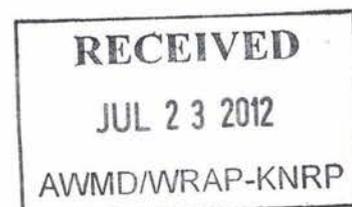


US EPA ARCHIVE DOCUMENT

Vapor Intrusion Interim Measures Quarterly Report No. 4

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

July 19, 2012
Terracon Project No. 07107020



Prepared for:
Chamberlain Manufacturing Corporation
Elmhurst, Illinois

Prepared by:
Terracon Consultants, Inc.
Bettendorf, Iowa

RCRA



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Terracon

Geotechnical ■ Environmental ■ Construction Materials ■ Facilities

July 19, 2012

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



Attention: Mr. Bruce Morrison

Re: Vapor Intrusion Interim Measures Quarterly Report No. 4
Chamberlain Manufacturing Corporation
Former Facility at 550 Esther Street
Waterloo, Iowa
EPA Docket Nos. RCRA-07-2010-002 and CERCLA-07-2010-0005

Dear Mr. Morrison:

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

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

Sincerely,
Terracon Consultants, Inc.


John F. Brimeyer, PE
Environmental Manager


for Dennis R. Sensenbrenner, PG
Senior Associate

Terracon Consultants, Inc. 870 40th Avenue Bettendorf, Iowa 52722
P [563] 355 0702 F [563] 355 4789 terracon.com



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ACRONYMS & ABBREVIATIONS



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

VAPOR INTRUSION INTERIM MEASURES QUARTERLY REPORT NO. 4
CHAMBERLAIN MANUFACTURING CORPORATION
FORMER FACILITY AT
550 ESTHER STREET
WATERLOO, IOWA

Project No. 07107020
July 19, 2012

1.0 INTRODUCTION

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

1.1 Site Conditions

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

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

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

1.2 Previous Assessment Activities

Beginning in 2004, the City conducted an environmental assessment of the site using a USEPA Brownfields Grant. Results of assessment activities identified impacts to soil and groundwater

at the site including a chlorinated solvent plume that extends offsite to the south and west. Site assessment activities were not completed due to funding restrictions of the Brownfields Grant program.

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

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

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

In accordance with the approved VIC Report, Terracon offered vapor sampling to 14 additional Residences located on the west side of the 300 block of Boston Avenue and the east side of the 400 block of Boston Avenue. Terracon also reoffered vapor sampling to those Residences that did not respond to previous submittals and contacted Residences that requested sampling through the USEPA or that had previously authorized sampling, but could not be reached to schedule an appointment. Supplemental subslab, indoor air, and ambient air sampling was conducted at nine Residences between December 12, and December 14, 2011. Analytical results for subslab samples collected from two Residences exceeded subslab screening levels. and as such, additional indoor air samples were collected at these locations on March 23, 2012. Analytical results for supplemental sampling activities were submitted to the USEPA on April 19, 2012.

1.3 Project Objectives

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

2.0 SCOPE OF SERVICES

2.1 Mitigation Determination

In February 2012, The USEPA updated the RSL Summary Table. The February 2012 updates resulted in an increase of the PCE indoor air screening level from 0.41 $\mu\text{g}/\text{m}^3$ to 9.4 $\mu\text{g}/\text{m}^3$. Based on the revisions to the RSL Summary Table and the decision matrix, three Residences were identified with indoor air concentrations that no longer exceed the indoor air screening level. EPA approved shutdown of the mitigation systems installed at Residence No. 37, Residence No. 38, and Residence No. 48. Terracon contacted each Residence and completed system shutdown on May 17, 2012.

2.2 Site Access Protocol

Residences were contacted at least 48 hours in advance of system shut-down to arrange a time and date for proposed activities.

3.0 PROCEDURES FOR SYSTEM DESIGN, INSTALLATION AND COMMISSIONING

Vapor mitigation systems were not designed, installed, or commissioned during the 2nd calendar quarter of 2012.

4.0 COMPLETED SYSTEM INSTALLATIONS

Interim mitigation systems were previously offered to, accepted by, and installed at eight Residences. Interim mitigation systems were subsequently shut off at three Residences. System installations were not completed during the 2nd calendar quarter of 2012.

5.0 INDOOR AIR MONITORING RESULTS

5.1 Sampling Activities

Indoor air sampling was conducted only at Residences 48 and 73 during this calendar quarter. Results of indoor air sampling activities are discussed in more detail below.

The results of initial post-installation monitoring at Residence No. 48, collected in November 2011, continued to exceed indoor air screening levels. During a site visit, Terracon observed that the clean-out plugs were missing from the basement floor drains at Residence No. 48. Terracon replaced the plugs, allowed conditions to stabilize, and collected samples which demonstrated that indoor air concentrations were below screening levels. Because of the reported exceedances of screening levels in the first post-mitigation sample, EPA approval of system shutdown was contingent upon collection of indoor air samples 30-days after the system was turned off. Terracon collected post-system shutdown indoor air samples from Residence No. 48 on June 26, 2012.

Analytical results indicated that the concentration of TCE in indoor air samples collected at Residence No. 73 exceeded indoor air screening levels. Because of the reported exceedances, Terracon reviewed the responses on the Occupied Dwelling Questionnaire with the resident and observed the residence of vapor migration pathways. Possible indoor air sources were not identified; however, an approximate six-inch by six-inch opening, covered by a steel plate, was observed in the basement floor. With the resident's permission, the steel plate was caulked in place. Since the unsealed floor opening represented a possible vapor migration pathway, indoor air resampling was proposed by Terracon and approved by the EPA. Terracon collected supplemental indoor air samples from Residence No. 73 on June 26, 2012.

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

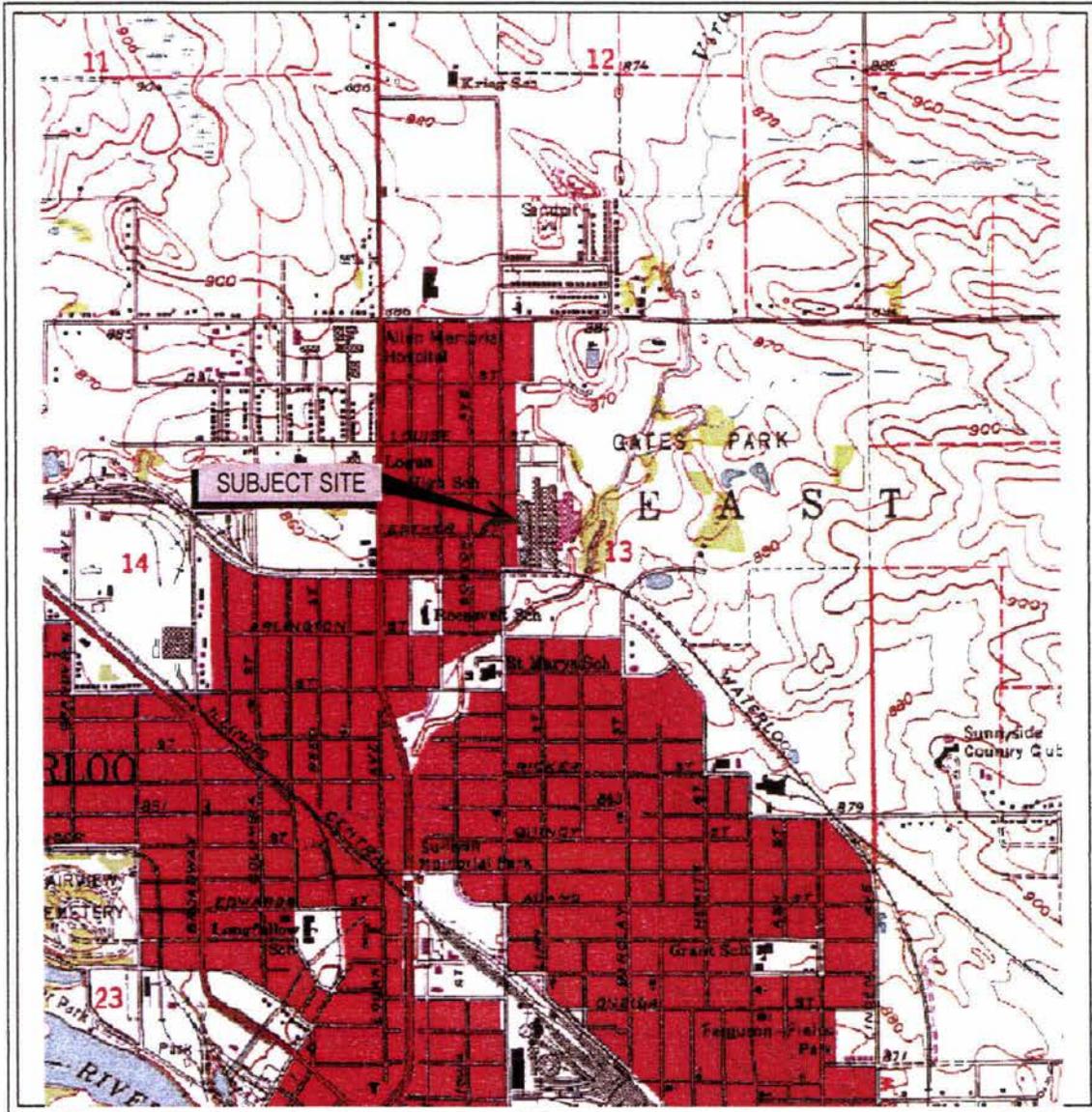
Consistent with VIC activities and in accordance with the USEPA approval letter dated January 6, 2011, indoor air sampling was conducted in the basement and in the lowest occupied living area of each Residence. A finished basement is considered to be an occupied living space. Terracon attempted to position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

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

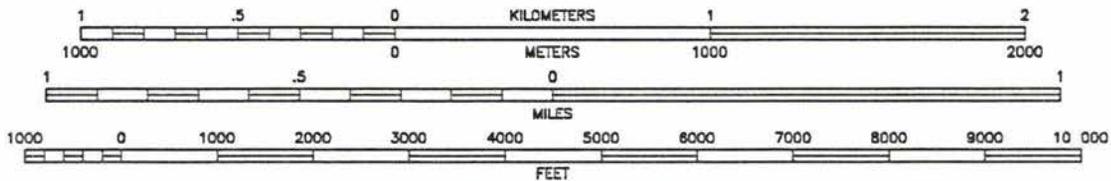
Appendix A – Exhibits

Exhibit 1 – Topographic Vicinity Map

Exhibit 2 – Site Diagram



SCALE 1:24 000



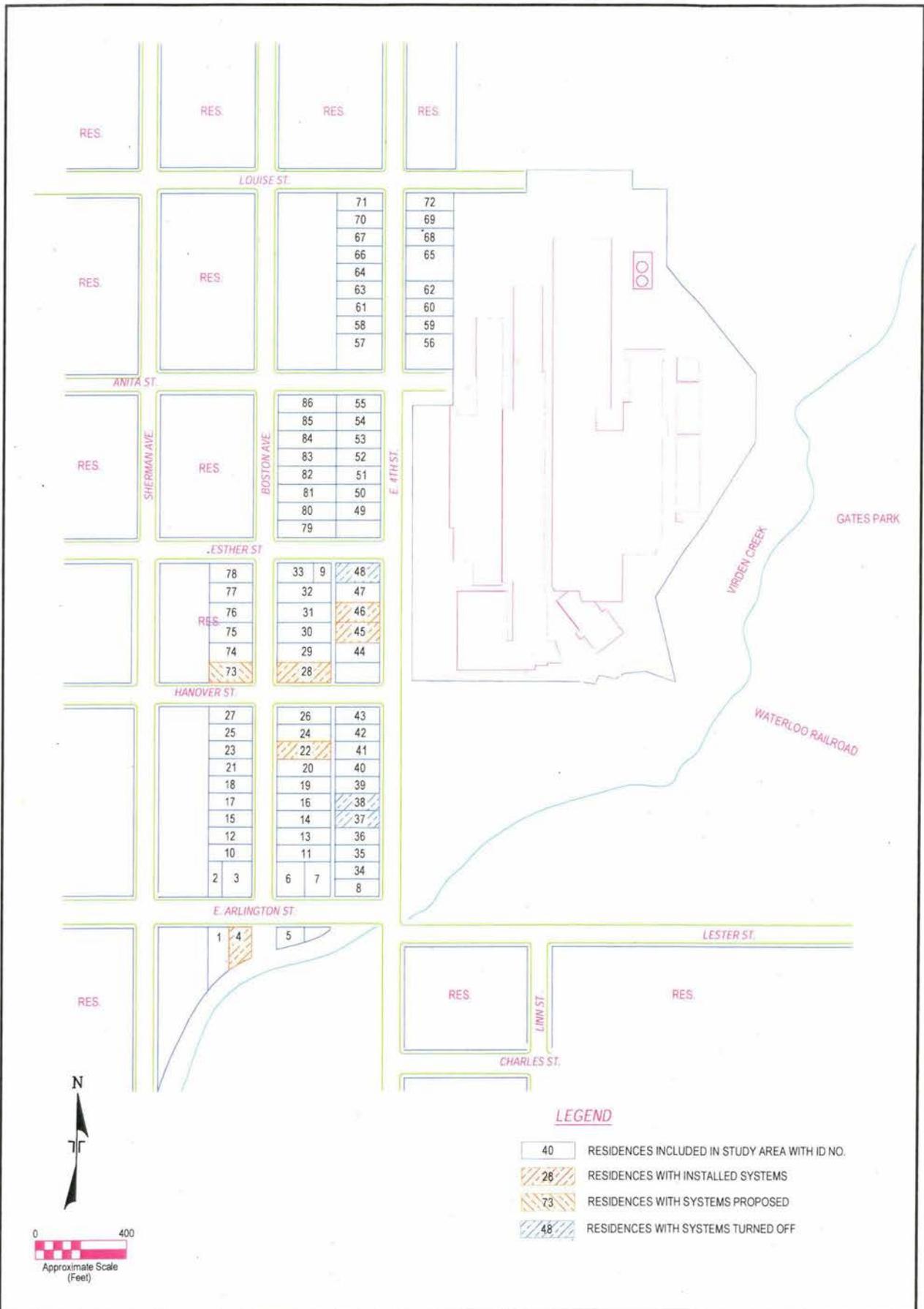
CONTOUR INTERVAL FEET
 NATIONAL GEODETIC VERTICAL DATUM OF 1929
 TOPO LINES REPRESENT 10-FOOT CONTOURS

WATERLOO NORTH QUADRANGLE

7.5 MINUTE SERIES (TOPOGRAPHIC)



Project Mng:	JFB	Project No.	07107020	 Consulting Engineers and Scientists 870 40th Avenue Bettendorf, Iowa 52722	TOPOGRAPHIC VICINITY MAP	FIG. No.
Drawn By:	JFB	Scale:	AS SHOWN		VIIM QUARTERLY REPORT NO 4	1
Checked By:	JFB	File No.	07107020-VIMQR4-FIG1		FORMER CHAMBERLAIN MANUFACTURING FACILITY	
Approved By:	JFB	Date:	11 11 2010		550 ESTHER ST.	
					WATERLOO, IOWA	



REV.	DATE	BY	DESCRIPTION

Terracon
Consulting Engineers and Scientists

870 45th Avenue Waterloo, Iowa 52202
(563) 355-0702 (563) 355-4786

SITE PLAN

VIIM QUARTERLY REPORT NO 4
FORMER CHAMBERLAIN MANUFACTURING FACILITY
550 ESTHER STREET

WATERLOO IOWA

EXHIBIT 2	
PROJECT MGR:	JFB
DRAWN BY:	JFB
APPROV BY:	JFB
SCALE:	AS SHOWN
DATE:	1.14.2012
PROJECT NO.:	07107001
FILE NAME:	07107002-VIIMQRF1
SHEET NO.:	2 OF 2

Appendix B –Tables

Table 1 – Indoor Air Analytical Results – Residence No. 48

Table 2 – Indoor Air Analytical Results – Residence No. 73

TABLE 1
INDOOR AIR ANALYTICAL RESULTS
RESIDENCE NO. 48
VAPOR INTRUSION INTERIM MEASURES QUARTERLY REPORT NO. 4
CHAMBERLAIN MANUFACTURING

Analyte	Units	Pre-Installation			Post Installation		Post Installation		Post Installation		Post Shutdown		Reporting Limit	Analytical Method Detection Limit	Indoor Air Screening Level ²
		IA-48-B	IA-48-B-D	IA-48-MF	IA-B-48-2	IA-1-48-2	IA-B-48-3	IA-1-48-3	IA-B-48-4	IA-1-48-4	IA-B-48-5	IA-1-48-5			
Sample ID	Date	4/29/11	4/29/11	4/29/11	8/30/11	8/30/11	11/16/11	11/16/11	2/10/12	2/10/12	6/26/12	6/26/12			
Tetrachloroethene	µg/m ³	1.7	2.5	0.69	0.81	0.91	0.42 J	0.42 J	0.18 J	0.19 J	0.45 J	0.76	0.54	0.11	9.4 ³
Trichloroethene	µg/m ³	0.18 J	0.2 J	0.16 J	0.095 J	0.27	0.15 J	0.49	<0.21	<0.21	0.080 J	0.11 J	0.215	0.075	0.43 ⁴
Vinyl chloride	µg/m ³	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	0.204 ¹	0.074	0.165
trans-1,2-Dichloroethene	µg/m ³	<0.32	<0.32	<0.32	<0.32	<0.32	<0.32	<0.32	<0.32	<0.32	<0.32	<0.32	0.317	0.079	63
cis-1,2-Dichloroethene	µg/m ³	<0.32	<0.32	<0.32	<0.32	<0.32	<0.32	0.19 J	<0.32	<0.32	<0.32	<0.32	0.317	0.095	63
1,1-Dichloroethene	µg/m ³	<0.32	<0.32	<0.32	<0.32	<0.32	<0.32	<0.32	<0.32	<0.32	<0.32	<0.32	0.317	0.052	210
1,1-Dichloroethane	µg/m ³	<0.32	<0.32	<0.32	<0.32	<0.32	<0.32	<0.32	<0.32	<0.32	<0.32	<0.32	0.324	0.040	1.5
1,1,1-Trichloroethane	µg/m ³	0.13 J	0.12 J	0.12 J	<0.44	0.069 J	<0.44	<0.44	<0.44	<0.44	0.070 J	0.090 J	0.436	0.065	5200
1,1,2-Trichloroethane	µg/m ³	<0.44	<0.44	<0.44	<0.44	<0.44	<0.44	<0.44	<0.44	<0.44	<0.44	<0.44	0.36 ¹	0.11	0.15

NOTES: µg/m³ - micrograms per cubic meter

ppm - parts per million

J - The contaminant is present at a concentration greater than the Analytical Method Detection Limit, but less than the Reporting Limit.

¹ - Indoor Air Screening Level is less than Reporting Limit. The USEPA has approved the use of the Reporting Limit as the screening level for this site due to the technical inability to accurately quantify the detection of these compounds at the current USEPA screening level.

² - Per USEPA approved VIC Work Plan

³ - Revised Action Threshold for PCE per USEPA e-mail dated February 17, 2012

⁴ - Revised per USEPA's letter dated October 27, 2011 and as an accommodation to USEPA without waiver of Chamberlain's concerns expressed in its email to USEPA dated November 14, 2011.

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

TABLE 2
INDOOR AIR ANALYTICAL RESULTS
RESIDENCE NO. 73
VAPOR INTRUSION INTERIM MEASURES QUARTERLY REPORT NO. 4
CHAMBERLAIN MANUFACTURING

Analyte	Units	Sub-Slab		Indoor Air		Reporting Limit	Analytical Method Detection Limit	Sub-Slab Screening Level ²	Indoor Air Screening Level ²	
		Sample ID	SS-73	IA-B-73	IA-B-73 Duplicate					Indoor Air
		Date	12/14/2011	3/23/2012	3/23/2012					6/26/2012
Tetrachloroethene	µg/m ³		2.9	0.26	0.34	0.28	0.54	0.11	94 ³	9.4 ³
Trichloroethene	µg/m ³		85	1.2	1.2	0.51	0.215	0.075	4.3 ⁴	0.43 ⁴
Vinyl chloride	µg/m ³		<0.2	<0.2	<0.2	<0.2	0.204 ¹	0.074	1.65	0.165
trans-1,2-Dichloroethene	µg/m ³		<0.32	<0.32	<0.32	<0.32	0.317	0.079	630	63
cis-1,2-Dichloroethene	µg/m ³		<0.32	<0.32	<0.32	<0.32	0.317	0.095	630	63
1,1-Dichloroethene	µg/m ³		<0.32	<0.32	<0.32	<0.32	0.317	0.052	2100	210
1,1-Dichloroethane	µg/m ³		0.080 J	<0.32	<0.32	<0.32	0.324	0.040	15	1.5
1,1,1-Trichloroethane	µg/m ³		8.3	0.11	0.11	0.12	0.436	0.065	52000	5200
1,1,2-Trichloroethane	µg/m ³		<0.44	<0.44	<0.44	<0.44	0.36 ¹	0.11	1.5	0.15

NOTES: µg/m³ - micrograms per cubic meter

ppm - parts per million

J - The contaminant is present at a concentration greater than the Analytical Method Detection Limit, but less than the Reporting Limit.

¹ - Indoor Air Screening Level is less than Reporting Limit. The USEPA has approved the use of the Reporting Limit as the screening level for this site due to the technical inability to accurately quantify the detection of these compounds at the current USEPA screening level.

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

Appendix C – Analytical Reports

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: CVG0207
TestAmerica Sample Delivery Group: DRAFT
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:
7/5/2012 1:44:05 PM
Brian C. Graettinger
Operations Manager
brian.graettinger@testamericainc.com

Designee for
DRAFT REPORT
DRAFT
DRAFT

LINKS

Review your project
results through
TotalAccess

Have a Question?



Visit us at:
www.testamericainc.com

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

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

Case Narrative

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

TestAmerica Job ID: CVG0207
SDG: DRAFT

Job ID: CVG0207

Laboratory: TestAmerica Cedar Falls

Narrative

Analyzed by TestAmerica - Knoxville, TN.



Sample Summary

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

TestAmerica Job ID: CVG0207
SDG: DRAFT

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
CVG0207-01	IA-B-73-2	Air	06/26/12 16:09	06/26/12 17:20
CVG0207-02	IA-B-48-5	Air	06/26/12 16:28	06/26/12 17:20
CVG0207-03	IA-1-48-5	Air	06/26/12 16:34	06/26/12 17:20



Client Sample Results

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

TestAmerica Job ID: CVG0207
 SDG: DRAFT



Client Sample ID: IA-B-73-2

Lab Sample ID: CVG0207-01

Date Collected: 06/26/12 16:09

Matrix: Air

Date Received: 06/26/12 17:20

Sample Container: Summa Canister

Method: EPA TO-15 - DRAFT: 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	06/29/12 16:49	1.0

Client Sample ID: IA-B-48-5

Lab Sample ID: CVG0207-02

Date Collected: 06/26/12 16:28

Matrix: Air

Date Received: 06/26/12 17:20

Sample Container: Summa Canister

Method: EPA TO-15 - DRAFT: 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	06/29/12 17:42	1.0

Client Sample ID: IA-1-48-5

Lab Sample ID: CVG0207-03

Date Collected: 06/26/12 16:34

Matrix: Air

Date Received: 06/26/12 17:20

Sample Container: Summa Canister

Method: EPA TO-15 - DRAFT: 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	06/29/12 18:39	1.0



TestAmerica Cedar Falls
 Client Sample ID: IA-B-73-2
 GC/MS Volatiles

Lot-Sample # H2F280439 - 001 Work Order # MVC6A1AA Matrix.....: AIR
 Date Sampled...: 06/26/2012 Date Received...: 06/28/2012
 Prep Date.....: 06/29/2012 Analysis Time....: 06/29/2012
 Prep Batch #.....: 2181137 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)
1,1-Dichloroethene	ND	0.080	0.013	ND	0.32	0.052
trans-1,2-Dichloroethene	ND	0.080	0.020	ND	0.32	0.079
cis-1,2-Dichloroethene	ND	0.080	0.024	ND	0.32	0.095
Tetrachloroethene	0.042 J	0.080	0.016	0.28 J	0.54	0.11
1,1,2-Trichloroethane	ND	0.080	0.021	ND	0.44	0.11
Vinyl chloride	ND	0.080	0.029	ND	0.20	0.074
1,1-Dichloroethane	ND	0.080	0.010	ND	0.32	0.040
1,1,1-Trichloroethane	0.021 J	0.080	0.012	0.12 J	0.44	0.065
Trichloroethene	0.095	0.040	0.014	0.51	0.21	0.075

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

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

TestAmerica Cedar Falls
 Client Sample ID: IA-B-48-5
 GC/MS Volatiles

Lot-Sample # H2F280439 - 002 Work Order # MVC6D1AA Matrix.....: AIR

Date Sampled...: 06/26/2012 Date Received..: 06/28/2012

Prep Date.....: 06/29/2012 Analysis Time....: 06/29/2012

Prep Batch #....: 2181137 Analysis Time....: 17:42

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)
1,1,1-Trichloroethane	0.013 J	0.080	0.012	0.070 J	0.44	0.065
Trichloroethene	0.015 J	0.040	0.014	0.080 J	0.21	0.075
Vinyl chloride	ND	0.080	0.029	ND	0.20	0.074
1,1-Dichloroethane	ND	0.080	0.010	ND	0.32	0.040
1,1,2-Trichloroethane	ND	0.080	0.021	ND	0.44	0.11
Tetrachloroethene	0.066 J	0.080	0.016	0.45 J	0.54	0.11
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-Dichloroethene	ND	0.080	0.013	ND	0.32	0.052

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

Qualifiers

J Estimated result. Result is less than RL.

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

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

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



TestAmerica Cedar Falls
 Client Sample ID: IA-1-48-5
 GC/MS Volatiles

Lot-Sample # H2F280439 - 003 Work Order # MVC6G1AA Matrix.....: AIR
 Date Sampled...: 06/26/2012 Date Received...: 06/28/2012
 Prep Date.....: 06/29/2012 Analysis Time....: 06/29/2012
 Prep Batch #.....: 2181137 Analysis Time....: 18:39
 Dilution Factor.: 1 Method.....: TO-15

PARAMETER	RESULTS (ppb(v/v))	REPORTING LIMIT (ppb(v/v))	MDL (ppb(v/v))	RESULTS (ug/m3)	REPORTING LIMIT (ug/m3)	MDL (ug/m3)
1,1-Dichloroethene	ND	0.080	0.013	ND	0.32	0.052
trans-1,2-Dichloroethene	ND	0.080	0.020	ND	0.32	0.079
cis-1,2-Dichloroethene	ND	0.080	0.024	ND	0.32	0.095
Tetrachloroethene	0.11	0.080	0.016	0.76	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
Trichloroethene	0.020 J	0.040	0.014	0.11 J	0.21	0.075
1,1,1-Trichloroethane	0.017 J	0.080	0.012	0.090 J	0.44	0.065

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)

TestAmerica Cedar Falls
 Client Sample ID: INTRA-LAB BLANK
 GC/MS Volatiles

Lot-Sample # H2F290000 - 137B Work Order # MVEED1AA Matrix.....: AIR

Prep Date.....: 06/26/2012 Date Received..: 06/28/2012
 Prep Date.....: 06/29/2012 Analysis Time....: 06/29/2012
 Prep Batch #.....: 2181137 Analysis Time....: 15:07
 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-Dichloroethane	ND	0.080	0.010	ND	0.32	0.040
1,1,1-Trichloroethane	ND	0.080	0.012	ND	0.44	0.065
Vinyl chloride	ND	0.080	0.029	ND	0.20	0.074
Trichloroethene	ND	0.040	0.014	ND	0.21	0.075
1,1,2-Trichloroethane	ND	0.080	0.021	ND	0.44	0.11
Tetrachloroethene	ND	0.080	0.016	ND	0.54	0.11
cis-1,2-Dichloroethene	ND	0.080	0.024	ND	0.32	0.095
trans-1,2-Dichloroethene	ND	0.080	0.020	ND	0.32	0.079
1,1-Dichloroethene	ND	0.080	0.013	ND	0.32	0.052

SURROGATE	PERCENT RECOVERY	LABORATORY CONTROL LIMITS (%)
4-Bromofluorobenzene	95	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 Kno. # *H2P280439*
 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: <i>John Brimeyer</i>		Sampled By: <i>Rob Bergman</i>		1 of 1 COCs													
Company: <i>Terracon</i>		Phone: <i>563-355-0702</i>		Site Contact:															
Address: <i>870 40th Ave.</i>		TAL Contact:																	
City/State/Zip: <i>Reitersburg, IA 52732</i>																			
Phone: <i>563-355-0702</i>																			
FAX:																			
Project Name: <i>Chamberlain Mfg.</i>		Analysis Turnaround Time																	
Site/location: <i>Waterloo, IA</i>		Standard (Specify) <input checked="" type="checkbox"/>																	
PO #		Rush (Specify)																	
Sample Identification	Sample Date(s)	Time Start	Time Stop	Canister Vacuum In Field, "Hg (Start)	Canister Vacuum In Field, "Hg (Stop)	Flow Controller ID	Canister ID	TO-15	TO-14A	EPA 3C	EPA 25C	ASTM D-1848	Other (Please specify in notes section)	Indoor Air	Ambient Air	Soil Gas	Landfill Gas	Other (Please specify in notes section)	
<i>IA-B-73-2</i>	<i>6-25-12 6-26-12</i>	<i>1614</i>	<i>1609</i>	<i>-29.0</i>	<i>-4.5</i>	<i>K491</i>	<i>STL-Kno #1372</i>	<input checked="" type="checkbox"/>						<input checked="" type="checkbox"/>					
<i>IA-B-48-5</i>	<i>6-25-12 6-26-12</i>	<i>1643</i>	<i>1628</i>	<i>-29.0</i>	<i>-3.5</i>	<i>K420</i>	<i>6122</i>	<input checked="" type="checkbox"/>						<input checked="" type="checkbox"/>					
<i>IA-1-48-5</i>	<i>6-25-12 6-26-12</i>	<i>1655</i>	<i>1634</i>	<i>-26.0</i>	<i>-2.0</i>	<i>K482</i>	<i>2590</i>	<input checked="" type="checkbox"/>						<input checked="" type="checkbox"/>					<i>6580</i>
Sampled by: <i>Rob Bergman</i>		Temperature (Fahrenheit)																	
		Interior		Ambient															
		Start																	
		Stop																	
		Pressure (inches of Hg)																	
		Interior		Ambient															
		Start																	
		Stop																	
Special Instructions/QC Requirements & Comments:																			
<i>email results to jfbrimeyer@terracon.com</i>																			
Canisters Shipped by: <i>Dropped e Test America</i>		Date/Time: <i>6/26/12</i>		Canisters Received by: <i>Rob Bergman</i>		Date/Time: <i>6/26/12 1730</i>													
Samples Relinquished by: <i>Rob Bergman</i>		Date/Time: <i>6/26/12 1720</i>		Received by: <i>Rob Bergman</i>		Date/Time: <i>6/26/12 940</i>													
Relinquished by:		Date/Time:		Received by:		Date/Time:													

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7/5/2012



TESTAMERICA KNOXVILLE SAMPLE RECEIPT/CONDITION UPON RECEIPT ANOMALY CHECKLIST

Lot Number: H2F280439

Review Items	Yes	No	NA	If No, what was the problem?	Comments/Actions Taken
1. Do sample container labels match COC? (IDs, Dates, Times)	<input checked="" type="checkbox"/>			<input checked="" type="checkbox"/> 1a Do not match COC <input type="checkbox"/> 1b Incomplete information <input type="checkbox"/> 1c Marking smeared <input type="checkbox"/> 1d Label torn <input type="checkbox"/> 1e No label <input type="checkbox"/> 1f COC not received <input type="checkbox"/> 1g Other:	<u>4A</u> <u>1A FA-1-48-5 container ID on COC</u> <u>is 2590, it should be 6590 log by</u> <u>container ID #</u>
2. Is the cooler temperature within limits? (> freezing temp. of water to 6°C, VOST: 10°C)	<input checked="" type="checkbox"/>			<input type="checkbox"/> 2a Temp Blank = _____ <input type="checkbox"/> 2b Cooler Temp = _____ <input type="checkbox"/> 2c Cooling initiated for recently collected samples, ice present.	
3. Were samples received with correct chemical preservative (excluding Encore)?			<input checked="" type="checkbox"/>	<input type="checkbox"/> 3a Sample preservative = _____	
4. Were custody seals present/intact on cooler and/or containers?			<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/> 4a Not present <input type="checkbox"/> 4b Not intact <input type="checkbox"/> 4c Other:	
5. Were all of the samples listed on the COC received?	<input checked="" type="checkbox"/>			<input type="checkbox"/> 5a Samples received-not on COC <input type="checkbox"/> 5b Samples not received-on COC	
6. Were all of the sample containers received intact?	<input checked="" type="checkbox"/>			<input type="checkbox"/> 6a Leaking <input type="checkbox"/> 6b Broken	
7. Were VOA samples received without headspace?			<input checked="" type="checkbox"/>	<input type="checkbox"/> 7a Headspace (VOA only)	
8. Were samples received in appropriate containers?	<input checked="" type="checkbox"/>			<input type="checkbox"/> 8a Improper container	
9. Did you check for residual chlorine, if necessary?			<input checked="" type="checkbox"/>	<input type="checkbox"/> 9a Could not be determined due to matrix interference	
10. Were samples received within holding time?	<input checked="" type="checkbox"/>			<input type="checkbox"/> 10a Holding time expired	
11. For rad samples, was sample activity info. provided?			<input checked="" type="checkbox"/>	<input type="checkbox"/> Incomplete information	
12. For 1613B water samples is pH < 9?			<input checked="" type="checkbox"/>	If no, was pH adjusted to pH 7 - 9 with sulfuric acid?	
13. Are the shipping containers intact?	<input checked="" type="checkbox"/>			<input type="checkbox"/> 13a Leaking <input type="checkbox"/> 13b Other:	
14. Was COC relinquished? (Signed/Dated/Timed)	<input checked="" type="checkbox"/>			<input type="checkbox"/> 14a Not relinquished	
15. Are tests/parameters listed for each sample?	<input checked="" type="checkbox"/>			<input type="checkbox"/> 15a Incomplete information	
16. Is the matrix of the samples noted?	<input checked="" type="checkbox"/>			<input type="checkbox"/> 15a Incomplete information	
17. Is the date/time of sample collection noted?	<input checked="" type="checkbox"/>			<input type="checkbox"/> 15a Incomplete information	
18. Is the client and project name/# identified?	<input checked="" type="checkbox"/>			<input type="checkbox"/> 15a Incomplete information	
19. Was the sampler identified on the COC?	<input checked="" type="checkbox"/>			<input type="checkbox"/> 19a Other	
Quote #: <u>87209</u> PM Instructions: _____					

Sample Receiving Associate: [Signature] Date: 4/20/12

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