 owner-occupied Residences and 6 renter-occupied Residences. Sampling activities were not completed at responding Residences due to the following reasons:

- Fully completed Sampling Request Forms and Access Agreements not received from both the property owner and the renter (4 renter-occupied Residences)
- Residence was withdrawn from the program either voluntarily or due to conditional requests (2 owner-occupied Residences and 1 renter-occupied Residence)
- Occupants could not be reached to schedule sampling activities (2 owner-occupied Residences)
- Occupants were not available at the scheduled sampling time (1 renter-occupied Residence)

2.2.2 Sampling Questionnaire and Site Observations

Upon arrival at the Residence, Terracon conducted an interview with the occupant to allow for completion of the Occupied Dwelling Questionnaire, intended to document the presence/absence and use of household products containing VOCs. Observations were made to document the location of features including, but not limited to furnaces, water heaters, chimneys, and floor drains and the physical characteristics of the home being sampled including, but not limited to the type of foundation and its integrity.

An Arrival Checklist was completed by Terracon and signed by the occupant following each visit to the Residence. The purpose of the Arrival Checklist was to document proper completion of procedural activities including presentation of Terracon identification, confirmation of occupant's identity, explanation of purpose of the site visit, and discussion of follow-up activities.

2.2.3 Sub-slab Soil Gas, Indoor Air, and Ambient Air Sampling

Sub-slab soil gas sampling was conducted at each of the 23 Residences included in the sampling program. Indoor air sampling and ambient air sampling were conducted at randomly selected Residences included in the sampling program and at each of the Residences included in the sampling program in which the detected concentration of TCE or PCE exceeded the screening level in the April/May 2009 sampling event. Duplicate sample locations were also collected.

Terracon sampling teams arrived at the Residences at the appointed time. After introductions, one member of the sampling team completed the Occupied Dwelling Questionnaire with the occupant. The remaining member of the sampling team proceeded with the installation of the sub-slab sampling port. 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.

After allowing the sub-slab sampling port to cure for at least 48-hours, Terracon returned to the Residence to conduct sampling activities. If the Residence was not scheduled for indoor air sampling, sub-slab soil gas sampling was completed. If the Residence was scheduled for indoor air sampling, indoor air sampling equipment was placed in the designated sampling location and sampling was initiated and a follow-up site visit was scheduled for the following day. After allowing indoor air sampling to proceed for at least 24-hours, Terracon returned to the Residence to collect indoor air sampling equipment and to complete sub-slab soil gas sampling. Ambient air sampling, if scheduled, was conducted concurrently with indoor air sampling to document outdoor levels of VOCs during sampling activities.

An Indoor Air Sampling Canister Installation Checklist was completed by Terracon and signed by the occupant following completion of canister placement. The purpose of the Indoor Air Sampling Canister Installation Checklist was to document proper completion of procedural activities including verification that doors and windows had not been opened for a 24-hour period prior to sampling, identification of sample canister placement with the concurrence of the occupant, explanation of precautions to be taken during sample collection, and arranging for the follow-up visit.

Meteorological conditions were documented during sampling activities.

Copies of the completed Occupied Dwelling Questionnaire are included as Appendix D. Copies of completed field forms including the Soil Vapor/Indoor Air Sampling Information Form and field checklists are included as Appendix E.

2.3 Health and Safety

Terracon prepared a HASP for the sampling activities. Personnel installing sampling ports wore a USEPA Level D work uniform consisting of safety glasses and protective gloves.

2.4 Site Access Protocol

Terracon notified the Occupants at least 48 hours in advance of the start of assessment activities. City staff were notified of pending activities to give them an opportunity to prepare for possible inquiries from residents and to observe sampling activities. Issues regarding access to assessment locations were not encountered during sampling activities.

3.0 METHODOLOGIES

Project activities were completed in accordance with the USEPA-approved QAPP, Revision 1 dated August 18, 2006, QAPP Addendum dated August 2, 2010, and relevant TSOPs. The following TSOPs were used during the assessment.

Table 3-1 Terracon Standard Operating Procedures

REFERENCE NO.	TITLE OF PROCEDURE
E.10	Project Mobilization
E.20	Standard Safe Operating Procedures for Hazardous Waste Operations
E.30	Chain of Custody Documentation
E.50	Sampling – Environmental Representativeness
E.554	Field Screening – Air / Photoionization Detector
E.2210	General
E.2220	Disposal of Spent Supplies
E.2230	Handling and Storage of Drill Cuttings (Non-Hazardous)
E.2240	Site Security Procedures
E.2405	Cleaning - General
E.2410	Cleaning - Manual Washing

As described in Section 1.5.3 of the QAPP, specific work scopes may require variation of TSOP procedures following relevant state and federal guidance, technical standards, or manufacturer specifications not outlined under a specific TSOP. Accordingly, the following non-TSOPs were incorporated into the VIC Work Plan and were used as a part of characterization activities.

3.1 Sampling Port Installation

Sub-slab soil gas samples were collected via a hollow steel sleeve installed through the concrete floor slab. The sub-slab inserts were constructed from a 1-inch outer diameter by 4-inches long cylindrical blank. The steel blanks were hollowed out to allow for the passage of sub-slab soil gas from beneath the floor slab into the sampling apparatus. The top of the sub-slab insert consisted of a threaded set-screw style cap and rubber O-ring that allows for a flush mounted installation and sealing of insert. Sub-slab inserts also had a one-eighth inch diameter rod welded vertically on their exterior to prevent the insert from spinning loose after the installation process.

Upon arrival at the Residence, Terracon observed the basement area to identify a location for installation of the sampling port. Terracon attempted to identify an unobtrusive location in an interior portion of the basement that was not near possible migration pathways such as floor drains, separated floor cracks, unsealed pipe penetrations, or sump pump pits. Pertinent observations were documented on a Soil Vapor/Indoor Air Sampling Information Form and photographs of the port location, before and after installation, were taken. Photographs of installed sample ports are provided in Appendix F.

Sub-slab inserts were thoroughly cleaned before installation to remove any residues and contaminants left over from the fabrication processes. The inserts were installed in holes drilled through the concrete floor slab using a 1½-inch diameter carbide masonry bit and a rotary hammer drill. The hole was advanced completely through the concrete floor slab. Silica sand was used to backfill the hole and obtain the proper level for the insert to be flush mounted. A small piece of wire mesh screen was placed between the silica sand and insert to prevent silica sand from entering the insert interior. Additional silica sand was placed around the insert to stabilize the insert in the hole for the remaining installation process. The remaining annular space around the insert was filled to the concrete surface using neat Portland cement. The Portland cement was mixed with water until a paste consistency was obtained. The Portland cement was then placed into the annular space and finished as a flush mounted unit.

The sampling port installation was completed in accordance with the USEPA-approved QAPP Addendum dated August 2, 2010 and consistent with the USEPA guidance.

3.2 Sub-Slab Vapor Sampling

Sub-slab vapor sampling was conducted in accordance with the ITRC Guidance. The set screw of the flush mounted insert was removed using an Allen wrench. A threaded nipple with Teflon tubing was screwed into the flush mounted sub-slab insert. A syringe was connected to the Teflon tubing and used to purge approximately two volumes of soil gas from the sub-slab soil gas sampling point.

The sample was collected by attaching the top end of the tubing to a six-liter Summa canister equipped with a 200 cubic centimeter per minute flow control and vacuum gauge. The vacuum in the Summa canister before and after sampling was recorded on the information form. The valve of the Summa canister was opened and the sub-slab soil gas allowed to flow into the Summa canister for a period of 30-minutes. The vacuum gauge was monitored to check progress of the canister filling. The Summa canister valve was then closed and the Summa canister was submitted for laboratory analysis. Sample collection was completed prior to the full dissipation of vacuum on the summa canisters.

Based on a review of port installation and sampling procedures, it was determined in the field that excessive moisture or dust was not anticipated during sampling activities. As such, an in-line paper filter/moisture trap was not used.

After the soil gas sample was collected, a photo-ionization detector was connected to the tubing to measure the organic vapor concentration. A Soil Vapor/Indoor Air Sampling Information Form indicating project information, equipment identifiers, sample location, sample time, etc. was completed for each soil gas sample. A COC was also filled out indicating the sample identification, sampling time, equipment identifiers, and soil organic vapor reading. The canisters were then transported to the laboratory.

Sub-slab vapor samples were collected from each Residence that granted access, responded to Terracon's request to schedule sampling activities, and was available at the scheduled time within the limits of the area identified.

3.3 Indoor Air Sampling

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

In accordance with the USEPA approval letter dated January 6, 2011, indoor air sampling was conducted in the basement and in the lowest occupied living area of each Residence. For Residences with finished family rooms and/or bedrooms in the basement, the basement was determined to be the lowest occupied level. Upon arrival at the Residence, Terracon observed the basement and first floor areas to determine the number of samples required, per the USEPA approval letter, and the sample locations. Terracon attempted to identify unobtrusive locations in interior portions of the basement and first floor that were not near possible migration pathways such as exterior doors or windows, floor drains, separated floor cracks, unsealed pipe penetrations, or sump pump pits. Pertinent observations were documented on a Soil Vapor/Indoor Air Sampling Information Form and photographs of the sample location were taken.

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

Once sampling locations were selected, Terracon air sampling forms (project information, equipment identifiers, sample location, and start time) were filled out and attached to the canisters. A Soil Vapor/Indoor Air Sampling Information Form indicating project information, equipment identifiers, sample location, sample time, initial and final vacuum readings, etc. was completed for each indoor air sample. A COC was completed indicating the start time for the samples.

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

Indoor air sampling was conducted in one Residence for every ten Residences at which sub-slab vapor samples collected from those Residences granting access. Residences identified for indoor

air sampling were randomly determined using the Random function of Microsoft Excel®, except that efforts were made to uniformly distribute selected locations across the study area. If application of the Random function resulted in multiple indoor air samples distributed across a small portion of the study area, the Random function was reran to produce a more uniform distribution across the entire area.

Indoor air sampling was also conducted at those Residences included in the sampling program in which the detected concentration of TCE or PCE exceeded the screening level in the April/May 2009 sampling event. The Residences selected for resampling were in addition to the one Residence for every 10 homes as noted previously.

3.4 Ambient Air

Ambient (outdoor) air samples were collected simultaneously with the indoor air samples over a 24-hour period. The sample locations for ambient air sampling were randomly determined from the group of indoor air sample locations using the Random function of Microsoft Excel®. Ambient air samples were not collected near buildings or large trees. Following set-up of indoor air samples, Terracon observed exterior areas at the Residence to identify locations for collecting the ambient air sample.

A Soil Vapor/Indoor Air Sampling Information Form indicating project information, equipment identifiers, sample location, sample time, initial and final vacuum readings, etc. was completed for each ambient air sample. A COC was completed indicating the start time for the samples.

The samples were collected using individually-certified 6-liter Summa canisters with 24-hour flow controllers. Once a sampling location was selected, a Terracon air sampling form (project information, equipment identifiers, sample location, and start time) was filled out and attached to the canister. The inlet to the flow controllers were positioned between 3 and 5 feet above the ground surface. Raincaps were positioned over the canisters and flow controller inlets to protect them from weather conditions and the canisters were secured in place.

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

Three ambient air samples were collected in conjunction with sub-slab vapor and indoor air sampling activities.

4.0 ANALYTICAL RESULTS

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

Laboratory procedures were performed by TestAmerica, Knoxville, Tennessee. TestAmerica is NELAC accredited for the laboratory methods referenced above. The laboratory QAM is on file with the USEPA. A copy of the SOPs for the specified method was included as Appendix F of the VIC Work Plan. The TestAmerica data is reported in accordance with the QAM and SOP. Copies of the laboratory analytical reports are included in Appendix G

4.1 Field Screening

Terracon conducted field screening of sub-slab soil gas and ambient air in conjunction with sub-slab soil gas sampling using a PID. This device provides a direct reading in ppm. The PID is a nonspecific total vapor detector and cannot be used to identify unknown substances; it can only roughly quantify for total volatiles present in the air. Terracon gas-calibrated the PID in accordance with the manufacturer's recommendations before the field activities. After connecting the Summa canister to the sub-slab sample port and allowing the instrument to stabilize, Terracon screened the ambient air in the basement using the PID equipped with a 10.2 eV ultraviolet lamp source. Following completion of sub-slab sampling, Terracon disconnected the Summa canister from the sample tubing and connected the PID to screen sub-slab soil gas for organic vapors. The field screening results for each sub-slab sample are included on the Soil Vapor/Indoor Air Sampling Information Form and are summarized on Table 1, Appendix B.

4.2 Laboratory Analysis

4.2.1 Screening Levels

Table 1A1 of the Statement of Work from the Unilateral Administrative Order for the Chamberlain Manufacturing Site (Docket No. RCRA-07-2010-002 and CERCLA-07-2010-005) identifies applicable screening levels for comparison of sub-slab and analytical results. These screening levels are presented in Table 4-1 below.

Table 4-1 Interim Measures Screening Levels

Contaminant	Indoor Air Screening Level ($\mu g/m^3$)[1]	Sub-Slab Vapor Screening Level ($\mu g/m^3$)[2]	Analytical Detection Limit ($\mu g/m^3$)
Perchloroethene	0.41 c[3]	4.1	0.540
Trichloroethene	1.2 c	12	0.215

Contaminant	Indoor Air Screening Level ($\mu g/m^3$)[1]	Sub-Slab Vapor Screening Level ($\mu g/m^3$)[2]	Analytical Detection Limit ($\mu g/m^3$)
Vinyl Chloride	0.16	1.6	0.204
Trans-1,2-Dichloroethene	63 n[4]	630	0.317
Cis-1,2-Dichloroethene[5]	63 n	630	0.317
1,1-Dichloroethene	210 n	2,100	0.317
1,1-Dichloroethane	1.5 c	15	0.324
1,1,1-Trichloroethane	5,200 n	52,000	0.436
1,1,2-Trichloroethane	0.15 c	1.5	0.360

[1] – Residential Indoor Screening Levels obtained from Regional Screening Table (USEPA 2009).
[2] – Sub-slab vapor screening level = (Residential Indoor Screening Levels)/α.
[3] – c – based on 10^{-6} carcinogenic health effects.
[4] – n – based on non-carcinogenic health effects.
[5] – Trans-1,2-Dichloroethene is used as a surrogate compound for cis-1,2-Dichloroethene.

4.2.2 Laboratory Reporting Limits and Non-Detect Values

Laboratory technology cannot detect to concentrations of zero. As acknowledged by the USEPA, analytical methods dictate Analytical Detection Limits as the lower limit to which the procedures can accurately and repeatedly "see" a designated compound. The Analytical Detection Limit is a minimum concentration of a substance that can be measured and reported with 99% confidence that the compound concentration is greater than zero. The Analytical Detection Limit is determined from analysis within the given matrix of the sample and affected by matrix materials and/or other compounds within the matrix. The Indoor Air Screening Level for PCE, 1,1,2-trichloroethane, and vinyl chloride are less than the Analytical Detection Limit for these compounds. The USEPA has approved the use of the Analytical Detection 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.

4.3 Sampling Program

Terracon collected sub-slab soil gas, indoor air, and ambient air samples for laboratory analysis in accordance with procedures established in the VIC Work Plan. Residences included in the sampling program are identified on Figure 3, Appendix A. Table 4-2 summarizes the sampling and analysis completed for each Residence.

Table 4-2 Summary of Sampling Program

Property ID	Address	Sub-Slab Soil Gas	Indoor Air	Ambient Air
4	322 E. Arlington St.	x	x	x
6	401 E. Arlington St.	x		

Property ID	Address	Sub-Slab Soil Gas	Indoor Air	Ambient Air
10	211 Boston Ave.	x		
13	216 Boston Ave.	x		
15	223 Boston Ave.	x		
17	227 Boston Ave.	x		
20	236 Boston Ave.	x		
21	239 Boston Ave.	x		
22	240 Boston Ave.	x		
28	302 Boston Ave.	x		
33	326 Boston Ave.	x	x	
37	2221 E. 4th St.	x		
38	2227 E. 4th St.	x	x	
39	2233 E. 4th St.	x		
40	2237 E. 4th St.	x	x	x
45	2413 E. 4th St.	x	x	
46	2417 E. 4th St.	x	x	x
47	2421 E. 4th St.	x		
48	2427 E. 4th St.	x	x	
56	2600 E. 4th St.	x		
60	2614 E. 4th St.	x		
62	2620 E. 4th St.	x		
67	2635 E. 4th St.	x		
72	2646 E. 4th St.	Not completed	Not completed	

[1] – Sample port installation was completed; however, occupant was not available to complete sampling.

4.4 Analytical Results

4.4.1 Sub-Slab Soil Gas Sampling

Sub-slab soil gas samples were collected in 23 Residences. The reported concentrations of PCE and TCE exceeded the sub-slab screening level in samples collected from eight of the Residences. The reported concentration of PCE exceeded the sub-slab screening level in samples collected from three additional Residences. The maximum reported PCE and TCE concentrations were 140 $\mu g/m^3$ and 6,000 $\mu g/m^3$, respectively.

The reported concentrations of the remaining contaminants of concern did not exceed sub-slab screening levels in the 11 Residences exhibiting PCE or TCE exceedences. The reported concentrations of the contaminants of concern did not exceed sub-slab screening levels in the remaining 12 Residences.

The screening levels are based on a health risk of 10^{-6} for carcinogenic compounds and a hazard quotient of 1 for non-carcinogenic compounds. Dividing the reported concentration of a

compound by the screening level and multiplying by 10^{-6} results in a health risk for that compound. The reported concentration of TCE in sub-slab samples collected at 322 East Arlington, 302 Boston Avenue, and 2413 East 4th Street resulted in a health risk of greater than 10^{-4}. The reported concentration of PCE in sub-slab samples collected at these three Residences resulted in a health risk of greater than 10^{-6} but less than 10^{-4}. The reported concentration of PCE and/or TCE in sub-slab samples collected at 236 Boston Avenue, 240 Boston Avenue, 326 Boston Avenue, 2221 East 4th Street, 2227 East 4th Street, 2237 East 4th Street, 2417 East 4th Street, and 2427 East 4th Street resulted in a health risk of greater than 10^{-6} but less than 10^{-4}. Health risk calculations are summarized in Table 4-3.

Table 4-3 Health Risk Summary

Residence	PCE Concentration (mg/m3)	Health Risk	TCE Concentration (mg/m3)	Health Risk
322 E. Arlington St.	41	1.00E-04	1300	1.08E-03
236 Boston Ave.	4.5	1.10E-05	8.3	6.92E-06
240 Boston Ave.	13	3.17E-05	25	2.08E-05
302 Boston Ave.	120	2.93E-04	6000	5.00E-03
326 Boston Ave.	11	2.68E-05	61	5.08E-05
2221 E. 4th St.	28	6.83E-05	3.3	2.75E-06
2227 E. 4th St.	130	3.17E-04	0.08	6.67E-08
2237 E. 4th St.	13	3.17E-05	99	8.25E-05
2413 E. 4th St.	36	8.78E-05	5700	4.75E-03
2417 E. 4th St.	29	7.07E-05	1100	9.17E-04
2427 E. 4th St.	15	3.66E-05	89	7.42E-05
Sub-Slab Screening Level	4.1		12	

Results of sub-slab soil gas sampling are depicted on Figure 4, Appendix A. Analytical results are presented in Table 1, Appendix B. Copies of laboratory analytical reports are provided in Appendix G.

4.4.2 Indoor Air Sampling

Indoor air samples were collected in seven Residences including two Residences based on 10% of sub-slab sampling and five Residences based on previous screening level exceedances. The reported concentrations of PCE exceeded the indoor air screening level in samples collected from three of the Residences and the reported concentration of TCE exceeded the sub-slab screening level in samples collected from one of the Residences. The maximum reported PCE and TCE concentrations were 2.5 $\mu g/m^3$ and 2.1 $\mu g/m^3$, respectively.

The reported concentrations of the remaining contaminants of concern did not exceed indoor air screening levels in these four Residences. The reported concentrations of the each contaminant of concern did not exceed sub-slab screening levels in the remaining three Residences.

Results of indoor air sampling are depicted on Figure 4, Appendix A. Analytical results are presented in Table 2, Appendix B. Copies of laboratory analytical reports are provided in Appendix G.

4.4.3 Ambient Air Sampling

Ambient air samples were collected at three Residences. PCE and TCE were detected in one of the samples collected at concentrations of 0.19 $\mu g/m^3$ and 0.088 $\mu g/m^3$, respectively. The reported concentrations of PCE and TCE in this sample were J-flagged indicating that the results were greater than the MDL, but lower than the laboratory reporting limit. As a result, the reported concentrations were estimated. PCE and TCE were not detected in the remaining samples collected. The remaining contaminants of concern were not detected in the samples collected.

Analytical results are presented in Table 3, Appendix B. Copies of laboratory analytical reports are provided in Appendix G.

4.5 Comparison to Interim Measures Decision Matrix

A summary of analytical results compared to screening levels is provided in Table 1 and Table 2 of Appendix B. A summary of sampling results compared to Table 2-1 of the Vapor Intrusion Interim Measures Work Plan dated October 14, 2010 and approved by the USEPA on January 6, 2010 is presented in Table 4-4 below.

Table 4-4 Interim Measures Decision Matrix

Generic Screening Levels		Indoor Air Concentrations ($\mu g/m^3$)		
		<Indoor Air Screening Level	No Indoor Air Sample	>Indoor Air Screening Level
Sub-Slab Soil Gas Concentration ($\mu g/m^3$)	< Sub-Slab Vapor Screening Level Risk ≤ 10^{-6} and Hazard Quotient ≤ 1	0	12	0
	> Sub-Slab Vapor Screening Level 10^{-6} < Risk < 10^{-4} and Hazard Quotient > 1	2	4	3
	> Sub-Slab Vapor Screening Level Risk > 10^{-4} or Hazard Quotient > 1	1	0	1

5.0 QUALITY ASSURANCE/QUALITY CONTROL

5.1 Field Documentation

Sample quality assurance and quality control was maintained during the collection of samples in the field and during transport to the laboratory as documented through the completion of field forms and COCs. The transfer of sample custody was limited between Terracon personnel, laboratory couriers, and fixed base laboratory personnel. The primary objective of custody requirements for this project was to track that samples were handled by authorized personnel and document that handling occurred within the parameters of the approved VIC Work Plan.

Following collection, samples were maintained in the custody of the field team at the site until they were delivered to the TestAmerica laboratory in Cedar Falls, Iowa at the end of each day. The samples were received at the laboratory and logged in accordance with standard laboratory protocols. Analysis of the samples was completed by the TestAmerica laboratory in Knoxville, Tennessee. Samples were transferred by overnight courier from Cedar Falls to Knoxville under standard laboratory and COC procedures. COC documentation is maintained by Terracon.

COC protocols were followed during each phase of the sample collection, storage, shipment, and analysis procedures. Maintaining the COC in the field was the responsibility of the Terracon project professional. COCs were completed for each sample immediately following completion of sample collection and before removing the samples from the Residence.

Samples collected in the field were labeled and then stored in secure locations from the time of collection through transfer to the fixed base laboratory. Soil gas and air samples were collected using laboratory prepared Summa canisters and were kept at ambient temperature. In accordance with the QAPP, samples were not required to be preserved.

Soil gas and air samples were submitted for analysis of select VOCs by EPA Method TO-15. Terracon has reviewed analytical reports and has confirmed that each sample was analyzed within the designated 14-day holding time.

A COC record accompanied each set of samples during collection and shipment. Each COC record was filled out and signed in permanent ink by a Terracon field team member conducting the sampling. The COC records include the following information: project name and number, sample designation, date and time of collection, samplers name, number of sample containers, type of matrix, analysis to be performed, signature of laboratory person(s) receiving samples, and inclusive dates / times of possession. A carbon copy or photocopy was made of the COC record at the time of delivery to the laboratory.

5.2 QA/QC Sampling

In accordance with the VIC Work Plan, duplicate samples and equipment blanks were used to monitor the quality assurance and control of the field sampling activities. The duplicate samples and equipment blanks were analyzed for VOCs. As required, at least one duplicate sample was collected per each 20 sub-slab vapor samples, each 20 indoor air samples, and each 20 ambient air samples. In addition, one equipment blank was required per 20 samples collected. A summary of QA/QC samples collected is provided in Table 5-1.

Table 5-1 QA/QC Samples

Sample Type	No. of Samples	QA/QC Type	No. of QA/QC Samples
Sub-Slab	23	Duplicate	3
Indoor Air	14	Duplicate	1
Ambient Air	3	Duplicate	1
Total Samples	40	Equipment Blank	3

5.3 Quality Control Parameters

To assess whether quality assurance objectives for this project have been achieved, the following QC parameters were considered: precision, accuracy, representativeness, comparability, completeness, and sensitivity.

5.3.1 Precision and Accuracy

As described in the QAPP, precision is evaluated using the RPD between an actual sample and a duplicate sample. Accuracy is evaluated using a percent recovery measured in spiked and unspiked samples. Accuracy is a function of the laboratory method, and parameters regarding accuracy are included in the lab report provided by the laboratory.

Duplicate samples were collected for samples SS-17, SS-38, SS-67, IA-48, and AA-40. For each compound that was detected in both samples (e.g., SS-17 and its duplicate SSD-17), Terracon compared the reported concentrations. The absolute values of the RPDs for air generally ranged from 7.4% to 38.1%; however the RPD for TCE in samples SS-38 and SSD-38 was 146.7%. Generally, an RPD of less than 50% for air samples is considered acceptable. Regarding the elevated RPD between SS-38 and SSD-38, Terracon notes that the reported TCE concentrations were 0.08 $\mu g/m^3$ and 0.52 $\mu g/m^3$, respectively. The MDL for TCE is reported as 0.075 $\mu g/m^3$. At relatively low concentrations, such as those reported for TCE in samples SS-38 and SSD-38, variations in reported sample and duplicate sample concentrations can significantly impact the RPD. Terracon has evaluated the effects of the elevated RPD and does not consider it to be indicative of a data failure, particularly considering that the RPD for PCE and 1,1,1-trichloroethane were determined to be 8.0% or less in the same samples.

Laboratory accuracy controls were documented in accordance with the laboratory's internal QA Manual. The laboratory followed USEPA procedures.

5.3.2 Representativeness

Terracon has evaluated the representativeness of the VIC activities to document the degree to which the sample data accurately and precisely represents a characteristic of a population, parameter variations at a sampling point, or an environmental condition. Review of field methods and procedures indicated that sample collection, handling, and transportation were conducted in accordance with the QAPP and VIC Work Plan. Review of analytical results indicates that the analytical data is generally uniform and consistent between sampling points and with previous sampling and analysis activities.

5.3.3 Completeness

Laboratory analysis was completed on each of the samples collected in the field and submitted for analysis. Laboratory completeness was determined to be 100%.

5.3.4 Comparability

To produce comparable data, the units specified for analytical results obtained during the field activities are consistent throughout this project and standardized analytical methods have been used for each parameter.

5.3.5 Sensitivity

The Analytical Detection Limits were not sufficient to report concentrations below the indoor air screening levels for PCE, 1,1,2-trichloroethane, and vinyl chloride. For this reason, the USEPA has approved the use of the Analytical Detection Limit as the screening level for this site.

6.0 RECOMMENDATIONS

Terracon has evaluated the results of the sampling activities in consideration of the USEPA-approved screening levels. Based on a comparison of reported sub-slab and indoor air results to their respective screening levels, supplemental actions and interim measures have been identified, consistent with the VIIM Work Plan and subject to USEPA's review and approval. Proposed actions are depicted on Figure 5, Appendix A. Follow-up activities include the following:

- No Action – Sub-slab concentrations and indoor air concentrations are less than screening levels.

- Monitor – Sub-slab concentrations are greater than screening levels and indoor air concentrations are less than screening levels

- Conduct Indoor Air Sampling - Sub-slab concentrations are greater than screening levels and indoor air samples were not collected

- Install Mitigation Systems - Sub-slab concentrations and indoor air concentrations are greater than screening levels.

6.1 No Action

The reported concentrations of sub-slab samples in 12 Residences are less than the sub-slab screening level and indoor air samples were not collected. Comparison of sub-slab sample results to indoor air sample results in Residences where both were collected demonstrates that the actual attenuation factor is on the order of 100, significantly larger than the anticipated attenuation factor of 10. Further sampling and analysis and implementation of interim measures is not warranted.

Terracon will return to these 12 residences no earlier than July 20, 2011 to remove the sub-slab sampling ports. Using hand tools, Terracon will loosen the neat Portland cement placed in the annulus of the hole to allow for removal of the insert. After removal, the hole will be augered out using a 1¼-inch diameter carbide masonry bit and a rotary hammer drill. The hole will be filled to the concrete surface using neat Portland cement and finished flush with the concrete surface.

6.2 Monitor

The reported concentrations of sub-slab samples in three Residences are greater than the sub-slab screening level and the indoor air concentrations are less than the indoor air screening level. In accordance with the approved VIIM Work Plan, Terracon proposes to monitor indoor air to demonstrate that indoor air concentrations remain below indoor air screening levels in accordance with the schedule contained in Table 7-1. If monitoring activities identify an exceedance of indoor air screening levels during any indoor air sampling event, Terracon will use the interim measures decision matrix to propose further actions.

6.3 Sample Indoor Air

The reported concentrations of sub-slab samples in four Residences are greater than the sub-slab screening level and indoor air samples were not collected. In accordance with the interim measures decision matrix, Terracon proposes to collect indoor air samples from these Residences.

Terracon proposes to return to the Residence to conduct indoor air sampling in accordance with the approved VIC Work Plan. Based on the results of sample analysis, Terracon will use the interim measures decision matrix to propose further actions.

6.4 Mitigation Systems

The reported concentrations of sub-slab samples in four Residences are greater than the sub-slab screening level and the indoor air concentrations are greater than the indoor air screening level.

Based on a review of the completed Occupied Dwelling Questionnaire, site conditions, and other factors, these residences were offered a mitigation system, even though the VIIM Work Plan allowed the parties to conduct additional sampling to confirm the initial results.

6.5 Expand Study Area

The proposed study area was developed based on a review of groundwater plume maps and was intended to complete indoor air sampling in those areas where elevated TCE impact in groundwater was observed. Terracon has reviewed the results of sub-slab and indoor air sampling activities and has confirmed that the reported exceedances of screening levels generally occurred within an area that corresponded with groundwater TCE concentrations of greater than 100 µg/L.

The area of sub-slab and indoor air exceedances are generally defined as the 2200 and 2400 blocks of East 4th Street and the east side of the 200 and 300 blocks of Boston Avenue. Terracon observes that screening levels are not exceeded on the south side of the 300 block of East Arlington Street, the west side of the 200 block of Boston Avenue or the 2600 block of East 4th Street.

Screening level exceedances are observed on the east side of the 300 block of Boston Avenue; however, sub-slab and indoor air sampling were not conducted on the west side of the block. In addition, Residences in the 2500 block of East 4th Street did not accept the sampling offer and sampling was not completed in this area. As such, the lateral extent of sub-slab soil gas contamination has not been characterized in these areas. Terracon proposes to prepare a supplement to the VIC Work Plan to conduct sampling of additional Residences immediately adjoining the defined area on the east side of the 300 block of Boston Avenue and the west side of the 400 block of Boston Avenue. The area identified includes approximately 14 Residences. A listing of the Residences included in the expanded study area is provided in Appendix H. The limits of the expanded study area are depicted on Figure 6, Appendix A.

7.0 SCHEDULE

Based upon currently available information and previously, the proposed schedule is as follows:

Table 7-1 Schedule

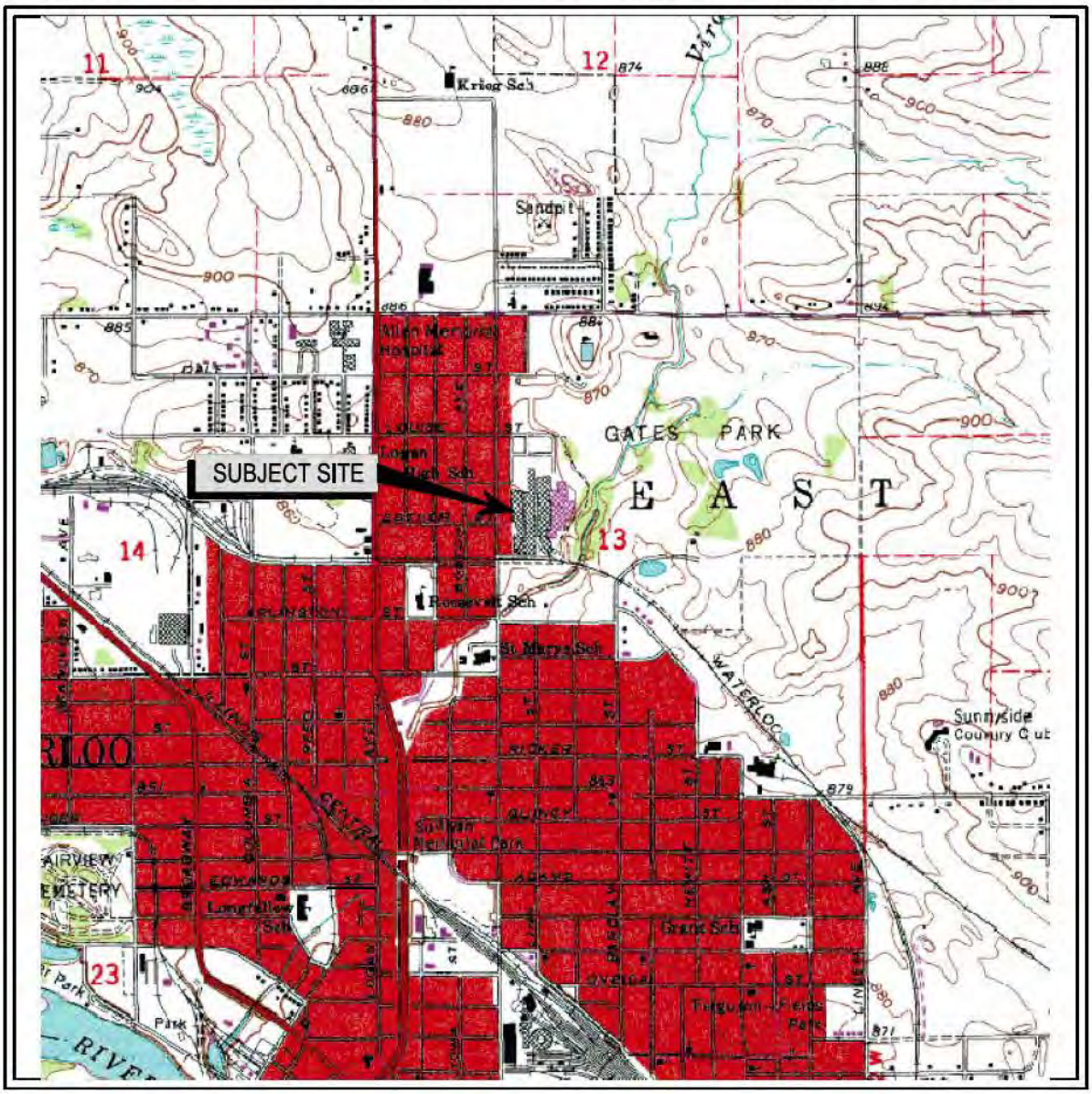
Activity	Completion Date/Days to Complete[1]
Complete Indoor Air Sampling per Section 6.3	July 5, 2011
Remove Sampling Ports per Section 6.1	No earlier than July 20, 2011
Receive Analytical Results	August 4, 2011
Receive USEPA Comments on Draft VIC Report	August 4, 2011
Submit Validated Analytical Results to USEPA	August 19, 2011
Submit Supplemental VIC Work Plan per Section 6.5[2]	September 3, 2011
Submit Final VIC Report to USEPA	September 3, 2011[3]
Conduct Indoor Air Monitoring per Section 6.2	Semiannually during 1st and 3rd calendar quarters beginning after approval of VIC Report for 2 years, then annually for 3 years

[1] – Completion date based on VIC Work Plan approval date of January 6, 2011.
[2] – Supplemental VIC Work Plan will include schedule for proposed sampling activities.
[3] – If the USEPA does not provide comments on the Draft VIC Report by August 4, 2011, the Final VIC Report shall be submitted to USEPA 30 days after all USEPA comments on the Draft VIC Report are received by Terracon.

Appendix A

Figures

UNITED STATES – DEPARTMENT OF THE INTERIOR – GEOLOGICAL SURVEY



SCALE 1:24 000

1 .5 0 KILOMETERS 1 2

1000 0 METERS 1000 2000

1 .5 0 1

MILES

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

FEET

CONTOUR INTERVAL FEET

NATIONAL GEODETIC VERTICAL DATUM OF 1929

TOPO LINES REPRESENT 10–FOOT CONTOURS

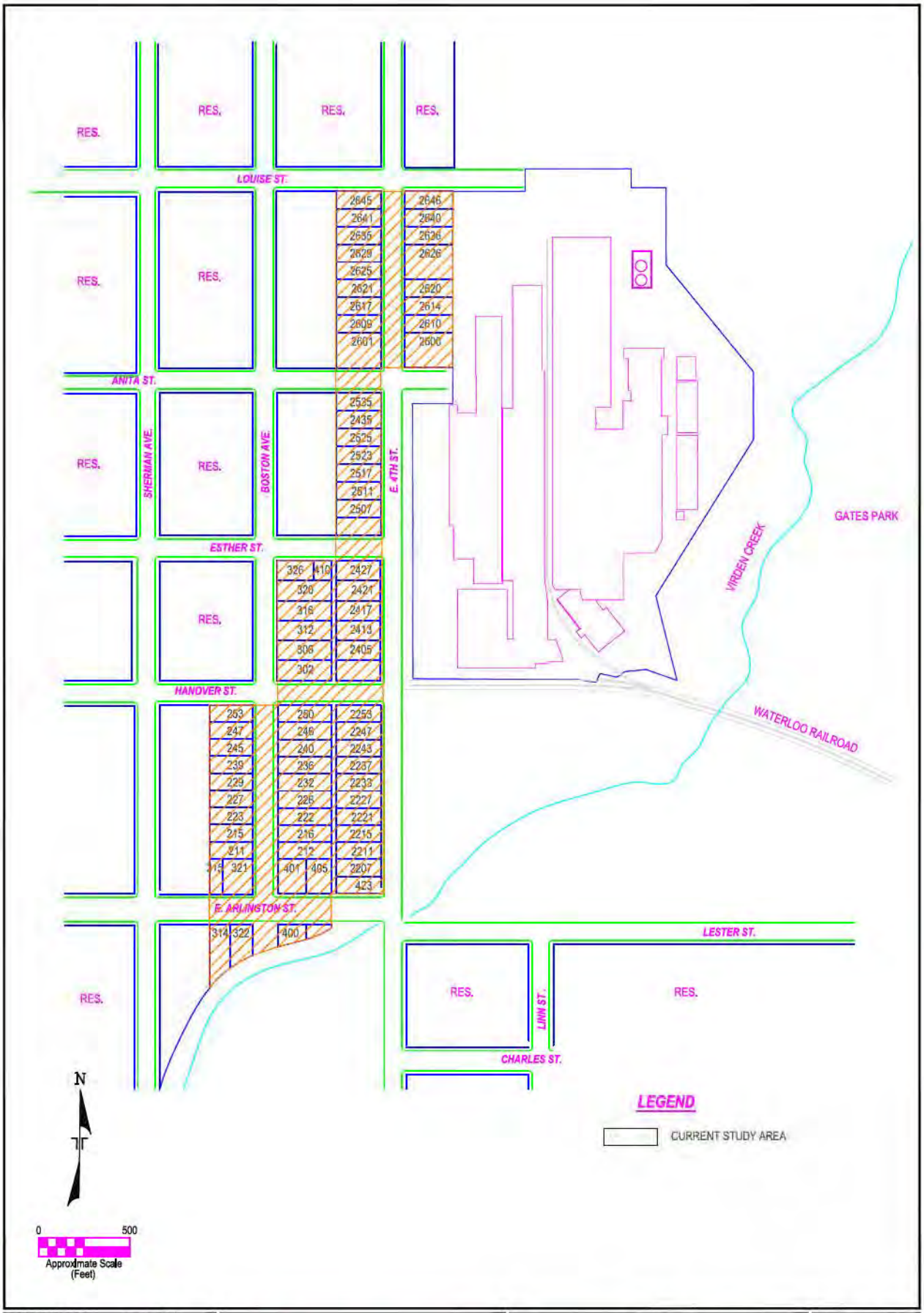
N

WATERLOO NORTH QUADRANGLE

7.5 MINUTE SERIES (TOPOGRAPHIC)

Project Mngr: JFB	Project No. 07107020	Terracon Consulting Engineers and Scientists	TOPOGRAPHIC VICINITY MAP
Drawn By: JFB	Scale: AS SHOWN	870 40th Avenue Bettendorf, Iowa 52722	VAPOR INTRUSION CHARACTERIZATION REPORT
Checked By: JFB	File No. 07107020-T1-FIG1	(563) 355-0702 (563) 355-4789	FORMER CHAMBERLAIN MANUFACTURING FACILITY
Approved By: JFB	Date: JUNE 2011		550 ESTHER ST. WATERLOO, IOWA

FIG. No. 1



REV.	DATE	BY	DESCRIPTION

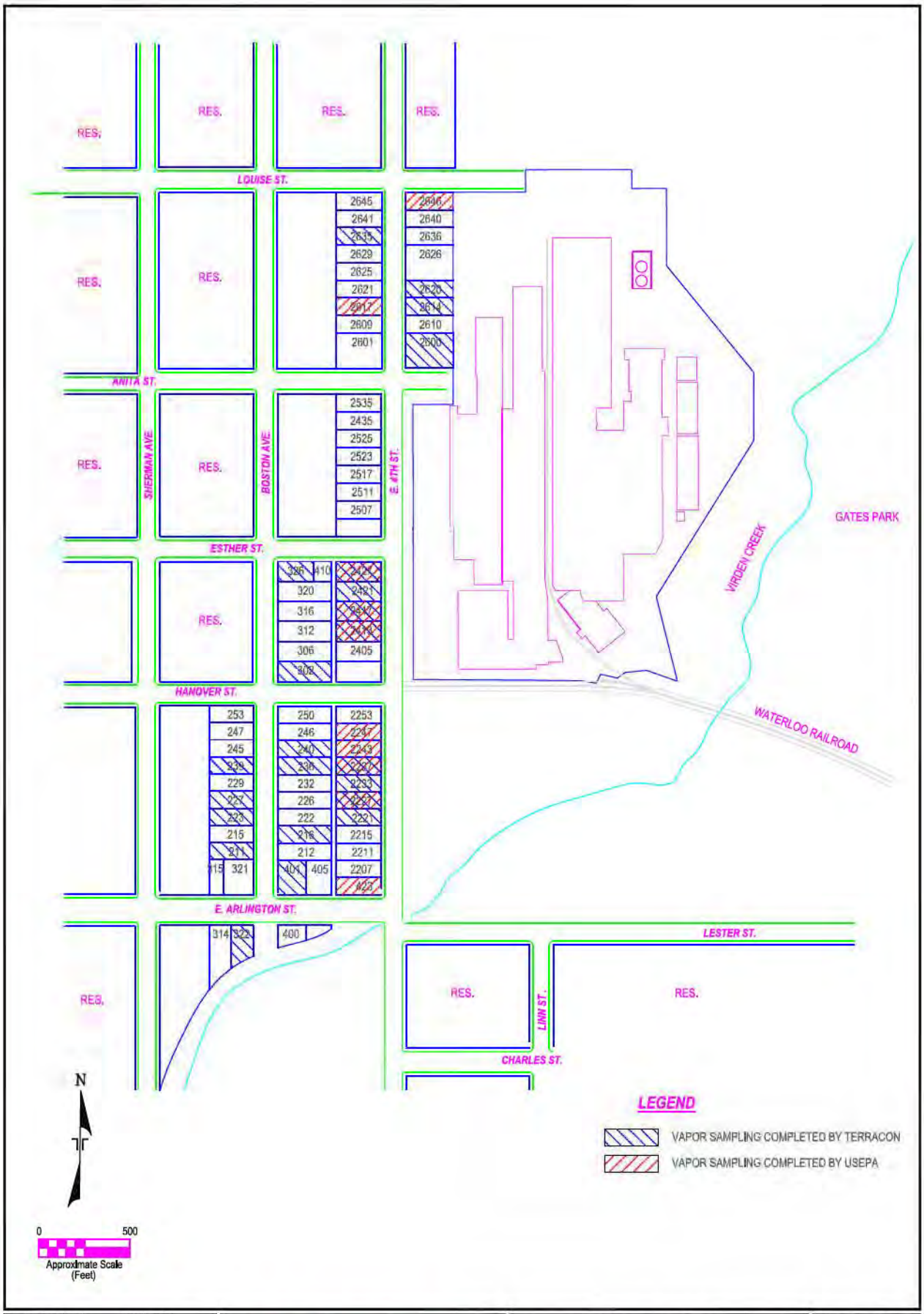
Terracon
Consulting Engineers and Scientists
870 40th Avenue, Bettendorf, Iowa 52722
(563) 355-0702 (563) 355-4788

STUDY AREA

VAPOR INTRUSION CHARACTERIZATION REPORT
FORMER CHAMBERLAIN MANUFACTURING FACILITY
550 ESTHER STREET
WATERLOO IOWA

FIGURE 2

PROJECT MGR:	JFB
DRAWN BY:	JFB
APPVD. BY:	JFB
SCALE:	AS SHOWN
DATE:	JUNE 2011
PROJECT NO.	07107020
FILE NAME:	07107020-T-FIG2
SHEET NO.:	2 OF 6



REV.	DATE	BY	DESCRIPTION

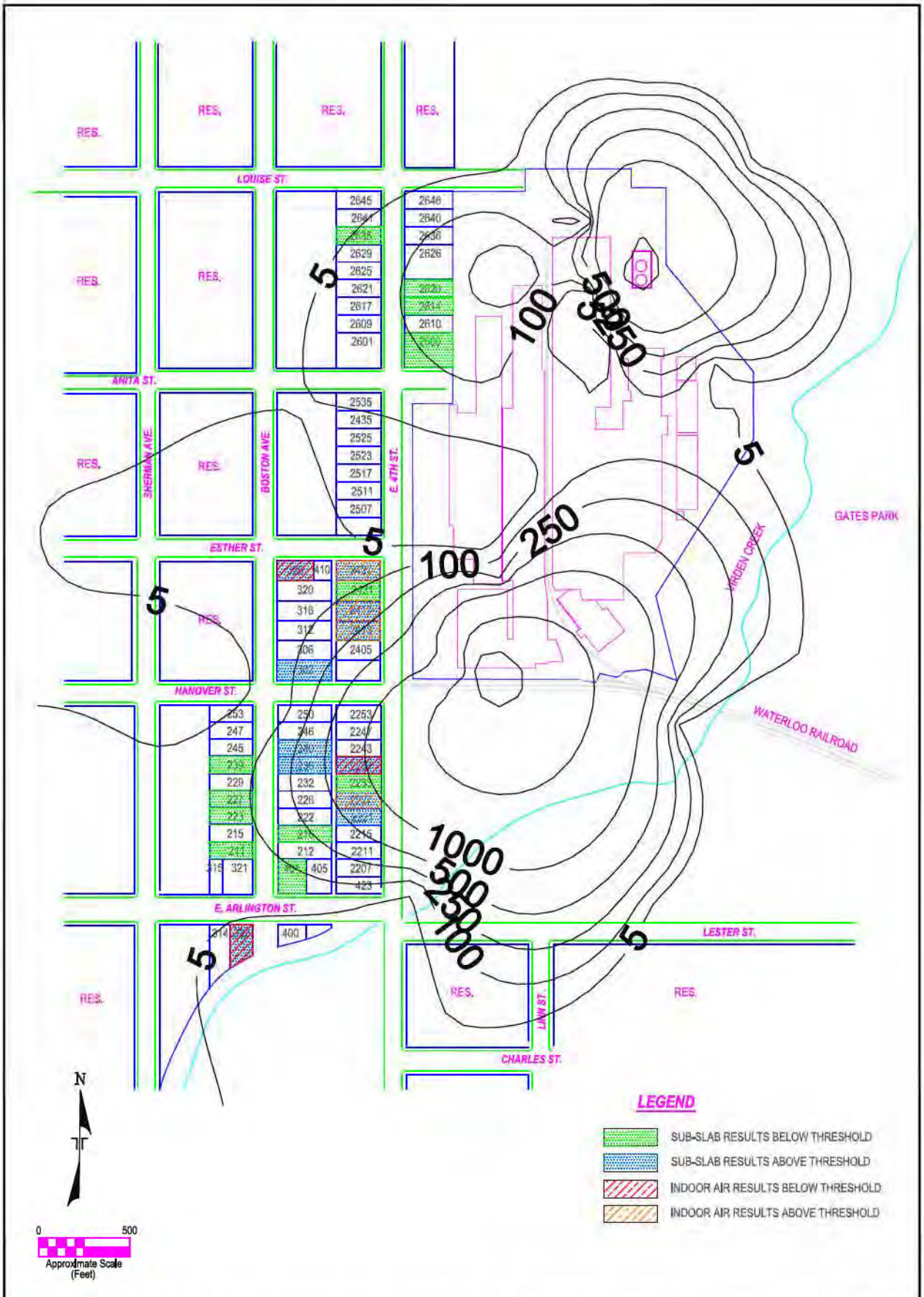
Terracon
Consulting Engineers and Scientists
870 40th Avenue, Suite 100, Hampton, Iowa 50441
(641) 456-2002

SAMPLED RESIDENCES

VAPOR INTRUSION CHARACTERIZATION REPORT
FORMER CHAMBERLAIN MANUFACTURING FACILITY
550 ESTHER STREET
WATERLOO IOWA

FIGURE 3

PROJECT MGR:	JFB
DRAWN BY:	JFB
APPVD. BY:	JFB
SCALE:	AS SHOWN
DATE:	JUNE 2011
PROJECT NO.	07107020
FILE NAME:	07107020-T1-F03
SHEET NO.:	3 OF 6



REV.	DATE	BY	DESCRIPTION

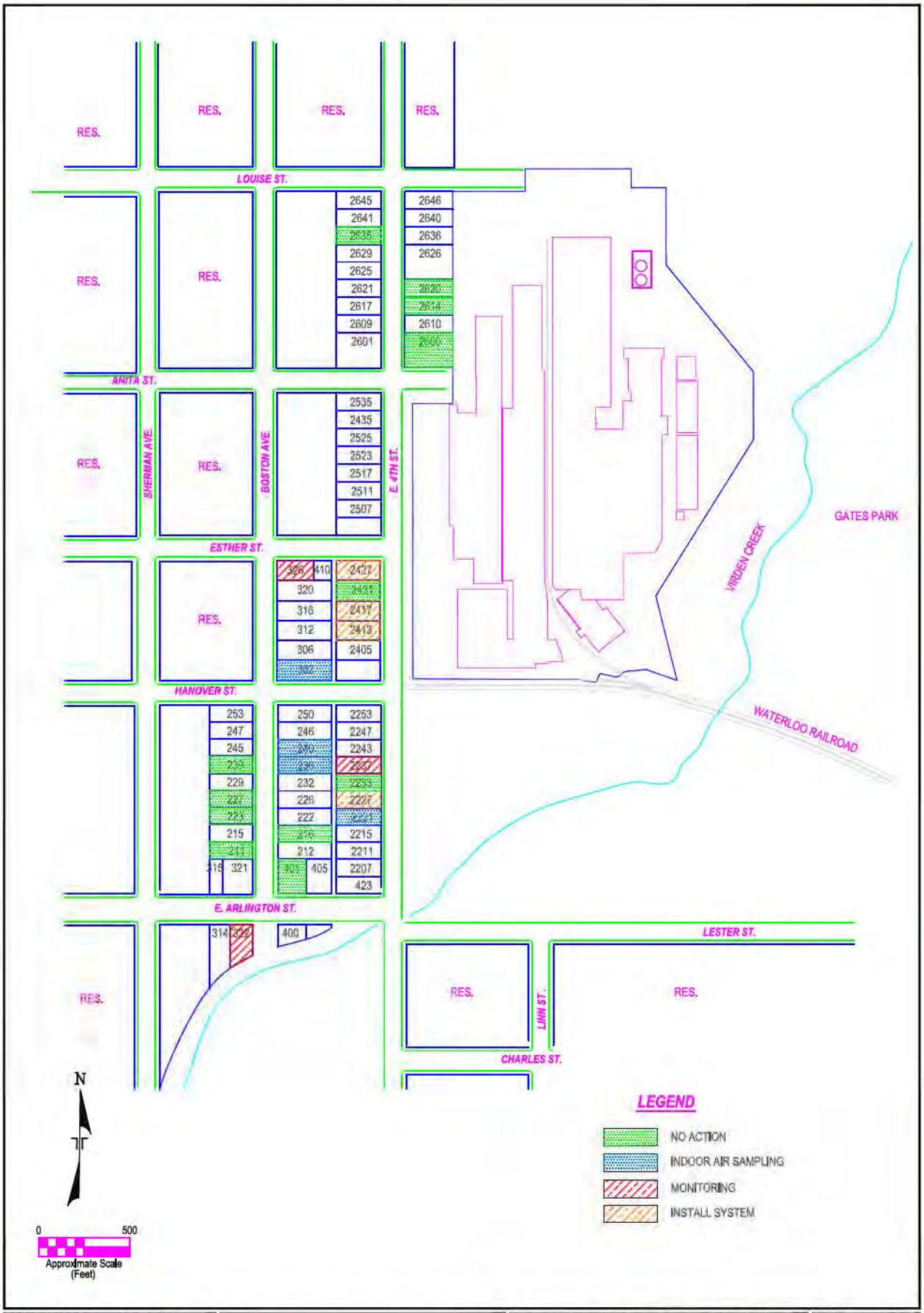
Terracon
Consulting Engineers and Scientists
870 40th Avenue, Bettendorf, Iowa 52722
(563) 355-0702 (563) 355-4788

SAMPLE RESULTS

VAPOR INTRUSION CHARACTERIZATION REPORT
FORMER CHAMBERLAIN MANUFACTURING FACILITY
550 ESTHER STREET
WATERLOO IOWA

FIGURE 4

PROJECT MGR:	JFB
DRAWN BY:	JFB
APPVD. BY:	JFB
SCALE:	AS SHOWN
DATE:	JUNE 2011
PROJECT NO.	07107020
FILE NAME:	07107020-T-FIG4
SHEET NO.:	4 OF 6



REV.	DATE	BY	DESCRIPTION

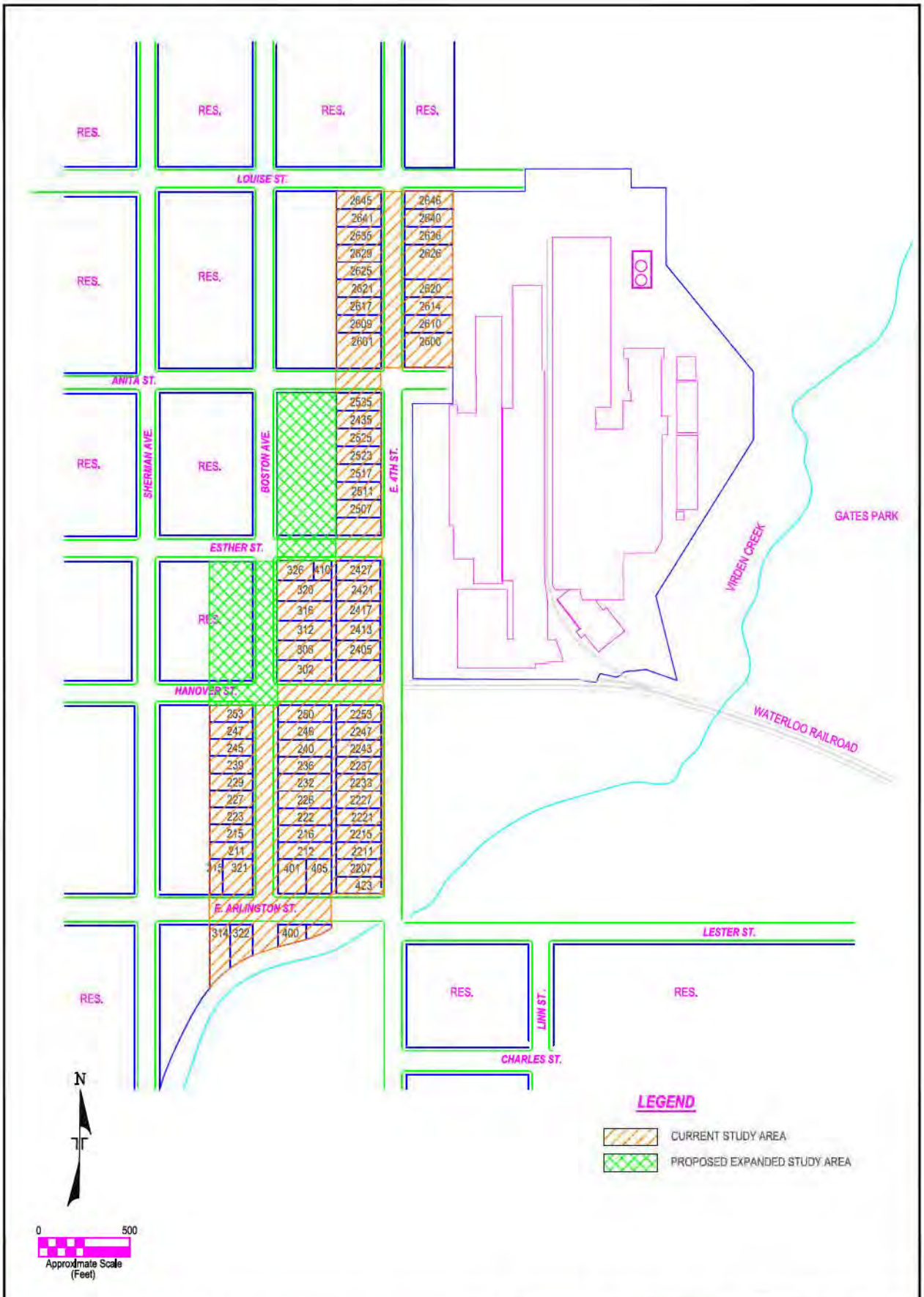
Terracon
Consulting Engineers and Scientists
870 40th Avenue, Bettendorf, Iowa 52722
(563) 355-0702 (563) 355-4788

PROPOSED ACTIONS UNDER DECISION MATRIX

VAPOR INTRUSION CHARACTERIZATION REPORT
FORMER CHAMBERLAIN MANUFACTURING FACILITY
550 ESTHER STREET
WATERLOO IOWA

FIGURE 5

PROJECT MGR:	JFB
DRAWN BY:	JFB
APPVD. BY:	JFB
SCALE:	AS SHOWN
DATE:	JUNE 2011
PROJECT NO.	07107020
FILE NAME:	07107020-T-FIG5
SHEET NO.:	5 OF 6



REV.	DATE	BY	DESCRIPTION

Terracon
Consulting Engineers and Scientists
870 40th Avenue, Hacienda, Iowa 52722
(563) 355-0702 (563) 355-4788

PROPOSED STUDY AREA

VAPOR INTRUSION CHARACTERIZATION REPORT
FORMER CHAMBERLAIN MANUFACTURING FACILITY
550 ESTHER STREET
WATERLOO IOWA

FIGURE 6

PROJECT MGR:	JFB
DRAWN BY:	JFB
APPVD. BY:	JFB
SCALE:	AS SHOWN
DATE:	JUNE 2011
PROJECT NO.	07107020
FILE NAME:	07107020-T-FIG6
SHEET NO.:	6 OF 6

Terracon

Appendix B

Tables

Table 1 – Sub-Slab Analytical Results
Table 2 – Indoor Air Analytical Results
Table 3 – Ambient Air/Equipment Blank Analytical Results

TABLE 1
SUB-SLAB ANALYTICAL RESULTS
VAPOR INTRUSION CHARACTERIZATION REPORT
CHAMBERLAIN MANUFACTURING

	Lab ID	CUE0002-07	CUD1698-05	CUE0116-02	CUD1690-04	CUE0116-01	CUD1690-01	CUD1690-02	CUE0002-09	CUE0002-19	CUD1690-03
	Sample ID	SS-4	SS-6	SS-10	SS-13	SS-15	SS-17	SSD-17	SS-20	SS-21	SS-22
	Date	4/29/2011	4/27/2011	5/2/2011	4/27/2011	5/2/2011	4/27/2011	4/27/2011	4/29/2011	4/29/2011	4/27/2011
Analyte	**Units**										
Tetrachloroethene	µg/m^3	41	2.2	0.76	1.7	1.9	1.1	1.4	4.5	0.99	13
Trichloroethene	µg/m3	1300	3.8	<0.21	0.096	0.36	<0.21	0.12	8.3	0.86	25
Vinyl chloride	µg/m3	<2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
trans-1,2-Dichloroethene	µg/m3	<3.2	<0.32	<0.32	<0.32	<0.32	<0.32	<0.32	0.27	<0.32	<0.32
cis-1,2-Dichloroethene	µg/m3	<3.2	1.2	<0.32	<0.32	<0.32	<0.32	<0.32	<0.32	<0.32	0.37
1,1-Dichloroethene	µg/m3	<3.2	<0.32	<0.32	<0.32	<0.32	<0.32	<0.32	<0.32	<0.32	0.25
1,1-Dichloroethane	µg/m3	0.65	<0.32	<0.32	<0.32	<0.32	<0.32	<0.32	<0.32	<0.32	0.38
1,1,1-Trichloroethane	µg/m3	53	0.42	<0.44	0.31	0.56	0.15	0.18	0.36	0.11	3
1,1,2-Trichloroethane	µg/m3	<4.4	0.23	<0.44	<0.44	<0.44	<0.44	<0.44	<0.44	<0.44	<0.44
Sub-Slab Organic Vapors	ppm	0.5	<0.1	0.1	0.5	<0.1	1.2	1.2	0.5	0.1	1.2

NOTES: µg/m3 - micrograms per cubic meter
ppm - parts per million

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

TABLE 1
SUB-SLAB ANALYTICAL RESULTS
VAPOR INTRUSION CHARACTERIZATION REPORT
CHAMBERLAIN MANUFACTURING

	Lab ID	CUD1698-02	CUE0002-03	CUE0002-08	CUE0002-14	CUE0002-15	CUE0002-18	CUE0116-12	CUE0116-13	CUE0116-04	CUD1698-01
	Sample ID	SS-28	SS-33	SS-37	SS-38	SSD-38	SS-39	SS-40	SS-45	SS-46	SS-47
	Date	4/27/2011	4/29/2011	4/29/2011	4/29/2011	4/29/2011	4/29/2011	5/3/2011	5/3/2011	5/3/2011	4/27/2011
Analyte	**Units**										
Tetrachloroethene	µg/m^3	120	11	28	130	140	2.9	13	36	29	2.8
Trichloroethene	µg/m3	6000	61	3.3	0.08	0.52	0.32	99	5700	1100	5.8
Vinyl chloride	µg/m3	<16	<1	<0.2	<0.2	<0.2	<0.2	<0.41	<9.3	<5.1	<0.2
trans-1,2-Dichloroethene	µg/m3	<26	<1.6	<0.32	<0.32	<0.32	<0.32	<0.63	<14	<7.9	<0.32
cis-1,2-Dichloroethene	µg/m3	<26	<1.6	<0.32	<0.32	<0.32	<0.32	<0.63	<14	<7.9	<0.32
1,1-Dichloroethene	µg/m3	<26	<1.6	<0.32	<0.32	<0.32	<0.32	<0.63	<14	<7.9	<0.32
1,1-Dichloroethane	µg/m3	<26	<1.6	<0.32	<0.32	<0.32	<0.32	<0.65	<15	<8.1	<0.32
1,1,1-Trichloroethane	µg/m3	110	58	3.9	0.24	0.26	<0.44	5	42	13	1.3
1,1,2-Trichloroethane	µg/m3	<35	<2.2	<0.44	<0.44	<0.44	<0.44	<0.87	<20	<11	<0.44
Sub-Slab Organic Vapors	ppm	1.5	0.1	0.1	0.2	0.2	0.2	0.2	1.1	<0.1	0.2

NOTES: µg/m3 - micrograms per cubic meter
ppm - parts per million

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

TABLE 1
SUB-SLAB ANALYTICAL RESULTS
VAPOR INTRUSION CHARACTERIZATION REPORT
CHAMBERLAIN MANUFACTURING

	Lab ID	CUE0002-10	CUD1698-03	CUD1698-04	CUE0116-03	CUE0188-01	CUE0188-02	Maximum Detected Concentration	Number of Detections	Sub-Slab Screening Level	Detection Limit
	Sample ID	SS-48	SS-56	SS-60	SS-62	SS-67	SS-67D				
	Date	4/29/2011	4/27/2011	4/27/2011	5/2/2011	5/4/2011	5/4/2011				
Analyte	**Units**										
Tetrachloroethene	µg/m^3	15	0.83	2.5	0.77	0.43	0.52	140	26 of 26	4.1	0.54
Trichloroethene	µg/m3	89	3.8	6.2	<0.21	<0.21	0.081	6000	22 of 26	12	0.215
Vinyl chloride	µg/m3	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	0	0 of 26	1.6	0.204
trans-1,2-Dichloroethene	µg/m3	<0.32	<0.32	<0.32	<0.32	<0.32	<0.32	0.27	1 of 26	630	0.317
cis-1,2-Dichloroethene	µg/m3	<0.32	0.12	<0.32	<0.32	<0.32	<0.32	1.2	3 of 26	630	0.317
1,1-Dichloroethene	µg/m3	<0.32	<0.32	<0.32	<0.32	<0.32	<0.32	0.25	1 of 26	2,100	0.317
1,1-Dichloroethane	µg/m3	<0.32	<0.32	<0.32	<0.32	<0.32	<0.32	0.65	2 of 26	15	0.324
1,1,1-Trichloroethane	µg/m3	32	0.83	8.5	1.4	<0.44	0.068	110	23 of 26	52,000	0.436
1,1,2-Trichloroethane	µg/m3	<0.44	<0.44	<0.44	<0.44	<0.44	<0.44	0.23	1 of 26	1.5	0.36
Sub-Slab Organic Vapors	ppm	0.2	0.4	0.1	<0.1	<0.1	<0.1				

NOTES: µg/m3 - micrograms per cubic meter
ppm - parts per million

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

TABLE 2
INDOOR AIR ANALYTICAL RESULTS
VAPOR INTRUSION CHARACTERIZATION REPORT
CHAMBERLAIN MANUFACTURING

	Lab ID	CUE0002-04	CUE0002-05	CUE0002-01	CUE0002-02	CUE0002-17	CUE0002-16	CUE0116-09	CUE0116-08	CUE0116-15
	Sample ID	IA-4-B	IA-4-1	IA-33-B	IA-33-1	IA-38-B	IA-38-MF	IA-B-40	IA-1-40	IA-B-45
	Date	4/29/2011	4/29/2011	4/29/2011	4/29/2011	4/29/2011	4/29/2011	5/3/2011	5/3/2011	5/3/2011
Analyte	**Units**									
Tetrachloroethene	µg/m^3	0.15	0.26	0.19	0.16	2	1.7	0.13	<0.54	<0.54
Trichloroethene	µg/m3	0.42	1	0.22	0.33	0.11	0.14	0.18	0.18	2.1
Vinyl chloride	µg/m3	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
trans-1,2-Dichloroethene	µg/m3	<0.32	<0.32	<0.32	<0.32	<0.32	<0.32	<0.32	<0.32	<0.32
cis-1,2-Dichloroethene	µg/m3	<0.32	0.35	<0.32	<0.32	<0.32	<0.32	<0.32	<0.32	<0.32
1,1-Dichloroethene	µg/m3	<0.32	<0.32	<0.32	<0.32	<0.32	<0.32	<0.32	<0.32	<0.32
1,1-Dichloroethane	µg/m3	<0.32	<0.32	<0.32	<0.32	<0.32	<0.32	<0.32	<0.32	<0.32
1,1,1-Trichloroethane	µg/m3	0.094	0.087	0.094	0.067	0.2	0.26	<0.44	<0.44	<0.44
1,1,2-Trichloroethane	µg/m3	<0.44	<0.44	<0.44	<0.44	<0.44	<0.44	<0.44	<0.44	<0.44

NOTES: µg/m3 - micrograms per cubic meter
ppm - parts per million

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

TABLE 2
INDOOR AIR ANALYTICAL RESULTS
VAPOR INTRUSION CHARACTERIZATION REPORT
CHAMBERLAIN MANUFACTURING

	Lab ID	CUE0116-14	CUE0116-05	CUE0116-06	CUE0002-11	CUE0002-12	CUE0002-13	Maximum Detected Concentration	Number of Detections	Sub-Slab Screening Level	Detection Limit
	Sample ID	IA-1-45	IA-B-46	IA-1-46	IA-48-B	IA-48-B-D	IA-48-MF				
	Date	5/3/2011	5/3/2011	5/3/2011	4/29/2011	4/29/2011	4/29/2011				
Analyte	**Units**										
Tetrachloroethene	µg/m^3	<0.54	0.29	0.75	1.7	2.5	0.69	2.5	12 of 15	0.41	0.54
Trichloroethene	µg/m3	1.8	0.86	1.2	0.18	0.2	0.16	2.1	15 of 15	1.2	0.215
Vinyl chloride	µg/m3	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	0	0 of 15	0.165	0.204
trans-1,2-Dichloroethene	µg/m3	<0.32	<0.32	<0.32	<0.32	<0.32	<0.32	0	0 of 15	63	0.317
cis-1,2-Dichloroethene	µg/m3	<0.32	<0.32	<0.32	<0.32	<0.32	<0.32	0.35	1 of 15	63	0.317
1,1-Dichloroethene	µg/m3	<0.32	<0.32	<0.32	<0.32	<0.32	<0.32	0	0 of 15	210	0.317
1,1-Dichloroethane	µg/m3	<0.32	<0.32	<0.32	<0.32	<0.32	<0.32	0	0 of 15	1.5	0.324
1,1,1-Trichloroethane	µg/m3	<0.44	<0.44	1.2	0.13	0.12	0.12	1.2	10 of 15	5200	0.436
1,1,2-Trichloroethane	µg/m3	<0.44	<0.44	<0.44	<0.44	<0.44	<0.44	0	0 of 15	0.15	0.36

NOTES: µg/m3 - micrograms per cubic meter
ppm - parts per million

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

TABLE 3
AMBIENT AIR/EQUIPMENT BLANK ANALYTICAL RESULTS
VAPOR INTRUSION CHARACTERIZATION REPORT
CHAMBERLAIN MANUFACTURING

	Lab ID	CUE0002-06	CUE0116-10	CUE0116-11	CUE0116-07	CUD1698-06	CUE0002-20	CUE0116-16	Maximum Detected Concentration	Number of Detections	Detection Limit
	Sample ID	AA-4	AA-40	AAD-40	AA-46	EB-1	EB-2	EB-3			
	Date	4/29/2011	5/3/2011	5/3/2011	5/3/2011	4/27/2011	4/29/2011	5/3/2011			
Analyte	**Units**										
Tetrachloroethene	µg/m^3	0.19	<0.54	<0.54	<0.54	1.1	0.93	0.57	0.19	1 of 4	0.54
Trichloroethene	µg/m3	0.088	<0.21	<0.21	<0.21	0.22	<0.21	0.58	0.088	1 of 4	0.215
Vinyl chloride	µg/m3	<0.2	<0.2	<0.2	<0.2	<0.34	<0.2	<0.2	NA	0 of 4	0.204
trans-1,2-Dichloroethene	µg/m3	<0.32	<0.32	<0.32	<0.32	<0.52	<0.32	<0.32	NA	0 of 4	0.317
cis-1,2-Dichloroethene	µg/m3	<0.32	<0.32	<0.32	<0.32	<0.52	<0.32	<0.32	NA	0 of 4	0.317
1,1-Dichloroethene	µg/m3	<0.32	<0.32	<0.32	<0.32	<0.52	<0.32	<0.32	NA	0 of 4	0.317
1,1-Dichloroethane	µg/m3	<0.32	<0.32	<0.32	<0.32	<0.53	<0.32	<0.32	NA	0 of 4	0.324
1,1,1-Trichloroethane	µg/m3	<0.44	<0.44	<0.44	<0.44	<0.72	<0.44	<0.44	NA	0 of 4	0.436
1,1,2-Trichloroethane	µg/m3	<0.44	<0.44	<0.44	<0.44	<0.72	<0.44	<0.44	NA	0 of 4	0.36

NOTES: µg/m3 - micrograms per cubic meter
ppm - parts per million

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

Appendix C

Letter to Residences Regarding Sampling and Access

Terracon

February 4, 2011

Certified Mail/Return Receipt Requested

[redacted]

Re: Residential Sampling Request

As you may know, the United States Environmental Protection Agency ("EPA") recently asked Chamberlain Manufacturing Corporation to do environmental testing of soil vapors beneath certain homes in your neighborhood near the 550 Esther Street property, once owned and operated by Chamberlain Manufacturing and currently owned by the City of Waterloo. As we understand you are the owner(s) and resident(s) of the residence at [redacted], we are writing to describe the process and timing for the sampling, should you choose to have us conduct it.

In the next few months, Terracon Consultants, Inc., a licensed and experienced environmental consulting and engineering company, will be in your neighborhood conducting this sampling. The sampling will provide data to help determine if action may be needed to reduce the potential of certain chemicals entering your home. We are requesting your permission to do this sampling in your home.

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. In some instances, we will also take indoor and outdoor air samples. These indoor and outdoor air samples are collected by small canisters that we would leave at your home for 24-hours and would then return to collect.

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.

If you would like to have the sampling performed in your home, please complete the enclosed request form and access agreement and mail it to:

Terracon Consultants, Inc.
870 40th Avenue
Bettendorf, Iowa 52722

In order to facilitate scheduling, we ask that you return the sampling request form no later than March 11, 2011. 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. Please contact John Brimeyer at (563) 355-4852 if you have any questions.

Sincerely,
Terracon Consultants, Inc.

John F Brimeyer

John F. Brimeyer, PE
Environmental Manager

Sampling Request Form

[redacted]

Waterloo, IA 50703

(Please complete and return by March 11, 2011)

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 February 4, 2011 and the enclosed access agreement.

Signature of Co-Owner/Resident

_____

[redacted]

Telephone:(Day)_____

(Evening) _____

Dated: _____, 2011

Signature of Co-Owner/Resident

_____

_____

Print Name (if applicable)

Telephone:(Day)_____

(Evening) _____

Dated: _____, 2011

Terracon

ACCESS AGREEMENT

Date: 2/4/11

DEFINITIONS

The property to which access is granted is: [redacted] ("Property").

The Legal Owner(s) of the Property or person/entity with legal authority to grant access to the Property is: [redacted] ("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 February 4, 2011. ("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 ("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: _____ Date: **2/4/11**

Name/Title: **John F. Brimeyer, Environmental Manager**

Address: **870 40th Avenue**

Bettendorf, Iowa 52722

Phone: **563.355.4852** Fax: **563.355.4789**

Grantor (Owner):

By: _____ Date: _____

Name/Title: [redacted]

Address: [redacted]

Waterloo, IA 50703

Phone: _____ Fax: _____

Grantor (Co-Owner):

By: _____ Date: _____

Name/Title: [redacted]

Address: [redacted]

Waterloo, IA 50703

Phone: _____ Fax: _____

Terracon

February 4, 2011

Certified Mail/Return Receipt Requested

[redacted]

Certified Mail/Return Receipt Requested

[redacted]

Re: Residential Sampling Request

As you may know, the United States Environmental Protection Agency ("EPA") recently asked Chamberlain Manufacturing Corporation to do environmental testing of soil vapors beneath certain homes in your neighborhood near the 550 Esther Street property, once owned and operated by Chamberlain Manufacturing and currently owned by the City of Waterloo. As we understand you are the owner(s) and resident(s) of the residence at [redacted] we are writing to describe the process and timing for the sampling, should you choose to have us conduct it.

In the next few months, Terracon Consultants, Inc., a licensed and experienced environmental consulting and engineering company, will be in your neighborhood conducting this sampling. The sampling will provide data to help determine if action may be needed. We are requesting your permission to do this sampling in your home.

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. In some instances, we will also take indoor and outdoor air samples. These indoor and outdoor air samples are collected by small canisters that we would leave at your home for 24-hours and would then return to collect.

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.

If you would like to have the sampling performed in your home, please complete the enclosed request form and access agreement and mail it to:

Terracon Consultants, Inc.
870 40th Avenue
Bettendorf, Iowa 52722

We have included separate sampling forms for each party.

In order to facilitate scheduling, we ask that you return the sampling request form no later than March 11, 2011. 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. Please contact John Brimeyer at (563) 355-4852 if you have any questions.

Sincerely,
Terracon Consultants, Inc.

John F Brimeyer

John F. Brimeyer, PE
Environmental Manager

Sampling Request Form for Owner(s)

[redacted]

Waterloo, IA 50703

(Please complete and return by March 11, 2011)

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 February 4, 2011 and the enclosed access agreement.

Signature of Owner

_____

[redacted]

Telephone:(Day)_____

(Evening) _____

Dated: _____, 2011

Signature of Co-Owner

_____

_____

Print Name (if applicable)

Telephone:(Day)_____

(Evening) _____

Dated: _____, 2011

Sampling Request Form for Resident(s)

[redacted]

Waterloo, IA 50703

(Please complete and return by March 11, 2011)

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 February 4, 2011 and the enclosed access agreement.

Signature of Resident

_____

_____

Print Name

Telephone:(Day)_____

(Evening) _____

Dated: _____, 2011

Signature of Co-Resident

_____

_____

Print Name (if applicable)

Telephone:(Day)_____

(Evening) _____

Dated: _____, 2011

Terracon

ACCESS AGREEMENT

Date: 2/4/11

DEFINITIONS

The property to which access is granted is: [redacted] ("Property").

The Legal Owner(s) of the Property or person/entity with legal authority to grant access to the Property is: [redacted] ("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 February 4, 2011. ("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: _____ Date: **2/4/11**

Name/Title: **John F. Brimeyer, Environmental Manager**

Address: **870 40th Avenue**

Bettendorf, Iowa 52722

Phone: **563.355.4852** Fax: **563.355.4789**

Grantor (Owner):

By: _____ Date: _____

Name/Title: _____

Address: _____

_____

Phone: _____ Fax: _____

Grantor (Co-Owner):

By: _____ Date: _____

Name/Title: _____

Address: _____

_____

Phone: _____ Fax: _____

Grantor (Resident):

By: _____ Date: _____

Name/Title: _____

Address: _____

_____

Phone: _____ Fax: _____

Grantor (Co-Resident):

By: _____ Date: _____

Name/Title: _____

Address:

_____

Phone: _____ Fax: _____

PROPERTY		OWNER				RENTER, IF APPLICABLE	
ID	Address	Owner	Owner Address	Owner City, State	Sampling Approved by Owner?	Resident	Sampling Approved by Renter?
1	314 E. Arlington St.	[redacted]	PO Box 532	Waterloo, IA 50704	No	[redacted]	No
2	315 E. Arlington St.		1956 Winston Place	Waterloo, IA 50701	No		No
3	321 E. Arlington St.		321 E. Arlington St.	Waterloo, IA 50703	No		NA
4	322 E. Arlington St.		322 E. Arlington St.	Waterloo, IA 50703	Yes		NA
5	400 E. Arlington St.		312 W 1st Street	Cedar Falls, IA 50613	No		No
6	401 E. Arlington St.		2516 Ashland Ave.	Cedar Falls, IA 50613	Yes		No
7	405 E. Arlington St.		405 E. Arlington St.	Waterloo, IA 50703	No		NA
8	423 E. Arlington St.		423 E. Arlington St.	Waterloo, IA 50703	Yes		NA
9	410 Esther St.		829 Cloverdale Ave.	Waterloo, IA 50703	Yes		No
10	211 Boston Ave.		211 Boston Ave.	Waterloo, IA 50703	Yes		NA
11	212 Boston Ave.		1956 Winston Place	Waterloo, IA 50701	No		No
12	215 Boston Ave.		215 Boston Ave.	Waterloo, IA 50703	No		No
13	216 Boston Ave.		603 N Linn	New Hampton, IA 50659	Yes		No
14	222 Boston Ave.		1956 Winston Place	Waterloo, IA 50701	No		No
15	223 Boston Ave.		223 Boston Ave.	Waterloo, IA 50703	Yes		NA
16	226 Boston Ave.		226 Boston Ave.	Waterloo, IA 50703	No		NA
17	227 Boston Ave.		31942 Liberty Ave.	Parkersburg, IA 50665	Yes		Yes
18	229 Boston Ave.		PO Box 567	Gilbertville, IA 50634	No		No
19	232 Boston Ave.		232 Boston Ave.	Waterloo, IA 50703	No		NA
20	236 Boston Ave.		236 Boston Ave.	Waterloo, IA 50703	Yes		NA
21	239 Boston Ave.		239 Boston Ave.	Waterloo, IA 50703	Yes		NA
22	240 Boston Ave.		240 Boston Ave.	Waterloo, IA 50703	Yes		NA
23	245 Boston Ave.		245 Boston Ave.	Waterloo, IA 50703	Yes		NA
24	246 Boston Ave.		246 Boston Ave.	Waterloo, IA 50703	No		NA
25	249 Boston Ave.		249 Boston Ave.	Waterloo, IA 50703	No		NA
26	250 Boston Ave.		250 Boston Ave.	Waterloo, IA 50703	No		No
27	253 Boston Ave.		253 Boston Ave.	Waterloo, IA 50703	Yes		NA
28	302 Boston Ave.		302 Boston Ave.	Waterloo, IA 50703	Yes		NA
29	306 Boston Ave.		306 Boston Ave.	Waterloo, IA 50703	No		NA
30	312 Boston Ave.		5216 LaFayette Road	Waterloo, IA 50707	No		No
31	316 Boston Ave.		316 Boston Ave.	Waterloo, IA 50703	No		NA
32	320 Boston Ave.		PO Box 567	Gilbertville, IA 50634	No		No
33	326 Boston Ave.		326 Boston Ave.	Waterloo, IA 50703	Yes		NA
34	2207 E. 4th St.		2207 E. 4th St.	Waterloo, IA 50703	No		NA
35	2211 E. 4th St.		2245 Burton Ave.	Waterloo, IA 50703	No		No
36	2215 E. 4th St.		2215 E. 4th St.	Waterloo, IA 50703	No		NA
37	2221 E. 4th St.		2221 E. 4th St.	Waterloo, IA 50703	Yes		NA
38	2227 E. 4th St.		2227 E. 4th St.	Waterloo, IA 50703	Yes		NA

PROPERTY		OWNER				RENTER, IF APPLICABLE	
ID	Address	Owner	Owner Address	Owner City, State	Sampling Approved by Owner?	Resident	Sampling Approved by Renter?
39	2233 E. 4th St.	[redacted]	2233 E. 4th St.	Waterloo, IA 50703	Yes	[redacted]	NA
40	2237 E. 4th St.		2237 E. 4th St.	Waterloo, IA 50703	No		No
41	2243 E. 4th St.		2243 E. 4th St.	Waterloo, IA 50703	No		NA
42	2247 E. 4th St.		2247 E. 4th St.	Waterloo, IA 50703	No		NA
43	2253 E. 4th St.		2207 West 3rd St.	Cedar Falls, IA 50613	No		No
44	2405 E. 4th St.		500 Pine St.	Waterloo, IA 50703	No		No
45	2413 E. 4th St.		2413 E. 4th St.	Waterloo, IA 50703	Yes		NA
46	2417 E. 4th St.		2126 Yorkshire Dr.	Cedar Falls, IA 50613	Yes		No
47	2421 E. 4th St.		2421 E. 4th St.	Waterloo, IA 50703	Yes		NA
48	2427 E. 4th St.		2427 E. 4th St.	Waterloo, IA 50703	Yes		NA
49	2507 E. 4th St.		2507 E. 4th St.	Waterloo, IA 50703	No		NA
50	2511 E. 4th St.		2511 E. 4th St.	Waterloo, IA 50703	No		NA
51	2515 E. 4th St.		100 Tanglewood Dr.	Freeport, IL 61032	No		No
52	2523 E. 4th St.		416 Sullivan Ave #206	Waterloo, IA 50701	No		No
53	2525 E. 4th St.		2525 E. 4th St.	Waterloo, IA 50703	No		NA
54	2533 E. 4th St.		2533 E. 4th St.	Waterloo, IA 50703	No		NA
55	2535 E. 4th St.		PO Box 622	Cedar Falls, IA 50613	No		No
56	2600 E. 4th St.		2600 E. 4th St.	Waterloo, IA 50703	Yes		NA
57	2601 E. 4th St.		2601 E. 4th St.	Waterloo, IA 50703	No		NA
58	2609 E. 4th St.		2609 E. 4th St.	Waterloo, IA 50703	No		NA
59	2610 E. 4th St.		404 Union St. PO Box 1	Ionia , IA 50645	No		No
60	2614 E. 4th St.		823 Progress Ave.	Waterloo, IA 50701	Yes		No
61	2617 E. 4th St.		2617 E. 4th St.	Waterloo, IA 50703	No		NA
62	2620 E. 4th St.		846 Hawthorn Lane	Grayson, GA 30017	No		Yes
63	2621 E. 4th St.		2621 E. 4th St.	Waterloo, IA 50703	No		NA
64	2625 E. 4th St.		425 1/2 Webster St.	Waterloo, IA 50703	No		No
65	2626 E. 4th St.		915 West 5th St.	Waterloo, IA 50702	No		No
66	2629 E. 4th St.		2629 E. 4th St.	Waterloo, IA 50703	No		NA
67	2635 E. 4th St.		2635 E. 4th St.	Waterloo, IA 50703	Yes		NA
68	2636 E. 4th St.		PO Box 567	Gilbertville, IA 50634	No		No
69	2640 E. 4th St.		2798 200th St.	Dysart, IA 52224	No		No
70	2641 E. 4th St.		2641 E. 4th St.	Waterloo, IA 50703	No		NA
71	2645 E. 4th St.		2645 E. 4th St.	Waterloo, IA 50703	No		NA
72	2646 E. 4th St.		33871 302nd St.	Cedar Falls, IA 50613	Yes		No

Terracon

Appendix D

Completed Occupied Dwelling Questionnaires

OCCUPIED DWELLING QUESTIONNAIRE

Indoor Air Assessment Survey

Date: 4/26/2011

1. Name: [redacted]

   Address: 322 E Arlington

   Home Phone: [redacted] Work Phone: _____

2. What is the best time to call to speak with you? a.m. 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? 36

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? 100 %

8. Age of Home/Structure: ~1940 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 ☒
puddles when constant rain

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) ☐ w/heavy rains
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:
~~Water heater~~
_____
_____

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, termites
and approximate date of service ~5yrs ago

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 whattype 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 - Bleach

(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 ☐ (1x monthly)
- Polishing (furniture, etc) ☐ - pledge
- Washing/waxing floors ☐
- Other ☐ _____

43. Other comments: _____

appt time @ 1:30 p.
→ No response @ 1:30
" " @ 2:00
" " 2:30

6

OCCUPIED DWELLING QUESTIONNAIRE

Indoor Air Assessment Survey

Date: 4-26-11

1. Name: [redacted]

   Address: 401 E. Arlington ST.

   Home Phone: [redacted] Work Phone: _____

2. What is the best time to call to speak with you? evening 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? 20

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? 20 %

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

9. General Above-Ground Home/Structure construction (check all that apply): unknown
   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 ☒ not anymore
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? 1
How many are used for more than 2 hours/day? no
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☐ appear to be cement block?
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) ☐ whenever you get a good rain through walls
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)_____

might have a or

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 ☐

hand spray

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 ☐_____

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 termites ~ 15 years ago

34. Water Heater Type: Gas ☐, Electric ☒, By furnace ☐, Other 2 years old ☐ _____
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 ☐ every now and then occasionally

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 ☐ _____

Refinishing floor, just sanded

43. Other comments: _____

OCCUPIED DWELLING QUESTIONNAIRE

Indoor Air Assessment Survey

Date: 4/28/11

1. Name: [redacted]

   Address: 211 Boston Avenue

   Home Phone: [redacted] Work Phone: _____

2. What is the best time to call to speak with you? after 3:30 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? 2
   Number of children? _____ Ages? _____

5. How long have you lived at this location? 25 years

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? 100 %

8. Age of Home/Structure: 1950 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? 1
How many are used for more than 2 hours/day? No
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)_____ by washer

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 ☐_____

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 _____ if it's warm

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 ☐ fan above stove in ceiling
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 ☐ glade mister / spray

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 whattype 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: _____

OCCUPIED DWELLING QUESTIONNAIRE

Indoor Air Assessment Survey

Date: 4/24/2011

1. Name: [redacted]

   Address: 216 Boston Ave

   Home Phone: [redacted] Work Phone: _____

2. What is the best time to call to speak with you? Evening 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? 5
   Number of children? 4 Ages? 16, 15, 13, 5

5. How long have you lived at this location? ~6 mos

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 ☐ unknown
   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? 4 - 1 family rm, 2 storage rm, 1 utility rm
How many are used for more than 2 hours/day? Ø
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 prior to moving in & remodel

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 ☐ there is central but not using
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, unknown - landlord said he sprayed but she doesn't know for what
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) ☒, - in basement or outside
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: _____

OCCUPIED DWELLING QUESTIONNAIRE

Indoor Air Assessment Survey

Date: 4-27-11

1. Name: [redacted]

   Address: 223 Boston Ave

   Home Phone: [redacted] Work Phone: —

2. What is the best time to call to speak with you? evenings after 5 pm 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? 4
   Number of children? 2 Ages? 18/12

5. How long have you lived at this location? 37 years

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? 100 %

8. Age of Home/Structure: approximately late 50s 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

bedroom with trench. entire room/living room contaminated

15. Is the basement finished ☒ or unfinished ☐?
16. If finished, how many rooms are in the basement? 1
How many are used for more than 2 hours/day? yes in bedroom
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)_____
Sump pump in bedroom underneath carpet

might have some in storage closet

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 ☒
Weed spray shed.

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 ☐_____

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 _____ kitchen occasionally

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 ☒ occasionally

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 ☒ fan above stove
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: _____

OCCUPIED DWELLING QUESTIONNAIRE

Indoor Air Assessment Survey

Date: 4/25/2011

1. Name: [redacted]

   Address: 227 Boston Ave

   Daytime
   Home Phone: [redacted] Work Phone: _____

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

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

4. Total number of occupants/persons at this location? 3
   Number of children? 2 Ages? 5 & 12

5. How long have you lived at this location? 3 years

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 ☐ some
   If Yes, under how much of the house's area? little %

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 ☐
↳ collects when raining SE corner of house

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? 3
How many are used for more than 2 hours/day? 0
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 1 - only ~2x/yr
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, _____
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 whattype 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: _____

OCCUPIED DWELLING QUESTIONNAIRE

Indoor Air Assessment Survey

Date: 4/27/2011

1. Name: [redacted]

   Address: 236 Boston Ave

   Home Phone: [redacted] Work Phone: _____

2. What is the best time to call to speak with you? anytime 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? 2
   Number of children? 0 Ages? _____

5. How long have you lived at this location? ~20 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? 15-25 %

8. Age of Home/Structure: built late 20s, early 30s _____ 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 ☒ occassionally
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? 3
How many are used for more than 2 hours/day? 1 - main room
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) ☒ - tree root causes backup
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:
Bathroom - tile underfloor & shower (used adhesive)

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, Orkin - up until 2yrs ago
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 ☐ for home repair
Heating ☐, soldering ☒, welding ☐, model glues ☒, paint ☒, spray paint, later enamel
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: _____

OCCUPIED DWELLING QUESTIONNAIRE

Indoor Air Assessment Survey

Date: 4-27-11

1. Name: [redacted]

   Address: 239 Boston Ave.

   Home Phone: [redacted] Work Phone: _____

2. What is the best time to call to speak with you? morning 9 hs noon 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? 4
   Number of children? 2 Ages? 2 3 4

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

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? 100 %

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): not sure
    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? 1
How many are used for more than 2 hours/day? maybe washing
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)_____
sewer cleanout cap/drain

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 ☐
spray bottle

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 ☐_____

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_____
just got new furnace

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, termite
and approximate date of service ~5 years

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 ☐ Sometimes

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 whattype 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: _____

OCCUPIED DWELLING QUESTIONNAIRE

Indoor Air Assessment Survey

Date: 4/24/2011

1. Name: [redacted]

   Address: 240 Boston Ave

   Home Phone [redacted] Work Phone: _____

2. What is the best time to call to speak with you? am 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? 2
   Number of children? 1 Ages? _____
   ↳ no children live in house but here on a daily basis

5. How long have you lived at this location? 6

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 ☐ -attic
   If Yes, under how much of the house's area? 50 %

8. Age of Home/Structure: ~100 years, Not sure/Unknown ☐

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

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 ☒, 1 crack
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:
kitchen & living room painted

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 - not anymore

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, _____
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 ☒ not regularly

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 whattype 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: _____

OCCUPIED DWELLING QUESTIONNAIRE

Indoor Air Assessment Survey

Date: 4/25/11

1. Name: [redacted]

   Address: 302 Boston Ave

   ~~Cedar~~ Waterloo, Iowa 50703

   Home Phone: [redacted] Work Phone: _____

2. What is the best time to call to speak with you? 8-11 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? 2
   Number of children? _____ Ages? _____

5. How long have you lived at this location? 57

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 3
   Basement? Yes ☒ No ☐
   Crawl Space? Yes ☐ No ☐
   If Yes, under how much of the house's area? ____%

8. Age of Home/Structure: ~1950 years, Not sure/Unknown ☐

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

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 ☐
spring/heavy storms on sidewalk

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

15. Is the basement finished ☒ or unfinished ☐? partially finished
16. If finished, how many rooms are in the basement? 2
How many are used for more than 2 hours/day? 1
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) ☒ depends on how bad it rains
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)_____
wall cracks covered by paneling
floor drain by furnace

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 ☐
oil tank once in a while drips (heating oil)

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 ☐_____

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 Natural gas
Heat conveyance system:
Forced hot air ☒
Forced hot water ☐
Steam ☐
Radiant floor heat ☐
Wood stove ☐
Coal furnace ☐
Fireplace ☐
Other_____

Heating oil tank not in use

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 ☐ Not very often

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
☒ natural gas
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 whattype 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

plug in Glade type

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 ☒ Once a week
Dry sweeping ☒
Vacuuming ☒ Couple times a week
Polishing (furniture, etc) ☒ once a week
Washing/waxing floors ☒ once a week
Other ☐ _____

43. Other comments: _____

OCCUPIED DWELLING QUESTIONNAIRE

Indoor Air Assessment Survey

Date: 9/25/2011

1. Name: [redacted]

   Address: 32e Boston Ave

   Home Phone: [redacted] Work Phone: _____

2. What is the best time to call to speak with you? anytime 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? 3
   Number of children? 1 Ages? 17

5. How long have you lived at this location? 1986 - 27yrs

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? ____% unknown - thinks 100%

8. Age of Home/Structure: _____ years, Not sure/Unknown ☒ 1959 in concrete outside?

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) ☒ comes in through walls & into floor drain
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 ☐_____

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 whattype 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: _____

OCCUPIED DWELLING QUESTIONNAIRE

Indoor Air Assessment Survey

Date: 4/24/2021

1. Name: [redacted]

   Address: 9221 E 4th St

   Home Phone: [redacted] Work Phone: _____

2. What is the best time to call to speak with you? MWF a.m. 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? 21 yrs
   been in family since 1927

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 ☐ - Attic
   If Yes, under how much of the house's area? 90-100 %

8. Age of Home/Structure: 1927 years, Not sure/Unknown ☐

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

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)_____? boys on floor - not attached
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) ☒ → Damp, runs dehumidifier all the time
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 ☒ → 1968 flood but that's it

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 ☐_____

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 _____ - rarely

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, termites
and approximate date of service ~1993 ; partial treatment 2yr ago

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 ☐ - only in bathroom

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 whattype 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: _____

38

OCCUPIED DWELLING QUESTIONNAIRE

Indoor Air Assessment Survey

Date: 4-26-11

1. Name: [redacted]

   Address: 2227 E. 4th ST.

   Home Phone: [redacted] Work Phone: —

Is hard of hearing, difficult - sometime during day

2. What is the best time to call to speak with you?_____ 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? 2
   Number of children? _____ Ages?_____

5. How long have you lived at this location? ~1965

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 with a tha
   Basement? Yes ☒ No ☐
   Crawl Space? Yes ☐ No ☒
   If Yes, under how much of the house's area? 100%

8. Age of Home/Structure: 1912 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? NO
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)_____

Sampling points in basement than Arcadis assessment

- dirt floor crawlspace in NW basement corner

9.1 nd

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 ☐

5 years ago

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 ☐_____

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 ☐ most rooms
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 ☐ occasionally

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) ☐ 1/61/14
Washing/waxing floors ☒
Other ☐ _____

43. Other comments: _____

39

OCCUPIED DWELLING QUESTIONNAIRE

Indoor Air Assessment Survey

Date: 4/29/2011

1. Name: [redacted]

   Address: 2233 E 4th St

   Home Phone: [redacted] Work Phone: _____

2. What is the best time to call to speak with you? _____ 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? 2
   Number of children? Ø Ages? _____

5. How long have you lived at this location? ~20 yrs
   ~10 yr - daughter lives here

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 ☐ - attic
   If Yes, under how much of the house's area? 100 %

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 ☐

rear bedroom ⇒ "gas" odor on clothes in closet
doesn't notice it elsewhere in the house.

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) ☒ depends on amount of rain
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) ☒ ~~2 stop~~
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 ☐_____

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: _____

OCCUPIED DWELLING QUESTIONNAIRE

Indoor Air Assessment Survey

Date: 1/27/2011

1. Name: [redacted]

   Address: 2237 E. 4th St

   Home Phone: _____ Work Phone [redacted] sister's

2. What is the best time to call to speak with you? anytime 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? 6
   Number of children? 3 Ages? 1½, 7, 11

5. How long have you lived at this location? 24 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 1
   Basement? Yes ☒ No ☐
   Crawl Space? Yes ☒ No ☐
   If Yes, under how much of the house's area? 50 %

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? partially open → making an dividing room
How many are used for more than 2 hours/day? all - sleeping
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) previous sample ports

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:
painting bedroom

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, termite
and approximate date of service about 8 yrs ago.

34. Water Heater Type: Gas ☐, Electric ☐, By furnace ☐, Other unknown ☐ _____
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: _____

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OCCUPIED DWELLING QUESTIONNAIRE

Indoor Air Assessment Survey

Date: 4/29/2011

1. Name: [redacted]

   Address: 2413 E 4th St

   Home Phone: [redacted] Work Phone: [redacted]

2. What is the best time to call to speak with you?_____ 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? 2
   Number of children? 0 Ages?_____

5. How long have you lived at this location? 1969

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 ☐ -Attic
   If Yes, under how much of the house's area? 50 %

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 ☐
↳ pools around garage when rain

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? 2
How many are used for more than 2 hours/day? 1 - most of the time)
17. Is the basement floor (check all that apply) concrete ☒, tile ☒, carpeted ☒, dirt ☐, other☐(describe)_____? ↳under carpet
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 ☒ → not any more

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 ☐_____

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 ☒ -Not sure
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 ☐ sometimes

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 whattype 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: _____

OCCUPIED DWELLING QUESTIONNAIRE

Indoor Air Assessment Survey

Date: 4-27-11

1. Name: [redacted]

   Address: 2417 E. 45th ST.

   Home Phone: [redacted] Work Phone: _____

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

3. Are you the Owner ☐, Renter ☒, Other ☐ (please specify) 9am to noon 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? 10 years

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? 100%

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 ☒ not aware of one ~~not aware of~~

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? 1
How many are used for more than 2 hours/day? No
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 ☒ surface cracking
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 ☐ none

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 ☒ washer in 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 ☐~~
no dryer

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 ☐ not sure
Wood stove ☐
Coal furnace ☐
Fireplace ☐
Other_____

think it is natural gas - 1 year old

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 _____ upstairs, not used

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 ☒ not sure, 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 ☒ fan to exhaust
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 ☐
sometimes

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 whattype 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 ☐ _____

regular routine a couple times a week

43. Other comments: _____

OCCUPIED DWELLING QUESTIONNAIRE

Indoor Air Assessment Survey

Date: 4-26-11

1. Name: [redacted]

   Address: 2421 E. 4th ST.

   Home Phone: [redacted] Work Phone: —

2. What is the best time to call to speak with you? anytime 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? 2
   Number of children? _____ Ages? _____ Son and grandson

5. How long have you lived at this location? 1991

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: 1919 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 ☐
little pool by gutters occasionally

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) ☒ heavy rains
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 ☒
Shelf not exact type foggs

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:
On main floor and leading to the basement

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 ☐
Spring and Fall

33. Has your home had termite or other pesticide treatment? Yes ☒ No ☐ Unknown ☐
If yes, please specify type of pest controlled, Spider for Egg's no termites, was not a service
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 whattype 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 ☒ occasionally
Other ☐ _____

43. Other comments: _____

OCCUPIED DWELLING QUESTIONNAIRE

Indoor Air Assessment Survey

Date: 4-25-11

1. Name: [redacted]

   Address: 2427 E. 4th ST., Waterloo, IA

   Home Phon[redacted] Work Phone: [redacted]

2. What is the best time to call to speak with you? 7-3 At: Work ☒ or Home ☐?

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

4. Total number of occupants/persons at this location? 6
   Number of children? 4 Ages? 10 - 21

5. How long have you lived at this location? 23

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: ~mid 1920's years, Not sure/Unknown ☒

9. General Above-Ground Home/Structure construction (check all that apply):
   Wood ☒, Brick ☐, Concrete ☐, Cement block ☐, Other ☐_____
   ↳ owner not sure

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)_____
3 flr drains

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 ☐_____

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) ☐ 1/month
Washing/waxing floors ☐
Other ☐ _____

43. Other comments: _____

OCCUPIED DWELLING QUESTIONNAIRE

Indoor Air Assessment Survey

Date: 4-25-11

1. Name: [redacted]

   Address: 2600 E. 4th ST., W'loo

   Home Phone: [redacted] Work Phone: _____

2. What is the best time to call to speak with you? evening 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? 2
   Number of children? 0 Ages? _____

5. How long have you lived at this location? 2

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? 100%

8. Age of Home/Structure: 1939 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 ☐? partical (w/ = finished)
16. If finished, how many rooms are in the basement? 2
How many are used for more than 2 hours/day? 2
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:
Basement rec rm, ~ Dec '10, flr tiles 12x12, wall, ceiling

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 ☐ rarely

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) ☐ 1/month
Washing/waxing floors ☐ n/a
Other ☐ _____

43. Other comments: _____

60

OCCUPIED DWELLING QUESTIONNAIRE

Indoor Air Assessment Survey

Date: 4-26-11

1. Name: [redacted]

   Address: 2614 E. 4th ST., W'loo

   Home Phone:_____ Work Phone:_____

2. What is the best time to call to speak with you?_____ 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? 2

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? 100%

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 ☐_____

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) ☐ 1/month
- Washing/waxing floors ☒
- Other ☐ _____

43. Other comments: _____

OCCUPIED DWELLING QUESTIONNAIRE

Indoor Air Assessment Survey

Date: 4/27/11

1. Name: [redacted]

   Address: 2620 East 4th Street

   Home Phone: [redacted] Work Phone: _____

2. What is the best time to call to speak with you? 3:30 Mondays & Fri Tues-Fri 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? 6
   Number of children? 0 Ages? _____
   grandchild 3 days a week

5. How long have you lived at this location? 1 1/2 years

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? 100%

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

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 ☒
alley way when it rains, side door

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? 1 room, split to 2 bedrooms
How many are used for more than 2 hours/day? everyday
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) ☒ when it rains hard
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) ☐ Sewer back up
No ☒

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

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_____ degreaser
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 ☒ no washer
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 ☐ spring and fall

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) furnace _____

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 ☐ incents

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: _____

OCCUPIED DWELLING QUESTIONNAIRE

Indoor Air Assessment Survey

Date: 4/28/2011

1. Name: [redacted]

   Address: 2435 E 47th St

   Home Phone: [redacted] Work Phone: _____

2. What is the best time to call to speak with you? _____ 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? 2
   Number of children? 0 Ages? _____

5. How long have you lived at this location? 1968 - 43yrs

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 ☐ → Attic
   If Yes, under how much of the house's area? 100 %

8. Age of Home/Structure: Built 1924 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? 3
How many are used for more than 2 hours/day? 1
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☐ wood panel over fnd ?
19. Does the basement have a moisture problem (check one only)?
Yes, frequently (3 or more times/yr) ☐
Yes, occasionally (1-2 times/yr) ☒ depends on amount of rain
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) ☒ – 1-2x/yr
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, Black ants - deck & outside house
and approximate date of service Summer 2016

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 ~ 2x/mo
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) ☐ ~2x/mo
(Washing/waxing floors ☒ as needed
Other ☐ _____

43. Other comments: _____

OCCUPIED DWELLING QUESTIONNAIRE

Indoor Air Assessment Survey

Date: 4/25/2011

1. Name: [redacted]

   Address: 2044 E 47th St

   Home Phone:_____ Work Phone:_____

2. What is the best time to call to speak with you?_____ 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? 4
   Number of children? 3 Ages? 17, 10, 10

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

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 + loft
   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 ☐_____
   yes - unknown

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? 2
How many are used for more than 2 hours/day? 1
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 ☐_____

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

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 unknown

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 ☐ unknown

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
☐ unknown
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 ☐ unknown

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 ☐ alot

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 ☐ not waxing
Other ☐ _____

43. Other comments: _____

Appendix E

Completed Field Forms

Terracon

Street Address: 327 E Arlington
Name of Resident: [redacted]

Arrival Checklist

Date of Visit: 4/26/2011

Time of Arrival: 1030 **Time of Departure:** 1120

Names of Terracon Representatives: John Brumbaugh
Jen Clancy

X Introduce Terracon Representatives and Show Terracon Identification

X Verify identity of resident; confirm authority to allow entry

X Explain purpose of visit (check as appropriate):

- X Sample Port Installation
- X Completion of Questionnaire
- _____ Indoor Air Sampling Canister Removal
- _____ Other [Explain: _____]
- _____ Sub-Slap Vapor Sampling
- _____ Indoor Air Sampling Canister Installation
- _____ Outdoor Air Sampling

X Explain if follow-up visits will occur and verify date/time of follow-up visits as appropriate.

Date of Follow-Up Visit: 4/28 & 4/29

Time of Follow-Up Visit: 9:00 am

Items Completed as Noted:

Jennifer M Clancy
Terracon Representative Signature

[redacted]
Resident Signature

Terracon

Street Address: 322 E Arlington
Name of Resident: [redacted]
Date and Time of Visit: 4/26/2011 ; 10:30 am

Sampling Port Installation Checklist

X Work with resident to identify mutually agreeable area to install port in lowest occupied level of home.

Precautions to be taken to protect floor coverings, if applicable:

_____

_____

_____

X Install sampling port in accordance with work plan procedures.

X Clean up any debris.

X Invite homeowner to view installed port and explain necessary precautions to prevent disturbance of it while it cures.

Items Completed as Noted:

Jennifer McClancey
Terracon Representative Signature

[redacted]
Resident Signature

(4)

Terracon

Street Address: 322 E Arlington St
Name of Resident: [redacted]

Arrival Checklist

Date of Visit: 4/28/2011

Time of Arrival: 910 **Time of Departure:** 935

Names of Terracon Representatives: John Bonneyer
Jen Clancy

___ Introduce Terracon Representatives and Show Terracon Identification

___ Verify identity of resident; confirm authority to allow entry

X Explain purpose of visit (check as appropriate):

____ Sample Port Installation

____ Completion of Questionnaire

____ Indoor Air Sampling Canister Removal

____ Other [Explain: _____]

____ Sub-Slap Vapor Sampling

X Indoor Air Sampling Canister Installation

X Outdoor Air Sampling

X Explain if follow-up visits will occur and verify date/time of follow-up visits as appropriate.

Date of Follow-Up Visit: 4/29/2011

Time of Follow-Up Visit: 900

Items Completed as Noted:

Jennifer M Clancy
Terracon Representative Signature

[redacted]
Resident Signature

(4)

Terracon

Street Address: 322 E Armstrong St
Name of Resident: [redacted]
Date and Time of Visit: 4/28/2011

Indoor Air Sampling Canister Installation Checklist

X Verify that heating/cooling system has been operating for at least 24 hours and that doors and windows have only been opened incidentally.

X Work with homeowner to identify an unobtrusive spot for canister to be placed consistent with work plan requirements.

X Explain precautions to be taken while the canister collects the samples.

X Arrange for visit to remove canister:

Date: 4/29/2011

Time: 900

Items Completed as Noted:

Jennifer M Clancy
Terracon Representative Signature

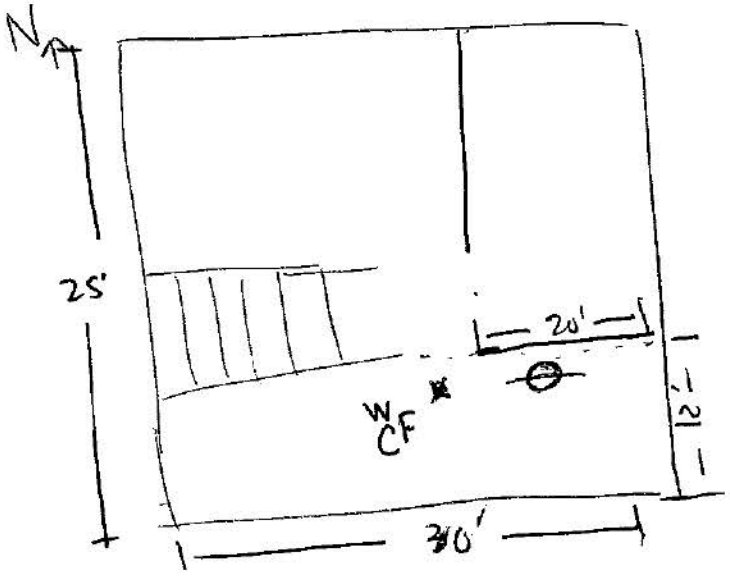
[redacted]
Resident Signature

VAPOR INTRUSION CHARACTERIZATION WORK PLAN
CHAMBERLAIN MANUFACTURING CORPORATION
FORMER FACILITY AT
550 ESTHER STREET
WATERLOO, IOWA

Soil Vapor/Indoor Air Sampling Information Form

Residence ID:	4	**Address:**	322 E Arlington
Sample ID:	1A-4-B	**Location:**	Basement utility rm N shelves
Date:	4/28/11	**Time:**	915
Sampler(s):	JHB JSME	**Summa Canister ID:**	04391 ~~K423~~
Flow Controller ID:	K423	**Flow Controller Rate Setting (cc/min):**	24 hr
Start Time:	915 4/28/11	**Finish Time:**	4/29/11 14:50
Pre-Sampling Vacuum (in Hg):	-29	**Post-Sampling Vacuum (in Hg):**	-2
Organic Vapor Reading (ppm):	—	**PID used:**	—
Summa Canister went to Ambient?	Yes / (No)	**Method:**	Grab
Comments:			

Sketch:



W = H2O Heater
F = furnace
C = chimney

Basement

O = Sump
⊗ = port

DO NOT TOUCH

SAMPLE IN PROGRESS

TERRACON PROJECT NUMBER: 07107070
PROJECT LOCATION: 322 E Arlington St
DATE INSTALLED: 4/28/2011
TIME INSTALLED: 915
ADDRESS INSTALLED: Same
SAMPLE ID: IA-4-B
SAMPLE LOCATION: Basement, utility room N. shelves

DEVICE #: 09391 **CONTROLLER#:** K423
LAB ID #:
RETRIEVAL DATE: 4/29/2011
PLANNED RETRIEVAL TIME:
ACTUAL RETRIEVAL TIME: 1450
TERRACON REPRESENTATIVE: Jane

COMMENTS:

Terracon
Consulting Engineers & Scientists

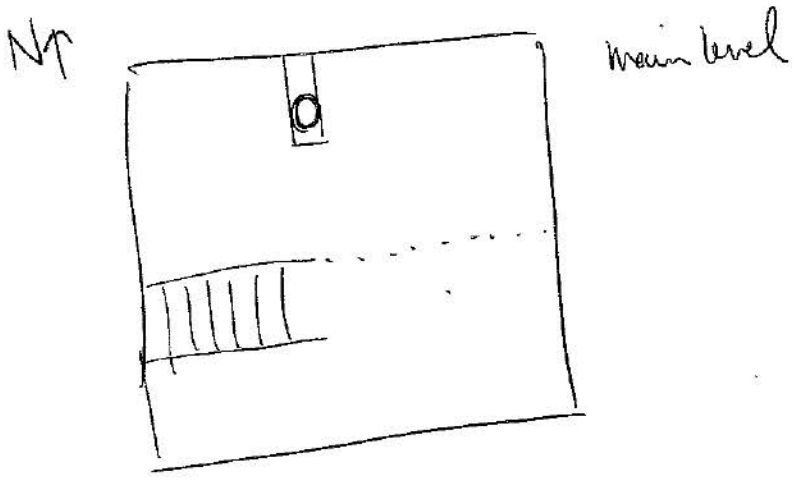
FOR INFORMATION CALL 563-355-0702
870 40th Avenue
Bettendorf, Iowa 52722

VAPOR INTRUSION CHARACTERIZATION WORK PLAN
CHAMBERLAIN MANUFACTURING CORPORATION
FORMER FACILITY AT
550 ESTHER STREET
WATERLOO, IOWA

Soil Vapor/Indoor Air Sampling Information Form

Residence ID:	4	**Address:**	322 E. Arlington
Sample ID:	IA-4-1	**Location:**	Bsmt b/h kitchen; dining room
Date:	4/28/11	**Time:**	918
Sampler(s):	JH/JMC	**Summa Canister ID:**	~~K234~~ 12340
Flow Controller ID:	~~FC~~ K234	**Flow Controller Rate Setting (cc/min):**	74hr
Start Time:	918 4/28/11	**Finish Time:**	14:52 4/29/11
Pre-Sampling Vacuum (in Hg):	-30	**Post-Sampling Vacuum (in Hg):**	-3 ~~FC~~
Organic Vapor Reading (ppm):	—	**PID used:**	—
Summa Canister went to Ambient?	Yes / (No)	**Method:**	Grab
Comments:			

Sketch:



DO NOT TOUCH

SAMPLE IN PROGRESS

TERRACON PROJECT NUMBER: 07107020
PROJECT LOCATION: 322 E Arlington St
DATE INSTALLED: 4/28/2011
TIME INSTALLED: 918
ADDRESS INSTALLED: Same
SAMPLE ID: IA-4-1
SAMPLE LOCATION: Bar bldg kitchen & dining room

DEVICE #: 12340 **CONTROLLER#:** K234
LAB ID #:
RETRIEVAL DATE: 4/29/2011
PLANNED RETRIEVAL TIME:
ACTUAL RETRIEVAL TIME: 1432
TERRACON REPRESENTATIVE: jme

COMMENTS:

Terracon
Consulting Engineers & Scientists

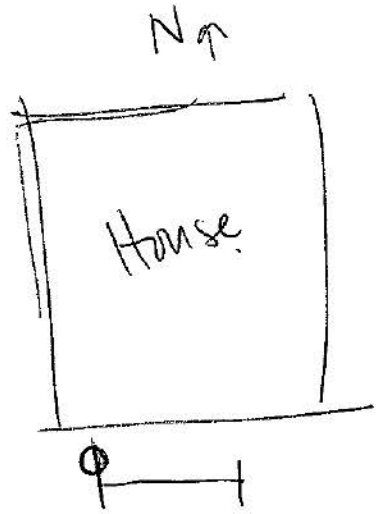
FOR INFORMATION CALL 563-355-0702
870 40th Avenue
Bettendorf, Iowa 52722

VAPOR INTRUSION CHARACTERIZATION WORK PLAN
CHAMBERLAIN MANUFACTURING CORPORATION
FORMER FACILITY AT
550 ESTHER STREET
WATERLOO, IOWA

Soil Vapor/Indoor Air Sampling Information Form

Residence ID:	4	**Address:**	322 E. Arlington
Sample ID:	AA-4	**Location:**	Basement - Wash of clothesline hanging
Date:	4/25/11	**Time:**	1124
Sampler(s):	JFB/JMC	**Summa Canister ID:**	12264
Flow Controller ID:	K188	**Flow Controller Rate Setting (cc/min):**	24hr
Start Time:	1129 4/25/11	**Finish Time:**	4/26/11 14:59
Pre-Sampling Vacuum (in Hg):	-30	**Post-Sampling Vacuum (in Hg):**	-1.5
Organic Vapor Reading (ppm):	—	**PID used:**	—
Summa Canister went to Ambient?	Yes / (No)	**Method:**	TO-15 Grab
Comments:	key # 18019		

Sketch:



O: Sump

DO NOT TOUCH

SAMPLE IN PROGRESS

TERRACON PROJECT NUMBER: 07107020
PROJECT LOCATION: 322 E Arlington St
DATE INSTALLED: 4/28/2011
TIME INSTALLED: 929
ADDRESS INSTALLED: Same
SAMPLE ID: AA-4
SAMPLE LOCATION: Backboard hanging

DEVICE #: 12266 **CONTROLLER#:** K188
LAB ID #:
RETRIEVAL DATE: 4/29/2011
PLANNED RETRIEVAL TIME: 929
ACTUAL RETRIEVAL TIME: 1459
TERRACON REPRESENTATIVE: JME

COMMENTS:

Terracon
Consulting Engineers & Scientists

FOR INFORMATION CALL 563-355-0702
870 40th Avenue
Bettendorf, Iowa 52722

Terracon

Street Address: 322 E Arlington
Name of Resident: [redacted]

Arrival Checklist

Date of Visit: 4/29/2011

Time of Arrival: 900 **Time of Departure:** 1500

Names of Terracon Representatives: Jen Clancy
justin enwall

X Introduce Terracon Representatives and Show Terracon Identification

X Verify identity of resident; confirm authority to allow entry

X Explain purpose of visit (check as appropriate):

____ Sample Port Installation

X Sub-Slap Vapor Sampling

____ Completion of Questionnaire

_____ Indoor Air Sampling Canister Installation

X Indoor Air Sampling Canister Removal x2

X Outdoor Air Sampling pickup

_____ Other [Explain: _____]

____ Explain if follow-up visits will occur and verify date/time of follow-up visits as appropriate.

Date of Follow-Up Visit: _____

Time of Follow-Up Visit: _____

Items Completed as Noted:

Jennifer M Clancy
Terracon Representative Signature

[redacted]
Resident Signature

VAPOR INTRUSION CHARACTERIZATION WORK PLAN
CHAMBERLAIN MANUFACTURING CORPORATION
FORMER FACILITY AT
550 ESTHER STREET
WATERLOO, IOWA

Soil Vapor/Indoor Air Sampling Information Form

Residence ID:	4	**Address:**	322 E Arlington
Sample ID:	SS-4	**Location:**	Waterloo
Date:	4/29/2011	**Time:**	900
Sampler(s):	jmc & jme	**Summa Canister ID:**	1910
Flow Controller ID:	— 19	**Flow Controller Rate Setting (cc/min):**	
Start Time:	909	**Finish Time:**	944
Pre-Sampling Vacuum (in Hg):	-28	**Post-Sampling Vacuum (in Hg):**	-1.5
Organic Vapor Reading (ppm):	ambient: 0.1ppm SS: 0.5ppm	**PID used:**	MiniRAE 3000
Summa Canister went to Ambient?	Yes / (No)	**Method:** TO15	Grab
Comments:			

Sketch:

Terracon

Street Address: 401 E. Arlington ST
Name of Resident: [redacted]

Arrival Checklist

Date of Visit: 4-26-11

Time of Arrival: 1:30 **Time of Departure:** 1750

Names of Terracon Representatives: Justin Ennall
Mark Anderson

√ Introduce Terracon Representatives and Show Terracon Identification

√ Verify identity of resident; confirm authority to allow entry

___ Explain purpose of visit (check as appropriate):

√ Sample Port Installation

___ Sub-Slap Vapor Sampling

√ Completion of Questionnaire

___ Indoor Air Sampling Canister Installation

___ Indoor Air Sampling Canister Removal

___ Outdoor Air Sampling

___ Other [Explain: _____]

√ Explain if follow-up visits will occur and verify date/time of follow-up visits as appropriate.

Date of Follow-Up Visit: 4/26/11

Time of Follow-Up Visit: 5:30 PM

Items Completed as Noted:

Terracon Representative Signature

[redacted]
Resident Signature

Terracon

Street Address: 401 E. Arlington ST
Name of Resident: [redacted]
Date and Time of Visit: 4-26-11 @ 1:30

Sampling Port Installation Checklist

✓ Work with resident to identify mutually agreeable area to install port in lowest occupied level of home.

Precautions to be taken to protect floor coverings, if applicable:

_____

_____

_____

✓ Install sampling port in accordance with work plan procedures.

✓ Clean up any debris.

_____ Invite homeowner to view installed port and explain necessary precautions to prevent disturbance of it while it cures.

Items Completed as Noted:

Justin Ezell
_____
Terracon Representative Signature

[redacted]
_____
Resident Signature

Terracon

Street Address: 401 E Arlington St.
Name of Resident: [redacted]

Arrival Checklist

Date of Visit: 4/28/11

Time of Arrival: 1735 **Time of Departure:** 1835

Names of Terracon Representatives: Rob Bergman

Justin Enwall

✓ Introduce Terracon Representatives and Show Terracon Identification

✓ Verify identity of resident; confirm authority to allow entry

✓ Explain purpose of visit (check as appropriate):

____ Sample Port Installation

✓ Sub-Slap Vapor Sampling

____ Completion of Questionnaire

____ Indoor Air Sampling Canister Installation

____ Indoor Air Sampling Canister Removal

____ Outdoor Air Sampling

____ Other [Explain: _____]

____ Explain if follow-up visits will occur and verify date/time of follow-up visits as appropriate.

Date of Follow-Up Visit: _____

Time of Follow-Up Visit: _____

Items Completed as Noted:

Terracon Representative Signature

[redacted]

Resident Signature

6

VAPOR INTRUSION CHARACTERIZATION WORK PLAN
CHAMBERLAIN MANUFACTURING CORPORATION
FORMER FACILITY AT
550 ESTHER STREET
WATERLOO, IOWA

Soil Vapor/Indoor Air Sampling Information Form

Residence ID:	6	**Address:**	401 E Arlington St.
Sample ID:	SS-6	**Location:**	Waterloo, IA
Date:	4/28/11	**Time:**	1735
Sampler(s):	RPB / JME	**Summa Canister ID:**	21639
Flow Controller ID:	168	**Flow Controller Rate Setting (cc/min):**	200 cc/min
Start Time:	1745	**Finish Time:**	~~1830~~ 1825
Pre-Sampling Vacuum (in Hg):	-28	**Post-Sampling Vacuum (in Hg):**	-1
Organic Vapor Reading (ppm):	<1 (0.0 ppm)	**PID used:**	WBL MiniRae #2 10.6 EV lamp
Summa Canister went to Ambient?	Yes / (No)	**Method:**	Grab
Comments:	purged 200 cc from SSMP with syringe and approximately 10 cc from flow controller 0.0 ppm at ambient basement		
Sketch:			

Terracon

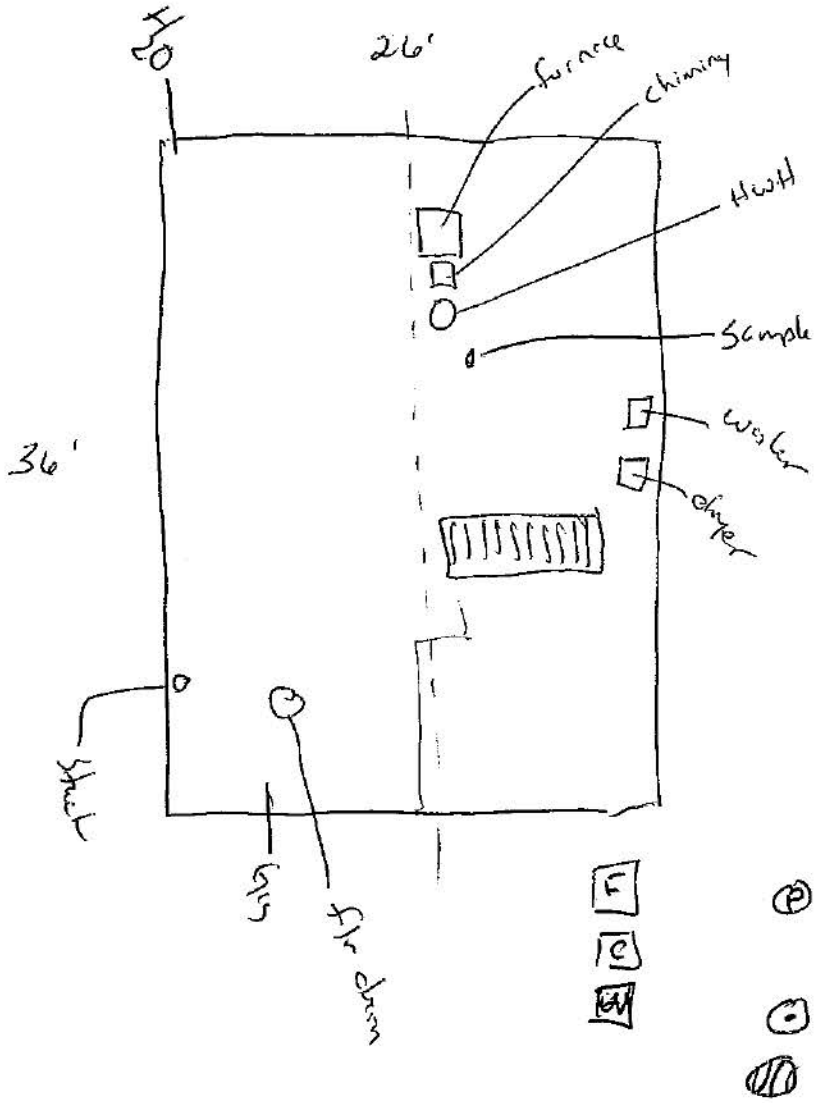
PROJECT: Chamberlain Manufacturing Corporation Page 1 of 1

JOB NO. ~~070~~ 07107020 Date 4-26-11 / 1:30 Comp. By JE / MA CHECKED BY:

401 E. Arlington ST

6

N →



Some standing H_2O in base ~ 20%

Form 112–5-93

Terracon

Street Address: [redacted] 211 Boston
Name of Resident: [redacted]

Arrival Checklist

Date of Visit: 4/28/11

Time of Arrival: 13:30 **Time of Departure:** _____

Names of Terracon Representatives: Justin Ennall
Rob Bergman

✓ Introduce Terracon Representatives and Show Terracon Identification

✓ Verify identity of resident; confirm authority to allow entry

✓ Explain purpose of visit (check as appropriate):

- ✓ Sample Port Installation
- ✓ Completion of Questionnaire
- _____ Indoor Air Sampling Canister Removal
- _____ Other [Explain: _____]
- _____ Sub-Slap Vapor Sampling
- _____ Indoor Air Sampling Canister Installation
- _____ Outdoor Air Sampling

✓ Explain if follow-up visits will occur and verify date/time of follow-up visits as appropriate.

Date of Follow-Up Visit: 5/2/11

Time of Follow-Up Visit: 1330

Items Completed as Noted:

_____
Terracon Representative Signature

[redacted]
Resident Signature

Terracon

Street Address: 211 Boston
Name of Resident: [redacted]
Date and Time of Visit: 4/28/11 1530

Sampling Port Installation Checklist

✓ Work with resident to identify mutually agreeable area to install port in lowest occupied level of home.

Precautions to be taken to protect floor coverings, if applicable:

_____

_____

_____

✓ Install sampling port in accordance with work plan procedures.

✓ Clean up any debris.

_____ Invite homeowner to view installed port and explain necessary precautions to prevent disturbance of it while it cures.

Items Completed as Noted:

_____
Terracon Representative Signature

[redacted]
Resident Signature

10

Terracon

Street Address: 211 Boston Ave
Name of Resident: [redacted]

Arrival Checklist

Date of Visit: 5/2/2011

Time of Arrival: 1335 **Time of Departure:** 1440

Names of Terracon Representatives: jen clancy
justin enwall

✓ Introduce Terracon Representatives and Show Terracon Identification

✓ Verify identity of resident; confirm authority to allow entry

✓ Explain purpose of visit (check as appropriate):

____ Sample Port Installation

✓ Sub-Slap Vapor Sampling

____ Completion of Questionnaire

_____ Indoor Air Sampling Canister Installation

_____ Indoor Air Sampling Canister Removal

_____ Outdoor Air Sampling

_____ Other [Explain: _____]

____ Explain if follow-up visits will occur and verify date/time of follow-up visits as appropriate.

Date of Follow-Up Visit: _____

Time of Follow-Up Visit: _____

Items Completed as Noted:

Jennifer M Clancy
Terracon Representative Signature

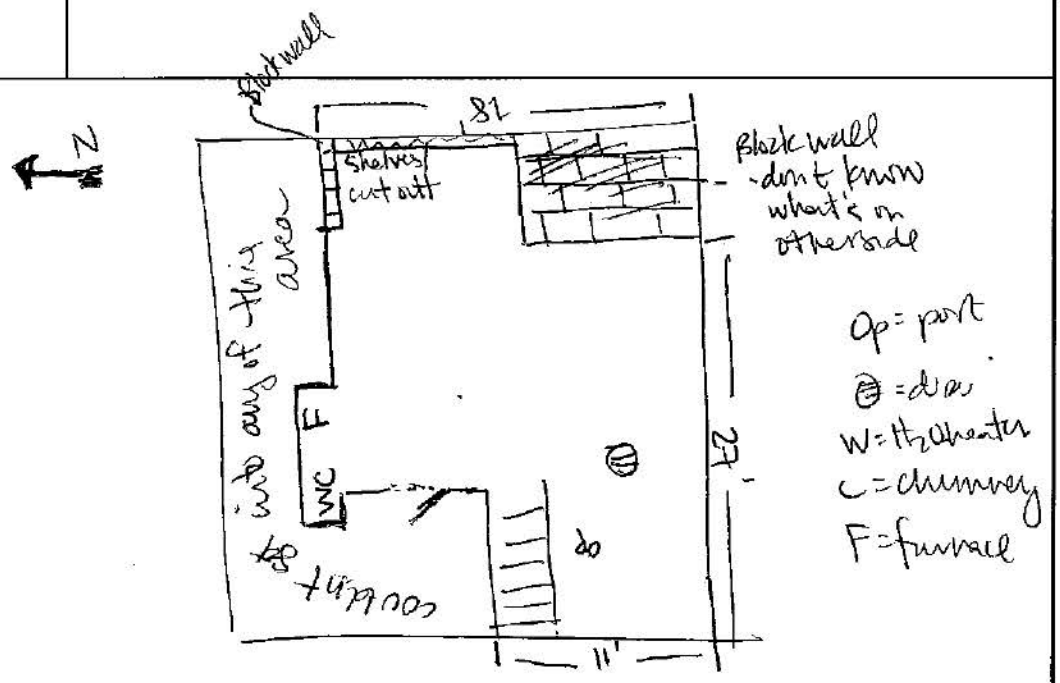
[redacted]
Resident Signature

VAPOR INTRUSION CHARACTERIZATION WORK PLAN
CHAMBERLAIN MANUFACTURING CORPORATION
FORMER FACILITY AT
550 ESTHER STREET
WATERLOO, IOWA

Soil Vapor/Indoor Air Sampling Information Form

Residence ID:	10	**Address:**	211 Boston Ave
Sample ID:	SS-10	**Location:**	Waterloo
Date:	5/2/2011	**Time:**	1335
Sampler(s):	jmc/jme	**Summa Canister ID:**	1010B
Flow Controller ID:	184	**Flow Controller Rate Setting (cc/min):**	
Start Time:	1342	**Finish Time:**	1424
Pre-Sampling Vacuum (in Hg):	-29.5	**Post-Sampling Vacuum (in Hg):**	-1.5
Organic Vapor Reading (ppm):	ambient = 0.0 SS: 0.1	**PID used:**	MiniRAE 3000
Summa Canister went to Ambient?	Yes / (No)	**Method:**	TO-15 Grab
Comments:			

Sketch:



Terracon

Street Address: 216 Boston
Name of Resident: [redacted]

Arrival Checklist

Date of Visit: 4/26/2011

Time of Arrival: 530 **Time of Departure:** 605

Names of Terracon Representatives: John Brumeyer
Jen Clancy

X Introduce Terracon Representatives and Show Terracon Identification

X Verify identity of resident; confirm authority to allow entry

X Explain purpose of visit (check as appropriate):

X Sample Port Installation

X Completion of Questionnaire

_____ Indoor Air Sampling Canister Removal

_____ Other [Explain: _____]

_____ Sub-Slap Vapor Sampling

_____ Indoor Air Sampling Canister Installation

_____ Outdoor Air Sampling

X Explain if follow-up visits will occur and verify date/time of follow-up visits as appropriate.

Date of Follow-Up Visit: 4/28

Time of Follow-Up Visit: 430

Items Completed as Noted:

Jennifer M Clancy
Terracon Representative Signature

[redacted]
Resident Signature

Terracon

Street Address: 216 Boston
Name of Resident: [redacted]
Date and Time of Visit: 12/20/2011 530

Sampling Port Installation Checklist

X Work with resident to identify mutually agreeable area to install port in lowest occupied level of home.

Precautions to be taken to protect floor coverings, if applicable:

_____

_____

_____

X Install sampling port in accordance with work plan procedures.

X Clean up any debris.

X Invite homeowner to view installed port and explain necessary precautions to prevent disturbance of it while it cures.

Items Completed as Noted:

Jennifer McClancy
Terracon Representative Signature

[redacted]
Resident Signature

Terracon

Street Address: 216 Boston Ave 13
Name of Resident: [redacted]

Arrival Checklist

Date of Visit: 4/28/2011

Time of Arrival: 430 **Time of Departure:** 5:20

Names of Terracon Representatives: John Bonnemeyer
Jen Clancy

X Introduce Terracon Representatives and Show Terracon Identification

X Verify identity of resident; confirm authority to allow entry

X Explain purpose of visit (check as appropriate):

____ Sample Port Installation	X Sub-Slap Vapor Sampling
____ Completion of Questionnaire	_____ Indoor Air Sampling Canister Installation
_____ Indoor Air Sampling Canister Removal	_____ Outdoor Air Sampling

_____ Other [Explain: _____]

____ Explain if follow-up visits will occur and verify date/time of follow-up visits as appropriate.

Date of Follow-Up Visit: _____

Time of Follow-Up Visit: _____

Items Completed as Noted:

Jennifer M Clancy
Terracon Representative Signature

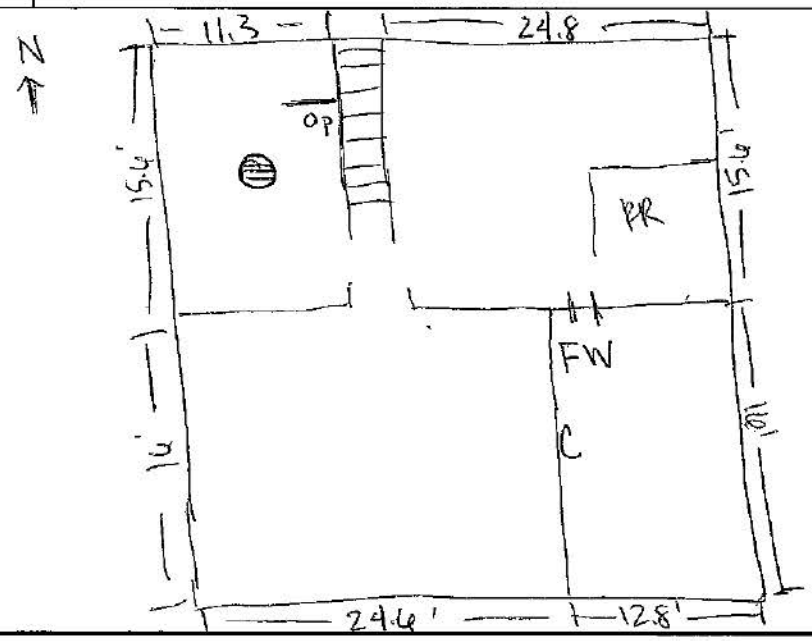
[redacted]
Resident Signature

VAPOR INTRUSION CHARACTERIZATION WORK PLAN
CHAMBERLAIN MANUFACTURING CORPORATION
FORMER FACILITY AT
550 ESTHER STREET
WATERLOO, IOWA

Soil Vapor/Indoor Air Sampling Information Form

Residence ID:	13	**Address:**	216 Boston Ave
Sample ID:	SS-13	**Location:**	Waterloo
Date:	4/28/2011	**Time:**	430
Sampler(s):	JH/JME	**Summa Canister ID:**	02342N
Flow Controller ID:		**Flow Controller Rate Setting (cc/min):**	
Start Time:	1637	**Finish Time:**	1715
Pre-Sampling Vacuum (in Hg):	-28.5	**Post-Sampling Vacuum (in Hg):**	-2.5
Organic Vapor Reading (ppm):		**PID used:** MiniRAE 3000	ambient: 0.0 ppm slabslab: 0.5 ppm
Summa Canister went to Ambient?	Yes / No	**Method:** TO-15	Grab
Comments:			

Sketch:



Terracon

Street Address: 223 Boston Ave.
Name of Resident: [redacted]

Arrival Checklist

Date of Visit: 4/27/11

Time of Arrival: 830 **Time of Departure:** 940

Names of Terracon Representatives: Justin Emmett
Mark Anderson

✓ Introduce Terracon Representatives and Show Terracon Identification

✓ Verify identity of resident; confirm authority to allow entry

✓ Explain purpose of visit (check as appropriate):

✓ Sample Port Installation

✓ Completion of Questionnaire

_____ Sub-Slap Vapor Sampling

_____ Indoor Air Sampling Canister Installation

_____ Indoor Air Sampling Canister Removal

_____ Outdoor Air Sampling

_____ Other [Explain: _____]

____ Explain if follow-up visits will occur and verify date/time of follow-up visits as appropriate.

Date of Follow-Up Visit: 5/2/11

Time of Follow-Up Visit: 11:00

Items Completed as Noted:

Terracon Representative Signature

[redacted]
Resident Signature

Terracon

Street Address: 223 Boston Ave.
Name of Resident: [redacted]
Date and Time of Visit: 4-27-11 @ 8:30

Sampling Port Installation Checklist

✓ Work with resident to identify mutually agreeable area to install port in lowest occupied level of home.

Precautions to be taken to protect floor coverings, if applicable:

only small strip @ ~ 8'5 x 3-5' E & NWC was painted concrete flr
→ other appears to be 12 x 12" flr tiles
→ limited access to entire basement

✓ Install sampling port in accordance with work plan procedures.

____ Clean up any debris.

____ Invite homeowner to view installed port and explain necessary precautions to prevent disturbance of it while it cures.

Items Completed as Noted:

Terracon Representative Signature

[redacted]

Resident Signature

15

Terracon

Street Address: 223 Boston Ave
Name of Resident: [redacted]

Arrival Checklist

Date of Visit: 5/2/2011

Time of Arrival: 1100 **Time of Departure:** 1155

Names of Terracon Representatives: jm clancy
justin criswell

___ Introduce Terracon Representatives and Show Terracon Identification

___ Verify identity of resident; confirm authority to allow entry

X Explain purpose of visit (check as appropriate):

____ Sample Port Installation

X Sub-Slap Vapor Sampling

____ Completion of Questionnaire

_____ Indoor Air Sampling Canister Installation

_____ Indoor Air Sampling Canister Removal

_____ Outdoor Air Sampling

_____ Other [Explain: _____]

____ Explain if follow-up visits will occur and verify date/time of follow-up visits as appropriate.

Date of Follow-Up Visit: _____

Time of Follow-Up Visit: _____

would like results letter

Items Completed as Noted:

Jm Clancy
Terracon Representative Signature

[redacted]
Resident Signature

VAPOR INTRUSION CHARACTERIZATION WORK PLAN
CHAMBERLAIN MANUFACTURING CORPORATION
FORMER FACILITY AT
550 ESTHER STREET
WATERLOO, IOWA

Soil Vapor/Indoor Air Sampling Information Form

Residence ID:	15	**Address:**	223 Boston Ave
Sample ID:	SS-15	**Location:**	Waterloo
Date:	5/2/2011	**Time:**	1100
Sampler(s):	jmc / jme	**Summa Canister ID:**	6680
Flow Controller ID:	97	**Flow Controller Rate Setting (cc/min):**	
Start Time:	1111	**Finish Time:**	1150
Pre-Sampling Vacuum (in Hg):	-29	**Post-Sampling Vacuum (in Hg):**	-2.5
Organic Vapor Reading (ppm):	ambient 0.0ppm SS'. 0.0ppm	**PID used:** 10.6 lamp	mini RAE 3000 #1 - different from prv wk (#2)
Summa Canister went to Ambient?	Yes / (No)	**Method:**	TO-15 Grab
Comments:			

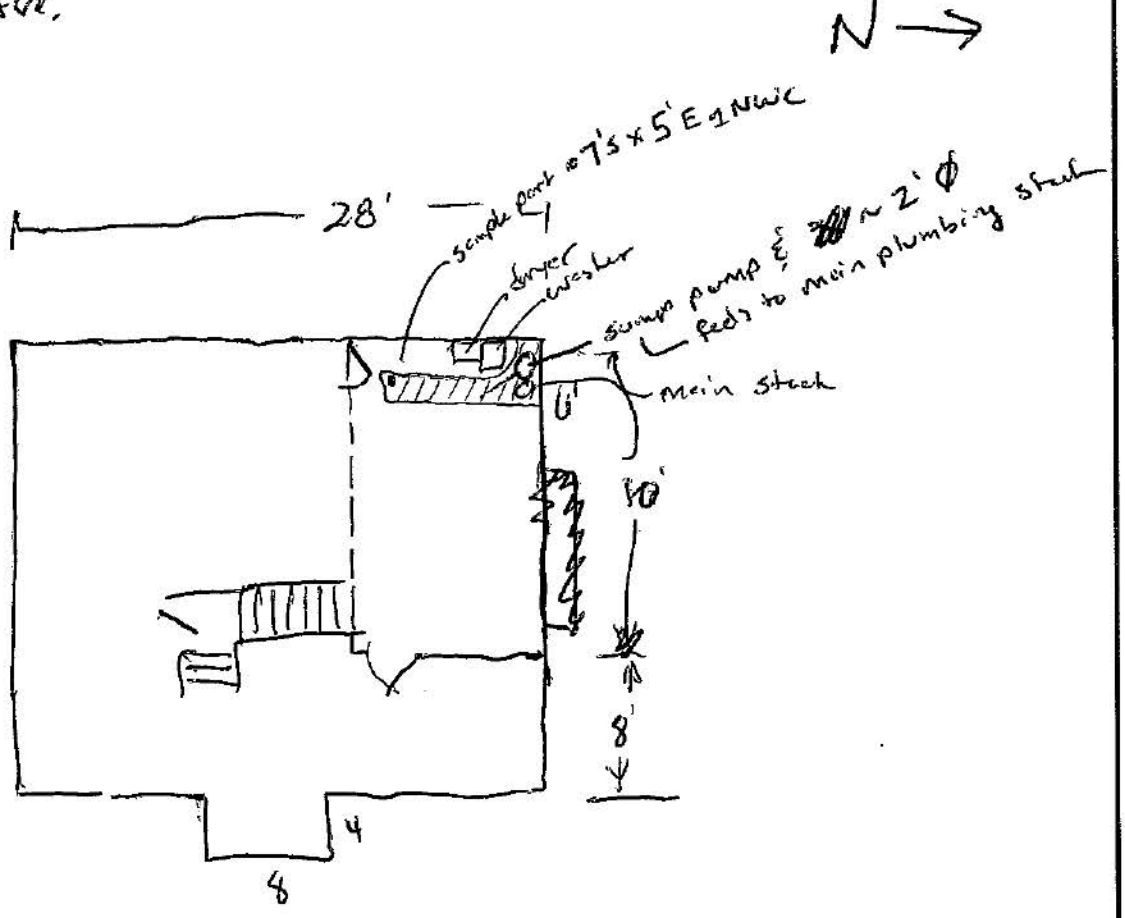
Sketch:

Terracon

PROJECT: _____ Page _____ of _____

JOB NO. _____ Date 4-27-11 Comp. By JE/MA CHECKED BY: RS

223 E. Boston Ave.



Basement Mostly finished, client didn't invite us into other base rms.
↳ client works 3rd shift & is laying down

= painted concrete, other appears to be 12 x 12 fir tibs

Terracon

Street Address: 227 Boston Ave
Name of Resident: [redacted]

Arrival Checklist

Date of Visit: 4/25/2011

Time of Arrival: 1100 **Time of Departure:** 1145

Names of Terracon Representatives: John Brimeyer
Jen Clancy

X Introduce Terracon Representatives and Show Terracon Identification

X Verify identity of resident; confirm authority to allow entry

X Explain purpose of visit (check as appropriate):

X Sample Port Installation ____ Sub-Slap Vapor Sampling

____ Completion of Questionnaire ____ Indoor Air Sampling Canister Installation

____ Indoor Air Sampling Canister Removal ____ Outdoor Air Sampling

____ Other [Explain: _____]

X Explain if follow-up visits will occur and verify date/time of follow-up visits as appropriate.

Date of Follow-Up Visit: 4/28/2011

Time of Follow-Up Visit: 1100

Items Completed as Noted:

Jennifer McClancy
Terracon Representative Signature

[redacted]
Resident Signature

Terracon

Street Address: 227 Boston Ave
Name of Resident: [redacted]
Date and Time of Visit: 4/25/2011 ; 1100 am

Sampling Port Installation Checklist

X Work with resident to identify mutually agreeable area to install port in lowest occupied level of home.

Precautions to be taken to protect floor coverings, if applicable:

X Install sampling port in accordance with work plan procedures.

X Clean up any debris.

X Invite homeowner to view installed port and explain necessary precautions to prevent disturbance of it while it cures.

Items Completed as Noted:

Jennifer McClancy
Terracon Representative Signature

[redacted]
Resident Signature

Terracon

Street Address: 227 Boston Ave
Name of Resident: [redacted]

Arrival Checklist

Date of Visit: 4/28/2021

Time of Arrival: 1100 **Time of Departure:** 1220

Names of Terracon Representatives: John Brunsgaard
Jen Clancy

X Introduce Terracon Representatives and Show Terracon Identification

X Verify identity of resident; confirm authority to allow entry

X Explain purpose of visit (check as appropriate):

____ Sample Port Installation

X Sub-Slap Vapor Sampling

____ Completion of Questionnaire

_____ Indoor Air Sampling Canister Installation

_____ Indoor Air Sampling Canister Removal

_____ Outdoor Air Sampling

_____ Other [Explain: _____]

____ Explain if follow-up visits will occur and verify date/time of follow-up visits as appropriate.

Date of Follow-Up Visit: _____

Time of Follow-Up Visit: _____

Items Completed as Noted:

Jennifer M Clancy
Terracon Representative Signature

[redacted]
Resident Signature

VAPOR INTRUSION CHARACTERIZATION WORK PLAN
CHAMBERLAIN MANUFACTURING CORPORATION
FORMER FACILITY AT
550 ESTHER STREET
WATERLOO, IOWA

Soil Vapor/Indoor Air Sampling Information Form

Residence ID:	17	**Address:**	227 Boston
Sample ID:	SS-17	**Location:**	Waterloo
Date:	4/28/2011	**Time:**	1100
Sampler(s):	JHB/JMC	**Summa Canister ID:**	4431
Flow Controller ID:		**Flow Controller Rate Setting (cc/min):**	
Start Time:	1115	**Finish Time:**	1145
Pre-Sampling Vacuum (in Hg):	-28.5	**Post-Sampling Vacuum (in Hg):**	-4
Organic Vapor Reading (ppm):		**PID used:**	
Summa Canister went to Ambient?	Yes / No	**Method:** TO-15	Grab
Comments:			

Sketch:

F: furnace
W: Hot Water Heater
C: Chimney

VAPOR INTRUSION CHARACTERIZATION WORK PLAN
CHAMBERLAIN MANUFACTURING CORPORATION
FORMER FACILITY AT
550 ESTHER STREET
WATERLOO, IOWA

Soil Vapor/Indoor Air Sampling Information Form

Residence ID:	17	**Address:**	227 Boston
Sample ID:	SSD-17	**Location:**	Waterloo
Date:	4/28/2011	**Time:**	1100
Sampler(s):		**Summa Canister ID:**	1536
Flow Controller ID:		**Flow Controller Rate Setting (cc/min):**	
Start Time:	1146	**Finish Time:**	1216
Pre-Sampling Vacuum (in Hg):	-28	**Post-Sampling Vacuum (in Hg):**	-3
Organic Vapor Reading (ppm):		**PID used:** MiniRAE 3000	ambient: 1.2 ppm 1.2 ppm
Summa Canister went to Ambient?	Yes / No	**Method:**	Grab
Comments:	ambient . 1.2 ppm		

Sketch:

See SS-17

Terracon

Street Address: 231 Boston
Name of Resident: [redacted]

Arrival Checklist

Date of Visit: 4/27/2011

Time of Arrival: 1030 **Time of Departure:** 1115

Names of Terracon Representatives: John Bronneyer
Jim Clancy

X Introduce Terracon Representatives and Show Terracon Identification

X Verify identity of resident; confirm authority to allow entry

X Explain purpose of visit (check as appropriate):

- X Sample Port Installation
- X Completion of Questionnaire
- _____ Indoor Air Sampling Canister Removal
- _____ Other [Explain: _____]
- _____ Sub-Slap Vapor Sampling
- _____ Indoor Air Sampling Canister Installation
- _____ Outdoor Air Sampling

X Explain if follow-up visits will occur and verify date/time of follow-up visits as appropriate.

Date of Follow-Up Visit: 4/29

Time of Follow-Up Visit: 11:00

Items Completed as Noted:

Jim Clancy
Terracon Representative Signature

[redacted]
Resident Signature

Terracon

Street Address: 236 Boston
Name of Resident: [redacted]
Date and Time of Visit: 4/27/2011

Sampling Port Installation Checklist

X Work with resident to identify mutually agreeable area to install port in lowest occupied level of home.

Precautions to be taken to protect floor coverings, if applicable:

X Install sampling port in accordance with work plan procedures.

X Clean up any debris.

X Invite homeowner to view installed port and explain necessary precautions to prevent disturbance of it while it cures.

Items Completed as Noted:

Terracon Representative Signature

[redacted]

Resident Signature

Terracon

Street Address: 236 Boston Ave
Name of Resident: [redacted]

Arrival Checklist

Date of Visit: 4/29/2011

Time of Arrival: 1100 **Time of Departure:** 1155

Names of Terracon Representatives: Jen Clancy
~~Jason~~ Justin Linwall

X Introduce Terracon Representatives and Show Terracon Identification

X Verify identity of resident; confirm authority to allow entry

X Explain purpose of visit (check as appropriate):

____ Sample Port Installation

X Sub-Slap Vapor Sampling

____ Completion of Questionnaire

_____ Indoor Air Sampling Canister Installation

_____ Indoor Air Sampling Canister Removal

_____ Outdoor Air Sampling

_____ Other [Explain: _____]

____ Explain if follow-up visits will occur and verify date/time of follow-up visits as appropriate.

Date of Follow-Up Visit: _____

Time of Follow-Up Visit: _____

Items Completed as Noted:

Jennifer McClancy
Terracon Representative Signature

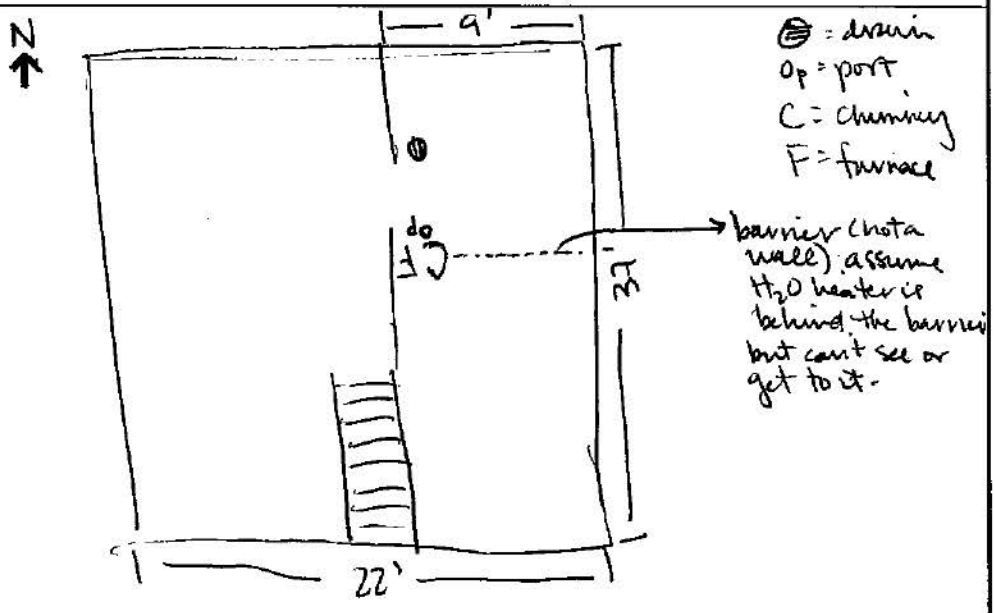
[redacted]
Resident Signature

VAPOR INTRUSION CHARACTERIZATION WORK PLAN
CHAMBERLAIN MANUFACTURING CORPORATION
FORMER FACILITY AT
550 ESTHER STREET
WATERLOO, IOWA

Soil Vapor/Indoor Air Sampling Information Form

Residence ID:	20	**Address:**	236 Boston Ave
Sample ID:	SS-20	**Location:**	Waterloo
Date:	4/29/2011	**Time:**	1100
Sampler(s):	jme / jme	**Summa Canister ID:**	12820
Flow Controller ID:	198	**Flow Controller Rate Setting (cc/min):**	
Start Time:	1111	**Finish Time:**	1156
Pre-Sampling Vacuum (in Hg):	-28.5	**Post-Sampling Vacuum (in Hg):**	-2.5
Organic Vapor Reading (ppm):	ambient: 0.1 ppm SS: 0.5 ppm	**PID used:**	MiniRAE 3000
Summa Canister went to Ambient?	Yes / (No)	**Method:**	Grab
Comments:			

Sketch:



Terracon

Street Address: 239 Boston Ave.
Name of Resident: [redacted]

Arrival Checklist

Date of Visit: 4/27/11

Time of Arrival: 1330 **Time of Departure:** 1430

Names of Terracon Representatives: Justin Fennell
Mark Anderson

✓ Introduce Terracon Representatives and Show Terracon Identification

✓ Verify identity of resident; confirm authority to allow entry

✓ Explain purpose of visit (check as appropriate):

- ✓ Sample Port Installation
- ✓ Completion of Questionnaire
- _____ Indoor Air Sampling Canister Removal
- _____ Other [Explain: _____]
- _____ Sub-Slap Vapor Sampling
- _____ Indoor Air Sampling Canister Installation
- _____ Outdoor Air Sampling

✓ Explain if follow-up visits will occur and verify date/time of follow-up visits as appropriate.

Date of Follow-Up Visit: 4/29/11

Time of Follow-Up Visit: 300 PM

Items Completed as Noted:

Justin Fennell
Terracon Representative Signature

Resident Signature

Terracon

Street Address: 239 Boston Ave.
Name of Resident: [redacted]
Date and Time of Visit: 4-27-11 @ 1:30p

Sampling Port Installation Checklist

✓ Work with resident to identify mutually agreeable area to install port in lowest occupied level of home.

Precautions to be taken to protect floor coverings, if applicable:

_____

_____

_____

✓ Install sampling port in accordance with work plan procedures.

✓ Clean up any debris.

_____ Invite homeowner to view installed port and explain necessary precautions to prevent disturbance of it while it cures.

Did not want to see it

Items Completed as Noted:

_____
Terracon Representative Signature

_____
Resident Signature

Terracon

Street Address: 239 Boston Ave
Name of Resident: [redacted]

Arrival Checklist

Date of Visit: 4/20/2021

Time of Arrival: 1540 **Time of Departure:** 1635

Names of Terracon Representatives: Jen Clancy
justin enwall

X Introduce Terracon Representatives and Show Terracon Identification

X Verify identity of resident; confirm authority to allow entry

X Explain purpose of visit (check as appropriate):

____ Sample Port Installation

X Sub-Slap Vapor Sampling

____ Completion of Questionnaire

_____ Indoor Air Sampling Canister Installation

_____ Indoor Air Sampling Canister Removal

_____ Outdoor Air Sampling

_____ Other [Explain: _____]

____ Explain if follow-up visits will occur and verify date/time of follow-up visits as appropriate.

Date of Follow-Up Visit: _____

Time of Follow-Up Visit: _____

Items Completed as Noted:

Jennifer M Clancy
Terracon Representative Signature

[redacted]

VAPOR INTRUSION CHARACTERIZATION WORK PLAN
CHAMBERLAIN MANUFACTURING CORPORATION
FORMER FACILITY AT
550 ESTHER STREET
WATERLOO, IOWA

Soil Vapor/Indoor Air Sampling Information Form

Residence ID:	21	**Address:**	239 Boston Ave
Sample ID:	SS-21	**Location:**	Waterloo
Date:	4/29/2011	**Time:**	1540
Sampler(s):	jmc / jme	**Summa Canister ID:**	11146
Flow Controller ID:	55	**Flow Controller Rate Setting (cc/min):**	
Start Time:	1556	**Finish Time:**	1630
Pre-Sampling Vacuum (in Hg):	-29	**Post-Sampling Vacuum (in Hg):**	-3
Organic Vapor Reading (ppm):	ambient: 0.3 ppm SS: 0.1 ppm	**PID used:**	miniRAE 3000
Summa Canister went to Ambient?	Yes / (No)	**Method:**	TO15 Grab
Comments:			

Sketch:

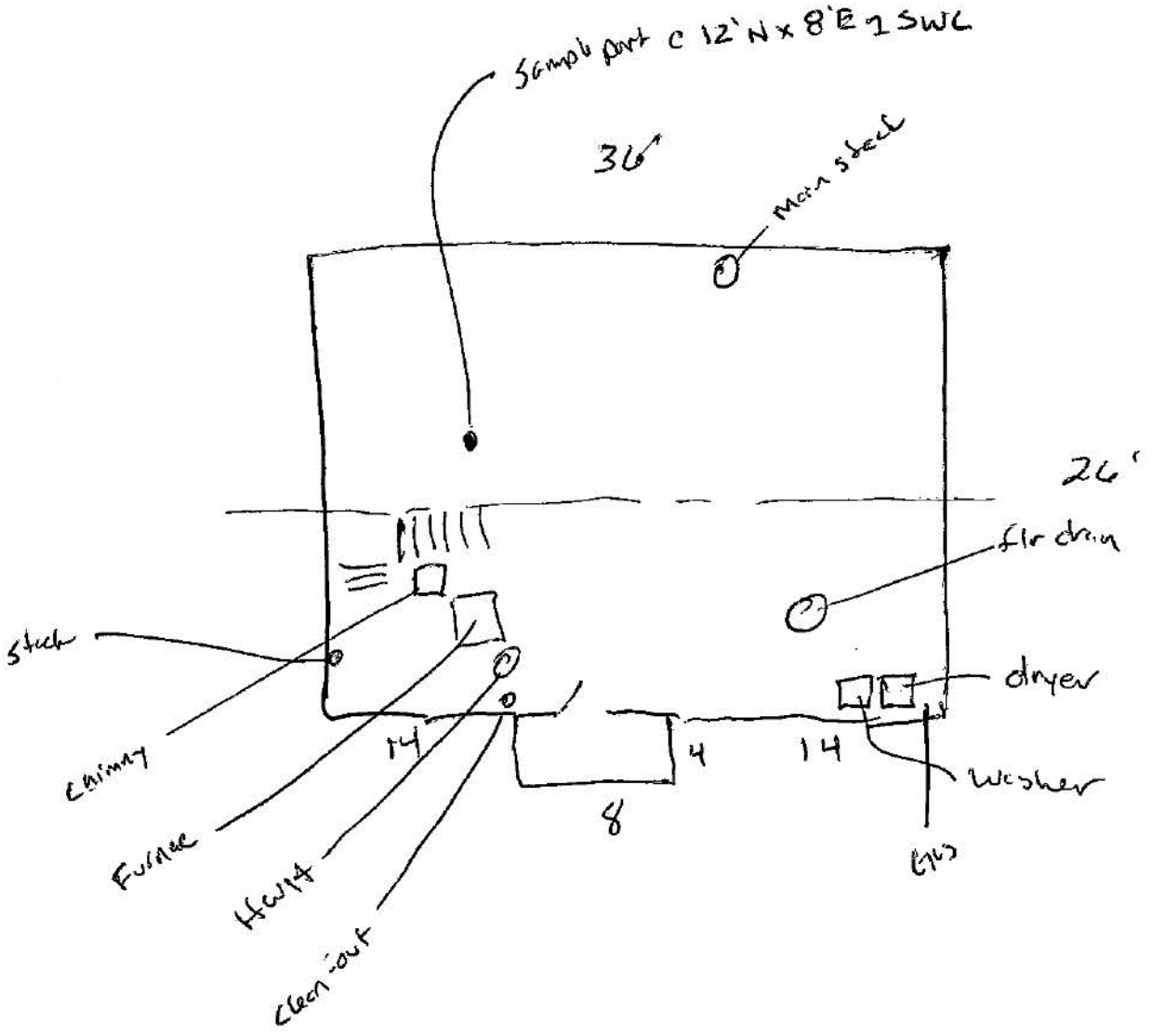
Terracon

PROJECT: _____ Page _____ of _____

JOB NO. _____ Date 4-27-11 Comp. By JE/MA CHECKED BY: _____

239 Boston Ave

N →



Washer drain = PVC above grade to flr drain

Terracon

Street Address: 240 Boston Ave
Name of Resident: [redacted]

Arrival Checklist

Date of Visit: 4/24/2021

Time of Arrival: 330 **Time of Departure:** _____

Names of Terracon Representatives: John Brinneyer
Jen Clancy

X Introduce Terracon Representatives and Show Terracon Identification

X Verify identity of resident; confirm authority to allow entry

X Explain purpose of visit (check as appropriate):

X Sample Port Installation

X Completion of Questionnaire

_____ Indoor Air Sampling Canister Removal

_____ Other [Explain: _____]

_____ Sub-Slap Vapor Sampling

_____ Indoor Air Sampling Canister Installation

_____ Outdoor Air Sampling

X Explain if follow-up visits will occur and verify date/time of follow-up visits as appropriate.

Date of Follow-Up Visit: 4/28

Time of Follow-Up Visit: 300 pm

Items Completed as Noted:

Jennifer M Clancy
Terracon Representative Signature

[redacted]

Terracon

Street Address: 240 Boston Ave
Name of Resident: [redacted]
Date and Time of Visit: [redacted]

Sampling Port Installation Checklist

X Work with resident to identify mutually agreeable area to install port in lowest occupied level of home.

Precautions to be taken to protect floor coverings, if applicable:

X Install sampling port in accordance with work plan procedures.

X Clean up any debris.

X Invite homeowner to view installed port and explain necessary precautions to prevent disturbance of it while it cures.

Items Completed as Noted:

Jennifer M Clancy

Terracon Representative Signature

[redacted]

Terracon

22

Street Address: 240 Boston Ave
Name of Resident: [redacted]

Arrival Checklist

Date of Visit: 4/28/2011

Time of Arrival: 300 **Time of Departure:** 355

Names of Terracon Representatives: John Bruneja
Jen Clancy

___ Introduce Terracon Representatives and Show Terracon Identification

___ Verify identity of resident; confirm authority to allow entry

X Explain purpose of visit (check as appropriate):

____ Sample Port Installation

X Sub-Slap Vapor Sampling

____ Completion of Questionnaire

_____ Indoor Air Sampling Canister Installation

_____ Indoor Air Sampling Canister Removal

_____ Outdoor Air Sampling

_____ Other [Explain: _____]

____ Explain if follow-up visits will occur and verify date/time of follow-up visits as appropriate.

Date of Follow-Up Visit: _____

Time of Follow-Up Visit: _____

Items Completed as Noted:

Jennifer M Clancy
Terracon Representative Signature

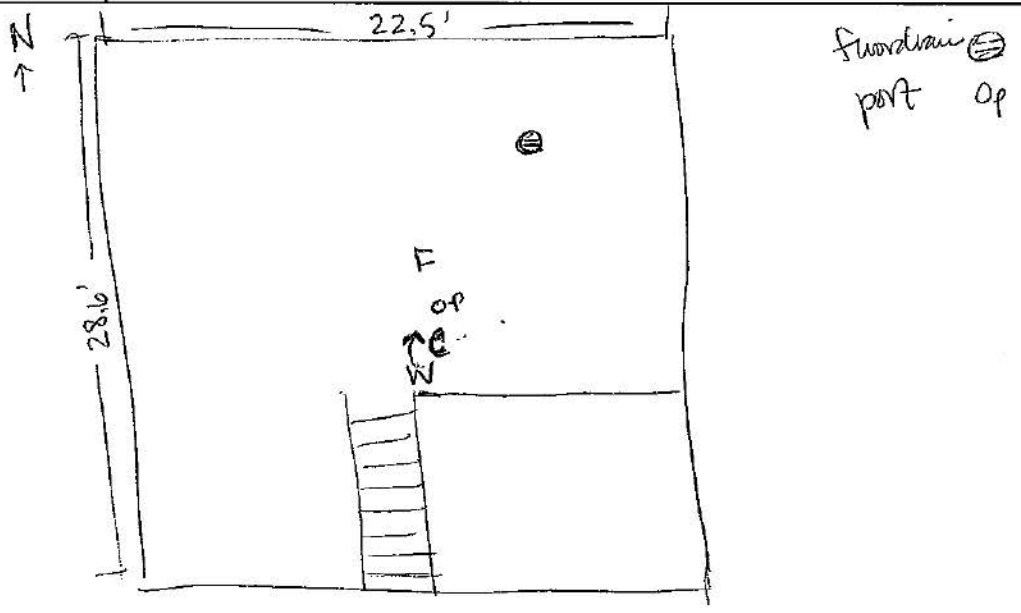
[redacted]
Resident Signature

VAPOR INTRUSION CHARACTERIZATION WORK PLAN
CHAMBERLAIN MANUFACTURING CORPORATION
FORMER FACILITY AT
550 ESTHER STREET
WATERLOO, IOWA

Soil Vapor/Indoor Air Sampling Information Form

Residence ID:	22	**Address:**	240 Boston Ave
Sample ID:	SS-22	**Location:**	Waterloo
Date:	4/28/2021	**Time:**	300
Sampler(s):	JHb / JMC	**Summa Canister ID:**	6578
Flow Controller ID:		**Flow Controller Rate Setting (cc/min):**	
Start Time:	1308	**Finish Time:**	1550
Pre-Sampling Vacuum (in Hg):	-30	**Post-Sampling Vacuum (in Hg):**	-3.8
Organic Vapor Reading (ppm):		**PID used:** MiniRAE 3000	ambient: 1.4ppm Subslab: 1.2ppm
Summa Canister went to Ambient?	Yes / No	**Method:** TO-15	Grab
Comments:			

Sketch:



Terracon

Street Address: 302 Boston Ave
Name of Resident: [redacted]

Arrival Checklist

Date of Visit: 4-25-11

Time of Arrival: 10:30 **Time of Departure:** 12:00

Names of Terracon Representatives: Justin Ennwall
Mark Anderson

✓ Introduce Terracon Representatives and Show Terracon Identification

✓ Verify identity of resident; confirm authority to allow entry

___ Explain purpose of visit (check as appropriate):

✓ Sample Port Installation

✓ Completion of Questionnaire

___ Indoor Air Sampling Canister Removal

___ Other [Explain: _____]

___ Sub-Slap Vapor Sampling

___ Indoor Air Sampling Canister Installation

___ Outdoor Air Sampling

✓ Explain if follow-up visits will occur and verify date/time of follow-up visits as appropriate.

Date of Follow-Up Visit: 4/28/11

Time of Follow-Up Visit: 0900

Items Completed as Noted:

Justin Ennwall
Terracon Representative Signature

[redacted]
Resident Signature [redacted]

Terracon

Street Address: 302 Boston Ave
Name of Resident: [redacted]
Date and Time of Visit: 4/25/11 10:30

Sampling Port Installation Checklist

✓ Work with resident to identify mutually agreeable area to install port in lowest occupied level of home.

Precautions to be taken to protect floor coverings, if applicable:

Drilled the 55MP borehole through concrete covered area

✓ Install sampling port in accordance with work plan procedures.

✓ Clean up any debris.

✓ Invite homeowner to view installed port and explain necessary precautions to prevent disturbance of it while it cures.

Items Completed as Noted:

Terracon Representative Signature

Res[redacted]

Terracon

Street Address: 302 Boston
Name of Resident: [redacted]

Arrival Checklist

Date of Visit: 4/26/11

Time of Arrival: 910 **Time of Departure:** 1000

Names of Terracon Representatives: Justin Ewall
Rob Bergman

✓ Introduce Terracon Representatives and Show Terracon Identification

✓ Verify identity of resident; confirm authority to allow entry

✓ Explain purpose of visit (check as appropriate):

____ Sample Port Installation

✓ Sub-Slap Vapor Sampling

____ Completion of Questionnaire

_____ Indoor Air Sampling Canister Installation

_____ Indoor Air Sampling Canister Removal

_____ Outdoor Air Sampling

_____ Other [Explain: _____]

____ Explain if follow-up visits will occur and verify date/time of follow-up visits as appropriate.

Date of Follow-Up Visit: _____

Time of Follow-Up Visit: _____

Items Completed as Noted:

Justin Ewall
Terracon Representative Signature

[redacted]
Resident Signature

VAPOR INTRUSION CHARACTERIZATION WORK PLAN
CHAMBERLAIN MANUFACTURING CORPORATION
FORMER FACILITY AT
550 ESTHER STREET
WATERLOO, IOWA

Soil Vapor/Indoor Air Sampling Information Form

Residence ID:	28	**Address:**	302 Boston
Sample ID:	SS-28	**Location:**	Waterloo, IA
Date:	4/28/11	**Time:**	910
Sampler(s):	JME/RPB	**Summa Canister ID:**	1519
Flow Controller ID:	1-79	**Flow Controller Rate Setting (cc/min):**	200 cc/min
Start Time:	915	**Finish Time:**	957
Pre-Sampling Vacuum (in Hg):	25.5 in Hg	**Post-Sampling Vacuum (in Hg):**	1.5 in Hg
Organic Vapor Reading (ppm):	1.5	**PID used:**	WBL miniRae 3000 w/ 10.6 eV lamp
Summa Canister went to Ambient?	Yes / (No)	**Method:**	Grab
Comments:	Purged 200 cc from SSMP and ~10 cc from flow controller prior to sampling		

Sketch:

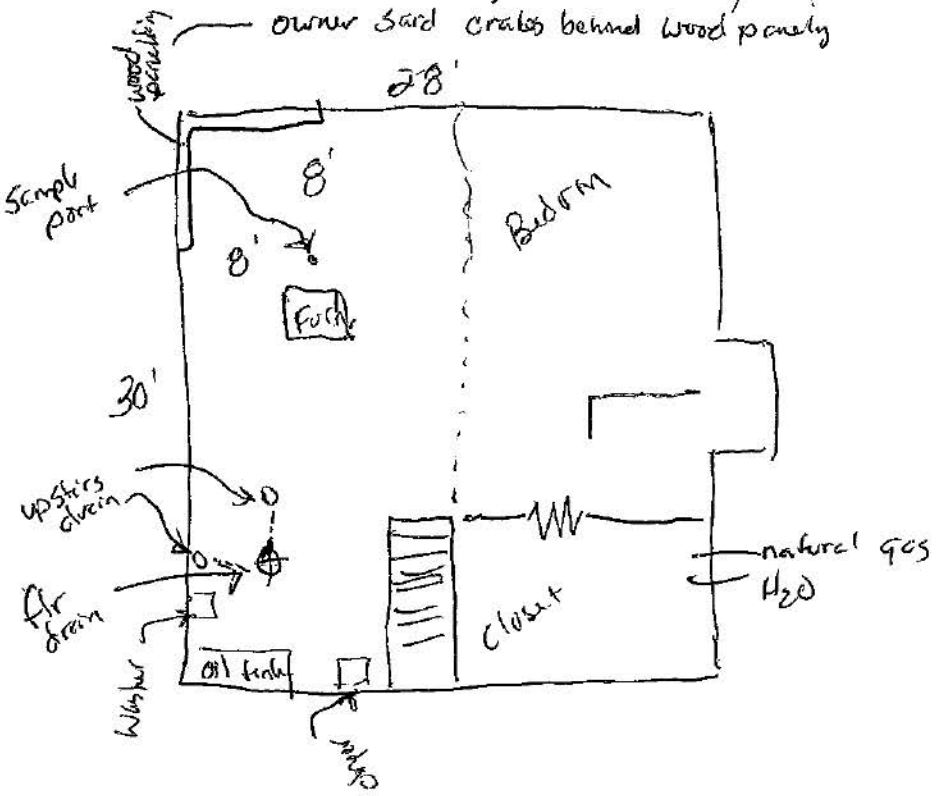
see detailed sketch

Terracon

PROJECT: Chamberlain Manufacturing Corporation – 302 Boston Ave. Page 1 of 1

JOB NO. 07607020 Date 4-25-91 Comp. By JME / MA CHECKED BY:

302 Boston Ave, W'100 / Story E' 1/2 (Cape Cod)



flr = E 1/3 = painted concrete
W 2/3 = various 12x12" flr tile w/ rugs

oil tank = no longer used

N

Terracon

Street Address: 326 Boston Ave
Name of Resident: [redacted]

Arrival Checklist

Date of Visit: 4/25/2011

Time of Arrival: 430 **Time of Departure:** ~500

Names of Terracon Representatives: John Brewer
Jen Clancy

X Introduce Terracon Representatives and Show Terracon Identification

X Verify identity of resident; confirm authority to allow entry

X Explain purpose of visit (check as appropriate):

- X Sample Port Installation
- ____ Completion of Questionnaire
- ____ Indoor Air Sampling Canister Removal
- ____ Other [Explain: ____]
- ____ Sub-Slap Vapor Sampling
- ____ Indoor Air Sampling Canister Installation
- ____ Outdoor Air Sampling

X Explain if follow-up visits will occur and verify date/time of follow-up visits as appropriate.

Date of Follow-Up Visit: 4/28 & 4/29

Time of Follow-Up Visit: 8:00 am

Items Completed as Noted:

Jennifer M Clancy
Terracon Representative Signature

[redacted]
Resident Signature

Terracon

Street Address: 320 Bristol Ave
Name of Resident: [redacted]
Date and Time of Visit: 4/25/2011 430

Sampling Port Installation Checklist

X Work with resident to identify mutually agreeable area to install port in lowest occupied level of home.

Precautions to be taken to protect floor coverings, if applicable:

_____

_____

_____

X Install sampling port in accordance with work plan procedures.

X Clean up any debris.

X Invite homeowner to view installed port and explain necessary precautions to prevent disturbance of it while it cures.

Items Completed as Noted:

Jennifer M Clancy
Terracon Representative Signature

[redacted]
Resident Signature

Terracon

Street Address: 324 Baxter Ave.
Name of Resident: [redacted]

Arrival Checklist

Date of Visit: 4/28/2011

Time of Arrival: 800 **Time of Departure:** 825

Names of Terracon Representatives: John Brumeyer
Jen Clancy

X Introduce Terracon Representatives and Show Terracon Identification

X Verify identity of resident; confirm authority to allow entry

X Explain purpose of visit (check as appropriate):

____ Sample Port Installation

____ Completion of Questionnaire

____ Sub-Slap Vapor Sampling

X Indoor Air Sampling Canister Installation

____ Indoor Air Sampling Canister Removal

____ Outdoor Air Sampling

____ Other [Explain: _____]

X Explain if follow-up visits will occur and verify date/time of follow-up visits as appropriate.

Date of Follow-Up Visit: 4/29/2011

Time of Follow-Up Visit: 800

Items Completed as Noted:

Jennifer M Clancy
Terracon Representative Signature

[redacted]
Resident Signature

Terracon

Street Address: 326 Boston Ave
Name of Resident: [redacted]
Date and Time of Visit: 4/28/2021

Indoor Air Sampling Canister Installation Checklist

X Verify that heating/cooling system has been operating for at least 24 hours and that doors and windows have only been opened incidentally.

X Work with homeowner to identify an unobtrusive spot for canister to be placed consistent with work plan requirements.

X Explain precautions to be taken while the canister collects the samples.

X Arrange for visit to remove canister:

Date: 4/29/2021

Time: 8AM

Items Completed as Noted:

Jennifer M Clancy
Terracon Representative Signature

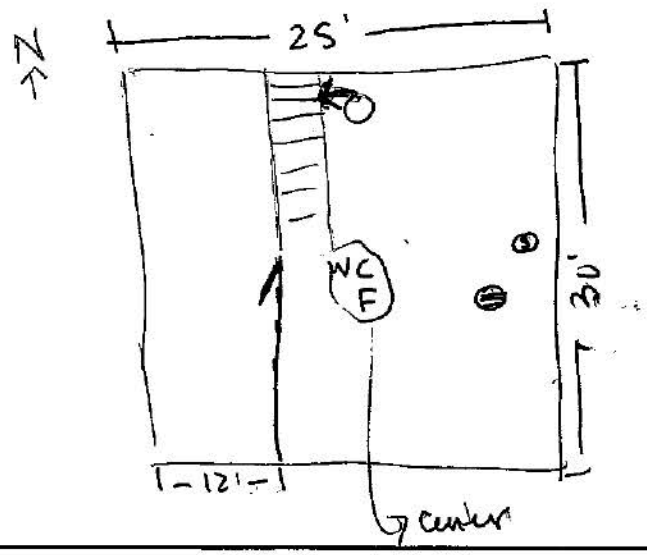
[redacted]
Resident Signature

VAPOR INTRUSION CHARACTERIZATION WORK PLAN
CHAMBERLAIN MANUFACTURING CORPORATION
FORMER FACILITY AT
550 ESTHER STREET
WATERLOO, IOWA

Soil Vapor/Indoor Air Sampling Information Form

Residence ID:	33	**Address:**	326 Boston Ave
Sample ID:	IA-33-B	**Location:**	~~Under~~ Water Heater
Date:	4/28/2011	**Time:**	810
Sampler(s):	JH JME	**Summa Canister ID:**	12543
Flow Controller ID:	K431	**Flow Controller Rate Setting (cc/min):**	24 hr
Start Time:	810 4/28	**Finish Time:**	804 4/29
Pre-Sampling Vacuum (in Hg):	-29.0	**Post-Sampling Vacuum (in Hg):**	-1.5
Organic Vapor Reading (ppm):		**PID used:**	
Summa Canister went to Ambient?	Yes / (No)	**Method:** TO15	Grab
Comments:			

Sketch: under basement stairs, on top shelf



(S) - sewer stack
(D) : drain
W = H_2O Heater
C = chimney
F = furnace

DO NOT TOUCH

SAMPLE IN PROGRESS

TERRACON PROJECT NUMBER: 07107020
PROJECT LOCATION: 326 Boston Ave (#33)
DATE INSTALLED: 4/28/2011
TIME INSTALLED: 810
ADDRESS INSTALLED: Same
SAMPLE ID: 1A-33-B
SAMPLE LOCATION: Basement - understairs, on shelf

DEVICE #: 12543 **CONTROLLER#:** K431
LAB ID #:
RETRIEVAL DATE: 4/29
PLANNED RETRIEVAL TIME: 810
ACTUAL RETRIEVAL TIME: 804
TERRACON REPRESENTATIVE: Jane Hoffe

COMMENTS:

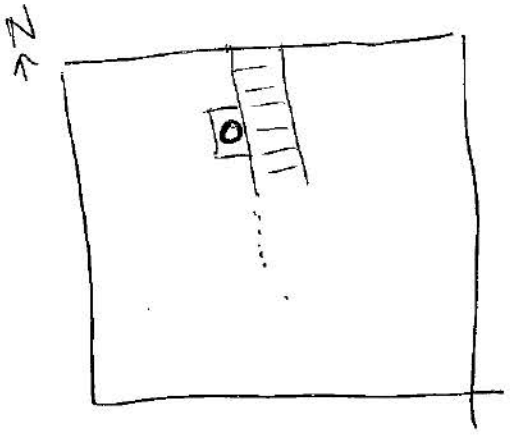
Terracon
Consulting Engineers & Scientists
FOR INFORMATION CALL 563-355-0702
870 40th Avenue
Bettendorf, Iowa 52722

VAPOR INTRUSION CHARACTERIZATION WORK PLAN
CHAMBERLAIN MANUFACTURING CORPORATION
FORMER FACILITY AT
550 ESTHER STREET
WATERLOO, IOWA

Soil Vapor/Indoor Air Sampling Information Form

Residence ID:	33	**Address:**	32e Boston Ave
Sample ID:	IA-33-1	**Location:**	Waterloo
Date:	4/28/2011	**Time:**	
Sampler(s):	jfb/jmc	**Summa Canister ID:**	0112
Flow Controller ID:	K392	**Flow Controller Rate Setting (cc/min):**	
Start Time:	820	**Finish Time:**	813
Pre-Sampling Vacuum (in Hg):	-29	**Post-Sampling Vacuum (in Hg):**	-2.5
Organic Vapor Reading (ppm):		**PID used:**	
Summa Canister went to Ambient?	Yes / (No)	**Method:** TO-15	Grab
Comments:			

Sketch:



In living room (West side of house), on desk along E wall

[redacted]

DO NOT TOUCH

SAMPLE IN PROGRESS

TERRACON PROJECT NUMBER: 07W7020
PROJECT LOCATION: 324 Boston Ave. (#33)
DATE INSTALLED: 4/28/2011
TIME INSTALLED: 818
ADDRESS INSTALLED: Same
SAMPLE ID: IA-33-1
SAMPLE LOCATION: Living room on desk

DEVICE #: 0112 **CONTROLLER#:** K392
LAB ID #:
RETRIEVAL DATE: 4/29/2011
PLANNED RETRIEVAL TIME: 818
ACTUAL RETRIEVAL TIME: 813
TERRACON REPRESENTATIVE: JME/JPB

COMMENTS:

Terracon
Consulting Engineers & Scientists

FOR INFORMATION CALL 563-355-0702
870 40th Avenue
Bettendorf, Iowa 52722

Terracon

Street Address: 326 Boston Ave 33
Name of Resident: [redacted]

Arrival Checklist

Date of Visit: 4/29/2011

Time of Arrival: 800 **Time of Departure:** 855

Names of Terracon Representatives: Jen Clancy
Justin Emrall

X Introduce Terracon Representatives and Show Terracon Identification

X Verify identity of resident; confirm authority to allow entry

X Explain purpose of visit (check as appropriate):

___ Sample Port Installation

X Sub-Slap Vapor Sampling

___ Completion of Questionnaire

___ Indoor Air Sampling Canister Installation

X Indoor Air Sampling Canister Removal x2

___ Outdoor Air Sampling

___ Other [Explain: ___]

___ Explain if follow-up visits will occur and verify date/time of follow-up visits as appropriate.

Date of Follow-Up Visit: ___

Time of Follow-Up Visit: ___

Items Completed as Noted:

Jennifer M Clancy
Terracon Representative Signature

[redacted]
Resident Signature

VAPOR INTRUSION CHARACTERIZATION WORK PLAN
CHAMBERLAIN MANUFACTURING CORPORATION
FORMER FACILITY AT
550 ESTHER STREET
WATERLOO, IOWA

Soil Vapor/Indoor Air Sampling Information Form

Residence ID:	33	**Address:**	326 Boston Ave
Sample ID:	SS-33	**Location:**	Waterloo
Date:	4/29/2011	**Time:**	800
Sampler(s):	jme / jme	**Summa Canister ID:**	12345
Flow Controller ID:		**Flow Controller Rate Setting (cc/min):**	
Start Time:	810	**Finish Time:**	850
Pre-Sampling Vacuum (in Hg):	-29	**Post-Sampling Vacuum (in Hg):**	-2.5
Organic Vapor Reading (ppm):	Ambient: 0.3ppm SS: 0.1ppm	**PID used:**	MiniRae 3000
Summa Canister went to Ambient?	Yes / (No)	**Method:** TO-15	Grab
Comments:			
Sketch:			

Terracon

Street Address: 2221 E. 4th St
Name of Resident: [redacted]

Arrival Checklist

Date of Visit: 4/26/2011

Time of Arrival: 1:30 pm **Time of Departure:** _____

Names of Terracon Representatives: John Bormeyer
Jen Clancy

X Introduce Terracon Representatives and Show Terracon Identification

X Verify identity of resident; confirm authority to allow entry

X Explain purpose of visit (check as appropriate):

X Sample Port Installation

____ Completion of Questionnaire

____ Indoor Air Sampling Canister Removal

____ Other [Explain: _____]

____ Sub-Slap Vapor Sampling

____ Indoor Air Sampling Canister Installation

____ Outdoor Air Sampling

X Explain if follow-up visits will occur and verify date/time of follow-up visits as appropriate.

Date of Follow-Up Visit: 4/29/2011

Time of Follow-Up Visit: 10 am

Items Completed as Noted:

Jennifer M Clancy
Terracon Representative Signature

[redacted]

Terracon

Street Address: 2221 E 24th St
Name of Resident: [redacted]
Date and Time of Visit: 4/24/2011

Sampling Port Installation Checklist

X Work with resident to identify mutually agreeable area to install port in lowest occupied level of home.

Precautions to be taken to protect floor coverings, if applicable:

_____

_____

_____

X Install sampling port in accordance with work plan procedures.

X Clean up any debris.

X Invite homeowner to view installed port and explain necessary precautions to prevent disturbance of it while it cures.

Items Completed as Noted:

Jennifer McClancy
Terracon Representative Signature

[redacted]
Resident Signature

Terracon

Street Address: 2221 E4th St
Name of Resident: [redacted]

Arrival Checklist

Date of Visit: 4/29/2011

Time of Arrival: 1000 **Time of Departure:** 1055

Names of Terracon Representatives: jen clancy
justin enwall

X Introduce Terracon Representatives and Show Terracon Identification

X Verify identity of resident; confirm authority to allow entry

X Explain purpose of visit (check as appropriate):

___ Sample Port Installation

X Sub-Slap Vapor Sampling

___ Completion of Questionnaire

___ Indoor Air Sampling Canister Installation

___ Indoor Air Sampling Canister Removal

___ Outdoor Air Sampling

___ Other [Explain: _____]

___ Explain if follow-up visits will occur and verify date/time of follow-up visits as appropriate.

Date of Follow-Up Visit: _____

Time of Follow-Up Visit: _____

Items Completed as Noted:

Jennifer M Clancy
Terracon Representative Signature

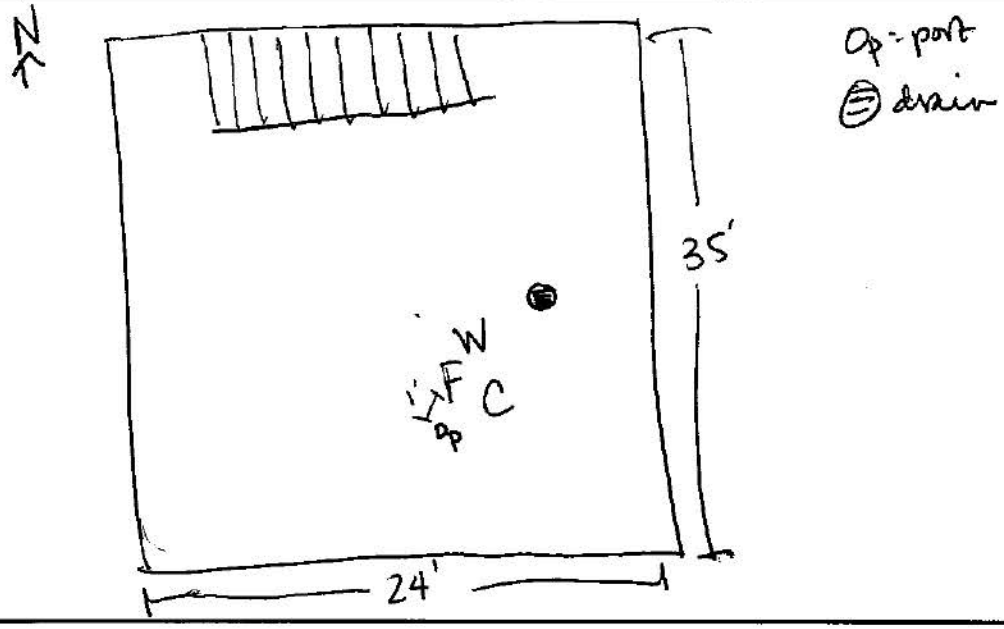
[redacted]
Resident Signature

VAPOR INTRUSION CHARACTERIZATION WORK PLAN
CHAMBERLAIN MANUFACTURING CORPORATION
FORMER FACILITY AT
550 ESTHER STREET
WATERLOO, IOWA

Soil Vapor/Indoor Air Sampling Information Form

Residence ID:	37	**Address:**	2221 E 4th St
Sample ID:	SS-37	**Location:**	Waterloo
Date:	4/29/2014	**Time:**	1000
Sampler(s):	jme/jme	**Summa Canister ID:**	04750
Flow Controller ID:	150	**Flow Controller Rate Setting (cc/min):**	
Start Time:	1016	**Finish Time:**	1050
Pre-Sampling Vacuum (in Hg):	-29	**Post-Sampling Vacuum (in Hg):**	-2.5
Organic Vapor Reading (ppm):	ambient: 0.1 ppm SS: 0.1 ppm	**PID used:**	Minirae 3000
Summa Canister went to Ambient?	Yes / No	**Method:** TO-15	Grab
Comments:			

Sketch:



Terracon

Street Address: 2227 E. 4th ST
Name of Resident: [redacted]

Arrival Checklist

Date of Visit: 4-26-11

Time of Arrival: 1530 **Time of Departure:** 1630

Names of Terracon Representatives: Justin Enwall

Mark Anderson

✓ Introduce Terracon Representatives and Show Terracon Identification

✓ Verify identity of resident; confirm authority to allow entry

✓ Explain purpose of visit (check as appropriate):

- ✓ Sample Port Installation
- ✓ Completion of Questionnaire
- _____ Indoor Air Sampling Canister Removal
- _____ Other [Explain: _____]
- _____ Sub-Slap Vapor Sampling
- _____ Indoor Air Sampling Canister Installation
- _____ Outdoor Air Sampling

✓ Explain if follow-up visits will occur and verify date/time of follow-up visits as appropriate.

Date of Follow-Up Visit: 4/28/11 4/29/11

Time of Follow-Up Visit: ~~1300~~ 1300

Items Completed as Noted:

Justin Enwall

Terracon Representative Signature

[redacted]

Res[redacted]

Terracon

Street Address: 2227 E. 45th St
Name of Resident: [redacted]
Date and Time of Visit: 4-26-11 c

Sampling Port Installation Checklist

✓ Work with resident to identify mutually agreeable area to install port in lowest occupied level of home.

Precautions to be taken to protect floor coverings, if applicable:

Same paint on floor

✓ Install sampling port in accordance with work plan procedures.

✓ Clean up any debris.

✓ Invite homeowner to view installed port and explain necessary precautions to prevent disturbance of it while it cures.

Items Completed as Noted:

[signature]
Terracon Representative Signature

[redacted]
Resident Signature

Terracon

Street Address: 2227 E 4th Street
Name of Resident: [redacted]

Arrival Checklist

Date of Visit: 4/28/11

Time of Arrival: 1300 **Time of Departure:** 1330

Names of Terracon Representatives: Justin Ennell
Rob Bergman

✓ Introduce Terracon Representatives and Show Terracon Identification

✓ Verify identity of resident; confirm authority to allow entry

✓ Explain purpose of visit (check as appropriate):

____ Sample Port Installation

____ Sub-Slap Vapor Sampling

____ Completion of Questionnaire

✓ Indoor Air Sampling Canister Installation

____ Indoor Air Sampling Canister Removal

____ Outdoor Air Sampling

____ Other [Explain: _____]

✓ Explain if follow-up visits will occur and verify date/time of follow-up visits as appropriate.

Date of Follow-Up Visit: 4/29/11

Time of Follow-Up Visit: 1300

Items Completed as Noted:

Justin Ennell
Terracon Representative Signature

[redacted]
Resident Signature

Terracon

Street Address: 2227 E 4th Street
Name of Resident: [redacted]
Date and Time of Visit: 4/28/11 13:00

Indoor Air Sampling Canister Installation Checklist

✓ Verify that heating/cooling system has been operating for at least 24 hours and that doors and windows have only been opened incidentally.

✓ Work with homeowner to identify an unobtrusive spot for canister to be placed consistent with work plan requirements.

✓ Explain precautions to be taken while the canister collects the samples.

✓ Arrange for visit to remove canister:

Date: 4/29/11

Time: 13:00

Items Completed as Noted:

Terracon Representative Signature

[redacted]

Resident Signature

VAPOR INTRUSION CHARACTERIZATION WORK PLAN
CHAMBERLAIN MANUFACTURING CORPORATION
FORMER FACILITY AT
550 ESTHER STREET
WATERLOO, IOWA

Soil Vapor/Indoor Air Sampling Information Form

Residence ID:	38	**Address:**	2227 E 4th St
Sample ID:	IA-38-B	**Location:**	Waterloo, IA
Date:	4/28/11 - 4/29/11	**Time:**	1305
Sampler(s):	JME/RPB	**Summa Canister ID:**	1407
Flow Controller ID:	1137	**Flow Controller Rate Setting (cc/min):**	24 hour
Start Time:	1319 4/28/11	**Finish Time:**	1305 4/29/11
Pre-Sampling Vacuum (in Hg):	-28.5	**Post-Sampling Vacuum (in Hg):**	-4
Organic Vapor Reading (ppm):	—	**PID used:**	—
Summa Canister went to Ambient?	Yes / (No)	**Method:**	Grab
Comments:	Cans of paint/chemical bottles in SE and SW corners, pail in NE corner of basement		
Sketch:			

DO NOT TOUCH

SAMPLE IN PROGRESS

TERRACON PROJECT NUMBER: 07107020
PROJECT LOCATION: Waterloo, IA
DATE INSTALLED: 4/28/11
TIME INSTALLED: 1319
ADDRESS INSTALLED: ~~IA B~~ 2227 E 4th St
SAMPLE ID: IA- -B
SAMPLE LOCATION: top of dryer in NE corner, South of water main
DEVICE #: 1407 **CONTROLLER#:** K137
LAB ID #:
RETRIEVAL DATE:
PLANNED RETRIEVAL TIME: 1319
ACTUAL RETRIEVAL TIME: 1605
TERRACON REPRESENTATIVE: JME/APB

COMMENTS: 28.5 in 5

Terracon
Consulting Engineers & Scientists

FOR INFORMATION CALL 563-355-0702
870 40th Avenue
Bettendorf, Iowa 52722

VAPOR INTRUSION CHARACTERIZATION WORK PLAN
CHAMBERLAIN MANUFACTURING CORPORATION
FORMER FACILITY AT
550 ESTHER STREET
WATERLOO, IOWA

Soil Vapor/Indoor Air Sampling Information Form

Residence ID:	38	**Address:**	2227 E 4th Street
Sample ID:	IA-38-MF	**Location:**	Waterloo, IA
Date:	4/28/11 & 4/29/11	**Time:**	1305
Sampler(s):	JME/RPB	**Summa Canister ID:**	1426
Flow Controller ID:	1484	**Flow Controller Rate Setting (cc/min):**	24 hour
Start Time:	1314	**Finish Time:**	1602
Pre-Sampling Vacuum (in Hg):	29.5 in Hg	**Post-Sampling Vacuum (in Hg):**	-4 in Hg on 4/29/11
Organic Vapor Reading (ppm):	—	**PID used:**	—
Summa Canister went to Ambient?	Yes / (No)	**Method:**	Grab
Comments:	on top of microwave near living / kitchen entry, about in center of main floor		

Sketch:

DO NOT TOUCH

SAMPLE IN PROGRESS

TERRACON PROJECT NUMBER: 07107020
PROJECT LOCATION: Waterloo IA
DATE INSTALLED: 4/28/11
TIME INSTALLED: 1314
ADDRESS INSTALLED: 2227 E 4th Street
SAMPLE ID: IA- -MF
SAMPLE LOCATION: on ton of mechanical by entry to living room, 5 ft above ground
DEVICE #: 1426 **CONTROLLER#:** 17484
LAB ID #:
RETRIEVAL DATE: 4/29/11
PLANNED RETRIEVAL TIME: 1300
ACTUAL RETRIEVAL TIME: 1602
TERRACON REPRESENTATIVE: JME

COMMENTS: 29.5 in Hg -

Terracon
Consulting Engineers & Scientists

FOR INFORMATION CALL 563-355-0702
870 40th Avenue
Bettendorf, Iowa 52722

Terracon

Street Address: 2227 E 4th St
Name of Resident: [redacted]

Arrival Checklist

Date of Visit: 4/29/2011

Time of Arrival: 1310 **Time of Departure:** 1610

Names of Terracon Representatives: jen clancy
justin emwall

X Introduce Terracon Representatives and Show Terracon Identification

X Verify identity of resident; confirm authority to allow entry

X Explain purpose of visit (check as appropriate):

____ Sample Port Installation

X Sub-Slap Vapor Sampling + Dup

____ Completion of Questionnaire

_____ Indoor Air Sampling Canister Installation

X Indoor Air Sampling Canister Removal x2

_____ Outdoor Air Sampling

_____ Other [Explain: _____]

____ Explain if follow-up visits will occur and verify date/time of follow-up visits as appropriate.

Date of Follow-Up Visit: _____

Time of Follow-Up Visit: _____

Items Completed as Noted:

Jennifer McClancy
Terracon Representative Signature

Provide letter

[redacted]
Resident Signature

VAPOR INTRUSION CHARACTERIZATION WORK PLAN
CHAMBERLAIN MANUFACTURING CORPORATION
FORMER FACILITY AT
550 ESTHER STREET
WATERLOO, IOWA

Soil Vapor/Indoor Air Sampling Information Form

Residence ID:	38	**Address:**	2227 E 4th St
Sample ID:	SS-38	**Location:**	Waterloo
Date:	4/29/2017	**Time:**	1310
Sampler(s):	jmc / jme	**Summa Canister ID:**	S-1530
Flow Controller ID:	10	**Flow Controller Rate Setting (cc/min):**	
Start Time:	1317	**Finish Time:**	1357
Pre-Sampling Vacuum (in Hg):	-29	**Post-Sampling Vacuum (in Hg):**	-2
Organic Vapor Reading (ppm):	ambient: SS:	**PID used:**	miniRAE 3000
Summa Canister went to Ambient?	Yes / No	**Method:**	TO-15 Grab
Comments:			

Sketch:

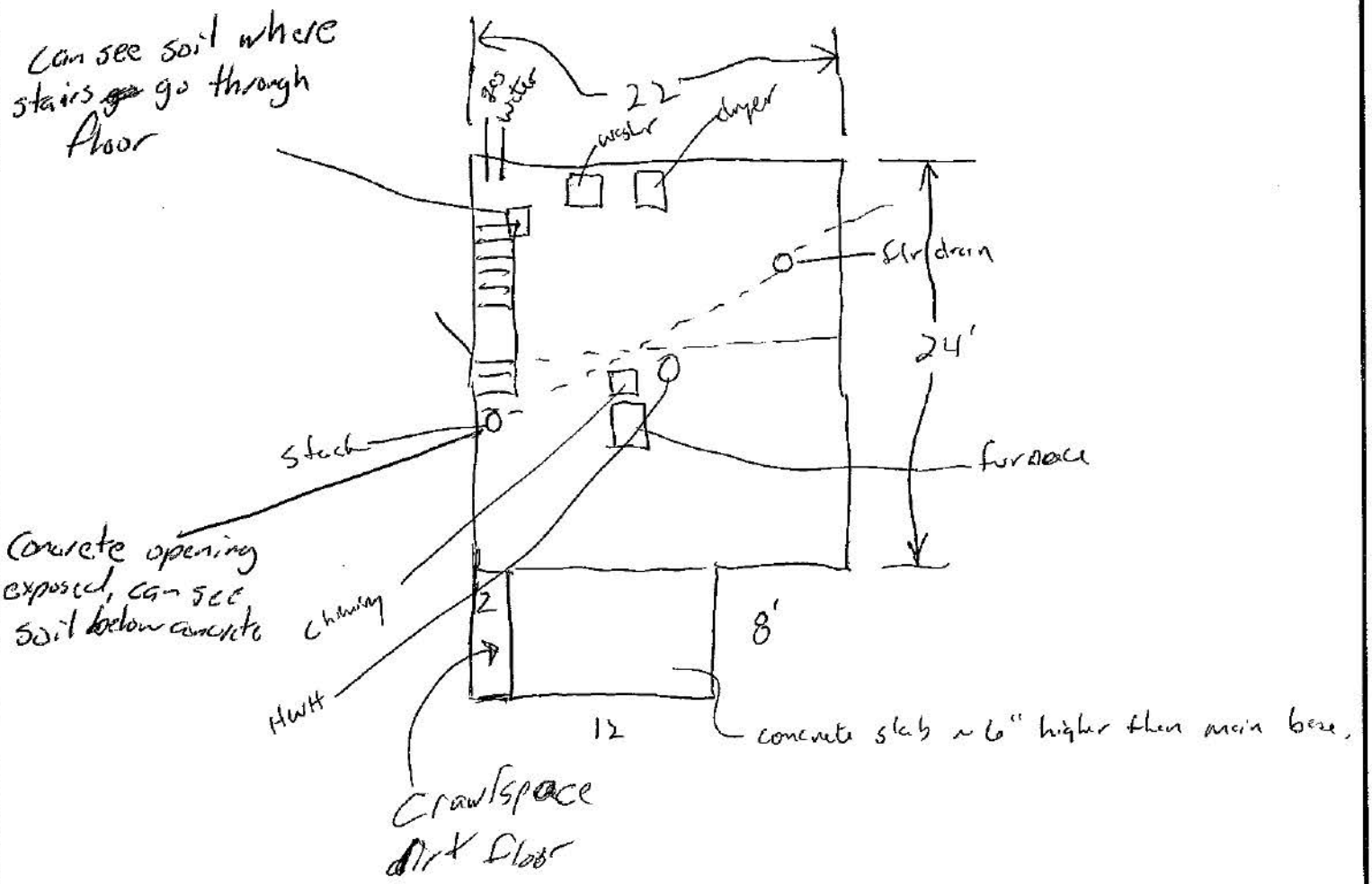
414 324 4675

Terracon

PROJECT: Chamberlain Manufacturing Corporation Page 1 of 1

JOB NO. 07107020 Date 4-26-11 Comp. By JE/MA CHECKED BY:

2227 E. 4th ST.



Form 112—5-93

VAPOR INTRUSION CHARACTERIZATION WORK PLAN
CHAMBERLAIN MANUFACTURING CORPORATION
FORMER FACILITY AT
550 ESTHER STREET
WATERLOO, IOWA

Soil Vapor/Indoor Air Sampling Information Form

Residence ID:	38	**Address:**	2227 E 4th St
Sample ID:	SSD-38	**Location:**	Waterloo
Date:	9/24/2014	**Time:**	1310
Sampler(s):	jmc/jme	**Summa Canister ID:**	92042
Flow Controller ID:	71	**Flow Controller Rate Setting (cc/min):**	
Start Time:	1317	**Finish Time:**	1357
Pre-Sampling Vacuum (in Hg):	-29	**Post-Sampling Vacuum (in Hg):**	-2
Organic Vapor Reading (ppm):	ambient: 0.2ppm SS: 0.2ppm	**PID used:**	miniRAE 3000
Summa Canister went to Ambient?	Yes / No	**Method:**	TO-15 Grab
Comments:			

Sketch:

Terracon (39)

Street Address: 2233 E 4th St
Name of Resident: [redacted]

Arrival Checklist

Date of Visit: 4/27/2011

Time of Arrival: 515 **Time of Departure:** 600

Names of Terracon Representatives: Jen Clancy
Justin Erwall

X Introduce Terracon Representatives and Show Terracon Identification

X Verify identity of resident; confirm authority to allow entry

X Explain purpose of visit (check as appropriate):

X Sample Port Installation

____ Sub-Slap Vapor Sampling

X Completion of Questionnaire

____ Indoor Air Sampling Canister Installation

____ Indoor Air Sampling Canister Removal

____ Outdoor Air Sampling

____ Other [Explain: _____]

____ Explain if follow-up visits will occur and verify date/time of follow-up visits as appropriate.

Date of Follow-Up Visit: 4/29

Time of Follow-Up Visit: 230

Items Completed as Noted:

Jennifer M Clancey
Terracon Representative Signature

[redacted]

Terracon

(39)

Street Address: 9233 E 4th St
Name of Resident: [redacted]
Date and Time of Visit: 530 ; 4/27/2011

Sampling Port Installation Checklist

X Work with resident to identify mutually agreeable area to install port in lowest occupied level of home.

Precautions to be taken to protect floor coverings, if applicable:

_____

_____

_____

X Install sampling port in accordance with work plan procedures.

X Clean up any debris.

X Invite homeowner to view installed port and explain necessary precautions to prevent disturbance of it while it cures.

Items Completed as Noted:

Jennifer M Clancy
Terracon Representative Signature

[redacted]

Terracon

Street Address: 2233 E 4th St
Name of Resident: [redacted]

Arrival Checklist

Date of Visit: 4/29/2011

Time of Arrival: 1430 **Time of Departure:** 3:40 Pm

Names of Terracon Representatives: jen clancy
justin enwall

X Introduce Terracon Representatives and Show Terracon Identification

X Verify identity of resident; confirm authority to allow entry

X Explain purpose of visit (check as appropriate):

- ____ Sample Port Installation
- X Sub-Slap Vapor Sampling
- ____ Completion of Questionnaire
- ____ Indoor Air Sampling Canister Installation
- ____ Indoor Air Sampling Canister Removal
- ____ Outdoor Air Sampling
- ____ Other [Explain: _____]

____ Explain if follow-up visits will occur and verify date/time of follow-up visits as appropriate.

Date of Follow-Up Visit: _____

Time of Follow-Up Visit: _____

Items Completed as Noted:

Jennifer M Clancy
Terracon Representative Signature

[redacted]

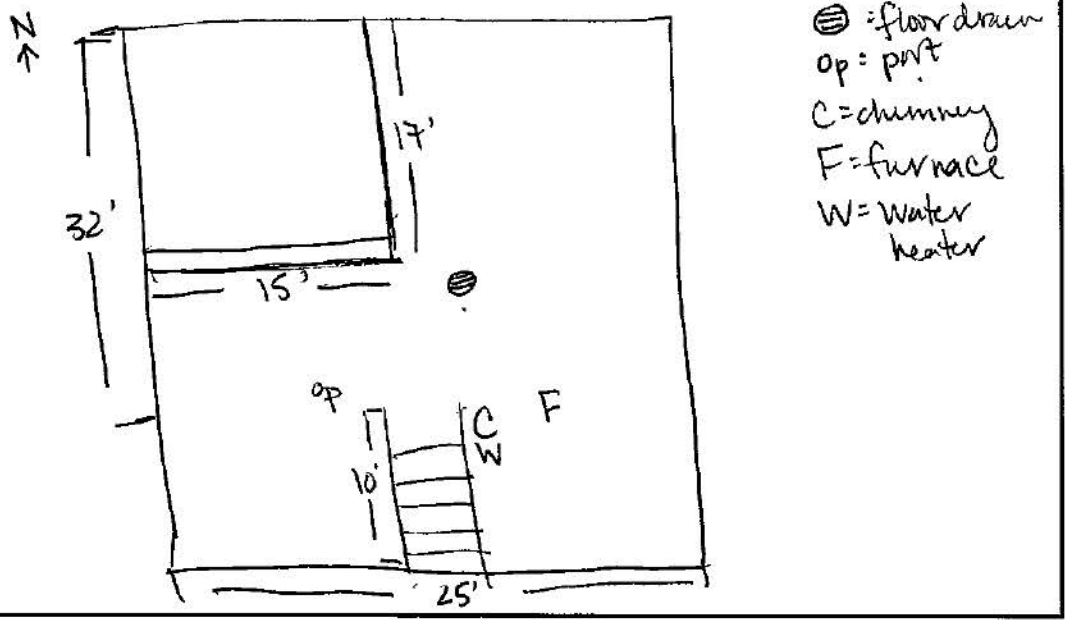
4/29/30

VAPOR INTRUSION CHARACTERIZATION WORK PLAN
CHAMBERLAIN MANUFACTURING CORPORATION
FORMER FACILITY AT
550 ESTHER STREET
WATERLOO, IOWA

Soil Vapor/Indoor Air Sampling Information Form

Residence ID:	39	**Address:**	2233 E 4th St
Sample ID:	SS-39	**Location:**	waterloo
Date:	4/29/2011	**Time:**	1430
Sampler(s):	jmc / jme	**Summa Canister ID:**	6838
Flow Controller ID:	11	**Flow Controller Rate Setting (cc/min):**	
Start Time:	1443	**Finish Time:**	1519
Pre-Sampling Vacuum (in Hg):	-28	**Post-Sampling Vacuum (in Hg):**	-1
Organic Vapor Reading (ppm):	ambient: 1.3 ppm SS: 0.2 ppm	**PID used:**	miniRAE 3000
Summa Canister went to Ambient?	Yes / No	**Method:**	TO Grab
Comments:			

Sketch:



Terracon

Street Address: 2237 E 4th St.
Name of Resident: [redacted]

Arrival Checklist

Date of Visit: 4/27/2011

Time of Arrival: 1:30 **Time of Departure:** 2:10

Names of Terracon Representatives: John Brumeyer
Jen Clancy

X Introduce Terracon Representatives and Show Terracon Identification

X Verify identity of resident; confirm authority to allow entry

X Explain purpose of visit (check as appropriate):

- X Sample Port Installation
- ____ Sub-Slap Vapor Sampling
- X Completion of Questionnaire
- ____ Indoor Air Sampling Canister Installation
- ____ Indoor Air Sampling Canister Removal
- ____ Outdoor Air Sampling
- ____ Other [Explain: ____]

X Explain if follow-up visits will occur and verify date/time of follow-up visits as appropriate.

Date of Follow-Up Visit: 5/2 & 5/3

Time of Follow-Up Visit: 12:00

Items Completed as Noted:

Jennifer M Clancy
Terracon Representative Signature

[redacted]
Resident Signature

Terracon

Street Address: 2237 E. 4th St
Name of Resident: [redacted]
Date and Time of Visit: 4/27/2021 ; 1:30

Sampling Port Installation Checklist

X Work with resident to identify mutually agreeable area to install port in lowest occupied level of home.

Precautions to be taken to protect floor coverings, if applicable:

X Install sampling port in accordance with work plan procedures.

X Clean up any debris.

X Invite homeowner to view installed port and explain necessary precautions to prevent disturbance of it while it cures.

Items Completed as Noted:

Terracon Representative Signature

[redacted]

Resident Signature

Terracon

Street Address: 2237 E 4th St
Name of Resident: [redacted]

Arrival Checklist

Date of Visit: 5/2/2011

Time of Arrival: 1200 **Time of Departure:** 1230

Names of Terracon Representatives: Jen Clancy
Justin Elwell

___ Introduce Terracon Representatives and Show Terracon Identification

___ Verify identity of resident; confirm authority to allow entry

___ Explain purpose of visit (check as appropriate):

____ Sample Port Installation

____ Sub-Slap Vapor Sampling

____ Completion of Questionnaire

Y Indoor Air Sampling Canister Installation x2

____ Indoor Air Sampling Canister Removal

Y Outdoor Air Sampling x2

____ Other [Explain: _____]

X Explain if follow-up visits will occur and verify date/time of follow-up visits as appropriate.

Date of Follow-Up Visit: 5/3/2011

Time of Follow-Up Visit: 1200

Items Completed as Noted:

Jennifer McClancey
Terracon Representative Signature

[redacted]
Resident Signature

40

Terracon

Street Address: 2237 Eleventh St
Name of Resident: [redacted]
Date and Time of Visit: 1200 5/2/2011

Indoor Air Sampling Canister Installation Checklist

X Verify that heating/cooling system has been operating for at least 24 hours and that doors and windows have only been opened incidentally.

X Work with homeowner to identify an unobtrusive spot for canister to be placed consistent with work plan requirements.

X Explain precautions to be taken while the canister collects the samples.

X Arrange for visit to remove canister:

Date: 5/3/2011

Time: 1200

Items Completed as Noted:

Terracon Representative Signature

Resident Signature

VAPOR INTRUSION CHARACTERIZATION WORK PLAN
CHAMBERLAIN MANUFACTURING CORPORATION
FORMER FACILITY AT
550 ESTHER STREET
WATERLOO, IOWA

Soil Vapor/Indoor Air Sampling Information Form

Residence ID:	40	**Address:**	2237 E 4th St
Sample ID:	1A + B · 40	**Location:**	Waterloo
Date:	5/2/2011	**Time:**	1200
Sampler(s):	jmc / jme	**Summa Canister ID:**	7465
Flow Controller ID:	K-384	**Flow Controller Rate Setting (cc/min):**	
Start Time:	1212	**Finish Time:**	1520 5/3
Pre-Sampling Vacuum (in Hg):	< -30	**Post-Sampling Vacuum (in Hg):**	-9
Organic Vapor Reading (ppm):		**PID used:**	
Summa Canister went to Ambient?	Yes / No	**Method:**	Grab
Comments:			
Sketch:			

DO NOT TOUCH

SAMPLE IN PROGRESS

TERRACON PROJECT NUMBER: 07107020
PROJECT LOCATION: Waterloo
DATE INSTALLED: 5/2/2011
TIME INSTALLED: 1212
ADDRESS INSTALLED: 2237 E 4th St
SAMPLE ID: 1A-B-4D
SAMPLE LOCATION: SWC of basement on shelves

DEVICE #: 7465 **CONTROLLER#:** K386
LAB ID #:
RETRIEVAL DATE: 5/3/2011
PLANNED RETRIEVAL TIME: 1212
ACTUAL RETRIEVAL TIME: 1520
TERRACON REPRESENTATIVE:

COMMENTS:

Terracon
Consulting Engineers & Scientists
FOR INFORMATION CALL 563-355-0702
870 40th Avenue
Bettendorf, Iowa 52722

VAPOR INTRUSION CHARACTERIZATION WORK PLAN
CHAMBERLAIN MANUFACTURING CORPORATION
FORMER FACILITY AT
550 ESTHER STREET
WATERLOO, IOWA

Soil Vapor/Indoor Air Sampling Information Form

Residence ID:	40	**Address:**	2237 E 4th St
Sample ID:	IA-1-40	**Location:**	Waterloo
Date:	5/2/2011	**Time:**	1200
Sampler(s):	jmc/jme	**Summa Canister ID:**	9805 B
Flow Controller ID:	12407	**Flow Controller Rate Setting (cc/min):**	
Start Time:	1207	**Finish Time:**	1209 5/3
Pre-Sampling Vacuum (in Hg):	-27	**Post-Sampling Vacuum (in Hg):**	-3
Organic Vapor Reading (ppm):		**PID used:**	
Summa Canister went to Ambient?	Yes / No	**Method:**	Grab
Comments:			

Sketch:

DO NOT TOUCH

SAMPLE IN PROGRESS

TERRACON PROJECT NUMBER: 07107020
PROJECT LOCATION: Waverloo
DATE INSTALLED: 5/2/2011
TIME INSTALLED:
ADDRESS INSTALLED: 2237 E 4th St
SAMPLE ID: IA-1-40
SAMPLE LOCATION: Kitchen - on top of fridge

DEVICE #: 98058 **CONTROLLER#:** K 407
LAB ID #:
RETRIEVAL DATE: 5/3/2011
PLANNED RETRIEVAL TIME: 1200 (-3)
ACTUAL RETRIEVAL TIME: 1205 5/3
TERRACON REPRESENTATIVE: gmc / gmd

COMMENTS:

Terracon
Consulting Engineers & Scientists

FOR INFORMATION CALL 563-355-0702
870 40th Avenue
Bettendorf, Iowa 52722

VAPOR INTRUSION CHARACTERIZATION WORK PLAN
CHAMBERLAIN MANUFACTURING CORPORATION
FORMER FACILITY AT
550 ESTHER STREET
WATERLOO, IOWA

Soil Vapor/Indoor Air Sampling Information Form

Residence ID:	40	**Address:**	2237 E 4th St
Sample ID:	AA-40	**Location:**	Waterloo
Date:	5/2/2021	**Time:**	1200
Sampler(s):	JMC / JME	**Summa Canister ID:**	11352
Flow Controller ID:	K153	**Flow Controller Rate Setting (cc/min):**	
Start Time:	1222	**Finish Time:**	1524
Pre-Sampling Vacuum (in Hg):	-29.5	**Post-Sampling Vacuum (in Hg):**	-3.5 5/3
Organic Vapor Reading (ppm):		**PID used:**	
Summa Canister went to Ambient?	Yes / No	**Method:**	Grab
Comments:			

Sketch:

VAPOR INTRUSION CHARACTERIZATION WORK PLAN
CHAMBERLAIN MANUFACTURING CORPORATION
FORMER FACILITY AT
550 ESTHER STREET
WATERLOO, IOWA

Soil Vapor/Indoor Air Sampling Information Form

Residence ID:	40	**Address:**	2234 E 4th St
Sample ID:	AAD-40	**Location:**	Waterloo
Date:	5/2/2011	**Time:**	1200
Sampler(s):	jmc / jme	**Summa Canister ID:**	~~1133~~ 1852N
Flow Controller ID:	K462	**Flow Controller Rate Setting (cc/min):**	
Start Time:	1222	**Finish Time:**	1524
Pre-Sampling Vacuum (in Hg):	-29.5	**Post-Sampling Vacuum (in Hg):**	-2
Organic Vapor Reading (ppm):		**PID used:**	
Summa Canister went to Ambient?	Yes / No	**Method:**	Grab
Comments:			

Sketch:

DO NOT TOUCH

SAMPLE IN PROGRESS

TERRACON PROJECT NUMBER: 07109020
PROJECT LOCATION: Waterloo
DATE INSTALLED: 5/2/2011
TIME INSTALLED:
ADDRESS INSTALLED: 2237 E 4th St
SAMPLE ID: AA-90 (AAD-90
SAMPLE LOCATION: Backyard - W side of house on picnic table
DEVICE #: 11362 13524 **CONTROLLER#:** K153 K942
LAB ID #:
RETRIEVAL DATE: 5/3/2011
PLANNED RETRIEVAL TIME: 1220
ACTUAL RETRIEVAL TIME: - -
TERRACON REPRESENTATIVE: jmc / jmc

COMMENTS:

Terracon
Consulting Engineers & Scientists
FOR INFORMATION CALL 563-355-0702
870 40th Avenue
Bettendorf, Iowa 52722

Terracon

Street Address: 2237 E 9th St
Name of Resident: [redacted]

Arrival Checklist 40

Date of Visit: 5/3/2011

Time of Arrival: 1200 **Time of Departure:** 1300 / return 1520/1530

Names of Terracon Representatives: jen clancy
justin emrall

___ Introduce Terracon Representatives and Show Terracon Identification

___ Verify identity of resident; confirm authority to allow entry

X Explain purpose of visit (check as appropriate):

___ Sample Port Installation

X Sub-Slap Vapor Sampling

___ Completion of Questionnaire

_____ Indoor Air Sampling Canister Installation

X Indoor Air Sampling Canister Removal x2

X Outdoor Air Sampling removal x2

_____ Other [Explain: _____]

___ Explain if follow-up visits will occur and verify date/time of follow-up visits as appropriate.

Date of Follow-Up Visit: _____

Time of Follow-Up Visit: _____

Items Completed as Noted:

Jennifer M Clancy
Terracon Representative Signature

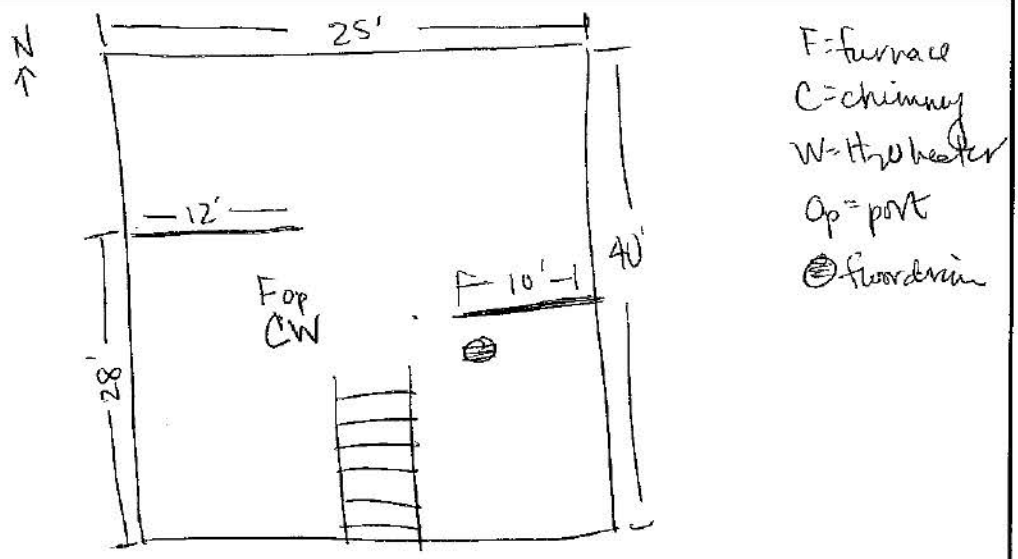
[redacted]
Resident Signature

VAPOR INTRUSION CHARACTERIZATION WORK PLAN
CHAMBERLAIN MANUFACTURING CORPORATION
FORMER FACILITY AT
550 ESTHER STREET
WATERLOO, IOWA

Soil Vapor/Indoor Air Sampling Information Form

Residence ID:	40	**Address:**	2237 E 4th St
Sample ID:	SS-40	**Location:**	Waterloo
Date:	5/3/2011	**Time:**	1200
Sampler(s):	jmc/jme	**Summa Canister ID:**	04306
Flow Controller ID:	167	**Flow Controller Rate Setting (cc/min):**	
Start Time:	1216	**Finish Time:**	1258
Pre-Sampling Vacuum (in Hg):	-28.5	**Post-Sampling Vacuum (in Hg):**	-2.5
Organic Vapor Reading (ppm):	ambient: 0.5 SS: 0.2	**PID used:**	mini RAE 3000
Summa Canister went to Ambient?	Yes / (No)	**Method:**	Grab
Comments:			

Sketch:



Terracon

Street Address: 2413 E 4th St
Name of Resident: [redacted]

Arrival Checklist

Date of Visit: 4/24

Time of Arrival: 330 **Time of Departure:** _____

Names of Terracon Representatives: John Brueyer
Jen Clancy

X Introduce Terracon Representatives and Show Terracon Identification

X Verify identity of resident; confirm authority to allow entry

X Explain purpose of visit (check as appropriate):

X Sample Port Installation

_____ Sub-Slap Vapor Sampling

X Completion of Questionnaire

_____ Indoor Air Sampling Canister Installation

_____ Indoor Air Sampling Canister Removal

_____ Outdoor Air Sampling

_____ Other [Explain: _____]

X Explain if follow-up visits will occur and verify date/time of follow-up visits as appropriate.

Date of Follow-Up Visit: 5/2 or 5/3

Time of Follow-Up Visit: 3 pm

Items Completed as Noted:

Jennifer McClancy
Terracon Representative Signature

[redacted]

Terracon

Street Address: 2413 E 4th St
Name of Resident: [redacted]
Date and Time of Visit: 4/27/2011 330

Sampling Port Installation Checklist

X Work with resident to identify mutually agreeable area to install port in lowest occupied level of home.

Precautions to be taken to protect floor coverings, if applicable:

_____

_____

_____

X Install sampling port in accordance with work plan procedures.

X Clean up any debris.

X Invite homeowner to view installed port and explain necessary precautions to prevent disturbance of it while it cures.

Items Completed as Noted:

Jennifer McClancy
Terracon Representative Signature

[redacted]

Terracon

Street Address: 2413 E 4th ST
Name of Resident: [redacted]

Arrival Checklist

Date of Visit: 5/2/2011

Time of Arrival: 1530 **Time of Departure:** 1545

Names of Terracon Representatives: Jen Clancy
Justin Entwistle

X Introduce Terracon Representatives and Show Terracon Identification

X Verify identity of resident; confirm authority to allow entry

X Explain purpose of visit (check as appropriate):

____ Sample Port Installation

____ Completion of Questionnaire

____ Indoor Air Sampling Canister Removal

____ Other [Explain: _____]

____ Sub-Slap Vapor Sampling

X Indoor Air Sampling Canister Installation

____ Outdoor Air Sampling

X Explain if follow-up visits will occur and verify date/time of follow-up visits as appropriate.

Date of Follow-Up Visit: 5/3/2011

Time of Follow-Up Visit: 330

Items Completed as Noted:

Jennifer McClancy
Terracon Representative Signature

[redacted]
Resident Signature

Terracon 45

Street Address: 2913 E 4th St
Name of Resident: [redacted]
Date and Time of Visit: 5/2/2011, 1530

Indoor Air Sampling Canister Installation Checklist

X Verify that heating/cooling system has been operating for at least 24 hours and that doors and windows have only been opened incidentally.

X Work with homeowner to identify an unobtrusive spot for canister to be placed consistent with work plan requirements.

X Explain precautions to be taken while the canister collects the samples.

X Arrange for visit to remove canister:

Date: 5/3/2011

Time: 330

Items Completed as Noted:

Jennifer McClancy
Terracon Representative Signature

[redacted]

VAPOR INTRUSION CHARACTERIZATION WORK PLAN
CHAMBERLAIN MANUFACTURING CORPORATION
FORMER FACILITY AT
550 ESTHER STREET
WATERLOO, IOWA

Soil Vapor/Indoor Air Sampling Information Form

Residence ID:	45	**Address:**	2413 E 4th St
Sample ID:	IA-B-45	**Location:**	Waterloo
Date:	5/2/2011	**Time:**	1530
Sampler(s):	JMC/JME	**Summa Canister ID:**	93149
Flow Controller ID:	K371	**Flow Controller Rate Setting (cc/min):**	
Start Time:	1543	**Finish Time:**	1633 5/3
Pre-Sampling Vacuum (in Hg):	-30	**Post-Sampling Vacuum (in Hg):**	-4.5
Organic Vapor Reading (ppm):		**PID used:**	
Summa Canister went to Ambient?	Yes / No	**Method:**	Grab
Comments:	Basement - main room on top of fridge		
Sketch:			

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DO NOT TOUCH

SAMPLE IN PROGRESS

TERRACON PROJECT NUMBER: 07007020
PROJECT LOCATION: Waterloo
DATE INSTALLED: 5/2/2011
TIME INSTALLED:
ADDRESS INSTALLED: 2913 E 4th St
SAMPLE ID: 1A-B-45
SAMPLE LOCATION: Basement

DEVICE #: 93149 **CONTROLLER#:** K371
LAB ID #:
RETRIEVAL DATE: 5/3/11
PLANNED RETRIEVAL TIME:
ACTUAL RETRIEVAL TIME: 1053
TERRACON REPRESENTATIVE: JMC/jme

COMMENTS:

Terracon
Consulting Engineers & Scientists
FOR INFORMATION CALL 563-355-0702
870 40th Avenue
Bettendorf, Iowa 52722

VAPOR INTRUSION CHARACTERIZATION WORK PLAN
CHAMBERLAIN MANUFACTURING CORPORATION
FORMER FACILITY AT
550 ESTHER STREET
WATERLOO, IOWA

Soil Vapor/Indoor Air Sampling Information Form

Residence ID:	45	**Address:**	2913 E 4th St
Sample ID:	IA-1-45	**Location:**	Waterloo
Date:	5/2/2014	**Time:**	1530
Sampler(s):	JMC/JME	**Summa Canister ID:**	7490
Flow Controller ID:	K471	**Flow Controller Rate Setting (cc/min):**	
Start Time:	1537	**Finish Time:**	1537
Pre-Sampling Vacuum (in Hg):	-25	**Post-Sampling Vacuum (in Hg):**	-2
Organic Vapor Reading (ppm):		**PID used:**	
Summa Canister went to Ambient?	Yes / No	**Method:**	Grab
Comments:	SE Bdrm on table		

Sketch:

DO NOT TOUCH

SAMPLE IN PROGRESS

TERRACON PROJECT NUMBER: 07W7020
PROJECT LOCATION: Waterloo
DATE INSTALLED: 5/2/2011
TIME INSTALLED: 1537
ADDRESS INSTALLED: 2413 E 4th St
SAMPLE ID: 1A-1-45
SAMPLE LOCATION:

DEVICE #: 7490 **CONTROLLER#:** K471
LAB ID #:
RETRIEVAL DATE: 5/3/2011
PLANNED RETRIEVAL TIME: 1537
ACTUAL RETRIEVAL TIME: 1537
TERRACON REPRESENTATIVE:

COMMENTS:

Terracon
Consulting Engineers & Scientists

FOR INFORMATION CALL 563-355-0702
870 40th Avenue
Bettendorf, Iowa 52722

Terracon

Street Address: 2413 E 4th St
Name of Resident: [redacted]

Arrival Checklist

Date of Visit: 5/3/2011

Time of Arrival: 1530 **Time of Departure:** 1635

Names of Terracon Representatives: Jen Clancy
Justin Arndt

___ Introduce Terracon Representatives and Show Terracon Identification

___ Verify identity of resident; confirm authority to allow entry

X Explain purpose of visit (check as appropriate):

____ Sample Port Installation

X Sub-Slap Vapor Sampling

____ Completion of Questionnaire

_____ Indoor Air Sampling Canister Installation

X Indoor Air Sampling Canister Removal x2

_____ Outdoor Air Sampling

_____ Other [Explain: _____]

____ Explain if follow-up visits will occur and verify date/time of follow-up visits as appropriate.

Date of Follow-Up Visit: _____

Time of Follow-Up Visit: _____

Items Completed as Noted:

Jen M Clancy

Terracon Representative Signature

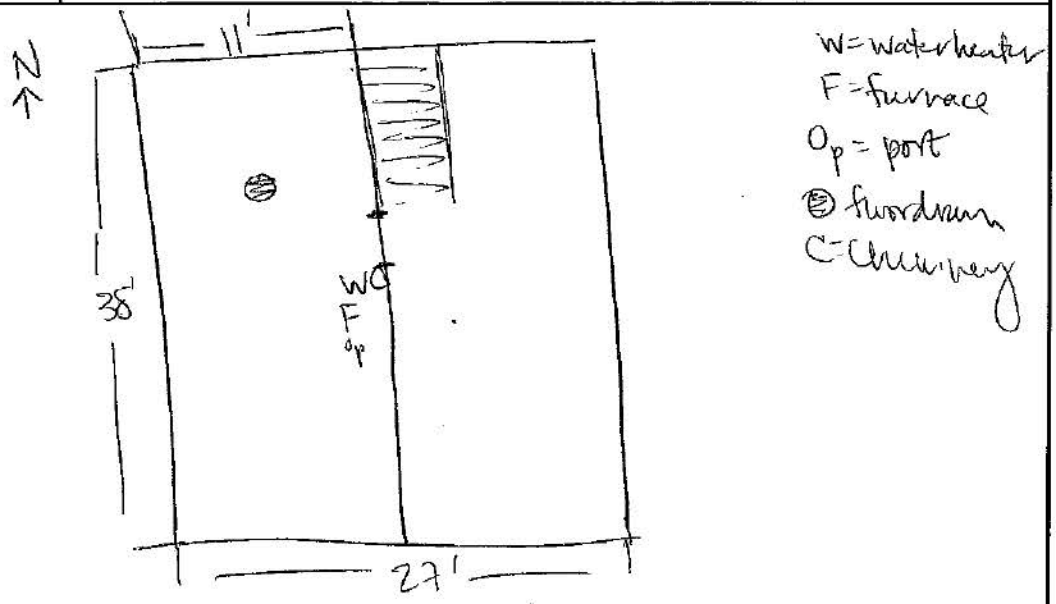
[redacted]

VAPOR INTRUSION CHARACTERIZATION WORK PLAN
CHAMBERLAIN MANUFACTURING CORPORATION
FORMER FACILITY AT
550 ESTHER STREET
WATERLOO, IOWA

Soil Vapor/Indoor Air Sampling Information Form

Residence ID:	45	**Address:**	2413 E 4th St
Sample ID:	~~SS-4~~ SS-45	**Location:**	Waterloo
Date:	5/3/2011	**Time:**	1530
Sampler(s):	jmc / jme	**Summa Canister ID:**	~~788~~
Flow Controller ID:	178	**Flow Controller Rate Setting (cc/min):**	
Start Time:	1552	**Finish Time:**	1628
Pre-Sampling Vacuum (in Hg):	-29.5	**Post-Sampling Vacuum (in Hg):**	-1.5
Organic Vapor Reading (ppm):	ambient: 0.2 SS: 1.1 ppm	**PID used:**	MINIRAE 3000
Summa Canister went to Ambient?	Yes / (No)	**Method:**	Grab
Comments:			

Sketch:



Terracon

Street Address: 2417 E. 44th St
Name of Resident: [redacted]

Arrival Checklist

Date of Visit: 4-27-11

Time of Arrival: 10:30 **Time of Departure:** 1130

Names of Terracon Representatives: Justin Ennall
Mark Anderson

✓ Introduce Terracon Representatives and Show Terracon Identification

✓ Verify identity of resident; confirm authority to allow entry

✓ Explain purpose of visit (check as appropriate):

✓ Sample Port Installation

____ Sub-Slap Vapor Sampling

✓ Completion of Questionnaire

____ Indoor Air Sampling Canister Installation

____ Indoor Air Sampling Canister Removal

____ Outdoor Air Sampling

____ Other [Explain: _____]

✓ Explain if follow-up visits will occur and verify date/time of follow-up visits as appropriate.

Date of Follow-Up Visit: 5/2/11 and 5/3/11

Time of Follow-Up Visit: 10:00 AM

Items Completed as Noted:

Terracon Representative Signature

Resident Signature

Terracon

Street Address: 2417 E. 4th ST
Name of Resident: [redacted]
Date and Time of Visit: 4-27-11 @ 10:30

Sampling Port Installation Checklist

✓ Work with resident to identify mutually agreeable area to install port in lowest occupied level of home.

Precautions to be taken to protect floor coverings, if applicable:

_____

_____

_____

✓ Install sampling port in accordance with work plan procedures.

✓ Clean up any debris.

✓ Invite homeowner to view installed port and explain necessary precautions to prevent disturbance of it while it cures.

Items Completed as Noted:

_____
Terracon Representative Signature

_____
Resident Signature

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Terracon

Street Address: 2477 E Waterloo St
Name of Resident: [redacted]

Arrival Checklist

Date of Visit: 5/2/2011

Time of Arrival: 1005 **Time of Departure:** 1027

Names of Terracon Representatives: jmclancy
Justin Ennell

___ Introduce Terracon Representatives and Show Terracon Identification

___ Verify identity of resident; confirm authority to allow entry

X Explain purpose of visit (check as appropriate):

____ Sample Port Installation

____ Completion of Questionnaire

_____ Indoor Air Sampling Canister Removal

_____ Other [Explain: _____]

_____ Sub-Slap Vapor Sampling

__X__ Indoor Air Sampling Canister Installation x2

__X__ Outdoor Air Sampling

__X__ Explain if follow-up visits will occur and verify date/time of follow-up visits as appropriate.

Date of Follow-Up Visit: 5/3/2011

Time of Follow-Up Visit: 1600

Items Completed as Noted:

Jennifer M Clancy
Terracon Representative Signature

[redacted]

Terracon

Street Address: 2917 E 4th St
Name of Resident: [redacted]
Date and Time of Visit: 5/2/2011 1000

Indoor Air Sampling Canister Installation Checklist

X Verify that heating/cooling system has been operating for at least 24 hours and that doors and windows have only been opened incidentally.

X Work with homeowner to identify an unobtrusive spot for canister to be placed consistent with work plan requirements.

X Explain precautions to be taken while the canister collects the samples.

X Arrange for visit to remove canister:

Date: 5/3/2011

Time: 1000

Items Completed as Noted:

Jennifer M Clancy
Terracon Representative Signature

[redacted]

VAPOR INTRUSION CHARACTERIZATION WORK PLAN
CHAMBERLAIN MANUFACTURING CORPORATION
FORMER FACILITY AT
550 ESTHER STREET
WATERLOO, IOWA

Change Sample #s

Soil Vapor/Indoor Air Sampling Information Form

Residence ID:	46	**Address:**	2973 E 4th St
Sample ID:	IA-B-46	**Location:**	Waterloo
Date:	5/2/2011	**Time:**	1011
Sampler(s):	JMC TJM	**Summa Canister ID:**	0181
Flow Controller ID:	K 269	**Flow Controller Rate Setting (cc/min):**	
Start Time:	1011	**Finish Time:**	1015
Pre-Sampling Vacuum (in Hg):	-27	**Post-Sampling Vacuum (in Hg):**	-3
Organic Vapor Reading (ppm):		**PID used:**	
Summa Canister went to Ambient?	Yes / No	**Method:**	Grab
Comments:			

Sketch:

DO NOT TOUCH

SAMPLE IN PROGRESS

TERRACON PROJECT NUMBER: 07107020
PROJECT LOCATION: Waterloo
DATE INSTALLED: 5/2/2011
TIME INSTALLED: 1011
ADDRESS INSTALLED:
SAMPLE ID: ~~IA-B-47~~ IA-B-46
SAMPLE LOCATION: Basement drain in center of rm

DEVICE #: 0181 **CONTROLLER#:** K269
LAB ID #:
RETRIEVAL DATE: 5/3/2011
PLANNED RETRIEVAL TIME: 1011
ACTUAL RETRIEVAL TIME: 1045
TERRACON REPRESENTATIVE:

COMMENTS:

Terracon
Consulting Engineers & Scientists
FOR INFORMATION CALL 563-355-0702
870 40th Avenue
Bettendorf, Iowa 52722

Chamberlain Samples

VAPOR INTRUSION CHARACTERIZATION WORK PLAN
CHAMBERLAIN MANUFACTURING CORPORATION
FORMER FACILITY AT
550 ESTHER STREET
WATERLOO, IOWA

Soil Vapor/Indoor Air Sampling Information Form

Residence ID:	47	**Address:**	2427 E 4th ST
Sample ID:	IA-1-47	**Location:**	Waterloo
Date:	5/2/2021	**Time:**	1008
Sampler(s):	jmc / jme	**Summa Canister ID:**	7482
Flow Controller ID:	K387	**Flow Controller Rate Setting (cc/min):**	
Start Time:	1008	**Finish Time:**	1152
Pre-Sampling Vacuum (in Hg):	-30	**Post-Sampling Vacuum (in Hg):**	-5
Organic Vapor Reading (ppm):		**PID used:**	
Summa Canister went to Ambient?	Yes / (No)	**Method:**	Grab
Comments:			

Sketch:

DO NOT TOUCH

SAMPLE IN PROGRESS

TERRACON PROJECT NUMBER: 07107020
PROJECT LOCATION: 2421 E 4th St - Waterloo
DATE INSTALLED: 5/2/2021
TIME INSTALLED: 1008
ADDRESS INSTALLED: Same
SAMPLE ID: 1A-1-47
SAMPLE LOCATION: NW Bdrm on dresser

DEVICE #: 7482 **CONTROLLER#:** 16387
LAB ID #:
RETRIEVAL DATE: 5/3
PLANNED RETRIEVAL TIME: 1010
ACTUAL RETRIEVAL TIME: 1152
TERRACON REPRESENTATIVE:

COMMENTS:

Terracon
Consulting Engineers & Scientists
FOR INFORMATION CALL 563-355-0702
870 40th Avenue
Bettendorf, Iowa 52722

VAPOR INTRUSION CHARACTERIZATION WORK PLAN
CHAMBERLAIN MANUFACTURING CORPORATION
FORMER FACILITY AT
550 ESTHER STREET
WATERLOO, IOWA

Soil Vapor/Indoor Air Sampling Information Form

Residence ID:	46	**Address:**	2417 E 4th St
Sample ID:	AA-46	**Location:**	Waterloo
Date:	5/2/11	**Time:**	1022
Sampler(s):	jme/jme	**Summa Canister ID:**	4497N
Flow Controller ID:	K339	**Flow Controller Rate Setting (cc/min):**	
Start Time:	1022 5/2	**Finish Time:**	1117 5/3
Pre-Sampling Vacuum (in Hg):	-30	**Post-Sampling Vacuum (in Hg):**	-2.5
Organic Vapor Reading (ppm):		**PID used:**	
Summa Canister went to Ambient?	Yes / No	**Method:**	Grab
Comments:			

Sketch:

DO NOT TOUCH

SAMPLE IN PROGRESS

TERRACON PROJECT NUMBER: 07070220
PROJECT LOCATION: Waterloo
DATE INSTALLED: 5/2/2011
TIME INSTALLED: 1522
ADDRESS INSTALLED: 2917 E 4th ST
SAMPLE ID: AA-4b
SAMPLE LOCATION: tree in backyard - W side of house

DEVICE #: 4497N **CONTROLLER#:** K339
LAB ID #:
RETRIEVAL DATE: 5/3/2011
PLANNED RETRIEVAL TIME: 1522
ACTUAL RETRIEVAL TIME:
TERRACON REPRESENTATIVE: JMC/JME

COMMENTS:

Terracon
Consulting Engineers & Scientists
FOR INFORMATION CALL 563-355-0702
870 40th Avenue
Bettendorf, Iowa 52722

Terracon 46

Street Address: 2417 E 4th St
Name of Resident: [redacted]

Arrival Checklist

Date of Visit: 5/3/2011

Time of Arrival: 1000 **Time of Departure:** 1150

Names of Terracon Representatives: Jen clancy
Justin enwall

___ Introduce Terracon Representatives and Show Terracon Identification

___ Verify identity of resident; confirm authority to allow entry

X Explain purpose of visit (check as appropriate):

____ Sample Port Installation

__X__ Sub-Slap Vapor Sampling

____ Completion of Questionnaire

_____ Indoor Air Sampling Canister Installation

__X__ Indoor Air Sampling Canister Removal

_____ Outdoor Air Sampling

_____ Other [Explain: _____]

____ Explain if follow-up visits will occur and verify date/time of follow-up visits as appropriate.

Date of Follow-Up Visit: _____

Time of Follow-Up Visit: _____

Items Completed as Noted:

Jennifer M Clancy
Terracon Representative Signature

[redacted]

VAPOR INTRUSION CHARACTERIZATION WORK PLAN
CHAMBERLAIN MANUFACTURING CORPORATION
FORMER FACILITY AT
550 ESTHER STREET
WATERLOO, IOWA

Soil Vapor/Indoor Air Sampling Information Form

Residence ID:	46	**Address:**	2417 E 4th St
Sample ID:	SS-46	**Location:**	Waterloo
Date:	5/3/2011	**Time:**	1000
Sampler(s):	jmc/jme	**Summa Canister ID:**	93046
Flow Controller ID:	191	**Flow Controller Rate Setting (cc/min):**	
Start Time:	1024	**Finish Time:**	1107
Pre-Sampling Vacuum (in Hg):	-29	**Post-Sampling Vacuum (in Hg):**	-2
Organic Vapor Reading (ppm):	ambient: 0.3 SS: 0.0	**PID used:**	
Summa Canister went to Ambient?	Yes / No	**Method:**	Grab
Comments:			

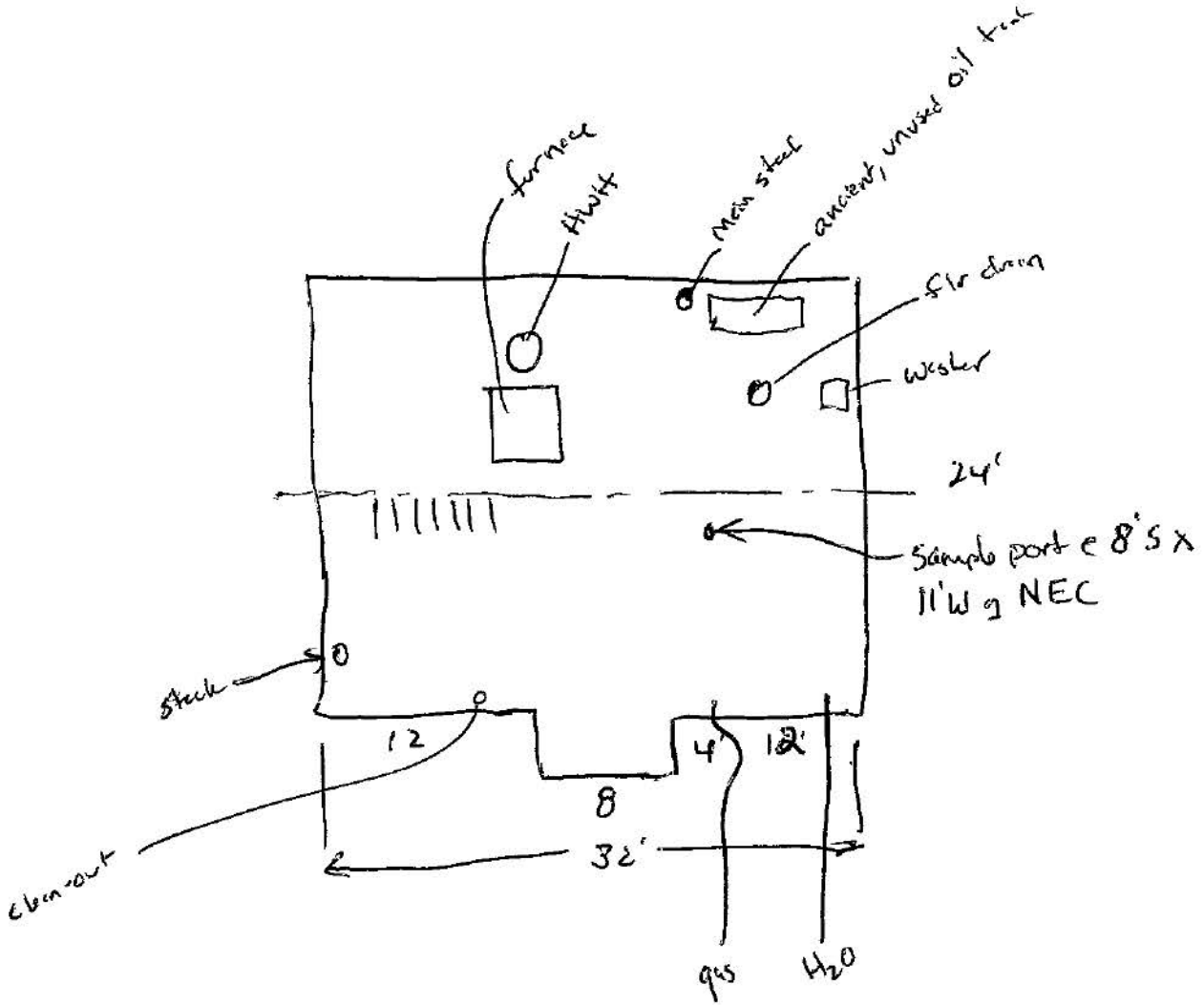
Sketch:

Terracon

PROJECT: _____ Page _____ of _____

JOB NO. _____ Date 4-27-11 Comp. By JE/MA CHECKED BY: _____

2417 E. 4th ST.



Washer prc's to flr drain above grade

N →

Terracon

Street Address: 2421 E. 4th ST
Name of Resident: [redacted]

Arrival Checklist

Date of Visit: 4-26-11

Time of Arrival: 10:30 **Time of Departure:** _____

Names of Terracon Representatives: Justin Ennell
Mark Anderson

✓ Introduce Terracon Representatives and Show Terracon Identification

✓ Verify identity of resident; confirm authority to allow entry

✓ Explain purpose of visit (check as appropriate):

✓ Sample Port Installation

_____ Sub-Slap Vapor Sampling

✓ Completion of Questionnaire

_____ Indoor Air Sampling Canister Installation

_____ Indoor Air Sampling Canister Removal

_____ Outdoor Air Sampling

_____ Other [Explain: _____]

✓ Explain if follow-up visits will occur and verify date/time of follow-up visits as appropriate.

Date of Follow-Up Visit: 4/28/11

Time of Follow-Up Visit: 8-9

Items Completed as Noted:

Justin Ennell
Terracon Representative Signature

[redacted]
Resident Signature

Terracon

Street Address: 2421 E. 4th ST.
Name of Resident: [redacted]
Date and Time of Visit: 4-26-11 / 10:30

Sampling Port Installation Checklist

✓ Work with resident to identify mutually agreeable area to install port in lowest occupied level of home.

Precautions to be taken to protect floor coverings, if applicable:

Concrete Plus

✓ Install sampling port in accordance with work plan procedures.

✓ Clean up any debris.

✓ Invite homeowner to view installed port and explain necessary precautions to prevent disturbance of it while it cures.

Items Completed as Noted:

Justin Ewell
Terracon Representative Signature

[redacted]
Resident Signature

Terracon

Street Address: 2421 E 4th Street
Name of Resident: [redacted]

Arrival Checklist

Date of Visit: 4/26/11

Time of Arrival: 800 **Time of Departure:** 900

Names of Terracon Representatives: Justin Ennall
Rob Bergman

✓ Introduce Terracon Representatives and Show Terracon Identification

✓ Verify identity of resident; confirm authority to allow entry

___ Explain purpose of visit (check as appropriate):

___ Sample Port Installation

✓ Sub-Slap Vapor Sampling

___ Completion of Questionnaire

___ Indoor Air Sampling Canister Installation

___ Indoor Air Sampling Canister Removal

___ Outdoor Air Sampling

___ Other [Explain: ___]

___ Explain if follow-up visits will occur and verify date/time of follow-up visits as appropriate.

Date of Follow-Up Visit: ___

Time of Follow-Up Visit: ___

Items Completed as Noted:

Terracon Representative Signature

[redacted]

Resident Signature

VAPOR INTRUSION CHARACTERIZATION WORK PLAN
CHAMBERLAIN MANUFACTURING CORPORATION
FORMER FACILITY AT
550 ESTHER STREET
WATERLOO, IOWA

Soil Vapor/Indoor Air Sampling Information Form

Residence ID:	47	**Address:**	2421 E 4th St
Sample ID:	SS-47	**Location:**	Waterloo, Iowa
Date:	4/28/11	**Time:**	800
Sampler(s):	JME/RPB	**Summa Canister ID:**	1320N
Flow Controller ID:	26	**Flow Controller Rate Setting (cc/min):**	200 cc/min
Start Time:	818	**Finish Time:**	918
Pre-Sampling Vacuum (in Hg):	-30	**Post-Sampling Vacuum (in Hg):**	-7
Organic Vapor Reading (ppm):	2.1 0.2	**PID used:**	MSA Minirae 3000 #2 with a 10.6 eV lamp
Summa Canister went to Ambient?	Yes / (No)	**Method:**	Grab
Comments:	Purged 210 cc from SSMP with syringe and ~10 cc from 1/2 flow controller		
Sketch:			

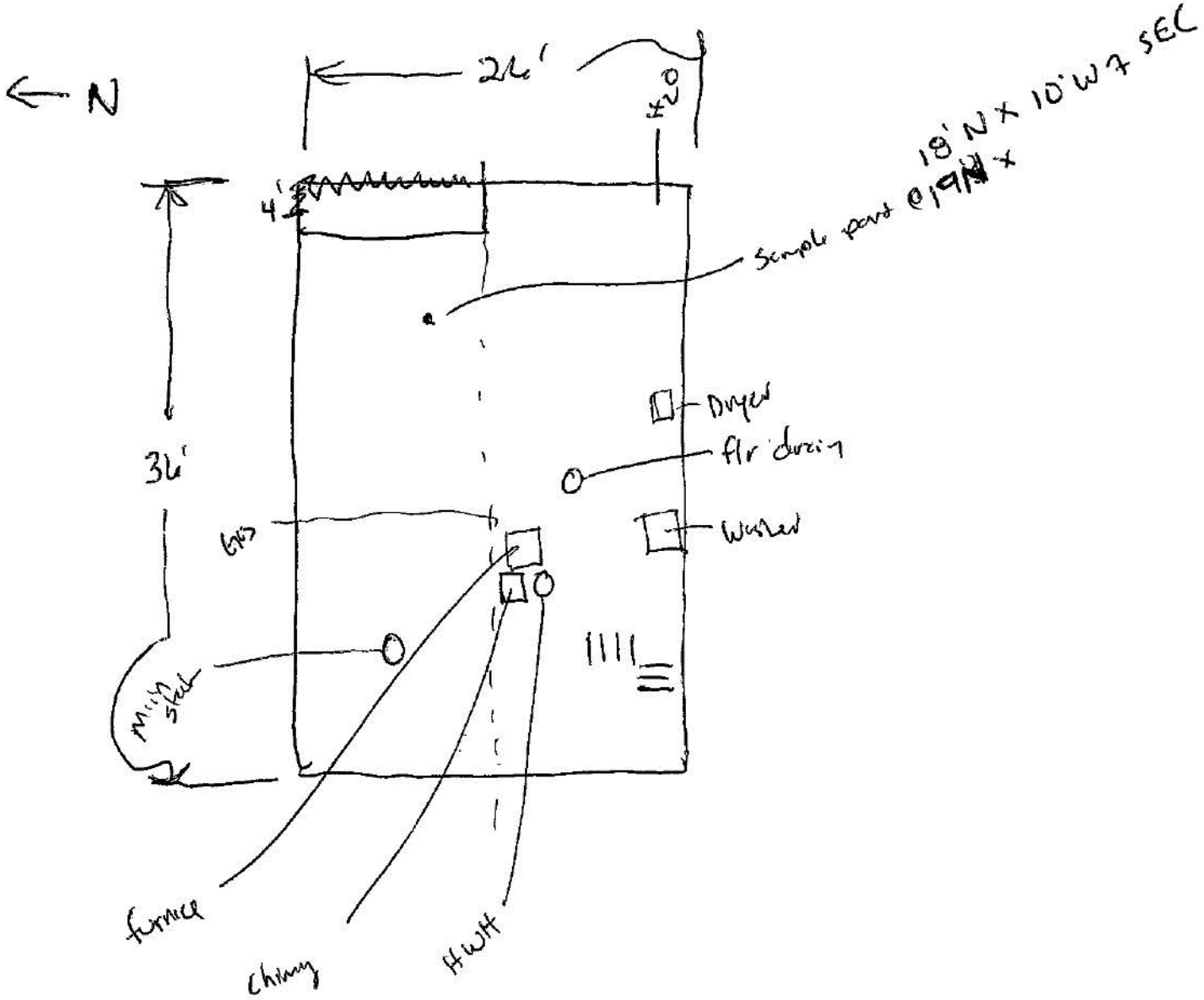
Terracon

PROJECT: _____ Page _____ of _____

JOB NO. _____ Date 4-26-11 Comp. By JE/MA CHECKED BY: _____

2421 E 4th ST.

- Owner said drill anywhere



Terracon

Street Address: 2427 E. 4th ST. W'loo
Name of Resident: [redacted]

Arrival Checklist

Date of Visit: 4-25-11

Time of Arrival: 1:30 p. **Time of Departure:** 14:40

Names of Terracon Representatives: Mark Anderson
Justin Enwall

X Introduce Terracon Representatives and Show Terracon Identification

X Verify identity of resident; confirm authority to allow entry

___ Explain purpose of visit (check as appropriate):

- X Sample Port Installation
- X Completion of Questionnaire
- ____ Indoor Air Sampling Canister Removal
- ____ Other [Explain: _____]
- ____ Sub-Slap Vapor Sampling
- ____ Indoor Air Sampling Canister Installation
- ____ Outdoor Air Sampling

X Explain if follow-up visits will occur and verify date/time of follow-up visits as appropriate.

Date of Follow-Up Visit: _____ Thurs 4/28 btwn 11:30 - 1
↳ try a couple of times

Time of Follow-Up Visit: _____

Items Completed as Noted:

Mark Anderson
Terracon Representative Signature

[redacted]

Terracon

Street Address: 2427 E. 45th St. W 100
Name of Resident: [redacted]
Date and Time of Visit: 4-25-11 @ 1:30

Sampling Port Installation Checklist

X Work with resident to identify mutually agreeable area to install port in lowest occupied level of home.

Precautions to be taken to protect floor coverings, if applicable:

_____

_____

_____

X Install sampling port in accordance with work plan procedures.

X Clean up any debris.

X Invite homeowner to view installed port and explain necessary precautions to prevent disturbance of it while it cures.

Items Completed as Noted:

Mark Anderson
Terracon Representative Signature

[redacted]

Terracon

Street Address: 2427 E 4th St.
Name of Resident: [redacted]

Arrival Checklist

Date of Visit: 4/29/11

Time of Arrival: 1205 **Time of Departure:** 12:25

Names of Terracon Representatives: Justin Ennell
Rob Bergman

✓ Introduce Terracon Representatives and Show Terracon Identification

✓ Verify identity of resident; confirm authority to allow entry

✓ Explain purpose of visit (check as appropriate):

____ Sample Port Installation

____ Sub-Slap Vapor Sampling

____ Completion of Questionnaire

✓ Indoor Air Sampling Canister Installation

____ Indoor Air Sampling Canister Removal

____ Outdoor Air Sampling

____ Other [Explain: _____]

✓ Explain if follow-up visits will occur and verify date/time of follow-up visits as appropriate.

Date of Follow-Up Visit: 4/29/11

Time of Follow-Up Visit: 12:00

Items Completed as Noted:

Justin Ennell
Terracon Representative Signature

[redacted]
Resident Signature

Terracon

Street Address: 2427 E 4th St.
Name of Resident: [redacted]
Date and Time of Visit: 4/20/11 12:05

Indoor Air Sampling Canister Installation Checklist

✓ Verify that heating/cooling system has been operating for at least 24 hours and that doors and windows have only been opened incidentally.

✓ Work with homeowner to identify an unobtrusive spot for canister to be placed consistent with work plan requirements.

✓ Explain precautions to be taken while the canister collects the samples.

✓ Arrange for visit to remove canister:

Date: 4/22/11

Time: 12:00

1213	29.25 in Hg	TA-48-MF		
1218	29.5 in Hg	TA-48-B	1495	K406
1218	29.0 in Hg	TA-48-B-D	11157	K362

Items Completed as Noted:

Terracon Representative Signature

[redacted]

VAPOR INTRUSION CHARACTERIZATION WORK PLAN
CHAMBERLAIN MANUFACTURING CORPORATION
FORMER FACILITY AT
550 ESTHER STREET
WATERLOO, IOWA

Soil Vapor/Indoor Air Sampling Information Form

Residence ID:	48	**Address:**	2427 E 4th St
Sample ID:	IA-48-B	**Location:**	Waterloo, IA
Date:	4/28/11	**Time:**	12:05
Sampler(s):	RPB / JME	**Summa Canister ID:**	1495
Flow Controller ID:	K406	**Flow Controller Rate Setting (cc/min):**	24 hr.
Start Time:	12:18 4/28/11	**Finish Time:**	1522 4/29/11
Pre-Sampling Vacuum (in Hg):	29.5 in Hg	**Post-Sampling Vacuum (in Hg):**	-5
Organic Vapor Reading (ppm):	—	**PID used:**	No
Summa Canister went to Ambient?	Yes / (No)	**Method:**	Grab
Comments:	Placed canister on bench about chest high in center of room		

Sketch:

VAPOR INTRUSION CHARACTERIZATION WORK PLAN
CHAMBERLAIN MANUFACTURING CORPORATION
FORMER FACILITY AT
550 ESTHER STREET
WATERLOO, IOWA

Soil Vapor/Indoor Air Sampling Information Form

Residence ID:	48	**Address:**	2427 E 4th St
Sample ID:	IA-48-B-D	**Location:**	Waterloo, IA
Date:	4/28/11	**Time:**	12:05
Sampler(s):	RPB/JME	**Summa Canister ID:**	11157
Flow Controller ID:	K362	**Flow Controller Rate Setting (cc/min):**	24 hr.
Start Time:	12:18 4/28/11	**Finish Time:**	1572 4/28/11
Pre-Sampling Vacuum (in Hg):	29.0 in Hg	**Post-Sampling Vacuum (in Hg):**	-3
Organic Vapor Reading (ppm):	—	**PID used:**	No
Summa Canister went to Ambient?	Yes / (No)	**Method:**	Grab
Comments:	Placed canister on bench about chest high in center of room.		

Sketch:

DO NOT TOUCH

SAMPLE IN PROGRESS

TERRACON PROJECT NUMBER: 07107020
PROJECT LOCATION: Waterloo, IA
DATE INSTALLED: 4/28/11
TIME INSTALLED: 1218
ADDRESS INSTALLED: 2427 E 4th St
SAMPLE ID: IA-48-13
SAMPLE LOCATION: center of basement approximately 3 1/2 ft above ground
DEVICE #: 14495 **CONTROLLER#:** 11406
LAB ID #:
RETRIEVAL DATE: 4/29/11
PLANNED RETRIEVAL TIME: 12:00
ACTUAL RETRIEVAL TIME: 15:22
TERRACON REPRESENTATIVE: JME/APB

COMMENTS:

Terracon
Consulting Engineers & Scientists
FOR INFORMATION CALL 563-355-0702
870 40th Avenue
Bettendorf, Iowa 52722

VAPOR INTRUSION CHARACTERIZATION WORK PLAN
CHAMBERLAIN MANUFACTURING CORPORATION
FORMER FACILITY AT
550 ESTHER STREET
WATERLOO, IOWA

Soil Vapor/Indoor Air Sampling Information Form

Residence ID:	48	**Address:**	2427 E 4th st.
Sample ID:	IA-48-4F	**Location:**	Waterloo, IA
Date:	4/28/11	**Time:**	12:05
Sampler(s):	RPB/JME	**Summa Canister ID:**	0120
Flow Controller ID:	K270	**Flow Controller Rate Setting (cc/min):**	24 hr.
Start Time:	12:13	**Finish Time:**	15:25
Pre-Sampling Vacuum (in Hg):	29.25 in Hg	**Post-Sampling Vacuum (in Hg):**	-5
Organic Vapor Reading (ppm):	—	**PID used:**	No
Summa Canister went to Ambient?	Yes / (No)	**Method:**	Grab
Comments:	Placed canister on bookshelf seperating living room & dining room along N wall.		

Sketch:

DO NOT TOUCH

SAMPLE IN PROGRESS

TERRACON PROJECT NUMBER: 07607020
PROJECT LOCATION: Waterloo, IA
DATE INSTALLED: 4/29/11
TIME INSTALLED:
ADDRESS INSTALLED: 2427 4th Street
SAMPLE ID: IA-456-MF
SAMPLE LOCATION: on top of ~~bookcase~~ built in bookcase in center of living room/ ~~kit~~ dining
DEVICE #: 0120 CONTROLLER#: 17270
LAB ID #:
RETRIEVAL DATE: 4/29/11
PLANNED RETRIEVAL TIME:
ACTUAL RETRIEVAL TIME: 1525
TERRACON REPRESENTATIVE: JWF/RPB

COMMENTS:

Terracon
Consulting Engineers & Scientists
FOR INFORMATION CALL 563-355-0702
870 40th Avenue
Bettendorf, Iowa 52722

Terracon

Street Address: 2427 E 4th St
Name of Resident: [redacted]

Arrival Checklist

Date of Visit: 4/29/2011

Time of Arrival: 1205 **Time of Departure:** 1530

Names of Terracon Representatives: Jen Clancy
Justin Enwall

X Introduce Terracon Representatives and Show Terracon Identification

X Verify identity of resident; confirm authority to allow entry

X Explain purpose of visit (check as appropriate):

____ Sample Port Installation

X Sub-Slap Vapor Sampling

____ Completion of Questionnaire

_____ Indoor Air Sampling Canister Installation

X Indoor Air Sampling Canister Removal x3

_____ Outdoor Air Sampling

_____ Other [Explain: _____]

____ Explain if follow-up visits will occur and verify date/time of follow-up visits as appropriate.

Date of Follow-Up Visit: _____

Time of Follow-Up Visit: _____

Items Completed as Noted:

Jennifer M Clancy
Terracon Representative Signature

[redacted]

VAPOR INTRUSION CHARACTERIZATION WORK PLAN
CHAMBERLAIN MANUFACTURING CORPORATION
FORMER FACILITY AT
550 ESTHER STREET
WATERLOO, IOWA

Soil Vapor/Indoor Air Sampling Information Form

Residence ID:	48	**Address:**	2427 E 4th St
Sample ID:	SS-48	**Location:**	Waterloo
Date:	4/29/2011	**Time:**	1205
Sampler(s):	jmc/jme	**Summa Canister ID:**	1013
Flow Controller ID:	138	**Flow Controller Rate Setting (cc/min):**	
Start Time:	1215	**Finish Time:**	1250
Pre-Sampling Vacuum (in Hg):	-26	**Post-Sampling Vacuum (in Hg):**	-2.5
Organic Vapor Reading (ppm):	ambient: 0.2 ppm SS: 0.2 ppm	**PID used:**	mini RAE 3000
Summa Canister went to Ambient?	Yes / (No)	**Method:**	Grab
Comments:			

Sketch:

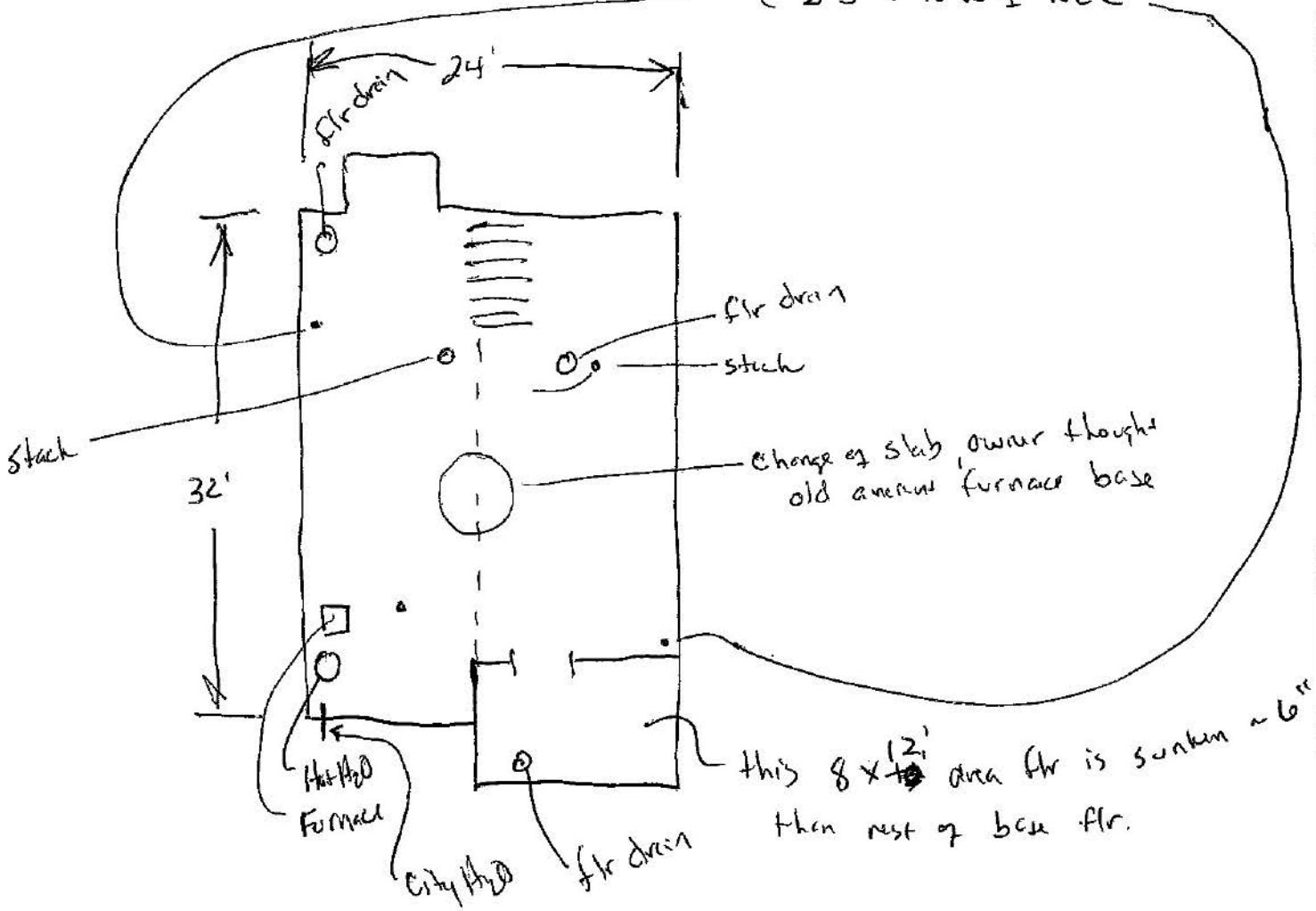
Terracon

PROJECT: Chamberlain Manufacturing Corporation Page 1 of 1

JOB NO. 07107020 Date 4-25-11 Comp. By JE / MA CHECKED BY:

2427 E. 4th ST., Waterloo, IA
24" (N-S) x 32 → 40'

- Sampling port @ 9'W x 10'N of SEC
- ancient/damaged painted concrete flr
- old ~~(EPA?)~~ (previously installed sampling pt → @ 2'N. x 10'E of SWC
  @ 2'S x 10'W of NEC



N →

- @ location drilled/sampled concrete slab only ~ 1-2" thick.

Form 112-5-93

Terracon

Street Address: 2600 E. 4th ST.
Name of Resident: [redacted]

Arrival Checklist

Date of Visit: 4-25-11

Time of Arrival: 3:30 p. **Time of Departure:** 4:25 p

Names of Terracon Representatives: Mark Anderson

Justin Edwall

X Introduce Terracon Representatives and Show Terracon Identification

X Verify identity of resident; confirm authority to allow entry

___ Explain purpose of visit (check as appropriate):

X Sample Port Installation

___ Sub-Slap Vapor Sampling

X Completion of Questionnaire

___ Indoor Air Sampling Canister Installation

___ Indoor Air Sampling Canister Removal

___ Outdoor Air Sampling

___ Other [Explain: ___]

___ Explain if follow-up visits will occur and verify date/time of follow-up visits as appropriate.

Date of Follow-Up Visit: 4-28-11 (th).

Time of Follow-Up Visit: 10:00, Brother = Andrew

Items Completed as Noted:

Mark Anderson

Terracon Representative Signature

[redacted]

Terracon

Street Address: 2600 E. 45th St
Name of Resident: [redacted]
Date and Time of Visit: 4-25-11 @ 3:30p

Sampling Port Installation Checklist

X Work with resident to identify mutually agreeable area to install port in lowest occupied level of home.

Precautions to be taken to protect floor coverings, if applicable:

_____

_____

_____

X Install sampling port in accordance with work plan procedures.

X Clean up any debris.

X Invite homeowner to view installed port and explain necessary precautions to prevent disturbance of it while it cures.

Items Completed as Noted:

Mark Anderson
Terracon Representative Signature

[redacted]

Terracon

Street Address: 2600 E 4th Street
Name of Resident: [redacted]

Arrival Checklist

Date of Visit: 4/28/11

Time of Arrival: 1005 **Time of Departure:** 1100

Names of Terracon Representatives: Justin Emrall
Rob Bergman

✓ Introduce Terracon Representatives and Show Terracon Identification

✓ Verify identity of resident; confirm authority to allow entry

✓ Explain purpose of visit (check as appropriate):

____ Sample Port Installation

✓ Sub-Slap Vapor Sampling

____ Completion of Questionnaire

_____ Indoor Air Sampling Canister Installation

_____ Indoor Air Sampling Canister Removal

_____ Outdoor Air Sampling

_____ Other [Explain: _____]

____ Explain if follow-up visits will occur and verify date/time of follow-up visits as appropriate.

Date of Follow-Up Visit: _____

Time of Follow-Up Visit: _____

Items Completed as Noted:

_____
Terracon Representative Signature

_____
Resident Signature

VAPOR INTRUSION CHARACTERIZATION WORK PLAN
CHAMBERLAIN MANUFACTURING CORPORATION
FORMER FACILITY AT
550 ESTHER STREET
WATERLOO, IOWA

Soil Vapor/Indoor Air Sampling Information Form

Residence ID:	56	**Address:**	2600 4th Street
Sample ID:	SS-56	**Location:**	Waterloo, IA
Date:	4/28/11	**Time:**	1005
Sampler(s):	JAE/RPB	**Summa Canister ID:**	6349
Flow Controller ID:	142	**Flow Controller Rate Setting (cc/min):**	200 cc/min
Start Time:	1013	**Finish Time:**	1057
Pre-Sampling Vacuum (in Hg):	28.5 in Hg	**Post-Sampling Vacuum (in Hg):**	1.0 - 1.25 in Hg
Organic Vapor Reading (ppm):	<1 (0.4)	**PID used:**	miniRae 3000 #2 with 10.6eV lamp
Summa Canister went to Ambient?	Yes / (No)	**Method:**	Grab
Comments:	Purged 200 cc from SSMP with syringe and ~10cc from flow controller, basement ambient 0.6ppm		
Sketch:	- appeared to stop drawing at 1-1.25 in Hg, Stopped sample		

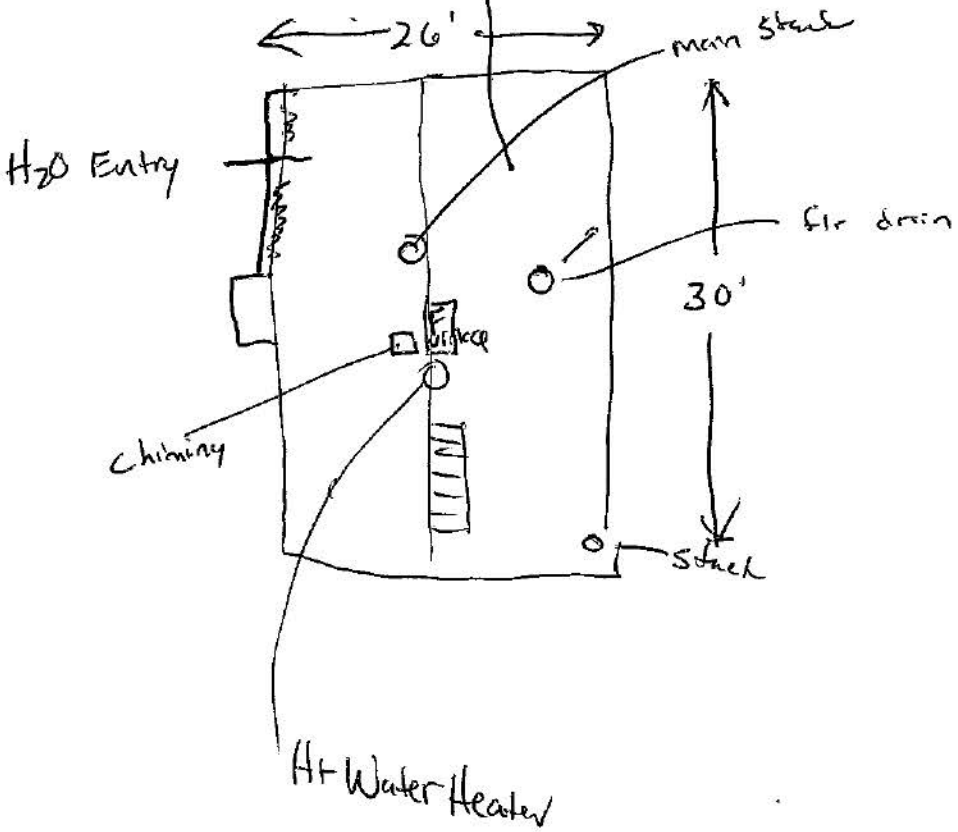
See Detailed Sketch

Terracon

PROJECT: Chamberlain Manufacturing ~~Energy~~ Corporation Page 1 of 3

JOB NO. 0760020 Date 4-25-11 Comp. By JE / MA CHECKED BY:

- 2600 E. 4th ST., W'loo
- pt. 9' W x 8' S of NEC
- painted concrete basement flr.



Terracon

Street Address: 2614 E. 4th ST.
Name of Resident: _____

Arrival Checklist

Date of Visit: 4-26-11

Time of Arrival: 8:30 **Time of Departure:** 9:20

Names of Terracon Representatives: Justin Enwall

Mark Anderson

X Introduce Terracon Representatives and Show Terracon Identification

X Verify identity of resident; confirm authority to allow entry

___ Explain purpose of visit (check as appropriate):

X Sample Port Installation

X Completion of Questionnaire

_____ Indoor Air Sampling Canister Removal

_____ Other [Explain: _____]

_____ Sub-Slap Vapor Sampling

_____ Indoor Air Sampling Canister Installation

_____ Outdoor Air Sampling

____ Explain if follow-up visits will occur and verify date/time of follow-up visits as appropriate.

Date of Follow-Up Visit: 4-28-11 (Thurs)

Time of Follow-Up Visit: 11:00

Items Completed as Noted:

Mark Anderson
Terracon Representative Signature

[redacted]
Resident Signature

Terracon

Street Address: 2614 E. 4th ST.
Name of Resident: [redacted]
Date and Time of Visit: _____

Sampling Port Installation Checklist

X Work with resident to identify mutually agreeable area to install port in lowest occupied level of home.

Precautions to be taken to protect floor coverings, if applicable:

_____

_____

_____

X Install sampling port in accordance with work plan procedures.

X Clean up any debris.

X Invite homeowner to view installed port and explain necessary precautions to prevent disturbance of it while it cures.

Items Completed as Noted:

Mark Anderson
Terracon Representative Signature

[redacted]
Resident Signature

Terracon

Street Address: 2614 E 4th Street
Name of Resident: [redacted]

Arrival Checklist

Date of Visit: 4/28/11

Time of Arrival: 1105 **Time of Departure:** 1200

Names of Terracon Representatives: Justin Ewall
Rob Bergman

✓ Introduce Terracon Representatives and Show Terracon Identification

✓ Verify identity of resident; confirm authority to allow entry

✓ Explain purpose of visit (check as appropriate):

____ Sample Port Installation

✓ Sub-Slap Vapor Sampling

____ Completion of Questionnaire

_____ Indoor Air Sampling Canister Installation

_____ Indoor Air Sampling Canister Removal

_____ Outdoor Air Sampling

_____ Other [Explain: _____]

____ Explain if follow-up visits will occur and verify date/time of follow-up visits as appropriate.

Date of Follow-Up Visit: _____

Time of Follow-Up Visit: _____

Items Completed as Noted:

Terracon Representative Signature

[redacted]
Resident Signature

VAPOR INTRUSION CHARACTERIZATION WORK PLAN
CHAMBERLAIN MANUFACTURING CORPORATION
FORMER FACILITY AT
550 ESTHER STREET
WATERLOO, IOWA

Soil Vapor/Indoor Air Sampling Information Form

Residence ID:	60	**Address:**	2614 E 4th St
Sample ID:	SS-60	**Location:**	Waterloo, IA
Date:	4/26/11	**Time:**	~~1105~~ 1105
Sampler(s):	JME/RPB	**Summa Canister ID:**	93219
Flow Controller ID:	62	**Flow Controller Rate Setting (cc/min):**	200 cc/min
Start Time:	1115	**Finish Time:**	1152
Pre-Sampling Vacuum (in Hg):	-27.5 in Hg	**Post-Sampling Vacuum (in Hg):**	-1
Organic Vapor Reading (ppm):	< 0.1 ppm	**PID used:**	WBL miniRae 3000-HZ with 10.6 eV lamp
Summa Canister went to Ambient?	Yes / (No)	**Method:**	Grab
Comments:	purged 200 cc from SSMP with syringe and ~10 cc from flow controller with syringe, ambient background measured 0.4 ppm		

Sketch:

See Detailed Sketch

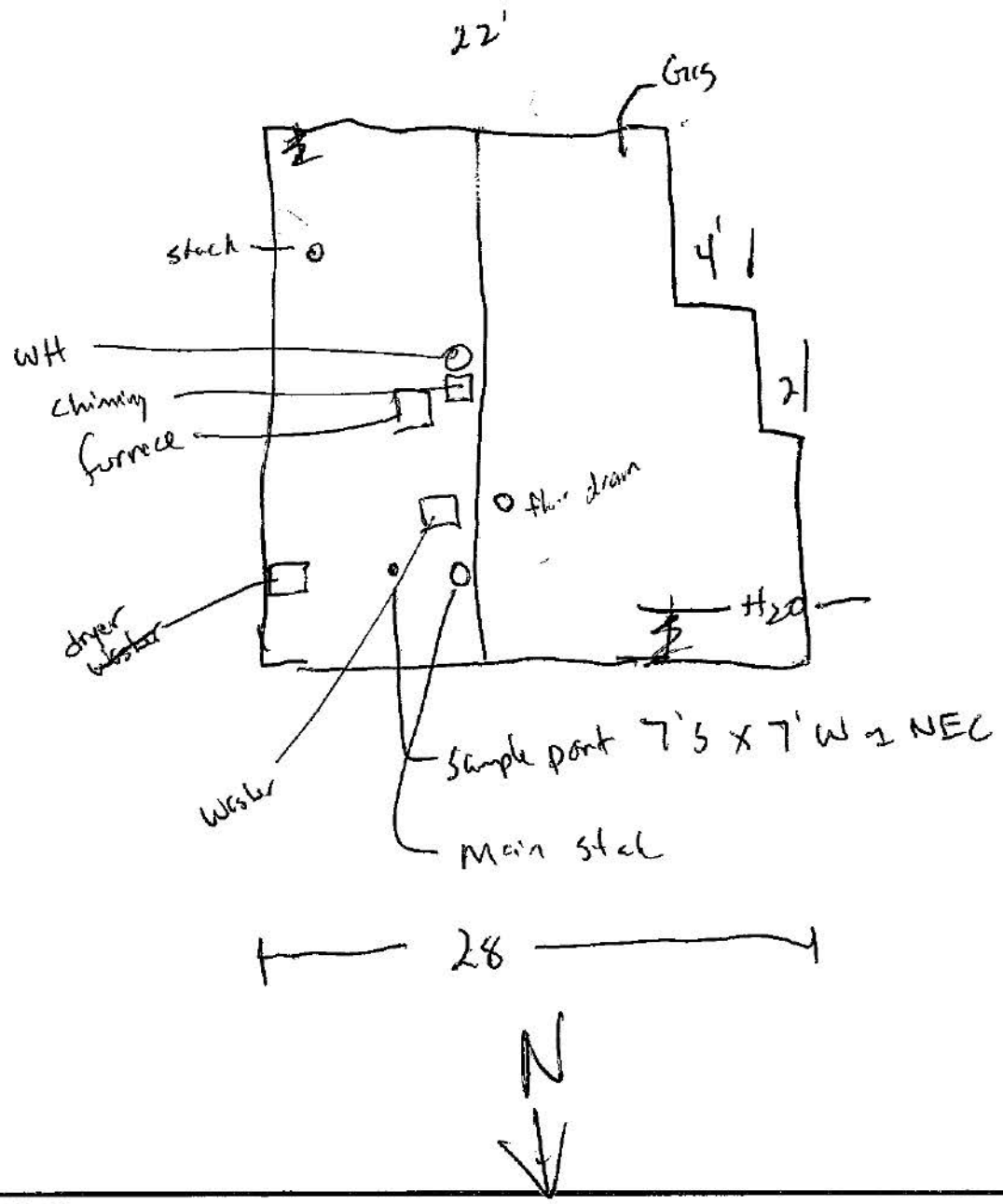
Terracon

PROJECT: _____ Page _____ of _____

JOB NO. 07107020 Date 4-26-11 Comp. By JE/MA CHECKED BY: _____

2614 E. 4th ST., W'100, 8:30

* Need Drain *
Location



Terracon

Street Address: 2620 E 4th Street
Name of Resident: [redacted]

Arrival Checklist

Date of Visit: 4/27/11

Time of Arrival: 1600 **Time of Departure:** 1700

Names of Terracon Representatives: Justin Enwall
Mark Anderson

✓ Introduce Terracon Representatives and Show Terracon Identification

✓ Verify identity of resident; confirm authority to allow entry

✓ Explain purpose of visit (check as appropriate):

✓ Sample Port Installation

____ Sub-Slap Vapor Sampling

✓ Completion of Questionnaire

____ Indoor Air Sampling Canister Installation

____ Indoor Air Sampling Canister Removal

____ Outdoor Air Sampling

____ Other [Explain: _____]

____ Explain if follow-up visits will occur and verify date/time of follow-up visits as appropriate.

Date of Follow-Up Visit: 5/2/11

Time of Follow-Up Visit: 3:30 PM

Items Completed as Noted:

Terracon Representative Signature

[redacted]

Terracon

Street Address: 2620 E 4th Street
Name of Resident: [redacted]
Date and Time of Visit: 4/27/11 4:00PM

Sampling Port Installation Checklist

✓ Work with resident to identify mutually agreeable area to install port in lowest occupied level of home.

Precautions to be taken to protect floor coverings, if applicable:

_____

_____

_____

✓ Install sampling port in accordance with work plan procedures.

✓ Clean up any debris.

✓ Invite homeowner to view installed port and explain necessary precautions to prevent disturbance of it while it cures.

Items Completed as Noted:

Terracon Representative Signature

[redacted]

Resident Signature

Terracon

Street Address: 2670 E 4th St
Name of Resident [redacted]

Arrival Checklist

Date of Visit: 5/2/201

Time of Arrival: 1545 **Time of Departure:** 1640

Names of Terracon Representatives: jen clancy
justin einwalf

Y Introduce Terracon Representatives and Show Terracon Identification

Y Verify identity of resident; confirm authority to allow entry

Y Explain purpose of visit (check as appropriate):

____ Sample Port Installation

X Sub-Slap Vapor Sampling

____ Completion of Questionnaire

_____ Indoor Air Sampling Canister Installation

_____ Indoor Air Sampling Canister Removal

_____ Outdoor Air Sampling

_____ Other [Explain: _____]

____ Explain if follow-up visits will occur and verify date/time of follow-up visits as appropriate.

Date of Follow-Up Visit: _____

Time of Follow-Up Visit: _____

Items Completed as Noted:

Jennifer M Clancy
Terracon Representative Signature

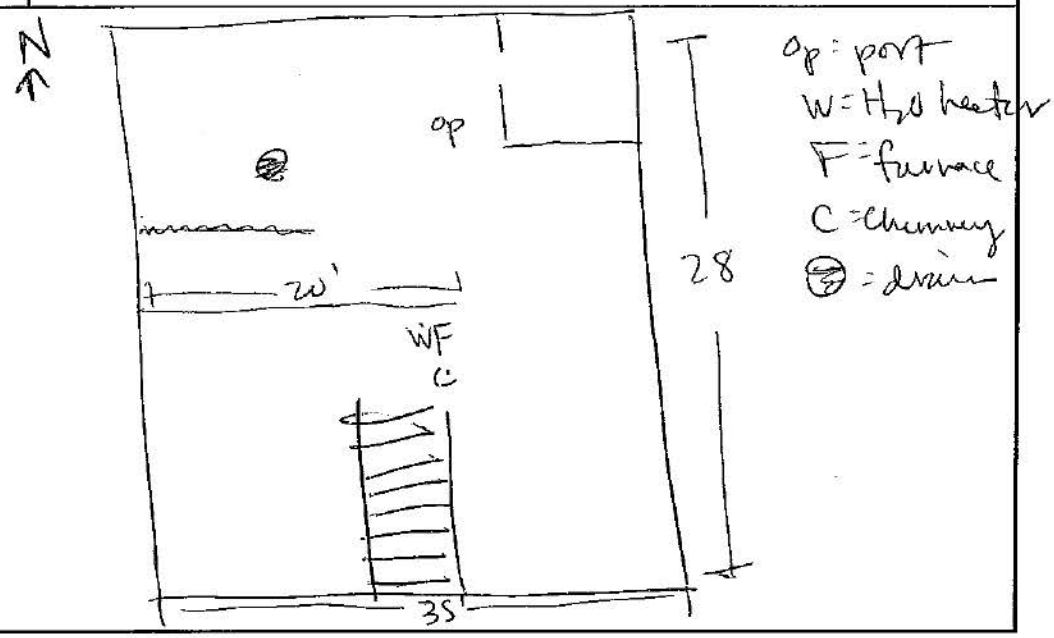
[redacted]

VAPOR INTRUSION CHARACTERIZATION WORK PLAN
CHAMBERLAIN MANUFACTURING CORPORATION
FORMER FACILITY AT
550 ESTHER STREET
WATERLOO, IOWA

Soil Vapor/Indoor Air Sampling Information Form

Residence ID:	62	**Address:**	2420 E 4th St
Sample ID:	SS-62	**Location:**	Waterloo
Date:	5/2/2011	**Time:**	1545
Sampler(s):	jme / jme	**Summa Canister ID:**	04399
Flow Controller ID:	74	**Flow Controller Rate Setting (cc/min):**	~~89~~
Start Time:	1600	**Finish Time:**	1634
Pre-Sampling Vacuum (in Hg):	-29	**Post-Sampling Vacuum (in Hg):**	-1.5
Organic Vapor Reading (ppm):	ambient. 0.0 SS: 0.0	**PID used:**	miniRAE 3000
Summa Canister went to Ambient?	Yes / No	**Method:**	TO-15 Grab
Comments:			

Sketch:

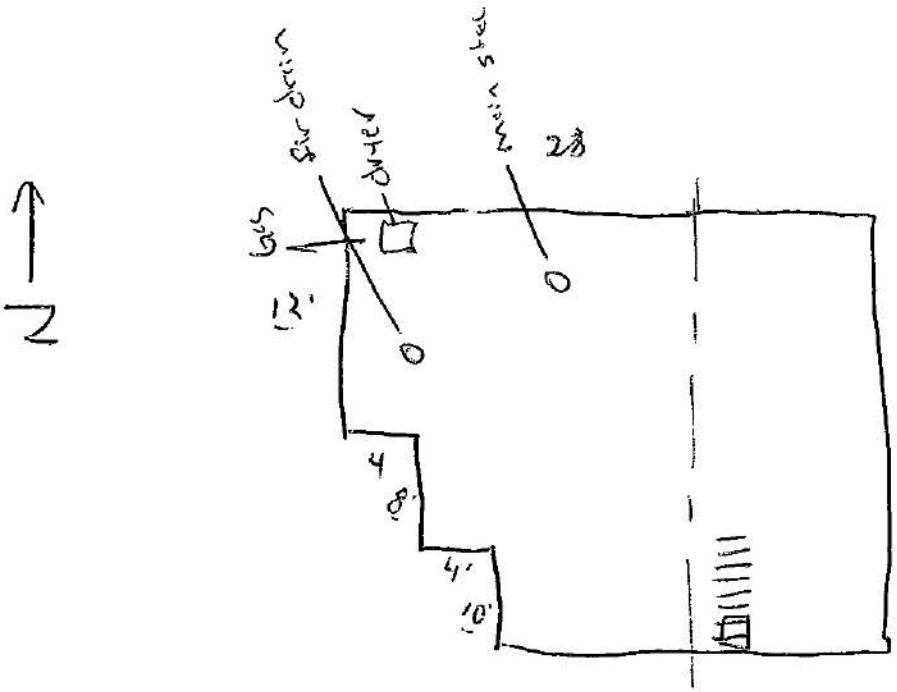


Terracon

PROJECT: _____ Page _____ of _____

JOB NO. _____ Date 4-27-11 Comp. By _____ CHECKED BY: _____

2620 E 45th ST.



Terracon

Street Address: 2635 E 4th St
Name of Resident: [redacted]

Arrival Checklist

Date of Visit: 4/28/2011

Time of Arrival: 1130 **Time of Departure:** 210

Names of Terracon Representatives: John Brimeyer
Jen Clancy

X Introduce Terracon Representatives and Show Terracon Identification

X Verify identity of resident; confirm authority to allow entry

X Explain purpose of visit (check as appropriate):

- X Sample Port Installation
- X Completion of Questionnaire
- _____ Indoor Air Sampling Canister Removal
- _____ Other [Explain: _____]
- _____ Sub-Slap Vapor Sampling
- _____ Indoor Air Sampling Canister Installation
- _____ Outdoor Air Sampling

X Explain if follow-up visits will occur and verify date/time of follow-up visits as appropriate.

Date of Follow-Up Visit: 5/3

Time of Follow-Up Visit: 100

Items Completed as Noted:

Jennifer M Clancy
Terracon Representative Signature

[redacted]
Resident Signature

Terracon

Street Address: 2635 E 4th St
Name of Resident: [redacted]
Date and Time of Visit: 4/28/2011

Sampling Port Installation Checklist

X Work with resident to identify mutually agreeable area to install port in lowest occupied level of home.

Precautions to be taken to protect floor coverings, if applicable:

_____

_____

_____

X Install sampling port in accordance with work plan procedures.

X Clean up any debris.

X Invite homeowner to view installed port and explain necessary precautions to prevent disturbance of it while it cures.

Items Completed as Noted:

Jennifer M Clancy
Terracon Representative Signature

[redacted]
Resident Signature

Terracon

Street Address: 2635 E 4th St
Name of Resident: [redacted]

Arrival Checklist

Date of Visit: 5/4/2011

Time of Arrival: 1200 **Time of Departure:** 1315

Names of Terracon Representatives: jen clancy
dave cleary

___ Introduce Terracon Representatives and Show Terracon Identification

___ Verify identity of resident; confirm authority to allow entry

X Explain purpose of visit (check as appropriate):

___ Sample Port Installation

X Sub-Slap Vapor Sampling x2

___ Completion of Questionnaire

_____ Indoor Air Sampling Canister Installation

_____ Indoor Air Sampling Canister Removal

_____ Outdoor Air Sampling

_____ Other [Explain: _____]

___ Explain if follow-up visits will occur and verify date/time of follow-up visits as appropriate.

Date of Follow-Up Visit: _____

Time of Follow-Up Visit: _____

Items Completed as Noted:

Wants letter w/ results

Jennifer M Clancy
Terracon Representative Signature

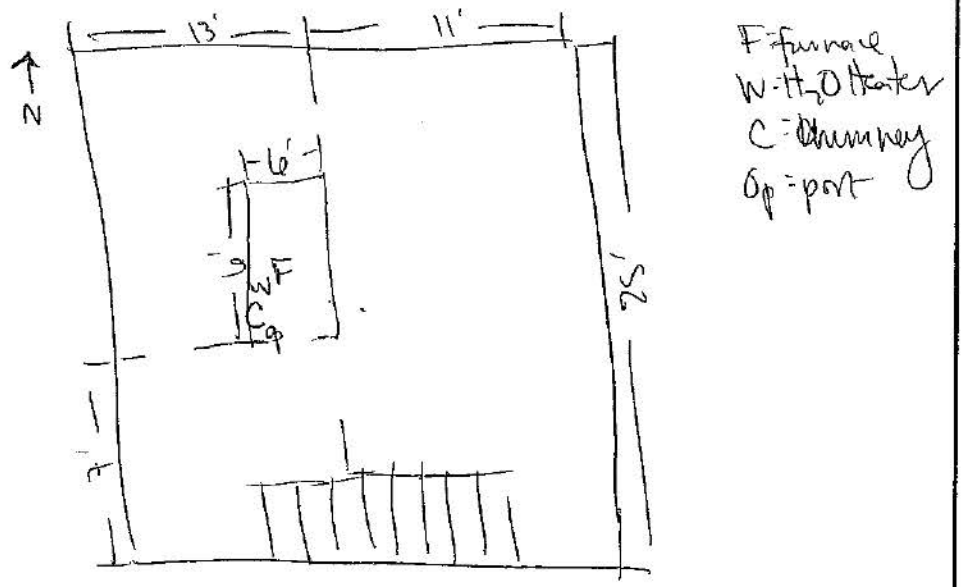
[redacted]
Resident Signature

VAPOR INTRUSION CHARACTERIZATION WORK PLAN
CHAMBERLAIN MANUFACTURING CORPORATION
FORMER FACILITY AT
550 ESTHER STREET
WATERLOO, IOWA

Soil Vapor/Indoor Air Sampling Information Form

Residence ID:	67	**Address:**	2635 E 4th St
Sample ID:	SS-67	**Location:**	Waterloo
Date:	5/4/2011	**Time:**	1200
Sampler(s):	jmc / dcc	**Summa Canister ID:**	7472
Flow Controller ID:	83	**Flow Controller Rate Setting (cc/min):**	
Start Time:	1227	**Finish Time:**	1305
Pre-Sampling Vacuum (in Hg):	-28.5	**Post-Sampling Vacuum (in Hg):**	-3.5
Organic Vapor Reading (ppm):	ambient: 0.1 SS: 0.0	**PID used:**	miniRAE 3000
Summa Canister went to Ambient?	Yes / No	**Method:**	TO 15 Grab
Comments:			

Sketch:



23 x 11

VAPOR INTRUSION CHARACTERIZATION WORK PLAN
CHAMBERLAIN MANUFACTURING CORPORATION
FORMER FACILITY AT
550 ESTHER STREET
WATERLOO, IOWA

Soil Vapor/Indoor Air Sampling Information Form

Residence ID:	67	**Address:**	2635 E 4th St
Sample ID:	SSD-67	**Location:**	Waterloo
Date:	5/4/2011	**Time:**	1200
Sampler(s):	jmc ldec	**Summa Canister ID:**	4669
Flow Controller ID:	02	**Flow Controller Rate Setting (cc/min):**	
Start Time:	1227	**Finish Time:**	1305
Pre-Sampling Vacuum (in Hg):	-30	**Post-Sampling Vacuum (in Hg):**	-4
Organic Vapor Reading (ppm):		**PID used:**	
Summa Canister went to Ambient?	Yes / No	**Method:**	TO-15 Grab
Comments:			

Sketch:

Terracon

Street Address: 2646 E 4th ST
Name of Resident: [redacted]

Arrival Checklist

Date of Visit: 4/28/2011

Time of Arrival: 3:30pm **Time of Departure:** _____

Names of Terracon Representatives: John Brinkmeyer
Jen Clancy

X Introduce Terracon Representatives and Show Terracon Identification

X Verify identity of resident; confirm authority to allow entry

X Explain purpose of visit (check as appropriate):

- X Sample Port Installation
- ____ Sub-Slap Vapor Sampling
- ____ Completion of Questionnaire
- ____ Indoor Air Sampling Canister Installation
- ____ Indoor Air Sampling Canister Removal
- ____ Outdoor Air Sampling
- ____ Other [Explain: _____]

X Explain if follow-up visits will occur and verify date/time of follow-up visits as appropriate.

Date of Follow-Up Visit: 4/28 & 4/29

Time of Follow-Up Visit: 5:00 & 5:00

Items Completed as Noted:

Jennifer Clancy
Terracon Representative Signature

[redacted]
Resident Signature

Terracon

Street Address: 2446 E 47th St
Name of Resident: [redacted]

Arrival Checklist

Date of Visit: 4/28/2011

Time of Arrival: 5:30 **Time of Departure:** _____

Names of Terracon Representatives: John Brumeyer
Jen Clancy

X Introduce Terracon Representatives and Show Terracon Identification

X Verify identity of resident; confirm authority to allow entry

X Explain purpose of visit (check as appropriate):

___ Sample Port Installation

___ Sub-Slap Vapor Sampling

___ Completion of Questionnaire

X Indoor Air Sampling Canister Installation

___ Indoor Air Sampling Canister Removal

___ Outdoor Air Sampling

___ Other [Explain: _____]

___ Explain if follow-up visits will occur and verify date/time of follow-up visits as appropriate.

Date of Follow-Up Visit: _____

Time of Follow-Up Visit: _____

No one home at time of arrival.
4/28/11 JMC

Items Completed as Noted:

_____
Terracon Representative Signature

_____
Resident Signature

Terracon

Street Address: 2646 E 4th St
Name of Resident: [redacted]
Date and Time of Visit: 4/25/2011 3:30pm

Sampling Port Installation Checklist

X Work with resident to identify mutually agreeable area to install port in lowest occupied level of home.

Precautions to be taken to protect floor coverings, if applicable:

_____

_____

_____

X Install sampling port in accordance with work plan procedures.

X Clean up any debris.

X Invite homeowner to view installed port and explain necessary precautions to prevent disturbance of it while it cures.

Items Completed as Noted:

Jennifer McClaren
Terracon Representative Signature

[redacted]
Resident Signature

Appendix F

Photographs

Terracon Project No. 07107020
Vapor Intrusion Characterization Report
Sample Port Installation – April 25th – April 29th, 2011

Photo #1 322 East Arlington – Sample Port

Photo #2 322 East Arlington - General Area

Photo #3 401 East Arlington ID – Sample Port

Photo #4 401 East Arlington ID - General Area

Photo #5 211 Boston Avenue– Sample Port

Photo #6 211 Boston Avenue - General Area

Terracon Project No. 07107020
Vapor Intrusion Characterization Report
Sample Port Installation – April 25th – April 29th, 2011

Photo #7 216 Boston Avenue – Sample Port

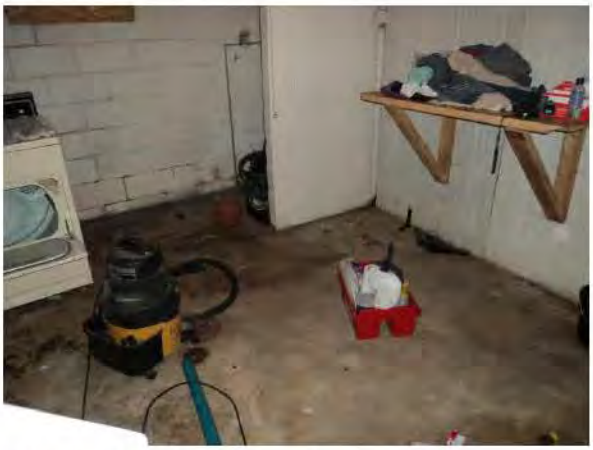


Photo #8 216 Boston Avenue - General Area

Photo #9 223 Boston Avenue – Sample Port

Photo #10 223 Boston Avenue - General Area

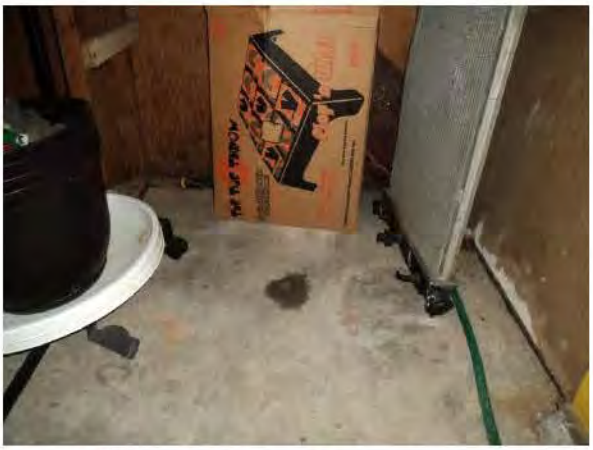


Photo #11 227 Boston Avenue – Sample Port

Photo #12 227 Boston Avenue - General Area

Terracon Project No. 07107020
Vapor Intrusion Characterization Report
Sample Port Installation – April 25th – April 29th, 2011

Photo #13 236 Boston Avenue – Sample Port

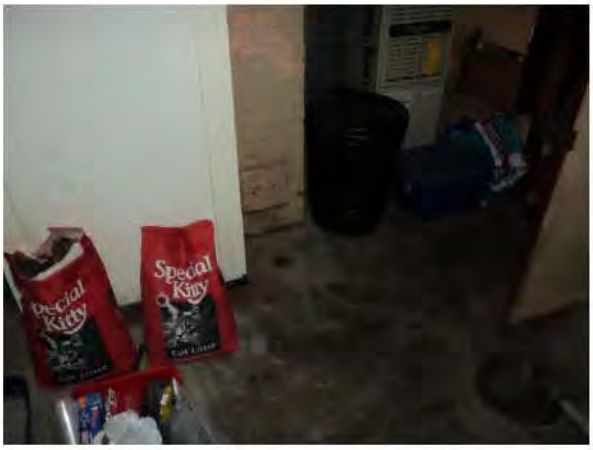


Photo #14 236 Boston Avenue - General Area

Photo #15 239 Boston Avenue – Sample Port

Photo #16 239 Boston Avenue - General Area

Photo #17 240 Boston Avenue – Sample Port

Photo #18 240 Boston Avenue - General Area

Photo #19 302 Boston Avenue – Sample Port

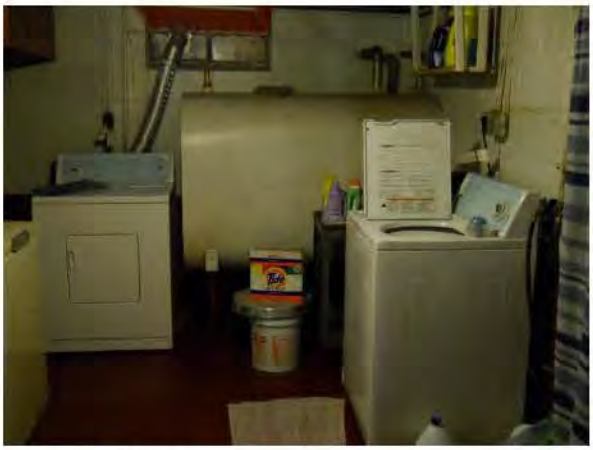


Photo #20 302 Boston Avenue - General Area

Photo #21 326 Boston Avenue – Sample Port

Photo #22 326 Boston Avenue - General Area

Photo #23 2221 East 4th – Sample Port

Photo #24 2221 East 4th - General Area

Terracon Project No. 07107020
Vapor Intrusion Characterization Report
Sample Port Installation – April 25th – April 29th, 2011

Photo #25 2227 East 4th – Sample Port

Photo #26 2227 East 4th - General Area

Photo #27 2233 East 4th – Sample Port

Photo #28 2233 East 4th - General Area

Photo #29 2237 East 4th – Sample Port

Photo #30 2237 East 4th - General Area

Terracon Project No. 07107020
Vapor Intrusion Characterization Report
Sample Port Installation – April 25th – April 29th, 2011

Photo #31 2413 East 4th – Sample Port

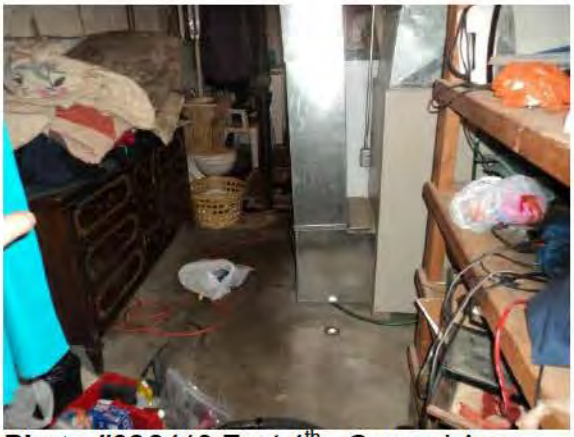


Photo #32 2413 East 4th - General Area

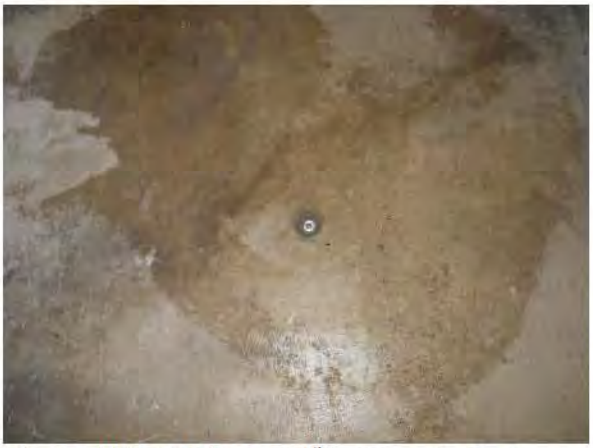


Photo #33 2417 East 4th – Sample Port

Photo #34 2417 East 4th - General Area

Photo #35 2421 East 4th – Sample Port

Photo #36 2421 East 4th - General Area

Photo #37 2427 East 4th – Sample Port

Photo #38 2427 East 4th - General Area

Photo #39 2600 East 4th – Sample Port

Photo #40 2600 East 4th - General Area

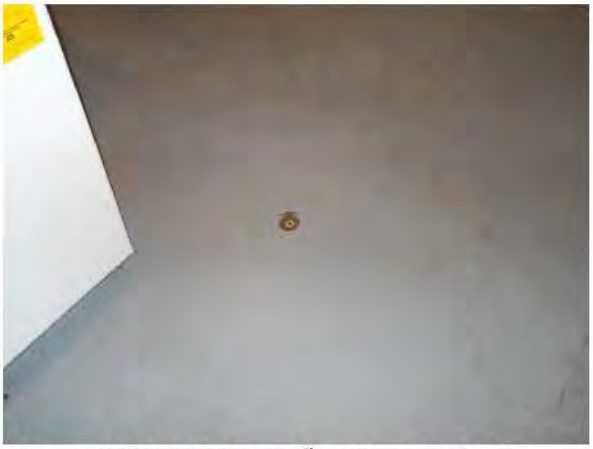


Photo #41 2614 East 4th – Sample Port

Photo #42 2614 East 4th - General Area

Photo #43 2620 East 4th – Sample Port

Photo #44 2620 East 4th - General Area

Photo #45 2635 East 4th – Sample Port

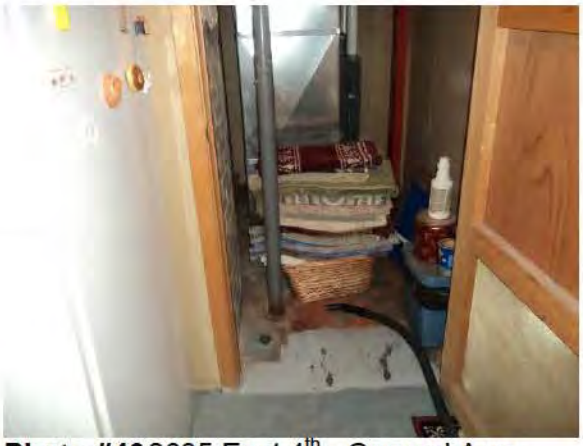


Photo #46 2635 East 4th - General Area

Photo #47 2646 East 4th – Sample Port

Photo #48 2646 East 4th - General Area

Photo #49 Collection of Sub-Slab sample

Photo #50 Sub-Slab duplicate sampling

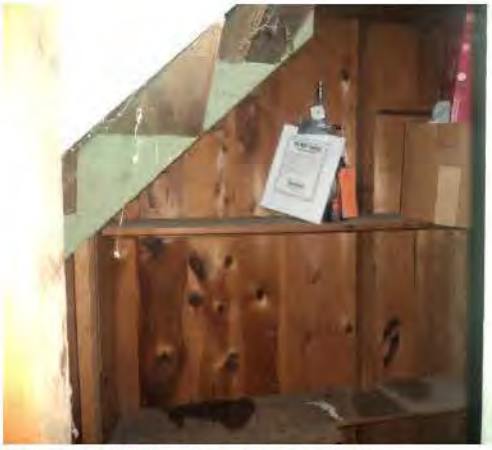


Photo #51 Indoor Air sampling

Photo #52 Equipment Blank sampling

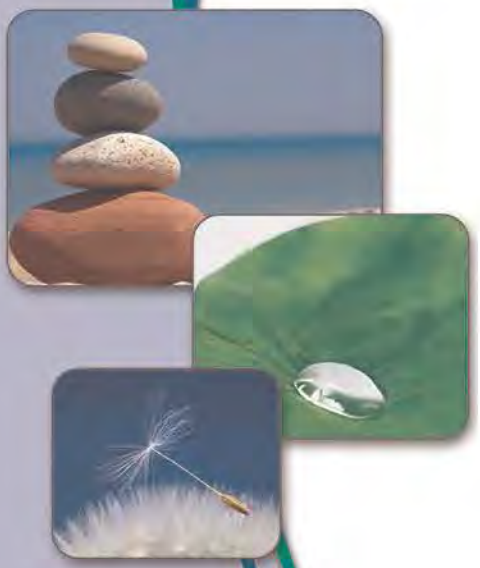
Appendix G

Laboratory Analytical Results

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT



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

TestAmerica Job ID: CUD1690
Client Project/Site: Chamberlain Vapor Sampling
Client Project Description: TO-15 Scans

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

Attn: John Brimeyer

Authorized for release by:
05/11/2011 03:01:30 PM

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

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

Job ID: CUD1690

Laboratory: TestAmerica Cedar Falls

Narrative

Analyzed by TestAmerica - Knoxville, TN.

Sample Summary

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

TestAmerica Job ID: CUD1690

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
CUD1690-01	SS-17	Air	04/28/11 11:45	04/28/11 18:00
CUD1690-02	SSD-17	Air	04/28/11 12:16	04/28/11 18:00
CUD1690-03	SS-22	Air	04/28/11 15:50	04/28/11 18:00
CUD1690-04	SS-13	Air	04/28/11 17:15	04/28/11 18:00

Client Sample ID: SS-17
Date Collected: 04/28/11 11:45
Date Received: 04/28/11 18:00

Lab Sample ID: CUD1690-01
Matrix: Air

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Analyst	Analyzed	Dil Fac
Volatile Organic Compounds	See Attached Report.		0.10		mg		BCG	05/04/11 00:00	1.0

Client Sample ID: SSD-17
Date Collected: 04/28/11 12:16
Date Received: 04/28/11 18:00

Lab Sample ID: CUD1690-02
Matrix: Air

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Analyst	Analyzed	Dil Fac
Volatile Organic Compounds	See Attached Report.		0.10		mg		BCG	05/04/11 00:00	1.0

Client Sample ID: SS-22
Date Collected: 04/28/11 15:50
Date Received: 04/28/11 18:00

Lab Sample ID: CUD1690-03
Matrix: Air

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Analyst	Analyzed	Dil Fac
Volatile Organic Compounds	See Attached Report.		0.10		mg		BCG	05/04/11 00:00	1.0

Client Sample ID: SS-13
Date Collected: 04/28/11 17:15
Date Received: 04/28/11 18:00

Lab Sample ID: CUD1690-04
Matrix: Air

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Analyst	Analyzed	Dil Fac
Volatile Organic Compounds	See Attached Report.		0.10		mg		BCG	05/04/11 00:00	1.0

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

TestAmerica Laboratories, Inc.

ANALYTICAL REPORT

PROJECT NO. CUD1690

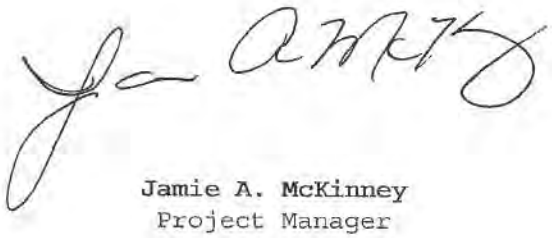
Terracon

Lot #: H1E030523

Brian Graettinger

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

TESTAMERICA LABORATORIES, INC.



Jamie A. McKinney
Project Manager

May 9, 2011

ANALYTICAL METHODS SUMMARY

H1E030523

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

H1E030523

WO #	SAMPLE#	CLIENT SAMPLE ID	SAMPLED DATE	SAMP TIME
MHTR8	001	CUD1690-01	04/28/11	11:45
MHTTF	002	CUD1690-02	04/28/11	12:16
MHTTG	003	CUD1690-03	04/28/11	15:50
MHTTJ	004	CUD1690-04	04/28/11	17:15

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
H1E030523

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.

TestAmerica Cedar Falls

Client Sample ID: CUD1690-01

GC/MS Volatiles

Lot-Sample #	H1E030523 - 001	**Work Order #**	MHTR81AA	**Matrix.....:**	AIR
Date Sampled...:	04/28/2011	**Date Received..:**	05/03/2011		
Prep Date.....:	05/04/2011	**Analysis Time....:**	05/04/2011		
Prep Batch #....:	1125185	**Analysis Time....:**	19:49		
Dilution Factor.:	1	**Method.....:**	TO-15		

PARAMETER	RESULTS (ppb(v/v))	REPORTING LIMIT (ppb(v/v))	MDL (ppb(v/v))	RESULTS (ug/m3)	REPORTING LIMIT (ug/m3)	MDL (ug/m3)
cis-1,2-Dichloroethene	ND	0.080	0.024	ND	0.32	0.095
1,1-Dichloroethene	ND	0.080	0.013	ND	0.32	0.052
Vinyl chloride	ND	0.080	0.029	ND	0.20	0.074
1,1-Dichloroethane	ND	0.080	0.010	ND	0.32	0.040
1,1,1-Trichloroethane	**0.027 J**	**0.080**	**0.012**	**0.15 J**	**0.44**	**0.065**
Trichloroethene	ND	0.040	0.014	ND	0.21	0.075
trans-1,2-Dichloroethene	ND	0.080	0.020	ND	0.32	0.079
Tetrachloroethene	**0.16**	**0.080**	**0.016**	**1.1**	**0.54**	**0.11**
1,1,2-Trichloroethane	ND	0.080	0.021	ND	0.44	0.11

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

Qualifiers

J Estimated result. Result is less than RL.

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

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

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

TO-14 _rev5MDL_DOD.rpt version 5.002 02/07/2011

TestAmerica Cedar Falls

Client Sample ID: CUD1690-02

GC/MS Volatiles

Lot-Sample #	H1E030523 - 002	**Work Order #**	MHTTF1AA	**Matrix.....:**	AIR

Date Sampled...:	04/28/2011	**Date Received..:**	05/03/2011
Prep Date.....:	05/04/2011	**Analysis Time....:**	05/04/2011
Prep Batch #.....:	1125185	**Analysis Time....:**	20:42
Dilution Factor.:	1	**Method.....:**	TO-15

PARAMETER	RESULTS (ppb(v/v))	REPORTING LIMIT (ppb(v/v))	MDL (ppb(v/v))	RESULTS (ug/m3)	REPORTING LIMIT (ug/m3)	MDL (ug/m3)
1,1,2-Trichloroethane	ND	0.080	0.021	ND	0.44	0.11
Tetrachloroethene	**0.21**	**0.080**	**0.016**	**1.4**	**0.54**	**0.11**
trans-1,2-Dichloroethene	ND	0.080	0.020	ND	0.32	0.079
Trichloroethene	**0.023 J**	**0.040**	**0.014**	**0.12 J**	**0.21**	**0.075**
1,1,1-Trichloroethane	**0.034 J**	**0.080**	**0.012**	**0.18 J**	**0.44**	**0.065**
1,1-Dichloroethane	ND	0.080	0.010	ND	0.32	0.040
Vinyl chloride	ND	0.080	0.029	ND	0.20	0.074
1,1-Dichloroethene	ND	0.080	0.013	ND	0.32	0.052
cis-1,2-Dichloroethene	ND	0.080	0.024	ND	0.32	0.095

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

Qualifiers

J Estimated result. Result is less than RL.

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

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

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

TO-14 _rev5MDL_DOD.rpt version 5.002 02/07/2011

TestAmerica Cedar Falls

Client Sample ID: CUD1690-03

GC/MS Volatiles

Lot-Sample #	H1E030523 - 003	**Work Order #**	MHTTG1AA	**Matrix.....:**	AIR
Date Sampled...:	04/28/2011	**Date Received..:**	05/03/2011		
Prep Date.....:	05/04/2011	**Analysis Time...:**	05/04/2011		
Prep Batch #....:	1125185	**Analysis Time...:**	21:34		
Dilution Factor.:	1	**Method.....:**	TO-15		

PARAMETER	RESULTS (ppb(v/v))	REPORTING LIMIT (ppb(v/v))	MDL (ppb(v/v))	RESULTS (ug/m3)	REPORTING LIMIT (ug/m3)	MDL (ug/m3)
cis-1,2-Dichloroethene	**0.092**	**0.080**	**0.024**	**0.37**	**0.32**	**0.095**
1,1-Dichloroethene	**0.063 J**	**0.080**	**0.013**	**0.25 J**	**0.32**	**0.052**
Vinyl chloride	ND	0.080	0.029	ND	0.20	0.074
1,1-Dichloroethane	**0.095**	**0.080**	**0.010**	**0.38**	**0.32**	**0.040**
1,1,1-Trichloroethane	**0.55**	**0.080**	**0.012**	**3.0**	**0.44**	**0.065**
Trichloroethene	**4.6**	**0.040**	**0.014**	**25**	**0.21**	**0.075**
trans-1,2-Dichloroethene	ND	0.080	0.020	ND	0.32	0.079
Tetrachloroethene	**1.9**	**0.080**	**0.016**	**13**	**0.54**	**0.11**
1,1,2-Trichloroethane	ND	0.080	0.021	ND	0.44	0.11

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

Qualifiers

J Estimated result. Result is less than RL.

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

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

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

TO-14 _rev5MDL_DOD.rpt version 5.002 02/07/2011

TestAmerica Cedar Falls

Client Sample ID: CUD1690-04

GC/MS Volatiles

Lot-Sample #	H1E030523 - 004	**Work Order #**	MHTTJ1AA	**Matrix.....:**	AIR
Date Sampled...:	04/28/2011	**Date Received..:**	05/03/2011		
Prep Date.....:	05/04/2011	**Analysis Time....:**	05/04/2011		
Prep Batch #.....:	1125185	**Analysis Time....:**	22:27		
Dilution Factor.:	1	**Method.....:**	TO-15		

PARAMETER	RESULTS (ppb(v/v))	REPORTING LIMIT (ppb(v/v))	MDL (ppb(v/v))	RESULTS (ug/m3)	REPORTING LIMIT (ug/m3)	MDL (ug/m3)
1,1,2-Trichloroethane	ND	0.080	0.021	ND	0.44	0.11
Tetrachloroethene	**0.25**	**0.080**	**0.016**	**1.7**	**0.54**	**0.11**
trans-1,2-Dichloroethene	ND	0.080	0.020	ND	0.32	0.079
Trichloroethene	**0.018 J**	**0.040**	**0.014**	**0.096 J**	**0.21**	**0.075**
1,1,1-Trichloroethane	**0.056 J**	**0.080**	**0.012**	**0.31 J**	**0.44**	**0.065**
1,1-Dichloroethane	ND	0.080	0.010	ND	0.32	0.040
Vinyl chloride	ND	0.080	0.029	ND	0.20	0.074
1,1-Dichloroethene	ND	0.080	0.013	ND	0.32	0.052
cis-1,2-Dichloroethene	ND	0.080	0.024	ND	0.32	0.095

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

Qualifiers

J Estimated result. Result is less than RL.

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

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

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

TO-14 _rev5MDL_DOD.rpt version 5.002 02/07/2011

TestAmerica Cedar Falls

Client Sample ID: INTRA-LAB BLANK

GC/MS Volatiles

Lot-Sample #	H1E050000 - 185B	**Work Order #**	MHXQT1AE
Matrix.....:	AIR		
	04/28/2011	**Date Received..:**	05/03/2011
Prep Date.....:	05/04/2011	**Analysis Time....:**	05/04/2011
Prep Batch #.....:	1125185	**Analysis Time....:**	13:33
Dilution Factor.:	1	**Method.....:**	TO-15

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

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

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

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

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

TO-14 _rev5MDL_DOD.rpt version 5.002 02/07/2011

TestAmerica Cedar Falls

Client Sample ID: CHECK SAMPLE

GC/MS Volatiles

Lot-Sample # H1E050000 - 185C **Work Order #** MHXQT1AF **Matrix.....:** AIR

	04/28/2011	**Date Received..:**	05/03/2011
Prep Date.....:	05/04/2011	**Analysis Time....:**	05/04/2011
Prep Batch #.....:	1125185	**Analysis Time....:**	11:41
Dilution Factor.:	1	**Method.....:**	TO-15

PARAMETER	SPIKE AMOUNT (ppb(v/v))	MEASURED AMOUNT (ppb(v/v))	SPIKE AMOUNT (ug/m3)	MEASURED AMOUNT (ug/m3)	PERCENT RECOVERY	RECOVERY LIMITS
1,1,2-Trichloroethane	5.00	5.52	27.3	30.1	110	70 - 130
trans-1,2-Dichloroethene	5.00	5.54	19.8	22.0	111	70 - 130
Tetrachloroethene	5.00	5.25	33.9	35.6	105	70 - 130
1,1,1-Trichloroethane	5.00	5.55	27.3	30.3	111	70 - 130
Trichloroethene	5.00	5.35	26.9	28.8	107	70 - 130
cis-1,2-Dichloroethene	5.00	5.51	19.8	21.8	110	70 - 130
1,1-Dichloroethene	5.00	5.57	19.8	22.1	111	70 - 130
Vinyl chloride	5.00	5.33	12.8	13.6	107	70 - 130
1,1-Dichloroethane	5.00	5.53	20.2	22.4	111	70 - 130

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

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

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

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

TO-14 _rev5MDL_DOD.rpt version 5.002 02/07/2011

HE130523

SUBCONTRACT ORDER

TestAmerica Cedar Falls

CUD1690

SENDING LABORATORY:

TestAmerica Cedar Falls
704 Enterprise Drive
Cedar Falls, IA 50613
Phone: 800-750-2401
Fax: 319-277-2425
Project Manager: Brian C. Graettinger

RECEIVING LABORATORY:

TestAmerica Knoxville
5815 Middlebrook Pike
Knoxville, TN 37921
Phone :(865) 291-3000
Fax: -

TestAmerica OR#: Intercompany

Analysis	Due	Expires	Comments
Sample ID: CUD1690-01 Air	**Sampled: 04/28/11 11:45**	**Air Volume (in L):**	**6631**
AIR - VOC Scan (TO-15)	05/09/11 12:00	07/27/11 11:45	
AIR - Summa Canister Rental	05/09/11 12:00	09/12/38 11:45	
AIR - Flow Controller Rental	05/09/11 12:00	02/09/85 11:45	
Sample ID: CUD1690-02 Air	**Sampled: 04/28/11 12:16**	**Air Volume (in L):**	**1536**
AIR - VOC Scan (TO-15)	05/09/11 12:00	07/27/11 12:16	
AIR - Summa Canister Rental	05/09/11 12:00	09/12/38 12:16	
AIR - Flow Controller Rental	05/09/11 12:00	02/09/85 12:16	
Sample ID: CUD1690-03 Air	**Sampled: 04/28/11 15:50**	**Air Volume (in L):**	**6578**
AIR - VOC Scan (TO-15)	05/09/11 12:00	07/27/11 15:50	
AIR - Summa Canister Rental	05/09/11 12:00	09/12/38 15:50	
AIR - Flow Controller Rental	05/09/11 12:00	02/09/85 15:50	
Sample ID: CUD1690-04 Air	**Sampled: 04/28/11 17:15**	**Air Volume (in L):**	**62342N**
AIR - VOC Scan (TO-15)	05/09/11 12:00	07/27/11 17:15	
AIR - Summa Canister Rental	05/09/11 12:00	09/12/38 17:15	
AIR - Flow Controller Rental	05/09/11 12:00	02/09/85 17:15	

Released By	Date	Received By	Date
B C Graettinger	4/29/11	Rountree Adkins	5/3/11 1055

Page 1 of 1

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

H1E030523

Canister Samples Chain of Custody Record

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

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Contact Information	**Project Manager:** JOHN BRIMEYER	**Sampled By:** jfb / jmc
Company: TERRACON	Phone: 563.355.0702 ; jfbrimeyer@terracon.com	___ of ___ COCs
Address: 870 40th AVE	Site Contact:	
City/State/Zip BETTENDORF, IA 52722	TAL Contact:	
Phone: 563.355.0702		
FAX: 563.355.4781		
Project Name: CHAMBERLAIN VAPOR SAMPLING	**Analysis Turnaround Time**	
Site/location: WATERLOO, IA	Standard (Specify)	
PO #	Rush (Specify)	

Sample Identification	Sample Date(s)	Time Start	Time Stop	Canister Vacuum in Field, "Hg (Start)	Canister Vacuum in Field, "Hg (Stop)	Flow Controller ID	Canister ID	TO-15 LOW LIMIT	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)
SS-17	4/28	1115	1145	-28.5	-4		6631	X											
SSD-17	↓	1146	1216	-28	-3		15340	↓											
SS-22		1508	1550	-30	-3.8		6578												
SS-13	↓	1637	1715	-28.5	-2.5		12342N	↓											

Sampled by : john brimeyer
jennifer clancey

Temperature (Fahrenheit)	Interior	Ambient
Start	72°F	45-50°F
Stop		

Pressure (inches of Hg)	Interior	Ambient
Start		
Stop		

1 Box Received @ Ambient 20°C
Custody Seals intact
FedEx: 420827077057
4 Cans 4 Flows
3 CBA 5/3/11

Special Instructions/QC Requirements & Comments:

Canisters Shipped by:	Date/Time:	Canisters Received by:
Samples Relinquished by: Jennifer Clancey	Date/Time: 4/28/2011 ; 1800	Received by: Courtney Adkins 5/3/11 1055
Relinquished by: Shaun D Haugen	Date/Time: 4/28/11 18:02	Received by:

H1E030523

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

704 Enterprise Drive • Cedar Falls, IA 50613
800-750-2401 • 319-277-2425 FAX

IH Sample Receipt Form

Client: Terracon Project: Chamberlain

City: Bettendorf

Date: 4/28/11 Receiver's Initials: SH Time (Delivered): 18:00

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
- ☐ DHL
- ☑ Client
- ☐ USPS
- ☐ Other
- ☐ Spee-Dee

- ☒ Samples Not Received in a Cooler
- ☒ Temperature Not Taken

Reviewed By BCL Date 4/29/11

Comments

Remarks/Action Taken: Initial/Date:

TESTAMERICA KNOXVILLE SAMPLE RECEIPT/CONDITION UPON RECEIPT ANOMALY CHECKLIST

Lot Number: HIE030523

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

Quote #: 87209 PM Instructions: VA

Sample Receiving Associate: Laurene J. Adkins Date: 5/3/11

QA026R22.doc, 012811

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

Lot Number: *H1E030523*

Initial Can Pressure							Subsequent Dilutions											
Analyst/Date	Tedlar Bag Time	Pbarr (in)	Sample ID	Can #	Pres. upon receipt (-in or + psig)	Adj. Initial Pres. (-in or + psig)	Analyst/Date	I / S	Pbarr (in)	Initial Pres. Pi (in)	Final Pres. Pf (psig)	First InCan Final Pres. Pf (psig)	Second In-can Final Pres. Pf (psig)	Third InCan Final Pres. Pf (psig)	Serial Dilution Can #	Vol (mL)	Final Pres. Pf (psig)	Comments
DAF 5-3-11	NA	28.96	MHTR8	6631	-3.7													9196
			MHTTF	1536	-3.3													9
			MHTTG	6578	-1.9													9173
			MHTTJ	62342N	-2.4													9183

Certification Summary

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

TestAmerica Job ID: CUD1690

Laboratory	Authority	Program	EPA Region	Certification ID
TestAmerica Cedar Falls		AIHA		101044
TestAmerica Cedar Falls	Illinois	NELAC	5	200024
TestAmerica Cedar Falls	Iowa	State Program	7	7
TestAmerica Cedar Falls	Kansas	NELAC	7	E-10341
TestAmerica Cedar Falls	Minnesota	NELAC	5	019-999-319
TestAmerica Cedar Falls	North Dakota	State Program	8	R-186
TestAmerica Cedar Falls	Oregon	NELAC	10	IA100001
TestAmerica Cedar Falls	Wisconsin	State Program	5	999917270

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.

Qualifier Definition/Glossary

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis.
EPA	United States Environmental Protection Agency
ND	Not Detected above the reporting level.
MDL	Method Detection Limit
RL	Reporting Limit
RE, RE1 (etc.)	Indicates a Re-extraction or Reanalysis of the sample.
%R	Percent Recovery
RPD	Relative Percent Difference, a measure of the relative difference between two points.

Method Summary

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

TestAmerica Job ID: CUD1690

Method	Method Description	Protocol	Laboratory
EPA TO-15	Air Sample Analysis - Subcontract		TAL CF

Protocol References:

Laboratory References:

TAL CF = TestAmerica Cedar Falls, 704 Enterprise Drive, Cedar Falls, IA 50613, TEL 800-750-2401

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

Canister Samples Chain of Custody Record

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

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Contact Information	**Project Manager:** JOHN BRIMEYER	**Sampled By:** jfb / jmc	___ of ___ COCs
Company: TERRACON	Phone: 563.355.0702 ; jfbrimeyer@terracon.com		
Address: 870 40th AVE	Site Contact:		
City/State/Zip BETTENDORF, IA 52722	TAL Contact:		
Phone: 563.355.0702			
FAX: 563.355.4789			
Project Name: CHAMBERLAIN VAPOR SAMPLING	**Analysis Turnaround Time**		
Site/location: WATERLOO, IA	(Standard (Specify))		
PO #	Rush (Specify)		

Sample Identification	Sample Date(s)	Time Start	Time Stop	Canister Vacuum in Field, "Hg (Start)	Canister Vacuum in Field, "Hg (Stop)	Flow Controller ID	Canister ID	TO-15 LOW LIMIT	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)
SS-17	4/28	1115	1145	-28.5	-4		16631	X											
SSD-17	↓	1146	1216	-28	-3		15326	↓											
SS-22		1508	1556	-30	-3.8		16578												
SS-13	↓	1637	1715	-28.5	-2.5		02342N	↓											

Sampled by : John brimeyer, Jennifer clancey

	Temperature (Fahrenheit)		
	Interior	Ambient	
Start	72°F	45-50°F	
Stop			

	Pressure (inches of Hg)		
	Interior	Ambient	
Start			
Stop			

Special Instructions/QC Requirements & Comments:

Canisters Shipped by:	Date/Time:	Canisters Received by:
Samples Relinquished by: Jennifer Clancey	Date/Time: 4/28/2011 ; 1800	Received by:
Relinquished by: Shawn Dobrogosz	Date/Time: 4/28/11 18:02	Received by:

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

704 Enterprise Drive • Cedar Falls, IA 50613
800-756-3407 • 319-277-2425 Fax

IH Sample Receipt Form

Client: Terracon Project: Chamberlain

City: Bettendorf

Date: 4/28/11 Receiver's Initials: SH Time (Delivered): 18:00

COC Completed Correctly? [X] 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
- [ ] DHL
- [x] Client
- [ ] USPS
- [ ] Other
- [ ] Spee-Dee

- [x] Samples Not Received in a Cooler
- [x] Temperature Not Taken

Reviewed By BCb Date 4/29/11

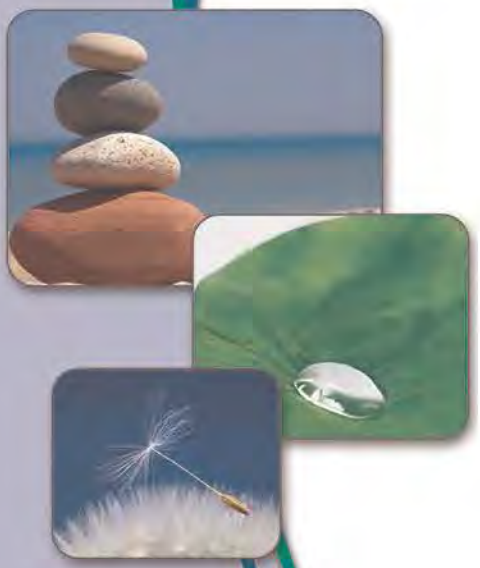
Comments

Remarks/Action Taken: Initial/Date:

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT



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

TestAmerica Job ID: CUD1698
Client Project/Site: Chamberlain Vapor Sampling
Client Project Description: TO-15 Scans

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

Attn: John Brimeyer

Authorized for release by:
05/11/2011 03:52:12 PM

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

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

Job ID: CUD1698

Laboratory: TestAmerica Cedar Falls

Narrative

Analyzed by TestAmerica - Knoxville, TN.

Sample Summary

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

TestAmerica Job ID: CUD1698

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
CUD1698-01	SS-47	Air	04/28/11 09:00	04/28/11 19:40
CUD1698-02	SS-28	Air	04/28/11 09:57	04/28/11 19:40
CUD1698-03	SS-56	Air	04/28/11 10:57	04/28/11 19:40
CUD1698-04	SS-60	Air	04/28/11 11:52	04/28/11 19:40
CUD1698-05	SS-G	Air	04/28/11 18:28	04/28/11 19:40
CUD1698-06	Equipment Blank-1	Air	04/28/11 18:48	04/28/11 19:40

Client Sample ID: SS-47
Date Collected: 04/28/11 09:00
Date Received: 04/28/11 19:40

Lab Sample ID: CUD1698-01
Matrix: Air

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Analyst	Analyzed	Dil Fac
Volatile Organic Compounds	See Attached Report.		0.10		mg		BCG	05/04/11 15:15	1.0

Client Sample ID: SS-28
Date Collected: 04/28/11 09:57
Date Received: 04/28/11 19:40

Lab Sample ID: CUD1698-02
Matrix: Air

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Analyst	Analyzed	Dil Fac
Volatile Organic Compounds	See Attached Report.		0.10		mg		BCG	05/04/11 14:21	1.0

Client Sample ID: SS-56
Date Collected: 04/28/11 10:57
Date Received: 04/28/11 19:40

Lab Sample ID: CUD1698-03
Matrix: Air

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Analyst	Analyzed	Dil Fac
Volatile Organic Compounds	See Attached Report.		0.10		mg		BCG	05/04/11 16:11	1.0

Client Sample ID: SS-60
Date Collected: 04/28/11 11:52
Date Received: 04/28/11 19:40

Lab Sample ID: CUD1698-04
Matrix: Air

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Analyst	Analyzed	Dil Fac
Volatile Organic Compounds	See Attached Report.		0.10		mg		BCG	05/04/11 17:03	1.0

Client Sample ID: SS-G
Date Collected: 04/28/11 18:28
Date Received: 04/28/11 19:40

Lab Sample ID: CUD1698-05
Matrix: Air

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Analyst	Analyzed	Dil Fac
Volatile Organic Compounds	See Attached Report.		0.10		mg		BCG	05/04/11 17:55	1.0

Client Sample ID: Equipment Blank-1
Date Collected: 04/28/11 18:48
Date Received: 04/28/11 19:40

Lab Sample ID: CUD1698-06
Matrix: Air

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Analyst	Analyzed	Dil Fac
Volatile Organic Compounds	See Attached Report.		0.10		mg		BCG	05/04/11 18:55	1.0

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

TestAmerica Laboratories, Inc.

ANALYTICAL REPORT

PROJECT NO. CUD1698

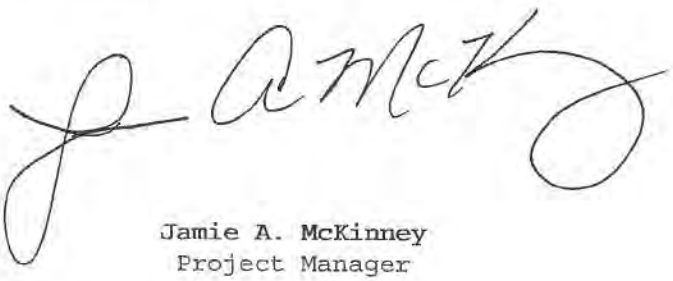
Terracon

Lot #: H1E030527

Brian Graettinger

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

TESTAMERICA LABORATORIES, INC.



Jamie A. McKinney
Project Manager

May 9, 2011

ANALYTICAL METHODS SUMMARY

H1E030527

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

H1E030527

WO #	SAMPLE#	CLIENT SAMPLE ID	SAMPLED DATE	SAMP TIME
MHTT0	001	CUD1698-01	04/28/11	09:00
MHTT7	002	CUD1698-02	04/28/11	09:57
MHTVC	003	CUD1698-03	04/28/11	10:57
MHTVE	004	CUD1698-04	04/28/11	11:52
MHTVF	005	CUD1698-05	04/28/11	18:28
MHTVL	006	CUD1698-06	04/28/11	18:48

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
H1E030527

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.

Sample CUD1698-06 was reported with elevated reporting limits for all analytes due to the presence of non-target compounds. A dilution was necessary prior to analysis, and the reporting limits were adjusted accordingly.

TestAmerica Cedar Falls

Client Sample ID: CUD1698-01

GC/MS Volatiles

Lot-Sample #	H1E030527 - 001	**Work Order #**	MHTT01AA	**Matrix.....:**	AIR
Date Sampled...:	04/28/2011	**Date Received..:**	05/03/2011		
Prep Date.....:	05/04/2011	**Analysis Time....:**	05/04/2011		
Prep Batch #.....:	1125185	**Analysis Time....:**	15:15		
Dilution Factor.:	1	**Method.....:**	TO-15		

PARAMETER	RESULTS (ppb(v/v))	REPORTING LIMIT (ppb(v/v))	MDL (ppb(v/v))	RESULTS (ug/m3)	REPORTING LIMIT (ug/m3)	MDL (ug/m3)
cis-1,2-Dichloroethene	ND	0.080	0.024	ND	0.32	0.095
1,1-Dichloroethene	ND	0.080	0.013	ND	0.32	0.052
Vinyl chloride	ND	0.080	0.029	ND	0.20	0.074
1,1-Dichloroethane	ND	0.080	0.010	ND	0.32	0.040
1,1,1-Trichloroethane	**0.24**	**0.080**	**0.012**	**1.3**	**0.44**	**0.065**
Trichloroethene	**1.1**	**0.040**	**0.014**	**5.8**	**0.21**	**0.075**
trans-1,2-Dichloroethene	ND	0.080	0.020	ND	0.32	0.079
Tetrachloroethene	**0.42**	**0.080**	**0.016**	**2.8**	**0.54**	**0.11**
1,1,2-Trichloroethane	ND	0.080	0.021	ND	0.44	0.11

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

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

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

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

TO-14 _rev5MDL_DOD.rpt version 5.002 02/07/2011

TestAmerica Cedar Falls

Client Sample ID: CUD1698-02

GC/MS Volatiles

Lot-Sample #	H1E030527 - 002	**Work Order #**	MHTT71AA	**Matrix.....:**	AIR
Date Sampled...:	04/28/2011	**Date Received..:**	05/03/2011		
Prep Date.....:	05/04/2011	**Analysis Time....:**	05/04/2011		
Prep Batch #....:	1125185	**Analysis Time....:**	14:21		
Dilution Factor.:	80.5	**Method.....:**	TO-15		

PARAMETER	RESULTS (ppb(v/v))	REPORTING LIMIT (ppb(v/v))	MDL (ppb(v/v))	RESULTS (ug/m3)	REPORTING LIMIT (ug/m3)	MDL (ug/m3)
1,1,2-Trichloroethane	ND	6.4	1.7	ND	35	9.2
Tetrachloroethene	**17**	**6.4**	**1.3**	**120**	**44**	**8.7**
trans-1,2-Dichloroethene	ND	6.4	1.6	ND	26	6.4
Trichloroethene	**1100**	**3.2**	**1.1**	**6000**	**17**	**6.1**
1,1,1-Trichloroethane	**20**	**6.4**	**0.97**	**110**	**35**	**5.3**
1,1-Dichloroethane	ND	6.4	0.80	ND	26	3.3
Vinyl chloride	ND	6.4	2.3	ND	16	6.0
1,1-Dichloroethene	ND	6.4	1.0	ND	26	4.1
cis-1,2-Dichloroethene	ND	6.4	1.9	ND	26	7.7

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

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

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

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

TO-14 _rev5MDL_DOD.rpt version 5.002 02/07/2011

TestAmerica Cedar Falls

Client Sample ID: CUD1698-03

GC/MS Volatiles

Lot-Sample #	H1E030527 - 003	**Work Order #**	MHTVC1AA	**Matrix.....:**	AIR
Date Sampled...:	04/28/2011	**Date Received..:**	05/03/2011		
Prep Date.....:	05/04/2011	**Analysis Time....:**	05/04/2011		
Prep Batch #.....:	1125185	**Analysis Time....:**	16:11		
Dilution Factor.:	1	**Method.....:**	TO-15		

PARAMETER	RESULTS (ppb(v/v))	REPORTING LIMIT (ppb(v/v))	MDL (ppb(v/v))	RESULTS (ug/m3)	REPORTING LIMIT (ug/m3)	MDL (ug/m3)
cis-1,2-Dichloroethene	**0.030 J**	**0.080**	**0.024**	**0.12 J**	**0.32**	**0.095**
1,1-Dichloroethene	ND	0.080	0.013	ND	0.32	0.052
Vinyl chloride	ND	0.080	0.029	ND	0.20	0.074
1,1-Dichloroethane	ND	0.080	0.010	ND	0.32	0.040
1,1,1-Trichloroethane	**0.15**	**0.080**	**0.012**	**0.83**	**0.44**	**0.065**
Trichloroethene	**0.71**	**0.040**	**0.014**	**3.8**	**0.21**	**0.075**
trans-1,2-Dichloroethene	ND	0.080	0.020	ND	0.32	0.079
Tetrachloroethene	**0.12**	**0.080**	**0.016**	**0.83**	**0.54**	**0.11**
1,1,2-Trichloroethane	ND	0.080	0.021	ND	0.44	0.11

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

Qualifiers

J Estimated result. Result is less than RL.

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

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

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

TO-14 _rev5MDL_DOD.rpt version 5.002 02/07/2011

TestAmerica Cedar Falls

Client Sample ID: CUD1698-04

GC/MS Volatiles

Lot-Sample #	H1E030527 - 004	**Work Order #**	MHTVE1AA	**Matrix.....:**	AIR
Date Sampled...:	04/28/2011	**Date Received..:**	05/03/2011		
Prep Date.....:	05/04/2011	**Analysis Time....:**	05/04/2011		
Prep Batch #....:	1125185	**Analysis Time....:**	17:03		
Dilution Factor.:	1	**Method.....:**	TO-15		

PARAMETER	RESULTS (ppb(v/v))	REPORTING LIMIT (ppb(v/v))	MDL (ppb(v/v))	RESULTS (ug/m3)	REPORTING LIMIT (ug/m3)	MDL (ug/m3)
1,1,2-Trichloroethane	ND	0.080	0.021	ND	0.44	0.11
Tetrachloroethene	**0.36**	**0.080**	**0.016**	**2.5**	**0.54**	**0.11**
trans-1,2-Dichloroethene	ND	0.080	0.020	ND	0.32	0.079
Trichloroethene	**1.1**	**0.040**	**0.014**	**6.2**	**0.21**	**0.075**
1,1,1-Trichloroethane	**1.6**	**0.080**	**0.012**	**8.5**	**0.44**	**0.065**
Vinyl chloride	ND	0.080	0.029	ND	0.20	0.074
1,1-Dichloroethane	ND	0.080	0.010	ND	0.32	0.040
1,1-Dichloroethene	ND	0.080	0.013	ND	0.32	0.052
cis-1,2-Dichloroethene	ND	0.080	0.024	ND	0.32	0.095

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

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

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

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

TO-14 _rev5MDL_DOD.rpt version 5.002 02/07/2011

TestAmerica Cedar Falls

Client Sample ID: CUD1698-05

GC/MS Volatiles

Lot-Sample #	H1E030527 - 005	**Work Order #**	MHTVF1AA	**Matrix.....:**	AIR
Date Sampled...:	04/28/2011	**Date Received..:**	05/03/2011		
Prep Date.....:	05/04/2011	**Analysis Time....:**	05/04/2011		
Prep Batch #....:	1125185	**Analysis Time....:**	17:55		
Dilution Factor.:	1	**Method.....:**	TO-15		

PARAMETER	RESULTS (ppb(v/v))	REPORTING LIMIT (ppb(v/v))	MDL (ppb(v/v))	RESULTS (ug/m3)	REPORTING LIMIT (ug/m3)	MDL (ug/m3)
cis-1,2-Dichloroethene	**0.31**	**0.080**	**0.024**	**1.2**	**0.32**	**0.095**
1,1-Dichloroethene	ND	0.080	0.013	ND	0.32	0.052
1,1-Dichloroethane	ND	0.080	0.010	ND	0.32	0.040
Vinyl chloride	ND	0.080	0.029	ND	0.20	0.074
1,1,1-Trichloroethane	**0.076 J**	**0.080**	**0.012**	**0.42 J**	**0.44**	**0.065**
Trichloroethene	**0.71**	**0.040**	**0.014**	**3.8**	**0.21**	**0.075**
trans-1,2-Dichloroethene	ND	0.080	0.020	ND	0.32	0.079
Tetrachloroethene	**0.32**	**0.080**	**0.016**	**2.2**	**0.54**	**0.11**
1,1,2-Trichloroethane	**0.043 J**	**0.080**	**0.021**	**0.23 J**	**0.44**	**0.11**

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

Qualifiers

J	Estimated result. Result is less than RL.

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

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

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

TO-14 _rev5MDL_DOD.rpt version 5.002 02/07/2011

TestAmerica Cedar Falls

Client Sample ID: CUD1698-06

GC/MS Volatiles

Lot-Sample #	H1E030527 - 006	**Work Order #**	MHTVL1AA	**Matrix.....:**	AIR
Date Sampled...:	04/28/2011	**Date Received..:**	05/03/2011		
Prep Date.....:	05/04/2011	**Analysis Time....:**	05/04/2011		
Prep Batch #....:	1125185	**Analysis Time....:**	18:55		
Dilution Factor.:	1.64	**Method.....:**	TO-15		

PARAMETER	RESULTS (ppb(v/v))	REPORTING LIMIT (ppb(v/v))	MDL (ppb(v/v))	RESULTS (ug/m3)	REPORTING LIMIT (ug/m3)	MDL (ug/m3)
1,1,2-Trichloroethane	ND	0.13	0.034	ND	0.72	0.19
Tetrachloroethene	**0.16**	**0.13**	**0.026**	**1.1**	**0.89**	**0.18**
trans-1,2-Dichloroethene	ND	0.13	0.033	ND	0.52	0.13
Trichloroethene	**0.042 J**	**0.066**	**0.023**	**0.22 J**	**0.35**	**0.12**
1,1,1-Trichloroethane	ND	0.13	0.020	ND	0.72	0.11
Vinyl chloride	ND	0.13	0.048	ND	0.34	0.12
1,1-Dichloroethane	ND	0.13	0.016	ND	0.53	0.066
1,1-Dichloroethene	ND	0.13	0.021	ND	0.52	0.085
cis-1,2-Dichloroethene	ND	0.13	0.039	ND	0.52	0.16

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

Qualifiers

J	Estimated result. Result is less than RL.

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

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

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

TO-14 rev5MDL_DOD.rpt version 5.002 02/07/2011

TestAmerica Cedar Falls

Client Sample ID: INTRA-LAB BLANK

GC/MS Volatiles

Lot-Sample #	H1E050000 - 185B	**Work Order #**	MHXQT1AE
Matrix.....:	AIR		
	04/28/2011	**Date Received..:**	05/03/2011
Prep Date.....:	05/04/2011	**Analysis Time....:**	05/04/2011
Prep Batch #....:	1125185	**Analysis Time....:**	13:33
Dilution Factor.:	1	**Method.....:**	TO-15

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

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

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

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

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

TO-14 rev5MDL_DOD.rpt version 5.002 02/07/2011

TestAmerica Cedar Falls

Client Sample ID: CHECK SAMPLE

GC/MS Volatiles

Lot-Sample #	H1E050000 - 185C	**Work Order #**	MHXQT1AF	**Matrix.....:**	AIR
	04/28/2011	**Date Received..:**	05/03/2011		
Prep Date.....:	05/04/2011	**Analysis Time....:**	05/04/2011		
Prep Batch #.....:	1125185	**Analysis Time....:**	11:41		
Dilution Factor.:	1	**Method.....:**	TO-15		

PARAMETER	SPIKE AMOUNT (ppb(v/v))	MEASURED AMOUNT (ppb(v/v))	SPIKE AMOUNT (ug/m3)	MEASURED AMOUNT (ug/m3)	PERCENT RECOVERY	RECOVERY LIMITS
1,1,2-Trichloroethane	5.00	5.52	27.3	30.1	110	70 - 130
Tetrachloroethene	5.00	5.25	33.9	35.6	105	70 - 130
trans-1,2-Dichloroethene	5.00	5.54	19.8	22.0	111	70 - 130
Trichloroethene	5.00	5.35	26.9	28.8	107	70 - 130
1,1,1-Trichloroethane	5.00	5.55	27.3	30.3	111	70 - 130
1,1-Dichloroethane	5.00	5.53	20.2	22.4	111	70 - 130
Vinyl chloride	5.00	5.33	12.8	13.6	107	70 - 130
cis-1,2-Dichloroethene	5.00	5.51	19.8	21.8	110	70 - 130
1,1-Dichloroethene	5.00	5.57	19.8	22.1	111	70 - 130

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

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

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

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

TO-14 _rev5MDL_DOD.rpt version 5.002 02/07/2011

SUBCONTRACT ORDER

TestAmerica Cedar Falls

CUD1698 1HF030527

SENDING LABORATORY:

TestAmerica Cedar Falls
704 Enterprise Drive
Cedar Falls, IA 50613
Phone: 800-750-2401
Fax: 319-277-2425
Project Manager: Brian C. Graettinger

RECEIVING LABORATORY:

TestAmerica Knoxville
5815 Middlebrook Pike
Knoxville, TN 37921
Phone :(865) 291-3000
Fax: -

TestAmerica OR#: Interlab

Analysis	Due	Expires	Comments
Sample ID: CUD1698-01 Air	**Sampled: 04/28/11 09:00**	**Air Volume (in L):**	**1320N w/179**
AIR - Summa Canister Rental	05/13/11 12:00	09/12/38 09:00	
AIR - VOC Scan (TO-15)	05/13/11 12:00	07/27/11 09:00	
AIR - Flow Controller Rental	05/13/11 12:00	02/09/85 09:00	
Sample ID: CUD1698-02 Air	**Sampled: 04/28/11 09:57**	**Air Volume (in L):**	**1519 w/26**
AIR - Flow Controller Rental	05/13/11 12:00	02/09/85 09:57	
AIR - Summa Canister Rental	05/13/11 12:00	09/12/38 09:57	
AIR - VOC Scan (TO-15)	05/13/11 12:00	07/27/11 09:57	
Sample ID: CUD1698-03 Air	**Sampled: 04/28/11 10:57**	**Air Volume (in L):**	**6349 w/142**
AIR - VOC Scan (TO-15)	05/13/11 12:00	07/27/11 10:57	
AIR - Flow Controller Rental	05/13/11 12:00	02/09/85 10:57	
AIR - Summa Canister Rental	05/13/11 12:00	09/12/38 10:57	
Sample ID: CUD1698-04 Air	**Sampled: 04/28/11 11:52**	**Air Volume (in L):**	**93219 w/82**
AIR - Summa Canister Rental	05/13/11 12:00	09/12/38 11:52	
AIR - VOC Scan (TO-15)	05/13/11 12:00	07/27/11 11:52	
AIR - Flow Controller Rental	05/13/11 12:00	02/09/85 11:52	

Released By	Date	Received By	Date
BC Graettinger	4/29/11	Courtney Adams	5/3/11 1055

SUBCONTRACT ORDER

TestAmerica Cedar Falls

CUD1698 H1F030527

Analysis	Due	Expires	Comments
Sample ID: CUD1698-05 Air	**Sampled: 04/28/11 18:28**	**Air Volume (in L):**	**21369 w/168**
AIR - Flow Controller Rental	05/13/11 12:00	02/09/85 18:28	
AIR - Summa Canister Rental	05/13/11 12:00	09/12/38 18:28	
AIR - VOC Scan (TO-15)	05/13/11 12:00	07/27/11 18:28	
Sample ID: CUD1698-06 Air	**Sampled: 04/28/11 18:48**	**Air Volume (in L):**	**1009**
AIR - VOC Scan (TO-15)	05/13/11 12:00	07/27/11 18:48	
AIR - Flow Controller Rental	05/13/11 12:00	02/09/85 18:48	
AIR - Summa Canister Rental	05/13/11 12:00	09/12/38 18:48	

Released By	Date	Received By	Date
[signature]	4/29/11	[signature]	5/3/11 1055
Released By	Date	Received By	Date

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

H1E030527

Canister Samples Chain of Custody Record

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

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Contact Information	**Project Manager:** John Brimeyer	**Sampled By:** ~~JME~~ JME/RPB	1 of 1 COCs
Company: Terracon	Phone: 563.355.0702; jfbrimeyer@terracon.com		
Address: 570 40th Ave	Site Contact:		
City/State/Zip Bettendorf, IA 52722	TAL Contact:		
Phone: 563-355-0702			
FAX: 563-355-4789			
Project Name: CHAMBERLAIN VAPOR SAMPLING	**Analysis Turnaround Time**		
Site/location: WATERLOO, IA	(Standard) (Specify) X		
PO #	Rush (Specify)		

Sample Identification	Sample Date(s)	Time Start	Time Stop	Canister Vacuum in Field, "Hg (Start)	Canister Vacuum in Field, "Hg (Stop)	Flow Controller ID	Canister ID	TO-15 Low Level RL	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)
SS-47	4/28/11	818	900	-30	~~-7.5~~	~~2579~~	1320N	X									X		
SS-28		915	957	-25.5	-1.5	~~1519~~ 26	1519	X									X		
SS-56		1013	1057	-28.5	-1.0	142	6349	X									X		
SS-60		1115	1152	-27.5	-1.0	82	93219	X									X		
SS-6		1745	1828	-28	-1	168	21369	X									X		
EQUIPMENT BLANK-1		1846	1848	—	—	—	1009N	X									X		

Sampled by: Justin Enwall/JE
Rob Bergman/RB

Temperature (Fahrenheit)	Interior	Ambient
Start	72°F	45-50°F
Stop	72°F	45-50°F

Pressure (inches of Hg)	Interior	Ambient
Start		
Stop		

1 Box Received @ Ambient, 20°C
Custody Seals intact @ Cans
FedEx: 4708 27076999 @ flows
CBA 5/3/11

Special Instructions/QC Requirements & Comments: VOC by EPA TO-15, low level reporting/analysis required
- dropped off at Cedar Falls TestAmerica location, each summa box individually certified

Canisters Shipped by:	Date/Time:	Canisters Received by:
Samples Relinquished by: Terracon	Date/Time: 4/28/11 19:40	Received by: 4/28/11 1940
Relinquished by:	Date/Time:	Received by: Laurinel Hawkins 5/3/11 1055

TESTAMERICA KNOXVILLE SAMPLE RECEIPT/CONDITION UPON RECEIPT ANOMALY CHECKLIST

Lot Number: 410305a7

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

Quote #: 87209 PM Instructions: NA

Sample Receiving Associate: [signature] Date: 5/3/11

QA026R22.doc, 012811

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

Lot Number: *H1E030527*

Initial Can Pressure							Subsequent Dilutions											
Analyst/Date	Tedlar Bag Time	Pbarr (in)	Sample ID	Can #	Pres. upon receipt (-in or + psig)	Adj. Initial Pres. (-in or + psig)	Analyst/Date	I / S	Pbarr (in)	Initial Pres. Pi (in)	Final Pres. Pf (psig)	First InCan Final Pres. Pf (psig)	Second In-can Final Pres. Pf (psig)	Third InCan Final Pres. Pf (psig)	Serial Dilution Can #	Vol (mL)	Final Pres. Pf (psig)	Comments
DDF 5-4-11	NA	29.08	MHTT0	1320N	-1.1													9197
			MHTT7	1519	-1.3	+29.7												↓
			MHTVC	6349 94	-1.3													9193
			MHTVE	93219	-1.4													9197
			MHTVF	21639	-0.9													9193
↓		↓	MHTVL → Grab sample.	1009N	-19.8	+0.7												9197

Certification Summary

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

TestAmerica Job ID: CUD1698

Laboratory	Authority	Program	EPA Region	Certification ID
TestAmerica Cedar Falls		AIHA		101044
TestAmerica Cedar Falls	Illinois	NELAC	5	200024
TestAmerica Cedar Falls	Iowa	State Program	7	7
TestAmerica Cedar Falls	Kansas	NELAC	7	E-10341
TestAmerica Cedar Falls	Minnesota	NELAC	5	019-999-319
TestAmerica Cedar Falls	North Dakota	State Program	8	R-186
TestAmerica Cedar Falls	Oregon	NELAC	10	IA100001
TestAmerica Cedar Falls	Wisconsin	State Program	5	999917270

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.

Qualifier Definition/Glossary

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis.
EPA	United States Environmental Protection Agency
ND	Not Detected above the reporting level.
MDL	Method Detection Limit
RL	Reporting Limit
RE, RE1 (etc.)	Indicates a Re-extraction or Reanalysis of the sample.
%R	Percent Recovery
RPD	Relative Percent Difference, a measure of the relative difference between two points.

Method Summary

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

TestAmerica Job ID: CUD1698

Method	Method Description	Protocol	Laboratory
EPA TO-15	Air Sample Analysis - Subcontract		TAL CF

Protocol References:

Laboratory References:

TAL CF = TestAmerica Cedar Falls, 704 Enterprise Drive, Cedar Falls, IA 50613, TEL 800-750-2401

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

Canister Samples Chain of Custody Record

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

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Contact Information	Project Manager: John Brimeyer	Sampled By: ~~JME~~ JME/RPB
Company: Terracon	Phone: 563.355.0702; jfbrimeyer@terracon.com	1 of 1 COCs
Address: 870 40th Ave.	Site Contact:	
City/State/Zip: Bettendorf, IA 52722	TAL Contact:	
Phone: 563-355-0702		
FAX: 563-355-4789		
Project Name: CHAMBERLAIN VAPOR SAMPLING	Analysis Turnaround Time	
Site/location: WATERLOO, IA	(Standard) (Specify) X	
PO #	Rush (Specify)	

Sample Identification	Sample Date(s)	Time Start	Time Stop	Canister Vacuum in Field, "Hg (Start)	Canister Vacuum in Field, "Hg (Stop)	Flow Controller ID	Canister ID	TO-15 Low Level RL	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)
SS-47	4/28/11	818	900	-30	~~-1.5~~	~~2579~~	1320N	X									~~X~~		
SS-28		915	957	-25.5	-1.5	~~1526~~	1519	X									X		
SS-56		1013	1057	-28.5	-1.0	142	6349	X									X		
SS-60		1115	1152	-27.5	-1.0	82	93219	X									X		
SS-6		1745	1828	-28	-1	168	21369	X									X		
EQUIPMENT BLANK-1		1846	1848	—	—	—	1009N	X									X		

Sampled by: Justin Enwall/JE
Rob Bergman/RB

Temperature (Fahrenheit)	Interior	Ambient
Start	72°F	45-50°F
Stop	72°F	45-50°F

Pressure (inches of Hg)	Interior	Ambient
Start		
Stop		

Special Instructions/QC Requirements & Comments: VOC by EPA TO-15, low level reporting/analysis required
- dropped off at Cedar Falls Test America location, each summa box individually certified

Canisters Shipped by:	Date/Time:	Canisters Received by:
Samples Relinquished by: Terracon	Date/Time: 4/28/11 19:40	Received by: 4/28/11 1940
Relinquished by:	Date/Time:	Received by:

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

704 Enterprise Drive • Cedar Falls, IA 50613
800-756-2401 • 319-277-2425 FAX

IH Sample Receipt Form

Client: Terracon Project: _____

City: Bettendorf, IA

Date: 4/28/11 Receiver's Initials: JMH Time (Delivered): 1940

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
☐ DHL	☑ Client
☐ USPS	☐ Other
☐ Spee-Dee	

☑ Samples Not Received in a Cooler
☑ Temperature Not Taken

Reviewed By BCC Date 4/29/11

Comments

Remarks/Action Taken: Initial/Date:

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

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

TestAmerica Job ID: CUE0002
Client Project/Site: Chamberlain Vapor Sampling #07107020
Client Project Description: TO-15 Scans

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

Attn: John Brimeyer

Authorized for release by:
05/17/2011 12:10:22 PM

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

Job ID: CUE0002

Laboratory: TestAmerica Cedar Falls

Narrative

Analyzed by TestAmerica - Knoxville, TN.

Sample Summary

Client: TERRACON - BETTENDORF
Project/Site: Chamberlain Vapor Sampling #07107020

TestAmerica Job ID: CUE0002

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
CUE0002-01	1A-33-B	Air	04/29/11 08:04	04/29/11 17:30
CUE0002-02	1A-33-1	Air	04/29/11 08:13	04/29/11 17:30
CUE0002-03	SS-33	Air	04/29/11 08:50	04/29/11 17:30
CUE0002-04	1A-4-B	Air	04/29/11 14:50	04/29/11 17:30
CUE0002-05	1A-4-1	Air	04/29/11 14:52	04/29/11 17:30
CUE0002-06	AA-4	Air	04/29/11 14:59	04/29/11 17:30
CUE0002-07	SS-4	Air	04/29/11 09:46	04/29/11 17:30
CUE0002-08	SS-37	Air	04/29/11 10:50	04/29/11 17:30
CUE0002-09	SS-20	Air	04/29/11 11:50	04/29/11 17:30
CUE0002-10	SS-48	Air	04/29/11 12:50	04/29/11 17:30
CUE0002-11	1A-48-B	Air	04/29/11 15:22	04/29/11 17:30
CUE0002-12	1A-48-B-D	Air	04/29/11 15:22	04/29/11 17:30
CUE0002-13	1A-48-MF	Air	04/29/11 15:25	04/29/11 17:30
CUE0002-14	SS-38	Air	04/29/11 13:57	04/29/11 17:30
CUE0002-15	SSD-38	Air	04/29/11 13:57	04/29/11 17:30
CUE0002-16	1A-38-MF	Air	04/29/11 16:02	04/29/11 17:30
CUE0002-17	1A-38-B	Air	04/29/11 16:05	04/29/11 17:30
CUE0002-18	SS-39	Air	04/29/11 15:19	04/29/11 17:30
CUE0002-19	SS-21	Air	04/29/11 16:30	04/29/11 17:30
CUE0002-20	Equipment Blank-2	Air	04/29/11 16:55	04/29/11 17:30

Client Sample ID: 1A-33-B — **Lab Sample ID: CUE0002-01**
Date Collected: 04/29/11 08:04 — **Matrix: Air**
Date Received: 04/29/11 17:30

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Analyst	Analyzed	Dil Fac
Volatile Organic Compounds	See Attached Report.		0.10		mg		BCG	05/05/11 13:23	1.0

Client Sample ID: 1A-33-1 — **Lab Sample ID: CUE0002-02**
Date Collected: 04/29/11 08:13 — **Matrix: Air**
Date Received: 04/29/11 17:30

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Analyst	Analyzed	Dil Fac
Volatile Organic Compounds	See Attached Report.		0.10		mg		BCG	05/05/11 14:17	1.0

Client Sample ID: SS-33 — **Lab Sample ID: CUE0002-03**
Date Collected: 04/29/11 08:50 — **Matrix: Air**
Date Received: 04/29/11 17:30

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Analyst	Analyzed	Dil Fac
Volatile Organic Compounds	See Attached Report.		0.10		mg		BCG	05/05/11 11:39	1.0

Client Sample ID: 1A-4-B — **Lab Sample ID: CUE0002-04**
Date Collected: 04/29/11 14:50 — **Matrix: Air**
Date Received: 04/29/11 17:30

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Analyst	Analyzed	Dil Fac
Volatile Organic Compounds	See Attached Report.		0.10		mg		BCG	05/05/11 15:10	1.0

Client Sample ID: 1A-4-1 — **Lab Sample ID: CUE0002-05**
Date Collected: 04/29/11 14:52 — **Matrix: Air**
Date Received: 04/29/11 17:30

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Analyst	Analyzed	Dil Fac
Volatile Organic Compounds	See Attached Report.		0.10		mg		BCG	05/05/11 16:05	1.0

Client Sample ID: AA-4 — **Lab Sample ID: CUE0002-06**
Date Collected: 04/29/11 14:59 — **Matrix: Air**
Date Received: 04/29/11 17:30

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Analyst	Analyzed	Dil Fac
Volatile Organic Compounds	See Attached Report.		0.10		mg		BCG	05/05/11 16:59	1.0

Client Sample ID: SS-4
Date Collected: 04/29/11 09:46
Date Received: 04/29/11 17:30

Lab Sample ID: CUE0002-07
Matrix: Air

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Analyst	Analyzed	Dil Fac
Volatile Organic Compounds	See Attached Report.		0.10		mg		BCG	05/05/11 12:28	1.0

Client Sample ID: SS-37
Date Collected: 04/29/11 10:50
Date Received: 04/29/11 17:30

Lab Sample ID: CUE0002-08
Matrix: Air

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Analyst	Analyzed	Dil Fac
Volatile Organic Compounds	See Attached Report.		0.10		mg		BCG	05/05/11 17:55	1.0

Client Sample ID: SS-20
Date Collected: 04/29/11 11:50
Date Received: 04/29/11 17:30

Lab Sample ID: CUE0002-09
Matrix: Air

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Analyst	Analyzed	Dil Fac
Volatile Organic Compounds	See Attached Report.		0.10		mg		BCG	05/05/11 18:54	1.0

Client Sample ID: SS-48
Date Collected: 04/29/11 12:50
Date Received: 04/29/11 17:30

Lab Sample ID: CUE0002-10
Matrix: Air

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Analyst	Analyzed	Dil Fac
Volatile Organic Compounds	See Attached Report.		0.10		mg		BCG	05/05/11 19:50	1.0

Client Sample ID: 1A-48-B
Date Collected: 04/29/11 15:22
Date Received: 04/29/11 17:30

Lab Sample ID: CUE0002-11
Matrix: Air

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Analyst	Analyzed	Dil Fac
Volatile Organic Compounds	See Attached Report.		0.10		mg		BCG	05/05/11 20:43	1.0

Client Sample ID: 1A-48-B-D
Date Collected: 04/29/11 15:22
Date Received: 04/29/11 17:30

Lab Sample ID: CUE0002-12
Matrix: Air

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Analyst	Analyzed	Dil Fac
Volatile Organic Compounds	See Attached Report.		0.10		mg		BCG	05/05/11 21:35	1.0

Client Sample ID: 1A-48-MF
Date Collected: 04/29/11 15:25
Date Received: 04/29/11 17:30

Lab Sample ID: CUE0002-13
Matrix: Air

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Analyst	Analyzed	Dil Fac
Volatile Organic Compounds	See Attached Report.		0.10		mg		BCG	05/05/11 22:27	1.0

Client Sample ID: SS-38
Date Collected: 04/29/11 13:57
Date Received: 04/29/11 17:30

Lab Sample ID: CUE0002-14
Matrix: Air

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Analyst	Analyzed	Dil Fac
Volatile Organic Compounds	See Attached Report.		0.10		mg		BCG	05/05/11 23:20	1.0

Client Sample ID: SSD-38
Date Collected: 04/29/11 13:57
Date Received: 04/29/11 17:30

Lab Sample ID: CUE0002-15
Matrix: Air

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Analyst	Analyzed	Dil Fac
Volatile Organic Compounds	See Attached Report.		0.10		mg		BCG	05/06/11 00:14	1.0

Client Sample ID: 1A-38-MF
Date Collected: 04/29/11 16:02
Date Received: 04/29/11 17:30

Lab Sample ID: CUE0002-16
Matrix: Air

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Analyst	Analyzed	Dil Fac
Volatile Organic Compounds	See Attached Report.		0.10		mg		BCG	05/06/11 03:54	1.0

Client Sample ID: 1A-38-B
Date Collected: 04/29/11 16:05
Date Received: 04/29/11 17:30

Lab Sample ID: CUE0002-17
Matrix: Air

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Analyst	Analyzed	Dil Fac
Volatile Organic Compounds	See Attached Report.		0.10		mg		BCG	05/06/11 02:08	1.0

Client Sample ID: SS-39
Date Collected: 04/29/11 15:19
Date Received: 04/29/11 17:30

Lab Sample ID: CUE0002-18
Matrix: Air

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Analyst	Analyzed	Dil Fac
Volatile Organic Compounds	See Attached Report.		0.10		mg		BCG	05/06/11 04:47	1.0

Client Sample ID: SS-21
Date Collected: 04/29/11 16:30
Date Received: 04/29/11 17:30

Lab Sample ID: CUE0002-19
Matrix: Air

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Analyst	Analyzed	Dil Fac
Volatile Organic Compounds	See Attached Report.		0.10		mg		BCG	05/06/11 05:41	1.0

Client Sample ID: Equipment Blank-2
Date Collected: 04/29/11 16:55
Date Received: 04/29/11 17:30

Lab Sample ID: CUE0002-20
Matrix: Air

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Analyst	Analyzed	Dil Fac
Volatile Organic Compounds	See Attached Report.		0.10		mg		BCG	05/06/11 06:34	1.0

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

TestAmerica Laboratories, Inc.

ANALYTICAL REPORT

PROJECT NO. CUE0002

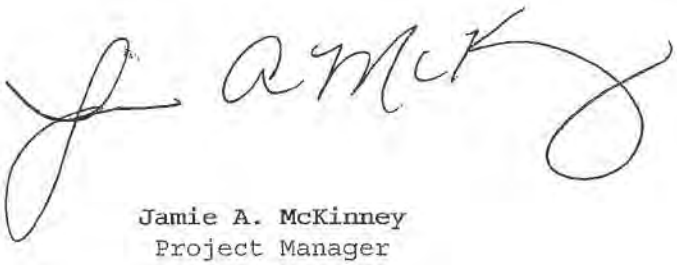
Terracon

Lot #: H1E040525

Brian Graettinger

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

TESTAMERICA LABORATORIES, INC.



Jamie A. McKinney
Project Manager

May 12, 2011

ANALYTICAL METHODS SUMMARY

H1E040525

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

H1E040525

WO #	SAMPLE#	CLIENT SAMPLE ID	SAMPLED DATE	SAMP TIME
MHWD6	001	CUE0002-01	04/29/11	08:04
MHWD9	002	CUE0002-02	04/29/11	08:13
MHWEA	003	CUE0002-03	04/29/11	08:50
MHWED	004	CUE0002-04	04/29/11	14:50
MHWER	005	CUE0002-05	04/29/11	14:52
MHWET	006	CUE0002-06	04/29/11	14:59
MHWEW	007	CUE0002-07	04/29/11	09:46
MHWEX	008	CUE0002-08	04/29/11	10:50
MHWE0	009	CUE0002-09	04/29/11	11:50
MHWE2	010	CUE0002-10	04/29/11	12:50
MHWE4	011	CUE0002-11	04/29/11	15:22
MHWE5	012	CUE0002-12	04/29/11	15:22
MHWE6	013	CUE0002-13	04/29/11	15:25
MHWE8	014	CUE0002-14	04/29/11	13:57
MHWFC	015	CUE0002-15	04/29/11	13:57
MHWFG	016	CUE0002-16	04/29/11	16:02
MHWFJ	017	CUE0002-17	04/29/11	16:05
MHWFL	018	CUE0002-18	04/29/11	15:19
MHWFQ	019	CUE0002-19	04/29/11	16:30
MHWFW	020	CUE0002-20	04/29/11	16:55

NOTE (S) :

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

PROJECT NARRATIVE
H1E040525

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.

Sample CUE0002-03 was reported with elevated reporting limits for all analytes due to the presence of non-target compounds. A dilution was necessary prior to analysis, and the reporting limits were adjusted accordingly.

The concentration of trichloroethene in samples CUE0002-07, CUE0002-10, and tetrachloroethene in samples CUE0002-14, CUE0002-15 exceeded the calibration level of the instrument. The samples were analyzed at a dilution to bring the concentration of the compound into the instrument calibration range. The results for both analyses are reported in order to provide the lowest possible reporting limits.

TestAmerica Cedar Falls

Client Sample ID: CUE0002-01

GC/MS Volatiles

Lot-Sample #	H1E040525 - 001	**Work Order #**	MHWD61AA	**Matrix.....:**	AIR

Date Sampled...:	04/29/2011	**Date Received..:**	05/04/2011
Prep Date.....:	05/05/2011	**Analysis Time....:**	05/05/2011
Prep Batch #.....:	1125343	**Analysis Time....:**	13:23
Dilution Factor.:	1	**Method.....:**	TO-15

PARAMETER	RESULTS (ppb(v/v))	REPORTING LIMIT (ppb(v/v))	MDL (ppb(v/v))	RESULTS (ug/m3)	REPORTING LIMIT (ug/m3)	MDL (ug/m3)
cis-1,2-Dichloroethene	ND	0.080	0.024	ND	0.32	0.095
1,1-Dichloroethene	ND	0.080	0.013	ND	0.32	0.052
Vinyl chloride	ND	0.080	0.029	ND	0.20	0.074
1,1-Dichloroethane	ND	0.080	0.010	ND	0.32	0.040
1,1,1-Trichloroethane	**0.017 J**	**0.080**	**0.012**	**0.094 J**	**0.44**	**0.065**
Trichloroethene	**0.041**	**0.040**	**0.014**	**0.22**	**0.21**	**0.075**
trans-1,2-Dichloroethene	ND	0.080	0.020	ND	0.32	0.079
Tetrachloroethene	**0.028 J**	**0.080**	**0.016**	**0.19 J**	**0.54**	**0.11**
1,1,2-Trichloroethane	ND	0.080	0.021	ND	0.44	0.11

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

Qualifiers

J	Estimated result. Result is less than RL.

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

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

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

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TestAmerica Cedar Falls

Client Sample ID: CUE0002-02

GC/MS Volatiles

Lot-Sample #	H1E040525 - 002	**Work Order #**	MHWD91AA	**Matrix.....:**	AIR

Date Sampled...:	04/29/2011	**Date Received..:**	05/04/2011
Prep Date.....:	05/05/2011	**Analysis Time....:**	05/05/2011
Prep Batch #.....:	1125343	**Analysis Time....:**	14:17
Dilution Factor.:	1	**Method.....:**	TO-15

PARAMETER	RESULTS (ppb(v/v))	REPORTING LIMIT (ppb(v/v))	MDL (ppb(v/v))	RESULTS (ug/m3)	REPORTING LIMIT (ug/m3)	MDL (ug/m3)
1,1,2-Trichloroethane	ND	0.080	0.021	ND	0.44	0.11
Tetrachloroethene	**0.023 J**	**0.080**	**0.016**	**0.16 J**	**0.54**	**0.11**
trans-1,2-Dichloroethene	ND	0.080	0.020	ND	0.32	0.079
Trichloroethene	**0.062**	**0.040**	**0.014**	**0.33**	**0.21**	**0.075**
1,1,1-Trichloroethane	**0.012 J**	**0.080**	**0.012**	**0.067 J**	**0.44**	**0.065**
1,1-Dichloroethane	ND	0.080	0.010	ND	0.32	0.040
Vinyl chloride	ND	0.080	0.029	ND	0.20	0.074
1,1-Dichloroethene	ND	0.080	0.013	ND	0.32	0.052
cis-1,2-Dichloroethene	ND	0.080	0.024	ND	0.32	0.095

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

Qualifiers

J Estimated result. Result is less than RL.

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

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

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

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TestAmerica Cedar Falls

Client Sample ID: CUE0002-03

GC/MS Volatiles

Lot-Sample #	H1E040525 - 003	**Work Order #**	MHWEA1AA	**Matrix.....:**	AIR
Date Sampled...:	04/29/2011	**Date Received..:**	05/04/2011		
Prep Date.....:	05/05/2011	**Analysis Time....:**	05/05/2011		
Prep Batch #.....:	1125343	**Analysis Time....:**	11:39		
Dilution Factor.:	5	**Method.....:**	TO-15		

PARAMETER	RESULTS (ppb(v/v))	REPORTING LIMIT (ppb(v/v))	MDL (ppb(v/v))	RESULTS (ug/m3)	REPORTING LIMIT (ug/m3)	MDL (ug/m3)
cis-1,2-Dichloroethene	ND	0.40	0.12	ND	1.6	0.48
1,1-Dichloroethene	ND	0.40	0.065	ND	1.6	0.26
Vinyl chloride	ND	0.40	0.14	ND	1.0	0.37
1,1-Dichloroethane	ND	0.40	0.050	ND	1.6	0.20
1,1,1-Trichloroethane	**11**	**0.40**	**0.060**	**58**	**2.2**	**0.33**
Trichloroethene	**11**	**0.20**	**0.070**	**61**	**1.1**	**0.38**
trans-1,2-Dichloroethene	ND	0.40	0.10	ND	1.6	0.40
Tetrachloroethene	**1.6**	**0.40**	**0.080**	**11**	**2.7**	**0.54**
1,1,2-Trichloroethane	ND	0.40	0.10	ND	2.2	0.57

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

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

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

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

TO-14 _rev5MDL_DOD.rpt version 5.002 02/07/2011

TestAmerica Cedar Falls

Client Sample ID: CUE0002-04

GC/MS Volatiles

Lot-Sample #	H1E040525 - 004	**Work Order #**	MHWED1AA	**Matrix.....:**	AIR
Date Sampled...:	04/29/2011	**Date Received..:**	05/04/2011		
Prep Date.....:	05/05/2011	**Analysis Time....:**	05/05/2011		
Prep Batch #.....:	1125343	**Analysis Time....:**	15:10		
Dilution Factor.:	1	**Method.....:**	TO-15		

PARAMETER	RESULTS (ppb(v/v))	REPORTING LIMIT (ppb(v/v))	MDL (ppb(v/v))	RESULTS (ug/m3)	REPORTING LIMIT (ug/m3)	MDL (ug/m3)
1,1,2-Trichloroethane	ND	0.080	0.021	ND	0.44	0.11
Tetrachloroethene	**0.022 J**	**0.080**	**0.016**	**0.15 J**	**0.54**	**0.11**
trans-1,2-Dichloroethene	ND	0.080	0.020	ND	0.32	0.079
Trichloroethene	**0.078**	**0.040**	**0.014**	**0.42**	**0.21**	**0.075**
1,1,1-Trichloroethane	**0.017 J**	**0.080**	**0.012**	**0.094 J**	**0.44**	**0.065**
1,1-Dichloroethane	ND	0.080	0.010	ND	0.32	0.040
Vinyl chloride	ND	0.080	0.029	ND	0.20	0.074
1,1-Dichloroethene	ND	0.080	0.013	ND	0.32	0.052
cis-1,2-Dichloroethene	ND	0.080	0.024	ND	0.32	0.095

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

Qualifiers

J Estimated result. Result is less than RL.

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

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

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

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TestAmerica Cedar Falls

Client Sample ID: CUE0002-05

GC/MS Volatiles

Lot-Sample #	H1E040525 - 005	**Work Order #**	MHWER1AA	**Matrix.....:**	AIR
Date Sampled...:	04/29/2011	**Date Received..:**	05/04/2011		
Prep Date.....:	05/05/2011	**Analysis Time....:**	05/05/2011		
Prep Batch #....:	1125343	**Analysis Time....:**	16:05		
Dilution Factor.:	1	**Method.....:**	TO-15		

PARAMETER	RESULTS (ppb(v/v))	REPORTING LIMIT (ppb(v/v))	MDL (ppb(v/v))	RESULTS (ug/m3)	REPORTING LIMIT (ug/m3)	MDL (ug/m3)
cis-1,2-Dichloroethene	**0.088**	**0.080**	**0.024**	**0.35**	**0.32**	**0.095**
1,1-Dichloroethene	ND	0.080	0.013	ND	0.32	0.052
Vinyl chloride	ND	0.080	0.029	ND	0.20	0.074
1,1-Dichloroethane	ND	0.080	0.010	ND	0.32	0.040
1,1,1-Trichloroethane	**0.016 J**	**0.080**	**0.012**	**0.087 J**	**0.44**	**0.065**
Trichloroethene	**0.19**	**0.040**	**0.014**	**1.0**	**0.21**	**0.075**
trans-1,2-Dichloroethene	ND	0.080	0.020	ND	0.32	0.079
Tetrachloroethene	**0.039 J**	**0.080**	**0.016**	**0.26 J**	**0.54**	**0.11**
1,1,2-Trichloroethane	ND	0.080	0.021	ND	0.44	0.11

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

Qualifiers

J Estimated result. Result is less than RL.

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

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

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

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TestAmerica Cedar Falls

Client Sample ID: CUE0002-06

GC/MS Volatiles

Lot-Sample #	H1E040525 - 006	**Work Order #**	MHWET1AA	**Matrix.....:**	AIR
Date Sampled...:	04/29/2011	**Date Received..:**	05/04/2011		
Prep Date.....:	05/05/2011	**Analysis Time....:**	05/05/2011		
Prep Batch #.....:	1125343	**Analysis Time....:**	16:59		
Dilution Factor.:	1	**Method.....:**	TO-15		

PARAMETER	RESULTS (ppb(v/v))	REPORTING LIMIT (ppb(v/v))	MDL (ppb(v/v))	RESULTS (ug/m3)	REPORTING LIMIT (ug/m3)	MDL (ug/m3)
1,1,2-Trichloroethane	ND	0.080	0.021	ND	0.44	0.11
Tetrachloroethene	**0.028 J**	**0.080**	**0.016**	**0.19 J**	**0.54**	**0.11**
trans-1,2-Dichloroethene	ND	0.080	0.020	ND	0.32	0.079
Trichloroethene	**0.016 J**	**0.040**	**0.014**	**0.088 J**	**0.21**	**0.075**
1,1,1-Trichloroethane	ND	0.080	0.012	ND	0.44	0.065
1,1-Dichloroethane	ND	0.080	0.010	ND	0.32	0.040
Vinyl chloride	ND	0.080	0.029	ND	0.20	0.074
1,1-Dichloroethene	ND	0.080	0.013	ND	0.32	0.052
cis-1,2-Dichloroethene	ND	0.080	0.024	ND	0.32	0.095

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

Qualifiers

J	Estimated result. Result is less then RL.

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

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

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

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TestAmerica Cedar Falls

Client Sample ID: CUE0002-07

GC/MS Volatiles

Lot-Sample #	H1E040525 - 007	**Work Order #**	MHWEW1AA	**Matrix.....:**	AIR
Date Sampled...:	04/29/2011	**Date Received..:**	05/04/2011		
Prep Date.....:	05/05/2011	**Analysis Time....:**	05/05/2011		
Prep Batch #.....:	1125343	**Analysis Time....:**	12:28		
Dilution Factor.:	10	**Method.....:**	TO-15		

PARAMETER	RESULTS (ppb(v/v))	REPORTING LIMIT (ppb(v/v))	MDL (ppb(v/v))	RESULTS (ug/m3)	REPORTING LIMIT (ug/m3)	MDL (ug/m3)
cis-1,2-Dichloroethene	ND	0.80	0.24	ND	3.2	0.95
1,1-Dichloroethene	ND	0.80	0.13	ND	3.2	0.52
Vinyl chloride	ND	0.80	0.29	ND	2.0	0.74
1,1-Dichloroethane	**0.16 J**	**0.80**	**0.10**	**0.65 J**	**3.2**	**0.40**
1,1,1-Trichloroethane	**9.7**	**0.80**	**0.12**	**53**	**4.4**	**0.65**
Trichloroethene	**240 E**	**0.40**	**0.14**	**1300 E**	**2.1**	**0.75**
trans-1,2-Dichloroethene	ND	0.80	0.20	ND	3.2	0.79
Tetrachloroethene	**6.0**	**0.80**	**0.16**	**41**	**5.4**	**1.1**
1,1,2-Trichloroethane	ND	0.80	0.21	ND	4.4	1.1

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

Qualifiers

E	Estimated result. Result concentration exceeds the calibration range.
J	Estimated result. Result is less than RL.

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

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

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

TO-14 _rev5MDL_DOD.rpt version 5.002 02/07/2011

TestAmerica Cedar Falls

Client Sample ID: CUE0002-07

GC/MS Volatiles

Lot-Sample #	H1E040525 - 007	**Work Order #**	MHWEW2AA	**Matrix.....:**	AIR
Date Sampled...:	04/29/2011	**Date Received..:**	05/04/2011		
Prep Date.....:	05/05/2011	**Analysis Time....:**	05/06/2011		
Prep Batch #.....:	1125343	**Analysis Time....:**	03:00		
Dilution Factor.:	25	**Method.....:**	TO-15		

PARAMETER	RESULTS (ppb(v/v))	REPORTING LIMIT (ppb(v/v))	MDL (ppb(v/v))	RESULTS (ug/m3)	REPORTING LIMIT (ug/m3)	MDL (ug/m3)
Trichloroethene	**240 D**	**1.0**	**0.35**	**1300 D**	**5.4**	**1.9**

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

Qualifiers

D Result was obtained from the analysis of a dilution.

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

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

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

TO-14 _rev5MDL_DOD.rpt version 5.002 02/07/2011

TestAmerica Cedar Falls

Client Sample ID: CUE0002-08

GC/MS Volatiles

Lot-Sample #	H1E040525 - 008	**Work Order #**	MHWEX1AA	**Matrix.....:**	AIR

Date Sampled...:	04/29/2011	**Date Received..:**	05/04/2011
Prep Date.....:	05/05/2011	**Analysis Time....:**	05/05/2011
Prep Batch #.....:	1125343	**Analysis Time....:**	17:55
Dilution Factor.:	1	**Method.....:**	TO-15

PARAMETER	RESULTS (ppb(v/v))	REPORTING LIMIT (ppb(v/v))	MDL (ppb(v/v))	RESULTS (ug/m3)	REPORTING LIMIT (ug/m3)	MDL (ug/m3)
Trichloroethene	**0.61**	**0.040**	**0.014**	**3.3**	**0.21**	**0.075**
1,1,1-Trichloroethane	**0.71**	**0.080**	**0.012**	**3.9**	**0.44**	**0.065**
1,1-Dichloroethane	ND	0.080	0.010	ND	0.32	0.040
Vinyl chloride	ND	0.080	0.029	ND	0.20	0.074
1,1-Dichloroethene	ND	0.080	0.013	ND	0.32	0.052
cis-1,2-Dichloroethene	ND	0.080	0.024	ND	0.32	0.095
1,1,2-Trichloroethane	ND	0.080	0.021	ND	0.44	0.11
Tetrachloroethene	**4.1**	**0.080**	**0.016**	**28**	**0.54**	**0.11**
trans-1,2-Dichloroethene	ND	0.080	0.020	ND	0.32	0.079

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

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

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

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

TO-14 _rev5MDL_DOD.rpt version 5.002 02/07/2011

TestAmerica Cedar Falls

Client Sample ID: CUE0002-09

GC/MS Volatiles

Lot-Sample #	H1E040525 - 009	**Work Order #**	MHWE01AA	**Matrix.....:**	AIR
Date Sampled...:	04/29/2011	**Date Received..:**	05/04/2011		
Prep Date.....:	05/05/2011	**Analysis Time....:**	05/05/2011		
Prep Batch #.....:	1125343	**Analysis Time....:**	18:54		
Dilution Factor.:	1	**Method.....:**	TO-15		

PARAMETER	RESULTS (ppb(v/v))	REPORTING LIMIT (ppb(v/v))	MDL (ppb(v/v))	RESULTS (ug/m3)	REPORTING LIMIT (ug/m3)	MDL (ug/m3)
trans-1,2-Dichloroethene	**0.067 J**	**0.080**	**0.020**	**0.27 J**	**0.32**	**0.079**
Tetrachloroethene	**0.66**	**0.080**	**0.016**	**4.5**	**0.54**	**0.11**
1,1,2-Trichloroethane	ND	0.080	0.021	ND	0.44	0.11
cis-1,2-Dichloroethene	ND	0.080	0.024	ND	0.32	0.095
1,1-Dichloroethene	ND	0.080	0.013	ND	0.32	0.052
Vinyl chloride	ND	0.080	0.029	ND	0.20	0.074
1,1-Dichloroethane	ND	0.080	0.010	ND	0.32	0.040
1,1,1-Trichloroethane	**0.067 J**	**0.080**	**0.012**	**0.36 J**	**0.44**	**0.065**
Trichloroethene	**1.5**	**0.040**	**0.014**	**8.3**	**0.21**	**0.075**

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

Qualifiers

J Estimated result. Result is less than RL.

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

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

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

TO-14 _rev5MDL_DOD.rpt version 5.002 02/07/2011

TestAmerica Cedar Falls

Client Sample ID: CUE0002-10

GC/MS Volatiles

Lot-Sample #	H1E040525 - 010	**Work Order #**	MHWE21AA	**Matrix.....:**	AIR
Date Sampled...:	04/29/2011	**Date Received..:**	05/04/2011		
Prep Date.....:	05/05/2011	**Analysis Time....:**	05/05/2011		
Prep Batch #.....:	1125343	**Analysis Time....:**	19:50		
Dilution Factor.:	1	**Method.....:**	TO-15		

PARAMETER	RESULTS (ppb(v/v))	REPORTING LIMIT (ppb(v/v))	MDL (ppb(v/v))	RESULTS (ug/m3)	REPORTING LIMIT (ug/m3)	MDL (ug/m3)
Trichloroethene	**17 E**	**0.040**	**0.014**	**89 E**	**0.21**	**0.075**
1,1,1-Trichloroethane	**5.9**	**0.080**	**0.012**	**32**	**0.44**	**0.065**
trans-1,2-Dichloroethene	ND	0.080	0.020	ND	0.32	0.079
1,1-Dichloroethane	ND	0.080	0.010	ND	0.32	0.040
Vinyl chloride	ND	0.080	0.029	ND	0.20	0.074
1,1-Dichloroethene	ND	0.080	0.013	ND	0.32	0.052
cis-1,2-Dichloroethene	ND	0.080	0.024	ND	0.32	0.095
1,1,2-Trichloroethane	ND	0.080	0.021	ND	0.44	0.11
Tetrachloroethene	**2.2**	**0.080**	**0.016**	**15**	**0.54**	**0.11**

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

Qualifiers

E Estimated result. Result concentration exceeds the calibration range.

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

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

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

TO-14 _rev5MDL_DOD.rpt version 5.002 02/07/2011

TestAmerica Cedar Falls

Client Sample ID: CUE0002-10

GC/MS Volatiles

Lot-Sample #	H1E040525 - 010	**Work Order #**	MHWE22AA	**Matrix.....:**	AIR
Date Sampled...:	04/29/2011	**Date Received..:**	05/04/2011		
Prep Date.....:	05/06/2011	**Analysis Time....:**	05/06/2011		
Prep Batch #.....:	1129093	**Analysis Time....:**	21:15		
Dilution Factor.:	2.5	**Method.....:**	TO-15		

PARAMETER	RESULTS (ppb(v/v))	REPORTING LIMIT (ppb(v/v))	MDL (ppb(v/v))	RESULTS (ug/m3)	REPORTING LIMIT (ug/m3)	MDL (ug/m3)
Trichloroethene	**15 D**	**0.10**	**0.035**	**81 D**	**0.54**	**0.19**

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

Qualifiers

D Result was obtained from the analysis of a dilution.

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

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

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

TO-14 _rev5MDL_DOD.rpt version 5.002 02/07/2011

TestAmerica Cedar Falls

Client Sample ID: CUE0002-11

GC/MS Volatiles

Lot-Sample #	H1E040525 - 011	**Work Order #**	MHWE41AA	**Matrix.....:**	AIR

Date Sampled...:	04/29/2011	**Date Received..:**	05/04/2011
Prep Date.....:	05/05/2011	**Analysis Time....:**	05/05/2011
Prep Batch #....:	1125343	**Analysis Time....:**	20:43
Dilution Factor.:	1	**Method.....:**	TO-15

PARAMETER	RESULTS (ppb(v/v))	REPORTING LIMIT (ppb(v/v))	MDL (ppb(v/v))	RESULTS (ug/m3)	REPORTING LIMIT (ug/m3)	MDL (ug/m3)
Trichloroethene	**0.033 J**	**0.040**	**0.014**	**0.18 J**	**0.21**	**0.075**
1,1,1-Trichloroethane	**0.023 J**	**0.080**	**0.012**	**0.13 J**	**0.44**	**0.065**
trans-1,2-Dichloroethene	ND	0.080	0.020	ND	0.32	0.079
cis-1,2-Dichloroethene	ND	0.080	0.024	ND	0.32	0.095
1,1-Dichloroethene	ND	0.080	0.013	ND	0.32	0.052
Vinyl chloride	ND	0.080	0.029	ND	0.20	0.074
1,1-Dichloroethane	ND	0.080	0.010	ND	0.32	0.040
Tetrachloroethene	**0.26**	**0.080**	**0.016**	**1.7**	**0.54**	**0.11**
1,1,2-Trichloroethane	ND	0.080	0.021	ND	0.44	0.11

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

Qualifiers

J Estimated result. Result is less than RL.

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

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

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

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TestAmerica Cedar Falls

Client Sample ID: CUE0002-12

GC/MS Volatiles

Lot-Sample #	H1E040525 - 012	**Work Order #**	MHWE51AA	**Matrix.....:**	AIR

Date Sampled...:	04/29/2011	**Date Received..:**	05/04/2011
Prep Date.....:	05/05/2011	**Analysis Time....:**	05/05/2011
Prep Batch #.....:	1125343	**Analysis Time....:**	21:35
Dilution Factor.:	1	**Method.....:**	TO-15

PARAMETER	RESULTS (ppb(v/v))	REPORTING LIMIT (ppb(v/v))	MDL (ppb(v/v))	RESULTS (ug/m3)	REPORTING LIMIT (ug/m3)	MDL (ug/m3)
1,1,2-Trichloroethane	ND	0.080	0.021	ND	0.44	0.11
Tetrachloroethene	**0.36**	**0.080**	**0.016**	**2.5**	**0.54**	**0.11**
1,1-Dichloroethane	ND	0.080	0.010	ND	0.32	0.040
Vinyl chloride	ND	0.080	0.029	ND	0.20	0.074
1,1-Dichloroethene	ND	0.080	0.013	ND	0.32	0.052
cis-1,2-Dichloroethene	ND	0.080	0.024	ND	0.32	0.095
trans-1,2-Dichloroethene	ND	0.080	0.020	ND	0.32	0.079
1,1,1-Trichloroethane	**0.023 J**	**0.080**	**0.012**	**0.12 J**	**0.44**	**0.065**
Trichloroethene	**0.036 J**	**0.040**	**0.014**	**0.20 J**	**0.21**	**0.075**

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

Qualifiers

J	Estimated result. Result is less than RL.

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

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

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

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TestAmerica Cedar Falls

Client Sample ID: CUE0002-13

GC/MS Volatiles

Lot-Sample #	H1E040525 -013	**Work Order #**	MHWE61AA	**Matrix.....:**	AIR

Date Sampled...:	04/29/2011	**Date Received..:**	05/04/2011
Prep Date.....:	05/05/2011	**Analysis Time....:**	05/05/2011
Prep Batch #.....:	1125343	**Analysis Time....:**	22:27
Dilution Factor.:	1	**Method.....:**	TO-15

PARAMETER	RESULTS (ppb(v/v))	REPORTING LIMIT (ppb(v/v))	MDL (ppb(v/v))	RESULTS (ug/m3)	REPORTING LIMIT (ug/m3)	MDL (ug/m3)
Trichloroethene	**0.030 J**	**0.040**	**0.014**	**0.16 J**	**0.21**	**0.075**
1,1,1-Trichloroethane	**0.022 J**	**0.080**	**0.012**	**0.12 J**	**0.44**	**0.065**
trans-1,2-Dichloroethene	ND	0.080	0.020	ND	0.32	0.079
cis-1,2-Dichloroethene	ND	0.080	0.024	ND	0.32	0.095
1,1-Dichloroethene	ND	0.080	0.013	ND	0.32	0.052
Vinyl chloride	ND	0.080	0.029	ND	0.20	0.074
1,1-Dichloroethane	ND	0.080	0.010	ND	0.32	0.040
1,1,2-Trichloroethane	ND	0.080	0.021	ND	0.44	0.11
Tetrachloroethene	**0.10**	**0.080**	**0.016**	**0.69**	**0.54**	**0.11**

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

Qualifiers

J Estimated result. Result is less than RL.

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

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

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

TO-14 _rev5MDL_DOD.rpt version 5.002 02/07/2011

TestAmerica Cedar Falls

Client Sample ID: CUE0002-14

GC/MS Volatiles

Lot-Sample #	H1E040525 - 014	**Work Order #**	MHWE8IAA	**Matrix.....:**	AIR

Date Sampled...:	04/29/2011	**Date Received..:**	05/04/2011
Prep Date.....:	05/05/2011	**Analysis Time....:**	05/05/2011
Prep Batch #.....:	1125343	**Analysis Time....:**	23:20
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	**19 E**	**0.080**	**0.016**	**130 E**	**0.54**	**0.11**
1,1,2-Trichloroethane	ND	0.080	0.021	ND	0.44	0.11
1,1-Dichloroethane	ND	0.080	0.010	ND	0.32	0.040
Vinyl chloride	ND	0.080	0.029	ND	0.20	0.074
1,1-Dichloroethene	ND	0.080	0.013	ND	0.32	0.052
cis-1,2-Dichloroethene	ND	0.080	0.024	ND	0.32	0.095
trans-1,2-Dichloroethene	ND	0.080	0.020	ND	0.32	0.079
1,1,1-Trichloroethane	**0.044 J**	**0.080**	**0.012**	**0.24 J**	**0.44**	**0.065**
Trichloroethene	**0.015 J**	**0.040**	**0.014**	**0.080 J**	**0.21**	**0.075**

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

Qualifiers

E	Estimated result. Result concentration exceeds the calibration range.
J	Estimated result. Result is less than RL.

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

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

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

TO-14 _rev5MDL_DOD.rpt version 5.002 02/07/2011

TestAmerica Cedar Falls

Client Sample ID: CUE0002-14

GC/MS Volatiles

Lot-Sample #	H1E040525 - 014	**Work Order #**	MHWE82AA	**Matrix.....:**	AIR
Date Sampled...:	04/29/2011	**Date Received..:**	05/04/2011		
Prep Date.....:	05/06/2011	**Analysis Time....:**	05/07/2011		
Prep Batch #.....:	1129093	**Analysis Time....:**	01:23		
Dilution Factor.:	2.5	**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	**20 D**	**0.20**	**0.040**	**130 D**	**1.4**	**0.27**

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

Qualifiers

D Result was obtained from the analysis of a dilution.

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

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

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

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TestAmerica Cedar Falls

Client Sample ID: CUE0002-15

GC/MS Volatiles

Lot-Sample #	H1E040525 - 015	**Work Order #**	MHWFC1AA	**Matrix.....:**	AIR

Date Sampled...:	04/29/2011	**Date Received..:**	05/04/2011
Prep Date.....:	05/05/2011	**Analysis Time....:**	05/06/2011
Prep Batch #.....:	1125343	**Analysis Time....:**	00:14
Dilution Factor.:	1	**Method.....:**	TO-15

PARAMETER	RESULTS (ppb(v/v))	REPORTING LIMIT (ppb(v/v))	MDL (ppb(v/v))	RESULTS (ug/m3)	REPORTING LIMIT (ug/m3)	MDL (ug/m3)
Tetrachloroethene	**20 E**	**0.080**	**0.016**	**140 E**	**0.54**	**0.11**
1,1,2-Trichloroethane	ND	0.080	0.021	ND	0.44	0.11
trans-1,2-Dichloroethene	ND	0.080	0.020	ND	0.32	0.079
Trichloroethene	**0.096**	**0.040**	**0.014**	**0.52**	**0.21**	**0.075**
1,1,1-Trichloroethane	**0.048 J**	**0.080**	**0.012**	**0.26 J**	**0.44**	**0.065**
cis-1,2-Dichloroethene	ND	0.080	0.024	ND	0.32	0.095
1,1-Dichloroethene	ND	0.080	0.013	ND	0.32	0.052
Vinyl chloride	ND	0.080	0.029	ND	0.20	0.074
1,1-Dichloroethane	ND	0.080	0.010	ND	0.32	0.040

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

Qualifiers

E	Estimated result. Result concentration exceeds the calibration range.
J	Estimated result. Result is less than RL.

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

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

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

TO-14 _rev5MDL_DOD.rpt version 5.002 02/07/2011

TestAmerica Cedar Falls

Client Sample ID: CUE0002-15

GC/MS Volatiles

Lot-Sample #	H1E040525 - 015	**Work Order #**	MHWFC2AA	**Matrix.....:**	AIR
Date Sampled...:	04/29/2011	**Date Received..:**	05/04/2011		
Prep Date.....:	05/06/2011	**Analysis Time....:**	05/07/2011		
Prep Batch #....:	1129093	**Analysis Time....:**	02:13		
Dilution Factor.:	2.5	**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	**20 D**	**0.20**	**0.040**	**140 D**	**1.4**	**0.27**

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

Qualifiers

D Result was obtained from the analysis of a dilution.

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

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

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

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TestAmerica Cedar Falls

Client Sample ID: CUE0002-16

GC/MS Volatiles

Lot-Sample #	H1E040525 - 016	**Work Order #**	MHWFG1AA	**Matrix.....:**	AIR

Date Sampled...:	04/29/2011	**Date Received..:**	05/04/2011
Prep Date.....:	05/05/2011	**Analysis Time....:**	05/06/2011
Prep Batch #.....:	1125343	**Analysis Time....:**	03:54
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	**0.25**	**0.080**	**0.016**	**1.7**	**0.54**	**0.11**
1,1,2-Trichloroethane	ND	0.080	0.021	ND	0.44	0.11
trans-1,2-Dichloroethene	ND	0.080	0.020	ND	0.32	0.079
1,1,1-Trichloroethane	**0.048 J**	**0.080**	**0.012**	**0.26 J**	**0.44**	**0.065**
Trichloroethene	**0.025 J**	**0.040**	**0.014**	**0.14 J**	**0.21**	**0.075**
1,1-Dichloroethane	ND	0.080	0.010	ND	0.32	0.040
Vinyl chloride	ND	0.080	0.029	ND	0.20	0.074
1,1-Dichloroethene	ND	0.080	0.013	ND	0.32	0.052
cis-1,2-Dichloroethene	ND	0.080	0.024	ND	0.32	0.095

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

Qualifiers

J Estimated result. Result is less than RL.

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

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

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

TO-14 _rev5MDL_DOD.rpt version 5.002 02/07/2011

TestAmerica Cedar Falls

Client Sample ID: CUE0002-17

GC/MS Volatiles

Lot-Sample #	HIE040525 - 017	**Work Order #**	MHWFJ1AA	**Matrix.....:**	AIR

Date Sampled...:	04/29/2011	**Date Received..:**	05/04/2011
Prep Date.....:	05/05/2011	**Analysis Time....:**	05/06/2011
Prep Batch #.....:	1125343	**Analysis Time....:**	02:08
Dilution Factor.:	1	**Method.....:**	TO-15

PARAMETER	RESULTS (ppb(v/v))	REPORTING LIMIT (ppb(v/v))	MDL (ppb(v/v))	RESULTS (ug/m3)	REPORTING LIMIT (ug/m3)	MDL (ug/m3)
cis-1,2-Dichloroethene	ND	0.080	0.024	ND	0.32	0.095
1,1-Dichloroethene	ND	0.080	0.013	ND	0.32	0.052
Vinyl chloride	ND	0.080	0.029	ND	0.20	0.074
1,1-Dichloroethane	ND	0.080	0.010	ND	0.32	0.040
Trichloroethene	**0.021 J**	**0.040**	**0.014**	**0.11 J**	**0.21**	**0.075**
1,1,1-Trichloroethane	**0.036 J**	**0.080**	**0.012**	**0.20 J**	**0.44**	**0.065**
trans-1,2-Dichloroethene	ND	0.080	0.020	ND	0.32	0.079
1,1,2-Trichloroethane	ND	0.080	0.021	ND	0.44	0.11
Tetrachloroethene	**0.29**	**0.080**	**0.016**	**2.0**	**0.54**	**0.11**

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

Qualifiers

J Estimated result. Result is less than RL.

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

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

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

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TestAmerica Cedar Falls

Client Sample ID: CUE0002-18

GC/MS Volatiles

Lot-Sample #	H1E040525 - 018	**Work Order #**	MHWFL1AA	**Matrix.....:**	AIR
Date Sampled...:	04/29/2011	**Date Received..:**	05/04/2011		
Prep Date.....:	05/05/2011	**Analysis Time....:**	05/06/2011		
Prep Batch #.....:	1125343	**Analysis Time....:**	04:47		
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	**0.43**	**0.080**	**0.016**	**2.9**	**0.54**	**0.11**
1,1,2-Trichloroethane	ND	0.080	0.021	ND	0.44	0.11
trans-1,2-Dichloroethene	ND	0.080	0.020	ND	0.32	0.079
1,1,1-Trichloroethane	ND	0.080	0.012	ND	0.44	0.065
Trichloroethene	**0.059**	**0.040**	**0.014**	**0.32**	**0.21**	**0.075**
1,1-Dichloroethane	ND	0.080	0.010	ND	0.32	0.040
Vinyl chloride	ND	0.080	0.029	ND	0.20	0.074
1,1-Dichloroethene	ND	0.080	0.013	ND	0.32	0.052
cis-1,2-Dichloroethene	ND	0.080	0.024	ND	0.32	0.095

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

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

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

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

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TestAmerica Cedar Falls

Client Sample ID: CUE0002-19

GC/MS Volatiles

Lot-Sample #	H1E040525 - 019	**Work Order #**	MHWFQ1AA	**Matrix.....:**	AIR
Date Sampled...:	04/29/2011	**Date Received..:**	05/04/2011		
Prep Date.....:	05/05/2011	**Analysis Time....:**	05/06/2011		
Prep Batch #....:	1125343	**Analysis Time....:**	05:41		
Dilution Factor.:	1	**Method.....:**	TO-15		

PARAMETER	RESULTS (ppb(v/v))	REPORTING LIMIT (ppb(v/v))	MDL (ppb(v/v))	RESULTS (ug/m3)	REPORTING LIMIT (ug/m3)	MDL (ug/m3)
cis-1,2-Dichloroethene	ND	0.080	0.024	ND	0.32	0.095
1,1-Dichloroethene	ND	0.080	0.013	ND	0.32	0.052
Vinyl chloride	ND	0.080	0.029	ND	0.20	0.074
1,1-Dichloroethane	ND	0.080	0.010	ND	0.32	0.040
Trichloroethene	**0.16**	**0.040**	**0.014**	**0.86**	**0.21**	**0.075**
1,1,1-Trichloroethane	**0.020 J**	**0.080**	**0.012**	**0.11 J**	**0.44**	**0.065**
trans-1,2-Dichloroethene	ND	0.080	0.020	ND	0.32	0.079
1,1,2-Trichloroethane	ND	0.080	0.021	ND	0.44	0.11
Tetrachloroethene	**0.15**	**0.080**	**0.016**	**0.99**	**0.54**	**0.11**

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

Qualifiers

J Estimated result. Result is less than RL.

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

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

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

TO-14 _rev5MDL_DOD.rpt version 5.002 02/07/2011

TestAmerica Cedar Falls

Client Sample ID: CUE0002-20

GC/MS Volatiles

Lot-Sample #	H1E040525 - 020	**Work Order #**	MHWFW1AA	**Matrix.....:**	AIR

Date Sampled...:	04/29/2011	**Date Received..:**	05/04/2011
Prep Date.....:	05/05/2011	**Analysis Time....:**	05/06/2011
Prep Batch #.....:	1125343	**Analysis Time....:**	06:34
Dilution Factor.:	1	**Method.....:**	TO-15

PARAMETER	RESULTS (ppb(v/v))	REPORTING LIMIT (ppb(v/v))	MDL (ppb(v/v))	RESULTS (ug/m3)	REPORTING LIMIT (ug/m3)	MDL (ug/m3)
Tetrachloroethene	**0.14**	**0.080**	**0.016**	**0.93**	**0.54**	**0.11**
1,1,2-Trichloroethane	ND	0.080	0.021	ND	0.44	0.11
trans-1,2-Dichloroethene	ND	0.080	0.020	ND	0.32	0.079
1,1,1-Trichloroethane	ND	0.080	0.012	ND	0.44	0.065
Trichloroethene	ND	0.040	0.014	ND	0.21	0.075
1,1-Dichloroethane	ND	0.080	0.010	ND	0.32	0.040
Vinyl chloride	ND	0.080	0.029	ND	0.20	0.074
1,1-Dichloroethene	ND	0.080	0.013	ND	0.32	0.052
cis-1,2-Dichloroethene	ND	0.080	0.024	ND	0.32	0.095

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

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

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

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

TO-14 _rev5MDL_DOD.rpt version 5.002 02/07/2011

TestAmerica Cedar Falls

Client Sample ID: INTRA-LAB BLANK

GC/MS Volatiles

Lot-Sample #	H1E050000 - 343B	**Work Order #**	MH0T11AA	**Matrix.....:**	AIR
	04/29/2011	**Date Received..:**	05/04/2011		
Prep Date.....:	05/05/2011	**Analysis Time....:**	05/05/2011		
Prep Batch #.....:	1125343	**Analysis Time....:**	10:50		
Dilution Factor.:	1	**Method.....:**	TO-15		

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

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

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

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

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

TO-14 _rev5MDL_DOD.rpt version 5.002 02/07/2011

TestAmerica Cedar Falls

Client Sample ID: CHECK SAMPLE

GC/MS Volatiles

Lot-Sample # H1E050000 - 343C **Work Order #** MH0T11AC **Matrix.....:** AIR

	04/29/2011	**Date Received..:**	05/04/2011
Prep Date.....:	05/05/2011	**Analysis Time....:**	05/05/2011
Prep Batch #.....:	1125343	**Analysis Time....:**	08:40
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	4.94	33.9	33.5	99	70 - 130
1,1,2-Trichloroethane	5.00	5.10	27.3	27.8	102	70 - 130
trans-1,2-Dichloroethene	5.00	5.39	19.8	21.4	108	70 - 130
1,1,1-Trichloroethane	5.00	5.49	27.3	30.0	110	70 - 130
Trichloroethene	5.00	4.90	26.9	26.3	98	70 - 130
1,1-Dichloroethane	5.00	5.36	20.2	21.7	107	70 - 130
Vinyl chloride	5.00	5.54	12.8	14.2	111	70 - 130
1,1-Dichloroethene	5.00	5.48	19.8	21.7	110	70 - 130
cis-1,2-Dichloroethene	5.00	5.35	19.8	21.2	107	70 - 130

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

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

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

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

TO-14 _rev5MDL_DOD.rpt version 5.002 02/07/2011

TestAmerica Cedar Falls

Client Sample ID: INTRA-LAB BLANK

GC/MS Volatiles

Lot-Sample #	H1E090000 - 093B	**Work Order #**	MH4F01AA	**Matrix.....:**	AIR
	04/29/2011	**Date Received..:**	05/04/2011		
Prep Date.....:	05/06/2011	**Analysis Time....:**	05/06/2011		
Prep Batch #.....:	1129093	**Analysis Time....:**	13:00		
Dilution Factor.:	1	**Method.....:**	TO-15		

PARAMETER	RESULTS (ppb(v/v))	REPORTING LIMIT (ppb(v/v))	MDL (ppb(v/v))	RESULTS (ug/m3)	REPORTING LIMIT (ug/m3)	MDL (ug/m3)
Trichloroethene	ND	0.040	0.014	ND	0.21	0.075
Tetrachloroethene	ND	0.080	0.016	ND	0.54	0.11

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

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

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

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

TO-14 _rev5MDL_DOD.rpt version 5.002 02/07/2011

TestAmerica Cedar Falls

Client Sample ID: CHECK SAMPLE

GC/MS Volatiles

Lot-Sample #	H1E090000 - 093C	**Work Order #**	MH4F01AC
	04/29/2011	**Date Received..:**	05/04/2011
Prep Date.....:	05/06/2011	**Analysis Time....:**	05/06/2011
Prep Batch #.....:	1129093	**Analysis Time....:**	09:35
Dilution Factor.:	1	**Method.....:**	TO-15

Matrix.....: AIR

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	4.76	33.9	32.3	95	70 - 130
Trichloroethene	5.00	4.97	26.9	26.7	99	70 - 130

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

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

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

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

TO-14 _rev5MDL_DOD.rpt version 5.002 02/07/2011

SUBCONTRACT ORDER HIE0405215

TestAmerica Cedar Falls

CUE0002

SENDING LABORATORY:

TestAmerica Cedar Falls
704 Enterprise Drive
Cedar Falls, IA 50613
Phone: 800-750-2401
Fax: 319-277-2425
Project Manager: Brian C. Graettinger

RECEIVING LABORATORY:

TestAmerica Knoxville
5815 Middlebrook Pike
Knoxville, TN 37921
Phone :(865) 291-3000
Fax: -

TestAmerica OR#: Interlabs

Analysis	Due	Expires	Comments
Sample ID: CUE0002-01 Air	**Sampled: 04/29/11 08:04**	**Air Volume (in L):**	**12543 w/K431**
AIR - Summa Canister Rental	05/16/11 12:00	09/13/38 08:04	
AIR - VOC Scan (TO-15)	05/16/11 12:00	07/28/11 08:04	
AIR - Flow Controller Rental	05/16/11 12:00	02/10/85 08:04	
Sample ID: CUE0002-02 Air	**Sampled: 04/29/11 08:13**	**Air Volume (in L):**	**0112 w/K392**
AIR - Flow Controller Rental	05/16/11 12:00	02/10/85 08:13	
AIR - Summa Canister Rental	05/16/11 12:00	09/13/38 08:13	
AIR - VOC Scan (TO-15)	05/16/11 12:00	07/28/11 08:13	
Sample ID: CUE0002-03 Air	**Sampled: 04/29/11 08:50**	**Air Volume (in L):**	**12345**
AIR - Summa Canister Rental	05/16/11 12:00	09/13/38 08:50	
AIR - VOC Scan (TO-15)	05/16/11 12:00	07/28/11 08:50	
AIR - Flow Controller Rental	05/16/11 12:00	02/10/85 08:50	
Sample ID: CUE0002-04 Air	**Sampled: 04/29/11 14:50**	**Air Volume (in L):**	**04391 w/K423**
AIR - Summa Canister Rental	05/16/11 12:00	09/13/38 14:50	
AIR - VOC Scan (TO-15)	05/16/11 12:00	07/28/11 14:50	
AIR - Flow Controller Rental	05/16/11 12:00	02/10/85 14:50	

4 boxes With Custody SE
Received @ Ambient Temp
R.H 5/4/11

4 bx Fed Ex 420827077067
420827077138, 420827077090
420827077080
20 CANS 19 FLOWS (10F 9R)

B C Graettinger 5/2/11
Released By Date

Received By Date

Released By Date

Rita Hancock 5/4/11 09:45
Received By Date

SUBCONTRACT ORDER H1E040525

TestAmerica Cedar Falls

CUE0002

Analysis	Due	Expires	Comments
Sample ID: CUE0002-05 Air	**Sampled: 04/29/11 14:52**	**Air Volume (in L):**	**12340 w/K236**
AIR - VOC Scan (TO-15)	05/16/11 12:00	07/28/11 14:52	
AIR - Flow Controller Rental	05/16/11 12:00	02/10/85 14:52	
AIR - Summa Canister Rental	05/16/11 12:00	09/13/38 14:52	
Sample ID: CUE0002-06 Air	**Sampled: 04/29/11 14:59**	**Air Volume (in L):**	**12266 w/K188**
AIR - VOC Scan (TO-15)	05/16/11 12:00	07/28/11 14:59	
AIR - Flow Controller Rental	05/16/11 12:00	02/10/85 14:59	
AIR - Summa Canister Rental	05/16/11 12:00	09/13/38 14:59	
Sample ID: CUE0002-07 Air	**Sampled: 04/29/11 09:46**	**Air Volume (in L):**	**1410 w/19**
AIR - Flow Controller Rental	05/16/11 12:00	02/10/85 09:46	
AIR - Summa Canister Rental	05/16/11 12:00	09/13/38 09:46	
AIR - VOC Scan (TO-15)	05/16/11 12:00	07/28/11 09:46	
Sample ID: CUE0002-08 Air	**Sampled: 04/29/11 10:50**	**Air Volume (in L):**	**04750 w/150**
AIR - Flow Controller Rental	05/16/11 12:00	02/10/85 10:50	
AIR - Summa Canister Rental	05/16/11 12:00	09/13/38 10:50	
AIR - VOC Scan (TO-15)	05/16/11 12:00	07/28/11 10:50	
Sample ID: CUE0002-09 Air	**Sampled: 04/29/11 11:50**	**Air Volume (in L):**	**12820 w/198**
AIR - Flow Controller Rental	05/16/11 12:00	02/10/85 11:50	
AIR - Summa Canister Rental	05/16/11 12:00	09/13/38 11:50	
AIR - VOC Scan (TO-15)	05/16/11 12:00	07/28/11 11:50	

Released By	Date	Received By	Date
[signature]	5/2/11		
Released By	Date	Received By	Date
		Rita Hancock	5/4/11 09:45

SUBCONTRACT ORDER

TestAmerica Cedar Falls

CUE0002 H1E040525

Analysis	Due	Expires	Comments
Sample ID: CUE0002-10 Air	**Sampled: 04/29/11 12:50**	**Air Volume (in L):**	**1013 w/138**
AIR - Summa Canister Rental	05/16/11 12:00	09/13/38 12:50	
AIR - Flow Controller Rental	05/16/11 12:00	02/10/85 12:50	
AIR - VOC Scan (TO-15)	05/16/11 12:00	07/28/11 12:50	
Sample ID: CUE0002-11 Air	**Sampled: 04/29/11 15:22**	**Air Volume (in L):**	**1495 w/K406**
AIR - Summa Canister Rental	05/16/11 12:00	09/13/38 15:22	
AIR - VOC Scan (TO-15)	05/16/11 12:00	07/28/11 15:22	
AIR - Flow Controller Rental	05/16/11 12:00	02/10/85 15:22	
Sample ID: CUE0002-12 Air	**Sampled: 04/29/11 15:22**	**Air Volume (in L):**	**11157 w/K362**
AIR - Flow Controller Rental	05/16/11 12:00	02/10/85 15:22	
AIR - Summa Canister Rental	05/16/11 12:00	09/13/38 15:22	
AIR - VOC Scan (TO-15)	05/16/11 12:00	07/28/11 15:22	
Sample ID: CUE0002-13 Air	**Sampled: 04/29/11 15:25**	**Air Volume (in L):**	**0120 w/K270**
AIR - Summa Canister Rental	05/16/11 12:00	09/13/38 15:25	
AIR - VOC Scan (TO-15)	05/16/11 12:00	07/28/11 15:25	
AIR - Flow Controller Rental	05/16/11 12:00	02/10/85 15:25	
Sample ID: CUE0002-14 Air	**Sampled: 04/29/11 13:57**	**Air Volume (in L):**	**S-1530 w/10**
AIR - Summa Canister Rental	05/16/11 12:00	09/13/38 13:57	
AIR - VOC Scan (TO-15)	05/16/11 12:00	07/28/11 13:57	
AIR - Flow Controller Rental	05/16/11 12:00	02/10/85 13:57	

Released By	Date	Received By	Date
RC Haught	5/2/11		
		R Ida Hancock	5/4/11 09:45
Released By	Date	Received By	Date

SUBCONTRACT ORDER

TestAmerica Cedar Falls

CUE0002

1-HE-040525

Analysis	Due	Expires	Comments
Sample ID: CUE0002-15 Air	**Sampled: 04/29/11 13:57**	**Air Volume (in L):**	**92042 w/71**
AIR - VOC Scan (TO-15)	05/16/11 12:00	07/28/11 13:57	
AIR - Flow Controller Rental	05/16/11 12:00	02/10/85 13:57	
AIR - Summa Canister Rental	05/16/11 12:00	09/13/38 13:57	
Sample ID: CUE0002-16 Air	**Sampled: 04/29/11 16:02**	**Air Volume (in L):**	**1426 w/K484**
AIR - VOC Scan (TO-15)	05/16/11 12:00	07/28/11 16:02	
AIR - Flow Controller Rental	05/16/11 12:00	02/10/85 16:02	
AIR - Summa Canister Rental	05/16/11 12:00	09/13/38 16:02	
Sample ID: CUE0002-17 Air	**Sampled: 04/29/11 16:05**	**Air Volume (in L):**	**1407 w/K137**
AIR - Flow Controller Rental	05/16/11 12:00	02/10/85 16:05	
AIR - Summa Canister Rental	05/16/11 12:00	09/13/38 16:05	
AIR - VOC Scan (TO-15)	05/16/11 12:00	07/28/11 16:05	
Sample ID: CUE0002-18 Air	**Sampled: 04/29/11 15:19**	**Air Volume (in L):**	**6386 w/11**
AIR - Flow Controller Rental	05/16/11 12:00	02/10/85 15:19	
AIR - Summa Canister Rental	05/16/11 12:00	09/13/38 15:19	
AIR - VOC Scan (TO-15)	05/16/11 12:00	07/28/11 15:19	
Sample ID: CUE0002-19 Air	**Sampled: 04/29/11 16:30**	**Air Volume (in L):**	**11146 w/55**
AIR - Flow Controller Rental	05/16/11 12:00	02/10/85 16:30	
AIR - Summa Canister Rental	05/16/11 12:00	09/13/38 16:30	
AIR - VOC Scan (TO-15)	05/16/11 12:00	07/28/11 16:30	

Released By	Date	Received By	Date
[signature]	5/2/11		
Released By	Date	Received By	Date
		Rita Hancock	5/4/11 09:45

SUBCONTRACT ORDER

TestAmerica Cedar Falls

CUE0002 1-HE-040525

Analysis	Due	Expires	Comments
Sample ID: CUE0002-20 Air	**Sampled: 04/29/11 16:55**	**Air Volume (in L):**	**1119**
AIR - VOC Scan (TO-15)	05/16/11 12:00	07/28/11 16:55	
AIR - Flow Controller Rental	05/16/11 12:00	02/10/85 16:55	
AIR - Summa Canister Rental	05/16/11 12:00	09/13/38 16:55	

B C Gratty 5/2/11

Released By Date Received By Date

Rita Hancock 5/4/11 09:45

Released By Date Received By Date

Page 5 of 5

TESTAMERICA KNOXVILLE SAMPLE RECEIPT/CONDITION UPON RECEIPT ANOMALY CHECKLIST

Lot Number: HEM0525

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

Quote #: 87209 PM Instructions: _____

Sample Receiving Associate: Rita Hancock Date: 5/4/11

QA026R22.doc, 012811

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

Lot Number: *H1E040525*

Initial Can Pressure							Subsequent Dilutions											
Analyst/Date	Tedlar Bag Time	Pbarr (in)	Sample ID	Can #	Pres. upon receipt (-in or + psig)	Adj. Initial Pres. (-in or + psig)	Analyst/Date	I / S	Pbarr (in)	Initial Pres. Pi (in)	Final Pres. Pf (psig)	First InCan Final Pres. Pf (psig)	Second In-can Final Pres. Pf (psig)	Third InCan Final Pres. Pf (psig)	Serial Dilution Can #	Vol (mL)	Final Pres. Pf (psig)	Comments
(-5/4/11	NA	29.14	MHWD6	12543	0.0													9192
			MHWD9	0112	-0.5													9154
			MHWEA	12345	-1.9													9182
			MHWED	04391	-1.0													9152
			MHWER	12340	-1.0													9194
			MHWET	12266	-0.8													9195
			MHWEW	1410	-1.7													9196
			MHWEX	04750	-2.2													↓
			MHWE0	12820	-1.0													9182
			MHWE2	1013	-2.6													9157
			MHWE4	1495	-3.4													9159
			MHWE5	11157	-1.9													9152
			MHWE6	0120	-3.9													↓
			MHWE8	S1530	-1.9													9183
			MHWFC	92042	-1.7													9193
			MHWFG	1426	-3.9													9195
			MHWFJ	1407	-3.0													9192
			MHWFL	6386	-2.1													9197
			MHWFQ	11146	-2.5													
			MHWFW	1119	0.0													

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

Canister Samples Chain of Custody Record

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

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Contact Information	Project Manager: John Brimeyer	Sampled By: jmc/jfb/jme	1 of 4 COCs
Company: TERRACON	Phone: 563.359.0702 jfbrimeyer@terracon.com		
Address: 870 40th Ave	Site Contact:		
City/State/Zip Bettendorf, IA 52722	TAL Contact:		
Phone: 563.355.0702			
FAX: 563.355.4789			
Project Name: Chamberlain Vapor Intrusion	Analysis Turnaround Time		
Site/location:	Standard (Specify)		
~~PO#~~ PROJECT #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 LOW LIMIT	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-33-B	4/28-4/29	810	804	-29	-1.5	K431	12543	X											
IA-33-1	4/28-4/29	820	813	-29	-2.5	K392	0112	X											
SS-33	4/29	810	850	-29	-2.5	—	12345												
IA-4-B	4/28-4/29	915	1450	-29	-2	K423	04391												
IA-4-1	4/28-4/29	918	1452	-36	-3	K234	12340												
AA-4	4/28-4/29	929	1459	-30	-1.5	K188	12246	↓											

Sampled by :
jcdancey
John brimeyer
justin enwall

Temperature (Fahrenheit)	Interior	Ambient
Start	~72°F	40-60°F
Stop	72°F	40-60°F

Pressure (inches of Hg)	Interior	Ambient
Start		
Stop		

Special Instructions/QC Requirements & Comments: VOC EPA To-15 low limit Reporting required
-dropped off at Test America Cedar Falls in individually

Canisters Shipped by:	Date/Time:	Canisters Received by:
Samples Relinquished by:	Date/Time: 4/29/2011 1705	Received by: Justin Enwall
Relinquished by:	Date/Time: 4/29/2011 1730	Received by: 4/29/11 1730

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

Canister Samples Chain of Custody Record

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

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Contact Information	Project Manager: John Bornmeyer	Sampled By: JMC/JFH/JME
Company: TerraCon	Phone: 563.355.0702 jflorimejr@terracon.com	2 of 4 COCs
Address: 870 40th Ave	Site Contact:	
City/State/Zip: Bettendorf, IA 52722	TAL Contact:	
Phone: 563.355.0702		
FAX: 563.355.4789		
Project Name: Chamberlain Vapor Intrusion	Analysis Turnaround Time	
Site/location:	Standard (Specify)	
~~PO #~~ Project # 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 low limit	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)
SS-4	4/29	~~2200~~ 0946	0946	-28	-1.5	19	1410	X											
SS-37	4/29	1016	1050	-29	-2.5	150	04750												
SS-20	4/29	1111	1150	-28.5	-2.5	198	12820												
SS-48	4/29	1215	1250	-28	-2.5	138	1013												
IA-48-B	4/28-4/29	1218	1522	-29.5	-5	K402 1495 jme	1495												
IA-48-B-D	4/28-4/29	1218	1522	-29	-3	K362	11157												

Sampled by : Jen Clancy, John Bornmeyer, Justin Emmell

Temperature (Fahrenheit)	Interior	Ambient
Start	72°F	46-60°F
Stop	72°F	46-60°F

Pressure (inches of Hg)	Interior	Ambient
Start		
Stop		

Special Instructions/QC Requirements & Comments:

Canisters Shipped by:	Date/Time:	Canisters Received by:
Samples Relinquished by: Jennifer M Clancy	Date/Time: 4/29/2011 1705	Received by: Justin Emmell Test America
Relinquished by: Justin Emmell TestAmerica	Date/Time: 4/29/2011 1730	Received by: 4/29/11 1730

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

Canister Samples Chain of Custody Record

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

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Contact Information	Project Manager: John Brimeyer	Sampled By: Jane Jeffojane
Company: Terracon	Phone: 563.355.0702 j.f.brimeyer@terracon.com	3 of 4 COCs
Address: 870 45th Ave	Site Contact:	
City/State/Zip: Bettendorf, IA 52722	TAL Contact:	
Phone: 563.355.0702		
FAX: 563.355.4789		
Project Name: Chamberlain Vapor Intrusion	Analysis Turnaround Time	
Site/location:	(Standard (Specify))	
~~PO#~~ Project # D7107020	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 LOW ULL	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-48-MF	4/28-4/29	1213	1525	-29.25	-5	~~K270~~ ~~K404~~	0120 ~~14950~~	X											
SS-38	4/29	1317	1357	-29	-2	10	S-1530												
SSD-38	4/29	1317	1357	-29	-2	71	92042												
IA-38-MF	4/28-4/29	1314	1402	-29.5	-4	K484	1424												
IA-38-B	4/28-4/29	1319	1405	-28.5	-4	K137	1407												
SS-39	4/29	1443	1519	-28	-1	11	43866	↓											

Sampled by :	Temperature (Fahrenheit)		
		Interior	Ambient
	Start	72°F	60-65°F
	Stop	72°F	60-65°F

	Pressure (inches of Hg)		
		Interior	Ambient
	Start		
	Stop		

Special Instructions/QC Requirements & Comments:

Canisters Shipped by:	Date/Time:	Canisters Received by:
Samples Relinquished by: Jennifer McCancey	Date/Time: 4/29/2011 1705	Received by: Justin Emmell
Relinquished by: Terracon	Date/Time: 4/29/2011 1730	Received by: 4/29/11 1730

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: johnbrimeyer	Sampled By: jmc/jfb/jme	4 of 4 COCs
Company: Terracon	Phone: 563.355.0702 jfbrimeyer@terracon.com		
Address: 870 40th Ave	Site Contact:		
City/State/Zip Bettendorf IA 52722	TAL Contact:		
Phone: 563.355.0702			
FAX: 563.355.4789			
Project Name: Chamberlain-Vapor Intrusion	Analysis Turnaround Time		
Site/location:	Standard (Specify)		
~~PO#~~ Project # 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 Low Limit	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)
SS-21	4/29/11	1556	1630	-29	-3	55	11946	X											
~~Equipment Blank-1~~	~~4/28/11~~	~~1646~~	~~1648~~	—	—	—	~~10097~~												
Equipment Blank-2	4/29/11	1651	1655	—	—	—	1119	X											

jmc 4/29/2011

Sampled by :	Temperature (Fahrenheit)		
Jen Clancey		Interior	Ambient
Justin Enwall	Start	72°F	40-60°F
	Stop	72°F	40-60°F

	Pressure (inches of Hg)		
		Interior	Ambient
	Start		
	Stop		

Special Instructions/QC Requirements & Comments:

Canisters Shipped by:	Date/Time:	Canisters Received by:
Samples Relinquished by: Jen Clancey	Date/Time: 4/29/2011 1705	Received by: Justin Enwall
Relinquished by: Justin Enwall / Terracon	Date/Time: 4/29/2011 / 1730	Received by: 4/29/11 1730

05/17/2011

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

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

IH Sample Receipt Form

Client: Terracon Project: _____

City: Bettendorf, Ia

Date: 4/29/11 Receiver's Initials: JMH Time (Delivered): 1730

COC Completed Correctly? [X] 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 BCG Date 4 BCG 5/2/11

Comments

Remarks/Action Taken: **Initial/Date:**

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

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

TestAmerica Job ID: CUE0116
Client Project/Site: Chamberlain Vapor Sampling
Client Project Description: TO-15 Scans

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

Attn: John Brimeyer

Authorized for release by:
05/17/2011 12:41:02 PM

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

Job ID: CUE0116

Laboratory: TestAmerica Cedar Falls

Narrative

Analyzed by TestAmerica - Knoxville, TN.

Sample Summary

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

TestAmerica Job ID: CUE0116

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
CUE0116-01	SS-15	Air	05/02/11 11:50	05/03/11 17:40
CUE0116-02	SS-10	Air	05/02/11 14:26	05/03/11 17:40
CUE0116-03	SS-62	Air	05/02/11 16:36	05/03/11 17:40
CUE0116-04	SS-46	Air	05/03/11 11:07	05/03/11 17:40
CUE0116-05	1A-B-46	Air	05/03/11 10:15	05/03/11 17:40
CUE0116-06	1A-1-46	Air	05/03/11 11:52	05/03/11 17:40
CUE0116-07	AA-46	Air	05/03/11 11:17	05/03/11 17:40
CUE0116-08	1A-1-40	Air	05/03/11 12:09	05/03/11 17:40
CUE0116-09	1A-1B-40	Air	05/03/11 15:24	05/03/11 17:40
CUE0116-10	AA-40	Air	05/03/11 15:24	05/03/11 17:40
CUE0116-11	AAD-40	Air	05/03/11 15:24	05/03/11 17:40
CUE0116-12	SS-40	Air	05/03/11 12:53	05/03/11 17:40
CUE0116-13	SS-45	Air	05/03/11 16:28	05/03/11 17:40
CUE0116-14	1A-1-45	Air	05/03/11 15:37	05/03/11 17:40
CUE0116-15	1A-B-45	Air	05/03/11 16:33	05/03/11 17:40
CUE0116-16	Equipment Blank	Air	05/03/11 16:55	05/03/11 17:40

Client Sample ID: SS-15 — **Lab Sample ID: CUE0116-01**
Date Collected: 05/02/11 11:50 — **Matrix: Air**
Date Received: 05/03/11 17:40

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Analyst	Analyzed	Dil Fac
Volatile Organic Compounds	See Attached Report.		0.10		mg		BCG	05/10/11 14:11	1.0

Client Sample ID: SS-10 — **Lab Sample ID: CUE0116-02**
Date Collected: 05/02/11 14:26 — **Matrix: Air**
Date Received: 05/03/11 17:40

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Analyst	Analyzed	Dil Fac
Volatile Organic Compounds	See Attached Report.		0.10		mg		BCG	05/10/11 15:03	1.0

Client Sample ID: SS-62 — **Lab Sample ID: CUE0116-03**
Date Collected: 05/02/11 16:36 — **Matrix: Air**
Date Received: 05/03/11 17:40

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Analyst	Analyzed	Dil Fac
Volatile Organic Compounds	See Attached Report.		0.10		mg		BCG	05/10/11 15:57	1.0

Client Sample ID: SS-46 — **Lab Sample ID: CUE0116-04**
Date Collected: 05/03/11 11:07 — **Matrix: Air**
Date Received: 05/03/11 17:40

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Analyst	Analyzed	Dil Fac
Volatile Organic Compounds	See Attached Report.		0.10		mg		BCG	05/10/11 12:33	1.0

Client Sample ID: 1A-B-46 — **Lab Sample ID: CUE0116-05**
Date Collected: 05/03/11 10:15 — **Matrix: Air**
Date Received: 05/03/11 17:40

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Analyst	Analyzed	Dil Fac
Volatile Organic Compounds	See Attached Report.		0.10		mg		BCG	05/10/11 16:49	1.0

Client Sample ID: 1A-1-46 — **Lab Sample ID: CUE0116-06**
Date Collected: 05/03/11 11:52 — **Matrix: Air**
Date Received: 05/03/11 17:40

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Analyst	Analyzed	Dil Fac
Volatile Organic Compounds	See Attached Report.		0.10		mg		BCG	05/10/11 17:41	1.0

Client Sample ID: AA-46 — **Lab Sample ID: CUE0116-07**
Date Collected: 05/03/11 11:17 — **Matrix: Air**
Date Received: 05/03/11 17:40

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Analyst	Analyzed	Dil Fac
Volatile Organic Compounds	See Attached Report.		0.10		mg		BCG	05/10/11 18:35	1.0

Client Sample ID: 1A-1-40 — **Lab Sample ID: CUE0116-08**
Date Collected: 05/03/11 12:09 — **Matrix: Air**
Date Received: 05/03/11 17:40

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Analyst	Analyzed	Dil Fac
Volatile Organic Compounds	See Attached Report.		0.10		mg		BCG	05/10/11 19:26	1.0

Client Sample ID: 1A-1B-40 — **Lab Sample ID: CUE0116-09**
Date Collected: 05/03/11 15:24 — **Matrix: Air**
Date Received: 05/03/11 17:40

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Analyst	Analyzed	Dil Fac
Volatile Organic Compounds	See Attached Report.		0.10		mg		BCG	05/10/11 20:15	1.0

Client Sample ID: AA-40 — **Lab Sample ID: CUE0116-10**
Date Collected: 05/03/11 15:24 — **Matrix: Air**
Date Received: 05/03/11 17:40

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Analyst	Analyzed	Dil Fac
Volatile Organic Compounds	See Attached Report.		0.10		mg		BCG	05/10/11 21:05	1.0

Client Sample ID: AAD-40 — **Lab Sample ID: CUE0116-11**
Date Collected: 05/03/11 15:24 — **Matrix: Air**
Date Received: 05/03/11 17:40

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Analyst	Analyzed	Dil Fac
Volatile Organic Compounds	See Attached Report.		0.10		mg		BCG	05/10/11 21:57	1.0

Client Sample ID: SS-40 — **Lab Sample ID: CUE0116-12**
Date Collected: 05/03/11 12:53 — **Matrix: Air**
Date Received: 05/03/11 17:40

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Analyst	Analyzed	Dil Fac
Volatile Organic Compounds	See Attached Report.		0.10		mg		BCG	05/10/11 13:22	1.0

Client Sample ID: SS-45
Date Collected: 05/03/11 16:28
Date Received: 05/03/11 17:40

Lab Sample ID: CUE0116-13
Matrix: Air

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Analyst	Analyzed	Dil Fac
Volatile Organic Compounds	See Attached Report.		0.10		mg		BCG	05/10/11 11:47	1.0

Client Sample ID: 1A-1-45
Date Collected: 05/03/11 15:37
Date Received: 05/03/11 17:40

Lab Sample ID: CUE0116-14
Matrix: Air

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Analyst	Analyzed	Dil Fac
Volatile Organic Compounds	See Attached Report.		0.10		mg		BCG	05/10/11 22:48	1.0

Client Sample ID: 1A-B-45
Date Collected: 05/03/11 16:33
Date Received: 05/03/11 17:40

Lab Sample ID: CUE0116-15
Matrix: Air

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Analyst	Analyzed	Dil Fac
Volatile Organic Compounds	See Attached Report.		0.10		mg		BCG	05/10/11 23:40	1.0

Client Sample ID: Equipment Blank
Date Collected: 05/03/11 16:55
Date Received: 05/03/11 17:40

Lab Sample ID: CUE0116-16
Matrix: Air

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Analyst	Analyzed	Dil Fac
Volatile Organic Compounds	See Attached Report.		0.10		mg		BCG	05/11/11 02:12	1.0

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

TestAmerica Laboratories, Inc.

ANALYTICAL REPORT

PROJECT NO. CUE0116

Terracon

Lot #: H1E060660

Brian Graettinger

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

TESTAMERICA LABORATORIES, INC.

Jamie A. McKinney
Project Manager

May 13, 2011

ANALYTICAL METHODS SUMMARY

H1E060660

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

H1E060660

WO #	SAMPLE#	CLIENT SAMPLE ID	SAMPLED DATE	SAMP TIME
MH3PM	001	CUE0116-01	05/02/11	11:50
MH3PR	002	CUE0116-02	05/02/11	14:26
MH3PT	003	CUE0116-03	05/02/11	16:36
MH3PV	004	CUE0116-04	05/03/11	11:07
MH3PW	005	CUE0116-05	05/03/11	10:15
MH3PX	006	CUE0116-06	05/03/11	11:52
MH3P0	007	CUE0116-07	05/03/11	11:17
MH3P2	008	CUE0116-08	05/03/11	12:09
MH3P3	009	CUE0116-09	05/03/11	15:24
MH3P5	010	CUE0116-10	05/03/11	15:24
MH3P6	011	CUE0116-11	05/03/11	15:24
MH3P7	012	CUE0116-12	05/03/11	12:53
MH3P9	013	CUE0116-13	05/03/11	16:28
MH3QA	014	CUE0116-14	05/03/11	15:37
MH3QC	015	CUE0116-15	05/03/11	16:33
MH3QD	016	CUE0116-16	05/03/11	16:55

NOTE(S):

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

PROJECT NARRATIVE
H1E060660

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.

The concentration of trichloroethene in sample CUE0116-13 exceeded the calibration level of the instrument. The sample was analyzed at a dilution to bring the concentration of the compound into the instrument calibration range. The results for both analyses are reported in order to provide the lowest possible reporting limits.

TestAmerica Cedar Falls

Client Sample ID: CUE0116-01

GC/MS Volatiles

Lot-Sample #	H1E060660 - 001	**Work Order #**	MH3PM1AA	**Matrix.....:**	AIR
Date Sampled...:	05/02/2011	**Date Received..:**	05/06/2011		
Prep Date.....:	05/10/2011	**Analysis Time....:**	05/10/2011		
Prep Batch #.....:	1130245	**Analysis Time....:**	14:11		
Dilution Factor.:	1	**Method.....:**	TO-15		

PARAMETER	RESULTS (ppb(v/v))	REPORTING LIMIT (ppb(v/v))	MDL (ppb(v/v))	RESULTS (ug/m3)	REPORTING LIMIT (ug/m3)	MDL (ug/m3)
cis-1,2-Dichloroethene	ND	0.080	0.024	ND	0.32	0.095
1,1-Dichloroethene	ND	0.080	0.013	ND	0.32	0.052
Vinyl chloride	ND	0.080	0.029	ND	0.20	0.074
1,1-Dichloroethane	ND	0.080	0.010	ND	0.32	0.040
1,1,1-Trichloroethane	**0.10**	**0.080**	**0.012**	**0.56**	**0.44**	**0.065**
Trichloroethene	**0.068**	**0.040**	**0.014**	**0.36**	**0.21**	**0.075**
trans-1,2-Dichloroethene	ND	0.080	0.020	ND	0.32	0.079
Tetrachloroethene	**0.28**	**0.080**	**0.016**	**1.9**	**0.54**	**0.11**
1,1,2-Trichloroethane	ND	0.080	0.021	ND	0.44	0.11

SURROGATE	PERCENT RECOVERY	LABORATORY CONTROL LIMITS (%)
4-Bromofluorobenzene	83	60 - 140

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

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

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

TO-14 _rev5MDL_DOD.rpt version 5.002 02/07/2011

TestAmerica Cedar Falls

Client Sample ID: CUE0116-02

GC/MS Volatiles

Lot-Sample #	H1E060660 - 002	**Work Order #**	MH3PR1AA	**Matrix.....:**	AIR

Date Sampled...:	05/02/2011	**Date Received..:**	05/06/2011
Prep Date.....:	05/10/2011	**Analysis Time....:**	05/10/2011
Prep Batch #.....:	1130245	**Analysis Time....:**	15:03
Dilution Factor.:	1	**Method.....:**	TO-15

PARAMETER	RESULTS (ppb(v/v))	REPORTING LIMIT (ppb(v/v))	MDL (ppb(v/v))	RESULTS (ug/m3)	REPORTING LIMIT (ug/m3)	MDL (ug/m3)
1,1,2-Trichloroethane	ND	0.080	0.021	ND	0.44	0.11
Tetrachloroethene	**0.11**	**0.080**	**0.016**	**0.76**	**0.54**	**0.11**
trans-1,2-Dichloroethene	ND	0.080	0.020	ND	0.32	0.079
Trichloroethene	ND	0.040	0.014	ND	0.21	0.075
1,1,1-Trichloroethane	ND	0.080	0.012	ND	0.44	0.065
1,1-Dichloroethane	ND	0.080	0.010	ND	0.32	0.040
Vinyl chloride	ND	0.080	0.029	ND	0.20	0.074
1,1-Dichloroethene	ND	0.080	0.013	ND	0.32	0.052
cis-1,2-Dichloroethene	ND	0.080	0.024	ND	0.32	0.095

SURROGATE	PERCENT RECOVERY	LABORATORY CONTROL LIMITS (%)
4-Bromofluorobenzene	82	60 - 140

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

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

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

TO-14 _rev5MDL_DOD.rpt version 5.002 02/07/2011

TestAmerica Cedar Falls

Client Sample ID: CUE0116-03

GC/MS Volatiles

Lot-Sample #	H1E060660 - 003	**Work Order #**	MH3PT1AA	**Matrix.....:**	AIR

Date Sampled...:	05/02/2011	**Date Received..:**	05/06/2011
Prep Date.....:	05/10/2011	**Analysis Time....:**	05/10/2011
Prep Batch #.....:	1130245	**Analysis Time....:**	15:57
Dilution Factor.:	1	**Method.....:**	TO-15

PARAMETER	RESULTS (ppb(v/v))	REPORTING LIMIT (ppb(v/v))	MDL (ppb(v/v))	RESULTS (ug/m3)	REPORTING LIMIT (ug/m3)	MDL (ug/m3)
cis-1,2-Dichloroethene	ND	0.080	0.024	ND	0.32	0.095
1,1-Dichloroethene	ND	0.080	0.013	ND	0.32	0.052
Vinyl chloride	ND	0.080	0.029	ND	0.20	0.074
1,1-Dichloroethane	ND	0.080	0.010	ND	0.32	0.040
1,1,1-Trichloroethane	**0.26**	**0.080**	**0.012**	**1.4**	**0.44**	**0.065**
Trichloroethene	ND	0.040	0.014	ND	0.21	0.075
trans-1,2-Dichloroethene	ND	0.080	0.020	ND	0.32	0.079
Tetrachloroethene	**0.11**	**0.080**	**0.016**	**0.77**	**0.54**	**0.11**
1,1,2-Trichloroethane	ND	0.080	0.021	ND	0.44	0.11

SURROGATE	PERCENT RECOVERY	LABORATORY CONTROL LIMITS (%)
4-Bromofluorobenzene	83	60 - 140

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

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

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

TO-14 _rev5MDL_DOD.rpt version 5.002 02/07/2011

TestAmerica Cedar Falls

Client Sample ID: CUE0116-04

GC/MS Volatiles

Lot-Sample #	H1E060660 - 004	**Work Order #**	MH3PV1AA	**Matrix.....:**	AIR
Date Sampled...:	05/03/2011	**Date Received..:**	05/06/2011		
Prep Date.....:	05/10/2011	**Analysis Time....:**	05/10/2011		
Prep Batch #.....:	1130245	**Analysis Time....:**	12:33		
Dilution Factor.:	25	**Method.....:**	TO-15		

PARAMETER	RESULTS (ppb(v/v))	REPORTING LIMIT (ppb(v/v))	MDL (ppb(v/v))	RESULTS (ug/m3)	REPORTING LIMIT (ug/m3)	MDL (ug/m3)
1,1,2-Trichloroethane	ND	2.0	0.52	ND	11	2.9
Tetrachloroethene	**4.3**	**2.0**	**0.40**	**29**	**14**	**2.7**
trans-1,2-Dichloroethene	ND	2.0	0.50	ND	7.9	2.0
Trichloroethene	**210**	**1.0**	**0.35**	**1100**	**5.4**	**1.9**
1,1,1-Trichloroethane	**2.4**	**2.0**	**0.30**	**13**	**11**	**1.6**
1,1-Dichloroethane	ND	2.0	0.25	ND	8.1	1.0
Vinyl chloride	ND	2.0	0.72	ND	5.1	1.9
1,1-Dichloroethene	ND	2.0	0.32	ND	7.9	1.3
cis-1,2-Dichloroethene	ND	2.0	0.60	ND	7.9	2.4

SURROGATE	PERCENT RECOVERY	LABORATORY CONTROL LIMITS (%)
4-Bromofluorobenzene	80	60 - 140

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

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

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

TO-14 _rev5MDL_DOD.rpt version 5.002 02/07/2011

TestAmerica Cedar Falls

Client Sample ID: CUE0116-05

GC/MS Volatiles

Lot-Sample #	H1E060660 - 005	**Work Order #**	MH3PW1AA	**Matrix.....:**	AIR
Date Sampled...:	05/03/2011	**Date Received..:**	05/06/2011		
Prep Date.....:	05/10/2011	**Analysis Time....:**	05/10/2011		
Prep Batch #.....:	1130245	**Analysis Time....:**	16:49		
Dilution Factor.:	1	**Method.....:**	TO-15		

PARAMETER	RESULTS (ppb(v/v))	REPORTING LIMIT (ppb(v/v))	MDL (ppb(v/v))	RESULTS (ug/m3)	REPORTING LIMIT (ug/m3)	MDL (ug/m3)
cis-1,2-Dichloroethene	ND	0.080	0.024	ND	0.32	0.095
1,1-Dichloroethene	ND	0.080	0.013	ND	0.32	0.052
Vinyl chloride	ND	0.080	0.029	ND	0.20	0.074
1,1-Dichloroethane	ND	0.080	0.010	ND	0.32	0.040
1,1,1-Trichloroethane	ND	0.080	0.012	ND	0.44	0.065
Trichloroethene	**0.16**	**0.040**	**0.014**	**0.86**	**0.21**	**0.075**
trans-1,2-Dichloroethene	ND	0.080	0.020	ND	0.32	0.079
Tetrachloroethene	**0.043 J**	**0.080**	**0.016**	**0.29 J**	**0.54**	**0.11**
1,1,2-Trichloroethane	ND	0.080	0.021	ND	0.44	0.11

SURROGATE	PERCENT RECOVERY	LABORATORY CONTROL LIMITS (%)
4-Bromofluorobenzene	83	60 - 140

Qualifiers

J Estimated result. Result is less than RL.

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

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

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

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TestAmerica Cedar Falls

Client Sample ID: CUE0116-06

GC/MS Volatiles

Lot-Sample #	H1E060660 - 006	**Work Order #**	MH3PX1AA	**Matrix.....:**	AIR
Date Sampled...:	05/03/2011	**Date Received..:**	05/06/2011		
Prep Date.....:	05/10/2011	**Analysis Time....:**	05/10/2011		
Prep Batch #.....:	1130245	**Analysis Time....:**	17:41		
Dilution Factor.:	1	**Method.....:**	TO-15		

PARAMETER	RESULTS (ppb(v/v))	REPORTING LIMIT (ppb(v/v))	MDL (ppb(v/v))	RESULTS (ug/m3)	REPORTING LIMIT (ug/m3)	MDL (ug/m3)
1,1,2-Trichloroethane	ND	0.080	0.021	ND	0.44	0.11
Tetrachloroethene	**0.11**	**0.080**	**0.016**	**0.75**	**0.54**	**0.11**
trans-1,2-Dichloroethene	ND	0.080	0.020	ND	0.32	0.079
Trichloroethene	**0.23**	**0.040**	**0.014**	**1.2**	**0.21**	**0.075**
1,1,1-Trichloroethane	**0.22**	**0.080**	**0.012**	**1.2**	**0.44**	**0.065**
1,1-Dichloroethane	ND	0.080	0.010	ND	0.32	0.040
Vinyl chloride	ND	0.080	0.029	ND	0.20	0.074
1,1-Dichloroethene	ND	0.080	0.013	ND	0.32	0.052
cis-1,2-Dichloroethene	ND	0.080	0.024	ND	0.32	0.095

SURROGATE	PERCENT RECOVERY	LABORATORY CONTROL LIMITS (%)
4-Bromofluorobenzene	81	60 - 140

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

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

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

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TestAmerica Cedar Falls

Client Sample ID: CUE0116-07

GC/MS Volatiles

Lot-Sample #	H1E060660 - 007	**Work Order #**	MH3P01AA	**Matrix.....:**	AIR
Date Sampled...:	05/03/2011	**Date Received..:**	05/06/2011		
Prep Date.....:	05/10/2011	**Analysis Time....:**	05/10/2011		
Prep Batch #.....:	1130245	**Analysis Time....:**	18:35		
Dilution Factor.:	1	**Method.....:**	TO-15		

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

SURROGATE	PERCENT RECOVERY	LABORATORY CONTROL LIMITS (%)
4-Bromofluorobenzene	84	60 - 140

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

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

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

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TestAmerica Cedar Falls

Client Sample ID: CUE0116-08

GC/MS Volatiles

Lot-Sample #	H1E060660 - 008	**Work Order #**	MH3P21AA	**Matrix.....:**	AIR
Date Sampled...:	05/03/2011	**Date Received..:**	05/06/2011		
Prep Date.....:	05/10/2011	**Analysis Time....:**	05/10/2011		
Prep Batch #.....:	1130245	**Analysis Time....:**	19:26		
Dilution Factor.:	1	**Method.....:**	TO-15		

PARAMETER	RESULTS (ppb(v/v))	REPORTING LIMIT (ppb(v/v))	MDL (ppb(v/v))	RESULTS (ug/m3)	REPORTING LIMIT (ug/m3)	MDL (ug/m3)
1,1,2-Trichloroethane	ND	0.080	0.021	ND	0.44	0.11
Tetrachloroethene	ND	0.080	0.016	ND	0.54	0.11
trans-1,2-Dichloroethene	ND	0.080	0.020	ND	0.32	0.079
Trichloroethene	**0.033 J**	**0.040**	**0.014**	**0.18 J**	**0.21**	**0.075**
1,1,1-Trichloroethane	ND	0.080	0.012	ND	0.44	0.065
1,1-Dichloroethane	ND	0.080	0.010	ND	0.32	0.040
Vinyl chloride	ND	0.080	0.029	ND	0.20	0.074
1,1-Dichloroethene	ND	0.080	0.013	ND	0.32	0.052
cis-1,2-Dichloroethene	ND	0.080	0.024	ND	0.32	0.095

SURROGATE	PERCENT RECOVERY	LABORATORY CONTROL LIMITS (%)
4-Bromofluorobenzene	83	60 - 140

Qualifiers

J Estimated result. Result is less than RL.

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

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

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

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TestAmerica Cedar Falls

Client Sample ID: CUE0116-09

GC/MS Volatiles

Lot-Sample #	H1E060660 - 009	**Work Order #**	MH3P31AA	**Matrix.....:**	AIR
Date Sampled...:	05/03/2011	**Date Received..:**	05/06/2011		
Prep Date.....:	05/10/2011	**Analysis Time....:**	05/10/2011		
Prep Batch #.....:	1130245	**Analysis Time....:**	20:15		
Dilution Factor.:	1	**Method.....:**	TO-15		

PARAMETER	RESULTS (ppb(v/v))	REPORTING LIMIT (ppb(v/v))	MDL (ppb(v/v))	RESULTS (ug/m3)	REPORTING LIMIT (ug/m3)	MDL (ug/m3)
cis-1,2-Dichloroethene	ND	0.080	0.024	ND	0.32	0.095
1,1-Dichloroethene	ND	0.080	0.013	ND	0.32	0.052
Vinyl chloride	ND	0.080	0.029	ND	0.20	0.074
1,1-Dichloroethane	ND	0.080	0.010	ND	0.32	0.040
1,1,1-Trichloroethane	ND	0.080	0.012	ND	0.44	0.065
Trichloroethene	**0.034 J**	**0.040**	**0.014**	**0.18 J**	**0.21**	**0.075**
trans-1,2-Dichloroethene	ND	0.080	0.020	ND	0.32	0.079
Tetrachloroethene	**0.020 J**	**0.080**	**0.016**	**0.13 J**	**0.54**	**0.11**
1,1,2-Trichloroethane	ND	0.080	0.021	ND	0.44	0.11

SURROGATE	PERCENT RECOVERY	LABORATORY CONTROL LIMITS (%)
4-Bromofluorobenzene	85	60 - 140

Qualifiers

J Estimated result. Result is less than RL.

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

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

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

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TestAmerica Cedar Falls

Client Sample ID: CUE0116-10

GC/MS Volatiles

Lot-Sample #	H1E060660 - 010	**Work Order #**	MH3P51AA	**Matrix.....:**	AIR
Date Sampled...:	05/03/2011	**Date Received..:**	05/06/2011		
Prep Date.....:	05/10/2011	**Analysis Time....:**	05/10/2011		
Prep Batch #.....:	1130245	**Analysis Time....:**	21:05		
Dilution Factor.:	1	**Method.....:**	TO-15		

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

SURROGATE	PERCENT RECOVERY	LABORATORY CONTROL LIMITS (%)
4-Bromofluorobenzene	80	60 - 140

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

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

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

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TestAmerica Cedar Falls

Client Sample ID: CUE0116-11

GC/MS Volatiles

Lot-Sample #	H1E060660 - 011	**Work Order #**	MH3P61AA	**Matrix.....:**	AIR

Date Sampled...:	05/03/2011	**Date Received..:**	05/06/2011
Prep Date.....:	05/10/2011	**Analysis Time....:**	05/10/2011
Prep Batch #.....:	1130245	**Analysis Time....:**	21:57
Dilution Factor.:	1	**Method.....:**	TO-15

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

SURROGATE	PERCENT RECOVERY	LABORATORY CONTROL LIMITS (%)
4-Bromofluorobenzene	82	60 - 140

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

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

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

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TestAmerica Cedar Falls

Client Sample ID: CUE0116-12

GC/MS Volatiles

Lot-Sample #	H1E060660 - 012	**Work Order #**	MH3P71AA	**Matrix.....:**	AIR
Date Sampled...:	05/03/2011	**Date Received..:**	05/06/2011		
Prep Date.....:	05/10/2011	**Analysis Time....:**	05/10/2011		
Prep Batch #.....:	1130245	**Analysis Time....:**	13:22		
Dilution Factor.:	2	**Method.....:**	TO-15		

PARAMETER	RESULTS (ppb(v/v))	REPORTING LIMIT (ppb(v/v))	MDL (ppb(v/v))	RESULTS (ug/m3)	REPORTING LIMIT (ug/m3)	MDL (ug/m3)
1,1,2-Trichloroethane	ND	0.16	0.042	ND	0.87	0.23
trans-1,2-Dichloroethene	ND	0.16	0.040	ND	0.63	0.16
Tetrachloroethene	**2.0**	**0.16**	**0.032**	**13**	**1.1**	**0.22**
Trichloroethene	**18**	**0.080**	**0.028**	**99**	**0.43**	**0.15**
1,1,1-Trichloroethane	**0.92**	**0.16**	**0.024**	**5.0**	**0.87**	**0.13**
1,1-Dichloroethane	ND	0.16	0.020	ND	0.65	0.081
1,1-Dichloroethene	ND	0.16	0.026	ND	0.63	0.10
Vinyl chloride	ND	0.16	0.058	ND	0.41	0.15
cis-1,2-Dichloroethene	ND	0.16	0.048	ND	0.63	0.19

SURROGATE	PERCENT RECOVERY	LABORATORY CONTROL LIMITS (%)
4-Bromofluorobenzene	83	60 - 140

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

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

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

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TestAmerica Cedar Falls

Client Sample ID: CUE0116-13

GC/MS Volatiles

Lot-Sample #	H1E060660 - 013	**Work Order #**	MH3P91AA	**Matrix.....:**	AIR

Date Sampled...:	05/03/2011	**Date Received..:**	05/06/2011
Prep Date.....:	05/10/2011	**Analysis Time....:**	05/10/2011
Prep Batch #.....:	1130245	**Analysis Time....:**	11:47
Dilution Factor.:	45.45	**Method.....:**	TO-15

PARAMETER	RESULTS (ppb(v/v))	REPORTING LIMIT (ppb(v/v))	MDL (ppb(v/v))	RESULTS (ug/m3)	REPORTING LIMIT (ug/m3)	MDL (ug/m3)
cis-1,2-Dichloroethene	ND	3.6	1.1	ND	14	4.3
Vinyl chloride	ND	3.6	1.3	ND	9.3	3.4
1,1-Dichloroethene	ND	3.6	0.59	ND	14	2.3
1,1-Dichloroethane	ND	3.6	0.45	ND	15	1.8
1,1,1-Trichloroethane	**7.8**	**3.6**	**0.55**	**42**	**20**	**3.0**
Trichloroethene	**1100 E**	**1.8**	**0.64**	**5700 E**	**9.8**	**3.4**
Tetrachloroethene	**5.3**	**3.6**	**0.73**	**36**	**25**	**4.9**
trans-1,2-Dichloroethene	ND	3.6	0.91	ND	14	3.6
1,1,2-Trichloroethane	ND	3.6	0.95	ND	20	5.2

SURROGATE	PERCENT RECOVERY	LABORATORY CONTROL LIMITS (%)
4-Bromofluorobenzene	74	60 - 140

Qualifiers

E Estimated result. Result concentration exceeds the calibration range.

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

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

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

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TestAmerica Cedar Falls

Client Sample ID: CUE0116-13

GC/MS Volatiles

Lot-Sample #	H1E060660 - 013	**Work Order #**	MH3P92AA	**Matrix.....:**	AIR
Date Sampled...:	05/03/2011	**Date Received..:**	05/06/2011		
Prep Date.....:	05/10/2011	**Analysis Time....:**	05/11/2011		
Prep Batch #.....:	1130245	**Analysis Time....:**	01:18		
Dilution Factor.:	87.5	**Method.....:**	TO-15		

PARAMETER	RESULTS (ppb(v/v))	REPORTING LIMIT (ppb(v/v))	MDL (ppb(v/v))	RESULTS (ug/m3)	REPORTING LIMIT (ug/m3)	MDL (ug/m3)
Trichloroethene	**960 D**	**3.5**	**1.2**	**5200 D**	**19**	**6.6**

SURROGATE	PERCENT RECOVERY	LABORATORY CONTROL LIMITS (%)
4-Bromofluorobenzene	81	60 - 140

Qualifiers

D Result was obtained from the analysis of a dilution.

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

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

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

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TestAmerica Cedar Falls

Client Sample ID: CUE0116-14

GC/MS Volatiles

Lot-Sample #	H1E060660 - 014	**Work Order #**	MH3QA1AA	**Matrix.....:**	AIR

Date Sampled...:	05/03/2011	**Date Received..:**	05/06/2011
Prep Date.....:	05/10/2011	**Analysis Time....:**	05/10/2011
Prep Batch #.....:	1130245	**Analysis Time....:**	22:48
Dilution Factor.:	1	**Method.....:**	TO-15

PARAMETER	RESULTS (ppb(v/v))	REPORTING LIMIT (ppb(v/v))	MDL (ppb(v/v))	RESULTS (ug/m3)	REPORTING LIMIT (ug/m3)	MDL (ug/m3)
Trichloroethene	**0.33**	**0.040**	**0.014**	**1.8**	**0.21**	**0.075**
1,1,2-Trichloroethane	ND	0.080	0.021	ND	0.44	0.11
trans-1,2-Dichloroethene	ND	0.080	0.020	ND	0.32	0.079
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-Dichloroethane	ND	0.080	0.010	ND	0.32	0.040
1,1-Dichloroethene	ND	0.080	0.013	ND	0.32	0.052
Vinyl chloride	ND	0.080	0.029	ND	0.20	0.074
cis-1,2-Dichloroethene	ND	0.080	0.024	ND	0.32	0.095

SURROGATE	PERCENT RECOVERY	LABORATORY CONTROL LIMITS (%)
4-Bromofluorobenzene	80	60 - 140

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

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

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

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TestAmerica Cedar Falls

Client Sample ID: CUE0116-15

GC/MS Volatiles

Lot-Sample #	H1E060660 - 015	**Work Order #**	MH3QC1AA	**Matrix.....:**	AIR
Date Sampled...:	05/03/2011	**Date Received..:**	05/06/2011		
Prep Date.....:	05/10/2011	**Analysis Time....:**	05/10/2011		
Prep Batch #.....:	1130245	**Analysis Time....:**	23:40		
Dilution Factor.:	1	**Method.....:**	TO-15		

PARAMETER	RESULTS (ppb(v/v))	REPORTING LIMIT (ppb(v/v))	MDL (ppb(v/v))	RESULTS (ug/m3)	REPORTING LIMIT (ug/m3)	MDL (ug/m3)
cis-1,2-Dichloroethene	ND	0.080	0.024	ND	0.32	0.095
Vinyl chloride	ND	0.080	0.029	ND	0.20	0.074
1,1-Dichloroethene	ND	0.080	0.013	ND	0.32	0.052
1,1-Dichloroethane	ND	0.080	0.010	ND	0.32	0.040
1,1,1-Trichloroethane	ND	0.080	0.012	ND	0.44	0.065
Tetrachloroethene	ND	0.080	0.016	ND	0.54	0.11
trans-1,2-Dichloroethene	ND	0.080	0.020	ND	0.32	0.079
1,1,2-Trichloroethane	ND	0.080	0.021	ND	0.44	0.11
Trichloroethene	**0.39**	**0.040**	**0.014**	**2.1**	**0.21**	**0.075**

SURROGATE	PERCENT RECOVERY	LABORATORY CONTROL LIMITS (%)
4-Bromofluorobenzene	82	60 - 140

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

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

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

TO-14 _rev5MDL_DOD.rpt version 5.002 02/07/2011

TestAmerica Cedar Falls

Client Sample ID: CUE0116-16

GC/MS Volatiles

Lot-Sample #	H1E060660 - 016	**Work Order #**	MH3QD1AA	**Matrix.....:**	AIR
Date Sampled...:	05/03/2011	**Date Received..:**	05/06/2011		
Prep Date.....:	05/10/2011	**Analysis Time....:**	05/11/2011		
Prep Batch #.....:	1130245	**Analysis Time....:**	02:12		
Dilution Factor.:	1	**Method.....:**	TO-15		

PARAMETER	RESULTS (ppb(v/v))	REPORTING LIMIT (ppb(v/v))	MDL (ppb(v/v))	RESULTS (ug/m3)	REPORTING LIMIT (ug/m3)	MDL (ug/m3)
Trichloroethene	**0.11**	**0.040**	**0.014**	**0.58**	**0.21**	**0.075**
trans-1,2-Dichloroethene	ND	0.080	0.020	ND	0.32	0.079
1,1,2-Trichloroethane	ND	0.080	0.021	ND	0.44	0.11
Tetrachloroethene	**0.084**	**0.080**	**0.016**	**0.57**	**0.54**	**0.11**
1,1,1-Trichloroethane	ND	0.080	0.012	ND	0.44	0.065
1,1-Dichloroethane	ND	0.080	0.010	ND	0.32	0.040
Vinyl chloride	ND	0.080	0.029	ND	0.20	0.074
cis-1,2-Dichloroethene	ND	0.080	0.024	ND	0.32	0.095
1,1-Dichloroethene	ND	0.080	0.013	ND	0.32	0.052

SURROGATE	PERCENT RECOVERY	LABORATORY CONTROL LIMITS (%)
4-Bromofluorobenzene	87	60 - 140

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

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

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

TO-14 _rev5MDL_DOD.rpt version 5.002 02/07/2011

TestAmerica Cedar Falls

Client Sample ID: INTRA-LAB BLANK

GC/MS Volatiles

Lot-Sample #	H1E100000 - 245B	**Work Order #**	MH6VH1AA
	05/02/2011	**Date Received..:**	05/06/2011
Prep Date.....:	05/10/2011	**Analysis Time....:**	05/10/2011
Prep Batch #.....:	1130245	**Analysis Time....:**	11:03
Dilution Factor.:	1	**Method.....:**	TO-15

Matrix.....: AIR

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

SURROGATE	PERCENT RECOVERY	LABORATORY CONTROL LIMITS (%)
4-Bromofluorobenzene	84	60 - 140

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

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

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

TO-14 _rev5MDL_DOD.rpt version 5.002 02/07/2011

TestAmerica Cedar Falls

Client Sample ID: CHECK SAMPLE

GC/MS Volatiles

Lot-Sample # H1E100000 - 245C **Work Order #** MH6VH1AC **Matrix.....:** AIR

	05/02/2011	**Date Received..:**	05/06/2011
Prep Date.....:	05/10/2011	**Analysis Time....:**	05/10/2011
Prep Batch #.....:	1130245	**Analysis Time....:**	09:15
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
Trichloroethene	5.00	5.37	26.9	28.9	107	70 - 130
trans-1,2-Dichloroethene	5.00	4.98	19.8	19.8	100	70 - 130
1,1,2-Trichloroethane	5.00	3.78	27.3	20.6	76	70 - 130
Tetrachloroethene	5.00	4.70	33.9	31.9	94	70 - 130
1,1,1-Trichloroethane	5.00	4.44	27.3	24.2	89	70 - 130
1,1-Dichloroethane	5.00	4.54	20.2	18.4	91	70 - 130
1,1-Dichloroethene	5.00	5.18	19.8	20.6	104	70 - 130
cis-1,2-Dichloroethene	5.00	4.70	19.8	18.6	94	70 - 130
Vinyl chloride	5.00	5.57	12.8	14.2	111	70 - 130

SURROGATE	PERCENT RECOVERY	LABORATORY CONTROL LIMITS (%)
4-Bromofluorobenzene	82	60 - 140

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

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

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

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

HIF: 060660

Canister Samples Chain of Custody Record

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

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Contact Information	**Project Manager:** John brimeyer	**Sampled By:** Jmc/Jme	1 of 3 COCs
Company: tevracon	Phone: 563.355.0702 jfbrimeyer tevracon.com		
Address: 870 46th Ave	Site Contact:		
City/State/Zip Bettendorf, IA 52722	TAL Contact:		
Phone: 563.355.0707			
FAX: 502.355.9789			
Project Name: Chamberlain Vapor sampling	**Analysis Turnaround Time**		
Site/location: Watertown, IA	Standard (Specify)		
~~PO#~~ Project # 07109728	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 Low Level	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)
SS-15	5/2/2011	1111	1150	-29	-2.5	97	L6680	X											
SS-10	5/2/2011	1342	1426	-29.5	-1.5	184	1010B												
SS-62	5/2/2011	1600	1634	-29	-1.5	74	04399												
SS-46	5/3/2011	1024	1107	-29	-2	191	93046												
IA-B-46	5/2-5/3	1011	1015	-27	-3	K269	0181												
IA-1-46	5/2-5/3	1008	1152	-30	-5	K387	7482	↓											

Sampled by :

Temperature (Fahrenheit)	Interior	Ambient	
Start			
Stop			

Pressure (inches of Hg)	Interior	Ambient	
Start			
Stop			

3 boxes with Custody SEALS
RECEIVED @ AMBIENT TEMP
R.H. 5/6/11
3 boxes Fed Ex 420827077241
420827077220, 420827077219
16 CANS, 7 FLOWS, 8 FLOW(R)

Special Instructions/QC Requirements & Comments:

Canisters Shipped by:	Date/Time: 5/3/11 1740	Canisters Received by:	
Samples Relinquished by:	Date/Time: 5/3/2011 1740	Received by:	
Relinquished by:	Date/Time:	Received by: Rita Hancock	5/6/11 10:30

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

HTF-060660

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:** jimbrimeyer	**Sampled By:** jmc/jme
Company: terracon	Phone: 563.355.0702 jfbrimeyer@terracon.com	2 of 3 COCs
Address: 870 40th Ave	Site Contact:	
City/State/Zip Bettendorf, IA 52722	TAL Contact:	
Phone: 563.355.0702		
FAX: 563.355.4789		
Project Name: Chamberlain Vapor Sampling	Analysis Turnaround Time	
Site/location: Waterloo, IA	Standard (Specify)	
~~PO#~~ Project # 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 Analysis	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)
AA-4D	5/2-5/3	1022	1117	-30	-25	K339	4497N	X											
1A-1-4D	5/2-5/3	1207	1209	-27	-3	K407	9805B	↓											
1A-B-4D	5/2-5/3	1212	1520	-30	-4	K386	7465												
AA-4D	5/2-5/3	1222	1524	-29.5	-3.5	K153	11352												
AAD-4D	5/2-5/3	1222	1524	-29.5	-2	K462	1352N												
SS-4D	5/3	1216	1253	-28.5	-2.5	167	04306	↓											

Sampled by :	Temperature (Fahrenheit)			
		Interior	Ambient	
	Start			
	Stop			

	Pressure (inches of Hg)			
		Interior	Ambient	
	Start			
	Stop			

Special Instructions/QC Requirements & Comments:

Canisters Shipped by:	Date/Time: 5/3/11 1740	Canisters Received by:
Samples Relinquished by: Jennifer McClancy	Date/Time: 5/3/11 1740	Received by:
Relinquished by:	Date/Time:	Received by: Rita Hancock 5/6/11 10:30

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

HTE060660

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:** jmlohmeyer	**Sampled By:** jmc / jme	3 of 3 COCs
Company: Terracon	Phone: 563.355.0702 jflorine@terracon.com		
Address: 870 40th Ave	**Site Contact:**		
City/State/Zip: Bettendorf IA 52722	**TAL Contact:**		
Phone: 563.355.0702			
FAX: 563.355.4785			
Project Name: Chamberlain Vapor Sampling	**Analysis Turnaround Time**		
Site/location: Waterloo IA	Standard (Specify)		
~~PO#~~ Project # D7107026	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 Low Limit	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)
SS-45	5/3/2011	1552	1628	-29.5	-1.5	178	7788	X											
IA-1-45	5/2-5/3	1537	1537	-28	-2	K471	7490	↓											
IA-B-45	5/2-5/3	1543	1633	-30	-4.5	K371	93149	↓											
Equipment blank-3	5/3	1651	1655	—	—	—	6515	↓											

Sampled by :
Jen Clancy
Justin Elwell

	Temperature (Fahrenheit)		
	Interior	Ambient	
Start			
Stop			

	Pressure (inches of Hg)		
	Interior	Ambient	
Start			
Stop			

Special Instructions/QC Requirements & Comments:

Canisters Shipped by:	Date/Time: 5/3/11 1740	Canisters Received by: Rebecca Stevenson
Samples Relinquished by: Jen McClancy	Date/Time: 5/3/11 1740	Received by:
Relinquished by:	Date/Time:	Received by: Rita Hancock 5/6/11 10:30

SUBCONTRACT ORDER

TestAmerica Cedar Falls HIE060660

CUE0116

SENDING LABORATORY:

TestAmerica Cedar Falls
704 Enterprise Drive
Cedar Falls, IA 50613
Phone: 800-750-2401
Fax: 319-277-2425
Project Manager: Brian C. Graettinger

RECEIVING LABORATORY:

TestAmerica Knoxville
5815 Middlebrook Pike
Knoxville, TN 37921
Phone :(865) 291-3000
Fax: -

TestAmerica OR#: Interlab

Analysis	Due	Expires	Comments
Sample ID: CUE0116-01 Air	**Sampled: 05/02/11 11:50**	**Air Volume (in L):**	**6680 w/97**
AIR - Summa Canister Rental	05/12/11 12:00	09/16/38 11:50	
AIR - VOC Scan (TO-15)	05/12/11 12:00	07/31/11 11:50	
AIR - Flow Controller Rental	05/12/11 12:00	02/13/85 11:50	
Sample ID: CUE0116-02 Air	**Sampled: 05/02/11 14:26**	**Air Volume (in L):**	**1010B w/184**
AIR - Flow Controller Rental	05/12/11 12:00	02/13/85 14:26	
AIR - Summa Canister Rental	05/12/11 12:00	09/16/38 14:26	
AIR - VOC Scan (TO-15)	05/12/11 12:00	07/31/11 14:26	
Sample ID: CUE0116-03 Air	**Sampled: 05/02/11 16:36**	**Air Volume (in L):**	**04399 w/74**
AIR - Flow Controller Rental	05/12/11 12:00	02/13/85 16:36	
AIR - Summa Canister Rental	05/12/11 12:00	09/16/38 16:36	
AIR - VOC Scan (TO-15)	05/12/11 12:00	07/31/11 16:36	
Sample ID: CUE0116-04 Air	**Sampled: 05/03/11 11:07**	**Air Volume (in L):**	**93046 w/191**
AIR - VOC Scan (TO-15)	05/12/11 12:00	08/01/11 11:07	
AIR - Flow Controller Rental	05/12/11 12:00	02/14/85 11:07	
AIR - Summa Canister Rental	05/12/11 12:00	09/17/38 11:07	

Released By	Date	Received By	Date
B C Graettinger	5/4/11		
Released By	Date	Received By	Date

SUBCONTRACT ORDER

TestAmerica Cedar Falls HIE0060

CUE0116

Analysis	Due	Expires	Comments
Sample ID: CUE0116-05 Air	**Sampled: 05/03/11 10:15**	**Air Volume (in L):**	**0181 w/K269**
AIR - VOC Scan (TO-15)	05/12/11 12:00	08/01/11 10:15	
AIR - Flow Controller Rental	05/12/11 12:00	02/14/85 10:15	
AIR - Summa Canister Rental	05/12/11 12:00	09/17/38 10:15	
Sample ID: CUE0116-06 Air	**Sampled: 05/03/11 11:52**	**Air Volume (in L):**	**7482 w/K387**
AIR - Flow Controller Rental	05/12/11 12:00	02/14/85 11:52	
AIR - Summa Canister Rental	05/12/11 12:00	09/17/38 11:52	
AIR - VOC Scan (TO-15)	05/12/11 12:00	08/01/11 11:52	
Sample ID: CUE0116-07 Air	**Sampled: 05/03/11 11:17**	**Air Volume (in L):**	**4497N w/K339**
AIR - Flow Controller Rental	05/12/11 12:00	02/14/85 11:17	
AIR - Summa Canister Rental	05/12/11 12:00	09/17/38 11:17	
AIR - VOC Scan (TO-15)	05/12/11 12:00	08/01/11 11:17	
Sample ID: CUE0116-08 Air	**Sampled: 05/03/11 12:09**	**Air Volume (in L):**	**9805B w/K407**
AIR - Summa Canister Rental	05/12/11 12:00	09/17/38 12:09	
AIR - Flow Controller Rental	05/12/11 12:00	02/14/85 12:09	
AIR - VOC Scan (TO-15)	05/12/11 12:00	08/01/11 12:09	
Sample ID: CUE0116-09 Air	**Sampled: 05/03/11 15:24**	**Air Volume (in L):**	**746S w/K386**
AIR - Summa Canister Rental	05/12/11 12:00	09/17/38 15:24	
AIR - VOC Scan (TO-15)	05/12/11 12:00	08/01/11 15:24	
AIR - Flow Controller Rental	05/12/11 12:00	02/14/85 15:24	

B C Hunt 5/4/11

Released By	Date	Received By	Date
Released By	Date	Received By	Date

SUBCONTRACT ORDER

TestAmerica Cedar Falls 1-11E0L0660

CUE0116

Analysis	Due	Expires	Comments
Sample ID: CUE0116-10 Air	**Sampled: 05/03/11 15:24**	**Air Volume (in L):**	**11352 w/K153**
AIR - Flow Controller Rental	05/12/11 12:00	02/14/85 15:24	
AIR - Summa Canister Rental	05/12/11 12:00	09/17/38 15:24	
AIR - VOC Scan (TO-15)	05/12/11 12:00	08/01/11 15:24	
Sample ID: CUE0116-11 Air	**Sampled: 05/03/11 15:24**	**Air Volume (in L):**	**1352N w/K462**
AIR - Flow Controller Rental	05/12/11 12:00	02/14/85 15:24	
AIR - Summa Canister Rental	05/12/11 12:00	09/17/38 15:24	
AIR - VOC Scan (TO-15)	05/12/11 12:00	08/01/11 15:24	
Sample ID: CUE0116-12 Air	**Sampled: 05/03/11 12:53**	**Air Volume (in L):**	**04306 w/167**
AIR - VOC Scan (TO-15)	05/12/11 12:00	08/01/11 12:53	
AIR - Flow Controller Rental	05/12/11 12:00	02/14/85 12:53	
AIR - Summa Canister Rental	05/12/11 12:00	09/17/38 12:53	
Sample ID: CUE0116-13 Air	**Sampled: 05/03/11 16:28**	**Air Volume (in L):**	**7788 w/178**
AIR - VOC Scan (TO-15)	05/12/11 12:00	08/01/11 16:28	
AIR - Flow Controller Rental	05/12/11 12:00	02/14/85 16:28	
AIR - Summa Canister Rental	05/12/11 12:00	09/17/38 16:28	
Sample ID: CUE0116-14 Air	**Sampled: 05/03/11 15:37**	**Air Volume (in L):**	**7490 w/K471**
AIR - Flow Controller Rental	05/12/11 12:00	02/14/85 15:37	
AIR - Summa Canister Rental	05/12/11 12:00	09/17/38 15:37	
AIR - VOC Scan (TO-15)	05/12/11 12:00	08/01/11 15:37	

B C Gruett 5/4/11

Released By Date Received By Date

Released By Date Received By Date

SUBCONTRACT ORDER

TestAmerica Cedar Falls

CUE0116

HE160460

Analysis	Due	Expires	Comments
Sample ID: CUE0116-15 Air	**Sampled: 05/03/11 16:33**	**Air Volume (in L):**	**93149 w/K371**
AIR - Flow Controller Rental	05/12/11 12:00	02/14/85 16:33	
AIR - Summa Canister Rental	05/12/11 12:00	09/17/38 16:33	
AIR - VOC Scan (TO-15)	05/12/11 12:00	08/01/11 16:33	
Sample ID: CUE0116-16 Air	**Sampled: 05/03/11 16:55**	**Air Volume (in L):**	**6515**
AIR - VOC Scan (TO-15)	05/12/11 12:00	08/01/11 16:55	
AIR - Flow Controller Rental	05/12/11 12:00	02/14/85 16:55	
AIR - Summa Canister Rental	05/12/11 12:00	09/17/38 16:55	

B C Hunt 5/4/11

Released By Date Received By Date

Released By Date Received By Date

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

704 Enterprise Drive • Cedar Falls, IA 50613
800-750-2401 • 319-277-2425 Fax

HIE-060660

IH Sample Receipt Form

Client: Terracon Project: _____

City: Bettendorf, Ia

Date: 5/3/11 Receiver's Initials: MF/JMH Time (Delivered): 1740

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 BCG Date 5/4/11

Comments

Remarks/Action Taken: Initial/Date:

TESTAMERICA KNOXVILLE SAMPLE RECEIPT/CONDITION UPON RECEIPT ANOMALY CHECKLIST

Lot Number: 440-060660

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

Quote #: 80209 PM Instructions: NA

Sample Receiving Associate: Rita Hancock Date: 5/6/11

QA026R22.doc, 012811

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

Lot Number: *H1E060660*

Initial Can Pressure							Subsequent Dilutions												
Analyst/Date	Tedlar Bag Time	Pbarr (in)	Sample ID	Can #	Pres. upon receipt (-in or + psig)	Adj. Initial Pres. (-in or + psig)	Analyst/Date	I / S	Pbarr (in)	Initial Pres. Pi (in)	Final Pres. Pf (psig)	First InCan Final Pres. Pf (psig)	Second In-can Final Pres. Pf (psig)	Third InCan Final Pres. Pf (psig)	Serial Dilution Can #	Vol (mL)	Final Pres. Pf (psig)	Comments
AM 5/9/11	NA	28.75	MH3PM	6680 ✓	-1.2	–												9204
			MH3PR	1010B ✓	-0.3	–												9203
			MH3PT	04399 ✓	-1.3	–												9195
			MH3PV	93046 ✓	-0.7	–												9196
			MH3PW	0181 ✓	-1.3	–												9198
			MH3PX	7482 ✓	-3.6	–												9197
			MH3P0	4497N ✓	-1.0	–												9195
			MH3P2	9805B ✓	-5.6	–												9192
			MH3P3	7465 ✓	-3.2	–												9199
			MH3P5	11352 ✓	-1.8	–												9192
			MH3P6	1352N ✓	-1.0	–												9192
			MH3P7	04306 ✓	-1.7	–												9195
			MH3P9	7788 ✓	-0.6	–	AM 5/10/11	x1	28.81	-1.2	33.3							9182
			MH3QA	7490 ✓	-2.6	–												9192
			MH3QC	93149 ✓	-3.6	–												
↓	↓	↓	MH3QD	6515 ✓	+0.1	–												↓

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

Canister Samples Chain of Custody Record

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

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Contact Information	Project Manager: John brimmeyer	Sampled By: Jmc/Jmc	1 of 3 COCs
Company: tevracon	Phone: 563.355.0702 jfbrimmeyer@tevracon.com		
Address: 870 40th Ave	Site Contact:		
City/State/Zip: Bettendorf, IA 52722	TAL Contact:		
Phone: 563.355.0707			
FAX: 502.355.4789			
Project Name: Chamberlain Vapor sampling	Analysis Turnaround Time		
Site/location: Waterloo, IA	Standard (Specify)		
PO# Project # 07107028	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 Low Level	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)
SS-15	5/2/2011	1111	1150	-29	-2.5	97	66801	X											
SS-10	5/2/2011	1342	1426	-29.5	-1.5	184	10103	↓											
SS-62	5/2/2011	1600	1634	-29	-1.5	74	04399												
SS-46	5/3/2011	1024	1107	-29	-2	191	93046												
1A-B-46	5/2-5/3	1011	1015	-27	-3	K269	0181												
1A-1-46	5/2-5/3	1008	1152	-30	-5	K387	7482	↓											

Sampled by :	Temperature (Fahrenheit)	Interior	Ambient	
	Start			
	Stop			
	Pressure (inches of Hg)	**Interior**	**Ambient**	
	Start			
	Stop			

Special Instructions/QC Requirements & Comments:

Canisters Shipped by:	Date/Time: 5/3/11 1740	Canisters Received by:
Samples Relinquished by:	Date/Time: 5/3/2011 1740	Received by:
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:** jim brimeyer	**Sampled By:** jmc/jme
Company: terracon	Phone: 563.355.0702 jfbrimeyer@terracon.com	2 of 3 COCs
Address: 870 40th Ave	Site Contact:	
City/State/Zip Bettendorf, IA 52722	TAL Contact:	
Phone: 563.355.0702		
FAX: 563.355.4789		
Project Name: Chamberlain Vapor Sampling	**Analysis Turnaround Time**	
Site/location: Waterloo, IA	Standard (Specify)	
~~PO#~~ Project # 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 Analyte	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)
AA-4o	5/2-5/3	1022	1117	-30	-25	K339	4497N	X											
IA-1-4D	5/2-5/3	1207	1209	-27	-3	K407	9805B												
IA-1B-4D	5/2-5/3	1212	1520	-30	-4	K386	7465												
AA-4D	5/2-5/3	1222	1524	-29.5	-3.5	K153	11352												
AAD-4D	5/2-5/3	1222	1524	-29.5	-2	K462	1352N												
SS-4D	5/3	1216	1253	-28.5	-2.5	167	04306	↓											

Sampled by :	Temperature (Fahrenheit)	Interior	Ambient	
	Start			
	Stop			
	Pressure (inches of Hg)	**Interior**	**Ambient**	
	Start			
	Stop			

Special Instructions/QC Requirements & Comments:

Canisters Shipped by:	Date/Time: 5/3/11 1740	Canisters Received by:	
Samples Relinquished by:	Date/Time: 5/3/11 1740	Received by:	
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:** Jim Brinmeyer	**Sampled By:** jenc / jme	3 of 3 COCs
Company: Kevron	Phone: 563.355.0702 jfbrinmeyer@kevron.com		
Address: 870 48th Ave	Site Contact:		
City/State/Zip: Bettendorf, IA 52722	TAL Contact:		
Phone: 563.355.0702			
FAX: 563.355.4785			
Project Name: Chamberlain Vapor Sampling	**Analysis Turnaround Time**		
Site/location: Waterloo IA	Standard (Specify)		
~~PO #~~ Proj # 07107024	~~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 low limit	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)
SS-45	5/3/2011	1552	1628	-29.5	-1.5	178	7788	X											
IA-1-45	5/2-5/3	1537	1537	-28	-2	K471	7490	↓											
IA-B-45	5/2-5/3	1543	1633	-30	-4.5	K371	93149	↓											
Equipment blank-3	5/3	1651	1655	—	—	—	6515	↓											

Sampled by : jen clancy, justin Elwell

	Temperature (Fahrenheit)		
	Interior	Ambient	
Start			
Stop			

	Pressure (inches of Hg)		
	Interior	Ambient	
Start			
Stop			

Special Instructions/QC Requirements & Comments:

Canisters Shipped by:	Date/Time: 5/3/11 1740	Canisters Received by: TestAmerica
Samples Relinquished by: Jen McClancy	Date/Time: 5/3/11 1740	Received by:
Relinquished by:	Date/Time:	Received by:

05/17/2011

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

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

IH Sample Receipt Form

Client: Tenacon Project: _____

City: Bettendorf, Ia

Date: 5/3/11 Receiver's Initials: MF/JMH Time (Delivered): 1740

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 BCG Date 5/4/11

Comments

_____

_____

_____

_____

Remarks/Action Taken: **Initial/Date:**

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

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

TestAmerica Job ID: CUE0188
Client Project/Site: Chamberlain Vapor Sampling
Client Project Description: TO-15 Scans

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

Attn: John Brimeyer

Authorized for release by:
05/17/2011 11:46:20 AM

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

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

Job ID: CUE0188

Laboratory: TestAmerica Cedar Falls

Narrative

Analyzed by TestAmerica - Knoxville, TN.

Sample Summary

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

TestAmerica Job ID: CUE0188

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
CUE0188-01	SS-67	Air	05/04/11 13:05	05/04/11 13:35
CUE0188-02	SSD-67	Air	05/04/11 13:05	05/04/11 13:35

Client Sample ID: SS-67
Date Collected: 05/04/11 13:05
Date Received: 05/04/11 13:35

Lab Sample ID: CUE0188-01
Matrix: Air

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Analyst	Analyzed	Dil Fac
Volatile Organic Compounds	See Attached Report.		0.10		mg		BCG	05/09/11 00:00	1.0

Client Sample ID: SSD-67
Date Collected: 05/04/11 13:05
Date Received: 05/04/11 13:35

Lab Sample ID: CUE0188-02
Matrix: Air

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Analyst	Analyzed	Dil Fac
Volatile Organic Compounds	See Attached Report.		0.10		mg		BCG	05/09/11 00:00	1.0

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

TestAmerica Laboratories, Inc.

ANALYTICAL REPORT

PROJECT NO. CUE0188

Terracon

Lot #: H1E060641

Brian Graettinger

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

TESTAMERICA LABORATORIES, INC.

Jamie A. McKinney
Project Manager

May 13, 2011

ANALYTICAL METHODS SUMMARY

H1E060641

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

H1E060641

WO #	SAMPLE#	CLIENT SAMPLE ID	SAMPLED DATE	SAMP TIME
MH3LH	001	CUE0188-01	05/04/11	13:05
MH3LN	002	CUE0188-02	05/04/11	13:05

NOTE(S):

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

PROJECT NARRATIVE
H1E060641

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.

TestAmerica Cedar Falls

Client Sample ID: CUE0188-01

GC/MS Volatiles

Lot-Sample #	H1E060641 - 001	**Work Order #**	MH3LH1AA	**Matrix.....:**	AIR
Date Sampled...:	05/04/2011	**Date Received..:**	05/06/2011		
Prep Date.....:	05/09/2011	**Analysis Time....:**	05/09/2011		
Prep Batch #.....:	1130108	**Analysis Time....:**	14:03		
Dilution Factor.:	1	**Method.....:**	TO-15		

PARAMETER	RESULTS (ppb(v/v))	REPORTING LIMIT (ppb(v/v))	MDL (ppb(v/v))	RESULTS (ug/m3)	REPORTING LIMIT (ug/m3)	MDL (ug/m3)
cis-1,2-Dichloroethene	ND	0.080	0.024	ND	0.32	0.095
1,1-Dichloroethene	ND	0.080	0.013	ND	0.32	0.052
Vinyl chloride	ND	0.080	0.029	ND	0.20	0.074
1,1-Dichloroethane	ND	0.080	0.010	ND	0.32	0.040
1,1,1-Trichloroethane	ND	0.080	0.012	ND	0.44	0.065
Trichloroethene	ND	0.040	0.014	ND	0.21	0.075
trans-1,2-Dichloroethene	ND	0.080	0.020	ND	0.32	0.079
Tetrachloroethene	**0.064 J**	**0.080**	**0.016**	**0.43 J**	**0.54**	**0.11**
1,1,2-Trichloroethane	ND	0.080	0.021	ND	0.44	0.11

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

Qualifiers

J Estimated result. Result is less than RL.

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

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

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

TO-14 rev5MDL_DOD.rpt version 5.002 02/07/2011

TestAmerica Cedar Falls

Client Sample ID: CUE0188-02

GC/MS Volatiles

Lot-Sample #	H1E060641 - 002	**Work Order #**	MH3LN1AA	**Matrix.....:**	AIR

Date Sampled...:	05/04/2011	**Date Received..:**	05/06/2011
Prep Date.....:	05/09/2011	**Analysis Time....:**	05/09/2011
Prep Batch #.....:	1130108	**Analysis Time....:**	14:57
Dilution Factor.:	1	**Method.....:**	TO-15

PARAMETER	RESULTS (ppb(v/v))	REPORTING LIMIT (ppb(v/v))	MDL (ppb(v/v))	RESULTS (ug/m3)	REPORTING LIMIT (ug/m3)	MDL (ug/m3)
1,1,2-Trichloroethane	ND	0.080	0.021	ND	0.44	0.11
Tetrachloroethene	**0.077 J**	**0.080**	**0.016**	**0.52 J**	**0.54**	**0.11**
trans-1,2-Dichloroethene	ND	0.080	0.020	ND	0.32	0.079
Trichloroethene	**0.015 J**	**0.040**	**0.014**	**0.081 J**	**0.21**	**0.075**
1,1,1-Trichloroethane	**0.012 J**	**0.080**	**0.012**	**0.068 J**	**0.44**	**0.065**
1,1-Dichloroethane	ND	0.080	0.010	ND	0.32	0.040
Vinyl chloride	ND	0.080	0.029	ND	0.20	0.074
1,1-Dichloroethene	ND	0.080	0.013	ND	0.32	0.052
cis-1,2-Dichloroethene	ND	0.080	0.024	ND	0.32	0.095

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

Qualifiers

J Estimated result. Result is less than RL.

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

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

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

TO-14 _rev5MDL_DOD.rpt version 5.002 02/07/2011

TestAmerica Cedar Falls

Client Sample ID: INTRA-LAB BLANK

GC/MS Volatiles

Lot-Sample #	H1E100000 - 108B	**Work Order #**	MH59T1AA
Matrix.....:	AIR		
	05/04/2011	**Date Received..:**	05/06/2011
Prep Date.....:	05/09/2011	**Analysis Time....:**	05/09/2011
Prep Batch #.....:	1130108	**Analysis Time....:**	11:20
Dilution Factor.:	1	**Method.....:**	TO-15

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

SURROGATE	PERCENT RECOVERY	LABORATORY CONTROL LIMITS (%)
4-Bromofluorobenzene	113	60 - 140

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

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

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

TO-14 _rev5MDL_DOD.rpt version 5.002 02/07/2011

TestAmerica Cedar Falls

Client Sample ID: CHECK SAMPLE

GC/MS Volatiles

Lot-Sample #	H1E100000 - 108C	**Work Order #**	MH59T1AC
Matrix.....:	AIR		
	05/04/2011	**Date Received..:**	05/06/2011
Prep Date.....:	05/09/2011	**Analysis Time....:**	05/09/2011
Prep Batch #.....:	1130108	**Analysis Time....:**	09:18
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	5.34	33.9	36.2	107	70 - 130
1,1,2-Trichloroethane	5.00	5.38	27.3	29.3	108	70 - 130
trans-1,2-Dichloroethene	5.00	5.66	19.8	22.4	113	70 - 130
Trichloroethene	5.00	5.70	26.9	30.6	114	70 - 130
1,1,1-Trichloroethane	5.00	5.32	27.3	29.0	106	70 - 130
1,1-Dichloroethane	5.00	5.47	20.2	22.1	109	70 - 130
cis-1,2-Dichloroethene	5.00	5.38	19.8	21.3	108	70 - 130
1,1-Dichloroethene	5.00	6.01	19.8	23.8	120	70 - 130
Vinyl chloride	5.00	5.82	12.8	14.9	116	70 - 130

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

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

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

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

TO-14 _rev5MDL_DOD.rpt version 5.002 02/07/2011

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

H1E060641

Canister Samples Chain of Custody Record

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

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Contact Information	**Project Manager:** John brimeyer	**Sampled By:** jmc / drc
Company: tvracon	Phone: 563.355.0702; jfbrimeyer@tvracon.com	1 of 1 COCs
Address: 870 40th Ave	Site Contact:	
City/State/Zip Bettendorf, IA 52722	TAL Contact:	
Phone: 563.355.0702		
FAX: 563.355.4789		
Project Name: Chamberlain Vapor Sampling	**Analysis Turnaround Time**	
Site/location: Waterloo IA	Standard (Specify)	
~~PO#~~ Project # 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 LowLimit	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)
~~SS 407~~ jmc SS-67	5/4/2011	1227	1305	-28.5	-2.5	83	7472	X											
~~SSD 408~~ jmc SSD-67	↓	1227	1305	<-30	-4	02	6669	X											

Sampled by :
Jen Clancy
Dave Clancy

	Temperature (Fahrenheit)		
	Interior	Ambient	
Start			
Stop			

	Pressure (inches of Hg)		
	Interior	Ambient	
Start			
Stop			

1 bx With Custody SEALS
RECEIVED @ AMBIENT TEMP
R.H 5/6/11
1 bx FED EX 420827077230
2 CANS 2 FLOWS

Special Instructions/QC Requirements & Comments:

Canisters Shipped by:	Date/Time:	Canisters Received by: 5-4-11 13:35
Samples Relinquished by: Jen Clancy	Date/Time: 5/4/2011 1330	Received by:
Relinquished by:	Date/Time:	Received by: Rita Hancock 5/6/11 10:30

SUBCONTRACT ORDER

H1E060641

TestAmerica Cedar Falls

CUE0188

SENDING LABORATORY:

TestAmerica Cedar Falls
704 Enterprise Drive
Cedar Falls, IA 50613
Phone: 800-750-2401
Fax: 319-277-2425
Project Manager: Brian C. Graettinger

RECEIVING LABORATORY:

TestAmerica Knoxville
5815 Middlebrook Pike
Knoxville, TN 37921
Phone :(865) 291-3000
Fax: -

TestAmerica OR#: Inhouse

Analysis	Due	Expires	Comments
Sample ID: CUE0188-01 Air	**Sampled: 05/04/11 13:05**	**Air Volume (in L):**	**7472 w/83**
AIR - VOC Scan (TO-15)	05/18/11 12:00	08/02/11 13:05	
AIR - Summa Canister Rental	05/18/11 12:00	09/18/38 13:05	
AIR - Flow Controller Rental	05/18/11 12:00	02/15/85 13:05	
Sample ID: CUE0188-02 Air	**Sampled: 05/04/11 13:05**	**Air Volume (in L):**	**6669 w/02**
AIR - VOC Scan (TO-15)	05/18/11 12:00	08/02/11 13:05	
AIR - Summa Canister Rental	05/18/11 12:00	09/18/38 13:05	
AIR - Flow Controller Rental	05/18/11 12:00	02/15/85 13:05	

BC Graettinger 5/4/11

Released By	Date	Received By	Date
Released By	Date	Received By	Date

Page 1 of 1

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

704 Enterprise Drive • Cedar Falls, IA 50613
800-750-2401 • 319-277-2425 Fax

41606641

Sample Receipt and Temperature Log Form

Client: Terracon Project: _____

City: _____

Date: 5-4-11 Receiver's Initials: CH Time (Delivered): 13:35

Temperature Record:

Cooler ID# (If Applicable)
in boxes

_____ °C / On Ice

Thermometer:

- ☐ IR - 61997671 'B'
- ☐ IR - 90876942 'C'
- ☐ IR - 61854108
- ☐ 22126775

Courier:

- ☐ UPS
- ☐ FedEx
- ☐ FedEx Ground
- ☐ US Postal Service
- ☐ Spee-Dee
- ☐ TA Courier
- ☐ TA Field Services
- ☑ Client
- ☐ Other

☐ Temp Blank

☐ Temperature out of compliance

Custody seals present?
☑ Yes

Custody seals intact?
☑ Yes ☐ No

☐ Non-Conformance report started

Exceptions Noted

- ☑ Sample(s) not received in a cooler.
- ☐ Samples(s) received same day of sampling.
- ☐ Evidence of a chilling process
- ☑ Temperature not taken:

_____

***Refer to SOP CF-SS-01 for Temperature Criteria**

TESTAMERICA KNOXVILLE SAMPLE RECEIPT/CONDITION UPON RECEIPT ANOMALY CHECKLIST

Lot Number: 440-160641-1

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

Quote #: 87209 PM Instructions: _____

Sample Receiving Associate: Rita Hancock Date: 5/6/11

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

Lot Number: *H1E060641*

Initial Can Pressure							Subsequent Dilutions											
Analyst/Date	Tedlar Bag Time	Pbarr (in)	Sample ID	Can #	Pres. upon receipt (-in or + psig)	Adj. Initial Pres. (-in or + psig)	Analyst/Date	I / S	Pbarr (in)	Initial Pres. Pi (in)	Final Pres. Pf (psig)	First InCan Final Pres. Pf (psig)	Second In-can Final Pres. Pf (psig)	Third InCan Final Pres. Pf (psig)	Serial Dilution Can #	Vol (mL)	Final Pres. Pf (psig)	Comments
DF 5-10-11	NA	28.64	MH3LH	7472	-1.4													9204
〃	〃	〃	MH3LN	6669	-0.8													9203

Terracon

Appendix H
Listing of Residences in Expanded Study Area

Appendix H
Residences in Expanded Study Area
Vapor Intrusion Characterization Report
Former Chamberlain Manufacturing Facility

Boston Avenue - Anita Street to Esther Street	
East Side of Street	
436 Boston Avenue	[redacted]
432 Boston Avenue	
424 Boston Avenue	
420 Boston Avenue	
416 Boston Avenue	
410 Boston Avenue	
406 Boston Avenue	
400 Boston Avenue	
Boston Avenue - Esther Street to Hanover Street	
West Side of Street	
327 Boston Avenue	[redacted]
321 Boston Avenue	
317 Boston Avenue	
311 Boston Avenue	
307 Boston Avenue	
301 Boston Avenue	