APRIL 2014 SEMI-ANNUAL VOLUNTARY REMEDIATION PLAN PROGRESS REPORT

139 Brampton Road

Savannah, Chatham County, Georgia

HSI Site No. 10208

Prepared on behalf of:

Dale Hendrix, Sr., Trustee under Trust for Benefit of Brenda Heisey
c/o Dwight Feemster, Esq
Duffy Feemster, LLC
and
Rheem Manufacturing Company
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Prepared by:

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April 30, 2014

Project No. 6121-09-0220

"PRIVILEGED AND CONFIDENTIAL"

April 30, 2014

Mr. Derrick Williams
Program Manager
Hazardous Sites Response Program
Georgia Environmental Protection Division
2 Martin Luther King, Jr. Drive, SE
Suite 1462 East Floyd Tower
Atlanta, Georgia 30334

Subject: **April 2014 Semi-Annual Voluntary Remediation Plan Progress Report**
139 Brampton Road (Former Rheem Manufacturing)
Savannah, Chatham County, Georgia
HSI Site No. 10208 Tax Parcel ID#1-0720-01-002

Dear Mr. Williams:

On behalf of Dale Hendrix, Sr., Trustee under Trust for Benefit of Brenda Heisey, and Rheem Manufacturing Company, AMEC Environment & Infrastructure, Inc. (AMEC) respectfully submits this Progress Report No.5 for the 139 Brampton Road property in Savannah, Chatham County, Georgia (HSI Site No. 10208, Tax Parcel ID#1-0720-01-002). This progress report is required by the Voluntary Remediation Program (VRP) statute and requested by the Georgia Environmental Protection Division (EPD) in their comment letter dated October 4, 2011.

This report is for the exclusive use of Mr. Dale Hendrix, Sr., Trustee under Trust for Benefit of Brenda Heisey and Rheem Manufacturing Company, and for regulatory submittal. If you have any questions and/or comments regarding the material presented in the report, please contact Mr. Chuck Ferry (404) 817-0107 or by email at chuck.ferry@amec.com.

Sincerely,

AMEC Environment & Infrastructure, Inc.

Tyler Boyles
Project Geologist

Charles T. Ferry, P.E.
Senior Principal Engineer

cc: Ms. Hollister A. Hill, Troutman Sanders, LLP
Ms. Barbara Ann Cook, Rheem Manufacturing Company
Mr. Dwight Feemster, Duffy & Feemster, LLC
Mr. Chuck Steffens, Rheem Manufacturing Company

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TABLE OF CONTENTS

1.0 PROJECT SUMMARY 1

2.0 ACTIONS TAKEN SINCE LAST SUBMITTAL 3

2.1 ADJACENT PROPERTY ACCESS 3
2.2 ADDITIONAL ASSESSMENT ACTIVITIES 3
2.2.1 Soil Sampling and Testing 3
2.2.2 Groundwater Sampling and Testing 4
2.2.3 Groundwater Elevation 6
2.2.4 Fate and Transport Modeling 6
2.3 ADDITIONAL QUALIFYINHG PROPERTIES 9
2.3 SUBMITTAL OF REMEDIATION PLAN AND COST ESTIMATE 9

3.0 SCHEDULE AND FUTURE SUBMITTALS 10

4.0 PROFESSIONAL ENGINEER CERTIFICATION STATEMENT 11

LIST OF TABLES

Table 1 Summary of Soil Test Results
Table 2 Summary of Groundwater Test Results
Table 3 Groundwater Elevation Data
Table 4 Gantt Schedule

LIST OF FIGURES

Figure 1 Horizontal Extent of Lead Impacted Soil
Figure 2 Summary of Groundwater Test Results Used in Modeling
Figure 3 Potentiometric Surface Map (March 2014)
Figure 4 Summary of Historic (Pre 2014) Groundwater Test Results
Figure 5 Summary of Soil Test Results Other Than Lead

LIST OF APPENDICES

Appendix A Laboratory Results for March 2014 Sampling Event
Appendix B Boring Logs and Monitoring Well Construction Diagrams
Appendix C Field Sampling Data Sheets
Appendix D Fate and Transport Model
Appendix E Soil Remediation Plan
Attachment E-1 Figures
Appendix F PE Supporting Documentation

1.0 PROJECT SUMMARY

The 139 Brampton Road Site ("Site") is an approximately 11.1-acre parcel of land located in Savannah, Chatham County, Georgia. Historically, the Site was developed in the early 1960s for the reconditioning and manufacturing of drums. Site operations continued in a similar manner by various entities until the mid-1970s when drum reconditioning activities were reported to have stopped. However, the drum manufacturing operation continued at the Site from the mid-1970s until the early 1990s. Since 1994 the Site has been occupied by various commercial tenants for warehousing and office space.

The Georgia EPD approved a Voluntary Remediation Plan Application (VRPA) with conditions and comments presented in two letters dated October 4, 2011 and accepted the 139 Brampton Road property as a "qualifying property" in the Voluntary Remediation Program (VRP).

The subject property is commercially developed with various structures which are currently leased for warehousing of wood construction products and office space. The subject property is zoned heavy industrial and is located in close proximity to the Georgia Port Authority – Garden City Terminal Container Port in Savannah, Georgia. The property has been utilized for commercial/industrial purposes for approximately five decades.

The property has been the subject of a number of environmental assessments conducted between 1985 and 2009, which revealed the presence of volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs) and metals in soil and groundwater. The property was listed on the Hazardous Site Inventory (HSI) in June 1994 as site number 10208 due to the presence of lead in soil and tetrachloroethene in groundwater.

In its October 4, 2011 VRP approval letter, EPD requested that adjacent properties, owned by McDonald Ventures LLC (to the north) and Norfolk Southern Railway Company (to the east/south), be included as additional qualifying properties based on historic sampling results. Since including these properties as qualifying properties would have been based on historic sampling results over 13 years old and would not have been based on current information as assumed in EPD's VRP approval letter, the Trustee and Rheem contacted representatives of both McDonald Ventures and Norfolk Southern to negotiate access agreements to perform additional current assessments on each of their properties and to alert them that a Uniform Environmental Covenant for their property may be needed. Additional assessments have been

performed to update conditions on these properties and the results will factor into whether one or both will be added as qualifying properties.

Results of the additional investigation on the property to the north (McDonald Ventures) was documented in the April 2013 (3rd) Semi-Annual Report. Results of additional assessment on the property to the south and east (Norfolk Southern) during this 5th Semi-Annual Report Period are presented herein.

This Semi-Annual Voluntary Remediation Plan Progress Report No. 5 was prepared in accordance with the Voluntary Remediation Plan (VRP) for the 139 Brampton Road Site, HSI Site No. 10208/Tax Parcel ID#1-0720-01-002.

2.0 ACTIONS TAKEN SINCE LAST SUBMITTAL

The activities that have been performed since submittal of the Semi-Annual Voluntary Remediation Plan Progress Report No. 4 dated October 30, 2013 are described in the following sections.

2.1 ADJACENT PROPERTY ACCESS

The Trustee and Rheem finalized and executed an Agreement for Access with Norfolk Southern Railway Company dated October 29, 2013 which allowed the performance of additional assessment on the property to the south and east during this 5th Semi-Annual Report Period.

2.2 ADDITIONAL ASSESSMENT ACTIVITIES

The additional assessment activities completed during the most recent six-month period include further off-site horizontal delineation of soil impacts on the Norfolk Southern property to the south which included the installation of two soil test borings, and off-site groundwater characterization on the Norfolk Southern property to the east and south, which included the installation of four groundwater monitoring wells and sampling three existing monitoring wells. The field work was conducted between February 11 and 13, 2014. The locations of the borings and wells are presented on Figures 1 and 2.

All downhole equipment, tools and materials were decontaminated prior to use and between each boring to minimize the potential for introduced and/or cross contamination. Decontamination of equipment and appropriate sampling protocols were observed throughout the drilling operation to preclude the introduction of contaminants. The field work was supervised by environmental professionals and the work was conducted under the provisions of our Health and Safety Plan.

2.2.1 Soil Sampling and Testing

Based on historic soil sampling results obtained in October 1999 and March 2000, shallow lead impacts had been identified on the Norfolk Southern property at concentrations above the Soil Delineation Concentration Criteria of 75 mg/kg. To further delineate the lateral extent of shallow lead impacts, two soil test borings (HA-NS-01 and HA-NS-02) were advanced on the adjacent Norfolk Southern property to the south using a hand auger. The shallow hand auger borings were extended to depths of approximately 4 feet below ground surface.

One soil sample was collected from each boring at a depth of 1 foot below ground surface. The collected soil samples were placed into pre-cleaned, laboratory-provided containers, packed on ice and transported to Xenco Laboratories (Xenco) in Norcross, Georgia for testing. The soil samples were analyzed for lead (EPA Method 6010). A summary of the soil testing results is presented in the attached Table 1 and are graphically depicted on Figure 1. Complete laboratory reports along with quality control documentation can be found in Appendix A.

The result of the additional off-site soil testing on the Norfolk Southern property identified the presence of lead in boring HA-NS-01 at a concentration of 10.5 mg/kg and in boring HA-NS-02 at 13.5 mg/kg which are below the Soil Delineation Concentration Criteria of 75 mg/kg. As such, based on the existing soil data, the shallow lead impacts have been adequately delineated to the Soil Delineation Concentration Criteria on the off-site property to the south (Norfolk Southern).

The delineation of lead in soil impacts was completed on the McDonald Ventures property as documented in the 3rd Semi-Annual Report. Therefore, delineation of soil impacts is complete for the Site, both on the 139 Brampton Road parcel and off-site on the adjacent properties..

2.2.2 Groundwater Sampling and Testing

In order to further assess off-site groundwater conditions, AMEC located monitoring wells GW-4 and GW-5 installed by Golder Associates in April 1998 and GW-10 installed in October 1999 on the Norfolk Southern property to the south. The wells were found to be in good condition and were sampled as part of this field effort. Additionally, AMEC also installed four groundwater monitoring wells (EW-4 through EW-7) in February 2014 on the Norfolk Southern property. Boring logs and well construction details are included in Appendix B.

EW-4 was installed in a boring advanced with hollow-stem augers on the Norfolk Southern property to the south to further define the lateral extent of the plume boundary in the sidegradient direction. The well was constructed using 2-inch diameter PVC pipe with the lower 10 feet consisting of 0.01-inch slotted PVC screen. A filter pack consisting of bagged quartz sand were placed around the well screen to approximately two feet above the screen. Approximately two feet of hydrated bentonite was placed above the sand pack as a seal. The remainder of the borehole annulus was filled to the surface with cement grout. The monitoring well, EW-4, was completed at the surface with a locking cap and flush-mounted well cover.

Monitoring wells EW-5, EW-6 and EW-7 were installed on the adjacent Norfolk Southern property to the east in an attempt to define the lateral extent of the plume boundary in the downgradient direction. Due to access limitations and constraints, the wells were installed with hand augers. The wells were constructed using 2-inch diameter PVC pipe with the lower 5 feet consisting of 0.01-inch slotted PVC screen. A filter pack consisting of bagged quartz sand was placed around the well screen to approximately one foot above the screen. An approximate one foot layer of hydrated bentonite was placed above the sand pack as a seal. The remainder of the borehole annulus was filled to the surface with cement grout. The monitoring wells were completed with a “stick-up” locking steel well cover.

At least 24 hours following installation, EW-4, EW-5, EW-6 and EW-7 were developed to remove sediment and allow representative formation water to more easily enter the well. The existing off-site monitoring wells GW-4, GW-5 and GW-10, located on the Norfolk Southern property to the south were also purged and sampled during this progress period. In addition, the on-Site monitoring well, GW-7, was also purged and sampled to recheck for the low levels of xylenes identified in March 2012. Groundwater quality parameters including temperature, pH, specific conductance and turbidity were monitored and are summarized on the attached field data sheets in Appendix D. Well development continued until these parameters had stabilized and a minimum of three to five well volumes of water were removed. Samples were collected immediately following purging/development using the “straw” method and were placed in containers provided by the laboratory, packed on ice and were maintained under chain-of-custody control from the time they were collected until they were released to the laboratory.

The seven off-site groundwater samples were tested for the presence of VOCs (EPA Method 8260B) and the on-Site groundwater sample from GW-7 was tested for the presence of xylenes (EPA Method 8260B). The results of the current monitoring event are summarized on the attached Table 2 and graphically depicted on Figure 2. Complete laboratory analysis reports can be found in Appendix A.

No VOCs were detected in the off-site wells EW-4, EW-5, GW-4 and GW-5. Several VOCs including tetrachloroethene (PCE), trichloroethene (TCE), 1,1 dichloroethene, and/or 1,1 dichloroethane, were detected in the off-site wells EW-6, EW-7 and GW-10. With the exception of 1,1 dichloroethene in EW-7, the chlorinated VOCs were all detected at concentrations below the default Type 1 RRS. 1,1 Dichloroethene was detected in EW-7 at a concentration of 10.7 micrograms per liter (ug/L) which is slightly above the default Type 1 RRS and MCL of 7 ug/L.

Xylenes were not detected in the on-Site well GW-7.

2.2.3 Groundwater Elevation

Following well installation, the additional off-site wells installed by AMEC were surveyed, and all of the existing on-Site and off-site wells were resurveyed using a Trimble R5800 GPS Unit to determine their elevations relative to the National Geodetic Vertical Datum (NGVD). On February 13, 2014, the depth to groundwater from the top of each well casing was measured by AMEC in all monitoring wells on-Site and off-site. The water level data, along with well construction data are tabulated in Table 3. The groundwater depths were used to develop the groundwater elevation contours presented on the attached potentiometric surface map (see Figure 3). The groundwater elevations and the interpreted groundwater flow direction indicate that groundwater flow across the Site is generally east-southeast towards the Dundee Canal, consistent with previous findings.

2.2.4 Fate and Transport Modeling

As documented to EPD in various submittals, the Site and surrounding properties are zoned heavy industrial and are connected to a municipal water supply source. In 2009, AMEC assessed the potential presence of drinking water wells in the area of the Site using publicly available sources of pertinent information. The locations of twenty-one potential groundwater wells, nineteen of which are industrial water supply wells, were identified within a two-mile radius of the Site. However, based on the demonstrated groundwater flow direction to the east-southeast, no drinking water wells exist in the down gradient flow path of the contaminant plume.

Additionally, the Site lies in a hydrogeologic setting where groundwater typically consists of an unconfined surficial aquifer, underlain by an upper confining unit and the Floridan aquifer. Regional hydrogeologic conditions at the Site and surrounding areas indicate the first potable water is found in the Upper Floridan aquifer at least 300 feet below the site elevation. This aquifer is separated by an approximately 200 feet thick confining unit of the Floridian aquifer.

Under the VRP, "point of exposure" means the nearest of the closest existing down gradient drinking water supply well, the likely nearest future location of a drinking water well, or a hypothetical point of drinking water exposure located at a distance of 1000 feet down gradient from the delineated site contamination. Because there is no evidence of a potential drinking water source in the down gradient flow path of the contaminant plume, the relevant “point of

exposure" for modeling purposes under the VRP Act is a hypothetical point of drinking water exposure located at a distance of 1,000 feet downgradient of the delineated site contamination. However, a surface water body, Dundee Canal, is located approximately 1,100 feet southeast from the estimated source location, and it acts as a physical barrier to further migration of dissolved phase contamination. As such, the Dundee Canal was used as the location of the nearest down gradient potential receptor for the purpose of modeling contaminant transport. There is no evidence to suggest that the Dundee Canal is used as a drinking water source.

As documented in the April 30, 2012 (1st) Semi-Annual Report, the BIOCHLOR software was utilized to model the fate and transport of impacted groundwater in the shallow aquifer and the potential impact to the downgradient Dundee Canal. The preliminary model results conservatively predicted the groundwater plume emanating from the Site would have reached Dundee Canal at a concentration of 4.3 µg/L (PCE, TCE and DCE) in 2012.

In this report, AMEC has updated the previous fate and transport model utilizing the additional off-site data collected during this progress period to further substantiate the predicted plume migration toward the Dundee Canal.

The source of dissolved chlorinated volatiles in groundwater at the Site is assumed to be in close proximity to the former monitoring well W-4 which exhibited the highest concentration of PCE of 1,800 µg/l on November 6, 1987. However, subsequent analytical results for W-4 and EW-2 (located in close proximity to W-4) reveal a steady decline in PCE concentrations (W-4 at 150 µg/l in 1997 and EW-2 at 76 µg/l in 2012) which indicate that an ongoing source of groundwater contamination does not exist. A summary of the historic groundwater testing results along with the well locations is included on Figure 4.

In addition, numerous soil samples have been collected at the Site which did not reveal the potential presence of a continuing source for VOC contamination in groundwater. A summary of previous soil testing results is illustrated on Figure 5.

In order to calibrate the model to the field-observed concentrations of PCE, it was necessary to consider the concentrations in the source zone represented by W-4, which exhibited the highest historical concentration of PCE, for some time prior to the first reporting of PCE in 1987. As previously documented, the Site was developed in 1963 and operated as a drum reconditioning facility until 1974 and a drum manufacturing facility until the early 1990s. Although a release to

soil and groundwater was first discovered at the Site in 1987, it is reasonable to conclude that a release could have occurred years before that time.

The model was further calibrated by inputting known parameters such as hydraulic conductivity and hydraulic gradient and groundwater VOC concentrations measured within the source area and the downgradient wells. Typical literature values and/or default values in BIOCHLOR for dispersion, absorption and biotransformation rates were used in the model calculations and adjusted until the constituent distribution curves reasonably matched the groundwater conditions measured at the Site.

The BIOCHLOR model from the April 2012 1st Progress Report was reassessed utilizing the more extensive groundwater data collected during this reporting period. Based on an initial release 45 years ago (1967), as illustrated on the model outputs in Appendix D, the current model predicts the groundwater plume conditions for PCE, TCE and DCE over the next 50 years as follows:

Time From Initial Release - 1964	**Predicted VOC Concentrations in EW-7, ug/L**						**Comparison Criteria**
	2014	**2024**	**2034**	**2044**	**2054**	**2064**	**MCL**
PCE	2	2	2	2	1	1	5
TCE	7	6	6	5	5	4	5
DCE	2	2	2	2	1	1	70

Time From Initial Release - 1964	**Predicted VOC Concentrations in Dundee Canal, ug/L**						**Comparison Criteria**
	2014	**2024**	**2034**	**2044**	**2054**	**2064**	**ISWQS**
PCE	<1	<1	<1	<1	<1	<1	3.3
TCE	1	1	1	1	1	1	30
DCE	<1	<1	<1	<1	<1	<1	10,000

As shown on the tables above, the predicted concentrations are well below the In-stream Water Quality Standards at the Dundee Canal and slightly exceed the default Type 1 RRS for TCE at the point of demonstration well, EW-7. All other chlorinated VOCs remain below the default Type I RRs. Based on current model inputs, the concentrations of TCE in EW-7 should currently be at or near their maximum value and are expected to steadily decline from this point

forward. Based on the model predictions for the next 50 years in 10 year increments, the groundwater plume will not impact the Dundee Canal at concentrations above the In-stream Water Quality Standards and should decrease to a concentration at the point of demonstration below the default Type 1 RRS within approximately 20 years.

The model results along with the model input parameters are included in Appendix D.

2.3 ADDITIONAL QUALIFYING PROPERTIES

Based on the results of the investigations performed on the Norfolk Southern property and the McDonald Ventures property, the Trustee and Rheem will begin negotiations to add these adjacent properties to the north, south and east as additional qualifying properties to the VRPA.

2.4 SUBMITTAL OF REMEDIATION PLAN AND COST ESTIMATE

In accordance with the schedule outlined in EPD's October 2011 VRP approval letter, AMEC has prepared a Soil Remediation Plan to address soil impacts above applicable cleanup standards. The remediation plan has been included in Appendix E. The rough cost estimate to implement this Soil Remediation Plan is within the original cost estimate of $150,000 and within the "financial assurance instrument" amount provided by Rheem and the Trust as outlined in the VRP Plan and Application Letter dated December 8, 2011 for the site.

3.0 SCHEDULE AND FUTURE SUBMITTALS

As required by EPD, semi-annual progress reports must be submitted to EPD by every April 30th and October 30th throughout the duration of this project.

Corrective action of the lead in soil impacts will begin the reporting period following receipt of EPD's comments on this document and approval of the soil remediation plan. We request any comments and approval of this plan as soon as feasible.

An updated milestone schedule is included as Table 4 which describes the activities yet to be performed. A breakdown of professional service hours with a description of the services provided is included in Appendix G.

4.0 PROFESSIONAL ENGINEER CERTIFICATION STATEMENT

"I certify under penalty of law that this report and all attachments were prepared by me or under my direct supervision in accordance with the Voluntary Remediation Program Act (O.C.G.A. Section 12-8-101, et seq.). I am a professional engineer who is registered with the Georgia State Board of Registration for Professional Engineers and Land Surveyors and I have the necessary experience and am in charge of the investigation and remediation of this release of regulated substances.

Furthermore, to document my direct oversight of the Voluntary Remediation Plan development, implementation of corrective action, and long term monitoring, I have attached a monthly summary of hours invoiced and description of services provided by me to the Voluntary Remediation Program participant since the previous submittal to the Georgia Environmental Protection Division.

The information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

Mr. Charles T. Ferry, P.E.
Georgia Registration No. 10957

GEORGIA REGISTERED No. 10957 PROFESSIONAL ENGINEER CHARLES T. FERRY

A breakdown of professional service hours with a description of the services provided is included in Appendix F.

TABLES

139 BRAMPTON ROAD
SAVANNAH, GEORGIA

TABLE 1 - SUMMARY OF 2014 OFF-SITE SOIL TEST RESULTS

Sample ID	**Soil Delineation Concentration Criteria**	**HA-NS-01**	**HA-NS-02**
Sample Date		**2/13/2014**	**2/13/2014**
Sample Depth		**1**	**1**
Units		**mg/kg**	**mg/kg**
Metals			
Lead	75	**10.5**	**13.5**

Notes:

Bold - Constituent has been detected at or above the reporting limit.

NA - Not Analyzed

NR - Not a regulated substance

TABLE 2 - SUMMARY OF GROUNDWATER TEST RESULTS
139 BRAMPTON ROAD SITE
SAVANNAH, GEORGIA

PARAMETER	Type 1 Risk Reduction Standard µg/L	Sample ID: Sample Date: Sample Matrix: Units:	GW-4 1998 Groundwater µg/L	GW-4 2/13/2014 Groundwater µg/L	GW-5 1998 Groundwater µg/L	GW-5 2/13/2014 Groundwater µg/L
Volatile Organic Compounds (VOCs)						
1,1,1-Trichloroethane	200		BDL	<1.0	BDL	<1.0
1,1,2-Trichloroethane	5		--	<1.0	--	<1.0
1,1-Dichloroethane	4000		BDL	<1.0	BDL	<1.0
1,1-Dichloroethene	7		BDL	<1.0	BDL	<1.0
1,2-Dichloroethane	5		BDL	<1.0	BDL	<1.0
1,2-Dichloroethene	100		BDL	<1.0	BDL	<1.0
1,2-Dichlorobenzene	600		BDL	<1.0	BDL	<1.0
Benzene	5		BDL	<1.0	BDL	<1.0
Carbon Tetrachloride	5		BDL	<1.0	BDL	<1.0
Chlorobenzene	100		BDL	<1.0	BDL	<1.0
Chloroform	100		--	<1.0	--	<1.0
cis-1,2-Dichloroethene	70		--	<1.0	--	<1.0
Dibromochloromethane	80.000		--	<1.0	--	<1.0
Ethylbenzene	700		BDL	<1.0	BDL	<1.0
Methylene Chloride	5		BDL	<1.0	BDL	<1.0
Methyl tert-butyl ether			--	<2.0	--	<2.0
Styrene	100		--	<1.0	--	<1.0
Tetrachloroethene	5		BDL	<1.0	BDL	<1.0
Toluene	1000		BDL	<1.0	BDL	<1.0
trans-1,2-Dichloroethene	100		BDL	<1.0	BDL	<1.0
Trichloroethene	5		BDL	<1.0	BDL	<1.0
Vinyl chloride (lifetime)	2		BDL	<1.0	BDL	<1.0
Xylenes, mixture	10000		BDL	<2.0	BDL	<2.0
Metals						
Arsenic	10		--	--	--	--
Barium	2000		--	--	--	--
Cadmium	5		--	--	--	--
Chromium	100		--	--	--	--
Lead	15		--	--	--	--
Mercury	2		--	--	--	--
Selenium	50		--	--	--	--
Silver	100		--	--	--	--

Notes:
Bold = Constituent has been detected at or above the reporting limit.
-- = Not Analyzed and/or Not Reported
BDL = Below Dection Limit as reported by Golder & Associaties (Note: detection limits not available)

TABLE 2 - SUMMARY OF GROUNDWATER TEST RESULTS
139 BRAMPTON ROAD SITE
SAVANNAH, GEORGIA

PARAMETER	Type 1 Risk Reduction Standard µg/L	Sample ID: Sample Date: Sample Matrix: Units:	GW-7 10/7/1999 Groundwater µg/L	GW-7 3/8/2012 Groundwater µg/L		GW-7 2/13/2014 Groundwater µg/L	GW-10 10/7/1999 Groundwater µg/L	GW-10 2/13/2014 Groundwater µg/L
Volatile Organic Compounds (VOCs)								
1,1,1-Trichloroethane	200		<5.0	<5.0		--	<5.0	<1.0
1,1,2-Trichloroethane	5		--	<5.0		--	--	<1.0
1,1-Dichloroethane	4000		<5.0	<5.0		--	<5.0	<1.0
1,1-Dichloroethene	7		<5.0	<5.0		--	<5.0	<1.0
1,2-Dichloroethane	5		<5.0	<5.0		--	<5.0	<1.0
1,2-Dichloroethene	100		<5.0	<5.0		--	<5.0	<1.0
1,2-Dichlorobenzene	600		<5.0	<5.0		--	<5.0	<1.0
Benzene	5		<5.0	<5.0		--	<5.0	<1.0
Carbon Tetrachloride	5		<5.0	<5.0		--	<5.0	<1.0
Chlorobenzene	100		<5.0	<5.0		--	<5.0	<1.0
Chloroform	100		--	<5.0		--	**7.8**	<1.0
cis-1,2-Dichloroethene	70		--	<5.0		--	--	<1.0
Dibromochloromethane	80.000		--	<5.0		--	--	<1.0
Ethylbenzene	700		<5.0	<5.0		--	<5.0	<1.0
Methylene Chloride	5		<5.0	<5.0		--	<5.0	<1.0
Methyl tert-butyl ether			--	<5.0		--	--	<2.0
Styrene	100		--	<5.0		--	--	<1.0
Tetrachloroethene	5		<5.0	<5.0		--	<5.0	**1.17**
Toluene	1000		<5.0	<5.0		--	<5.0	<1.0
trans-1,2-Dichloroethene	100		<5.0	<5.0		--	<5.0	<1.0
Trichloroethene	5		<5.0	<5.0		--	<5.0	**2.55**
Vinyl chloride (lifetime)	2		<10	<5.0		--	<10	<1.0
Xylenes, mixture	10000		**68**	**230**		<2.0	<10	<2.0
Metals				Total	Diss.			
Arsenic	10		--	<50	<50	--	--	--
Barium	2000		--	<20	<20	--	--	--
Cadmium	5		--	<5	<5	--	--	--
Chromium	100		--	<10	<10	--	--	--
Lead	15		--	<10	<10	--	--	--
Mercury	2		--	<0.2	<0.2	--	--	--
Selenium	50		--	<20	<20	--	--	--
Silver	100		--	<10	<10	--	--	--

Notes:
Bold = Constituent has been detected at or above the reporting limit.
-- = Not Analyzed and/or Not Reported
BDL = Below Dection Limit as reported by Golder & Associaties (Note: d

TABLE 2 - SUMMARY OF GROUNDWATER TEST RESULTS
139 BRAMPTON ROAD SITE
SAVANNAH, GEORGIA

PARAMETER	Type 1 Risk Reduction Standard µg/L	Sample ID: Sample Date: Sample Matrix: Units:	EW-4 2/12/2014 Groundwater µg/L	EW-5 2/12/2014 Groundwater µg/L	EW-6 2/12/2014 Groundwater µg/L	EW-7 2/12/2014 Groundwater µg/L
Volatile Organic Compounds (VOCs)						
1,1,1-Trichloroethane	200		<1.0	<1.0	<1.0	<1.0
1,1,2-Trichloroethane	5		<1.0	<1.0	<1.0	<1.0
1,1-Dichloroethane	4000		<1.0	<1.0	**2.16**	**3.72**
1,1-Dichloroethene	7		<1.0	<1.0	**2.82**	**10.7**
1,2-Dichloroethane	5		<1.0	<1.0	<1.0	<1.0
1,2-Dichloroethene	100		<1.0	<1.0	<1.0	<1.0
1,2-Dichlorobenzene	600		<1.0	<1.0	<1.0	<1.0
Benzene	5		<1.0	<1.0	<1.0	<1.0
Carbon Tetrachloride	5		<1.0	<1.0	<1.0	<1.0
Chlorobenzene	100		<1.0	<1.0	<1.0	<1.0
Chloroform	100		<1.0	<1.0	<1.0	<1.0
cis-1,2-Dichloroethene	70		<1.0	<1.0	<1.0	<1.0
Dibromochloromethane	80.000		<1.0	<1.0	<1.0	<1.0
Ethylbenzene	700		<1.0	<1.0	<1.0	<1.0
Methylene Chloride	5		<1.0	<1.0	<1.0	<1.0
Methyl tert-butyl ether			<2.0	<2.0	<2.0	<2.0
Styrene	100		<1.0	<1.0	<1.0	<1.0
Tetrachloroethene	5		<1.0	<1.0	<1.0	<1.0
Toluene	1000		<1.0	<1.0	<1.0	<1.0
trans-1,2-Dichloroethene	100		<1.0	<1.0	<1.0	<1.0
Trichloroethene	5		<1.0	<1.0	<1.0	**4.34**
Vinyl chloride (lifetime)	2		<1.0	<1.0	<1.0	<1.0
Xylenes, mixture	10000		<2.0	<2.0	<2.0	<2.0
Metals						
Arsenic	10		--	--	--	--
Barium	2000		--	--	--	--
Cadmium	5		--	--	--	--
Chromium	100		--	--	--	--
Lead	15		--	--	--	--
Mercury	2		--	--	--	--
Selenium	50		--	--	--	--
Silver	100		--	--	--	--

Notes:
Bold = Constituent has been detected at or above the reporting limit.
-- = Not Analyzed and/or Not Reported
BDL = Below Dection Limit as reported by Golder & Associaties (Note: d

139 BRAMPTON ROAD
SAVANNAH, GA

TABLE 3 - GROUNDWATER ELEVATION MEASUREMENTS

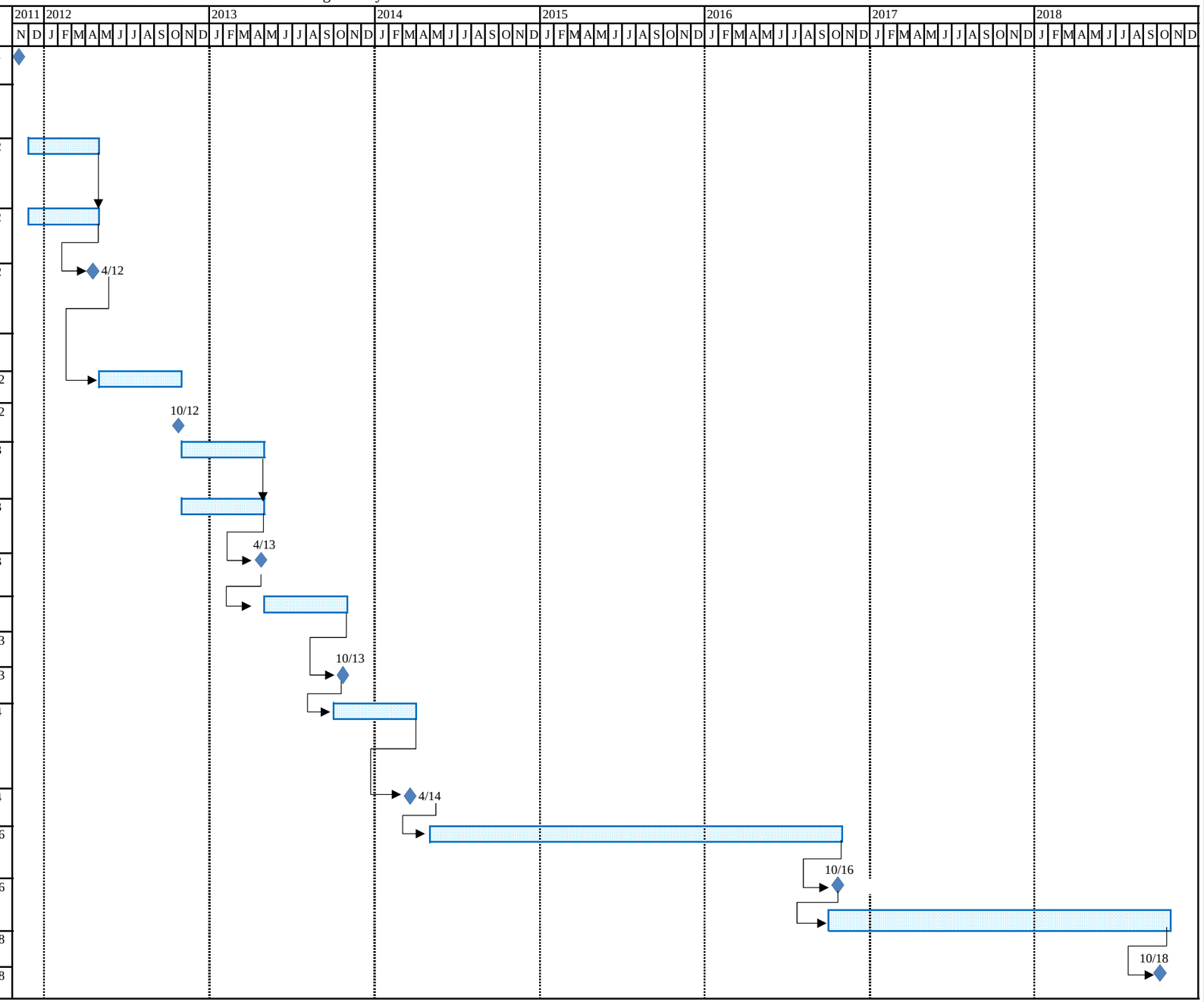
Well ID	Measurement Date	Ground Surface Elev. (ft)	Top of Casing Elev. (ft)	Well Screen Interval (ft)	Depth to Water, FT	Groundwater Elev. (ft)
Monitoring Wells Located On-Site						
W-5	3/27/1997	12.91	13.10	15-20	9.34	3.76
	4/1/1998				7.71	5.39
	10/7/1999				9.03	4.07
	3/29/2000				9.55	3.55
	3/8/2012				9.95	3.15
	3/20/2013				9.64	3.46
	2/13/2014				9.99	3.11
GW-1	3/27/1999	13.83	16.53	15-20	11.61	4.92
	4/1/1998				10.03	6.50
	10/7/1999				11.04	5.49
	3/29/2000				11.79	4.74
	3/8/2012				12.72	3.81
	3/20/2013				12.41	4.12
	2/13/2014				12.71	3.82
**GW-7	10/7/1999	15.78	15.78	24-34	10.1	5.68
	3/29/2000				10.88	4.90
	3/8/2012				11.02	4.76
	3/20/2013				10.73	5.05
	2/13/2014				11.03	4.75
EW-1	3/8/2012	12.95	16.00	5-15	12.2	3.80
	3/20/2013				11.16	4.84
	2/13/2014				11.48	4.52
EW-2	3/8/2012	12.46	12.46	5-15	8.92	3.54
	3/20/2013				8.65	3.81
	2/13/2014				8.96	3.50
Monitoring Wells Located Off-Site						
GW-4	4/1/1998	15.91	16.04	8.5-18.5	9.62	6.42
	10/7/1999				9.25	6.79
	3/29/2000				11.45	4.59
	2/13/2014				12.27	3.77
GW-5	4/1/1998	16.90	16.78	9.2-19.2	10.4	6.38
	10/7/1999				9.82	6.96
	3/29/2000				11.62	5.16
	2/13/2014				13.75	3.03
**GW-9	10/7/1999	4.29	4.48	24-34	0.94	3.54
	3/29/2000				1.05	3.43
	3/8/2012				1.67	2.81
	3/20/2013				1.54	2.94
	2/13/2014				1.79	2.69
**GW-10	10/7/1999	13.09	13.13	24-34	8.6	4.53
	3/29/2000				9.55	3.58
	2/13/2014				10.04	3.09
EW-3	3/20/2013	9.27	9.15	3-13	6.99	2.16
	2/13/2014				5.68	3.47
EW-4	2/13/2014	17.16	17.15	4-14	10.28	6.87
EW-5	2/13/2014	-0.145	3.18	3-8	3.27	-0.09
EW-6	2/13/2014	1.43	4.06	3-8	3.05	1.01
EW-7	2/13/2014	1.46	4.99	4-9	4.20	0.79

** - Deep wells installed approximately 2ft into clay confining layer

The wells were resurveyed with a Trimble R5800 GPS Unit and Trimble S3 Total Station as part of this effort.

Former Rheem Manufacturing Facility - Gantt Schedule

Item	Task Name	Duration	Start	Finish
1	Prepare milestone schedule and cost estimate for financial assurance	Complete		12/8/2011
2	Execute access agreement with adjacent properties to the north, south and east and include additional qualifying parcels to the VRPA	Started		
	Perform initial groundwater assessment program which will consist of sampling existing on-site wells (3 known), installation and sampling additional on-site wells and hydraulic conductivity tests.	Complete		4/30/2012
	Perform additional soil characterization to further delineate known lead impacts and check for impacts of regulated substances listed in Table 3 of the VRPA.	Complete		4/30/2012
	Prepare First Progress Report which will include fate and transport model, status of existing monitoring well network, revised RRS for all constituents, updated Conceptual Site Model (CSM) and milestone schedule.	Complete		4/30/2012
3	Continue negotiating access agreements with adjacent properties to the north, south and east			
	Perform Vapor Intrusion Risk Evaluation	Complete		10/30/2012
	Prepare Second Progress Report with vapor intrusion into on-site building modeling, updated CSM and milestone schedule.	Complete		10/30/2012
4	Begin off-site groundwater delineation on property to the north which consisted of sampling one existing off-site well, installation and sampling of one additional off-site well.	Complete		4/30/2013
	Begin off-site soil characterization on property to the north to delineate impacts of regulated substances. Complete horizontal delineation of on-site soil impacts.	Complete		4/30/2013
	Prepare Third Progress Report with updated CSM and milestone schedule.	Complete		4/30/2013
5	Continue negotiating access agreements with adjacent properties to the south and east			
	Perform Vapor Intrusion Risk Evaluation on McDonald Ventures property located at 155 Brampton Road	Complete		10/30/2013
	Prepare Fourth Progress Report with updated CSM and milestone schedule	Complete		10/30/2013
6	Begin off-site soil and groundwater characterization on property to the east and south to delineate impacts of regulated substances. Complete vertical delineation of soil and groundwater, update CSM, finalize VRP and provide preliminary cost estimate for soil remediation activities using	6 months	10/30/2013	4/30/2014
	Prepare Fifth Progress Report with updated CSM and milestone schedule		4/30/2014	4/30/2014
7	Complete soil remediation activities using soil averaging, complete all assessment and modeling efforts, prepare sixth through ninth Progress Reports.	30 Months	4/30/2014	10/30/2016
8	Submit Compliance Status Report to certify soil and vapor compliance and demonstrate no risk of exposure for groundwater impacts		10/30/2016	10/30/2016
9	Assume two years of semi-annual groundwater monitoring and reporting	24 months	10/30/2016	10/30/2018
	Submit Delisting request			10/30/2018



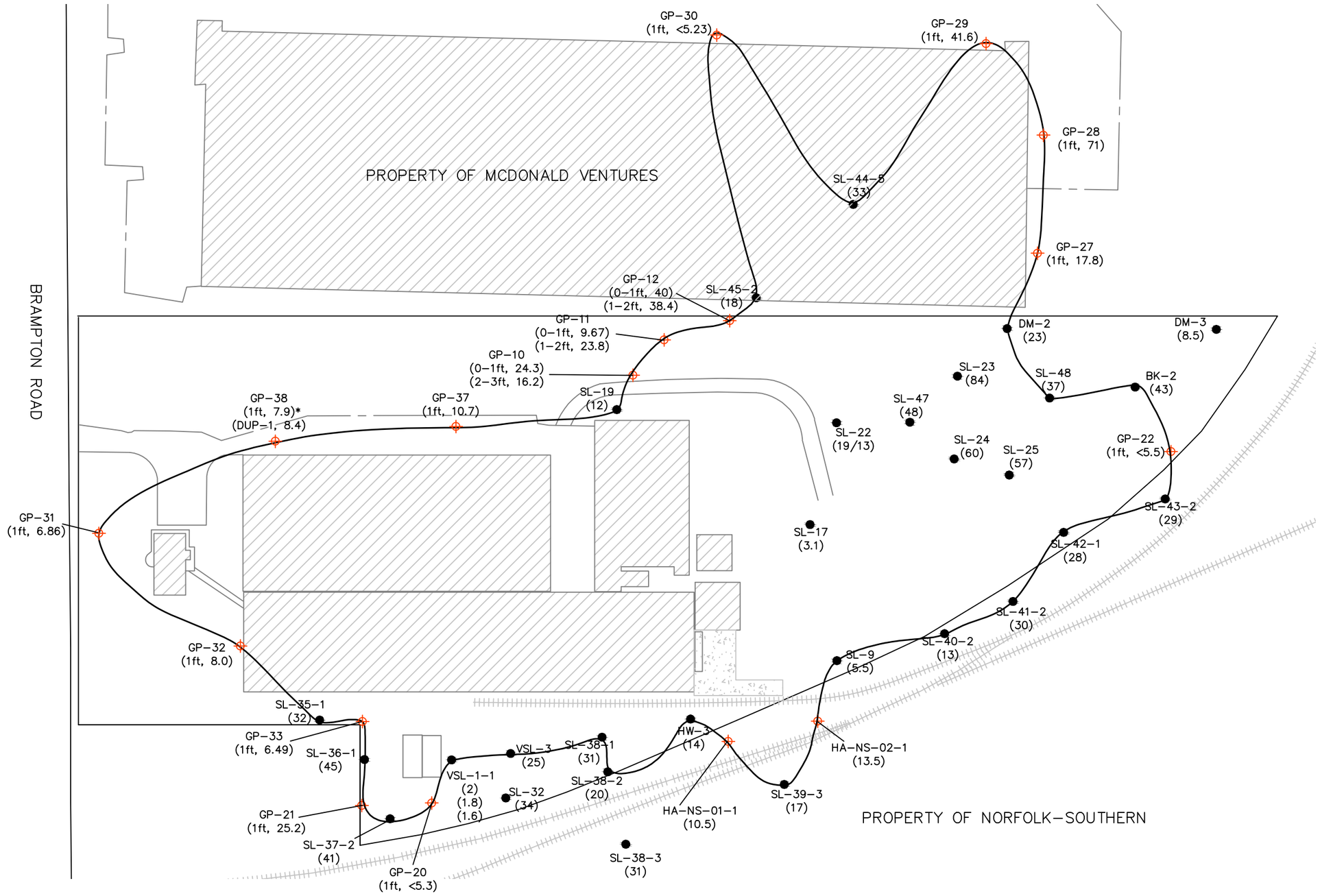
Project: Former Rheem Manufacturing Facility
Date: 03/30/2014
MACTEC Project No. 6121-09-0220

Task

Milestone

FIGURES

M:\oldUdrive\Projects\Former Rheem Manufacturing Facility\Figures\March 2014\Rheem – Lead.dwg – FIG 1 – LEAD DELINEATION 03/25/2014



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HORIZONTAL EXTENT OF LEAD IMPACTED SOIL

Job Number	Task	Date	Scale	Drawn By	Reviewed By	Figure
6121–09–0220	01	APR 2014	AS SHWON	TJB	CTF	1

T:\4 Tyler\rheem\Rheem – GW–POT 2014.dwg – APRIL 2014 VRP – GW RESULTS 04/17/2014

W–5	DAMES & MOORE	EMC	GOLDER	AMEC
	11/6/1987	3/1993	1997	3/8/2012
VOCs				
1,1 DICHLOROETHANE	9.7	127.7	19	28
1,1 DICHLOROETHENE	44	ND	110	70
1,2 DICHLOROETHANE	ND	ND	12	<5.0
cis 1,2 DICHLOROETHENE	ND	ND	<5.0	6.3
trans 1,2 DICHLOROETHENE	ND	ND	<5.0	<5.0
1,1,2 TRICHLOROETHANE	ND	ND	7	<5.0
BENZENE	ND	ND	8.4	<5.0
TETRACHLOROETHENE	12	26.6	16	120
TRICHLOROETHENE	ND	ND	<5.0	57
VINYL CHLORIDE	ND	ND	<10	<2.0
METALS				
BARIUM, TOTAL	200	NT	NT	33.3
BARIUM, DISSOLVED	NT	NT	NT	31.8
NICKEL	30	NT	NT	NT

AMEC	
EW–3	3/20/2013
VOCs	BRL

GW–9	GOLDER 1999	AMEC 3/20/2013
VOCs		
1,1 DICHLOROETHANE	28	6.14
1,1 DICHLOROETHENE	39	15
1,2 DICHLOROETHENE	9.1	<1.0
BENZENE	8	1.22
TETRACHLOROETHENE	24	5.51
TRICHLOROETHENE	12	1.65

AMEC	
EW–4	2/12/2014
VOCs	BRL

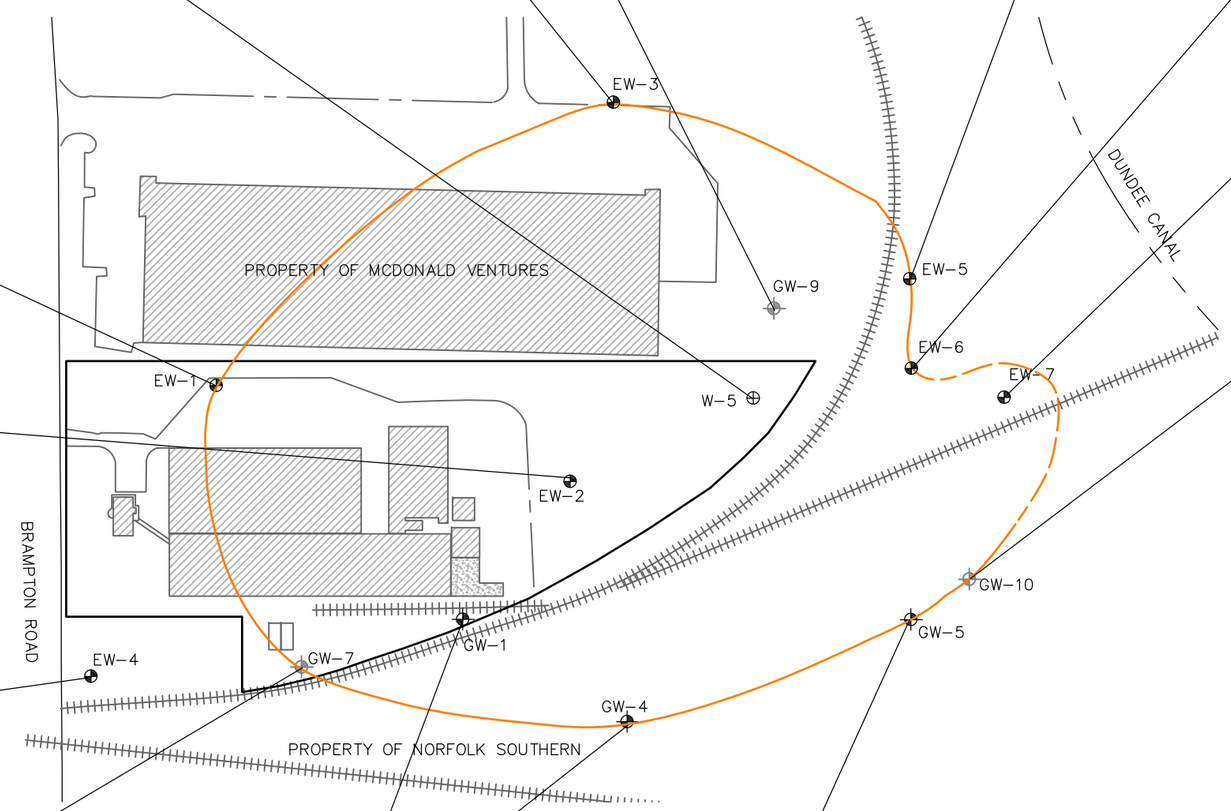
AMEC	
EW–6	2/12/2014
VOCs	
1,1 DICHLOROETHANE	2.16
1,1 DICHLOROETHENE	2.82

AMEC	
EW–7	2/12/2014
VOCs	
1,1 DICHLOROETHANE	3.72
1,1 DICHLOROETHENE	10.7
TRICHLOROETHENE	4.34

AMEC	
EW–1	3/8/2012
VOCs	BRL
METALS	
BARIUM, TOTAL	74
BARIUM, DISSOLVED	68.5

AMEC	
EW–2	3/8/2012
VOCs	
1,1 DICHLOROETHANE	5.7
1,1 DICHLOROETHENE	7.7
cis 1,2 DICHLOROETHENE	16
METHYL TERT–BUTYL ETHER	5.1
TETRACHLOROETHENE	76
TRICHLOROETHENE	51
METALS	
BARIUM, TOTAL	74.1
BARIUM, DISSOLVED	56.5

GW–10	GOLDER 1999	AMEC 2/13/2013
VOCs		
TETRACHLOROETHENE	<5.0	1.17
TRICHLOROETHENE	<5.0	2.55



AMEC	
EW–4	2/12/2014
VOCs	BRL

GW–1	GOLDER 1997	AMEC 3/8/2012
VOCs		
TETRACHLOROETHENE	23	<5.0
TRICHLOROETHENE	11	<5.0
METALS		
BARIUM, TOTAL	NT	34.1
BARIUM, DISSOLVED	NT	26.2

GW–4	GOLDER 1998	AMEC 2/13/2014
VOCs	ND	BRL

GW–5	GOLDER 1998	AMEC 2/13/2014
VOCs	ND	BRL

GW–7	GOLDER 1999	AMEC 3/8/2012	AMEC 2/13/2014
VOCs			
XYLENES	68	230	<2.0
METALS	NT	BRL	NT

LEGEND:

- ⊕ MONITORING WELL LOCATION (DAMES & MOORE 11/87)
- MONITORING WELL LOCATION (GOLDER 2/97, 10/99)
- MONITORING WELL LOCATION (AMEC 3/12, 3/13, 2/14)
- VOCS VOLATILE ORGANIC COMPOUNDS
- ND NOT DETECTED
- NT NOT TESTED
- BRL BELOW LABORATORY REPORTING LIMITS
- APPROXIMATE EXTENT OF TOTAL VOCs IN GROUNDWATER TO THE DEFAULT RESIDENTIAL RRS

NOTES:
RESULTS REPORTED IN MICROGRAMS PER LITER

GW–7, GW–9, GW–10 ARE SCREENED AT THE TOP OF THE UNDERLYING CLAY CONFINING LAYER.

SCALE IN FEET

0 250 500

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SUMMARY OF GROUNDWATER TEST RESULTS

Job Number	Task	Date	Scale	Drawn By	Reviewed By	Figure
6121–09–0220	01	APR 2014	AS SHWON	RLA	TJB	2

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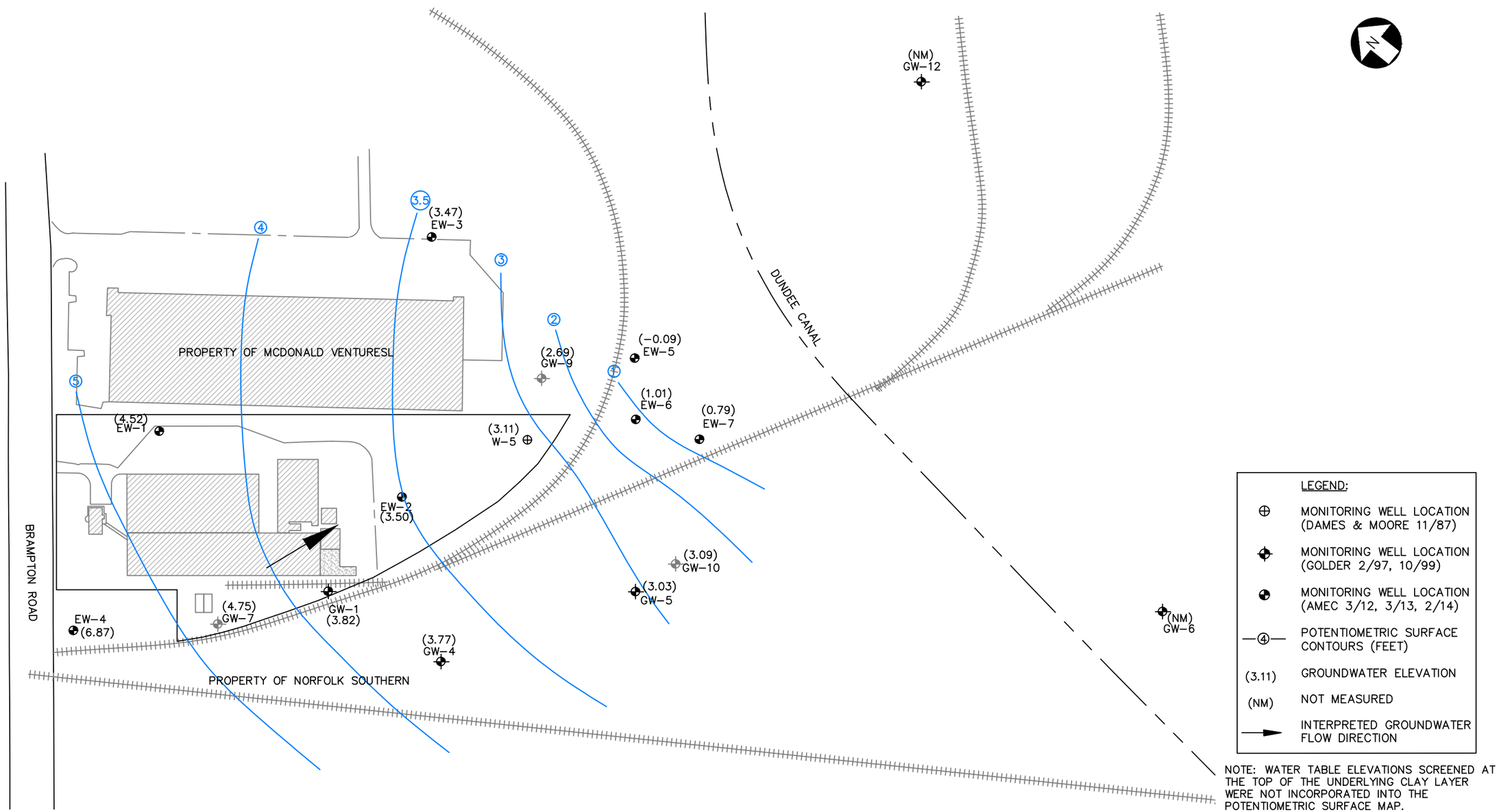

NOTE: WATER TABLE ELEVATIONS SCREENED AT THE TOP OF THE UNDERLYING CLAY LAYER WERE NOT INCORPORATED INTO THE POTENTIOMETRIC SURFACE MAP.

SCALE IN FEET

0 250 500

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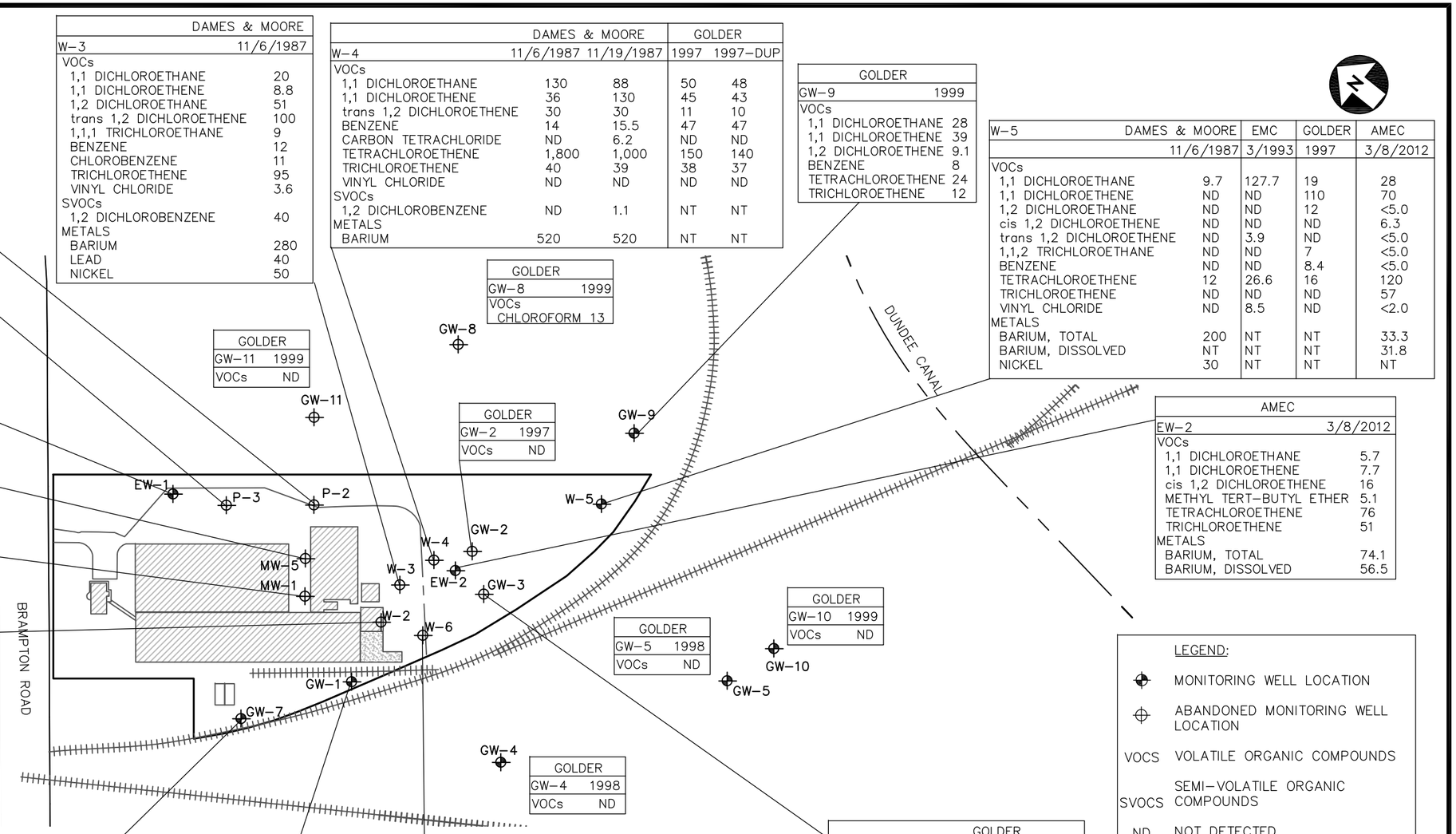
POTENTIOMETRIC SURFACE MAP
(FEBRUARY 13, 2014)

Job Number	Task	Date	Scale	Drawn By	Reviewed By	Figure
6121-09-0220	01	APRIL 2014	AS SHWON	RLA	TJB	3



	EMC	GOLDER
P–2	3/1993	1999
VOCs		
1,1 DICHLOEOETHANE	65.5	33
1,1 DICHLOROETHENE	90.7	23

	EMC
P–3	3/1993
VOCs	ND

	AMEC
EW–1	3/8/2012
VOCs	BRL
METALS	
BARIUM, TOTAL	74
BARIUM, DISSOLVED	68.5

	EMC	GOLDER
MW–5	3/1993	1997
VOCs		
1,1 DICHLOEOETHANE	ND	5.4

	EMC
MW–1	3/1993
VOCs	ND

	DAMES & MOORE	EMC
W–2	11/6/1987	3/1993
VOCs		
1,1 DICHLOROETHANE	24	41
1,1 DICHLOROETHENE	25	485
trans 1,2 DICHLOROETHENE	93	ND
1,1,1 TRICHLOROETHANE	18	40
BENZENE	ND	15
ETHYLBENZENE	12	ND
METHYLENE CHLORIDE	6.7	ND
TETRACHLOROETHENE	5.9	ND
TRICHLOROETHENE	7.7	ND
TOLUENE	19	ND
VINYL CHLORIDE	24	22.8
METALS		
BARIUM	350	NT
BERYLLIUM	NT	3
LEAD	20	NT
MERCURY	ND	7
NICKEL	80	NT

	GOLDER	AMEC
GW–7	1999	3/8/2012
VOCs		
XYLENES	ND	230
METALS	NT	BRL

	GOLDER	AMEC
GW–1	1997	3/8/2012
VOCs		
TETRACHLOROETHENE	23	<5.0
TRICHLOROETHENE	11	<5.0
METALS		
BARIUM, TOTAL	NT	34.1
BARIUM, DISSOLVED	NT	26.2

	DAMES & MOORE	EMC
W–6	11/6/1987	3/1993
VOCs		
1,1 DICHLOROETHANE	3	ND
1,2 TRANS–DICHLOROETHENE	3.9	ND
TRICHLOROETHENE	17	6.6
METALS		
BARIUM	520	NT
LEAD	10	NT

	DAMES & MOORE
W–3	11/6/1987
VOCs	
1,1 DICHLOROETHANE	20
1,1 DICHLOROETHENE	8.8
1,2 DICHLOROETHANE	51
trans 1,2 DICHLOROETHENE	100
1,1,1 TRICHLOROETHANE	9
BENZENE	12
CHLOROBENZENE	11
TRICHLOROETHENE	95
VINYL CHLORIDE	3.6
SVOCs	
1,2 DICHLOROBENZENE	40
METALS	
BARIUM	280
LEAD	40
NICKEL	50

	DAMES & MOORE		GOLDER	
W–4	11/6/1987	11/19/1987	1997	1997–DUP
VOCs				
1,1 DICHLOROETHANE	130	88	50	48
1,1 DICHLOROETHENE	36	130	45	43
trans 1,2 DICHLOROETHENE	30	30	11	10
BENZENE	14	15.5	47	47
CARBON TETRACHLORIDE	ND	6.2	ND	ND
TETRACHLOROETHENE	1,800	1,000	150	140
TRICHLOROETHENE	40	39	38	37
VINYL CHLORIDE	ND	ND	ND	ND
SVOCs				
1,2 DICHLOROBENZENE	ND	1.1	NT	NT
METALS				
BARIUM	520	520	NT	NT

	GOLDER
GW–8	1999
VOCs	
CHLOROFORM	13

	GOLDER
GW–11	1999
VOCs	ND

	GOLDER
GW–2	1997
VOCs	ND

	GOLDER
GW–5	1998
VOCs	ND

	GOLDER
GW–10	1999
VOCs	ND

	GOLDER
GW–4	1998
VOCs	ND

	GOLDER
GW–9	1999
VOCs	
1,1 DICHLOROETHANE	28
1,1 DICHLOROETHENE	39
1,2 DICHLOROETHENE	9.1
BENZENE	8
TETRACHLOROETHENE	24
TRICHLOROETHENE	12

	GOLDER
GW–3	1997
VOCs	
1,1 DICHLOROETHANE	140
1,1 DICHLOROETHENE	210
1,2 DICHLOROETHANE	7.3
cis/trans 1,2 DICHLOROETHENE	64
1,1,1 TRICHLOROETHANE	7.6
BENZENE	17
CHLOROBENZENE	18
ETHYLBENZENE	21
STYRENE	5.9
TETRACHLOROETHENE	400
TRICHLOROETHENE	49
XYLENES	24

	DAMES & MOORE	EMC	GOLDER	AMEC
W–5	11/6/1987	3/1993	1997	3/8/2012
VOCs				
1,1 DICHLOROETHANE	9.7	127.7	19	28
1,1 DICHLOROETHENE	ND	ND	110	70
1,2 DICHLOROETHANE	ND	ND	12	<5.0
cis 1,2 DICHLOROETHENE	ND	ND	ND	6.3
trans 1,2 DICHLOROETHENE	ND	3.9	ND	<5.0
1,1,2 TRICHLOROETHANE	ND	ND	7	<5.0
BENZENE	ND	ND	8.4	<5.0
TETRACHLOROETHENE	12	26.6	16	120
TRICHLOROETHENE	ND	ND	ND	57
VINYL CHLORIDE	ND	8.5	ND	<2.0
METALS				
BARIUM, TOTAL	200	NT	NT	33.3
BARIUM, DISSOLVED	NT	NT	NT	31.8
NICKEL	30	NT	NT	NT

	AMEC
EW–2	3/8/2012
VOCs	
1,1 DICHLOROETHANE	5.7
1,1 DICHLOROETHENE	7.7
cis 1,2 DICHLOROETHENE	16
METHYL TERT–BUTYL ETHER	5.1
TETRACHLOROETHENE	76
TRICHLOROETHENE	51
METALS	
BARIUM, TOTAL	74.1
BARIUM, DISSOLVED	56.5

LEGEND:

- MONITORING WELL LOCATION
- ABANDONED MONITORING WELL LOCATION
- VOCS — VOLATILE ORGANIC COMPOUNDS
- SVOCS — SEMI–VOLATILE ORGANIC COMPOUNDS
- ND — NOT DETECTED
- NT — NOT TESTED
- BRL — BELOW LABORATORY REPORTING LIMITS

NOTES:
RESULTS REPORTED IN MICROGRAMS PER LITER

SCALE IN FEET

0 250 500

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SUMMARY OF HISTORIC GROUNDWATER TEST RESULTS

Job Number	Task	Date	Scale	Drawn By	Reviewed By	Figure
6121–09–0220	01	April 2014	AS SHWON	RLA	TJB	4

AMEC		
EW-1 3/5/2012	2-4FT	
VOCs	BRL	
PAHs	BRL	
METALS		
BARIUM	60.8	
CHROMIUM	7.13	
LEAD	<5.70	

AMEC		
GP-09 3/6/2012	1-2FT	5-6FT
VOCs	BRL	BRL
PAHS	BRL	BRL
METALS		
BARIUM	25.4	77.4
CHROMIUM	7.82	11.9
LEAD	27.9	19.9

AMEC			
GP-10 3/6/2012	0-1FT	2-3FT	6-7FT
VOCs	NT	BRL	BRL
PAHS	NT	BRL	BRL
METALS			
ARSENIC	NT	8.12	<6.31
BARIUM	NT	40	31.3
CHROMIUM	NT	14.1	17.3
LEAD	24.3	16.2	8.62

AMEC			
GP-16 3/6/2012	1-2FT	6-7FT	DUP6-7FT
VOCs	BRL	BRL	BRL
PAHS	BRL	BRL	BRL
METALS			
ARSENIC	<6.18	8.15	<6.15
BARIUM	28.7	72.6	43.3
CHROMIUM	9.7	12.2	12.3
LEAD	32.7	13.7	7.33

DAMES & MOORE				
B-6 11/1987	3-4FT	5-6FT	9-10FT	13-14FT
VOCs	ND	NA	ND	NA
METALS				
BARIUM	NA	31	NA	84
CHROMIUM	NA	16	NA	11
LEAD	NA	5.3	NA	0.83
NICKEL	NA	3.3	NA	2.5

DAMES & MOORE				
B-7 11/1987	3-4FT	5-6FT	9-10FT	13-14FT
VOCs	ND	NA	NA	ND
METALS				
BARIUM	NA	7.1	450	NA
CADMIUM	NA	0.012	ND	NA
CHROMIUM	NA	53	23	NA
LEAD	NA	5.1	15	NA
NICKEL	NA	12	8	NA

GOLDER		
GW-2 2/1997	3.5-5FT	8.5-10FT
VOCs	ND	ND

AMEC	
GP-08 3/6/2012	6-7FT
VOCs	
CYCLOHEXANE	0.025
ETHYLBENZENE	0.034
ISOPROPYLBENZENE	0.055
METHYLCYCLOHEXANE	0.085
PAHs	BRL
1-METHYLNAPHTHALENE	1.2
METALS	
BARIUM	34.6
CHROMIUM	7.28
LEAD	10.8

AMEC	
GP-24 3/7/2012	3-4FT
VOCs	BRL
PAHs	BRL
METALS	
BARIUM	70.6
CHROMIUM	9.05
LEAD	21.7

AMEC	
GP-06 3/7/2012	4-5FT
VOCs	BRL
PAHs	BRL
METALS	
BARIUM	42.6
CHROMIUM	8.15
LEAD	<6.02

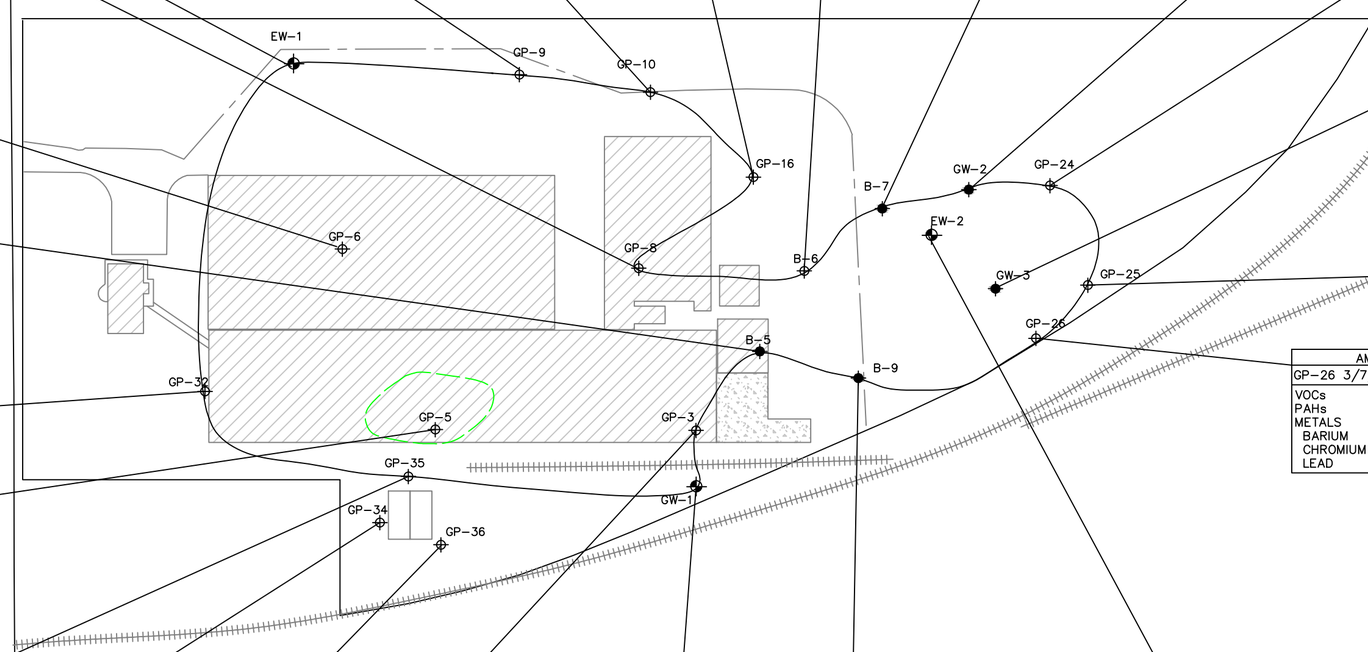
GOLDER			
GW-3 2/1997	0-5FT	9-10.5FT	14-15.5FT
VOCs			
CHLOROBENZENE	2.4	ND	ND
STYRENE	3.8	0.780	ND
TOLUENE	1.0	ND	ND
ETHYLBENZENE	14.0	2.8	ND
XYLENES	18.0	4.0	ND

*APPROXIMATE DEPTH TO WATER 6.17ft TO 8.92ft

DAMES & MOORE				
B-5 11/1987	3-4FT	5-6FT	9-10FT	14-15FT
VOCs	ND	NA	NA	ND
METALS				
BARIUM	NA	36	14	NA
CADMIUM	NA	0.051	0.012	NA
CHROMIUM	NA	34	65	NA
LEAD	NA	5.3	12	NA
MERCURY	NA	ND	0.04	NA
NICKEL	NA	7.5	12	NA

AMEC		
GP-25 3/7/2012	3-4FT	
VOCs	BRL	
PAHs	BRL	
METALS		
BARIUM	34.1	
CHROMIUM	6.58	
LEAD	6.59	

AMEC		
GP-26 3/7/2012	2-3FT	
VOCs	BRL	
PAHs	BRL	
METALS		
BARIUM	28.8	
CHROMIUM	28.3	
LEAD	11.2	



AMEC		
GP-32 3/19/2013	1FT	1-2FT
VOCs		
ACETONE	NT	0.0107
METALS		
LEAD	8	NT

AMEC	
GP-05 3/6/2012	2-3FT
VOCs	
cis 1,2 DICHLOROETHENE	1.8
TETRACHLOROETHENE	5.2
trans 1,2 DICHLOROETHENE	0.043
TRICHLOROETHENE	2.2
PAHs	BRL
METALS	
BARIUM	23
CHROMIUM	6.07
LEAD	6.58

AMEC		
GP-35 3/19/2013	2-3FT	DUP2-3FT
VOCs		
ACETONE	0.0105	0.0118

AMEC	
GP-36 3/19/2013	2-3FT
VOCs	BRL

AMEC	
GP-34 3/19/2013	2-3FT
VOCs	
ACETONE	0.0113

AMEC		
GP-03 3/5/2012	1-2FT	6-7FT
VOCs		
1,1,1 TRICHLOROETHANE	0.017	<0.0052
PAHS	BRL	BRL
METALS		
ARSENIC	<6.49	26
BARIUM	25.8	21.8
CHROMIUM	6.87	23.9
LEAD	8.13	6.88

DAMES & MOORE			
B-9 11/1987	5-6FT	9-10FT	14-15FT
VOCs	NA	ND	NA
METALS			
BARIUM	38	NA	8
CADMIUM	0.016	NA	0.02
CHROMIUM	25	NA	35
LEAD	12	NA	3.3
NICKEL	5.2	NA	16

GOLDER				
GW-1 2/1997	4-5.5FT	9-10.5FT	14-15.5FT	18-19.5FT
VOCs	ND	ND	ND	ND

AMEC		
EW-2 3/6/2012	3-4FT	5-6FT
VOCs		
1,2 DICHLOROBENZENE	0.13	<0.0067
1,3 DICHLOROBENZENE	0.0074	<0.0067
1,4 DICHLOROBENZENE	0.018	<0.0067
2 BUTANONE	0.066	<0.067
ACETONE	0.49	<0.130
BENZENE	0.014	0.019
CARBON DISULFIDE	0.011	<0.013
CHLOROBENZENE	0.096	<0.0067
ETHYLBENZENE	11	<0.0067
ISOPROPYLBENZENE	0.18	<0.0067
METHYLCYCLOHEXANE	0.027	<0.0067
TOLUENE	0.018	<0.0067
XYLENES	3.74	<0.0067
PAHS	BRL	BRL
METALS		
ARSENIC	<5.38	7.61
BARIUM	72.1	64
CHROMIUM	102	16.2
LEAD	466	12.5
MERCURY	0.491	<0.132

LEGEND:

- SOIL BORING LOCATION (AMEC)
- SOIL BORING LOCATION (OTHERS)
- ABANDONED MONITORING WELL LOCATION
- EXISTING MONITORING WELL LOCATION
- VOCS — VOLATILE ORGANIC COMPOUNDS
- SVOCS — SEMI-VOLATILE ORGANIC COMPOUNDS
- ND — NOT DETECTED
- NA — NOT ANALYZED
- BRL — BELOW LABORATORY REPORTING LIMITS
- APPROXIMATE EXTENT OF VOCs LESS THAN SOIL DELINEATION CRITERIA
- LOCATION OF VOCs GREATER THAN THE SOIL DELINEATION CONCENTRATION CRITERIA

SCALE IN FEET

0 100 200

NOTES:
RESULTS REPORTED IN MILLIGRAMS PER KILOGRAMS

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REV	DATE	BY	SUB	APP	DESCRIPTION

DESIGNED
DRAWN TJB
CHECKED CTF
IN CHARGE CTF
DATE APRIL 2014

139 BRAMPTON ROAD
SAVANNAH, GEORGIA

AMEC Environment & Infrastructure
396 PLASTERS AVENUE, N.E.
ATLANTA, GEORGIA (404) 873-4761

SUMMARY OF SOIL TEST RESULTS

SCALE: AS SHOWN
CONTRACT: 6121-09-0220
FIGURE NO. 5 | REV | PAGE NO

APPENDIX A

LABORATORY RESULTS FOR MARCH 2014 SAMPLING EVENT

Analytical Report 479399

for

AMEC Environment & Infrastructure, Inc.

Project Manager: Tyler Boyles

139 Brampton Road

6121090220

20-FEB-14

Collected By: Client

6017 Financial Dr., Norcross, GA 30071
Ph:(770) 449-8800 Fax:(770) 449-5477

Xenco-Houston (EPA Lab code: TX00122):
Texas (T104704215-14-16-TX), Arizona (AZ0765), Florida (E871002), Louisiana (03054)
New Jersey (TX007), North Carolina(681), Oklahoma (9218), Pennsylvania (68-03610)

Xenco-Atlanta (EPA Lab Code: GA00046):
Florida (E87429), North Carolina (483), South Carolina (98015), Kentucky (85), DoD (L10-135)
Louisiana (04176), USDA (P330-07-00105)

Xenco-Lakeland: Florida (E84098)
Xenco-Odessa (EPA Lab code: TX00158): Texas (T104704400-TX)
Xenco-Dallas (EPA Lab code: TX01468): Texas (T104704295-TX)
Xenco Phoenix (EPA Lab Code: AZ00901): Arizona(AZ0757)
Xenco-Phoenix Mobile (EPA Lab code: AZ00901): Arizona (AZM757)
Xenco Tucson (EPA Lab code:AZ000989): Arizona (AZ0758)

XENCO Laboratories
Florida Testing Services, LLC

20-FEB-14

Project Manager: **Tyler Boyles**
AMEC Environment & Infrastructure, Inc.
396 Plasters Ave
Atlanta, GA 30324

Reference: XENCO Report No(s): **479399**
139 Brampton Road
Project Address: Atlanta, GA

Tyler Boyles:

We are reporting to you the results of the analyses performed on the samples received under the project name referenced above and identified with the XENCO Report Number(s) 479399. All results being reported under this Report Number apply to the samples analyzed and properly identified with a Laboratory ID number. Subcontracted analyses are identified in this report with either the NELAC certification number of the subcontract lab in the analyst ID field, or the complete subcontracted report attached to this report.

Unless otherwise noted in a Case Narrative, all data reported in this Analytical Report are in compliance with NELAC standards. The uncertainty of measurement associated with the results of analysis reported is available upon request. Should insufficient sample be provided to the laboratory to meet the method and NELAC Matrix Duplicate and Matrix Spike requirements, then the data will be analyzed, evaluated and reported using all other available quality control measures.

The validity and integrity of this report will remain intact as long as it is accompanied by this letter and reproduced in full, unless written approval is granted by XENCO Laboratories. This report will be filed for at least 5 years in our archives after which time it will be destroyed without further notice, unless otherwise arranged with you. The samples received, and described as recorded in Report No. 479399 will be filed for 60 days, and after that time they will be properly disposed without further notice, unless otherwise arranged with you. We reserve the right to return to you any unused samples, extracts or solutions related to them if we consider so necessary (e.g., samples identified as hazardous waste, sample sizes exceeding analytical standard practices, controlled substances under regulated protocols, etc).

We thank you for selecting XENCO Laboratories to serve your analytical needs. If you have any questions concerning this report, please feel free to contact us at any time.

Respectfully,

Eben D. Buchanan, Jr.

Eben Buchanan
Project Manager

Recipient of the Prestigious Small Business Administration Award of Excellence in 1994.
Certified and approved by numerous States and Agencies.
A Small Business and Minority Status Company that delivers SERVICE and QUALITY

Houston - Dallas - Odessa - San Antonio - Tampa - Lakeland - Atlanta - Phoenix - Oklahoma - Latin America

Sample Cross Reference 479399

AMEC Environment & Infrastructure, Inc., Atlanta, GA

139 Brampton Road

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
EW-6	S	02-11-14 10:30		479399-001
EW-4	W	02-12-14 12:55		479399-002
EW-5	W	02-12-14 09:33		479399-003
EW-6	W	02-12-14 10:28		479399-004
EW-7	W	02-12-14 11:46		479399-005
GW-4	W	02-13-14 09:28		479399-006
GW-5	W	02-13-14 10:30		479399-007
GW-7	W	02-13-14 13:35		479399-008
GW-10	W	02-13-14 12:15		479399-009
HA-NS-01-1'	S	02-13-14 15:20	1 ft	479399-010
HA-NS-02-1'	S	02-13-14 15:07	1 ft	479399-013
Trip Blank	W	02-13-14 00:00		479399-016
HA-NS-01-2'	S	02-13-14 15:24	2 ft	Not Analyzed
HA-NS-01-3'	S	02-13-14 15:30	3 ft	Not Analyzed
HA-NS-02-2'	S	02-13-14 15:10	2 ft	Not Analyzed
HA-NS-02-3'	S	02-13-14 15:13	3 ft	Not Analyzed

Version: 1.%

CASE NARRATIVE

Client Name: AMEC Environment & Infrastructure, Inc.
Project Name: 139 Brampton Road

Project ID: *6121090220*
Work Order Number(s): *479399*

Report Date: *20-FEB-14*
Date Received: *02/14/2014*

Sample receipt non conformances and comments:

Sample receipt non conformances and comments per sample:

None

Analytical non conformances and comments:
Batch: LBA-934338 Xylenes by SW-846 8260B
Batch 934338,
2-Hexanone recovered above QC limits in the Matrix Spike. Bromoform recovered above QC limits in the Matrix Spike and Matrix Spike Duplicate.
The Laboratory Control Sample for Bromoform is within laboratory Control Limits.
2-Hexanone recovered above QC limits in the Blank Spike and Duplicate.
2-Hexanone was not detected in any of the associated samples.

Certificate of Analytical Results 479399

AMEC Environment & Infrastructure, Inc., Atlanta, GA

139 Brampton Road

Sample Id: **EW-6** Matrix: Soil Date Received:02.14.14 14.20

Lab Sample Id: 479399-001 Date Collected: 02.11.14 10.30

Analytical Method: TOC in Soils by Walkley Black

Tech: DHE % Moisture: 39.94

Analyst: DHE Basis: Dry Weight

Seq Number: 934339 SUB: E871002

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Total Organic Carbon	7440-44-0	BRL	0.833	mg/kg	02.19.14 13.49	U	1

Certificate of Analytical Results 479399

AMEC Environment & Infrastructure, Inc., Atlanta, GA

139 Brampton Road

Sample Id: **EW-4** Matrix: Ground Water Date Received:02.14.14 14.20

Lab Sample Id: 479399-002 Date Collected: 02.12.14 12.55

Analytical Method: VOCs by SW-846 8260B Prep Method: SW5030B

Tech: JOL % Moisture:

Analyst: JOL Date Prep: 02.18.14 09.16

Seq Number: 934338

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
1,1,1-Trichloroethane	71-55-6	BRL	1.00	ug/L	02.18.14 14.03	U	1
1,1,2,2-Tetrachloroethane	79-34-5	BRL	1.00	ug/L	02.18.14 14.03	U	1
1,1,2-Trichloro-1,2,2-Trifluoroethane	76-13-1	BRL	1.00	ug/L	02.18.14 14.03	U	1
1,1,2-Trichloroethane	79-00-5	BRL	1.00	ug/L	02.18.14 14.03	U	1
1,1-Dichloroethane	75-34-3	BRL	1.00	ug/L	02.18.14 14.03	U	1
1,1-Dichloroethene	75-35-4	BRL	1.00	ug/L	02.18.14 14.03	U	1
1,2,4-Trichlorobenzene	120-82-1	BRL	1.00	ug/L	02.18.14 14.03	U	1
1,2-Dibromo-3-chloropropane (DBCP)	96-12-8	BRL	1.00	ug/L	02.18.14 14.03	U	1
1,2-Dibromoethane (EDB)	106-93-4	BRL	1.00	ug/L	02.18.14 14.03	U	1
1,2-Dichlorobenzene	95-50-1	BRL	1.00	ug/L	02.18.14 14.03	U	1
1,2-Dichloroethane	107-06-2	BRL	1.00	ug/L	02.18.14 14.03	U	1
1,2-Dichloropropane	78-87-5	BRL	1.00	ug/L	02.18.14 14.03	U	1
1,3-Dichlorobenzene	541-73-1	BRL	1.00	ug/L	02.18.14 14.03	U	1
1,4-Dichlorobenzene	106-46-7	BRL	1.00	ug/L	02.18.14 14.03	U	1
1,4-Dioxane	123-91-1	BRL	20.0	ug/L	02.18.14 14.03	U	1
2-Butanone (MEK)	78-93-3	BRL	2.00	ug/L	02.18.14 14.03	U	1
2-Hexanone	591-78-6	BRL	2.00	ug/L	02.18.14 14.03	U	1
4-Methyl-2-pentanone (MIBK)	108-10-1	BRL	2.00	ug/L	02.18.14 14.03	U	1
Acetone	67-64-1	BRL	2.00	ug/L	02.18.14 14.03	U	1
Benzene	71-43-2	BRL	1.00	ug/L	02.18.14 14.03	U	1
Bromodichloromethane	75-27-4	BRL	1.00	ug/L	02.18.14 14.03	U	1
Bromoform	75-25-2	BRL	1.00	ug/L	02.18.14 14.03	U	1
Bromomethane	74-83-9	BRL	1.00	ug/L	02.18.14 14.03	U	1
Carbon disulfide	75-15-0	BRL	1.00	ug/L	02.18.14 14.03	U	1
Carbon tetrachloride	56-23-5	BRL	1.00	ug/L	02.18.14 14.03	U	1
Chlorobenzene	108-90-7	BRL	1.00	ug/L	02.18.14 14.03	U	1
Chloroethane	75-00-3	BRL	1.00	ug/L	02.18.14 14.03	U	1
Chloroform	67-66-3	BRL	1.00	ug/L	02.18.14 14.03	U	1
Chloromethane	74-87-3	BRL	1.00	ug/L	02.18.14 14.03	U	1
cis-1,2-Dichloroethene	156-59-2	BRL	1.00	ug/L	02.18.14 14.03	U	1
cis-1,3-Dichloropropene	10061-01-5	BRL	1.00	ug/L	02.18.14 14.03	U	1
Cyclohexane	110-82-7	BRL	1.00	ug/L	02.18.14 14.03	U	1
Dibromochloromethane	124-48-1	BRL	1.00	ug/L	02.18.14 14.03	U	1
Dichlorodifluoromethane	75-71-8	BRL	1.00	ug/L	02.18.14 14.03	U	1
Ethylbenzene	100-41-4	BRL	1.00	ug/L	02.18.14 14.03	U	1
Isopropylbenzene	98-82-8	BRL	1.00	ug/L	02.18.14 14.03	U	1
m,p-Xylenes	179601-23-1	BRL	2.00	ug/L	02.18.14 14.03	U	1
Methyl acetate	79-20-9	BRL	2.00	ug/L	02.18.14 14.03	U	1
Methyl tert-butyl ether	1634-04-4	BRL	2.00	ug/L	02.18.14 14.03	U	1

Certificate of Analytical Results 479399

AMEC Environment & Infrastructure, Inc., Atlanta, GA

139 Brampton Road

Sample Id: **EW-4** Matrix: Ground Water Date Received:02.14.14 14.20

Lab Sample Id: 479399-002 Date Collected: 02.12.14 12.55

Analytical Method: VOCs by SW-846 8260B Prep Method: SW5030B

Tech: JOL % Moisture:

Analyst: JOL Date Prep: 02.18.14 09.16

Seq Number: 934338

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Methylcyclohexane	108-87-2	BRL	1.00	ug/L	02.18.14 14.03	U	1
Methylene chloride	75-09-2	BRL	1.00	ug/L	02.18.14 14.03	U	1
o-Xylene	95-47-6	BRL	1.00	ug/L	02.18.14 14.03	U	1
Styrene	100-42-5	BRL	1.00	ug/L	02.18.14 14.03	U	1
Tetrachloroethene	127-18-4	BRL	1.00	ug/L	02.18.14 14.03	U	1
Toluene	108-88-3	BRL	1.00	ug/L	02.18.14 14.03	U	1
trans-1,2-Dichloroethene	156-60-5	BRL	1.00	ug/L	02.18.14 14.03	U	1
trans-1,3-Dichloropropene	10061-02-6	BRL	1.00	ug/L	02.18.14 14.03	U	1
Trichloroethene	79-01-6	BRL	1.00	ug/L	02.18.14 14.03	U	1
Trichlorofluoromethane	75-69-4	BRL	1.00	ug/L	02.18.14 14.03	U	1
Vinyl chloride	75-01-4	BRL	1.00	ug/L	02.18.14 14.03	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1,2-Dichloroethane-D4	17060-07-0	104	%	53-159	02.18.14 14.03	
4-Bromofluorobenzene	460-00-4	104	%	30-186	02.18.14 14.03	
Toluene-D8	2037-26-5	112	%	70-130	02.18.14 14.03	

Certificate of Analytical Results 479399

Florida Testing Services, LLC

AMEC Environment & Infrastructure, Inc., Atlanta, GA

139 Brampton Road

Sample Id: **EW-5** Matrix: Ground Water Date Received:02.14.14 14.20

Lab Sample Id: 479399-003 Date Collected: 02.12.14 09.33

Analytical Method: VOCs by SW-846 8260B Prep Method: SW5030B

Tech: JOL % Moisture:

Analyst: JOL Date Prep: 02.18.14 09.16

Seq Number: 934338

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
1,1,1-Trichloroethane	71-55-6	BRL	1.00	ug/L	02.18.14 14.30	U	1
1,1,2,2-Tetrachloroethane	79-34-5	BRL	1.00	ug/L	02.18.14 14.30	U	1
1,1,2-Trichloro-1,2,2-Trifluoroethane	76-13-1	BRL	1.00	ug/L	02.18.14 14.30	U	1
1,1,2-Trichloroethane	79-00-5	BRL	1.00	ug/L	02.18.14 14.30	U	1
1,1-Dichloroethane	75-34-3	BRL	1.00	ug/L	02.18.14 14.30	U	1
1,1-Dichloroethene	75-35-4	BRL	1.00	ug/L	02.18.14 14.30	U	1
1,2,4-Trichlorobenzene	120-82-1	BRL	1.00	ug/L	02.18.14 14.30	U	1
1,2-Dibromo-3-chloropropane (DBCP)	96-12-8	BRL	1.00	ug/L	02.18.14 14.30	U	1
1,2-Dibromoethane (EDB)	106-93-4	BRL	1.00	ug/L	02.18.14 14.30	U	1
1,2-Dichlorobenzene	95-50-1	BRL	1.00	ug/L	02.18.14 14.30	U	1
1,2-Dichloroethane	107-06-2	BRL	1.00	ug/L	02.18.14 14.30	U	1
1,2-Dichloropropane	78-87-5	BRL	1.00	ug/L	02.18.14 14.30	U	1
1,3-Dichlorobenzene	541-73-1	BRL	1.00	ug/L	02.18.14 14.30	U	1
1,4-Dichlorobenzene	106-46-7	BRL	1.00	ug/L	02.18.14 14.30	U	1
1,4-Dioxane	123-91-1	BRL	20.0	ug/L	02.18.14 14.30	U	1
2-Butanone (MEK)	78-93-3	BRL	2.00	ug/L	02.18.14 14.30	U	1
2-Hexanone	591-78-6	BRL	2.00	ug/L	02.18.14 14.30	U	1
4-Methyl-2-pentanone (MIBK)	108-10-1	BRL	2.00	ug/L	02.18.14 14.30	U	1
Acetone	67-64-1	BRL	2.00	ug/L	02.18.14 14.30	U	1
Benzene	71-43-2	BRL	1.00	ug/L	02.18.14 14.30	U	1
Bromodichloromethane	75-27-4	BRL	1.00	ug/L	02.18.14 14.30	U	1
Bromoform	75-25-2	BRL	1.00	ug/L	02.18.14 14.30	U	1
Bromomethane	74-83-9	BRL	1.00	ug/L	02.18.14 14.30	U	1
Carbon disulfide	75-15-0	BRL	1.00	ug/L	02.18.14 14.30	U	1
Carbon tetrachloride	56-23-5	BRL	1.00	ug/L	02.18.14 14.30	U	1
Chlorobenzene	108-90-7	BRL	1.00	ug/L	02.18.14 14.30	U	1
Chloroethane	75-00-3	BRL	1.00	ug/L	02.18.14 14.30	U	1
Chloroform	67-66-3	BRL	1.00	ug/L	02.18.14 14.30	U	1
Chloromethane	74-87-3	BRL	1.00	ug/L	02.18.14 14.30	U	1
cis-1,2-Dichloroethene	156-59-2	BRL	1.00	ug/L	02.18.14 14.30	U	1
cis-1,3-Dichloropropene	10061-01-5	BRL	1.00	ug/L	02.18.14 14.30	U	1
Cyclohexane	110-82-7	BRL	1.00	ug/L	02.18.14 14.30	U	1
Dibromochloromethane	124-48-1	BRL	1.00	ug/L	02.18.14 14.30	U	1
Dichlorodifluoromethane	75-71-8	BRL	1.00	ug/L	02.18.14 14.30	U	1
Ethylbenzene	100-41-4	BRL	1.00	ug/L	02.18.14 14.30	U	1
Isopropylbenzene	98-82-8	BRL	1.00	ug/L	02.18.14 14.30	U	1
m,p-Xylenes	179601-23-1	BRL	2.00	ug/L	02.18.14 14.30	U	1
Methyl acetate	79-20-9	BRL	2.00	ug/L	02.18.14 14.30	U	1
Methyl tert-butyl ether	1634-04-4	BRL	2.00	ug/L	02.18.14 14.30	U	1

Certificate of Analytical Results 479399

AMEC Environment & Infrastructure, Inc., Atlanta, GA

139 Brampton Road

Sample Id: **EW-5** Matrix: Ground Water Date Received:02.14.14 14.20

Lab Sample Id: 479399-003 Date Collected: 02.12.14 09.33

Analytical Method: VOCs by SW-846 8260B Prep Method: SW5030B

Tech: JOL % Moisture:

Analyst: JOL Date Prep: 02.18.14 09.16

Seq Number: 934338

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Methylcyclohexane	108-87-2	BRL	1.00	ug/L	02.18.14 14.30	U	1
Methylene chloride	75-09-2	BRL	1.00	ug/L	02.18.14 14.30	U	1
o-Xylene	95-47-6	BRL	1.00	ug/L	02.18.14 14.30	U	1
Styrene	100-42-5	BRL	1.00	ug/L	02.18.14 14.30	U	1
Tetrachloroethene	127-18-4	BRL	1.00	ug/L	02.18.14 14.30	U	1
Toluene	108-88-3	BRL	1.00	ug/L	02.18.14 14.30	U	1
trans-1,2-Dichloroethene	156-60-5	BRL	1.00	ug/L	02.18.14 14.30	U	1
trans-1,3-Dichloropropene	10061-02-6	BRL	1.00	ug/L	02.18.14 14.30	U	1
Trichloroethene	79-01-6	BRL	1.00	ug/L	02.18.14 14.30	U	1
Trichlorofluoromethane	75-69-4	BRL	1.00	ug/L	02.18.14 14.30	U	1
Vinyl chloride	75-01-4	BRL	1.00	ug/L	02.18.14 14.30	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1,2-Dichloroethane-D4	17060-07-0	103	%	53-159	02.18.14 14.30	
4-Bromofluorobenzene	460-00-4	102	%	30-186	02.18.14 14.30	
Toluene-D8	2037-26-5	111	%	70-130	02.18.14 14.30	

Certificate of Analytical Results 479399

AMEC Environment & Infrastructure, Inc., Atlanta, GA

139 Brampton Road

Sample Id: **EW-6** Matrix: Ground Water Date Received:02.14.14 14.20

Lab Sample Id: 479399-004 Date Collected: 02.12.14 10.28

Analytical Method: VOCs by SW-846 8260B Prep Method: SW5030B

Tech: JOL % Moisture:

Analyst: JOL Date Prep: 02.18.14 09.16

Seq Number: 934338

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
1,1,1-Trichloroethane	71-55-6	BRL	1.00	ug/L	02.18.14 14.57	U	1
1,1,2,2-Tetrachloroethane	79-34-5	BRL	1.00	ug/L	02.18.14 14.57	U	1
1,1,2-Trichloro-1,2,2-Trifluoroethane	76-13-1	BRL	1.00	ug/L	02.18.14 14.57	U	1
1,1,2-Trichloroethane	79-00-5	BRL	1.00	ug/L	02.18.14 14.57	U	1
1,1-Dichloroethane	75-34-3	**2.16**	1.00	ug/L	02.18.14 14.57		1
1,1-Dichloroethene	75-35-4	**2.82**	1.00	ug/L	02.18.14 14.57		1
1,2,4-Trichlorobenzene	120-82-1	BRL	1.00	ug/L	02.18.14 14.57	U	1
1,2-Dibromo-3-chloropropane (DBCP)	96-12-8	BRL	1.00	ug/L	02.18.14 14.57	U	1
1,2-Dibromoethane (EDB)	106-93-4	BRL	1.00	ug/L	02.18.14 14.57	U	1
1,2-Dichlorobenzene	95-50-1	BRL	1.00	ug/L	02.18.14 14.57	U	1
1,2-Dichloroethane	107-06-2	BRL	1.00	ug/L	02.18.14 14.57	U	1
1,2-Dichloropropane	78-87-5	BRL	1.00	ug/L	02.18.14 14.57	U	1
1,3-Dichlorobenzene	541-73-1	BRL	1.00	ug/L	02.18.14 14.57	U	1
1,4-Dichlorobenzene	106-46-7	BRL	1.00	ug/L	02.18.14 14.57	U	1
1,4-Dioxane	123-91-1	BRL	20.0	ug/L	02.18.14 14.57	U	1
2-Butanone (MEK)	78-93-3	BRL	2.00	ug/L	02.18.14 14.57	U	1
2-Hexanone	591-78-6	BRL	2.00	ug/L	02.18.14 14.57	U	1
4-Methyl-2-pentanone (MIBK)	108-10-1	BRL	2.00	ug/L	02.18.14 14.57	U	1
Acetone	67-64-1	BRL	2.00	ug/L	02.18.14 14.57	U	1
Benzene	71-43-2	BRL	1.00	ug/L	02.18.14 14.57	U	1
Bromodichloromethane	75-27-4	BRL	1.00	ug/L	02.18.14 14.57	U	1
Bromoform	75-25-2	BRL	1.00	ug/L	02.18.14 14.57	U	1
Bromomethane	74-83-9	BRL	1.00	ug/L	02.18.14 14.57	U	1
Carbon disulfide	75-15-0	BRL	1.00	ug/L	02.18.14 14.57	U	1
Carbon tetrachloride	56-23-5	BRL	1.00	ug/L	02.18.14 14.57	U	1
Chlorobenzene	108-90-7	BRL	1.00	ug/L	02.18.14 14.57	U	1
Chloroethane	75-00-3	BRL	1.00	ug/L	02.18.14 14.57	U	1
Chloroform	67-66-3	BRL	1.00	ug/L	02.18.14 14.57	U	1
Chloromethane	74-87-3	BRL	1.00	ug/L	02.18.14 14.57	U	1
cis-1,2-Dichloroethene	156-59-2	BRL	1.00	ug/L	02.18.14 14.57	U	1
cis-1,3-Dichloropropene	10061-01-5	BRL	1.00	ug/L	02.18.14 14.57	U	1
Cyclohexane	110-82-7	BRL	1.00	ug/L	02.18.14 14.57	U	1
Dibromochloromethane	124-48-1	BRL	1.00	ug/L	02.18.14 14.57	U	1
Dichlorodifluoromethane	75-71-8	BRL	1.00	ug/L	02.18.14 14.57	U	1
Ethylbenzene	100-41-4	BRL	1.00	ug/L	02.18.14 14.57	U	1
Isopropylbenzene	98-82-8	BRL	1.00	ug/L	02.18.14 14.57	U	1
m,p-Xylenes	179601-23-1	BRL	2.00	ug/L	02.18.14 14.57	U	1
Methyl acetate	79-20-9	BRL	2.00	ug/L	02.18.14 14.57	U	1
Methyl tert-butyl ether	1634-04-4	BRL	2.00	ug/L	02.18.14 14.57	U	1

Certificate of Analytical Results 479399

AMEC Environment & Infrastructure, Inc., Atlanta, GA

139 Brampton Road

Sample Id: **EW-6** Matrix: Ground Water Date Received:02.14.14 14.20

Lab Sample Id: 479399-004 Date Collected: 02.12.14 10.28

Analytical Method: VOCs by SW-846 8260B Prep Method: SW5030B

Tech: JOL % Moisture:

Analyst: JOL Date Prep: 02.18.14 09.16

Seq Number: 934338

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Methylcyclohexane	108-87-2	BRL	1.00	ug/L	02.18.14 14.57	U	1
Methylene chloride	75-09-2	BRL	1.00	ug/L	02.18.14 14.57	U	1
o-Xylene	95-47-6	BRL	1.00	ug/L	02.18.14 14.57	U	1
Styrene	100-42-5	BRL	1.00	ug/L	02.18.14 14.57	U	1
Tetrachloroethene	127-18-4	BRL	1.00	ug/L	02.18.14 14.57	U	1
Toluene	108-88-3	BRL	1.00	ug/L	02.18.14 14.57	U	1
trans-1,2-Dichloroethene	156-60-5	BRL	1.00	ug/L	02.18.14 14.57	U	1
trans-1,3-Dichloropropene	10061-02-6	BRL	1.00	ug/L	02.18.14 14.57	U	1
Trichloroethene	79-01-6	BRL	1.00	ug/L	02.18.14 14.57	U	1
Trichlorofluoromethane	75-69-4	BRL	1.00	ug/L	02.18.14 14.57	U	1
Vinyl chloride	75-01-4	BRL	1.00	ug/L	02.18.14 14.57	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1,2-Dichloroethane-D4	17060-07-0	104	%	53-159	02.18.14 14.57	
4-Bromofluorobenzene	460-00-4	105	%	30-186	02.18.14 14.57	
Toluene-D8	2037-26-5	110	%	70-130	02.18.14 14.57	

Certificate of Analytical Results 479399

AMEC Environment & Infrastructure, Inc., Atlanta, GA

139 Brampton Road

Sample Id: **EW-7** Matrix: Ground Water Date Received:02.14.14 14.20

Lab Sample Id: 479399-005 Date Collected: 02.12.14 11.46

Analytical Method: VOCs by SW-846 8260B Prep Method: SW5030B

Tech: JOL % Moisture:

Analyst: JOL Date Prep: 02.18.14 09.16

Seq Number: 934338

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
1,1,1-Trichloroethane	71-55-6	BRL	1.00	ug/L	02.18.14 15.24	U	1
1,1,2,2-Tetrachloroethane	79-34-5	BRL	1.00	ug/L	02.18.14 15.24	U	1
1,1,2-Trichloro-1,2,2-Trifluoroethane	76-13-1	BRL	1.00	ug/L	02.18.14 15.24	U	1
1,1,2-Trichloroethane	79-00-5	BRL	1.00	ug/L	02.18.14 15.24	U	1
1,1-Dichloroethane	75-34-3	**3.72**	1.00	ug/L	02.18.14 15.24		1
1,1-Dichloroethene	75-35-4	**10.7**	1.00	ug/L	02.18.14 15.24		1
1,2,4-Trichlorobenzene	120-82-1	BRL	1.00	ug/L	02.18.14 15.24	U	1
1,2-Dibromo-3-chloropropane (DBCP)	96-12-8	BRL	1.00	ug/L	02.18.14 15.24	U	1
1,2-Dibromoethane (EDB)	106-93-4	BRL	1.00	ug/L	02.18.14 15.24	U	1
1,2-Dichlorobenzene	95-50-1	BRL	1.00	ug/L	02.18.14 15.24	U	1
1,2-Dichloroethane	107-06-2	BRL	1.00	ug/L	02.18.14 15.24	U	1
1,2-Dichloropropane	78-87-5	BRL	1.00	ug/L	02.18.14 15.24	U	1
1,3-Dichlorobenzene	541-73-1	BRL	1.00	ug/L	02.18.14 15.24	U	1
1,4-Dichlorobenzene	106-46-7	BRL	1.00	ug/L	02.18.14 15.24	U	1
1,4-Dioxane	123-91-1	BRL	20.0	ug/L	02.18.14 15.24	U	1
2-Butanone (MEK)	78-93-3	BRL	2.00	ug/L	02.18.14 15.24	U	1
2-Hexanone	591-78-6	BRL	2.00	ug/L	02.18.14 15.24	U	1
4-Methyl-2-pentanone (MIBK)	108-10-1	BRL	2.00	ug/L	02.18.14 15.24	U	1
Acetone	67-64-1	BRL	2.00	ug/L	02.18.14 15.24	U	1
Benzene	71-43-2	BRL	1.00	ug/L	02.18.14 15.24	U	1
Bromodichloromethane	75-27-4	BRL	1.00	ug/L	02.18.14 15.24	U	1
Bromoform	75-25-2	BRL	1.00	ug/L	02.18.14 15.24	U	1
Bromomethane	74-83-9	BRL	1.00	ug/L	02.18.14 15.24	U	1
Carbon disulfide	75-15-0	BRL	1.00	ug/L	02.18.14 15.24	U	1
Carbon tetrachloride	56-23-5	BRL	1.00	ug/L	02.18.14 15.24	U	1
Chlorobenzene	108-90-7	BRL	1.00	ug/L	02.18.14 15.24	U	1
Chloroethane	75-00-3	BRL	1.00	ug/L	02.18.14 15.24	U	1
Chloroform	67-66-3	BRL	1.00	ug/L	02.18.14 15.24	U	1
Chloromethane	74-87-3	BRL	1.00	ug/L	02.18.14 15.24	U	1
cis-1,2-Dichloroethene	156-59-2	BRL	1.00	ug/L	02.18.14 15.24	U	1
cis-1,3-Dichloropropene	10061-01-5	BRL	1.00	ug/L	02.18.14 15.24	U	1
Cyclohexane	110-82-7	BRL	1.00	ug/L	02.18.14 15.24	U	1
Dibromochloromethane	124-48-1	BRL	1.00	ug/L	02.18.14 15.24	U	1
Dichlorodifluoromethane	75-71-8	BRL	1.00	ug/L	02.18.14 15.24	U	1
Ethylbenzene	100-41-4	BRL	1.00	ug/L	02.18.14 15.24	U	1
Isopropylbenzene	98-82-8	BRL	1.00	ug/L	02.18.14 15.24	U	1
m,p-Xylenes	179601-23-1	BRL	2.00	ug/L	02.18.14 15.24	U	1
Methyl acetate	79-20-9	BRL	2.00	ug/L	02.18.14 15.24	U	1
Methyl tert-butyl ether	1634-04-4	BRL	2.00	ug/L	02.18.14 15.24	U	1

Certificate of Analytical Results 479399

AMEC Environment & Infrastructure, Inc., Atlanta, GA

139 Brampton Road

Sample Id: **EW-7** Matrix: Ground Water Date Received:02.14.14 14.20

Lab Sample Id: 479399-005 Date Collected: 02.12.14 11.46

Analytical Method: VOCs by SW-846 8260B Prep Method: SW5030B

Tech: JOL % Moisture:

Analyst: JOL Date Prep: 02.18.14 09.16

Seq Number: 934338

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Methylcyclohexane	108-87-2	BRL	1.00	ug/L	02.18.14 15.24	U	1
Methylene chloride	75-09-2	BRL	1.00	ug/L	02.18.14 15.24	U	1
o-Xylene	95-47-6	BRL	1.00	ug/L	02.18.14 15.24	U	1
Styrene	100-42-5	BRL	1.00	ug/L	02.18.14 15.24	U	1
Tetrachloroethene	127-18-4	BRL	1.00	ug/L	02.18.14 15.24	U	1
Toluene	108-88-3	BRL	1.00	ug/L	02.18.14 15.24	U	1
trans-1,2-Dichloroethene	156-60-5	BRL	1.00	ug/L	02.18.14 15.24	U	1
trans-1,3-Dichloropropene	10061-02-6	BRL	1.00	ug/L	02.18.14 15.24	U	1
Trichloroethene	79-01-6	**4.34**	1.00	ug/L	02.18.14 15.24		1
Trichlorofluoromethane	75-69-4	BRL	1.00	ug/L	02.18.14 15.24	U	1
Vinyl chloride	75-01-4	BRL	1.00	ug/L	02.18.14 15.24	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1,2-Dichloroethane-D4	17060-07-0	103	%	53-159	02.18.14 15.24	
4-Bromofluorobenzene	460-00-4	103	%	30-186	02.18.14 15.24	
Toluene-D8	2037-26-5	110	%	70-130	02.18.14 15.24	

Certificate of Analytical Results 479399

Florida Testing Services, LLC

AMEC Environment & Infrastructure, Inc., Atlanta, GA

139 Brampton Road

Sample Id: **GW-4** Matrix: Ground Water Date Received:02.14.14 14.20

Lab Sample Id: 479399-006 Date Collected: 02.13.14 09.28

Analytical Method: VOCs by SW-846 8260B Prep Method: SW5030B

Tech: JOL % Moisture:

Analyst: JOL Date Prep: 02.18.14 09.16

Seq Number: 934338

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
1,1,1-Trichloroethane	71-55-6	BRL	1.00	ug/L	02.18.14 15.51	U	1
1,1,2,2-Tetrachloroethane	79-34-5	BRL	1.00	ug/L	02.18.14 15.51	U	1
1,1,2-Trichloro-1,2,2-Trifluoroethane	76-13-1	BRL	1.00	ug/L	02.18.14 15.51	U	1
1,1,2-Trichloroethane	79-00-5	BRL	1.00	ug/L	02.18.14 15.51	U	1
1,1-Dichloroethane	75-34-3	BRL	1.00	ug/L	02.18.14 15.51	U	1
1,1-Dichloroethene	75-35-4	BRL	1.00	ug/L	02.18.14 15.51	U	1
1,2,4-Trichlorobenzene	120-82-1	BRL	1.00	ug/L	02.18.14 15.51	U	1
1,2-Dibromo-3-chloropropane (DBCP)	96-12-8	BRL	1.00	ug/L	02.18.14 15.51	U	1
1,2-Dibromoethane (EDB)	106-93-4	BRL	1.00	ug/L	02.18.14 15.51	U	1
1,2-Dichlorobenzene	95-50-1	BRL	1.00	ug/L	02.18.14 15.51	U	1
1,2-Dichloroethane	107-06-2	BRL	1.00	ug/L	02.18.14 15.51	U	1
1,2-Dichloropropane	78-87-5	BRL	1.00	ug/L	02.18.14 15.51	U	1
1,3-Dichlorobenzene	541-73-1	BRL	1.00	ug/L	02.18.14 15.51	U	1
1,4-Dichlorobenzene	106-46-7	BRL	1.00	ug/L	02.18.14 15.51	U	1
1,4-Dioxane	123-91-1	BRL	20.0	ug/L	02.18.14 15.51	U	1
2-Butanone (MEK)	78-93-3	BRL	2.00	ug/L	02.18.14 15.51	U	1
2-Hexanone	591-78-6	BRL	2.00	ug/L	02.18.14 15.51	U	1
4-Methyl-2-pentanone (MIBK)	108-10-1	BRL	2.00	ug/L	02.18.14 15.51	U	1
Acetone	67-64-1	BRL	2.00	ug/L	02.18.14 15.51	U	1
Benzene	71-43-2	BRL	1.00	ug/L	02.18.14 15.51	U	1
Bromodichloromethane	75-27-4	BRL	1.00	ug/L	02.18.14 15.51	U	1
Bromoform	75-25-2	BRL	1.00	ug/L	02.18.14 15.51	U	1
Bromomethane	74-83-9	BRL	1.00	ug/L	02.18.14 15.51	U	1
Carbon disulfide	75-15-0	BRL	1.00	ug/L	02.18.14 15.51	U	1
Carbon tetrachloride	56-23-5	BRL	1.00	ug/L	02.18.14 15.51	U	1
Chlorobenzene	108-90-7	BRL	1.00	ug/L	02.18.14 15.51	U	1
Chloroethane	75-00-3	BRL	1.00	ug/L	02.18.14 15.51	U	1
Chloroform	67-66-3	BRL	1.00	ug/L	02.18.14 15.51	U	1
Chloromethane	74-87-3	BRL	1.00	ug/L	02.18.14 15.51	U	1
cis-1,2-Dichloroethene	156-59-2	BRL	1.00	ug/L	02.18.14 15.51	U	1
cis-1,3-Dichloropropene	10061-01-5	BRL	1.00	ug/L	02.18.14 15.51	U	1
Cyclohexane	110-82-7	BRL	1.00	ug/L	02.18.14 15.51	U	1
Dibromochloromethane	124-48-1	BRL	1.00	ug/L	02.18.14 15.51	U	1
Dichlorodifluoromethane	75-71-8	BRL	1.00	ug/L	02.18.14 15.51	U	1
Ethylbenzene	100-41-4	BRL	1.00	ug/L	02.18.14 15.51	U	1
Isopropylbenzene	98-82-8	BRL	1.00	ug/L	02.18.14 15.51	U	1
m,p-Xylenes	179601-23-1	BRL	2.00	ug/L	02.18.14 15.51	U	1
Methyl acetate	79-20-9	BRL	2.00	ug/L	02.18.14 15.51	U	1
Methyl tert-butyl ether	1634-04-4	BRL	2.00	ug/L	02.18.14 15.51	U	1

Certificate of Analytical Results 479399

AMEC Environment & Infrastructure, Inc., Atlanta, GA

139 Brampton Road

Sample Id: **GW-4** Matrix: Ground Water Date Received:02.14.14 14.20

Lab Sample Id: 479399-006 Date Collected: 02.13.14 09.28

Analytical Method: VOCs by SW-846 8260B Prep Method: SW5030B

Tech: JOL % Moisture:

Analyst: JOL Date Prep: 02.18.14 09.16

Seq Number: 934338

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Methylcyclohexane	108-87-2	BRL	1.00	ug/L	02.18.14 15.51	U	1
Methylene chloride	75-09-2	BRL	1.00	ug/L	02.18.14 15.51	U	1
o-Xylene	95-47-6	BRL	1.00	ug/L	02.18.14 15.51	U	1
Styrene	100-42-5	BRL	1.00	ug/L	02.18.14 15.51	U	1
Tetrachloroethene	127-18-4	BRL	1.00	ug/L	02.18.14 15.51	U	1
Toluene	108-88-3	BRL	1.00	ug/L	02.18.14 15.51	U	1
trans-1,2-Dichloroethene	156-60-5	BRL	1.00	ug/L	02.18.14 15.51	U	1
trans-1,3-Dichloropropene	10061-02-6	BRL	1.00	ug/L	02.18.14 15.51	U	1
Trichloroethene	79-01-6	BRL	1.00	ug/L	02.18.14 15.51	U	1
Trichlorofluoromethane	75-69-4	BRL	1.00	ug/L	02.18.14 15.51	U	1
Vinyl chloride	75-01-4	BRL	1.00	ug/L	02.18.14 15.51	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1,2-Dichloroethane-D4	17060-07-0	105	%	53-159	02.18.14 15.51	
4-Bromofluorobenzene	460-00-4	104	%	30-186	02.18.14 15.51	
Toluene-D8	2037-26-5	111	%	70-130	02.18.14 15.51	

Certificate of Analytical Results 479399

Florida Testing Services, LLC

AMEC Environment & Infrastructure, Inc., Atlanta, GA

139 Brampton Road

Sample Id: **GW-5** Matrix: Ground Water Date Received:02.14.14 14.20

Lab Sample Id: 479399-007 Date Collected: 02.13.14 10.30

Analytical Method: VOCs by SW-846 8260B Prep Method: SW5030B

Tech: JOL % Moisture:

Analyst: JOL Date Prep: 02.18.14 09.16

Seq Number: 934338

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
1,1,1-Trichloroethane	71-55-6	BRL	1.00	ug/L	02.18.14 16.18	U	1
1,1,2,2-Tetrachloroethane	79-34-5	BRL	1.00	ug/L	02.18.14 16.18	U	1
1,1,2-Trichloro-1,2,2-Trifluoroethane	76-13-1	BRL	1.00	ug/L	02.18.14 16.18	U	1
1,1,2-Trichloroethane	79-00-5	BRL	1.00	ug/L	02.18.14 16.18	U	1
1,1-Dichloroethane	75-34-3	BRL	1.00	ug/L	02.18.14 16.18	U	1
1,1-Dichloroethene	75-35-4	BRL	1.00	ug/L	02.18.14 16.18	U	1
1,2,4-Trichlorobenzene	120-82-1	BRL	1.00	ug/L	02.18.14 16.18	U	1
1,2-Dibromo-3-chloropropane (DBCP)	96-12-8	BRL	1.00	ug/L	02.18.14 16.18	U	1
1,2-Dibromoethane (EDB)	106-93-4	BRL	1.00	ug/L	02.18.14 16.18	U	1
1,2-Dichlorobenzene	95-50-1	BRL	1.00	ug/L	02.18.14 16.18	U	1
1,2-Dichloroethane	107-06-2	BRL	1.00	ug/L	02.18.14 16.18	U	1
1,2-Dichloropropane	78-87-5	BRL	1.00	ug/L	02.18.14 16.18	U	1
1,3-Dichlorobenzene	541-73-1	BRL	1.00	ug/L	02.18.14 16.18	U	1
1,4-Dichlorobenzene	106-46-7	BRL	1.00	ug/L	02.18.14 16.18	U	1
1,4-Dioxane	123-91-1	BRL	20.0	ug/L	02.18.14 16.18	U	1
2-Butanone (MEK)	78-93-3	BRL	2.00	ug/L	02.18.14 16.18	U	1
2-Hexanone	591-78-6	BRL	2.00	ug/L	02.18.14 16.18	U	1
4-Methyl-2-pentanone (MIBK)	108-10-1	BRL	2.00	ug/L	02.18.14 16.18	U	1
Acetone	67-64-1	BRL	2.00	ug/L	02.18.14 16.18	U	1
Benzene	71-43-2	BRL	1.00	ug/L	02.18.14 16.18	U	1
Bromodichloromethane	75-27-4	BRL	1.00	ug/L	02.18.14 16.18	U	1
Bromoform	75-25-2	BRL	1.00	ug/L	02.18.14 16.18	U	1
Bromomethane	74-83-9	BRL	1.00	ug/L	02.18.14 16.18	U	1
Carbon disulfide	75-15-0	BRL	1.00	ug/L	02.18.14 16.18	U	1
Carbon tetrachloride	56-23-5	BRL	1.00	ug/L	02.18.14 16.18	U	1
Chlorobenzene	108-90-7	BRL	1.00	ug/L	02.18.14 16.18	U	1
Chloroethane	75-00-3	BRL	1.00	ug/L	02.18.14 16.18	U	1
Chloroform	67-66-3	BRL	1.00	ug/L	02.18.14 16.18	U	1
Chloromethane	74-87-3	BRL	1.00	ug/L	02.18.14 16.18	U	1
cis-1,2-Dichloroethene	156-59-2	BRL	1.00	ug/L	02.18.14 16.18	U	1
cis-1,3-Dichloropropene	10061-01-5	BRL	1.00	ug/L	02.18.14 16.18	U	1
Cyclohexane	110-82-7	BRL	1.00	ug/L	02.18.14 16.18	U	1
Dibromochloromethane	124-48-1	BRL	1.00	ug/L	02.18.14 16.18	U	1
Dichlorodifluoromethane	75-71-8	BRL	1.00	ug/L	02.18.14 16.18	U	1
Ethylbenzene	100-41-4	BRL	1.00	ug/L	02.18.14 16.18	U	1
Isopropylbenzene	98-82-8	BRL	1.00	ug/L	02.18.14 16.18	U	1
m,p-Xylenes	179601-23-1	BRL	2.00	ug/L	02.18.14 16.18	U	1
Methyl acetate	79-20-9	BRL	2.00	ug/L	02.18.14 16.18	U	1
Methyl tert-butyl ether	1634-04-4	BRL	2.00	ug/L	02.18.14 16.18	U	1

Certificate of Analytical Results 479399

AMEC Environment & Infrastructure, Inc., Atlanta, GA

139 Brampton Road

Sample Id: **GW-5** Matrix: Ground Water Date Received:02.14.14 14.20

Lab Sample Id: 479399-007 Date Collected: 02.13.14 10.30

Analytical Method: VOCs by SW-846 8260B Prep Method: SW5030B

Tech: JOL % Moisture:

Analyst: JOL Date Prep: 02.18.14 09.16

Seq Number: 934338

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Methylcyclohexane	108-87-2	BRL	1.00	ug/L	02.18.14 16.18	U	1
Methylene chloride	75-09-2	BRL	1.00	ug/L	02.18.14 16.18	U	1
o-Xylene	95-47-6	BRL	1.00	ug/L	02.18.14 16.18	U	1
Styrene	100-42-5	BRL	1.00	ug/L	02.18.14 16.18	U	1
Tetrachloroethene	127-18-4	BRL	1.00	ug/L	02.18.14 16.18	U	1
Toluene	108-88-3	BRL	1.00	ug/L	02.18.14 16.18	U	1
trans-1,2-Dichloroethene	156-60-5	BRL	1.00	ug/L	02.18.14 16.18	U	1
trans-1,3-Dichloropropene	10061-02-6	BRL	1.00	ug/L	02.18.14 16.18	U	1
Trichloroethene	79-01-6	BRL	1.00	ug/L	02.18.14 16.18	U	1
Trichlorofluoromethane	75-69-4	BRL	1.00	ug/L	02.18.14 16.18	U	1
Vinyl chloride	75-01-4	BRL	1.00	ug/L	02.18.14 16.18	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1,2-Dichloroethane-D4	17060-07-0	104	%	53-159	02.18.14 16.18	
4-Bromofluorobenzene	460-00-4	104	%	30-186	02.18.14 16.18	
Toluene-D8	2037-26-5	111	%	70-130	02.18.14 16.18	

Certificate of Analytical Results 479399

AMEC Environment & Infrastructure, Inc., Atlanta, GA

139 Brampton Road

Sample Id: **GW-7**
Lab Sample Id: 479399-008

Matrix: Ground Water
Date Collected: 02.13.14 13.35

Date Received: 02.14.14 14.20

Analytical Method: Xylenes by SW-846 8260B
Tech: JOL
Analyst: JOL
Seq Number: 934338

Date Prep: 02.18.14 09.16

Prep Method: SW5030B
% Moisture:

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
m,p-Xylenes	179601-23-1	BRL	2.00	ug/L	02.18.14 16.45	U	1
o-Xylene	95-47-6	BRL	1.00	ug/L	02.18.14 16.45	U	1
Xylenes, Total	1330-20-7	BRL	1	ug/L	02.18.14 16.45	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1,2-Dichloroethane-D4	17060-07-0	104	%	53-159	02.18.14 16.45	
4-Bromofluorobenzene	460-00-4	103	%	30-186	02.18.14 16.45	
Toluene-D8	2037-26-5	111	%	70-130	02.18.14 16.45	

Certificate of Analytical Results 479399

Florida Testing Services, LLC

AMEC Environment & Infrastructure, Inc., Atlanta, GA

139 Brampton Road

Sample Id: **GW-10** Matrix: Ground Water Date Received:02.14.14 14.20

Lab Sample Id: 479399-009 Date Collected: 02.13.14 12.15

Analytical Method: VOCs by SW-846 8260B Prep Method: SW5030B

Tech: JOL % Moisture:

Analyst: JOL Date Prep: 02.18.14 09.16

Seq Number: 934338

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
1,1,1-Trichloroethane	71-55-6	BRL	1.00	ug/L	02.18.14 17.12	U	1
1,1,2,2-Tetrachloroethane	79-34-5	BRL	1.00	ug/L	02.18.14 17.12	U	1
1,1,2-Trichloro-1,2,2-Trifluoroethane	76-13-1	BRL	1.00	ug/L	02.18.14 17.12	U	1
1,1,2-Trichloroethane	79-00-5	BRL	1.00	ug/L	02.18.14 17.12	U	1
1,1-Dichloroethane	75-34-3	BRL	1.00	ug/L	02.18.14 17.12	U	1
1,1-Dichloroethene	75-35-4	BRL	1.00	ug/L	02.18.14 17.12	U	1
1,2,4-Trichlorobenzene	120-82-1	BRL	1.00	ug/L	02.18.14 17.12	U	1
1,2-Dibromo-3-chloropropane (DBCP)	96-12-8	BRL	1.00	ug/L	02.18.14 17.12	U	1
1,2-Dibromoethane (EDB)	106-93-4	BRL	1.00	ug/L	02.18.14 17.12	U	1
1,2-Dichlorobenzene	95-50-1	BRL	1.00	ug/L	02.18.14 17.12	U	1
1,2-Dichloroethane	107-06-2	BRL	1.00	ug/L	02.18.14 17.12	U	1
1,2-Dichloropropane	78-87-5	BRL	1.00	ug/L	02.18.14 17.12	U	1
1,3-Dichlorobenzene	541-73-1	BRL	1.00	ug/L	02.18.14 17.12	U	1
1,4-Dichlorobenzene	106-46-7	BRL	1.00	ug/L	02.18.14 17.12	U	1
1,4-Dioxane	123-91-1	BRL	20.0	ug/L	02.18.14 17.12	U	1
2-Butanone (MEK)	78-93-3	BRL	2.00	ug/L	02.18.14 17.12	U	1
2-Hexanone	591-78-6	BRL	2.00	ug/L	02.18.14 17.12	U	1
4-Methyl-2-pentanone (MIBK)	108-10-1	BRL	2.00	ug/L	02.18.14 17.12	U	1
Acetone	67-64-1	BRL	2.00	ug/L	02.18.14 17.12	U	1
Benzene	71-43-2	BRL	1.00	ug/L	02.18.14 17.12	U	1
Bromodichloromethane	75-27-4	BRL	1.00	ug/L	02.18.14 17.12	U	1
Bromoform	75-25-2	BRL	1.00	ug/L	02.18.14 17.12	U	1
Bromomethane	74-83-9	BRL	1.00	ug/L	02.18.14 17.12	U	1
Carbon disulfide	75-15-0	BRL	1.00	ug/L	02.18.14 17.12	U	1
Carbon tetrachloride	56-23-5	BRL	1.00	ug/L	02.18.14 17.12	U	1
Chlorobenzene	108-90-7	BRL	1.00	ug/L	02.18.14 17.12	U	1
Chloroethane	75-00-3	BRL	1.00	ug/L	02.18.14 17.12	U	1
Chloroform	67-66-3	BRL	1.00	ug/L	02.18.14 17.12	U	1
Chloromethane	74-87-3	BRL	1.00	ug/L	02.18.14 17.12	U	1
cis-1,2-Dichloroethene	156-59-2	BRL	1.00	ug/L	02.18.14 17.12	U	1
cis-1,3-Dichloropropene	10061-01-5	BRL	1.00	ug/L	02.18.14 17.12	U	1
Cyclohexane	110-82-7	BRL	1.00	ug/L	02.18.14 17.12	U	1
Dibromochloromethane	124-48-1	BRL	1.00	ug/L	02.18.14 17.12	U	1
Dichlorodifluoromethane	75-71-8	BRL	1.00	ug/L	02.18.14 17.12	U	1
Ethylbenzene	100-41-4	BRL	1.00	ug/L	02.18.14 17.12	U	1
Isopropylbenzene	98-82-8	BRL	1.00	ug/L	02.18.14 17.12	U	1
m,p-Xylenes	179601-23-1	BRL	2.00	ug/L	02.18.14 17.12	U	1
Methyl acetate	79-20-9	BRL	2.00	ug/L	02.18.14 17.12	U	1
Methyl tert-butyl ether	1634-04-4	BRL	2.00	ug/L	02.18.14 17.12	U	1

Certificate of Analytical Results 479399

AMEC Environment & Infrastructure, Inc., Atlanta, GA

139 Brampton Road

Sample Id: **GW-10** Matrix: Ground Water Date Received:02.14.14 14.20

Lab Sample Id: 479399-009 Date Collected: 02.13.14 12.15

Analytical Method: VOCs by SW-846 8260B Prep Method: SW5030B

Tech: JOL % Moisture:

Analyst: JOL Date Prep: 02.18.14 09.16

Seq Number: 934338

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Methylcyclohexane	108-87-2	BRL	1.00	ug/L	02.18.14 17.12	U	1
Methylene chloride	75-09-2	BRL	1.00	ug/L	02.18.14 17.12	U	1
o-Xylene	95-47-6	BRL	1.00	ug/L	02.18.14 17.12	U	1
Styrene	100-42-5	BRL	1.00	ug/L	02.18.14 17.12	U	1
Tetrachloroethene	127-18-4	**1.17**	1.00	ug/L	02.18.14 17.12		1
Toluene	108-88-3	BRL	1.00	ug/L	02.18.14 17.12	U	1
trans-1,2-Dichloroethene	156-60-5	BRL	1.00	ug/L	02.18.14 17.12	U	1
trans-1,3-Dichloropropene	10061-02-6	BRL	1.00	ug/L	02.18.14 17.12	U	1
Trichloroethene	79-01-6	**2.55**	1.00	ug/L	02.18.14 17.12		1
Trichlorofluoromethane	75-69-4	BRL	1.00	ug/L	02.18.14 17.12	U	1
Vinyl chloride	75-01-4	BRL	1.00	ug/L	02.18.14 17.12	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1,2-Dichloroethane-D4	17060-07-0	104	%	53-159	02.18.14 17.12	
4-Bromofluorobenzene	460-00-4	105	%	30-186	02.18.14 17.12	
Toluene-D8	2037-26-5	110	%	70-130	02.18.14 17.12	

Certificate of Analytical Results 479399

AMEC Environment & Infrastructure, Inc., Atlanta, GA

139 Brampton Road

Sample Id:	**HA-NS-01-1'**	Matrix:	Soil	Date Received:	02.14.14 14.20
Lab Sample Id:	479399-010	Date Collected:	02.13.14 15.20	Sample Depth:	1 ft

Analytical Method:	Metals, Total by SW846 6010C			Prep Method:	SW3050B
Tech:	JDR			% Moisture:	16.9
Analyst:	4150	Date Prep:	02.18.14 08.34	Basis:	Dry Weight
Seq Number:	934418				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Lead	7439-92-1	**10.5**	5.90	mg/kg	02.19.14 14.18		1

Certificate of Analytical Results 479399

AMEC Environment & Infrastructure, Inc., Atlanta, GA

139 Brampton Road

Sample Id:	**HA-NS-02-1'**	Matrix:	Soil	Date Received:	02.14.14 14.20
Lab Sample Id:	479399-013	Date Collected:	02.13.14 15.07	Sample Depth:	1 ft
Analytical Method:	Metals, Total by SW846 6010C			Prep Method:	SW3050B
Tech:	JDR			% Moisture:	16.47
Analyst:	4150	Date Prep:	02.18.14 08.34	Basis:	Dry Weight
Seq Number:	934418				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Lead	7439-92-1	**13.5**	5.76	mg/kg	02.19.14 14.06		1

Certificate of Analytical Results 479399

AMEC Environment & Infrastructure, Inc., Atlanta, GA

139 Brampton Road

Sample Id: **Trip Blank** Matrix: Water Date Received:02.14.14 14.20

Lab Sample Id: 479399-016 Date Collected: 02.13.14 00.00

Analytical Method: VOCs by SW-846 8260B Prep Method: SW5030B

Tech: JOL % Moisture:

Analyst: JOL Date Prep: 02.18.14 09.16

Seq Number: 934338

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
1,1,1-Trichloroethane	71-55-6	BRL	1.00	ug/L	02.18.14 13.35	U	1
1,1,2,2-Tetrachloroethane	79-34-5	BRL	1.00	ug/L	02.18.14 13.35	U	1
1,1,2-Trichloro-1,2,2-Trifluoroethane	76-13-1	BRL	1.00	ug/L	02.18.14 13.35	U	1
1,1,2-Trichloroethane	79-00-5	BRL	1.00	ug/L	02.18.14 13.35	U	1
1,1-Dichloroethane	75-34-3	BRL	1.00	ug/L	02.18.14 13.35	U	1
1,1-Dichloroethene	75-35-4	BRL	1.00	ug/L	02.18.14 13.35	U	1
1,2,4-Trichlorobenzene	120-82-1	BRL	1.00	ug/L	02.18.14 13.35	U	1
1,2-Dibromo-3-chloropropane (DBCP)	96-12-8	BRL	1.00	ug/L	02.18.14 13.35	U	1
1,2-Dibromoethane (EDB)	106-93-4	BRL	1.00	ug/L	02.18.14 13.35	U	1
1,2-Dichlorobenzene	95-50-1	BRL	1.00	ug/L	02.18.14 13.35	U	1
1,2-Dichloroethane	107-06-2	BRL	1.00	ug/L	02.18.14 13.35	U	1
1,2-Dichloropropane	78-87-5	BRL	1.00	ug/L	02.18.14 13.35	U	1
1,3-Dichlorobenzene	541-73-1	BRL	1.00	ug/L	02.18.14 13.35	U	1
1,4-Dichlorobenzene	106-46-7	BRL	1.00	ug/L	02.18.14 13.35	U	1
1,4-Dioxane	123-91-1	BRL	20.0	ug/L	02.18.14 13.35	U	1
2-Butanone (MEK)	78-93-3	BRL	2.00	ug/L	02.18.14 13.35	U	1
2-Hexanone	591-78-6	BRL	2.00	ug/L	02.18.14 13.35	U	1
4-Methyl-2-pentanone (MIBK)	108-10-1	BRL	2.00	ug/L	02.18.14 13.35	U	1
Acetone	67-64-1	BRL	2.00	ug/L	02.18.14 13.35	U	1
Benzene	71-43-2	BRL	1.00	ug/L	02.18.14 13.35	U	1
Bromodichloromethane	75-27-4	BRL	1.00	ug/L	02.18.14 13.35	U	1
Bromoform	75-25-2	BRL	1.00	ug/L	02.18.14 13.35	U	1
Bromomethane	74-83-9	BRL	1.00	ug/L	02.18.14 13.35	U	1
Carbon disulfide	75-15-0	BRL	1.00	ug/L	02.18.14 13.35	U	1
Carbon tetrachloride	56-23-5	BRL	1.00	ug/L	02.18.14 13.35	U	1
Chlorobenzene	108-90-7	BRL	1.00	ug/L	02.18.14 13.35	U	1
Chloroethane	75-00-3	BRL	1.00	ug/L	02.18.14 13.35	U	1
Chloroform	67-66-3	BRL	1.00	ug/L	02.18.14 13.35	U	1
Chloromethane	74-87-3	BRL	1.00	ug/L	02.18.14 13.35	U	1
cis-1,2-Dichloroethene	156-59-2	BRL	1.00	ug/L	02.18.14 13.35	U	1
cis-1,3-Dichloropropene	10061-01-5	BRL	1.00	ug/L	02.18.14 13.35	U	1
Cyclohexane	110-82-7	BRL	1.00	ug/L	02.18.14 13.35	U	1
Dibromochloromethane	124-48-1	BRL	1.00	ug/L	02.18.14 13.35	U	1
Dichlorodifluoromethane	75-71-8	BRL	1.00	ug/L	02.18.14 13.35	U	1
Ethylbenzene	100-41-4	BRL	1.00	ug/L	02.18.14 13.35	U	1
Isopropylbenzene	98-82-8	BRL	1.00	ug/L	02.18.14 13.35	U	1
m,p-Xylenes	179601-23-1	BRL	2.00	ug/L	02.18.14 13.35	U	1
Methyl acetate	79-20-9	BRL	2.00	ug/L	02.18.14 13.35	U	1
Methyl tert-butyl ether	1634-04-4	BRL	2.00	ug/L	02.18.14 13.35	U	1

Certificate of Analytical Results 479399

AMEC Environment & Infrastructure, Inc., Atlanta, GA

139 Brampton Road

Sample Id: **Trip Blank** Matrix: Water Date Received:02.14.14 14.20

Lab Sample Id: 479399-016 Date Collected: 02.13.14 00.00

Analytical Method: VOCs by SW-846 8260B Prep Method: SW5030B

Tech: JOL % Moisture:

Analyst: JOL Date Prep: 02.18.14 09.16

Seq Number: 934338

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Methylcyclohexane	108-87-2	BRL	1.00	ug/L	02.18.14 13.35	U	1
Methylene chloride	75-09-2	BRL	1.00	ug/L	02.18.14 13.35	U	1
o-Xylene	95-47-6	BRL	1.00	ug/L	02.18.14 13.35	U	1
Styrene	100-42-5	BRL	1.00	ug/L	02.18.14 13.35	U	1
Tetrachloroethene	127-18-4	BRL	1.00	ug/L	02.18.14 13.35	U	1
Toluene	108-88-3	BRL	1.00	ug/L	02.18.14 13.35	U	1
trans-1,2-Dichloroethene	156-60-5	BRL	1.00	ug/L	02.18.14 13.35	U	1
trans-1,3-Dichloropropene	10061-02-6	BRL	1.00	ug/L	02.18.14 13.35	U	1
Trichloroethene	79-01-6	BRL	1.00	ug/L	02.18.14 13.35	U	1
Trichlorofluoromethane	75-69-4	BRL	1.00	ug/L	02.18.14 13.35	U	1
Vinyl chloride	75-01-4	BRL	1.00	ug/L	02.18.14 13.35	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1,2-Dichloroethane-D4	17060-07-0	103	%	53-159	02.18.14 13.35	
4-Bromofluorobenzene	460-00-4	103	%	30-186	02.18.14 13.35	
Toluene-D8	2037-26-5	113	%	70-130	02.18.14 13.35	

Flagging Criteria

X In our quality control review of the data a QC deficiency was observed and flagged as noted. MS/MSD recoveries were found to be outside of the laboratory control limits due to possible matrix /chemical interference, or a concentration of target analyte high enough to affect the recovery of the spike concentration. This condition could also affect the relative percent difference in the MS/MSD.

B A target analyte or common laboratory contaminant was identified in the method blank. Its presence indicates possible field or laboratory contamination.

D The sample(s) were diluted due to targets detected over the highest point of the calibration curve, or due to matrix interference. Dilution factors are included in the final results. The result is from a diluted sample.

E The data exceeds the upper calibration limit; therefore, the concentration is reported as estimated.

F RPD exceeded lab control limits.

J The target analyte was positively identified below the quantitation limit and above the detection limit.

U Analyte was not detected.

L The LCS data for this analytical batch was reported below the laboratory control limits for this analyte. The department supervisor and QA Director reviewed data. The samples were either reanalyzed or flagged as estimated concentrations.

H The LCS data for this analytical batch was reported above the laboratory control limits. Supporting QC Data were reviewed by the Department Supervisor and QA Director. Data were determined to be valid for reporting.

K Sample analyzed outside of recommended hold time.

JN A combination of the "N" and the "J" qualifier. The analysis indicates that the analyte is "tentatively identified" and the associated numerical value may not be consistent with the amount actually present in the environmental sample.

** Surrogate recovered outside laboratory control limit.

BRL Below Reporting Limit.

RL Reporting Limit

MDL Method Detection Limit **SDL** Sample Detection Limit **LOD** Limit of Detection

PQL Practical Quantitation Limit **MQL** Method Quantitation Limit **LOQ** Limit of Quantitation

DL Method Detection Limit

NC Non-Calculable

+ NELAC certification not offered for this compound.

***** (Next to analyte name or method description) = Outside XENCO's scope of NELAC accreditation

QC Summary 479399

Florida Testing Services, LLC

AMEC Environment & Infrastructure, Inc.

139 Brampton Road

Analytical Method: **Metals, Total by SW846 6010C** Prep Method: SW3050B
Seq Number: 934418 Matrix: Solid Date Prep: 02.18.14
MB Sample Id: 651157-1-BLK LCS Sample Id: 651157-1-BKS LCSD Sample Id: 651157-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Lead	<0.279	100	94.4	94	93.5	94	75-125	1	20	mg/kg	02.19.14 14:02	

Analytical Method: **Metals, Total by SW846 6010C** Prep Method: SW3050B
Seq Number: 934418 Matrix: Soil Date Prep: 02.18.14
Parent Sample Id: 479399-013 MD Sample Id: 479399-013 D

Parameter	Parent Result	MD Result	%RPD	RPD Limit	Units	Analysis Date	Flag
Lead	13.5	12.7	6	20	mg/kg	02.19.14 14:08	

Analytical Method: **Metals, Total by SW846 6010C** Prep Method: SW3050B
Seq Number: 934418 Matrix: Soil Date Prep: 02.18.14
Parent Sample Id: 479399-013 MS Sample Id: 479399-013 S MSD Sample Id: 479399-013 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Lead	13.5	117	124	94	121	90	75-125	2	20	mg/kg	02.19.14 14:10	

Analytical Method: **Percent Moisture**
Seq Number: 934210 Matrix: Soil
Parent Sample Id: 479435-001 MD Sample Id: 479435-001 D

Parameter	Parent Result	MD Result	%RPD	RPD Limit	Units	Analysis Date	Flag
Percent Moisture	20.8	21.4	3	20	%	02.17.14 16:15	

Analytical Method: **Percent Moisture**
Seq Number: 934210 Matrix: Soil
Parent Sample Id: 479435-011 MD Sample Id: 479435-011 D

Parameter	Parent Result	MD Result	%RPD	RPD Limit	Units	Analysis Date	Flag
Percent Moisture	13.4	13.0	3	20	%	02.17.14 16:15	

Analytical Method: **Percent Moisture**
Seq Number: 934210 Matrix: Soil
Parent Sample Id: 479435-021 MD Sample Id: 479435-021 D

Parameter	Parent Result	MD Result	%RPD	RPD Limit	Units	Analysis Date	Flag
Percent Moisture	12.4	12.4	0	20	%	02.17.14 16:15	

QC Summary 479399

Florida Testing Services, LLC

AMEC Environment & Infrastructure, Inc.

139 Brampton Road

Analytical Method: **TOC in Soils by Walkley Black**

Seq Number: 934339 Matrix: Solid

MB Sample Id: 934339-1-BLK LCS Sample Id: 934339-1-BKS LCSD Sample Id: 934339-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Total Organic Carbon	<0.250	20000	20900	105	20100	101	70-130	4	30	mg/kg	02.19.14 13:49	

Analytical Method: **TOC in Soils by Walkley Black**

Seq Number: 934339 Matrix: Solid

Parent Sample Id: 479195-008 MD Sample Id: 479195-008 D

Parameter	Parent Result	MD Result	%RPD	RPD Limit	Units	Analysis Date	Flag
Total Organic Carbon	27900	26300	6	30	mg/kg	02.19.14 13:49	

QC Summary 479399

XENCO Laboratories
Florida Testing Services, LLC

AMEC Environment & Infrastructure, Inc.

139 Brampton Road

Analytical Method: **Xylenes by SW-846 8260B** Prep Method: SW5030B
Seq Number: 934338 Matrix: Water Date Prep: 02.18.14
MB Sample Id: 651257-1-BLK LCS Sample Id: 651257-1-BKS LCSD Sample Id: 651257-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
1,1,1-Trichloroethane	<0.160	50.0	40.8	82	43.3	87	65-130	6	20	ug/L	02.18.14 10:25	
1,1,2,2-Tetrachloroethane	<0.180	50.0	62.7	125	64.6	129	65-130	3	20	ug/L	02.18.14 10:25	
1,1,2-Trichloro-1,2,2-Trifluoroethane	<0.110	50.0	46.8	94	46.3	93	65-130	1	20	ug/L	02.18.14 10:25	
1,1,2-Trichloroethane	<0.250	50.0	56.4	113	57.3	115	75-125	2	20	ug/L	02.18.14 10:25	
1,1-Dichloroethane	<0.110	50.0	47.2	94	46.7	93	70-135	1	20	ug/L	02.18.14 10:25	
1,1-Dichloroethene	<0.200	50.0	46.6	93	46.2	92	70-130	1	20	ug/L	02.18.14 10:25	
1,2,4-Trichlorobenzene	<0.170	50.0	57.1	114	57.6	115	65-135	1	20	ug/L	02.18.14 10:25	
1,2-Dibromo-3-Chloropropane	<0.190	50.0	61.2	122	63.1	126	50-130	3	20	ug/L	02.18.14 10:25	
1,2-Dibromoethane	<0.180	50.0	56.5	113	57.5	115	80-120	2	20	ug/L	02.18.14 10:25	
1,2-Dichlorobenzene	<0.140	50.0	55.2	110	56.0	112	70-120	1	20	ug/L	02.18.14 10:25	
1,2-Dichloroethane	<0.180	50.0	47.4	95	47.7	95	70-130	1	20	ug/L	02.18.14 10:25	
1,2-Dichloropropane	<0.150	50.0	48.4	97	49.2	98	75-125	2	20	ug/L	02.18.14 10:25	
1,3-Dichlorobenzene	<0.170	50.0	53.7	107	54.7	109	75-125	2	20	ug/L	02.18.14 10:25	
1,4-Dichlorobenzene	<0.170	50.0	53.6	107	54.1	108	75-125	1	20	ug/L	02.18.14 10:25	
1,4-Dioxane (P-Dioxane)	<8.84	1000	2110	211	2120	212	30-145	0	20	ug/L	02.18.14 10:25	H
Methyl ethyl ketone	<0.280	100	127	127	126	126	30-150	1	20	ug/L	02.18.14 10:25	
2-Hexanone	<0.320	100	139	139	141	141	55-130	1	20	ug/L	02.18.14 10:25	H
4-Methyl-2-Pentanone	<0.260	100	108	108	112	112	60-135	4	20	ug/L	02.18.14 10:25	
Acetone	<0.350	100	128	128	124	124	40-140	3	20	ug/L	02.18.14 10:25	
Benzene	<0.160	50.0	46.9	94	47.0	94	80-120	0	20	ug/L	02.18.14 10:25	
Bromodichloromethane	<0.250	50.0	47.6	95	48.9	98	75-120	3	20	ug/L	02.18.14 10:25	
Bromoform	<0.170	50.0	62.5	125	63.5	127	70-130	2	20	ug/L	02.18.14 10:25	
Methyl bromide	<0.250	50.0	41.6	83	39.7	79	30-145	5	20	ug/L	02.18.14 10:25	
Carbon Disulfide	<0.260	50.0	40.0	80	44.1	88	35-160	10	20	ug/L	02.18.14 10:25	
Carbon Tetrachloride	<0.330	50.0	40.8	82	44.4	89	65-140	8	20	ug/L	02.18.14 10:25	
Chlorobenzene	<0.150	50.0	51.4	103	52.6	105	80-120	2	20	ug/L	02.18.14 10:25	
Chloroethane	<0.260	50.0	45.0	90	44.6	89	60-135	1	20	ug/L	02.18.14 10:25	
Chloroform	<0.160	50.0	46.1	92	46.0	92	65-135	0	20	ug/L	02.18.14 10:25	
Methyl Chloride	<0.250	50.0	38.8	78	38.9	78	40-125	0	20	ug/L	02.18.14 10:25	
cis-1,2-Dichloroethylene	<0.210	50.0	46.7	93	47.1	94	70-125	1	20	ug/L	02.18.14 10:25	
cis-1,3-Dichloropropene	<0.100	50.0	49.2	98	50.9	102	70-130	3	20	ug/L	02.18.14 10:25	
Cyclohexane	<0.150	50.0	48.2	96	47.3	95	65-135	2	20	ug/L	02.18.14 10:25	
Dibromochloromethane	<0.150	50.0	54.4	109	55.2	110	60-135	1	20	ug/L	02.18.14 10:25	
Dichlorodifluoromethane	<0.220	50.0	27.7	55	24.7	49	30-155	11	20	ug/L	02.18.14 10:25	
Ethylbenzene	<0.190	50.0	51.2	102	52.3	105	75-125	2	20	ug/L	02.18.14 10:25	
Isopropylbenzene	<0.150	50.0	52.3	105	53.2	106	75-125	2	20	ug/L	02.18.14 10:25	
m,p-Xylenes	<0.510	100	103	103	104	104	75-130	1	20	ug/L	02.18.14 10:25	
Methyl Acetate	<0.260	50.0	52.8	106	52.9	106	65-135	0	20	ug/L	02.18.14 10:25	
MTBE	<0.180	100	99.4	99	93.2	93	65-125	6	20	ug/L	02.18.14 10:25	
Methylcyclohexane	<0.110	50.0	37.8	76	36.7	73	65-135	3	20	ug/L	02.18.14 10:25	
Methylene Chloride	<0.420	50.0	45.9	92	46.4	93	55-140	1	20	ug/L	02.18.14 10:25	
o-Xylene	<0.200	50.0	51.1	102	51.8	104	80-120	1	20	ug/L	02.18.14 10:25	
Styrene	<0.180	50.0	52.9	106	53.8	108	65-135	2	20	ug/L	02.18.14 10:25	
Tetrachloroethylene	<0.160	50.0	50.1	100	50.8	102	45-150	1	20	ug/L	02.18.14 10:25	
Toluene	<0.140	50.0	51.8	104	52.7	105	75-120	2	20	ug/L	02.18.14 10:25	
trans-1,2-dichloroethylene	<0.210	50.0	46.8	94	45.8	92	60-140	2	20	ug/L	02.18.14 10:25	
trans-1,3-dichloropropene	<0.110	50.0	57.0	114	58.0	116	55-140	2	20	ug/L	02.18.14 10:25	
Trichloroethylene	<0.190	50.0	46.5	93	47.8	96	70-125	3	20	ug/L	02.18.14 10:25	
Trichlorofluoromethane	<0.530	50.0	44.1	88	43.1	86	60-145	2	20	ug/L	02.18.14 10:25	
Vinyl Chloride	<0.190	50.0	41.8	84	38.0	76	50-145	10	20	ug/L	02.18.14 10:25	

QC Summary 479399

AMEC Environment & Infrastructure, Inc.

139 Brampton Road

Analytical Method:	**Xylenes by SW-846 8260B**			Prep Method:	SW5030B
Seq Number:	934338	Matrix:	Water	Date Prep:	02.18.14
MB Sample Id:	651257-1-BLK	LCS Sample Id:	651257-1-BKS	LCSD Sample Id:	651257-1-BSD

Surrogate	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1,2-Dichloroethane-D4	102		106		105		53-159	%	02.18.14 10:25
4-Bromofluorobenzene	105		103		104		30-186	%	02.18.14 10:25
Toluene-D8	110		109		107		70-130	%	02.18.14 10:25

QC Summary 479399

Florida Testing Services, LLC

AMEC Environment & Infrastructure, Inc.

139 Brampton Road

Analytical Method: **Xylenes by SW-846 8260B** Prep Method: SW5030B

Seq Number: 934338 Matrix: Ground Water Date Prep: 02.18.14

Parent Sample Id: 479399-002 MS Sample Id: 479399-002 S MSD Sample Id: 479399-002 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
1,1,1-Trichloroethane	<0.160	50.0	44.1	88	43.8	88	59-138	1	20	ug/L	02.18.14 20:52	
1,1,2,2-Tetrachloroethane	<0.180	50.0	62.3	125	60.6	121	63-126	3	20	ug/L	02.18.14 20:52	
1,1,2-Trichloro-1,2,2-Trifluoroethane	<0.110	50.0	40.9	82	40.3	81	53-138	1	20	ug/L	02.18.14 20:52	
1,1,2-Trichloroethane	<0.250	50.0	56.9	114	55.2	110	72-115	3	20	ug/L	02.18.14 20:52	
1,1-Dichloroethane	<0.110	50.0	45.6	91	45.1	90	69-132	1	20	ug/L	02.18.14 20:52	
1,1-Dichloroethene	<0.200	50.0	39.8	80	46.5	93	62-131	16	20	ug/L	02.18.14 20:52	
1,2,4-Trichlorobenzene	<0.170	50.0	52.4	105	52.7	105	34-131	1	20	ug/L	02.18.14 20:52	
1,2-Dibromo-3-Chloropropane	<0.190	50.0	60.4	121	58.2	116	53-121	4	20	ug/L	02.18.14 20:52	
1,2-Dibromoethane	<0.180	50.0	57.2	114	55.5	111	66-125	3	20	ug/L	02.18.14 20:52	
1,2-Dichlorobenzene	<0.140	50.0	52.6	105	52.5	105	58-124	0	20	ug/L	02.18.14 20:52	
1,2-Dichloroethane	<0.180	50.0	47.5	95	46.2	92	55-141	3	20	ug/L	02.18.14 20:52	
1,2-Dichloropropane	<0.150	50.0	47.5	95	47.4	95	78-121	0	20	ug/L	02.18.14 20:52	
1,3-Dichlorobenzene	<0.170	50.0	51.6	103	50.6	101	62-120	2	20	ug/L	02.18.14 20:52	
1,4-Dichlorobenzene	<0.170	50.0	51.4	103	50.7	101	64-114	1	20	ug/L	02.18.14 20:52	
1,4-Dioxane (P-Dioxane)	<8.84	1000	2620	262	2820	282	11-185	7	20	ug/L	02.18.14 20:52	X
Methyl ethyl ketone	<0.280	100	123	123	120	120	50-152	2	20	ug/L	02.18.14 20:52	
2-Hexanone	<0.320	100	138	138	133	133	55-136	4	20	ug/L	02.18.14 20:52	X
4-Methyl-2-Pentanone	<0.260	100	111	111	107	107	65-132	4	20	ug/L	02.18.14 20:52	
Acetone	<0.350	100	105	105	103	103	40-140	2	20	ug/L	02.18.14 20:52	
Benzene	<0.160	50.0	45.8	92	45.6	91	77-118	0	20	ug/L	02.18.14 20:52	
Bromodichloromethane	<0.250	50.0	47.3	95	47.0	94	68-125	1	20	ug/L	02.18.14 20:52	
Bromoform	<0.170	50.0	60.6	121	60.1	120	53-112	1	20	ug/L	02.18.14 20:52	X
Methyl bromide	<0.250	50.0	35.5	71	33.1	66	63-137	7	20	ug/L	02.18.14 20:52	
Carbon Disulfide	<0.260	50.0	40.0	80	40.8	82	26-147	2	20	ug/L	02.18.14 20:52	
Carbon Tetrachloride	<0.330	50.0	43.2	86	42.4	85	56-138	2	20	ug/L	02.18.14 20:52	
Chlorobenzene	<0.150	50.0	51.7	103	50.2	100	71-114	3	20	ug/L	02.18.14 20:52	
Chloroethane	<0.260	50.0	37.4	75	36.6	73	60-137	2	20	ug/L	02.18.14 20:52	
Chloroform	<0.160	50.0	45.9	92	45.3	91	65-131	1	20	ug/L	02.18.14 20:52	
Methyl Chloride	<0.250	50.0	32.1	64	32.2	64	48-151	0	20	ug/L	02.18.14 20:52	
cis-1,2-Dichloroethylene	<0.210	50.0	46.4	93	45.9	92	22-185	1	20	ug/L	02.18.14 20:52	
cis-1,3-Dichloropropene	<0.100	50.0	48.3	97	47.5	95	67-113	2	20	ug/L	02.18.14 20:52	
Cyclohexane	<0.150	50.0	31.9	64	30.7	61	61-141	4	20	ug/L	02.18.14 20:52	
Dibromochloromethane	<0.150	50.0	54.2	108	53.9	108	53-125	1	20	ug/L	02.18.14 20:52	
Dichlorodifluoromethane	<0.220	50.0	25.7	51	24.8	50	38-145	4	20	ug/L	02.18.14 20:52	
Ethylbenzene	<0.190	50.0	53.3	107	50.5	101	66-127	5	20	ug/L	02.18.14 20:52	
Isopropylbenzene	<0.150	50.0	49.5	99	48.9	98	58-127	1	20	ug/L	02.18.14 20:52	
m,p-Xylenes	<0.510	100	110	110	101	101	65-126	9	20	ug/L	02.18.14 20:52	
Methyl Acetate	<0.260	50.0	48.2	96	47.1	94	65-135	2	20	ug/L	02.18.14 20:52	
MTBE	<0.180	100	101	101	98.6	99	58-141	2	20	ug/L	02.18.14 20:52	
Methylcyclohexane	<0.110	50.0	35.7	71	35.3	71	64-128	1	20	ug/L	02.18.14 20:52	
Methylene Chloride	<0.420	50.0	45.3	91	44.3	89	63-150	2	20	ug/L	02.18.14 20:52	
o-Xylene	<0.200	50.0	53.5	107	50.7	101	64-123	5	20	ug/L	02.18.14 20:52	
Styrene	<0.180	50.0	52.2	104	50.7	101	50-133	3	20	ug/L	02.18.14 20:52	
Tetrachloroethylene	<0.160	50.0	48.9	98	47.9	96	52-125	2	20	ug/L	02.18.14 20:52	
Toluene	<0.140	50.0	51.4	103	50.6	101	65-123	2	20	ug/L	02.18.14 20:52	
trans-1,2-dichloroethylene	<0.210	50.0	44.6	89	44.0	88	65-135	1	20	ug/L	02.18.14 20:52	
trans-1,3-dichloropropene	<0.110	50.0	55.9	112	54.8	110	50-125	2	20	ug/L	02.18.14 20:52	
Trichloroethylene	<0.190	50.0	46.4	93	45.6	91	65-125	2	20	ug/L	02.18.14 20:52	
Trichlorofluoromethane	<0.530	50.0	42.1	84	40.9	82	51-145	3	20	ug/L	02.18.14 20:52	
Vinyl Chloride	<0.190	50.0	33.3	67	32.9	66	52-140	1	20	ug/L	02.18.14 20:52	

QC Summary 479399

AMEC Environment & Infrastructure, Inc.

139 Brampton Road

Analytical Method:	**Xylenes by SW-846 8260B**			Prep Method:	SW5030B
Seq Number:	934338	Matrix:	Ground Water	Date Prep:	02.18.14
Parent Sample Id:	479399-002	MS Sample Id:	479399-002 S	MSD Sample Id:	479399-002 SD

Surrogate	**MS %Rec**	**MS Flag**	**MSD %Rec**	**MSD Flag**	**Limits**	**Units**	**Analysis Date**
1,2-Dichloroethane-D4	105		105		53-159	%	02.18.14 20:52
4-Bromofluorobenzene	103		104		30-186	%	02.18.14 20:52
Toluene-D8	109		108		70-130	%	02.18.14 20:52

XENCO LABORATORIES
CHAIN OF CUSTODY

6017 Financial Drive, Norcross, GA 30071
Phone # (770) 449-8800 Fax # (770) 449-5477

Company Name: AMEC
Address: 396 Plasters Ave
Results Sent to: Tyler Boyle
Email address: tyler.boyle@amec.com
Contact Phone #: 404 817 0153 Cell#: 404 663 9039
Project Name (Site): 139 Brampton Road
Project Number (ID): 6121-09-0220
Regulatory Program:

Receiver's Initials/Temp: DL / 3.7°C
Custody Seal(s): 1 (Y) N Lab Work Order # 479399
P.O.# (if required):
Field Comments / Lab Precautions:

Sampler(s): (signature)
Sampler(s): (printed) Tyler Boyle

Analysis Requested

Line No.	Sample ID #	Sample Depth (Ft)	Collection Date / Time	Matrix (See below)	Composite	Grab	No. of Containers	Total Organic Carbon	VOCs	Xylenes Only	Lead
Container Type:								GC	VC	VL	GC
Chemical Preservation Code:								NA	1	1	NA
1	EW-6	–	2/11/14 1030	S		X	2	X			
2	EW-4	–	2/12/14 1255	GW		X	2		X		
3	EW-5	–	2/12/14 933	GW		X	2		X		
4	EW-6	–	2/12/14 1028	GW		X	2		X		
5	EW-7	–	2/12/14 1146	GW		X	2		X		
6	GW-4	–	2/13/14 928	GW		X	2		X		
7	GW-5	–	2/13/14 1030	GW		X	2		X		
8	GW-7	–	2/13/14 1335	GW		X	2			X	
9	GW-10	–	2/13/14 1215	GW		X	2		X		
10	HA-NS-01-1'	1'	2/13/14 1520	S		X	1				X

1) Relinquished By: Date / Time 2/14/14 1420
2) Received By: Date / Time 2/14/14 14:20
3) Relinquished By: Date / Time
4) Received By: Date / Time
5) Relinquished By: Date / Time
6) Received By: Date / Time

Delivered by: (Circle One)
Fed Ex / UPS / Courier / Lab Pickup / Hand / Other

Turnaround Time (business days)
TAT Starts when samples are rec'd by 2PM
___10 Days ; ___5-7 Days; ___3 Days
___2 Days ; ___1 Day; ___Same Day

Matrix Guide: (W=Water) (DW = Drinking Water) (GW = Groundwater) (SW = Surface Water) (L = Liquid) (O = Oil) (S = Soil) (SD = Solid) (SL = Sludge) (A = Air) (C = Air Cartridge)
Chemical Preservation Codes: 1 = HCL / 2 = HNO_3 / 3 = H_2SO_4 / 4 = NaOH + $NaAsO_2$ / 5 = NaOH + ZnAc / 6 = $Na_2S_2O_3$ / 7 = $NaHSO_4$ & MeOH / 8 = DI Water & MeOH
Container Type: VC=Vial (Clear); VA =Vial (Amber); GC=Glass (Clear); GA=Glass (Amber); P=Plastic (HDPE); TB=Tedlar Bag; ES=EnCore Sampler; ZB=Ziploc Bag; O=Other

XENCO LABORATORIES
CHAIN OF CUSTODY

6017 Financial Drive, Norcross, GA 30071
Phone # (770) 449-8800 Fax # (770) 449-5477

Company Name: AMEC
Address: 396 Plasters Ave
Results Sent to: Tyler Boyles
Email address: tyler.boyles@amec.com
Contact Phone #: 404 817 0153 Cell#: 404 663 9039
Project Name (Site): 139 Brampton Road
Project Number (ID): 6121 09 0220
Regulatory Program:

Receiver's Initials/Temp: QL / 3.7°C
Custody Seal(s): 1 (Y) N Lab Work Order # 479399
P.O.# (if required):
Field Comments / Lab Precautions:

Sampler(s): (signature)
Sampler(s): (printed) Tyler Boyle

Analysis Requested

Line No.	Sample ID #	Sample Depth (Ft)	Collection Date / Time	Matrix (See below)	Composite	Grab	No. of Containers	Lead																
Container Type:								GL																
Chemical Preservation Code:								NA																
1	HA-NS-01-2	2'	2/13/14 1524	S		X	1	X	HOLD	SAMPLE														
2	HA-NS-01-3	3'	2/13/14 1530	S		X	1	X	HOLD	SAMPLE														
3	HA-NS-02-1	1'	2/13/14 1507	S		X	1	X																
4	HA-NS-02-2	2'	2/13/14 1510	S		X	1	X	HOLD	SAMPLE														
5	HA-NS-02-3'	3'	2/13/14 1513	S		X	1	X	HOLD	SAMPLE														
6																								
7																								
8																								
9																								
10																								

1) Relinquished By: Date / Time 2/14/14 1420
2) Received By: Date / Time 2/14/14 14:20
Delivered by: (Circle One)
Fed Ex / UPS / Courier / Lab Pickup / Hand / Other

3) Relinquished By: Date / Time
4) Received By: Date / Time
5) Relinquished By: Date / Time
6) Received By: Date / Time

Turnaround Time (business days)
TAT Starts when samples are rec'd by 2PM
___10 Days ; ___5-7 Days; ___3 Days
___2 Days ; ___1 Day; ___Same Day

Matrix Guide: (W=Water) (DW = Drinking Water) (GW = Groundwater) (SW = Surface Water) (L = Liquid) (O = Oil) (S = Soil) (SD = Solid) (SL = Sludge) (A = Air) (C = Air Cartridge)
Chemical Preservation Codes: 1 = HCL / 2 = HNO_3 / 3 = H_2SO_4 / 4 = NaOH + $NaAsO_2$ / 5 = NaOH + ZnAc / 6 = $Na_2S_2O_3$ / 7 = $NaHSO_4$ & MeOH / 8 = DI Water & MeOH
Container Type: VC=Vial (Clear); VA =Vial (Amber); GC=Glass (Clear); GA=Glass (Amber); P=Plastic (HDPE); TB=Tedlar Bag; ES=EnCore Sampler; ZB=Ziploc Bag; O=Other

CUSTODY SEAL

Person Collecting Sample _____ (signature) Sample No. _____

Date Collected _____ Time Collected _____

XENCO Laboratories

Prelogin/Nonconformance Report- Sample Log-In

Florida Testing Services, LLC

Client: AMEC Environment & Infrastructure, Inc.

Date/ Time Received: 02/14/2014 02:20:00 PM

Work Order #: 479399

Acceptable Temperature Range: 0 - 6 degC
Air and Metal samples Acceptable Range: Ambient

Temperature Measuring device used : #61

Sample Receipt Checklist	Comments
#1 *Temperature of cooler(s)?	3.7
#2 *Shipping container in good condition?	**Yes**
#3 *Samples received on ice?	**Yes**
#4 *Custody Seals intact on shipping container/ cooler?	**Yes**
#5 Custody Seals intact on sample bottles?	**N/A**
#6 *Custody Seals Signed and dated?	**Yes**
#7 *Chain of Custody present?	**Yes**
#8 Sample instructions complete on Chain of Custody?	**Yes**
#9 Any missing/extra samples?	**No**
#10 Chain of Custody signed when relinquished/ received?	**Yes**
#11 Chain of Custody agrees with sample label(s)?	**Yes**
#12 Container label(s) legible and intact?	**Yes**
#13 Sample matrix/ properties agree with Chain of Custody?	**Yes**
#14 Samples in proper container/ bottle?	**Yes**
#15 Samples properly preserved?	**Yes**
#16 Sample container(s) intact?	**Yes**
#17 Sufficient sample amount for indicated test(s)?	**Yes**
#18 All samples received within hold time?	**Yes**
#19 Subcontract of sample(s)?	**Yes**
#20 VOC samples have zero headspace (less than 1/4 inch bubble)?	**Yes**
#21 <2 for all samples preserved with HNO3,HCL, H2SO4?	**N/A**
#22 >10 for all samples preserved with NaAsO2+NaOH, ZnAc+NaOH?	**N/A**

*** Must be completed for after-hours delivery of samples prior to placing in the refrigerator**

Analyst:	PH Device/Lot#:

Checklist completed by: David C. Fuller — Date: 02/17/2014

Checklist reviewed by: Eben D Buchanan Jr. — Date: 02/17/2014

APPENDIX B

BORING LOGS AND MONITORING WELL CONSTRUCTION DIAGRAMS

DEPTH (ft)	SOIL CLASSIFICATION AND REMARKS SEE KEY SHEET FOR EXPLANATION OF SYMBOLS AND ABBREVIATIONS USED BELOW.	LEGEND	ELEV (ft)	SAMPLES IDENT	TYPE	N-COUNT 1st 6" 2nd 6" 3rd 6"	PL (%) NM (%) LL (%) ▲ FINES (%) ● SPT (bpf) 10 20 30 40 50 60 70 80 90 100
0	**TOPSOIL**						
	FILL - Brown fine to medium **SAND** with gravel.						
	RESIDUAL - Brown fine to medium sandy **SILT** with some clay.						
5							
	Gray fine to medium sandy **SILT** with clay.						
10							
	Boring terminated at 14 feet.						
15							
20							
25							
30							
35							
40							
45							

0 10 20 30 40 50 60 70 80 90 100

SOIL TEST BORING 139 BRAMPTON RD PROPERTY - FORMER RHEEM MANUFACTURING.GPJ AMEC.GDT 3/21/14

DRILLER: ATLAS
EQUIPMENT: Power Probe 9510
METHOD: HSA
HOLE DIA.: 4 inches
REMARKS: Type II well installed. Stabilized depth to water 10.28 measured on 2/12/14.

Prepared by: T. Boyles Reviewed by: C. Ferry

THIS RECORD IS A REASONABLE INTERPRETATION OF SUBSURFACE CONDITIONS AT THE EXPLORATION LOCATION. SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND AT OTHER TIMES MAY DIFFER. INTERFACES BEWEEN STRATA ARE APPROXIMATE. TRANSITIONS BETWEEN STRATA MAY BE GRADUAL.

SOIL TEST BORING RECORD

BORING NO.: EW-4
PROJECT: 139 Brampton Road Property
LOCATION: Savannah, GA
DRILLED: February 11, 2014
PROJECT NO.: 6121-09-0220

amec

DEPTH (ft)	SOIL CLASSIFICATION AND REMARKS SEE KEY SHEET FOR EXPLANATION OF SYMBOLS AND ABBREVIATIONS USED BELOW.	LEGEND	ELEV (ft)	SAMPLES: IDENT	TYPE	N-COUNT 1st 6" 2nd 6" 3rd 6"	PL (%) NM (%) LL (%) ▲ FINES (%) ● SPT (bpf) 10 20 30 40 50 60 70 80 90 100
0	**TOPSOIL**						
	Gray-brown fine to medium sandy **SILT** with clay.						
5							
	Boring terminated at 8 feet.						
10							
15							
20							
25							
30							
35							
40							
45							

0 10 20 30 40 50 60 70 80 90 100

SOIL TEST BORING 139 BRAMPTON RD PROPERTY - FORMER RHEEM MANUFACTURING.GPJ AMEC.GDT 3/21/14

DRILLER: ATLAS
EQUIPMENT: Hand Auger
METHOD: Hand Auger
HOLE DIA.: 4 inches
REMARKS: Type II well installed with stickup cover. Stabilized depth to water 3.27 measured on 2/12/14.

Prepared by: T. Boyles Reviewed by: C. Ferry

THIS RECORD IS A REASONABLE INTERPRETATION OF SUBSURFACE CONDITIONS AT THE EXPLORATION LOCATION. SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND AT OTHER TIMES MAY DIFFER. INTERFACES BEWEEN STRATA ARE APPROXIMATE. TRANSITIONS BETWEEN STRATA MAY BE GRADUAL.

SOIL TEST BORING RECORD

BORING NO.: EW-5
PROJECT: 139 Brampton Road Property
LOCATION: Savannah, GA
DRILLED: February 11, 2014
PROJECT NO.: 6121-09-0220

amec

DEPTH (ft)	SOIL CLASSIFICATION AND REMARKS SEE KEY SHEET FOR EXPLANATION OF SYMBOLS AND ABBREVIATIONS USED BELOW.	LEGEND	ELEV (ft)	SAMPLES: IDENT	TYPE	N-COUNT 1st 6" 2nd 6" 3rd 6"	PL (%) NM (%) LL (%) ▲ FINES (%) ● SPT (bpf) 10 20 30 40 50 60 70 80 90 100
0	**TOPSOIL**						
	Tan-brown fine to medium sandy **SILT** with clay.						
	Gray-brown fine to medium sandy **SILT** with clay. ▼						
5							
10							
15							
20							
25							
30							
35							
40							
45							

0 10 20 30 40 50 60 70 80 90 100

SOIL TEST BORING 139 BRAMPTON RD PROPERTY - FORMER RHEEM MANUFACTURING.GPJ AMEC.GDT 3/21/14

DRILLER: ATLAS
EQUIPMENT: Hand Auger
METHOD: Hand Auger
HOLE DIA.: 4 inches
REMARKS: Type II well installed with stickup cover. Stabilized depth to water 3.05 measured on 2/12/14.

Prepared by: T. Boyles Reviewed by: C. Ferry

THIS RECORD IS A REASONABLE INTERPRETATION OF SUBSURFACE CONDITIONS AT THE EXPLORATION LOCATION. SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND AT OTHER TIMES MAY DIFFER. INTERFACES BEWEEN STRATA ARE APPROXIMATE. TRANSITIONS BETWEEN STRATA MAY BE GRADUAL.

SOIL TEST BORING RECORD

BORING NO.: EW-6
PROJECT: 139 Brampton Road Property
LOCATION: Savannah, GA
DRILLED: February 11, 2014
PROJECT NO.: 6121-09-0220

amec

DEPTH (ft)	SOIL CLASSIFICATION AND REMARKS SEE KEY SHEET FOR EXPLANATION OF SYMBOLS AND ABBREVIATIONS USED BELOW.	LEGEND	ELEV (ft)	SAMPLES IDENT	SAMPLES TYPE	SAMPLES N-COUNT 1st 6" 2nd 6" 3rd 6"	PL (%) NM (%) LL (%) ▲ FINES (%) ● SPT (bpf) 10 20 30 40 50 60 70 80 90 100
0	**TOPSOIL** Tan-brown fine to medium sandy **SILT** with clay.						
	Gray brown fine to medium sandy **SILT** with clay.						
5							
	Boring terminated at 9 feet.						
10							
15							
20							
25							
30							
35							
40							
45							

0 10 20 30 40 50 60 70 80 90 100

SOIL TEST BORING 139 BRAMPTON RD PROPERTY - FORMER RHEEM MANUFACTURING.GPJ AMEC.GDT 3/21/14

DRILLER: ATLAS
EQUIPMENT: Hand Auger
METHOD: Hand Auger
HOLE DIA.: 4 inches
REMARKS: Type II well installed with stickup cover. Stabilized depth to water 4.20 measured on 2/12/14.

Prepared by: T. Boyles Reviewed by: C. Ferry

THIS RECORD IS A REASONABLE INTERPRETATION OF SUBSURFACE CONDITIONS AT THE EXPLORATION LOCATION. SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND AT OTHER TIMES MAY DIFFER. INTERFACES BEWEEN STRATA ARE APPROXIMATE. TRANSITIONS BETWEEN STRATA MAY BE GRADUAL.

SOIL TEST BORING RECORD

BORING NO.: EW-7
PROJECT: 139 Brampton Road Property
LOCATION: Savannah, GA
DRILLED: February 11, 2014
PROJECT NO.: 6121-09-0220

amec

APPENDIX C

FIELD SAMPLING DATA SHEETS

Attachment 4.4

WELL PURGING - FIELD WATER QUALITY MEASUREMENTS FORM

Location:

Identify Measuring Point (MP): TOC
(e.g. Top of Casing)

Well ID: EW-5

Field Sampling Personnel: TBoyle

Depth to Screen below MP: 3 (Top) of screen 8 (Bottom) of screen

Pump Intake at (ft. below MP): 4

Purging Device (Pump Type): Peristaltic
(e.g. Dedicated pump, peristaltic pump, bailer, bladder pump, etc.)

Date	Time 24 hr	Depth to Water Below MP ft	Purge Rate mL/min	pH pH units	Spec Cond. mS/cm	Turbidity NTUs	DO Flow cell mg/L	Temp. °C	Redox Potential mV	Cum. Volume Purged gallons	CHEMetrics DO mg/L (low)	Hach Ferrous Iron mg/L	Comments
2/12/14	0830	3.27		5.57	0.698	626	21.96	10.28	161	0			8.10 - 3.27 = 4.83
	0838	3.36		6.19	0.767	464	15.93	10.70	124	0.5			4.83 x (.16) = 0.77
	0847	3.39		6.43	0.858	598	12.04	11.64	111	1			0.77 x 3 = 2.31 (3 well Volumes)
	0855	3.40		6.85	0.923	216	10.21	11.97	106	1.5			0.77 x 5 = 3.85 (5 Well Volumes)
	0904	3.42		7.01	0.901	104	9.91	12.25	84	2			
	0913	3.46		7.21	0.843	64	9.85	12.27	78	2.5			
	0921	3.47		7.24	0.841	22	9.82	12.30	78	3.5			
	0933	3.47		7.25	0.841	21	9.82	12.28	77	4			SAMPLE WELL

Notes:

Note when "Stabilization " has occurred. Stabilization Criteria (achieved after a minimum of three successive readings):

±0.1 for pH
±10 mV for redox
±3% for specific cond.
±10% for DO
<20 NTUs for turbidity
NA for temperature

If stabilization does not occur within 2 hours, contact Site Manager for action.
If well goes dry prior to stabilization, stop, allow well to recharge, and collect sample.

Attachment 4.4

WELL PURGING - FIELD WATER QUALITY MEASUREMENTS FORM

Location:

Identify Measuring Point (MP): TOC
(e.g. Top of Casing)

page 1 of 1

Well ID: EW-6

Field Sampling Personnel: T Boyle,

Depth to Screen below MP: 3 of screen (Top) 8 of screen (Bottom)

Pump Intake at (ft. below MP): 4

Purging Device (Pump Type): Peristaltic
(e.g. Dedicated pump, peristaltic pump, bailer, bladder pump, etc.)

Date	Time 24 hr	Depth to Water Below MP ft	Purge Rate mL/min	pH pH units	Spec Cond. mS/cm	Turbidity NTUs	DO Flow cell mg/L	Temp. °C	Redox Potential mV	Cum. Volume Purged gallons	CHEMetrics DO mg/L (low)	Hach Ferrous Iron mg/L	Comments
2/12/14	0942	3.05		6.44	0.148	424	5.54	11.24	57	0			8 - 3.05 = 4.95
	0946	3.11		6.04	0.140	192	12.66	14.03	24	0.5			4.95 * (.16) = 0.79
	0952	3.11		5.77	0.140	54	8.74	14.14	89	1			0.79 × 3 = 2.37 (3 well Volume)
	1004	3.12		5.75	0.142	21	6.17	14.19	92	2			0.79 * 5 = 3.95 (5 well Volume)
	1016	3.11		5.76	0.141	18	6.15	14.20	92	3			
	1028	3.11		5.76	0.141	12.4	6.18	14.16	92	4			SAMPLE WELL

Notes:
Note when "Stabilization " has occurred. Stabilization Criteria (achieved after a minimum of three successive readings):

±0.1 for pH
±10 mV for redox
±3% for specific cond.
±10% for DO
<20 NTUs for turbidity
NA for temperature

If stabilization does not occur within 2 hours, contact Site Manager for action.
If well goes dry prior to stabilization, stop, allow well to recharge, and collect sample.

Attachment 4.4

WELL PURGING - FIELD WATER QUALITY MEASUREMENTS FORM

Location:

Identify Measuring Point (MP): TOC
(e.g. Top of Casing)

Well ID: EW-2

Field Sampling Personnel: T Boyles

Depth to Screen below MP: 4 of screen (Top) 9 of screen (Bottom)

Pump Intake at (ft. below MP): 6

Purging Device (Pump Type): Peristaltic
(e.g. Dedicated pump, peristaltic pump, bailer, bladder pump, etc.)

Date	Time 24 hr	Depth to Water Below MP ft	Purge Rate mL/min	pH pH units	Spec Cond. mS/cm	Turbidity NTUs	DO Flow cell mg/L	Temp. °C	Redox Potential mV	Cum. Volume Purged gallons	CHEMetrics DO mg/L (low)	Hach Ferrous Iron mg/L	Comments
	1037	4.20		5.81	0.477	27	13.98	12.70	121	0			9-4.20 = 4.8
	1045	4.28		5.80	0.538	74	12.23	13.36	124	0.5			4.8 x (.16) = 0.768
	1053	4.31		5.76	0.691	150	12.87	13.54	132	1			0.768 x 3 = 2.304 (3 well Volu)
	1111	4.36		5.74	0.784	62	12.91	13.87	132	2			0.768 x 5 = 3.84 (5 well Volu)
	1129	4.37		5.74	0.798	21	12.90	13.52	134	3			
	1146	4.37		5.74	0.799	18	12.90	13.52	132	4			SAMPLE WELL

Notes:

Note when "Stabilization " has occurred. Stabilization Criteria (achieved after a minimum of three successive readings):

±0.1 for pH
±10 mV for redox
±3% for specific cond.
±10% for DO
<20 NTUs for turbidity
NA for temperature

If stabilization does not occur within 2 hours, contact Site Manager for action.
If well goes dry prior to stabilization, stop, allow well to recharge, and collect sample.

Attachment 4.4

WELL PURGING - FIELD WATER QUALITY MEASUREMENTS FORM

Location:

Identify Measuring Point (MP): TOC
(e.g. Top of Casing)

Well ID: EW-4

Field Sampling Personnel: TBoyt,

Depth to Screen below MP: 4 of screen (Top) 14 of screen (Bottom)

Pump Intake at (ft. below MP): 11

Purging Device (Pump Type): Peristaltic
(e.g. Dedicated pump, peristaltic pump, bailer, bladder pump, etc.)

Date	Time 24 hr	Depth to Water Below MP ft	Purge Rate mL/min	pH pH units	Spec Cond. mS/cm	Turbidity NTUs	DO Flow cell mg/L	Temp. °C	Redox Potential mV	Cum. Volume Purged gallons	CHEMetrics DO mg/L (low)	Hach Ferrous Iron mg/L	Comments
2/12/14		10.28		6.54	0.179	230	6.35	11.71	145	0			14-10.28 = 3.72
		10.29		6.61	0.147	174	2.67	11.16	159	0.5			3.72 * (.16) = 0.595
		10.30		6.44	0.152	79	2.20	10.43	164	1			0.595 * 3 = 1.785 (3 Well Volu)
		10.30		6.32	0.154	15	1.98	11.79	166	1.5			0.595 * 5 = 2.975 (5 Well Volu)
		10.31		6.02	0.150	9.1	1.75	11.20	165	2			
		10.31		6.06	0.155	5.8	1.75	11.19	163	2.5			
	1255	10.31		6.04	0.151	4.2	1.76	11.24	163	3			SAMPLE Well

Notes:

Note when "Stabilization " has occurred. Stabilization Criteria (achieved after a minimum of three successive readings):

±0.1 for pH
±10 mV for redox
±3% for specific cond.
±10% for DO
<20 NTUs for turbidity
NA for temperature

If stabilization does not occur within 2 hours, contact Site Manager for action.
If well goes dry prior to stabilization, stop, allow well to recharge, and collect sample.

Attachment 4.4

WELL PURGING - FIELD WATER QUALITY MEASUREMENTS FORM

Location:

Identify Measuring Point (MP): TOC
(e.g. Top of Casing)

Well ID: GW-4

Field Sampling Personnel: T Boyle

Depth to Screen below MP: 8.5 of screen (Top) 18.5 of screen (Bottom)

Pump Intake at (ft. below MP): 13

Purging Device (Pump Type): Peristaltic
(e.g. Dedicated pump, peristaltic pump, bailer, bladder pump, etc.)

Date	Time 24 hr	Depth to Water Below MP ft	Purge Rate mL/min	pH pH units	Spec Cond. mS/cm	Turbidity NTUs	DO Flow cell mg/L	Temp. °C	Redox Potential mV	Cum. Volume Purged gallons	CHEMetrics DO mg/L (low)	Hach Ferrous Iron mg/L	Comments
2/13/14	0855	12.27		5.38	0.183	14.2	6.71	13.82	274	0			18.5 - 12.27 = 6.23
	0905	12.58		4.65	0.165	6.4	4.01	14.73	283	0.75			6.23 * (.16) = 0.997
	915	12.59		4.35	0.153	4.8	5.37	15.24	290	1.75			0.997 * 3 = 2.991 (3 well Volu)
	920	12.61		4.19	0.148	4.4	4.24	15.50	294	2.5			0.997 * 5 = 4.985 (5 well Volu)
	928	12.60		4.14	0.148	3.9	4.40	16.66	296	3.5			SAMPLE WELL

Notes:

Note when "Stabilization " has occurred. Stabilization Criteria (achieved after a minimum of three successive readings):
±0.1 for pH
±10 mV for redox
±3% for specific cond.
±10% for DO
<20 NTUs for turbidity
NA for temperature

If stabilization does not occur within 2 hours, contact Site Manager for action.
If well goes dry prior to stabilization, stop, allow well to recharge, and collect sample.

Attachment 4.4

WELL PURGING - FIELD WATER QUALITY MEASUREMENTS FORM

Location:

Identify Measuring Point (MP): TOC
(e.g. Top of Casing)

Well ID: GW-5

Field Sampling Personnel: T Bo[illegible]

Depth to Screen below MP: 9.2 of screen (Top) 19.2 of screen (Bottom)

Pump Intake at (ft. below MP): 17

Purging Device (Pump Type): Peristaltic 14.12
(e.g. Dedicated pump, peristaltic pump, bailer, bladder pump, etc.)

Date	Time 24 hr	Depth to Water Below MP ft	Purge Rate mL/min	pH pH units	Spec Cond. mS/cm	Turbidity NTUs	DO Flow cell mg/L	Temp. °C	Redox Potential mV	Cum. Volume Purged gallons	CHEMetrics DO mg/L (low)	Hach Ferrous Iron mg/L	Comments
2/13/14	0951	13.75		4.39	0.146	35.2	3.29	15.37	313	—			19.2 - 13.75 = 5.45
	0957	14.24		4.26	0.149	10.7	2.51	16.38	302	0.5			5.45 × (.16) = 0.872
	1002	14.82		4.22	0.138	9.8	1.23	16.73	239	1			0.872 × 3 = 2.616
	1015	15.48		4.35	0.135	8.6	1.20	16.66	237	2			0.872 × 5 = 4.36
	1030	16.09		4.32	0.134	6.1	1.20	16.61	236	3			SAMPLE WELL

Notes:

Note when "Stabilization " has occurred. Stabilization Criteria (achieved after a minimum of three successive readings):

±0.1 for pH
±10 mV for redox
±3% for specific cond.
±10% for DO
<20 NTUs for turbidity
NA for temperature

If stabilization does not occur within 2 hours, contact Site Manager for action.
If well goes dry prior to stabilization, stop, allow well to recharge, and collect sample.

Attachment 4.4

WELL PURGING - FIELD WATER QUALITY MEASUREMENTS FORM

Location:

Identify Measuring Point (MP): TOC
(e.g. Top of Casing)

page 1 of 1

Well ID: GW-10

Field Sampling Personnel:

Depth to Screen below MP: 24 of screen Top, 34 of screen Bottom

Pump Intake at (ft. below MP): 11.5

Purging Device (Pump Type): Peristaltic
(e.g. Dedicated pump, peristaltic pump, bailer, bladder pump, etc.)

Date	Time 24 hr	Depth to Water Below MP ft	Purge Rate mL/min	pH pH units	Spec Cond. mS/cm	Turbidity NTUs	DO Flow cell mg/L	Temp. °C	Redox Potential mV	Cum. Volume Purged gallons	CHEMetrics DO mg/L (low)	Hach Ferrous Iron mg/L	Comments
2/13/14	1047	10.04		6.02	0.200	19.2	8.05	17.07	224	0			34 - 10.04 = 23.96
	1055	10.37		5.94	0.202	15.6	6.05	18.20	195	1			23.96 x (.16) = 3.8
	1112	10.42		5.81	0.205	9.5	5.51	18.32	189	3			3.8 x 3 = 11.4 (3 well Volumes)
	1126	10.66		5.75	0.206	7.4	5.21	18.39	173	5			
	1138	10.62		5.72	0.207	6.36	3.85	18.45	164	7			
	1152	10.65		5.70	0.207	5.43	3.54	18.44	159	9			
	1206	10.66		5.72	0.206	5.21	3.49	18.47	151	11			
	1215	10.65		5.74	0.205	4.98	3.47	18.46	149	12			SAMPLE Well

Notes:

Note when "Stabilization " has occurred. Stabilization Criteria (achieved after a minimum of three successive readings):

±0.1 for pH
±10 mV for redox
±3% for specific cond.
±10% for DO
<20 NTUs for turbidity
NA for temperature

If stabilization does not occur within 2 hours, contact Site Manager for action.
If well goes dry prior to stabilization, stop, allow well to recharge, and collect sample.

APPENDIX D

FATE AND TRANSPORT MODELING

BIOCHLOR Natural Attenuation Decision Support System

Version 2.2
Excel 2000

Rheem
Savannah, Georgia
Run Name

Data Input Instructions:

115 → 1. Enter value directly....or
↑ *or* 2. Calculate by filling in gray
0.02 cells. Press Enter, then (C)
(To restore formulas, hit "Restore Formulas" button)
Variable* → Data used directly in model.

Test if Biotransformation is Occurring → Natural Attenuation Screening Protocol

TYPE OF CHLORINATED SOLVENT: Ethenes ◉ Ethanes ○

1. ADVECTION

Seepage Velocity*	Vs	22.1	(ft/yr)
or			
Hydraulic Conductivity	K	3.2E-04	(cm/sec)
Hydraulic Gradient	i	0.01	(ft/ft)
Effective Porosity	n	0.15	(-)

2. DISPERSION

Alpha x*	110	(ft)
(Alpha y) / (Alpha x)*	0.1	(-)
(Alpha z) / (Alpha x)*	1.E-99	(-)

Calc. Alpha x

3. ADSORPTION

Retardation Factor* → R
or

			R	
Soil Bulk Density, rho	1.6	(kg/L)		
FractionOrganicCarbon, foc	1.0E-5	(-)		
Partition Coefficient	Koc			
PCE	426	(L/kg)	1.05	(-)
TCE	130	(L/kg)	1.01	(-)
DCE	125	(L/kg)	1.01	(-)
VC	30	(L/kg)	1.00	(-)
ETH	302	(L/kg)	1.03	(-)
Common R (used in model)* =			**1.01**	

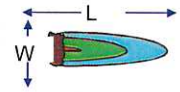
4. BIOTRANSFORMATION **-1st Order Decay Coefficient***

	λ (1/yr)	half-life (yrs)	Yield
Zone 1			
PCE → TCE	0.277	2.50	0.79
TCE → DCE	0.213	3.25	0.74
DCE → VC	0.693	1.00	0.64
VC → ETH	1.386	0.50	0.45
Zone 2	λ (1/yr)	half-life (yrs)	
PCE → TCE	0.000		
TCE → DCE	0.000		
DCE → VC	0.000		
VC → ETH	0.000		

λ HELP

5. GENERAL

Simulation Time*	100	(yr)
Modeled Area Width*	750	(ft)
Modeled Area Length*	1100	(ft)
Zone 1 Length*	1100	(ft)
Zone 2 Length*	0	(ft)



Zone 2= L - Zone 1

6. SOURCE DATA TYPE: Decaying, Single Planar

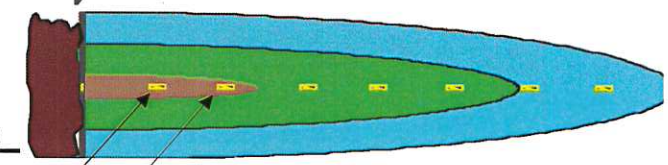
Source Options

Source Thickness in Sat. Zone* 10 (ft)

Width* (ft) Y1: 75

Conc. (mg/L)*	C1	k_s* (1/yr)
PCE	1.8	0.01
TCE	.04	0.01
DCE	.03	0.01
VC	.001	0.01
ETH		0.01

Vertical Plane Source: Determine Source Well Location and Input Solvent Concentrations



View of Plume Looking Down

Observed Centerline Conc. at Monitoring Wells

7. FIELD DATA FOR COMPARISON

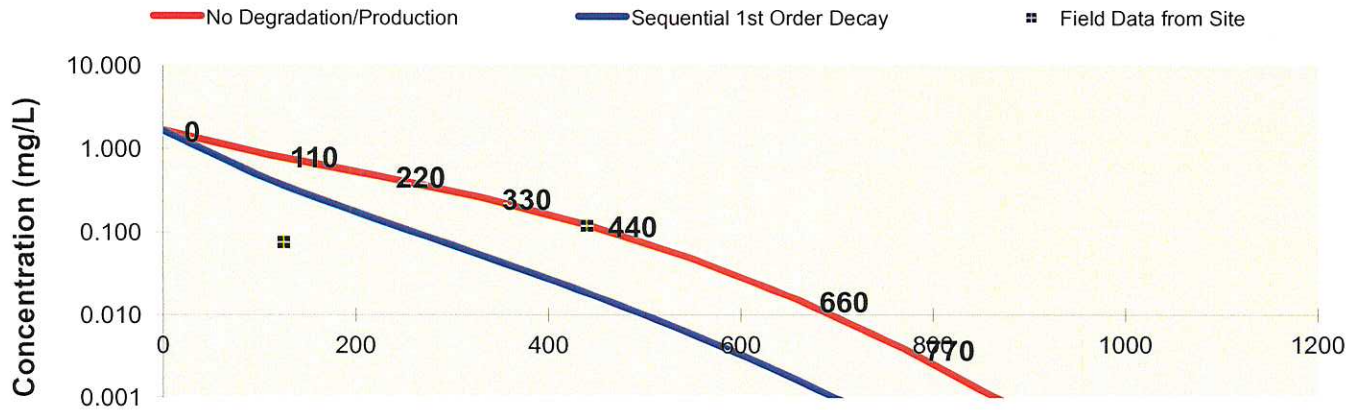
PCE Conc. (mg/L)	.076	.12									
TCE Conc. (mg/L)	.051	.057									
DCE Conc. (mg/L)	.016	.006									
VC Conc. (mg/L)	.002	.002									
ETH Conc. (mg/L)											
Distance from Source (ft)	125	440									
Date Data Collected	2012										

8. CHOOSE TYPE OF OUTPUT TO SEE:

RUN CENTERLINE | RUN ARRAY | Help | Restore Formulas | RESET | SEE OUTPUT | Paste Example

DISSOLVED CHLORINATED SOLVENT CONCENTRATIONS ALONG PLUME CENTERLINE (mg/L) at Z=0

PCE	Distance from Source (ft)										
	0	110	220	330	440	550	660	770	880	990	1100
No Degradation	1.629	0.810	0.466	0.253	0.118	0.046	0.015	0.004	0.001	0.000	0.000
Biotransformation	1.6287	0.421	0.142	0.051	0.018	0.006	0.002	0.000	0.000	0.000	0.000
	Monitoring Well Locations (ft)										
	125	440									
Field Data from Site	0.076	0.120									



Distance From Source (ft.)

See PCE

See TCE

See DCE

See VC

See ETH

Replay

Time:

10.0 Years

Log ⟺ Linear

Return to Input

To All

To Array

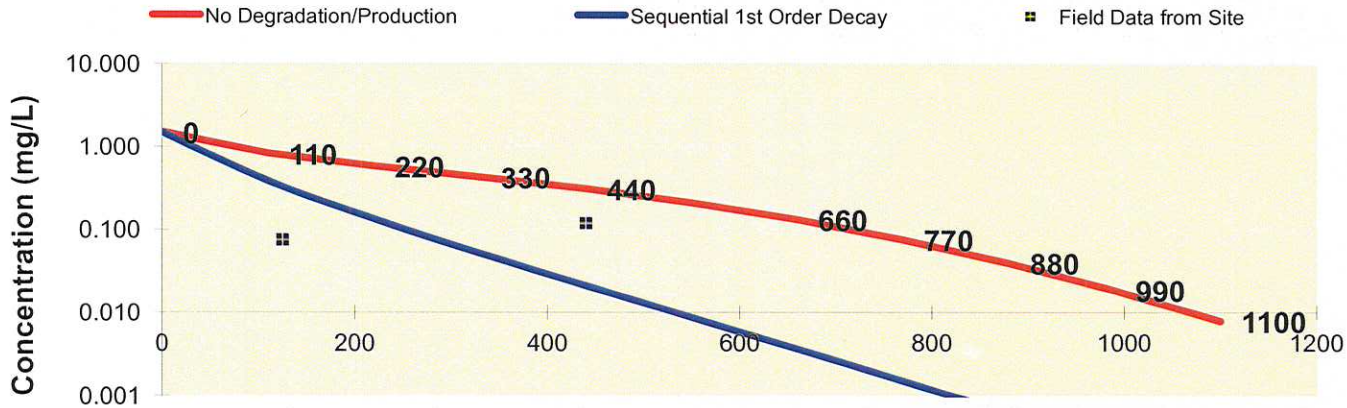
DISSOLVED CHLORINATED SOLVENT CONCENTRATIONS ALONG PLUME CENTERLINE (mg/L) at Z=0

Distance from Source (ft)

PCE	0	110	220	330	440	550	660	770	880	990	1100
No Degradation	1.474	0.816	0.574	0.425	0.307	0.209	0.132	0.076	0.040	0.019	0.008
Biotransformation	1.4737	0.383	0.133	0.052	0.021	0.009	0.004	0.001	0.001	0.000	0.000

Monitoring Well Locations (ft)

	125	440									
Field Data from Site	0.076	0.120									



Distance From Source (ft.)

See PCE

See TCE

See DCE

See VC

See ETH

Replay

Time:

20.0 Years

Log ⟺ Linear

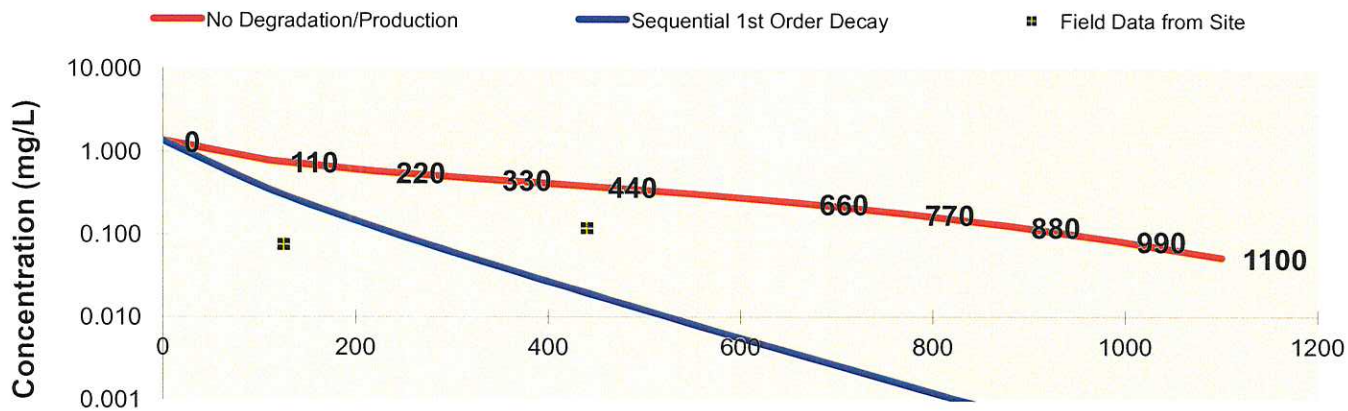
Return to Input

To All

To Array

DISSOLVED CHLORINATED SOLVENT CONCENTRATIONS ALONG PLUME CENTERLINE (mg/L) at Z=0

PCE	Distance from Source (ft)										
	0	110	220	330	440	550	660	770	880	990	1100
No Degradation	1.333	0.761	0.568	0.460	0.378	0.305	0.238	0.177	0.125	0.083	0.052
Biotransformation	1.3335	0.346	0.120	0.047	0.019	0.008	0.003	0.001	0.001	0.000	0.000
	Monitoring Well Locations (ft)										
	125	440									
Field Data from Site	0.076	0.120									



See PCE

See TCE

See DCE

See VC

See ETH

Distance From Source (ft.)

Replay

Time:

30.0 Years

Log ⟺ Linear

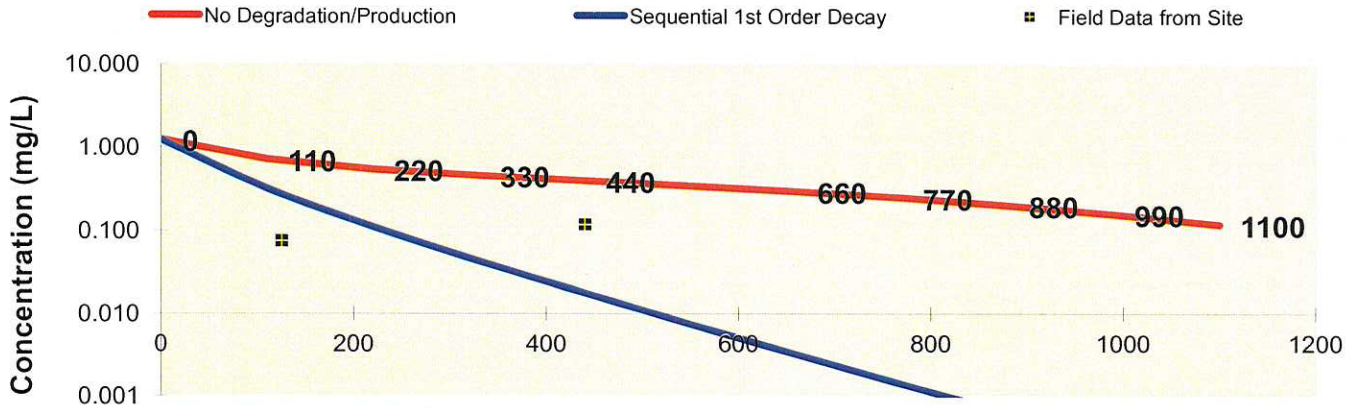
Return to Input

To All

To Array

DISSOLVED CHLORINATED SOLVENT CONCENTRATIONS ALONG PLUME CENTERLINE (mg/L) at Z=0

PCE	Distance from Source (ft)										
	0	110	220	330	440	550	660	770	880	990	1100
No Degradation	1.207	0.697	0.532	0.448	0.389	0.338	0.290	0.243	0.198	0.155	0.117
Biotransformation	1.2066	0.314	0.109	0.042	0.017	0.007	0.003	0.001	0.001	0.000	0.000
	Monitoring Well Locations (ft)										
	125	440									
Field Data from Site	0.076	0.120									



See PCE

See TCE

See DCE

See VC

See ETH

Distance From Source (ft.)

Replay

Time:

40.0 Years

Log ⟺ Linear

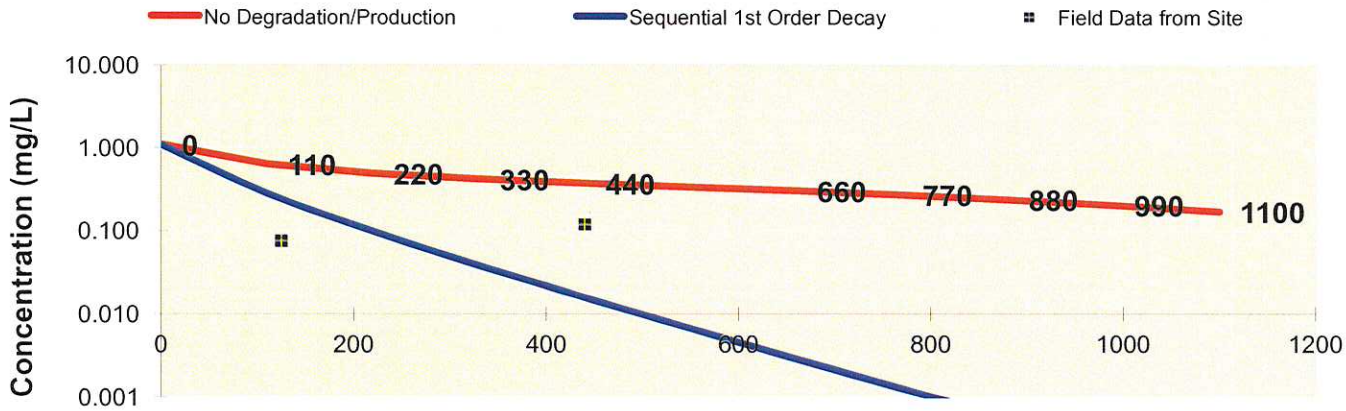
Return to Input

To All

To Array

DISSOLVED CHLORINATED SOLVENT CONCENTRATIONS ALONG PLUME CENTERLINE (mg/L) at Z=0

PCE	Distance from Source (ft)										
	0	110	220	330	440	550	660	770	880	990	1100
No Degradation	1.092	0.634	0.489	0.419	0.374	0.337	0.305	0.272	0.239	0.205	0.172
Biotransformation	1.0918	0.284	0.098	0.038	0.016	0.007	0.003	0.001	0.001	0.000	0.000
	Monitoring Well Locations (ft)										
	125	440									
Field Data from Site	0.076	0.120									



See PCE

See TCE

See DCE

See VC

See ETH

Distance From Source (ft.)

Replay

Time:

50.0 Years

Log ⟺ Linear

Return to Input

To All

To Array

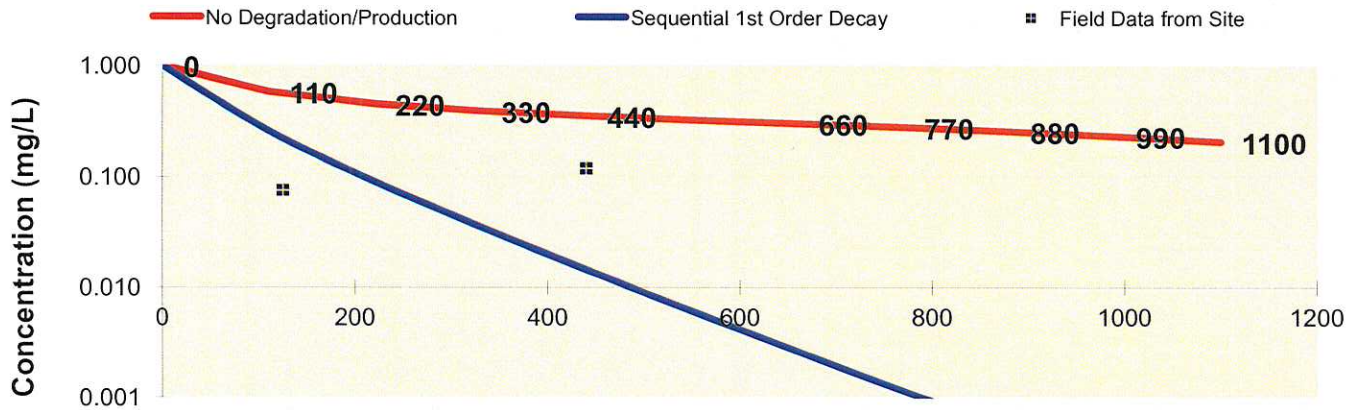
DISSOLVED CHLORINATED SOLVENT CONCENTRATIONS ALONG PLUME CENTERLINE (mg/L) at Z=0

Distance from Source (ft)

PCE	0	110	220	330	440	550	660	770	880	990	1100
No Degradation	0.988	0.575	0.446	0.386	0.349	0.322	0.298	0.276	0.254	0.230	0.205
Biotransformation	0.9879	0.257	0.089	0.035	0.014	0.006	0.003	0.001	0.000	0.000	0.000

Monitoring Well Locations (ft)

	125	440									
Field Data from Site	0.076	0.120									



Distance From Source (ft.)

See PCE

See TCE

See DCE

See VC

See ETH

Replay

Time:

60.0 Years

Log ⟺ Linear

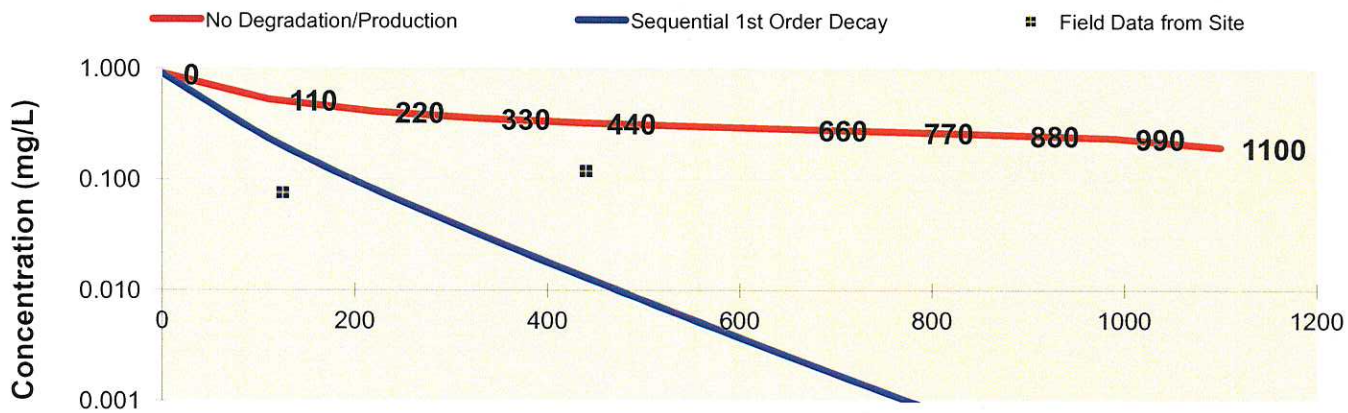
Return to Input

To All

To Array

DISSOLVED CHLORINATED SOLVENT CONCENTRATIONS ALONG PLUME CENTERLINE (mg/L) at Z=0

PCE	Distance from Source (ft)										
	0	110	220	330	440	550	660	770	880	990	1100
No Degradation	0.894	0.521	0.406	0.353	0.321	0.299	0.282	0.267	0.252	0.236	0.196
Biotransformation	0.8939	0.232	0.081	0.031	0.013	0.005	0.002	0.001	0.000	0.000	0.000
	Monitoring Well Locations (ft)										
	125	440									
Field Data from Site	0.076	0.120									



See PCE

See TCE

See DCE

See VC

See ETH

Distance From Source (ft.)

Replay

Time:

70.0 Years

Log ⟺ Linear

Return to Input

To All

To Array

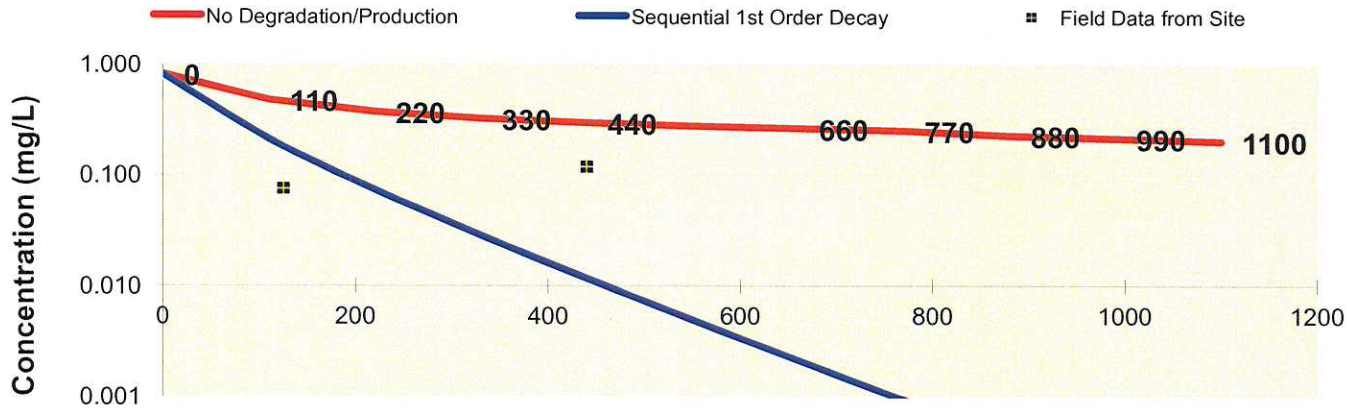
DISSOLVED CHLORINATED SOLVENT CONCENTRATIONS ALONG PLUME CENTERLINE (mg/L) at Z=0

Distance from Source (ft)

PCE	0	110	220	330	440	550	660	770	880	990	1100
No Degradation	0.809	0.472	0.368	0.321	0.293	0.275	0.262	0.251	0.227	0.215	0.202
Biotransformation	0.8088	0.210	0.073	0.028	0.012	0.005	0.002	0.001	0.000	0.000	0.000

Monitoring Well Locations (ft)

	125	440									
Field Data from Site	0.076	0.120									



See PCE

See TCE

See DCE

See VC

See ETH

Distance From Source (ft.)

Replay

Time:

80.0 Years

Log ⟺ Linear

Return to Input

To All

To Array

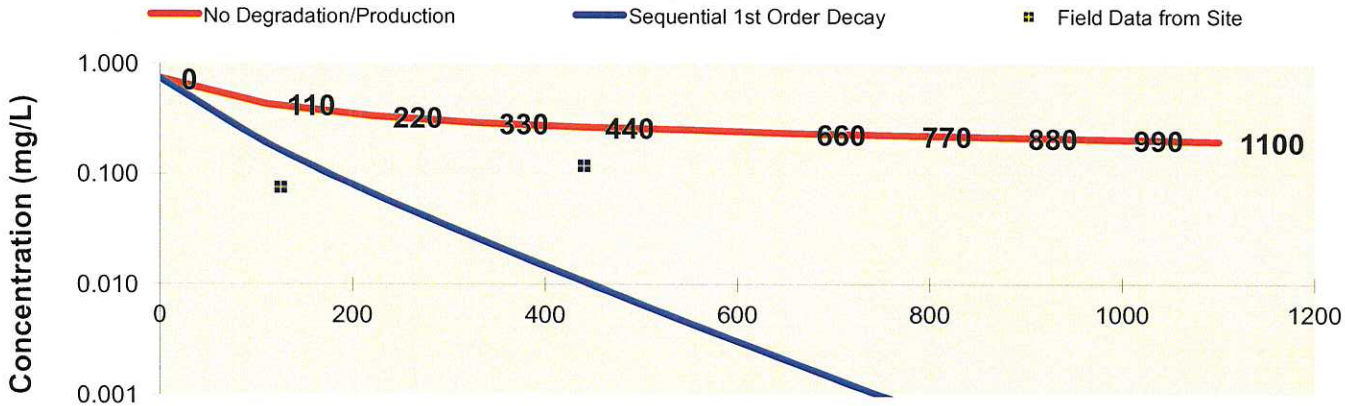
DISSOLVED CHLORINATED SOLVENT CONCENTRATIONS ALONG PLUME CENTERLINE (mg/L) at Z=0

Distance from Source (ft)

PCE	0	110	220	330	440	550	660	770	880	990	1100
No Degradation	0.732	0.427	0.333	0.291	0.267	0.251	0.234	0.225	0.216	0.208	0.199
Biotransformation	0.7318	0.190	0.066	0.026	0.011	0.004	0.002	0.001	0.000	0.000	0.000

Monitoring Well Locations (ft)

	125	440									
Field Data from Site	0.076	0.120									



See PCE

See TCE

See DCE

See VC

See ETH

Distance From Source (ft.)

Replay

Time:

90.0 Years

Log ⟺ Linear

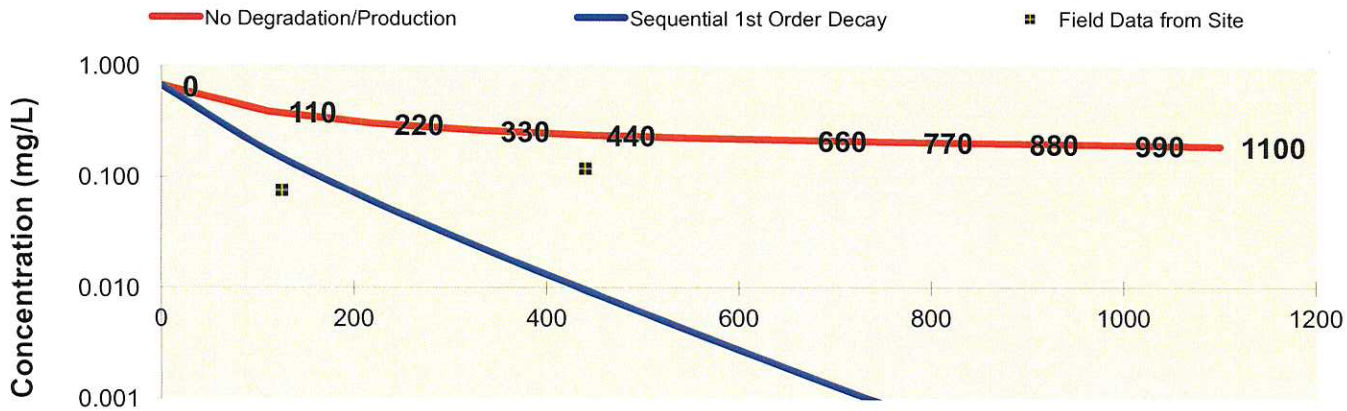
Return to Input

To All

To Array

DISSOLVED CHLORINATED SOLVENT CONCENTRATIONS ALONG PLUME CENTERLINE (mg/L) at Z=0

PCE	Distance from Source (ft)										
	0	110	220	330	440	550	660	770	880	990	1100
No Degradation	0.662	0.387	0.302	0.262	0.240	0.226	0.216	0.208	0.202	0.197	0.191
Biotransformation	0.6622	0.172	0.060	0.023	0.010	0.004	0.002	0.001	0.000	0.000	0.000
	Monitoring Well Locations (ft)										
	125	440									
Field Data from Site	0.076	0.120									



See PCE

See TCE

See DCE

See VC

See ETH

Distance From Source (ft.)

Replay

Time:

100.0 Years

Log ⟺ Linear

Return to Input

To All

To Array

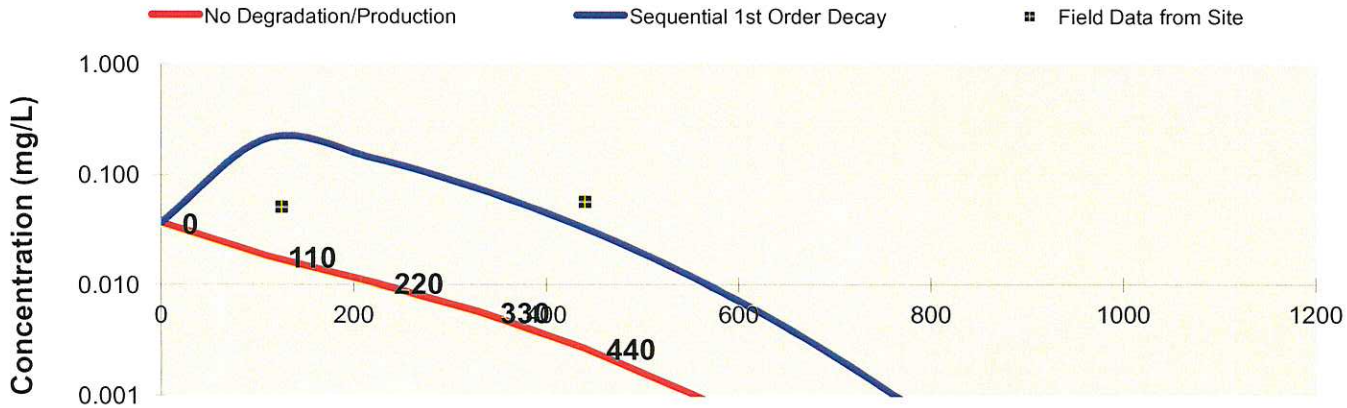
DISSOLVED CHLORINATED SOLVENT CONCENTRATIONS ALONG PLUME CENTERLINE (mg/L) at Z=0

Distance from Source (ft)

TCE	0	110	220	330	440	550	660	770	880	990	1100
No Degradation	0.036	0.018	0.010	0.006	0.003	0.001	0.000	0.000	0.000	0.000	0.000
Biotransformation	0.0362	0.208	0.139	0.073	0.032	0.012	0.004	0.001	0.000	0.000	0.000

Monitoring Well Locations (ft)

	125	440									
Field Data from Site	0.051	0.057									



Distance From Source (ft.)

See PCE

See TCE

See DCE

See VC

See ETH

Replay

Time:

10.0 Years

Log ⟺ Linear

Return to Input

To All

To Array

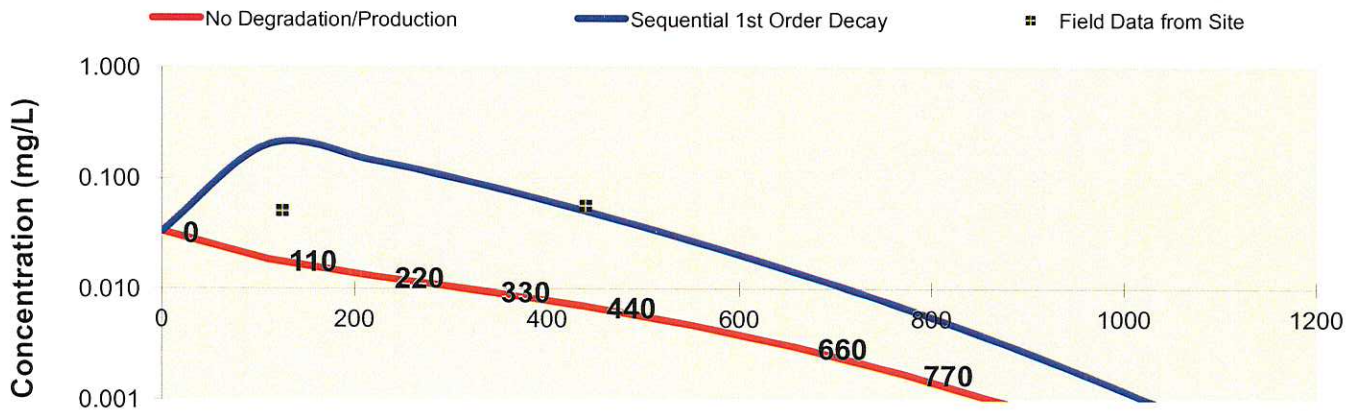
DISSOLVED CHLORINATED SOLVENT CONCENTRATIONS ALONG PLUME CENTERLINE (mg/L) at Z=0

Distance from Source (ft)

TCE	0	110	220	330	440	550	660	770	880	990	1100
No Degradation	0.033	0.018	0.013	0.009	0.007	0.005	0.003	0.002	0.001	0.000	0.000
Biotransformation	0.0327	0.198	0.143	0.088	0.050	0.027	0.014	0.007	0.003	0.001	0.000

Monitoring Well Locations (ft)

	125	440									
Field Data from Site	0.051	0.057									



Distance From Source (ft.)

See PCE

See TCE

See DCE

See VC

See ETH

Replay

Time:

20.0 Years

Log ⟺ Linear

Return to Input

To All

To Array

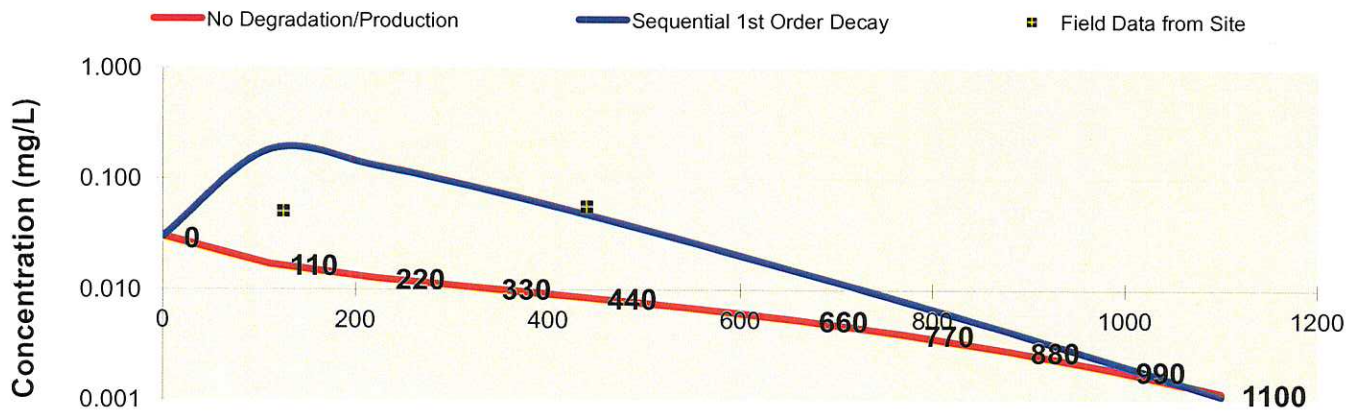
DISSOLVED CHLORINATED SOLVENT CONCENTRATIONS ALONG PLUME CENTERLINE (mg/L) at Z=0

Distance from Source (ft)

TCE	0	110	220	330	440	550	660	770	880	990	1100
No Degradation	0.030	0.017	0.013	0.010	0.008	0.007	0.005	0.004	0.003	0.002	0.001
Biotransformation	0.0296	0.180	0.131	0.081	0.047	0.027	0.015	0.008	0.004	0.002	0.001

Monitoring Well Locations (ft)

	125	440									
Field Data from Site	0.051	0.057									



See PCE

See TCE

See DCE

See VC

See ETH

Distance From Source (ft.)

Replay

Time:

30.0 Years

Log ⟺ Linear

Return to Input

To All

To Array

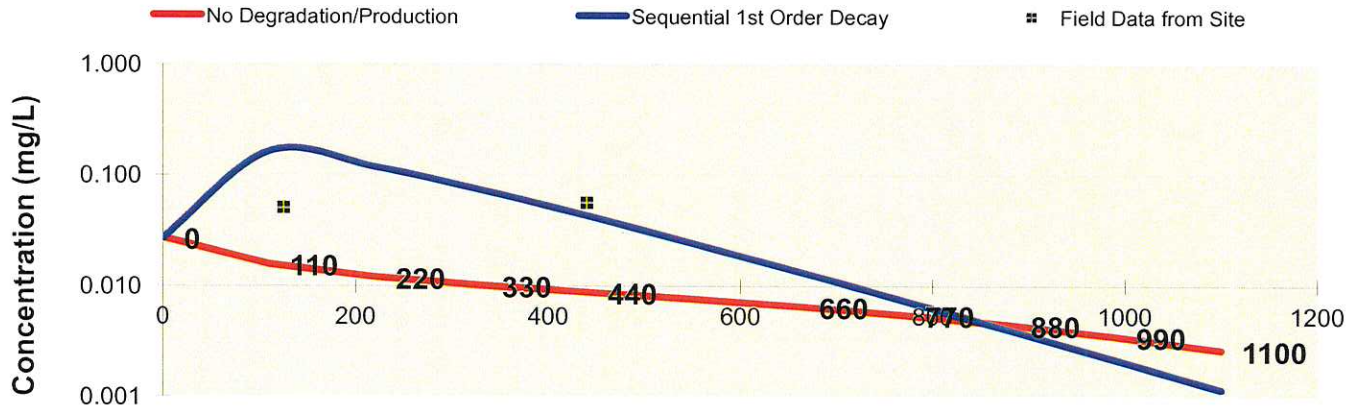
DISSOLVED CHLORINATED SOLVENT CONCENTRATIONS ALONG PLUME CENTERLINE (mg/L) at Z=0

Distance from Source (ft)

TCE	0	110	220	330	440	550	660	770	880	990	1100
No Degradation	0.027	0.015	0.012	0.010	0.009	0.008	0.006	0.005	0.004	0.003	0.003
Biotransformation	0.0268	0.163	0.118	0.073	0.043	0.024	0.013	0.007	0.004	0.002	0.001

Monitoring Well Locations (ft)

	125	440									
Field Data from Site	0.051	0.057									



See PCE

See TCE

See DCE

See VC

See ETH

Distance From Source (ft.)

Replay

Time:

40.0 Years

Log ⟺ Linear

Return to Input

To All

To Array

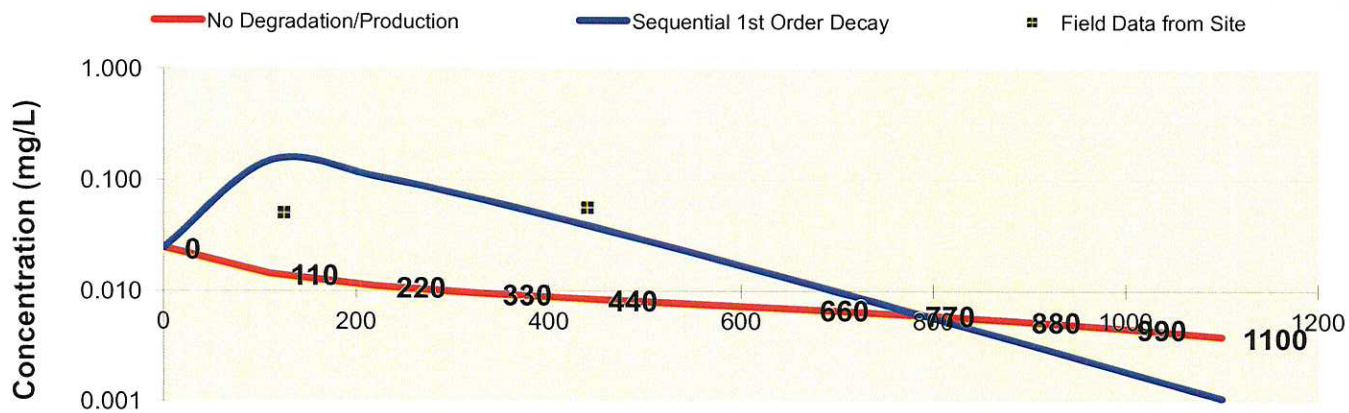
DISSOLVED CHLORINATED SOLVENT CONCENTRATIONS ALONG PLUME CENTERLINE (mg/L) at Z=0

Distance from Source (ft)

TCE	0	110	220	330	440	550	660	770	880	990	1100
No Degradation	0.024	0.014	0.011	0.009	0.008	0.007	0.007	0.006	0.005	0.005	0.004
Biotransformation	0.0243	0.147	0.107	0.066	0.039	0.022	0.012	0.007	0.004	0.002	0.001

Monitoring Well Locations (ft)

	125	440									
Field Data from Site	0.051	0.057									



See PCE

See TCE

See DCE

See VC

See ETH

Distance From Source (ft.)

Replay

Time:

50.0 Years

Log ⟺ Linear

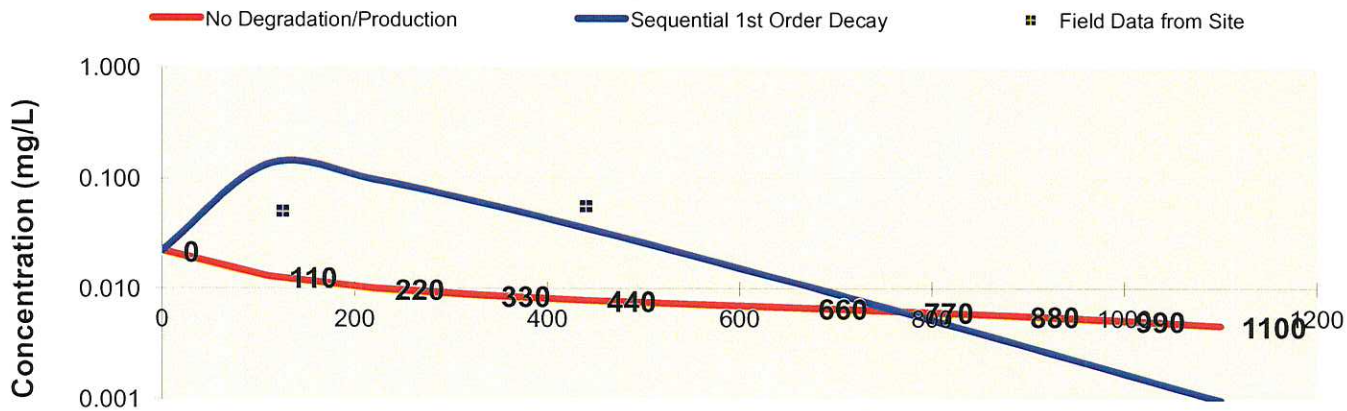
Return to Input

To All

To Array

DISSOLVED CHLORINATED SOLVENT CONCENTRATIONS ALONG PLUME CENTERLINE (mg/L) at Z=0

TCE	Distance from Source (ft)										
	0	110	220	330	440	550	660	770	880	990	1100
No Degradation	0.022	0.013	0.010	0.009	0.008	0.007	0.007	0.006	0.006	0.005	0.005
Biotransformation	0.0220	0.133	0.097	0.060	0.035	0.020	0.011	0.006	0.003	0.002	0.001
	Monitoring Well Locations (ft)										
	125	440									
Field Data from Site	0.051	0.057									



See PCE

See TCE

See DCE

See VC

See ETH

Distance From Source (ft.)

Replay

Time:

60.0 Years

Log ⟺ Linear

Return to Input

To All

To Array

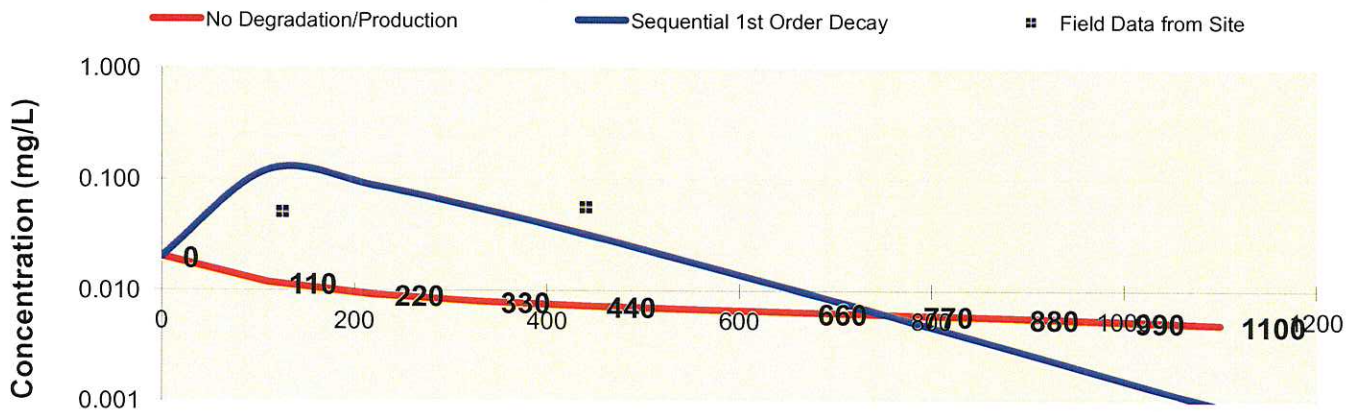
DISSOLVED CHLORINATED SOLVENT CONCENTRATIONS ALONG PLUME CENTERLINE (mg/L) at Z=0

Distance from Source (ft)

TCE	0	110	220	330	440	550	660	770	880	990	1100
No Degradation	0.020	0.012	0.009	0.008	0.007	0.007	0.006	0.006	0.006	0.005	0.005
Biotransformation	0.0199	0.121	0.088	0.054	0.032	0.018	0.010	0.005	0.003	0.002	0.001

Monitoring Well Locations (ft)

	125	440									
Field Data from Site	0.051	0.057									



See PCE

See TCE

See DCE

See VC

See ETH

Distance From Source (ft.)

Replay

Time:

70.0 Years

Log ⟺ Linear

Return to Input

To All

To Array

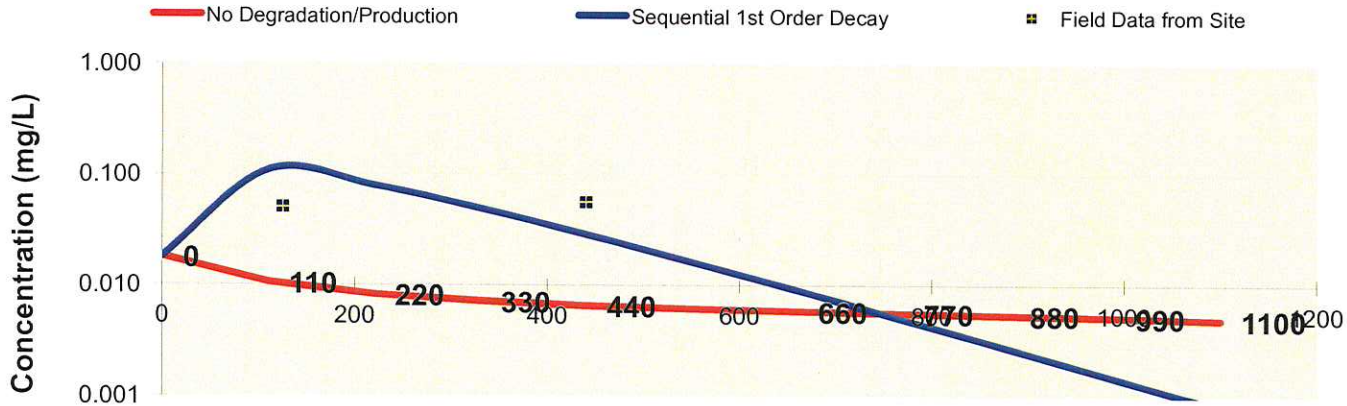
DISSOLVED CHLORINATED SOLVENT CONCENTRATIONS ALONG PLUME CENTERLINE (mg/L) at Z=0

Distance from Source (ft)

TCE	0	110	220	330	440	550	660	770	880	990	1100
No Degradation	0.018	0.010	0.008	0.007	0.007	0.006	0.006	0.006	0.005	0.005	0.005
Biotransformation	0.0180	0.109	0.079	0.049	0.029	0.016	0.009	0.005	0.003	0.001	0.001

Monitoring Well Locations (ft)

	125	440									
Field Data from Site	0.051	0.057									



See PCE

See TCE

See DCE

See VC

See ETH

Distance From Source (ft.)

Replay

Time:

80.0 Years

Log ⟺ Linear

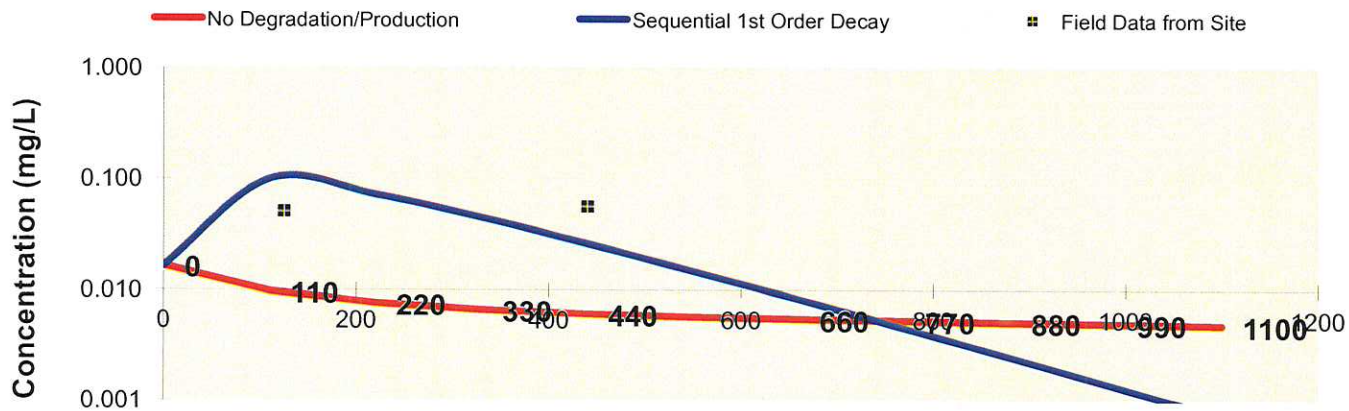
Return to Input

To All

To Array

DISSOLVED CHLORINATED SOLVENT CONCENTRATIONS ALONG PLUME CENTERLINE (mg/L) at Z=0

TCE	Distance from Source (ft)										
	0	110	220	330	440	550	660	770	880	990	1100
No Degradation	0.016	0.009	0.007	0.006	0.006	0.006	0.005	0.005	0.005	0.005	0.005
Biotransformation	0.0163	0.099	0.072	0.045	0.026	0.015	0.008	0.004	0.002	0.001	0.001
	Monitoring Well Locations (ft)										
	125	440									
Field Data from Site	0.051	0.057									



See PCE

See TCE

See DCE

See VC

See ETH

Distance From Source (ft.)

Replay

Time:

90.0 Years

Log ⟺ Linear

Return to Input

To All

To Array

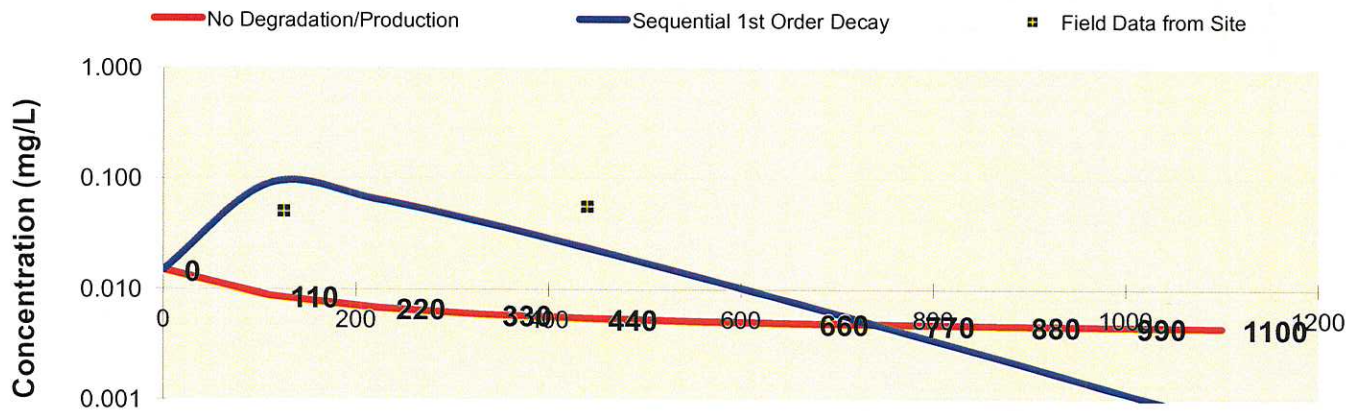
DISSOLVED CHLORINATED SOLVENT CONCENTRATIONS ALONG PLUME CENTERLINE (mg/L) at Z=0

Distance from Source (ft)

TCE	0	110	220	330	440	550	660	770	880	990	1100
No Degradation	0.015	0.009	0.007	0.006	0.005	0.005	0.005	0.005	0.005	0.005	0.004
Biotransformation	0.0147	0.089	0.065	0.040	0.024	0.013	0.007	0.004	0.002	0.001	0.001

Monitoring Well Locations (ft)

	125	440									
Field Data from Site	0.051	0.057									



See PCE

See TCE

See DCE

See VC

See ETH

Distance From Source (ft.)

Replay

Time:

100.0 Years

Log ⟺ Linear

Return to Input

To All

To Array

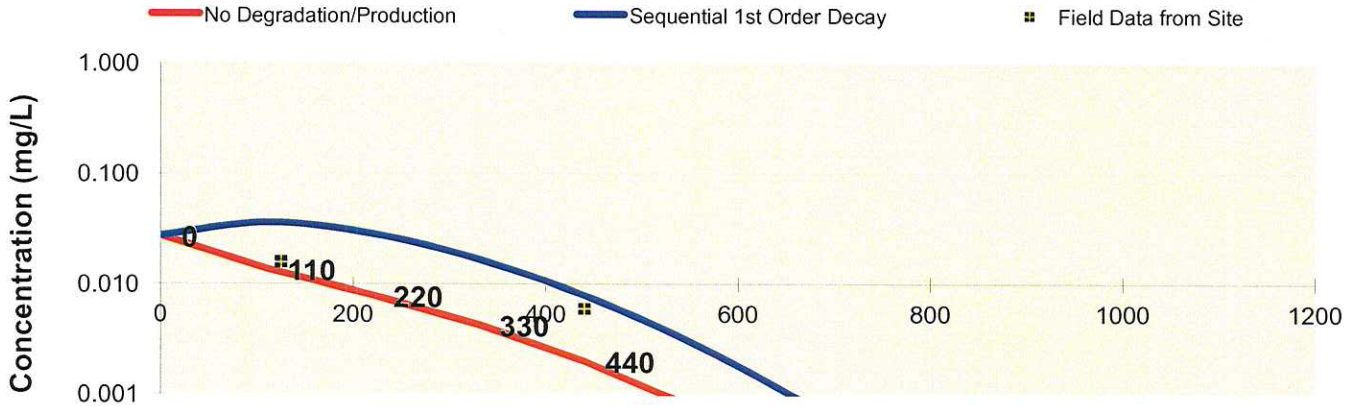
DISSOLVED CHLORINATED SOLVENT CONCENTRATIONS ALONG PLUME CENTERLINE (mg/L) at Z=0

Distance from Source (ft)

DCE	0	110	220	330	440	550	660	770	880	990	1100
No Degradation	0.027	0.013	0.008	0.004	0.002	0.001	0.000	0.000	0.000	0.000	0.000
Biotransformation	0.0271	0.035	0.028	0.016	0.008	0.003	0.001	0.000	0.000	0.000	0.000

Monitoring Well Locations (ft)

	125	440									
Field Data from Site	0.016	0.006									



See PCE

See TCE

See DCE

See VC

See ETH

Distance From Source (ft.)

Replay

Time:

10.0 Years

Log ⟺ Linear

Return to Input

To All

To Array

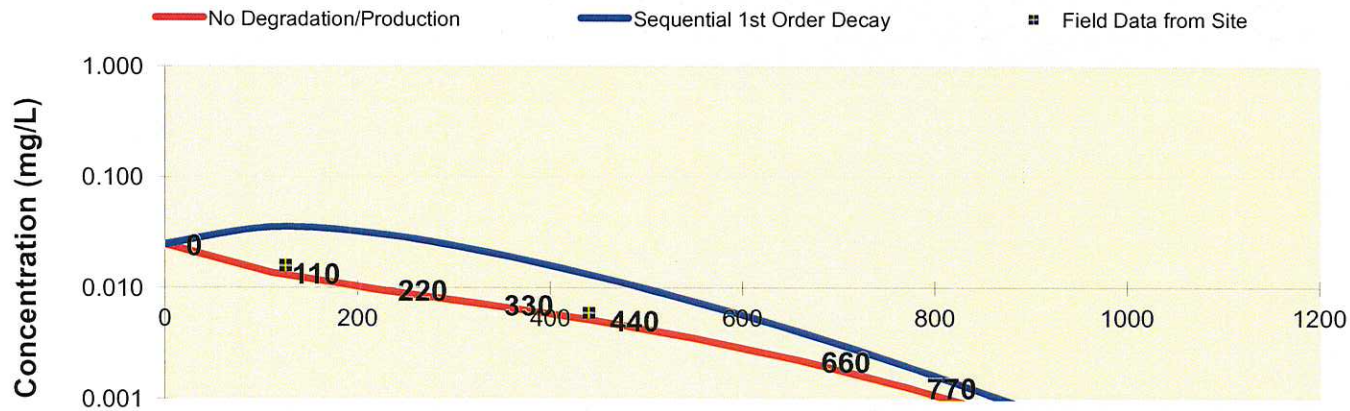
DISSOLVED CHLORINATED SOLVENT CONCENTRATIONS ALONG PLUME CENTERLINE (mg/L) at Z=0

Distance from Source (ft)

DCE	0	110	220	330	440	550	660	770	880	990	1100
No Degradation	0.025	0.014	0.010	0.007	0.005	0.003	0.002	0.001	0.001	0.000	0.000
Biotransformation	0.0246	0.035	0.031	0.021	0.013	0.007	0.004	0.002	0.001	0.000	0.000

Monitoring Well Locations (ft)

	125	440									
Field Data from Site	0.016	0.006									



Distance From Source (ft.)

See PCE

See TCE

See DCE

See VC

See ETH

Replay

Time:

20.0 Years

Log ⟺ Linear

Return to Input

To All

To Array

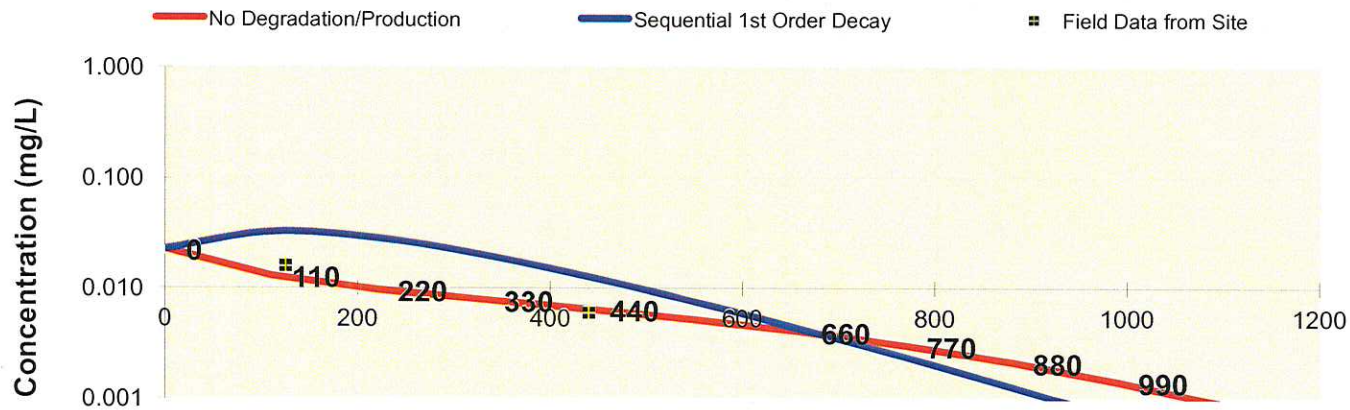
DISSOLVED CHLORINATED SOLVENT CONCENTRATIONS ALONG PLUME CENTERLINE (mg/L) at Z=0

Distance from Source (ft)

DCE	0	110	220	330	440	550	660	770	880	990	1100
No Degradation	0.022	0.013	0.009	0.008	0.006	0.005	0.004	0.003	0.002	0.001	0.001
Biotransformation	0.0222	0.032	0.028	0.020	0.012	0.007	0.004	0.002	0.001	0.001	0.000

Monitoring Well Locations (ft)

	125	440									
Field Data from Site	0.016	0.006									



See PCE

See TCE

See DCE

See VC

See ETH

Distance From Source (ft.)

Replay

Time:

30.0 Years

Log ⟺ Linear

Return to Input

To All

To Array

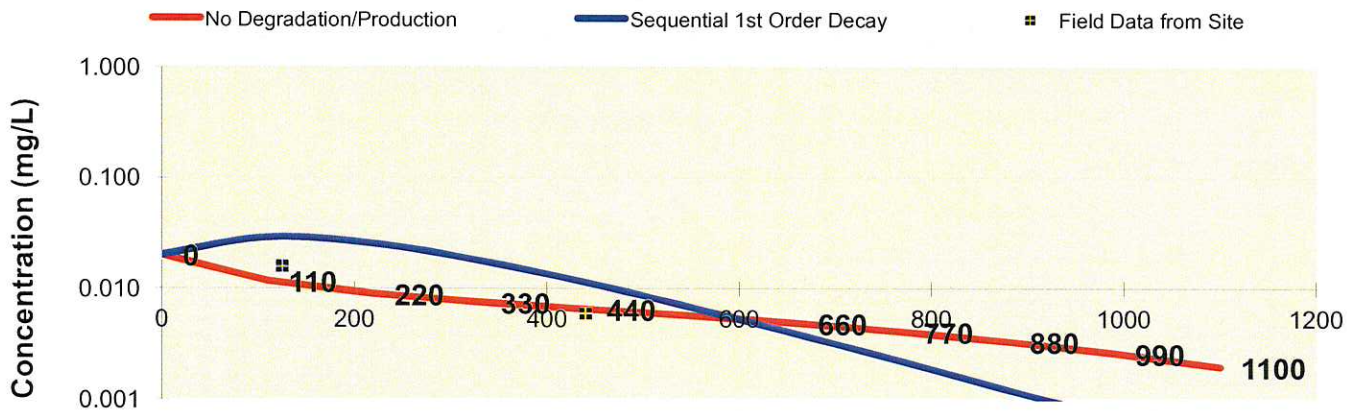
DISSOLVED CHLORINATED SOLVENT CONCENTRATIONS ALONG PLUME CENTERLINE (mg/L) at Z=0

Distance from Source (ft)

DCE	0	110	220	330	440	550	660	770	880	990	1100
No Degradation	0.020	0.012	0.009	0.007	0.006	0.006	0.005	0.004	0.003	0.003	0.002
Biotransformation	0.0201	0.029	0.025	0.018	0.011	0.007	0.004	0.002	0.001	0.001	0.000

Monitoring Well Locations (ft)

	125	440									
Field Data from Site	0.016	0.006									



See PCE

See TCE

See DCE

See VC

See ETH

Distance From Source (ft.)

Replay

Time:

40.0 Years

Log ⟺ Linear

Return to Input

To All

To Array

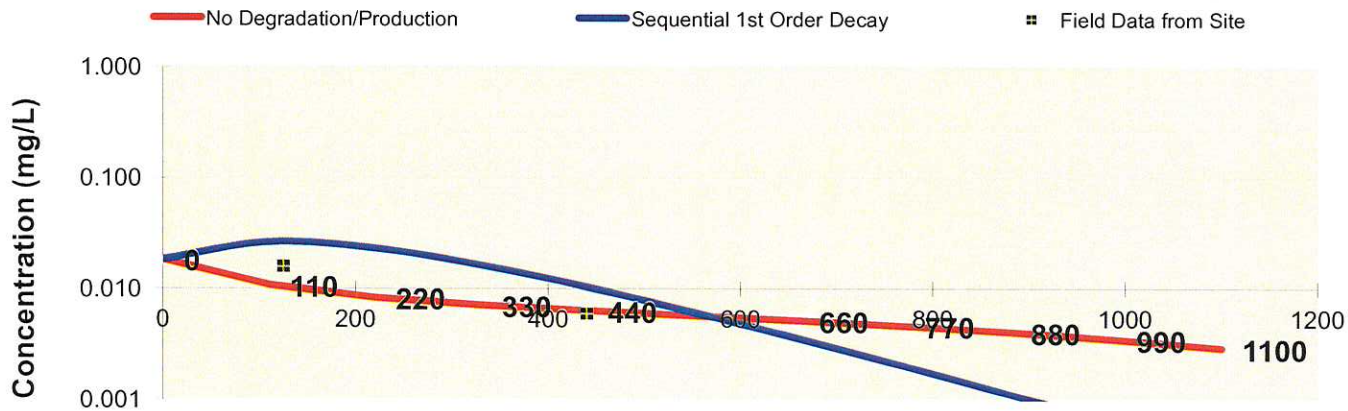
DISSOLVED CHLORINATED SOLVENT CONCENTRATIONS ALONG PLUME CENTERLINE (mg/L) at Z=0

Distance from Source (ft)

DCE	0	110	220	330	440	550	660	770	880	990	1100
No Degradation	0.018	0.011	0.008	0.007	0.006	0.006	0.005	0.005	0.004	0.003	0.003
Biotransformation	0.0182	0.026	0.023	0.016	0.010	0.006	0.004	0.002	0.001	0.001	0.000

Monitoring Well Locations (ft)

	125	440									
Field Data from Site	0.016	0.006									



See PCE

See TCE

See DCE

See VC

See ETH

Distance From Source (ft.)

Replay

Time:

50.0 Years

Log ⟺ Linear

Return to Input

To All

To Array

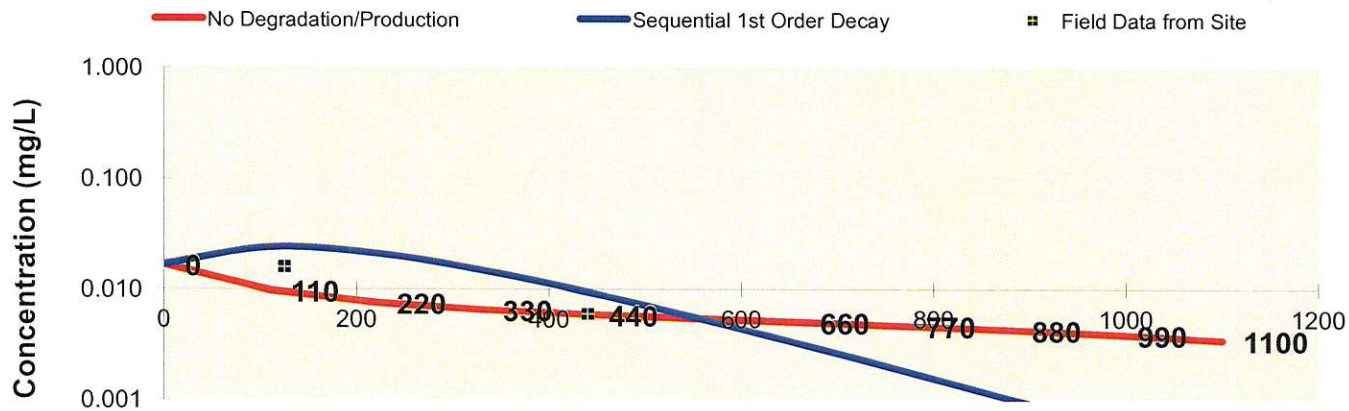
DISSOLVED CHLORINATED SOLVENT CONCENTRATIONS ALONG PLUME CENTERLINE (mg/L) at Z=0

Distance from Source (ft)

DCE	0	110	220	330	440	550	660	770	880	990	1100
No Degradation	0.016	0.010	0.007	0.006	0.006	0.005	0.005	0.005	0.004	0.004	0.003
Biotransformation	0.0165	0.024	0.021	0.015	0.009	0.006	0.003	0.002	0.001	0.001	0.000

Monitoring Well Locations (ft)

	125	440									
Field Data from Site	0.016	0.006									



See PCE

See TCE

See DCE

See VC

See ETH

Distance From Source (ft.)

Replay

Time:

60.0 Years

Log ⟺ Linear

Return to Input

To All

To Array

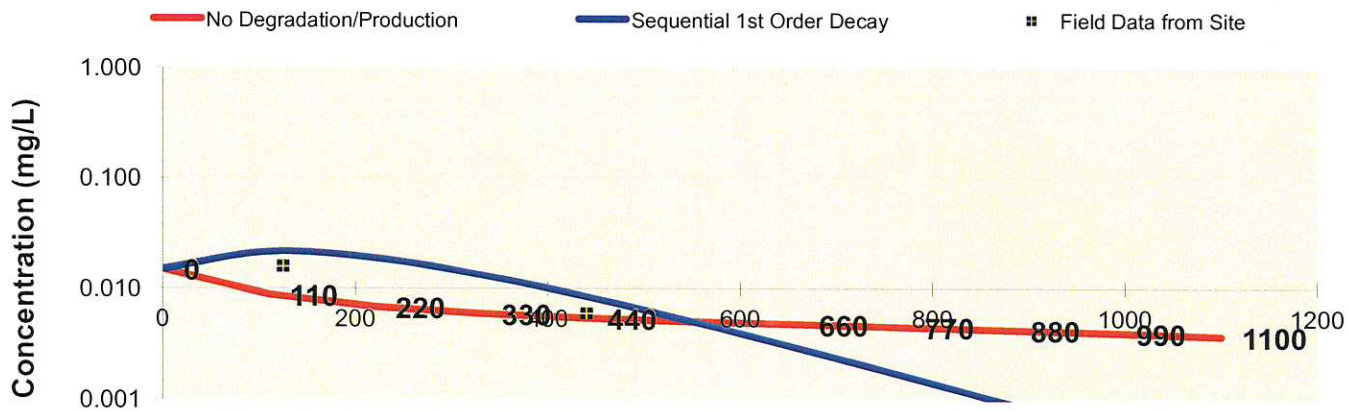
DISSOLVED CHLORINATED SOLVENT CONCENTRATIONS ALONG PLUME CENTERLINE (mg/L) at Z=0

Distance from Source (ft)

DCE	0	110	220	330	440	550	660	770	880	990	1100
No Degradation	0.015	0.009	0.007	0.006	0.005	0.005	0.005	0.004	0.004	0.004	0.004
Biotransformation	0.0149	0.021	0.019	0.013	0.008	0.005	0.003	0.002	0.001	0.000	0.000

Monitoring Well Locations (ft)

	125	440									
Field Data from Site	0.016	0.006									



See PCE

See TCE

See DCE

See VC

See ETH

Distance From Source (ft.)

Replay

Time:

70.0 Years

Log ⟺ Linear

Return to Input

To All

To Array

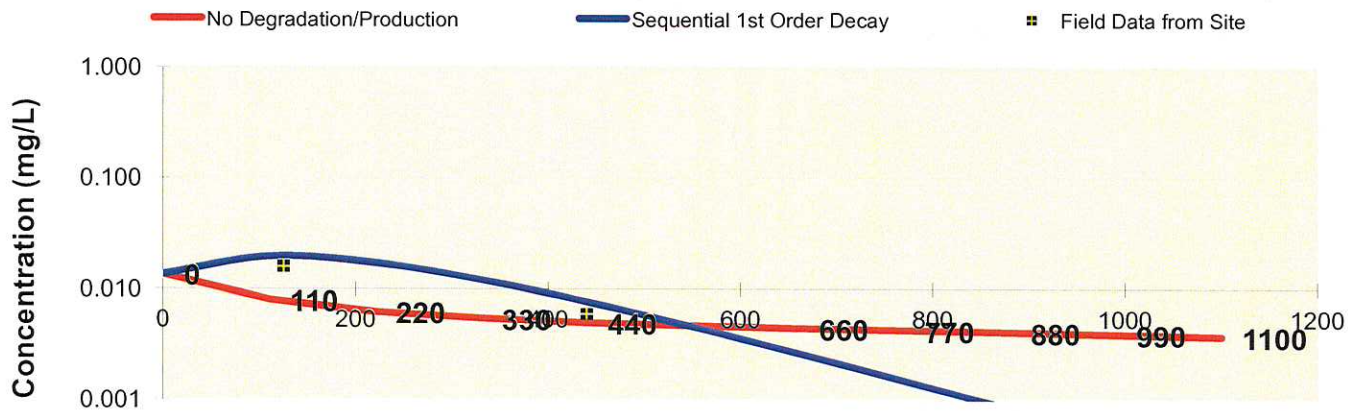
DISSOLVED CHLORINATED SOLVENT CONCENTRATIONS ALONG PLUME CENTERLINE (mg/L) at Z=0

Distance from Source (ft)

DCE	0	110	220	330	440	550	660	770	880	990	1100
No Degradation	0.013	0.008	0.006	0.005	0.005	0.005	0.004	0.004	0.004	0.004	0.004
Biotransformation	0.0135	0.019	0.017	0.012	0.008	0.005	0.003	0.001	0.001	0.000	0.000

Monitoring Well Locations (ft)

	125	440									
Field Data from Site	0.016	0.006									



See PCE

See TCE

See DCE

See VC

See ETH

Distance From Source (ft.)

Replay

Time:

80.0 Years

Log ⟺ Linear

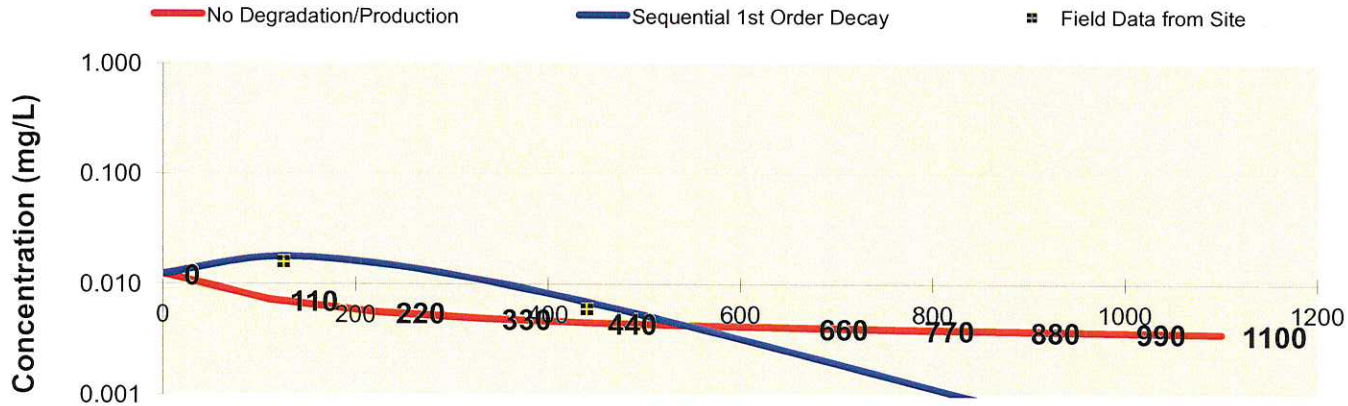
Return to Input

To All

To Array

DISSOLVED CHLORINATED SOLVENT CONCENTRATIONS ALONG PLUME CENTERLINE (mg/L) at Z=0

DCE	Distance from Source (ft)										
	0	110	220	330	440	550	660	770	880	990	1100
No Degradation	0.012	0.007	0.006	0.005	0.004	0.004	0.004	0.004	0.004	0.004	0.004
Biotransformation	0.0122	0.017	0.015	0.011	0.007	0.004	0.002	0.001	0.001	0.000	0.000
	Monitoring Well Locations (ft)										
	125	440									
Field Data from Site	0.016	0.006									



See PCE

See TCE

See DCE

See VC

See ETH

Distance From Source (ft.)

Replay

Time:

90.0 Years

Log ⟺ Linear

Return to Input

To All

To Array

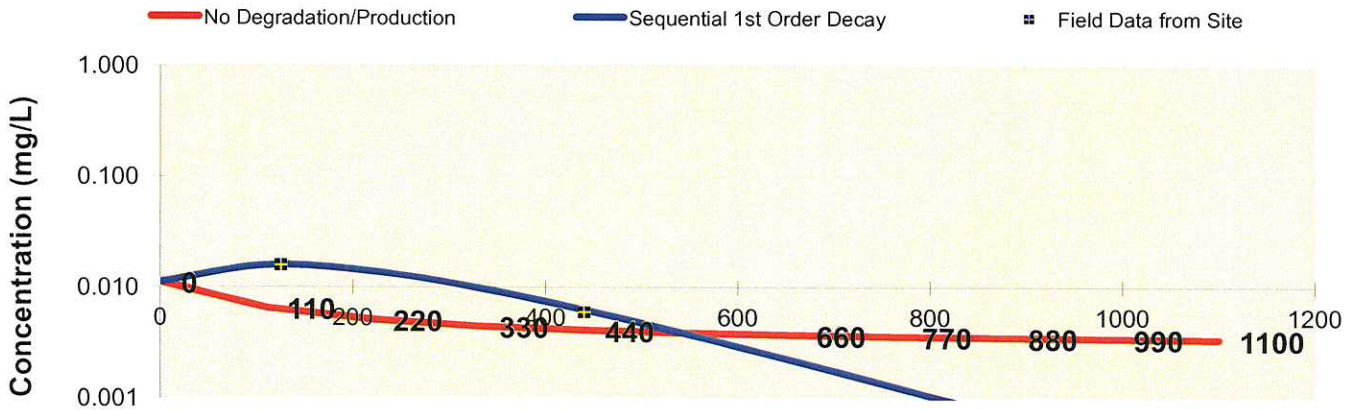
DISSOLVED CHLORINATED SOLVENT CONCENTRATIONS ALONG PLUME CENTERLINE (mg/L) at Z=0

Distance from Source (ft)

DCE	0	110	220	330	440	550	660	770	880	990	1100
No Degradation	0.011	0.006	0.005	0.004	0.004	0.004	0.004	0.004	0.003	0.003	0.003
Biotransformation	0.0110	0.016	0.014	0.010	0.006	0.004	0.002	0.001	0.001	0.000	0.000

Monitoring Well Locations (ft)

	125	440									
Field Data from Site	0.016	0.006									



See PCE

See TCE

See DCE

See VC

See ETH

Distance From Source (ft.)

Replay

Time:

100.0 Years

Log ⟺ Linear

Return to Input

To All

To Array

APPENDIX E

SOIL REMEDIATION PLAN

APPENDIX E – SOIL REMEDIATION PLAN

This Soil Remediation Plan addresses corrective actions associated with the completed assessment and characterization of impacted soils at the Site and proposes activities for remediation of such soils. Refer to Attachment E-1 for figures depicting the delineation of soil impacts.

E.1 BACKGROUND

The 139 Brampton Road Site ("Site") is an approximately 11.1-acre parcel of land located in Savannah, Chatham County, Georgia. The property is commercially developed with various structures which are currently leased for warehousing of wood construction products and for office space. Historically, the Site was developed in the early 1960s for the reconditioning and manufacturing of drums. Site operations continued in a similar manner by various entities until the mid-1970s when drum reconditioning activities were reported to have stopped. However, the drum manufacturing operation continued at the Site from the mid-1970s until the early 1990s. Since 1994 the Site has been occupied by various commercial tenants for warehousing and office space.

The property was listed on the Hazardous Site Inventory (HSI) in June 1994 as site number 10208 due to the presence of lead in soil and tetrachloroethene in groundwater.

A Voluntary Remediation Plan Application (VRPA), dated December 13, 2010, was submitted to Georgia Environmental Protection Division (EPD) to enter the Site into the Voluntary Remediation Program (VRP). The Georgia EPD approved the VRPA with conditions and comments presented in two letters dated October 4, 2011 and accepted the 139 Brampton Road property into the VRP.

E.2 SUMMARY OF SOIL TESTING DATA

The Site has been the subject of a number of environmental assessments conducted between 1985 and 2013. Several sampling events included analysis of soil samples for metals and VOCs, with some SVOCs. Results of the previous sampling events have been compiled most comprehensively in the following submittals to EPD: December 2010 Voluntary Remediation Plan Application, April 2012 (1st) Semi-Annual Progress Report and April 2013 (3rd) Semi-Annual Progress Report.

With the exception of lead impacts to soil, there are no other constituents of concern (COCs) that exhibited concentrations exceeding the applicable non-residential risk reduction standard (RRS). As shown on Figure E-1, all COCs in soil except lead have been delineated on-Site to the Type 1 residential RRS as the established soil delineation criteria.

A site-specific Type 4 value for lead was previously calculated that evaluated direct contact risk and soil to groundwater leachability. The potential for leaching from soil to groundwater was addressed using total and SPLP data. A value of 960 mg/kg in soil was found to generate an SPLP value of 0.013 mg/L lead and this value was selected as representative of an acceptable soil leaching criteria for the Rheem site. The Georgia Adult Lead Methodology (GALM) was previously used to estimate a direct contact RRS for lead of 1,300 mg/kg for the industrial worker. Because the soil leaching value is lower, the leaching value (960 mg/kg) is used as the Type 4 RRS for lead in soil.

Additional sampling events were specific to the analysis of lead in shallow soil samples as the only COC in soil that exceeded the Type 1 RRS on-Site. Off-site sampling for lead in soil was required to delineate the extent of lead in surface soil. In isolated areas confined to the Site, lead exceeded the site-specific Type 4 RRS of 960 mg/kg approved by EPD as the soil cleanup standard. These results are depicted on Figure E-2.

Based on the existing soil data, the shallow lead impacts have been horizontally delineated on-Site. Vertical delineation has mostly been achieved but will be completed during soil remediation.

To facilitate construction of a loading ramp movement of some lead-impacted soil was performed by the current tenant in 2006. Soil from the eastern corner of the southernmost building was excavated to an approximate depth of 6 feet. According to the current site tenant, the excavated soil was relocated and stockpiled to the east along the existing tree line. The tenant indicated that a geofabric was placed in the bottom of the excavation and then backfilled with a combination of stone and sand then finished with concrete. Prior testing in that area had indicated shallow impacts of lead at concentrations greater than the Type 4 RRS. To investigate whether lead in soil impacts remained after the 2006 excavation for the loading dock, one soil boring, GP-04, was advanced through the concrete loading ramp which confirmed the presence of the sandy fill and geofabric. One soil sample was collected from GP-

04 below the loading dock fill and geofabric at a depth of 7 feet that confirmed the remaining lead concentration of 6.5 mg/kg, which is well below the Type 1 and Type 4 RRS.

The soil berm is irregularly shaped and measures 200 feet long by 30 to 50 feet wide. The soil berm is surrounded by a metal reinforced silt fence to prevent runoff and is covered with vegetation. Two composite soil samples from the berm tested in 2012 (SP-1 & SP-2) indicated soil concentrations below the Type 4 RRS. The SP-2 soil sample was analyzed for lead using the Toxicity Characteristic Leaching Procedure (TCLP) and indicated non-hazardous soil.

E.3 SOIL CORRECTIVE ACTION

The purpose of this document is to establish a corrective action approach to remediate soils exceeding applicable RRS. Under the VRP, a representative concentration is the average concentration to which a receptor is exposed over an exposure domain. In accordance with current U.S. Environmental Protection Agency guidance for the Adult Lead Methodology, the exposure concentration for lead in soil is the mean concentration across the exposure domain (http://www.epa.gov/superfund/lead/almfaq.htm, USEPA, 2013). The lead data are summarized on Table E-1. Using the data collected in the top 2 feet of samples, a mean concentration of 427 mg/kg was calculated (Table E-2). Using the data collected from 0 to 7 feet in depth, a mean concentration of 379 mg/kg was calculated (Table E-2). For non-detections, a surrogate concentration of ½ the reporting limit was used to calculate the mean concentrations. Both mean concentrations for surface soil and subsurface soil are less than the Type 4 RRS for lead in soil (960 mg/kg). Note that composite soil samples collected by Golder; SP-4, SP-5 and SP-6; in 1997 and composite soil samples collected by AMEC; SP-1 and SP-2; in 2012 were not used in the calculation.

To identify potential “hot spot” samples at the site, the Type 4 RRS was multiplied by 5 to generate a screening value of 4,800 mg/kg lead. Two sample points exceeded this screening value, specifically SL-37-0.5 @ 6,300 mg/kg located near the southwest corner of the building and VSL-4-0.5 @ 18,000 mg/kg which was part of the soil removed during loading dock construction and is currently part of the soil berm located east of the building. Therefore, the soil from around SL-37-0.5 will be excavated and removed and, as a conservative measure, the entire soil berm will be removed. Based on our evaluation of the existing soil data, the planned soil removal area and soil berm are depicted on Figure E-2.

The in-place impacted soil at SL-37-0.5 will be excavated to the appropriate limits utilizing delineation sampling and will generally extend to a depth of two feet based on previous testing. Excavated material exceeding five times the applicable RRS for lead (i.e., hot spots) that requires off-Site disposal will be stockpiled with appropriate cover and erosion control, placed into roll-off boxes or direct loaded onto trucks for immediate transport.

The extent of excavation will be confirmed through verification sampling to demonstrate compliance. Verification soil samples will be collected along the sidewalls at least every 25 linear feet and samples will be collected from the floor of the excavation at the rate of one sample per 500 square feet or portion thereof. Verification soil samples will also be collected from soil exposed beneath the soil berm at the rate of one sample per 500 square feet or portion thereof.

The excavation, handling, transport, and disposal of the soil and source material will be performed by methods that: (i) prevent contamination of the surrounding environment (soil, water, air), (ii) are in accordance with federal, state, and local laws, and (iii) protect personnel in the excavation area and adjacent areas.

Disposal characterization samples of the excavated material will be collected and analyzed by a qualified laboratory in accordance with the selected permitted disposal facility's requirements. The excavated impacted soil will be transported in compliance with all applicable regulations for transporting such waste and disposed at a pre-approved disposal facility permitted to accept the designated waste.

Based on the anticipate limited depth of excavations and considering the operations of the current site tenant, the excavations will likely be backfilled with natural stone aggregate from a commercial source. However, off-site earthen fill may be used to backfill excavations outside the limits of the current tenant's operations. Off-site borrow soils used to replace excavated material will be analyzed for priority pollutants, and the results must meet HSRA notification concentrations prior to use on-Site.

This work will involve the handling of materials containing substances that are potentially detrimental to the health and safety of construction personnel. The work will be performed in compliance with applicable OSHA regulations, and in accordance with a project specific Health and Safety Plan.

E.4 SCHEDULE AND REPORTING

As required by EPD, semi-annual progress reports must be submitted to EPD by every April 30th and October 30th throughout the duration of this project.

Corrective action of the lead in soil impacts will begin in the reporting period following receipt of EPD's comments on this document and eventual approval of a Soil Remediation Plan. We request any comments and approval of this plan as soon as feasible.

The results of the soil remediation activities will be submitted to EPD in the subsequent semi-annual progress report and will include the following:

- A summary of actions taken to characterize, eliminate, control, or minimize the potential risk of exposure to impacted soil at the Site,
- A summary of all corrective action to bring the Site into compliance with applicable soil risk reduction standards,
- A summary of all pertinent field and laboratory data used to demonstrate compliance with soil risk reduction standards, and
- Documentation of the proper characterization, transportation, and disposal of contaminated soils and/or hazardous wastes, if any.

ATTACHMENT E – 1

FIGURES

AMEC		
EW-1 3/5/2012	2-4FT	
VOCs	BRL	
PAHs	BRL	
METALS		
BARIUM	60.8	
CHROMIUM	7.13	
LEAD	<5.70	

AMEC		
GP-09 3/6/2012	1-2FT	5-6FT
VOCs	BRL	BRL
PAHS	BRL	BRL
METALS		
BARIUM	25.4	77.4
CHROMIUM	7.82	11.9
LEAD	27.9	19.9

AMEC			
GP-10 3/6/2012	0-1FT	2-3FT	6-7FT
VOCs	NT	BRL	BRL
PAHS	NT	BRL	BRL
METALS			
ARSENIC	NT	8.12	<6.31
BARIUM	NT	40	31.3
CHROMIUM	NT	14.1	17.3
LEAD	24.3	16.2	8.62

AMEC			
GP-16 3/6/2012	1-2FT	6-7FT	DUP6-7FT
VOCs	BRL	BRL	BRL
PAHS	BRL	BRL	BRL
METALS			
ARSENIC	<6.18	8.15	<6.15
BARIUM	28.7	72.6	43.3
CHROMIUM	9.7	12.2	12.3
LEAD	32.7	13.7	7.33

DAMES & MOORE				
B-6 11/1987	3-4FT	5-6FT	9-10FT	13-14FT
VOCs	ND	NA	ND	NA
METALS				
BARIUM	NA	31	NA	84
CHROMIUM	NA	16	NA	11
LEAD	NA	5.3	NA	0.83
NICKEL	NA	3.3	NA	2.5

DAMES & MOORE				
B-7 11/1987	3-4FT	5-6FT	9-10FT	13-14FT
VOCs	ND	NA	NA	ND
METALS				
BARIUM	NA	7.1	450	NA
CADMIUM	NA	0.012	ND	NA
CHROMIUM	NA	53	23	NA
LEAD	NA	5.1	15	NA
NICKEL	NA	12	8	NA

GOLDER		
GW-2 2/1997	3.5-5FT	8.5-10FT
VOCs	ND	ND

AMEC	
GP-08 3/6/2012	6-7FT
VOCs	
CYCLOHEXANE	0.025
ETHYLBENZENE	0.034
ISOPROPYLBENZENE	0.055
METHYLCYCLOHEXANE	0.085
PAHs	BRL
1-METHYLNAPHTHALENE	1.2
METALS	
BARIUM	34.6
CHROMIUM	7.28
LEAD	10.8

AMEC	
GP-24 3/7/2012	3-4FT
VOCs	BRL
PAHs	BRL
METALS	
BARIUM	70.6
CHROMIUM	9.05
LEAD	21.7

AMEC	
GP-06 3/7/2012	4-5FT
VOCs	BRL
PAHs	BRL
METALS	
BARIUM	42.6
CHROMIUM	8.15
LEAD	<6.02

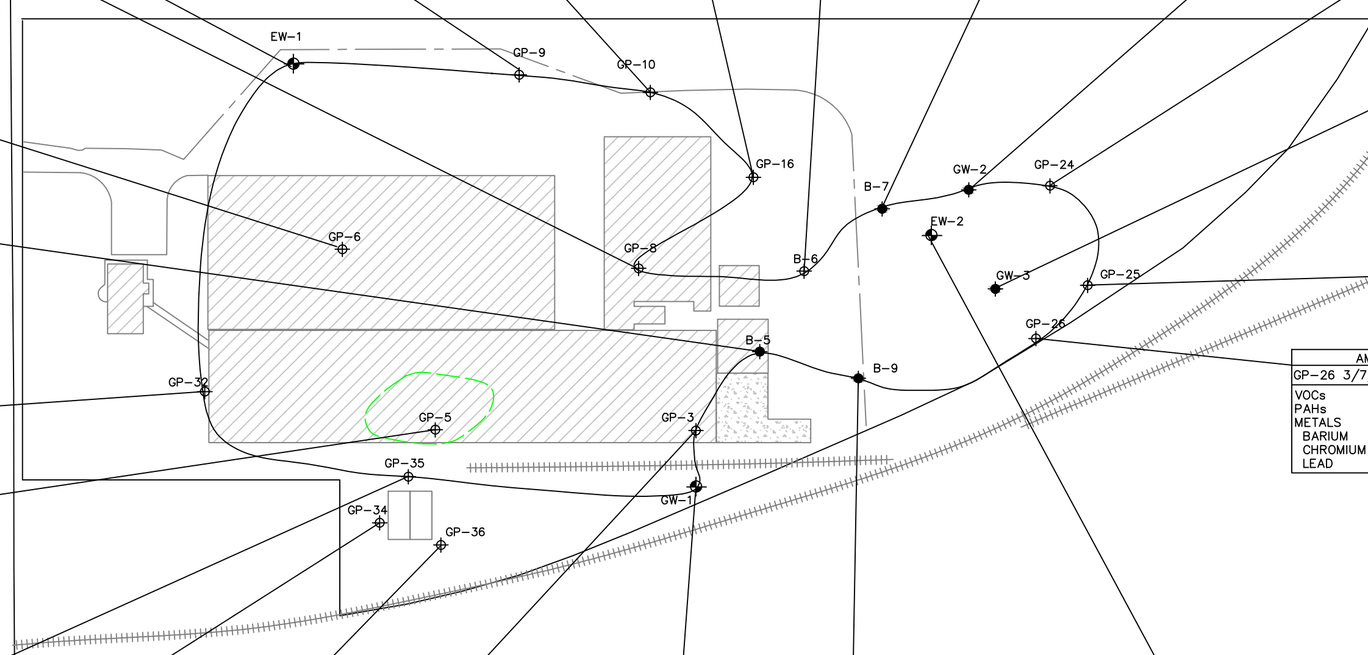
GOLDER			
GW-3 2/1997	0-5FT	9-10.5FT	14-15.5FT
VOCs			
CHLOROBENZENE	2.4	ND	ND
STYRENE	3.8	0.780	ND
TOLUENE	1.0	ND	ND
ETHYLBENZENE	14.0	2.8	ND
XYLENES	18.0	4.0	ND

*APPROXIMATE DEPTH TO WATER 6.17ft TO 8.92ft

DAMES & MOORE				
B-5 11/1987	3-4FT	5-6FT	9-10FT	14-15FT
VOCs	ND	NA	NA	ND
METALS				
BARIUM	NA	36	14	NA
CADMIUM	NA	0.051	0.012	NA
CHROMIUM	NA	34	65	NA
LEAD	NA	5.3	12	NA
MERCURY	NA	ND	0.04	NA
NICKEL	NA	7.5	12	NA

AMEC		
GP-25 3/7/2012	3-4FT	
VOCs	BRL	
PAHs	BRL	
METALS		
BARIUM	34.1	
CHROMIUM	6.58	
LEAD	6.59	

AMEC		
GP-26 3/7/2012	2-3FT	
VOCs	BRL	
PAHs	BRL	
METALS		
BARIUM	28.8	
CHROMIUM	28.3	
LEAD	11.2	



AMEC		
GP-32 3/19/2013	1FT	1-2FT
VOCs		
ACETONE	NT	0.0107
METALS		
LEAD	8	NT

AMEC	
GP-05 3/6/2012	2-3FT
VOCs	
cis 1,2 DICHLOROETHENE	1.8
TETRACHLOROETHENE	5.2
trans 1,2 DICHLOROETHENE	0.043
TRICHLOROETHENE	2.2
PAHs	BRL
METALS	
BARIUM	23
CHROMIUM	6.07
LEAD	6.58

AMEC		
GP-35 3/19/2013	2-3FT	DUP2-3FT
VOCs		
ACETONE	0.0105	0.0118

AMEC	
GP-36 3/19/2013	2-3FT
VOCs	BRL

AMEC	
GP-34 3/19/2013	2-3FT
VOCs	
ACETONE	0.0113

AMEC		
GP-03 3/5/2012	1-2FT	6-7FT
VOCs		
1,1,1 TRICHLOROETHANE	0.017	<0.0052
PAHS	BRL	BRL
METALS		
ARSENIC	<6.49	26
BARIUM	25.8	21.8
CHROMIUM	6.87	23.9
LEAD	8.13	6.88

DAMES & MOORE			
B-9 11/1987	5-6FT	9-10FT	14-15FT
VOCs	NA	ND	NA
METALS			
BARIUM	38	NA	8
CADMIUM	0.016	NA	0.02
CHROMIUM	25	NA	35
LEAD	12	NA	3.3
NICKEL	5.2	NA	16

GOLDER				
GW-1 2/1997	4-5.5FT	9-10.5FT	14-15.5FT	18-19.5FT
VOCs	ND	ND	ND	ND

AMEC		
EW-2 3/6/2012	3-4FT	5-6FT
VOCs		
1,2 DICHLOROBENZENE	0.13	<0.0067
1,3 DICHLOROBENZENE	0.0074	<0.0067
1,4 DICHLOROBENZENE	0.018	<0.0067
2 BUTANONE	0.066	<0.067
ACETONE	0.49	<0.130
BENZENE	0.014	0.019
CARBON DISULFIDE	0.011	<0.013
CHLOROBENZENE	0.096	<0.0067
ETHYLBENZENE	11	<0.0067
ISOPROPYLBENZENE	0.18	<0.0067
METHYLCYCLOHEXANE	0.027	<0.0067
TOLUENE	0.018	<0.0067
XYLENES	3.74	<0.0067
PAHS	BRL	BRL
METALS		
ARSENIC	<5.38	7.61
BARIUM	72.1	64
CHROMIUM	102	16.2
LEAD	466	12.5
MERCURY	0.491	<0.132

LEGEND:

- SOIL BORING LOCATION (AMEC)
- SOIL BORING LOCATION (OTHERS)
- ABANDONED MONITORING WELL LOCATION
- EXISTING MONITORING WELL LOCATION
- VOCS — VOLATILE ORGANIC COMPOUNDS
- SVOCS — SEMI-VOLATILE ORGANIC COMPOUNDS
- ND — NOT DETECTED
- NA — NOT ANALYZED
- BRL — BELOW LABORATORY REPORTING LIMITS
- APPROXIMATE EXTENT OF VOCs LESS THAN SOIL DELINEATION CRITERIA
- LOCATION OF VOCs GREATER THAN THE SOIL DELINEATION CONCENTRATION CRITERIA

SCALE IN FEET

0 100 200

NOTES:
RESULTS REPORTED IN MILLIGRAMS PER KILOGRAMS

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REV	DATE	BY	SUB	APP	DESCRIPTION

DESIGNED
DRAWN TJB
CHECKED CTF
IN CHARGE CTF
DATE APRIL 2014

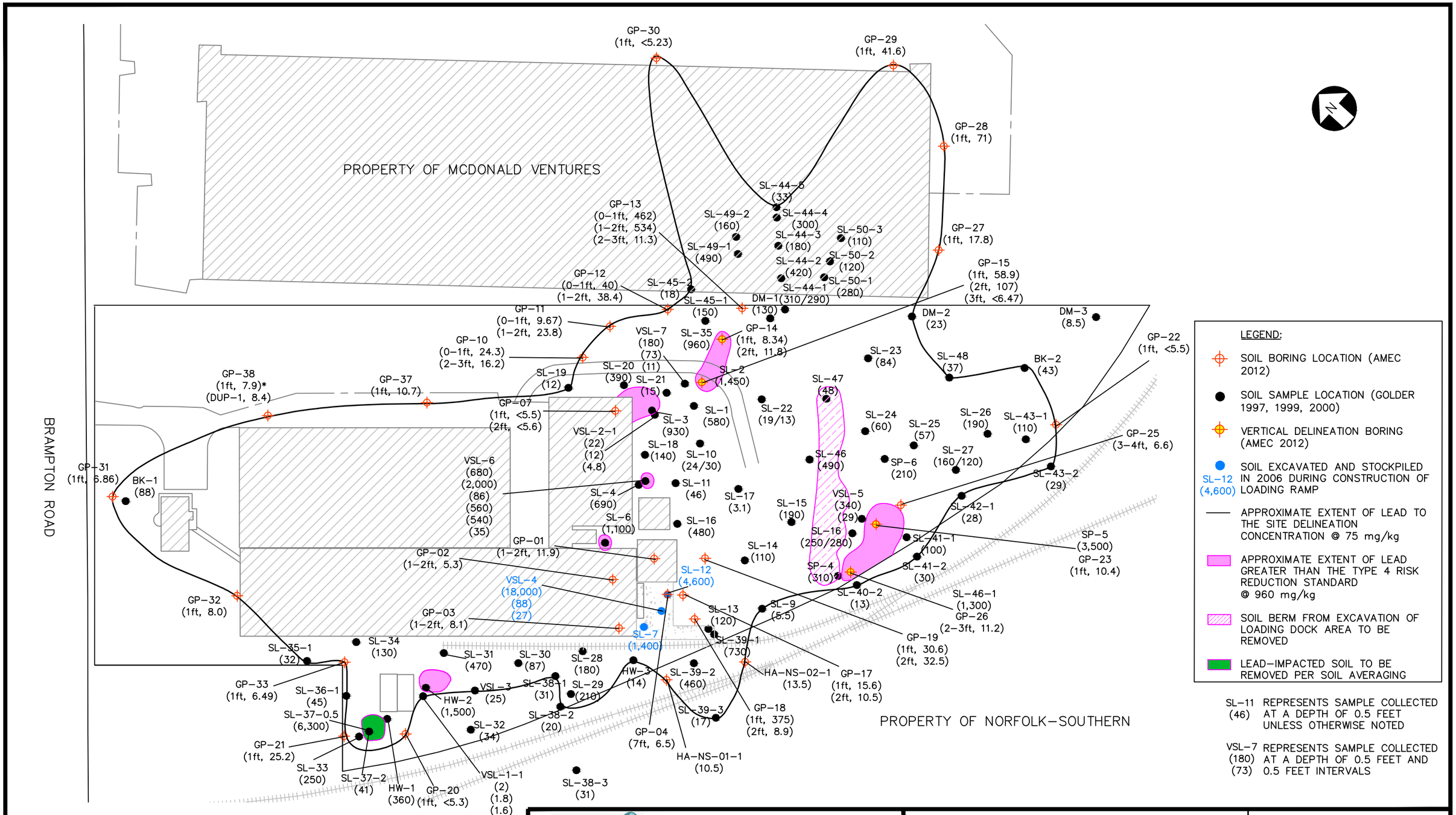
139 BRAMPTON ROAD
SAVANNAH, GEORGIA

AMEC Environment & Infrastructure
396 PLASTERS AVENUE, N.E.
ATLANTA, GEORGIA (404) 873-4761

SUMMARY OF SOIL TEST RESULTS

SCALE: AS SHOWN
CONTRACT: 6121-09-0220
FIGURE NO.: E-1
REV
PAGE NO

M:\oldUdrive\Projects\Former Rheem Manufacturing Facility\Figures\March 2014\REV\Rheem – Lead.dwg – Figure 1B – LEAD 04/22/2014



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139 BRAMPTON ROAD
SAVANNAH, GEORGIA

EXTENT OF LEAD IMPACTED SOIL WITH PROPOSED REMEDIATION AREAS

Job Number	Task	Date	Scale	Drawn By	Reviewed By	Figure
6121–09–0220	01	APR 2014	AS SHWON	RLA	TJB	E–2

Table E-1
Summary of Lead in Soil Data
Used to Calculate Mean Concentration
Project No. 6121-09-0220 April 2014 Remediation Plan

Sample ID	ample Dept	Units	SB Lead	D_SB Lead	SS Lead	D_SS Lead
SL-1	0.5	mg/kg	580	1	580	1
SL-2	0.5	mg/kg	1400	1	1400	1
SL-3	0.5	mg/kg	930	1	930	1
SL-4	0.5	mg/kg	690	1	690	1
SL-5	0.5	mg/kg	1100	1	1100	1
SL-6	0.5	mg/kg	480	1	480	1
SL-7	0.5	mg/kg	1400	1	1400	1
SL-8	0.5	mg/kg	1300	1	1300	1
SL-9	0.5	mg/kg	5.5	1	5.5	1
SL-10 (dup)	0.5	mg/kg	30	1	30	1
SL-11	0.5	mg/kg	46	1	46	1
HW-1	0.5	mg/kg	360	1	360	1
HW-2	0.5	mg/kg	1500	1	1500	1
HW-3	0.5	mg/kg	14	1	14	1
SL-12	0.5	mg/kg	4600	1	4600	1
SL-13	0.5	mg/kg	120	1	120	1
SL-14	0.5	mg/kg	110	1	110	1
SL-15	0.5	mg/kg	190	1	190	1
SL-16 (dup)	0.5	mg/kg	280	1	280	1
SL-17	0.5	mg/kg	3.1	1	3.1	1
SL-18	0.5	mg/kg	140	1	140	1
SL-19	0.5	mg/kg	12	1	12	1
SL-20	0.5	mg/kg	390	1	390	1
SL-21	0.5	mg/kg	15	1	15	1
SL-22	0.5	mg/kg	19	1	19	1
SL-23	0.5	mg/kg	84	1	84	1
SL-24	0.5	mg/kg	60	1	60	1
SL-25	0.5	mg/kg	57	1	57	1
SL-26	0.5	mg/kg	190	1	190	1
SL-27	0.5	mg/kg	160	1	160	1
SL-28	0.5	mg/kg	180	1	180	1
SL-29	0.5	mg/kg	210	1	210	1
SL-30	0.5	mg/kg	87	1	87	1
SL-31	0.5	mg/kg	470	1	470	1
SL-32	0.5	mg/kg	34	1	34	1
SL-33	0.5	mg/kg	250	1	250	1
SL-34	0.5	mg/kg	130	1	130	1
SL-35	0.5	mg/kg	960	1	960	1
SL-35A	0.5	mg/kg	32	1	32	1
SL-36	0.5	mg/kg	45	1	45	1
SL-37	0.5	mg/kg	6300	1	6300	1
SL-38	0.5	mg/kg	31	1	31	1
SL-39	0.5	mg/kg	730	1	730	1
SL-40	0.5	mg/kg	1300	1	1300	1

Table E-1
Summary of Lead in Soil Data
Used to Calculate Mean Concentration
Project No. 6121-09-0220 April 2014 Remediation Plan

SL-41	0.5	mg/kg	100	1	100	1
SL-42	0.5	mg/kg	28	1	28	1
SL-43	0.5	mg/kg	110	1	110	1
SL-44	0.5	mg/kg	310	1	310	1
SL-45	0.5	mg/kg	150	1	150	1
SL-46	0.5	mg/kg	490	1	490	1
SL-47	0.5	mg/kg	48	1	48	1
SL-48	0.5	mg/kg	37	1	37	1
SL-49	0.5	mg/kg	490	1	490	1
SL-50	0.5	mg/kg	280	1	280	1
SP-1	0.5	mg/kg	310	1	310	1
SP-2	0.5	mg/kg	350	1	350	1
SP-3	0.5	mg/kg	210	1	210	1
SL-BK1	0.5	mg/kg	88	1	88	1
SL-BK2	0.5	mg/kg	43	1	43	1
VSL-1	0.5	mg/kg	2	1	2	1
VSL-2	0.5	mg/kg	22	1	22	1
VSL-3	0.5	mg/kg	25	1	25	1
VSL-4	0.5	mg/kg	18000	1	18000	1
VSL-5	0.5	mg/kg	340	1	340	1
VSL-6	0.5	mg/kg	680	1	680	1
VSL-7	0.5	mg/kg	180	1	180	1
GP-07	1	mg/kg	5.46	0	5.46	0
GP-10	1	mg/kg	24.3	1	24.3	1
GP-11	1	mg/kg	9.67	1	9.67	1
GP-12	1	mg/kg	40	1	40	1
GP-13	1	mg/kg	462	1	462	1
GP-14	1	mg/kg	8.34	1	8.34	1
GP-15	1	mg/kg	58.9	1	58.9	1
GP-17	1	mg/kg	15.6	1	15.6	1
GP-18	1	mg/kg	375	1	375	1
GP-19	1	mg/kg	30.6	1	30.6	1
GP-20	1	mg/kg	5.35	0	5.35	0
DUP-2 GP-21	1	mg/kg	36.4	1	36.4	1
GP-22	1	mg/kg	5.55	0	5.55	0
GP-27	1	mg/kg	17.8	1	17.8	1
GP-28	1	mg/kg	71	1	71	1
GP-29	1	mg/kg	41.6	1	41.6	1
GP-30	1	mg/kg	5.23	0	5.23	0
GP-31	1	mg/kg	6.86	1	6.86	1
GP-32	1	mg/kg	8	1	8	1
GP-33	1	mg/kg	6.49	1	6.49	1
GP-37	1	mg/kg	10.7	1	10.7	1
DUP-1 GP-38	1	mg/kg	8.3	1	8.3	1
HA-NS-01	1	mg/kg	10.5	1	10.5	1

Table E-1
Summary of Lead in Soil Data
Used to Calculate Mean Concentration
Project No. 6121-09-0220 April 2014 Remediation Plan

HA-NS-02	1	mg/kg	13.5	1	13.5	1
SL-37	1	mg/kg	41	1	41	1
SL-38	1	mg/kg	20	1	20	1
SL-39	1	mg/kg	460	1	460	1
SL-40	1	mg/kg	13	1	13	1
SL-41	1	mg/kg	30	1	30	1
SL-43	1	mg/kg	29	1	29	1
SL-44	1	mg/kg	420	1	420	1
SL-45	1	mg/kg	18	1	18	1
SL-49	1	mg/kg	160	1	160	1
SL-50	1	mg/kg	120	1	120	1
VSL-1	1	mg/kg	1.8	1	1.8	1
VSL-2	1	mg/kg	12	1	12	1
VSL-4	1	mg/kg	88	1	88	1
VSL-5	1	mg/kg	29	1	29	1
VSL-6	1	mg/kg	2000	1	2000	1
VSL-7	1	mg/kg	73	1	73	1
SL-38	1.5	mg/kg	31	1	31	1
SL-39	1.5	mg/kg	17	1	17	1
SL-44	1.5	mg/kg	180	1	180	1
SL-50	1.5	mg/kg	110	1	110	1
VSL-1	1.5	mg/kg	1.6	1	1.6	1
VSL-2	1.5	mg/kg	4.8	1	4.8	1
VSL-4 (dup)	1.5	mg/kg	30	1	30	1
VSL-6	1.5	mg/kg	86	1	86	1
VSL-7	1.5	mg/kg	11	1	11	1
GP-01	2	mg/kg	11.9	1	11.9	1
GP-02	2	mg/kg	5.28	1	5.28	1
GP-03	2	mg/kg	8.13	1	8.13	1
GP-07	2	mg/kg	5.59	0	5.59	0
GP-09	2	mg/kg	27.9	1	27.9	1
GP-11	2	mg/kg	23.8	1	23.8	1
GP-12	2	mg/kg	38.4	1	38.4	1
GP-13	2	mg/kg	534	1	534	1
GP-14	2	mg/kg	11.8	1	11.8	1
GP-15	2	mg/kg	107	1	107	1
GP-16	2	mg/kg	32.7	1	32.7	1
GP-17	2	mg/kg	10.5	1	10.5	1
GP-18	2	mg/kg	8.91	1	8.91	1
GP-19	2	mg/kg	32.5	1	32.5	1
GP-23	2	mg/kg	10.4	1	10.4	1
SL-44	2	mg/kg	300	1	300	1
VSL-6	2	mg/kg	560	1	560	1
SL-44	2.5	mg/kg	33	1		
VSL-6	2.5	mg/kg	540	1		

Table E-1
Summary of Lead in Soil Data
Used to Calculate Mean Concentration
Project No. 6121-09-0220 April 2014 Remediation Plan

GP-05	3	mg/kg	6.58	1
GP-10	3	mg/kg	16.2	1
GP-13	3	mg/kg	11.3	1
GP-15	3	mg/kg	6.47	0
GP-26	3	mg/kg	11.2	1
VSL-6	3	mg/kg	35	1
EW-01	4	mg/kg	5.7	0
EW-2	4	mg/kg	466	1
GP-24	4	mg/kg	21.7	1
GP-25	4	mg/kg	6.59	1
GP-06	5	mg/kg	6.02	0
EW-2	6	mg/kg	12.5	1
GP-09	6	mg/kg	19.9	1
GP-03	7	mg/kg	6.88	1
GP-04	7	mg/kg	6.54	1
GP-08	7	mg/kg	10.8	1
GP-10	7	mg/kg	8.62	1
GP-16	7	mg/kg	13.7	1

Table E-2
ProUCL Statistics for Data Sets with Non-Detects

User Selected Options	
Date/Time of Computation	3/27/2014 17:10
From File	VRP April 2012 Progress Report Tables 3-21-2012_b.xls
Full Precision	OFF
Confidence Coefficient	95%
Number of Bootstrap Operations	2000

SB Lead 0.5 to 7 feet

General Statistics			
Total Number of Observations	152	Number of Distinct Observations	132
Number of Detects	144	Number of Non-Detects	8
Number of Distinct Detects	124	Number of Distinct Non-Detects	8
Minimum Detect	1.6	Minimum Non-Detect	5.23
Maximum Detect	18000	Maximum Non-Detect	6.47
Variance Detects	2689466	Percent Non-Detects	5.26%
Mean Detects	399.4	SD Detects	1640
Median Detects	41.3	CV Detects	4.106
Skewness Detects	9.224	Kurtosis Detects	95.24
Mean of Logged Detects	4.142	SD of Logged Detects	1.81

Normal GOF Test on Detects Only		
Shapiro Wilk Test Statistic	0.249	Normal GOF Test on Detected Observations Only
5% Shapiro Wilk P Value	0	Detected Data Not Normal at 5% Significance Level
Lilliefors Test Statistic	0.404	Lilliefors GOF Test
5% Lilliefors Critical Value	0.0738	Detected Data Not Normal at 5% Significance Level
Detected Data Not Normal at 5% Significance Level		

Kaplan-Meier (KM) Statistics using Normal Critical Values and other Nonparametric UCLs			
Mean	378.5	Standard Error of Mean	129.7
SD	1593	95% KM (BCA) UCL	645.8
95% KM (t) UCL	593.1	95% KM (Percentile Bootstrap) UCL	614.3
95% KM (z) UCL	591.8	95% KM Bootstrap t UCL	1007
90% KM Chebyshev UCL	767.5	95% KM Chebyshev UCL	943.7
97.5% KM Chebyshev UCL	1188	99% KM Chebyshev UCL	1669

Gamma GOF Tests on Detected Observations Only		
A-D Test Statistic	8.776	Anderson-Darling GOF Test
5% A-D Critical Value	0.853	Detected Data Not Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.178	Kolmogrov-Smirnoff GOF
5% K-S Critical Value	0.0841	Detected Data Not Gamma Distributed at 5% Significance Level
Detected Data Not Gamma Distributed at 5% Significance Level		

Gamma Statistics on Detected Data Only			
k hat (MLE)	0.362	k star (bias corrected MLE)	0.359
Theta hat (MLE)	1103	Theta star (bias corrected MLE)	1112
nu hat (MLE)	104.2	nu star (bias corrected)	103.4
MLE Mean (bias corrected)	399.4	MLE Sd (bias corrected)	666.5

Gamma Kaplan-Meier (KM) Statistics			
k hat (KM)	0.0565	nu hat (KM)	17.16
Approximate Chi Square Value (17.16, α)	8.787	Adjusted Chi Square Value (17.16, β)	8.73
95% Gamma Approximate KM-UCL (use when n>=50)	739.2	95% Gamma Adjusted KM-UCL (use when n<50)	744.1
Gamma (KM) may not be used when k hat (KM) is < 0.1			

Table E-2
ProUCL Statistics for Data Sets with Non-Detects

Gamma ROS Statistics using Imputed Non-Detects
GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs
GROS may not be used when kstar of detected data is small such as < 0.1
For such situations, GROS method tends to yield inflated values of UCLs and BTVs
For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

Minimum	0.01	Mean	378.3
Maximum	18000	Median	36.7
SD	1598	CV	4.225
k hat (MLE)	0.305	k star (bias corrected MLE)	0.303
Theta hat (MLE)	1240	Theta star (bias corrected MLE)	1247
nu hat (MLE)	92.75	nu star (bias corrected)	92.25
MLE Mean (bias corrected)	378.3	MLE Sd (bias corrected)	686.8
		Adjusted Level of Significance (β)	0.0484
Approximate Chi Square Value (92.25, α)	71.1	Adjusted Chi Square Value (92.25, β)	70.93
95% Gamma Approximate UCL (use when n>=50)	490.9	95% Gamma Adjusted UCL (use when n<50)	492.1

Lognormal GOF Test on Detected Observations Only

Lilliefors Test Statistic	0.0974	Lilliefors GOF Test
5% Lilliefors Critical Value	0.0738	Detected Data Not Lognormal at 5% Significance Level

Detected Data Not Lognormal at 5% Significance Level

Lognormal ROS Statistics Using Imputed Non-Detects

Mean in Original Scale	378.4	Mean in Log Scale	3.957
SD in Original Scale	1598	SD in Log Scale	1.93
95% t UCL (assumes normality of ROS data)	593	95% Percentile Bootstrap UCL	613.3
95% BCA Bootstrap UCL	739.3	95% Bootstrap t UCL	1042
95% H-UCL (Log ROS)	557.5		

DL/2 Statistics

DL/2 Normal		DL/2 Log-Transformed	
Mean in Original Scale	**378.5**	Mean in Log Scale	3.979
SD in Original Scale	1598	SD in Log Scale	1.894
95% t UCL (Assumes normality)	593.1	95% H-Stat UCL	523.6

DL/2 is not a recommended method, provided for comparisons and historical reasons

Nonparametric Distribution Free UCL Statistics
Data do not follow a Discernible Distribution at 5% Significance Level

Suggested UCL to Use

97.5% KM (Chebyshev) UCL	1188

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
Recommendations are based upon data size, data distribution, and skewness.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.

Table E-2
ProUCL Statistics for Data Sets with Non-Detects

SS Lead 0.5 to 2 feet

General Statistics

Total Number of Observations	132	Number of Distinct Observations	112
Number of Detects	127	Number of Non-Detects	5
Number of Distinct Detects	107	Number of Distinct Non-Detects	5
Minimum Detect	1.6	Minimum Non-Detect	5.23
Maximum Detect	18000	Maximum Non-Detect	5.59
Variance Detects	3032580	Percent Non-Detects	3.79%
Mean Detects	443.2	SD Detects	1741
Median Detects	58.9	CV Detects	3.929
Skewness Detects	8.684	Kurtosis Detects	84.27
Mean of Logged Detects	4.3	SD of Logged Detects	1.812

Normal GOF Test on Detects Only

Shapiro Wilk Test Statistic	0.26	Normal GOF Test on Detected Observations Only
5% Shapiro Wilk P Value	0	Detected Data Not Normal at 5% Significance Level
Lilliefors Test Statistic	0.4	Lilliefors GOF Test
5% Lilliefors Critical Value	0.0786	Detected Data Not Normal at 5% Significance Level

Detected Data Not Normal at 5% Significance Level

Kaplan-Meier (KM) Statistics using Normal Critical Values and other Nonparametric UCLs

Mean	426.5	Standard Error of Mean	148.9
SD	1703	95% KM (BCA) UCL	718.6
95% KM (t) UCL	673.1	95% KM (Percentile Bootstrap) UCL	719.8
95% KM (z) UCL	671.3	95% KM Bootstrap t UCL	1156
90% KM Chebyshev UCL	873.1	95% KM Chebyshev UCL	1075
97.5% KM Chebyshev UCL	1356	99% KM Chebyshev UCL	1908

Gamma GOF Tests on Detected Observations Only

A-D Test Statistic	6.95	Anderson-Darling GOF Test
5% A-D Critical Value	0.851	Detected Data Not Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.156	Kolmogrov-Smirnoff GOF
5% K-S Critical Value	0.0887	Detected Data Not Gamma Distributed at 5% Significance Level

Detected Data Not Gamma Distributed at 5% Significance Level

Gamma Statistics on Detected Data Only

k hat (MLE)	0.371	k star (bias corrected MLE)	0.368
Theta hat (MLE)	1194	Theta star (bias corrected MLE)	1205
nu hat (MLE)	94.28	nu star (bias corrected)	93.39
MLE Mean (bias corrected)	443.2	MLE Sd (bias corrected)	730.9

Gamma Kaplan-Meier (KM) Statistics

k hat (KM)	0.0627	nu hat (KM)	16.55
Approximate Chi Square Value (16.55, α)	8.351	Adjusted Chi Square Value (16.55, β)	8.287
95% Gamma Approximate KM-UCL (use when n>=50)	845.2	95% Gamma Adjusted KM-UCL (use when n<50)	851.8

Gamma (KM) may not be used when k hat (KM) is < 0.1

Gamma ROS Statistics using Imputed Non-Detects
GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs
GROS may not be used when kstar of detected data is small such as < 0.1
For such situations, GROS method tends to yield inflated values of UCLs and BTVs
For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

Minimum	0.01	Mean	426.4
Maximum	18000	Median	47
SD	1710	CV	4.01
k hat (MLE)	0.325	k star (bias corrected MLE)	0.323
Theta hat (MLE)	1311	Theta star (bias corrected MLE)	1321
nu hat (MLE)	85.84	nu star (bias corrected)	85.23
MLE Mean (bias corrected)	426.4	MLE Sd (bias corrected)	750.4
		Adjusted Level of Significance (β)	0.0482
Approximate Chi Square Value (85.23, α)	64.95	Adjusted Chi Square Value (85.23, β)	64.75
95% Gamma Approximate UCL (use when n>=50)	559.5	95% Gamma Adjusted UCL (use when n<50)	561.2

Table E-2
ProUCL Statistics for Data Sets with Non-Detects

Lognormal GOF Test on Detected Observations Only

Lilliefors Test Statistic	0.0829	Lilliefors GOF Test	
5% Lilliefors Critical Value	0.0786	Detected Data Not Lognormal at 5% Significance Level	

Detected Data appear Approximate Lognormal at 5% Significance Level

Lognormal ROS Statistics Using Imputed Non-Detects

Mean in Original Scale	426.5	Mean in Log Scale	4.166
SD in Original Scale	1710	SD in Log Scale	1.901
95% t UCL (assumes normality of ROS data)	673	95% Percentile Bootstrap UCL	695.7
95% BCA Bootstrap UCL	924.6	95% Bootstrap t UCL	1204
95% H-UCL (Log ROS)	662.1		

UCLs using Lognormal Distribution and KM Estimates when Detected data are Lognormally Distributed

KM Mean (logged)	4.175	95% H-UCL (KM -Log)	637
KM SD (logged)	1.881	95% Critical H Value (KM-Log)	3.124
KM Standard Error of Mean (logged)	0.165		

DL/2 Statistics

DL/2 Normal		DL/2 Log-Transformed	
Mean in Original Scale	**426.5**	Mean in Log Scale	4.175
SD in Original Scale	1710	SD in Log Scale	1.886
95% t UCL (Assumes normality)	673	95% H-Stat UCL	645

DL/2 is not a recommended method, provided for comparisons and historical reasons

Nonparametric Distribution Free UCL Statistics
Detected Data appear Approximate Lognormal Distributed at 5% Significance Level

Suggested UCL to Use

97.5% KM (Chebyshev) UCL	1356

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
Recommendations are based upon data size, data distribution, and skewness.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.

APPENDIX F

PE SUPPORTING DOCUMENTATION

Charles T. Ferry, P.E.
Summary of Hours and Services During the 5th Semi-Annual Progress Period
139 Brampton Road
Savannah, Georgia
HSI Site No. 10832

Summary of Hours for Voluntary Remediation Program Activities

(1) Project oversight and evluation of soil and groundwater sampling data and groundwater model
1.5 hours invoiced between 10/15/13 and 3/21/14

(2) Prepare April 2014 Semi-Annual VRP Progress Report
6 hours invoiced between 04/22/14 and 04/21/14