Voluntary Remediation Plan and Application

Martha's Dry Cleaner 4608 Skidaway Road Savannah, Chatham County, Georgia HSI Site No. 10764

> October 27, 2011 Terracon Project No. ES117125

Submitted to:

Georgia Department of Natural Resources Environmental Protection Division Hazardous Waste Management Branch 2 Martin Luther King Jr. Drive, SE Suite 1462 Atlanta, Georgia 30334-9000

Prepared for:

Bible Baptist Church 4700 Skidaway Road Savannah, Chatham County, Georgia 31404

Prepared by:

Terracon Consultants, Inc. Savannah, Georgia



October 27, 2011



Georgia Department of Natural Resources Environmental Protection Division Hazardous Site Response Program 2 Martin Luther King, Jr. Drive, SE Suite 1462 Atlanta, Georgia 30334-9000

- Attn: Ms. Alexandra Cleary P: [404] 657 8600 E: alex.cleary@gaepd.org
- Re: Voluntary Remediation Plan and Application Martha's Dry Cleaner 4608 Skidaway Road Savannah, Chatham County, Georgia HIS Site No. 10764

Dear Ms. Cleary:

On behalf of Bible Baptist Church, Terracon Consultants, Inc. is respectfully submitting this Voluntary Remediation Plan, completed application form and attached \$5,000.00 application fee to enroll the subject property in the Georgia Voluntary Remediation Program.

If there are any questions regarding this submittal or if we may be of further assistance, please do not hesitate to contact us.

Sincerely, Terracon Consultants, Inc.

Elza Bystrom, M.S. Environmental Staff Engineer

No. 20997

William S. Anderson, III, P.E. Senior Environmental Engineer

Cc: Mr. Alan Tanner/Bible Baptist Church

Attachments

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ΑΤΤΑ	CHME	NT – Application Form and Checklist	ii
LIST (OF TAE	BLES	ii
Table	1 – Su	mmarv of Water Level Data	ii
LIST		URES	ii
		S	
REFE	RENCE	S	ii
1.0	INTRO		1
	1.1	Property Eligibility	1
	1.2	Previous Documents	2
	1.3	Background	2
2.0	PROF	PERTY SETTING	3
	2.1	Physical Setting	4
	2.2	Site Specific Geology	4
	2.3	Site Specific Hydrology	4
3.0	REGU	JLATED CONSTITUENTS	8
	3.1	Source	9
	3.2	Groundwater Quality Conditions	9
4.0	RECE	INT GROUNDWATER MONITORING EVENTS	9
	4.1	Groundwater Sampling	9
	4.2	Potentiometric Data Collection	.11
	4.3	Sampling Method	.11
	4.4	Analytical Results	.13
5.0		INTIAL EXPOSURE PATHWAYS AND RECEPTORS AND REMEDIATION	12
CKII	5 1	Potontial Groundwater-to-Human Pathway	دו. 1⊿
	5.2	Potential Surface Water Pathway	. 14
	5.3	Potential Vapor Intrusion Pathway	. 15
	5.4	Risk Reduction Standards and Comparison to Analytical Results	.15
6.0	PROF	POSED REMEDIATION PLAN	.15
-	6.1	Soil	.16
	6.2	Groundwater	.16
7.0	PROJ	ECTED MILESTONE SCHEDULE	.17

TABLE OF CONTENTS

ATTACHMENT – Application Form and Checklist

LIST OF TABLES

- Table 1 Summary of Water Level Data
- Table 2 Summary of Slug Test Data
- Table 3 Site Delineation Concentration Criteria
- Table 4 Summary of Groundwater Testing Data

LIST OF FIGURES

- Figure 1 Property Location Map
- Figure 2 Site and Vicinity
- Figure 3 Property Map with Cross Section Lines
- Figure 4 Geologic Cross Section A-A'
- Figure 5 Geologic Cross Section B-B'
- Figure 6 Potentiometric Map
- Figure 7 Summary of Groundwater Testing Results
- Figure 8 Water Usage Survey Map

APPENDICES

Appendix A – Warranty Deed with Legal Description and Tax Plat Map

Appendix B – 2011 Water Bill

- Appendix C Reportable Quantities Screening Method Scoring
- Appendix D Monitoring Well Logs
- Appendix E Slug Test Data
- Appendix F BIOCHLOR Model Results
- Appendix G Groundwater Field Sampling Data Sheets
- Appendix H Groundwater Laboratory Test Results

REFERENCES

- Memorandum from Michael Medlock of GEORGIA EPD on HSI Listing Recommendation for Martha's Dry Cleaner dated May 5, 2003.
- Corrective Action Plan, prepared by S&ME. Inc., dated December 2005.
- Corrective Action Plan Addendum, prepared by S&ME, Inc., dated September 22, 2006.
- Remediation Activities Report, prepared by WPC, dated November 14, 2008

- Administrative Order No. EPD-HSR-559 issued by GEORGIA EPD to Discount Auto Parts, LLC and cc to Bible Baptist Church, Inc., dated July 8, 2011.
- Phase II Environmental Site Assessment, prepared by LAW Engineering, dated April 29, 2002
- Phase II Subsurface Investigation, prepared by Allied Environmental Consultants, Inc., dated July 2, 1996
- Voluntary Remediation Plan Application, prepared by MACTEC Engineering and Consulting, Inc., dated December 2010
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- Williams, L.J., and Gill, H.E., 2010, Revised hydrogeologic framework of the Floridan aquifer system in the northern coastal area of Georgia and adjacent parts of South Carolina: U.S. Geological Survey Scientific Investigations Report 2010–5158, 103 p., 3 plates.

VOLUNTARY REMEDIATION PLAN AND APPLICATION MARTHA'S DRY CLEANER Savannah, Georgia

HSI Site No. 10764

1.0 INTRODUCTION

This Voluntary Remediation Plan and Application (VRPA) have been prepared for the 4608 Skidaway Road, Savannah, Georgia Property (property). The subject property is an approximately 1.5-acre parcel of land, previously identified on the Chatham County Tax Assessor's website as Tax Parcel ID 2-0120-01-001C which is currently a portion of Tax Parcel ID 2-0120-01-004 which makes up the campus of Bible Baptist Church. Bible Baptist Church acquired the subject property in October 2004.

According to the Corrective Plan Addendum dated September 22, 2006, issued by S&ME, historically, the property was developed and operated from 1986 to 2000 as a small shopping center that included Martha's Dry Cleaner which rented the space until July 31, 2000. A number of environmental assessments had been conducted on the property between 1996 and 2008, which revealed the presence of PCE and TCE as contaminants of concern in soil and groundwater. The property was listed on the Hazardous Site Inventory on May 2003 as site number 10764.

1.1 Property Eligibility

Having reviewed section 12-18-105 of the Georgia Voluntary Remediation Act, the property meets the following criteria and is eligible for the voluntary remediation program (VRP):

- 1) The Property has a release of regulated substances into the environment;
- 2) The Property is not listed on the National Priorities List;
- The Property is not currently undergoing response activities required by an order of the Regional Administrator of the United States Environmental Protection Agency (EPA), and is not required to have a permit under Code Section 12-8-66;
- Qualifying the Property under the VRP would not violate the terms and conditions under which the division operates and administers remedial programs by delegation or by similar authorization from the EPA; and
- 5) There are no, and never have been any, outstanding liens filed against the Property pursuant to Code Sections 12-8-96 and 12-13-12.



1.2 Previous Documents

This VRPA is based at least partly on information obtained from the following assessment reports and other documents.

- Phase II Subsurface Investigation, prepared by Allied Environmental Consultants, Inc., dated July 2, 1996
- Phase II Environmental Site Assessment, prepared by LAW Engineering, dated April 29, 2002
- Memorandum from Michael Medlock of Georgia Environmental Protection Division (EPD) on HSI Listing Recommendation for Martha's Dry Cleaner dated May 5, 2003.
- Soil Delineation Report, prepared by EMC, Inc, dated March 15, 2005.
- Corrective Action Plan, prepared by S&ME. Inc., dated December 2005.
- Corrective Action Plan Addendum, prepared by S&ME, Inc., dated September 22, 2006.
- Remediation Activities Report, prepared by WPC, dated November 14, 2008
- Administrative Order No. EPD-HSR-559 issued by the Georgia EPD to Discount Auto Parts, LLC and cc to Bible Baptist Church, Inc., dated July 8, 2011.

1.3 Background

On March 31, 2003, Mr. J. Cary Lester of Discount Auto Parts issued a release notification for concentrations of Tetrachloroethene (PCE) in soil and groundwater that exceeded the reportable quantities. PCE contamination at the property is believed to be related to the dry cleaning operations at the former Martha's Dry Cleaner located on the property. On May 5, 2003, Mr. Michael Medlock of the Georgia EPD issued a memorandum recommending HSI listing for Martha's Dry Cleaner. On May 30, 2003, Mr. Harold F. Reheis of the Georgia EPD issued a letter stating that property was listed on the HSI.

EMC conducted an assessment to delineate the soil on the property. The results of this assessment were presented in a report dated March 15, 2005 for Bible Baptist Church. EMC delineated the PCE contaminated soil at the site with respect to the Georgia EPD Type 1 Risk Reduction Standard for PCE (0.5 mg/kg). EMC determined that the horizontal extent of PCE contamination was approximately 0.4 acres.

S&ME conducted additional soil and groundwater assessment in October 2005. The results of this assessment were presented in a report dated December, 2005. Five (5) soil borings were advanced using direct-push Geoprobe[™] technology. Groundwater samples were collected from these soil boring locations and analyzed for Volatile Organic Compounds



(VOCs), Semi-Volatile Organic Compounds (SVOCs), and Resource Conservation and Recovery Act (RCRA) Metals. S&ME recommended that additional soil and groundwater investigation were to be conducted to determine if metal contaminations were present in the soil and groundwater at the property.

S&ME collected groundwater samples from seventeen (17) groundwater monitoring wells on May 22 and 23, 2006. The sampling event showed that five VOCs (PCE, TCE, toluene, cis-1,2-DCE, trans-1,2-DCE, 1,1,2-trichlorethane, and xylenes) were detected in the groundwater samples. Soil samples were also collected from four (4) soil boring locations. The only VOC compound detected in the soil was acetone, which was known as a common laboratory contaminant. The four soil samples were also analyzed for RCRA metals. Arsenic, barium, chromium, lead, mercury, and silver were detected in the soil samples collected. Type 3 and 4 Risk Reduction Standards (RRSs) were calculated for all regulated constituents detected in groundwater and soil samples collected. The results of this assessment identified PCE and TCE as the primary contaminants of concern at the subject site. In addition, the assessment also recommended that the soils exceeding the established RRSs be delineated. Results of S&ME's assessment were provided to the Georgia EPD.

According to the Remediation Activities Report dated November 14, 2008, prepared by WPC, soil delineation and removal activities were performed at the subject property on June 18, 2008 until July 2, 2008. A total of 1,764.5 tons of contaminated soil was removed from the property and were disposed of at a local landfill. During the soil excavation activities, three (3) continuous air monitoring stations were set up to sample for contaminant vapors emanating from the soil excavation. The report concluded that the confirmation soil sampling showed that the soils located on the subject property had been effectively remediated to levels below the Type 1 risk reduction standards (RRSs). The results of these investigations were provided to the Georgia EPD. The Georgia EPD issued a letter dated April 20, 2010 concurring that the on-site soils met the residential Type 1 RRSs cleanup standards.

2.0 PROPERTY SETTING

Protection and remediation of groundwater resources require an understanding of processes that affect fate and transport of contaminant in the subsurface environment. This understanding ultimately allows the development of efficient remediation of the property. The complex factors that control the movement of contaminants in groundwater would require an understanding of the property setting.



2.1 Physical Setting

The site topography is relatively flat with the exception of two dry retention ponds located on the eastern portion of the property. The property is bound to the north by a church building and parking lot owned by Bible Baptist Church. The property is bound to the east by LaRoche Avenue and Savannah State University, which is located beyond LaRoche Avenue. The property is bound to the south by the Bible Baptist Church campus and a residential property owned by Thomas and Gretchen Alnutt. The property is bound to the west by Skidaway Road and residential properties. The property is located in an area of mixed land use with mostly residential, commercial, and retail properties.

2.2 Site Specific Geology

The Bible Baptist Church campus lies in the Coastal Plain Province of Georgia, an area underlain by a wedge of unconsolidated sediments beginning at the fall line and thickening to the southeast. The Coastal Plain is relatively level topographically and is highly dissected by streams. The area is underlain by a sequence of Cretaceous and younger sedimentary rocks resting on a basement of much older igneous, metamorphic and/or sedimentary rocks.

The borings completed at the property identified the shallow subsurface material as very stiff sand to clayey sand to an approximate elevation of 10 feet underlain by silty sands to an approximate elevation of -20 feet. The shallow geologic cross section is presented in Figures 4 and 5.

2.3 Site Specific Hydrology

The below subsections contain a summary of geomorphic, stratigraphic, and hydrogeologic information pertaining to a 25 mile radius of the subject site. Geologic data for this area are based on numerous published reports, on observations made during our field investigation, and discussions with other researchers familiar with the geology and hydrogeology of the area.

2.3.1. Stratigraphy

The stratigraphy of the Coastal Plain of Georgia and Chatham County has been described by numerous authors (e.g., Herrick, 1961; Herrick and Vorhis, 1963; Counts and Donsky, 1963; Furlow, 1969; Chowns and Williams, 1983; Clarke et al., 1990; Weems and Edwards, 2001; Williams and Gill, 2010; and Clarke et al., 2011) and is summarized in the following paragraphs. The area stratigraphic units are discussed in ascending order, from the deepest Paleocene units to the surficial Holocene deposits. Cretaceous and pre-Cretaceous rock units are typically found at depths of several thousand feet below ground



surface in the area, and therefore only a general description of the lithologic character is included.

Cretaceous and pre-Cretaceous Stratigraphy

Pre-Cretaceous strata underlying the area are considered "basement" rocks. These "basement" rocks consist of igneous intrusive rocks and low-grade metamorphic rocks of Paleozoic age, and sedimentary rocks and volcanic rocks of Triassic to Early Jurassic Age (Chowns and Williams, 1983). Upper Cretaceous sediments consist of inter-bedded sands and clayey silts at depths of 1,600 feet below ground surface (Herrick, 1961).

Paleocene Stratigraphy

Paleocene units in the area mark the beginning of a regional transgression of the sea that lasted through the late Eocene (Clarke et al., 1990). Paleocene units unconformably overlie strata of Late Cretaceous age. The Clayton Formation and the Cedar Keys Formation make up the Paleocene units in the area. The upper portion of the Clayton Formation is a hard, sandy glauconitic, fossiliferous limestone, while the remaining portion of the formation consists of glauconitic sand, argillaceous sand, and small amounts of medium-to-dark gray clay (Clarke et al., 1990). The Cedar Keys Formation is a Paleocene carbonate-evaporite facies. The Cedar Keys Formation consists of thick beds of anhydrite and dolomite (Clarke et al., 1990).

Eocene Stratigraphy

The early Eocene Oldsmar Formation unconformably overlies the Paleocene Clayton Formation (Clarke et al., 1990). Glauconitic limestone and dolomite are characteristic lithologies of the Oldsmar Formation (Miller, 1986; Clarke et al., 1990). The Oldsmar Formation may also contain an upper layer of sand in some areas (Clarke et al., 1990).

The middle Eocene Avon Park Formation unconformably overlies the Oldsmar formation (Miller, 1986; Clarke et al., 1990). The Avon Park, a glauconitic dolomite and limestone, has a thickness in the range of 700 to 500 feet in the Chatham County area.

The Ocala Limestone is a massive, fossiliferous limestone. Fossils identified in the Ocala include bryozoan remains, foraminiferal tests, and mollusk shells (Furlow, 1969; Miller, 1986; Clarke et al., 1990). The Ocala Limestone unconformably overlies the dolomite and limestone of the Avon Park Formation (Furlow, 1989; Krause and Randolph, 1989; and Clarke et al., 1990). The thickness of the Ocala is more than 200 feet thick, and in some areas exceeds 400 feet (Clarke et al., 1990).

Oligocene Stratigraphy

Buff-colored, porous fossiliferous (foraminiferal tests, micrite, and non-particulate ubiquitous phosphate) limestone describe the sediments of Oligocene age (Clarke et al., 1990).



Huddleston (1988) named these sediments the Lazaretto Creek Formation and the Tiger Leap Formation. Weems and Edwards (2001) refined the descriptions of the two formations. The Lazaretto Creek Formation includes the lower Oligocene sediments in the study area and the Tiger Leap Formation includes the upper Oligocene sediments marked by an increase in phosphate. The abundance of miliolid foraminifera in the Oligocene sediments is used to differentiate the unit from the underlying Ocala Limestone, and the absence of particulate phosphate is used to differentiate the overlying Miocene carbonate sediments.

Miocene Stratigraphy

There are three units of Miocene age in Chatham County. These units have been described lithologically and by geophysical markers by several authors (Furlow, 1969; Huddleston, 1988; Clarke et al., 1990; Weems and Lewis, 2001). The three (3) layers are lithologically similar and are only differentiated based on stratigraphic position, geophysical characteristics, and limited paleontologic evidence (Clarke et al., 1990).

The lowermost Miocene unit in the Chatham County area was designated as Unit C by Clarke and others (1990). Unit C is correlative to the Parachucla Formation of Huddleston (1988) and the Tampa Limestone Equivalent of Furlow (1969). Typically, only the lower portion of Unit C is found in the area, which is generally a sandy, phosphatic dolomite or limestone (Clarke et al., 1990). The middle clay and upper sandy layers have been removed by erosion (Clarke et al., 1990).

The middle Miocene unit has been designated as Miocene Unit B (Miller, 1986, and Clarke et al., 1990). Unit B is correlative to the Hawthorn Formation of Counts and Donsky (1963) and Miller (1986); the Marks Head Formation of Woolsey (1977) and Huddlestun (1988). The Marks Head Formation name has been used for this study after the work of Weems and Edwards (2001). The basal carbonate layer on Unit B typically consists of olive-green dolomite and limestone that contains very fine to coarse quartz sand, shiny brown to black phosphatic sand, and contains some fossils, typically mollusk molds and shark teeth. (Furlow, 1969; Clarke et al., 1990). Distinguishing the basal layer of Unit B from Unit C is difficult because both Unit C and Unit B are lithologically similar, therefore requiring paleontological evidence and/or borehole geophysical logs (Clarke et al., 1990). The two (2) basal units are juxtaposed because the middle and upper clastic layers of Unit C have been eroded away (Clarke et al., 1990). The middle layer of Unit B typically consists of olivegreen phosphatic silty clay and clayey silt and grades upward to the upper sandy layer (Furlow, 1969; and Clarke et al., 1990). The upper sandy unit of Unit B typically consists of poorly sorted, very fine to coarse sand and locally a thin very dense dolomite layer (Furlow, 1969; and Clarke et al., 1990). Unit B (Hawthorn Formation) ranges in thickness from 20 to 55 feet thick (Furlow, 1969).



Miocene Unit A overlies Unit B and is included in the Hawthorn Formation of Counts and Donsky (1963) and Miller (1986), and correlates with the Coosawhatchie Formation of Woolsey (1977) and Huddleston (1988). The name Coosawhatchie Formation is adopted for this study based on the work of Weems and Edwards (2001). The Coosawhatchie Formation contains two (2) members. The basal layer, which is the Tybee Phosphorite Member, consists of a sandy phosphatic limestone and dolomite with some fossils (Clarke et al., 1990). In Chatham County, clay is the matrix material surrounding most of the phosphate grains instead of dolomite (Clarke et al., 1990). The sand in the basal unit generally consists of very fine to coarse quartz and brown to black phosphate. The middle clay layer consists of fossiliferous clay and silt laminae and the upper sand unit consists of a very fine to coarse, poorly sorted sand (Clarke et al., 1990). The upper portion of this unit is equivalent to the Berryville Clay Member. Unit A is about 20 feet thick in the Savannah Area.

Pliocene, Pleistocene, and Holocene Stratigraphy

Sediments of Pliocene age are generally accepted as absent in Chatham County, with Pleistocene sediments unconformably overlying Miocene sediments (Herrick, 1965; Furlow, 1969; and Clarke et al., 1990). Pleistocene sediments typically consist of arkosic sand and gravel with discontinuous clay beds. Basal Pleistocene sediments contain reworked olive-green clay from the underlying Miocene units (Furlow, 1969). Lignitic and fossiliferous clay and micaceous sandy sediment ranging in thickness from 10 to 60 feet are typical of Pleistocene sediments. The Penholoway Formation is the principal surficial Pleistocene deposit in Chatham County (Weems and Edwards, 2001. The Penholoway is one of many remnants of former shoreline complexes through the area, which were the result of numerous transgressions and regressions of the sea, the result of extensive glaciations in North American during the Pleistocene Epoch.

2.3.2. Local Hydrogeology

Hydrologic units in Chatham County, Georgia include (in descending order), the surficial aquifer system, consisting of the water-table zone, upper confined zone, and lower confined zone (Clarke, 2003); the Brunswick aquifer system, consisting of the upper Brunswick and lower Brunswick aquifers (Clarke et al., 1990); and the Upper Floridan aquifer (Miller, 1986).

At the subject site, the surficial aquifer system is present from land surface to 120 feet below land surface (bls) (Edwards and Weems, 2001). For this study, the surficial aquifer is undifferentiated; however the surficial aquifer is typically informally divided into a water-table zone, an upper confined zone, and a lower confined zone. These water-bearing zones are separated by clay confining units. The "water-table" zone is the zone that is intersected by the mine operations. The confined zones are present below 40 feet bls and consist mostly of fine to coarse sand, interbedded with clay and silt. The thickness of the upper confined



zone is approximately 80 feet. The confining unit underlying the surficial aquifer system is identified on natural-gamma radiation logs by the A-marker horizon, which is present just above the upper Brunswick aquifer (Clarke et al., 1990).

The undifferentiated Miocene aquifer extends from 160 to 215 feet bls and consists of poorly sorted, fine to coarse, slightly phosphatic and dolomitic, quartz sand and micritic limestone with partially cemented, mostly fine to medium grained, sandy limestone. The bottom of the aquifer was determined by the location of the C-marker horizon, which coincides with the top of the Upper Floridan aquifer (Clarke et al., 1990).

The principal source for all drinking water uses in the coastal area of Georgia is the Floridan aquifer system. The Floridan aquifer system is composed of carbonate rocks of varying permeability (Clarke et al., 1990; Clark et al., 2011). There are several water-bearing zones within the Floridan aquifer system that are separated by layers of relatively dense limestone and dolostone that act as semiconfining units (Krause and Randolph, 1989; Clarke et al., 1990; Williams and Gill, 2010).

The Chatham County area, the two shallowest water bearing zones of the five that comprise Floridan aquifer system are part of the upper Floridan aquifer (McCollum and Counts, 1964; Krause and Randolph, 1989; Clark et al., 1990; Williams and Gill, 2010). The upper Floridan aquifer is overlain by a confining unit consisting of layers of silty clay and dense phosphatic Oligocene dolomite identified by a distinct response on gamma-ray logs (Clarke et al., 1990). Clarke and others (1990) identified the base of the confining unit as the C-marker horizon. The C-marker is approximately the top of the upper Floridan aquifer in the project area and is present at a depth of 235 feet (Clarke et al., 1990). The C-marker horizon is present at the top of the Ocala Limestone at a depth of 300 feet in the study area.

2.3.3. Groundwater Flow Direction

Based on the area topography, groundwater flow at the property is expected to be generally to the southwest.

3.0 **REGULATED CONSTITUENTS**

Results of past soil and groundwater assessment activities indicated the presence of substances regulated under the Hazardous Site Response Act (HSRA) in soil and groundwater at the property. The soils were been delineated and remediated in 2006 to 2008. The remaining soils located on the subject property have levels below the Type 1 RRSs for the constituents of concern. The previous work on the site has fully delineated the soil contamination and the impacted soils have been removed and disposed of off-site at a



permitted facility. As such, no further soil investigation and/or remediation is required as a result of the Georgia EPD certifying the soils as being in compliance with the Type 1 risk reduction standards.

3.1 Source

According the Corrective Action Plan dated December 2005, prepared by S&ME, the most likely source of the release at the property was the previous dry cleaning operations (1986 – 2000) of dry cleaning solvents.

3.2 Groundwater Quality Conditions

The regulated substances identified in groundwater at the property include: carbon disulfide (CAS No. 75-15-0), 1,1,2-trichloroethane (CAS No. 79-00-5), trichloroethene (CAS No. 79-01-6), trans-1,2-dichloroethene (CAS No. 156-60-5), cis-1,2-dichloroethene (CAS No. 156-59-2), and tetrachloroethene (CAS No. 127-18-4).

During the course of the various assessments conducted between 2005 and 2006, a total of eighteen (18) groundwater monitoring wells were installed on the property. For this current assessment, a total of six (6) groundwater monitoring wells were installed. The results of the recent sampling events are summarized below.

4.0 RECENT GROUNDWATER MONITORING EVENTS

4.1 Groundwater Sampling

Terracon's field activities commenced on September 21, 2011 by Mr. Stewart A. Dixon, P.G., a Terracon Professional Geologist. As part of the scope of work, five (5) permanent shallow monitoring wells (MW-19, MW-20, MW-21S, MW-22, and MW-23) and one (1) deep double cased Type III monitoring well (MW-21D) were installed at the locations identified in Figure 3. All of the the monitoring wells were installed in accordance with procedures described in the US EPA Region 4, Science and Ecosystem Support Division guidance document titled *Design and Installation of Monitoring Wells (SESDGUID-101-R0, dated February 18, 2008).*

Utilizing this guidance, each shallow monitoring well was drilled utilizing a truck-mounted drill rig advancing 8.25-inch outside diameter hollow-stem augers equipped with a bottom plug. The auger was advanced to a depth of twenty (20) feet below ground surface. A well-graded filter pack sand was poured into the hollow-stem auger to begin the filter pack placement. Once approximately 6" of sand had been placed into the annulus, the monitoring well was constructed utilizing a 2" x 10' Schedule 40 PVC Screen and a 2" x 10'



Schedule 40 PVC Riser. The well was lowered into the hollow-stem auger and the bottom plug was released. The sand filter pack was then continued and the hollow-stem auger was gradually removed in order to prevent the annulus from collapsing. Filter pack placement ceased at approximately 2 feet above the top of the screened interval. Fine Sand (0/0 gradation) was placed in a two foot lift above the filter pack. The remaining annulus space was then filled with a neat cement grout, which extended to the ground surface where the well was completed with a locking cap, steel cover, and a 2' x 2' cement pad.

Installation of the deep double cased monitoring well commenced on September 21, 2011. The truck-mounted drill rig advanced 12-inch outside diameter hollow-stem augers equipped with a bottom plug to a depth of 38 feet. The 6-inch schedule 40 well casing was lowered into the hollow stem augers prior to placement of the neat cement grout. Neat cement grout was added as the hollow stem augers were gradually removed in order to insure a proper seal between the formation and grout. Neat cement was placed from the bottom of the boring to ground surface and allow to cure twenty-four hours prior to drilling out the bottom plug

On September 22, 2011, installation of the deep double cased monitoring well was completed by using 4.5-inch drag bit to drill to a depth of 48 feet. The monitoring well was constructed utilizing a 2" x 5' Schedule 40 PVC Screen and a 2" x 43' Schedule 40 PVC Riser. The sand filter pack was installed through 1-inch tremie pipe to a depth of 41 feet, then a fine sand (0/0 gradation) was installed to a depth of 39 feet. Neat cement grout was installed through a 1-inch tremie pipe from a depth of 39 feet to ground surface. The well was completed with a locking cap, steel cover, and a 2' x 2' cement pad.

Development of each well was achieved by removing groundwater with a GeoTech peristaltic pump and new disposable Teflon tubing. Groundwater from each well was purged until a relatively non-turbid sample was produced. For the purposes of this project, approximately 20 gallons of groundwater was removed from each monitoring well in order to produce a non-turbid sample.

Drilling services were performed by a State of Georgia licensed Monitoring Well Driller using a truck-mounted Mobile D-53 drill rig under the supervision of a Terracon Professional Geologist. Borings were advanced using a hollow-stem auger. All augers and sampling utensils were decontaminated in general accordance with ASTM D 5088 – 90 "*Decontamination of Field Equipment Used at Non Radioactive Waste Sites*". The downhole sampling equipment was cleaned using Alconox soap and high pressure steam wash before entering the site, before introduction into the subsurface, between each sampling event, between each borehole location, and before leaving the site. New disposable gloves were utilized between each sample to minimize the possibility of cross contamination. For the purposes of this project, three complete sets of augers were decontaminated prior to



entering the site and were utilized individually for each well in order to eliminate the need for decontamination between wells. All drill cuttings and development water were containerized on-site in 55-gallon steel drums.

Soil samples were collected from each boring continuously at one (1) foot intervals and logged to document soil lithology, color, moisture content, and sensory evidence of impairment.

4.2 Potentiometric Data Collection

Depth to the top of the groundwater surface of each well was measured using an electric water level indicator. The indicator was slowly lowered into the well casing until it penetrated the groundwater surface. The cable was then held at an appropriate marked footage mark and placed adjacent to the top of the well casing datum point. The footage mark was then recorded as "top of casing" column of the Field Sampling Form. All measurements were recorded to the nearest 0.01 foot. The total depth of the monitoring well, or the depth of the top of the sediment within the monitoring well, was determined by lowering the electronic water level indicator to the bottom of the well. The total depth was then recorded to the nearest 0.01 foot as total depth on the Field Sampling Form.

Based on the current data, the groundwater appears to be flowing generally in the southwest direction. This groundwater flow direction reflects the dominant direction determined in past investigations. The gradient is 0.006 Ft/Foot. Hydraulic conductivity measurements from the slug tests results for the shallow monitoring wells averaged approximately 7.82 ft/day. With the current estimated hydraulic gradient being approximately 0.006 ft/ft, the estimated groundwater velocity is approximately 0.0469 ft/day. Assuming a porosity of 0.20, the pore water velocity is estimated at approximately 0.23 ft/day. The potentiometric map is illustrated in Figure 6. Groundwater elevations are summarized on Table 1. The slug test data is presented in Table 2 and in Appendix E.

4.3 Sampling Method

Groundwater samples were collected from each of the monitoring wells using low-flow methodology with a peristaltic pump and dedicated Teflon tubing. Groundwater was purged until a relatively non-turbid sample was produced. Groundwater monitoring activities at the site were conducted in accordance with *EPA Region 4, SESD Groundwater Sampling Operating Procedure, November 2007.* Discussed below are the details of the sampling activities.



4.3.1. Purging Technique

The monitoring wells were purged using a peristaltic pump and dedicated Teflon tubing. Before purging commenced, the groundwater level and total well depth was measured for each monitoring well to calculate the volume of the well. Once the well volume was calculated purging commenced. During purging, the pump intake (Teflon tubing) was maintained within one-foot of the top of the water column and field parameters, including pH, specific conductance, temperature, ORP, and turbidity, were monitored. An adequate purge was achieved when water quality parameters (pH, conductivity, temperature, and turbidity) stabilized and a minimum of four volumes were removed prior to stabilization. Stabilization was defined as three consecutive readings with the following criteria:

- Temperature remained constant for three consecutive readings (does not change more than 0.5°C between samples); and
- pH measurements remained constant to within 0.1 standard unit; and
- conductivity did not vary more than 10 percent; and
- turbidity stabilized below 10 NTUs or stabilized.

Water quality parameters were measured using a YSI 556 MPS equipped with a flow through cell. Please refer to the attached field sampling data sheets in Appendix G.

4.3.2. Sampling Technique

Samples were collected from each monitoring well using a peristaltic pump and dedicated Teflon tubing via the "Straw Method." One end of the tubing was submerged within one-foot of the top of the water column of the monitoring well being sampled, and the other end of the tubing was momentarily attached to the pump to fill the tube with water. After initial water was discharged through the pump head, the tubing was quickly removed from the pump and a gloved thumb was placed on the tubing to inhibit water flow inside the tube. The tubing was then removed from the well and the water contained inside the tubing was allowed to gravity drain into the appropriate sample vials. Once the sample vials were filled and sealed correctly, the sample vials were immediately placed on ice in a laboratory supplied cooler, and delivered to Avery Laboratories & Environmental Services analytical laboratory in Savannah.

For quality assurance, one duplicate sample was collected, and submitted to laboratory using the same procedure described above. The duplicate sample was analyzed for the same parameters.



4.4 Analytical Results

Groundwater testing indicated several VOCs present in the groundwater. In groundwater monitoring well MW-19, Cis-1,2-Dichloroethene, Trichloroethane, and Tetrachloroethene were detected at a concentration of 10.2 µg/L, 1.86 µg/L, and 16.6 µg/L, respectively. Carbon disulfide, trans-1,2-Dichloroethene, and 1,1,2-Trichloroethane were found to be below the reporting limit of 1 μ g/L. In groundwater monitoring well MW-20, all the VOC compounds tested during this sampling event were found to below the reporting limit of 1 µg/L. In groundwater monitoring well MW-21S, Cis-1,2-Dichloroethene, Trichloroethane, and Tetrachloroethene were detected at a concentration of 7.96 µg/L, 4.28 µg/L, and 270 µg/L, respectively. Carbon disulfide, trans-1,2-Dichloroethene, and 1,1,2-Trichloroethane were found to be below the reporting limit of 1 µg/L. In groundwater monitoring well MW-21D, Tetrachloroethene was detected at a concentration of 10.5 µg/L. All other compounds were found to be below the reporting limit of 1 μ g/L. In groundwater monitoring wells MW-22 and MW-23, all VOC compounds tested during this sampling event were found to be below the reporting limit of 1 µg/L. The detected Tetrachloroethene concentrations in MW-19, MW-21S and MW-21D were found to be exceeding the GEORGIA EPD HSRA Appendix III Groundwater Concentrations. All other detected VOC compounds were found to be below the GEORGIA EPD HSRA Appendix III Groundwater Concentrations.

Duplicate sample was collected from monitoring well MW-21S and analyzed for the same parameters. The results of the duplicate sample were comparable to the results from groundwater samples collected from monitoring well MW-21S.

The analytical results for VOCs detected in the groundwater samples collected at the property are summarized in Figure 7 and Table 4. The only property affected by the groundwater constituents of concern in the Bible Baptist Church property, parcel ID 2-0120-01-004. Laboratory test results are presented in Appendix H.

5.0 POTENTIAL EXPOSURE PATHWAYS AND RECEPTORS AND REMEDIATION CRITERIA

The potential exposure pathways for this site includes potential exposure to regulated constituents in groundwater, potential exposure to regulated constituents in surface water and potential exposure to regulated constituents due to vapor intrusion from impacted groundwater beneath occupied buildings. As stated earlier there is no potential exposure to regulated constituents in soil as the soil has been remediated to Type 1 RRSs.



5.1 Potential Groundwater-to-Human Pathway

The subject property is zoned commercial. Nearby property uses along Skidaway Road and LaRoche Avenue consist of various structures that include retail, commercial, and residential properties. The Savannah State University campus is located beyond LaRoche Avenue. Unauthorized access to the property is controlled through an enclosure provided by a fence surrounding the property.

In accordance with the Groundwater Pollution Susceptibility Map of Georgia², the subject site is located in an "Average or Higher Groundwater Pollution susceptibility Area". A groundwater site inventory performed by the USGS and a site reconnaissance have established the location of withdrawal points for public drinking water wells within a 2-mile radius and private drinking water wells within a ½-mile radius of the site. Twenty (20) public drinking water wells and no private drinking water wells were identified within the defined radii.

The 20 public drinking water supply wells are presented in Figure 8. The current groundwater flow direction is to the southwest. Therefore, the closest down gradient point of exposure (City of Savannah Well #2) is located approximately 2,880 feet southwest of the point of demonstration well (MW-23).

As discussed in Section 2.3 above, the property is located in a hydrogeologic setting where the groundwater consists of the unconfined surficial aquifer, underlain by the upper confining unit and the upper Floridan aquifer. Drinking water wells in the coastal area are not hydraulically connected to the on-site surficial aquifer and as such the impacts to groundwater on the property do not constitute a potential groundwater receptor for human consumption and is therefore consider a incomplete pathway.

There are no wells onsite for either potable, industrial or irrigation purposes. Properties near the subject site are connected to municipal water supplies for potable water. Appendix C contains the water bill from the City of Savannah demonstrating that the site is supplied with municipal water. Based on the groundwater flow direction to the southwest, no drinking water wells exist in the down gradient direction that are connected to the surficial aquifer.

In addition to the human consumption pathway, commercial, industrial, and/or residential workers are not expected to come in contact with the impacted groundwater. The impacted groundwater is located within the campus of Bible Baptist Church and no activities are expected that would result in any worker coming in contact with the on-site groundwater. Therefore the exposure pathway of any worker is considered incomplete.



To confirm our assertion above, the contaminant plume for the constituent of concern (Tetrachloroethene) was modeled utilizing EPA's solute transport model, BIOCHLOR that simulates remediation by natural attenuation of dissolved solvent. The input parameters of hydraulic conductivity and hydraulic gradient were obtained from field data collection. The model results is presented in Appendix F.

5.2 Potential Surface Water Pathway

Typical surface water bodies that could be impacted include streams, rivers, lakes, canals, wetland areas, and detention/retention ponds. There are no streams, rivers, ponds, canals, wetland areas that are connected to the property and therefore have not been impacted. There are two stormwater retention ponds located on the subject site. Both areas are dry with the exception during heavy rain events. Since the site is partially paved with asphalt and concrete and the contaminated soil has been removed, stormwater flowing to the retention ponds will not come in contact with contamination. Therefore there is no potential exposure to regulated constituents in the surface water and the pathway is considered incomplete.

5.3 Potential Vapor Intrusion Pathway

The contaminated soil has been removed from the property and the groundwater is not contaminated in the area of any buildings located on-site which would potentially result with contamination within the building through vapor intrusion. The direction of groundwater flow is in a direction opposite of the building located on-site. Bible Baptist has no activities planned or expected to take place within the plume area that would result in a vapor intrusion pathway into a future new building. Therefore, there is no potential exposure to regulated constituents by way of vapor intrusion and the pathway is considered incomplete.

5.4 Risk Reduction Standards and Comparison to Analytical Results

Based on Section 12-8-108 of the Georgia Voluntary Remediation Program Act, the soil and groundwater has been delineated to the default residential cleanup standards. Type 1 RRSs were determined as the delineation criteria for all regulated constituents detected in groundwater samples collected at the property. The Type 1 RRSs for groundwater COCs are presented in Table 3.

6.0 PROPOSED REMEDIATION PLAN

To address the current likelihood that regulated substances at the property will migrate through the ground, contaminate groundwater, and result in exposure, a new scoring



calculation was performed using the Reportable Quantities Screening Method (RSQM). The result of the RQSM is presented in Appendix C. The intention of the proposed corrective action is to remove the property from the HSI through implementation of a Voluntary Remediation Program plan that satisfies the requirements set forth in the Georgia Voluntary Remediation Program Act, as outlined below.

6.1 Soil

As presented above, extensive soil testing and soil removal has been completed for the property. The delineated soil that exceeded the Type 1 residential RRSs has been removed and properly disposed of. EPD has concurred with the past certification that soil on the property meets the Type 1 residential cleanup standards of the Rules for Hazardous Site Response. Therefore no soil remediation is planned or required.

6.2 Groundwater

The selected corrective action for remediating the groundwater is to implement monitored natural attenuation. This selected remediation technology is protective of human health and the environment. In addition, to conservatively mitigate the potential groundwater exposure pathway in the future, the impacted parcel ID 2-0120-01-004 will require a restriction on groundwater use of any kind unless the constituents of concern are remediated to levels below the Type 1 RRSs. The following items support the above selected groundwater corrective action:

- Nearly all municipal and industrial water users in coastal Georgia obtain their drinking water supplies from wells that are screened in the Floridan aquifer system. The Floridan aquifer system is generally confined. Depth to the top of the Upper Floridan aquifer in the vicinity of the subject property is approximately 230 to 250-feet below land surface. As a result, the drinking water supply wells in the vicinity of the subject property are not hydrologically connected to the impacts and do not constitute potential receptors in conjunction to the property.
- The property and the adjacent properties have been connected to a municipal water supply source.
- The groundwater plume has not impacted any drinking water sources or surface water bodies.
- The groundwater model for the site shows that the plume will only mitigate approximately 180 feet downgradient before reaching levels below Type I RRS.

Based on the above, Terracon is proposing the natural attenuation of the groundwater at the property. In addition, groundwater samplings from the new wells will be collected and analyzed for the constituents of concern at a scheduled time interval of every six months.



Semi-annual reporting will be completed with each sampling event. An annual report will be completed including update to the groundwater model to ensure that the plume is not expanding. Georgia EPD will be informed through regular updates regarding the progress of the natural attenuation and the groundwater sampling results.

7.0 PROJECTED MILESTONE SCHEDULE

Upon EPD's acceptance of the site into the Voluntary Remediation Program, a projected milestone schedule and cost estimate will be prepared. The plan will also outline the estimated cost of reasonably anticipated remedial action.

APPLICATION FORM AND CHECKLIST

Voluntary Investigation and Remediation Plan Application Form and Checklist

VRP APPLICANT INFORMATION						
COMPANY NAME	Bible Baptist Church					· · · · · · · · · · · · · · · · · · ·
CONTACT PERSON/TITLE	Mr. Alan Tanner					
ADDRESS	4700 Skidaway Road, Sav	vannah, Geo	rgia 31404			
PHONE	(912) 352-3020	FAX		E-MAIL	alan@bbsav.org	
GEORGIA CER	TIFIED PROFESSION	IAL GEOL	OGIST OR PROF	ESSIONAL E	NGINEER OV	ERSEEING CLEANUP
NAME	William S. Anderson, III, F	Р.Е.		GA PE/PG NU	MBER PE2	0997
COMPANY	Terracon Consultants Inc.					
ADDRESS	2201 Rowland Avenue, S	avannah, Ge	orgia 31404			
PHONE	(912) 629-4000	FAX	(912) 629-4001	E-MAIL	wsanderson@ter	acon.com
		APPL	ICANT'S CERTIFI	CATION		
APPLICANT'S CERTIFICATION In order to be considered a qualifying property for the VRP: (1) The property must have a release of regulated substances into the environment; (2) The property shall not be: (A) Listed on the federal National Priorities List pursuant to the federal Comprehensive Environmental Response, Compensation, and Liability Act, 42 U.S.C. Section 9601. (B) Currently undergoing response activities required by an order of the regional administrator of the federal Environmental Protection Agency; or (C) A facility required to have a permit under Code Section 12-8-86. (3) Qualifying the property under this part would not violate the terms and conditions under which the division operates and administers remedial programs by delegation or similar authorization from the United States Environmental Protection Agency. (4) Any lien filed under subsection (e) of Code Section 12-8-96 or subsection (b) of Code Section 12-13-12 against the property shall be satisfied or settled and released by the director pursuant to Code Section 12-8-94 or Code Section 12-13-6. In order to be considered a participant under the VRP: (1) The participant must not be the property owner of the voluntary remediation property or have express permission to enter another's property to perform corrective action. (2) The participant must not be the inviolation of any order, judgment, statute, rule, or regulation subject to the enforcement authority of the director. (3) The participant must not be in violation submitted. Based on my inquiry of the person or presons who manage the system, or those persons directly responsible for gathering the information, the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for submitting false information, including the possibility of fine and imprisonment for knowing violations. [also certify that this property is eligible for the Voluntary Remediation Program (VRP) as defined in Code Section 12-8-105 and I am eligible						
APPLICANT'S NAME/TITLE (PRINT)		Alan T	fanner		DATE	October 25, 2011

QUALIFYING PROPERTY INFORMATION (For additional qualifying properties, please refer to the last page of application form)					
	HAZARDOUS SITE INVENT	ORY INFORMATION (if applicable)			
HSI Number	10764	Date HSI Site listed	May 2003		
HSI Facility Name	Martha's Dry Cleaner Site	NAICS CODE	812320 (former) 81311	0 (current)	
	PROPERT	Y INFORMATION	-		
TAX PARCEL ID	2-0120-01-001C	PROPERTY SIZE (ACRES)	1.5		
PROPERTY ADDRESS	4608 Skidaway Road	-			
CITY	Savannah	COUNTY	Chatham		
STATE	Georgia	ZIPCODE	31404		
LATITUDE (decimal format)	32.026119	LONGITUDE (decimal format)	81.07075		
	PROPERTY OV	VNER INFORMATION	_		
PROPERTY OWNER(S)	Bible Baptist Church	PHONE #	(912) 352-3020		
MAILING ADDRESS	4700 Skidaway Road	-			
CITY	Savannah	STATE/ZIPCODE	Georgia 31404		
ITEM #	DESCRIPTION OF RE	QUIREMENT	Location in VRP (i.e. pg., Table #, Figure #, etc.)	For EPD Comment Only (Leave Blank)	
1.	\$5,000 APPLICATION FEE IN THE FORM OF GEORGIA DEPARTMENT OF NATURAL RES (PLEASE LIST CHECK DATE AND CHECK NU "LOCATION IN VRP." PLEASE DO NOT INCL IN ELECTRONIC COPY OF APPLICATION.)	Date of Check: 10/26/2011 Check # 12955			
2.	WARRANTY DEED(S) FOR QUALIFYING PRO	Appendix A			
3.	TAX PLAT OR OTHER FIGURE INCLUDING O BOUNDARIES, ABUTTING PROPERTIES, AN NUMBER(S).	QUALIFYING PROPERTY D TAX PARCEL IDENTIFICATION	Appendix A		
4. ONE (1) PAPER COPY AND TWO (2) COMPACT DISC (CD) COPIES OF THE VOLUNTARY REMEDIATION PLAN IN A SEARCHABLE PORTABLE DOCUMENT FORMAT (PDF).		Attached			
5.	The VRP participant's initial plan and appli reasonably available current information to application, a graphic three-dimensional pr (CSM) including a preliminary remediation standards, brief supporting text, charts, and total) that illustrates the site's surface and s suspected source(s) of contamination, how the environment, the potential human healt complete or incomplete exposure pathways preliminary CSM must be updated as the ir progresses and an up-to-date CSM must b status report submitted to the director by th MILESTONE SCHEDULE for investigation after enrollment as a participant, must update annual status report to the director describility	cation must include, using all the extent known at the time of eliminary conceptual site model plan with a table of delineation d figures (no more than 10 pages, subsurface setting, the known or v contamination might move within th and ecological receptors, and the s that may exist at the site; the nvestigation and remediation e included in each semi-annual he participant; a PROJECTED and remediation of the site, and ate the schedule in each semi- ing implementation of the plan	Section 3,4,5,6; Tables 1 thru 4; Figures 1 thru 8; Appendices A thru H		

	milestone schedule		
	The following four (4) generic milestones are required in all initial plans with the results reported in the participant's next applicable semi-annual reports to the director. The director may extend the time for or waive these or other milestones in the participant's plan where the director determines, based on a showing by the participant, that a longer time period is reasonably necessary:		
5.a.	Within the first 12 months after enrollment, the participant must complete horizontal delineation of the release and associated constituents of concern on property where access is available at the time of enrollment;	Section 4	
5.b.	Within the first 24 months after enrollment, the participant must complete horizontal delineation of the release and associated constituents of concern extending onto property for which access was not available at the time of enrollment;	Section 4	
5.c.	Within 30 months after enrollment, the participant must update the site CSM to include vertical delineation, finalize the remediation plan and provide a preliminary cost estimate for implementation of remediation and associated continuing actions; and	Section 4	
5.d.	Within 60 months after enrollment, the participant must submit the compliance status report required under the VRP, including the requisite certifications.	Section 7	
6.	SIGNED AND SEALED PE/PG CERTIFICATION AND SUPPORTING DOCUMENTATION: "I certify under penalty of law that this report and all attachments were prepared by me or under my direct suppervision in accordance with the Voluntary Remediation Program Act (O.C.G.A. Section 12-8-101, et seq.). I am a professional engineer/professional geologist who is registered with the Georgia State Board of Registration for Professional Engineers and Land Surveyors/Georgia State Board of Registration for Professional Geologists 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 perfect the possibility of fine and imprisonment for knowing violations." William S. Anderson, Ill, P.E. Printed Name and GA PE/PG Number Signature and Stamp Signature and Stamp		

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Charles P.

FIGURES







Project Mngr:	EB	Project No.	ES117125	
Drawn By:	PTK	Scale:	AS SHOWN	
Checked By:	EB	File No.	ES117125	
Approved By:	WSA	Date:	10/24/11	2201 PH.

ES117125			
S SHOWN		JCON	
ES117125	Consulting Enginee	ers and Scientists	
	2201 ROWLAND AVENUE	SAVANNAH, GA 31404	
10/24/11	PH. (912) 629-4000	FAX. (912) 629-4001	





AP (WITH CROSS SECTION LINES)	FIG. No.
MARTHA'S DRY CLEANER 4608 SKIDAWAY ROAD AH, CHATHAM COUNTY, GEORGIA HSI NO. 10764	3





WSA

10/24/11

FAX. (912) 629-4001



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OGIC CROSS SECTION B-B'	FIG. No.
MARTHA'S DRY CLEANER 4608 SKIDAWAY ROAD AH, CHATHAM COUNTY, GEORGIA HSI NO. 10764	5





POTENTIOMETRIC MAP	FIG. No.
MARTHA'S DRY CLEANER	
HSI NO. 10764	וטן



	LEGEND
+	NEW MONITORING WELL LOCATION
	CURRENT BUILDING
	PAST LOCATION OF MARTHA'S DRY CLEANERS BUILDING
10.2	CONCENTRATION IN µg/L
BRL	BELOW REPORTING LIMIT
\bigcirc	APPROXIMATE TYPE 1 RRS BOUNDARY OF CONSTITUENTS OF INTEREST

OUNDWATER	ANALYTICAL	RESULTS

MARTHA'S DRY CLEANER 4608 SKIDAWAY ROAD SAVANNAH, CHATHAM COUNTY, GEORGIA HSI NO. 10764 FIG. No.

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The yellow dashed line shows a ¹/₂-mile radius from the site; the orange dashed line represents a 2-mile radius.



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3203210





WATER USAGE SURVEY MAP Martha's Dry Cleaner 4608 Skidaway Road Savannah, Chatham County, Georgia

Date: 10-25-11 Scale: None Figure: Terracon Project No. ES117125

8
TABLES

4608 Skidaway Road Savannah, Chatham County, Georgia HSI Site No. 10764

Table 1: SUMMARY OF WATER LEVEL DATA

Well Number	Date Measured	Top of Casing Elevation (feet)	Depth to Water (feet)	Corrected Groundwater Elevation (feet)
MW-19	10/18/11	99.45	9.20	90.25
MW-20	10/18/11	99.08	7.67	91.41
MW-21-S	10/18/11	100.00	9.28	90.72
MW-21-D	10/18/11	100.13	12.67	87.46
MW-22	10/18/11	98.90	7.31	91.59
MW-23	10/18/11	99.11	8.96	90.15
	Prepared by	Elza Bystrom, M.S.	Date	10/27/11
	Reviewed by	William S. Anderson, III, P.E.	Date	10/27/11

NOTES:

Benchmark of 100.00 feet used to measure Groundwater Elevations

4608 Skidaway Road Savannah, Chatham County, Georgia HSI Site No. 10764

Table 2 - SUMMARY OF SLUG TEST DATA

Slugged Monitoring Well	Calculated Hydraulic Conductivity (K) Value					
Slugged Morntoring Wei	(centimeters/second)	(feet/day)				
MW-19	0.002121	6.00				
MW-21S	0.003277	9.27				
MW-23	0.003039	8.60				
Geometric Mean K-	0.002764	7.82				

4608 Skidaway Road Savannah, Chatham County, Georgia HSI Site No. 10764

Table 3 - SITE DELINEATION CONCENTRATION CRITERIATYPE I RISK REDUCTION STANDARDS

Parameter	CAS No	mg/L	μg/L
Carbon disulfide	75-15-0	DL	DL
1,1,2-trichloroethane	79-00-5	0.2	200
Trichloroethene	79-01-6	0.005	5
Trans-1,2-dichloroethene	156-60-5	0.1	100
cis-1,2-dichloroethene	156-59-2	0.07	70
Tetrachloroethene	127-18-4	0.005	5

4608 Skidaway Road Savannah, Chatham County, Georgia HSI Site No. 10764

Table 4 - SUMMARY OF GROUNDWATER TESTING DATA

Well	Date	Carbon disulfide	trans-1,2- Dichloroethene	cis-1,2- Dichloroethene	Trichloroethane	1,1,2- Trichloroethane	Tetrachloroethene
Number	Sampled	(μg/l)	(μg/l)	(μg/l)	(μg/l)	(μg/l)	(μg/l)
MW-19	9/23/11	BRL	BRL	10.2	1.86	BRL	16.6
MW-20	9/23/11	BRL	BRL	BRL	BRL	BRL	BRL
MW-21-S	9/23/11	BRL	BRL	7.96	4.28	BRL	270
D-MW-21-S*	9/23/11	BRL	BRL	9.08	5	BRL	324
MW-21-D	9/23/11	BRL	BRL	BRL	BRL	BRL	10.5
MW-22	9/23/11	BRL	BRL	BRL	BRL	BRL	BRL
MW-23	9/23/11	BRL	BRL	BRL	BRL	BRL	BRL
MCL Standard** 4000		100	70	5	5	5	

Prepared by:	Elza Bystrom. M.S.	Date:	10/27/11	
Reviewed by:	William S. Anderson, III, P.E.	Date:	10/27/11	

NOTES:

BRL = Below Reporting Limit

* = Duplicate sample

** = Georgia EPD HSRA Appendix III

bold indicates concentration exceeding Georgia EPD HSRA Appendix III

APPENDIX A

Warranty Deed with Legal Description and Tax Plat Map

Clock#: 589807 FILED FOR RECORD

10/18/2004 04:34pm

PAID: 14.00

Susan D. Prouse, Clerk Superior Court of Chatham County Chatham County, Georgia

Real Estate Transfer Tax

PAID \$*450.00

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For Clerk of Superior Court

RETURN TO: Charles Donnie Gatch, P.C. Attorney at Law P.O. Box 14415 Savannah, GA 31416-1415

STATE OF GEORGIA

COUNTY OF CHATHAM

LIMITED WARRANTY DEED

THIS INDENTURE, made this $\underline{14}^{4}$ day of October, 2004, between

DISCOUNT AUTO PARTS, INC., a Florida Corporation, as Party of the First Part, and **BIBLE BAPTIST CHURCH, INC., a Georgia Corporation**, as Party of the Second Part.

WITNESSETH:

That the said Party of the First Part, for and in consideration of the sum of Ten and no/100 (\$10.00) Dollars in hand paid, the receipt and sufficiency of which is hereby acknowledged, and before the sealing and delivery of these presents, has granted, bargained, sold and conveyed and by these presents does grant, bargain, sell and convey unto the said Party of the Second Part, its' successors, representatives and assigns, the following described tract or parcel of land lying and being in Savannah, Chatham County, Georgia described as follows: All that certain lot, tract or parcel of land situate, lying and being in the City of Savannah, Cook Ward, Chatham County, Georgia, and being the southern portion of the southwest portion of LOT NUMBER EIGHT OF THE PLACENTIA TRACT, as shown in total on the plat recorded in Plat Record Book Q, Page 196, in the Office of the Clerk of the Superior Court of Chatham County, Georgia, and also being known as Lot 2 of the S.W. Placentia Tract 8 Subdivision, being shown on that certain minor subdivision map of S.W. Placentia Tract 8 Subdivision recorded in the Office of the Clerk of the Superior Court of Chatham County, Georgia in Subdivision Map Book 3-S, Page 63 (PIN 2-0120-01-001C/land only).

TOGETHER with all improvements thereon (PIN 2-0120-01-001L/improvements only).

SUBJECT to all valid restrictive covenants, easements and rights-of-way of record.

SUBJECT TO: 1) The use of the property for the primary purpose of the sale of automobile parts and accessories, including, but not limited to, tires, batteries and wheels for a period of twenty (20) years following the date of recordation is prohibited; and 2) The property is sold and/or assigned to Grantee and Grantee hereby acknowledges and accepts the property in its' "AS IS" condition, including, but not limited to, the environmental condition of the property.

TO HAVE AND TO HOLD the said bargained premises, together with all and singular the rights, members and appurtenances thereof, to the same being, belonging or in anywise appertaining, to the only proper use, benefit and behoof of the said Party of the Second Part, its' successors, representatives and assigns forever, IN FEE SIMPLE.

And Party of the First Part will warrant and forever defend the right and title to that tract or parcel of land unto Party of the Second Part against the claims of all persons owning, holding or claiming by, through or under the said Party of the First Part. R 163

IN WITNESS WHEREOF, the said Party of the First Part, by and through its' duly authorized corporate officer, has hereunto affixed its' name and seal the day and year above written.

DISCOUNT AUTO PARTS, INC.

By:

Jimmie L. Wade, President

Attest:

Eric M. Margolin, Vice President/ Secretary

[Corporate Seal] CORPORATE SEAL

900K

PAGE

20

θ[±]

Signed, sealed and delivered in the presence of:

My Commission Expires October 31, 2007



 1^{N}

PLAT BOOK 31P PAGE 76



APPENDIX B

2011 Water Bill



ACCT NUMBER: 082552A

BIBLE BAPTIST DAYCARE 4700 SKIDAWAY RD SAVANNAH GA 31404-5922

BI-MONTHLY Utility Bill

NOTICE: THIS BILL IS PAYABLE WHEN RENDERED. IF NOT PAID BY THE DUE DATE SHOWN, THE TOTAL DUE WILL BE SUBJECT TO LATE FEES, AND WATER SERVICE WILL BE DISCONTINUED.

Please...

- 1. RETURN THE BOTTOM PORTION OF BILL SO YOUR PAYMENT CAN BE CREDITED TO YOUR ACCOUNT.
- 2. PAY THE EXACT TOTAL AMOUNT DUE AS SHOWN ON THE BILL.

FOR BILLING INFORMATION AND SERVICE PLEASE CALL 651-6460 BETWEEN THE HOURS OF 8:30 a.m. & 5:00 p.m. MONDAY - FRIDAY

2219

SERVICE FROM	SERVICE TO	NUMBER	DAYS	PREV.	READING	PRES. READING	UNITS USED	DUE DATE		
07/25/11	09/21/11	58		8		1498	261	10/23/11		
WATER	SEWER	REFU	JSE PRE		SE PREV I		BALANCE	SERVICE FEES	OTHER	TOTAL DUE
\$258.92	\$728.68	\$0.0) \$(0.00	\$0.00	\$0.00	\$987.60		
ACCT NUMBER	METER NUMBER	SIZE	REFUS	SE CAT	DATE BIL	ED	SERVICE ADDRE	SS		
082552A	60484463	3			10/03/1	1	4606 SKIDAWAY RD			

Unlines



ACCT NUMBER: 083854A

BI-MONTHLY Utility Bill

NOTICE: THIS BILL IS PAYABLE WHEN RENDERED. IF NOT PAID BY THE DUE DATE SHOWN, THE TOTAL DUE WILL BE SUBJECT TO LATE FEES, AND WATER SERVICE WILL BE DISCONTINUED.

Please...

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FOR BILLING INFORMATION AND SERVICE PLEASE CALL 651-6460 BETWEEN THE HOURS OF 8:30 a.m. & 5:00 p.m. MONDAY - FRIDAY

	SERVICE IO	NUMBER	DAYS	PKEV.	READING	E PRES	S. READING	UNITS USED	DUEDATE	
07/22/11	09/21/11	61		26			2719	48	10/23/11	
WATER	SEWER	REFU	SE PREV E		BALANCE	E SERVICE FEES		OTHER	TOTAL DUE	
\$64.04	\$142.30	\$0.0	0	\$0.00		\$0.00		\$0.00	\$206.34	
ACCT NUMBER	METER NUMBER	SIZE	REFUS	SE CAT	DATE BIL	DATE BILLED		SERVICE ADDRESS		
083854A	07492439	3		10/03		1	4606 SKIDAWAY RD IRRIGATI ON			

Water Restrictions! No watering between 10am and 4pm. Odd numbered addresses water on Tues, Thurs, and Sun. Even numbers water on Mon, Wed, and Sat.

÷.,

Utilities



ACCT NUMBER: 044448B

InitianiInitian

BI-MONTHLY Utility Bill

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SERVICE FROM	SERVICE IO	NUMBER	DAYS	PREV.	READING	PRES. READING	UNITSOUSED	DUE DATE		
07/22/11	09/20/11	60		47		4751	(21)	10/23/11		
WATER	SEWER	REFU	SE	E PREVI		PREV BALANCE		SERVICE FEES	OTHER	TOTAL DUE
\$28.52	\$61.48	\$0.0) \$(0.00	\$0.00	\$0.00	\$90.00		
ACCT NUMBER	METER NUMBER	SIZE	REFUS	SE CAT	DATE BIL	ED	SERVICE ADDRES	SS		
044448B	12803078	1			10/03/1	1	4719 LA ROCHE A	V		

50-2470 2Vater



ACCT NUMBER: 006514A

BIBLE BAPTIST CHURCH 4700 SKIDAWAY RD SAVANNAH GA 31404-5922

BI-MONTHLY Utility Bill

NOTICE: THIS BILL IS PAYABLE WHEN RENDERED. IF NOT PAID BY THE DUE DATE SHOWN, THE TOTAL DUE WILL BE SUBJECT TO LATE FEES, AND WATER SERVICE WILL BE DISCONTINUED.

Please...

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FOR BILLING INFORMATION AND SERVICE PLEASE CALL 651-6460 BETWEEN THE HOURS OF 8:30 a.m. & 5:00 p.m. MONDAY - FRIDAY

4293

SERVICE FROM	SERVICE TO	NUMBER	DAYS	PREV.	READING	PRES. READING	UNITS USED	DUE DATE
07/23/11	09/21/11	60		47		47871	(/116)	10/23/11
WATER	SEWER	REFU	SE	PREV	BALANCE	SERVICE FEES	OTHER	TOTAL DUE
\$119.74	\$325.58	\$0.0	D \$		0.00	\$0.00	\$0.00	\$445.32
ACCT NUMBER	METER NUMBER	SIZE	REFUSE CAT		DATE BIL	LED	SERVICE ADDRESS	
006514A	10564583	4			10/03/1	1	4712 SKIDAWAY RD	

Water Restrictions! No watering between 10am and 4pm. Odd numbered addresses water on Tues, Thurs, and Sun. Even numbers water on Mon, Wed, and Sat.

50-2470 Water



ACCT NUMBER: 083464A

BIBLE BAPTIST CHURCH 4700 SKIDAWAY RD SAVANNAH GA 31404-5922

BI-MONTHLY Utility Bill

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4297

SERVICE FROM	SERVICE TO	NUMBER	DAYS	DAYS PREVI		PRES. READING		UNITS, USED	DUE DATE
07/22/11	09/20/11	60		15773		773 16081		308	10/23/11
WATER	SEWER	REFU	REFUSE		PREV BALANCE		ES	OTHER	TOTAL DUE
\$304.04	\$0.00	\$0.0	0 \$		0.00 \$0.00			\$0.00	\$304.04
ACCT NUMBER	METER NUMBER	SIZE	REFUS	REFUSE CAT		LED	SERVICE ADDRESS		
083464A	11566283	3				1	4719 LA ROCHE AV IRRIGATI ON		GATI ON

50-2470 Hater



ACCT NUMBER: 044515A

BIBLE BAPTIST CHURCH 4296 4700 SKIDAWAY RD SAVANNAH GA 31404-5922

BI-MONTHLY Utility Bill

NOTICE: THIS BILL IS PAYABLE WHEN RENDERED. IF NOT PAID BY THE DUE DATE SHOWN, THE TOTAL DUE WILL BE SUBJECT TO LATE FEES, AND WATER SERVICE WILL BE DISCONTINUED.

Please...

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- 2. PAY THE EXACT TOTAL AMOUNT DUE AS SHOWN ON THE BILL.

FOR BILLING INFORMATION AND SERVICE PLEASE CALL 651-6460 BETWEEN THE HOURS OF 8:30 a.m. & 5:00 p.m. MONDAY - FRIDAY

SERVICE FROM	SERVICE IU		DAYS	DAYS PREV. F		PRES. READING		DUE DATE	
07/22/11	[:] 09/20/11	60		7650		7672	(22)	10/23/11	
WATER	SEWER	REFU	SE PREV		BALANCE	SERVICE FEES	OTHER	TOTAL DUE	
\$29.48	\$0.00	\$0.0) \$(0.00	\$0.00	\$0.00	\$29.48	
ACCT NUMBER	METER NUMBER	SIZE	REFUS	REFUSE CAT		LED	SERVICE ADDRE	SS	
044515A	97816220	1			10/03/11		4813 LA ROCHE AV		

50-2470 Water



ACCT NUMBER: 044510C

BIBLE BAPTIST CHURCH 4700 SKIDAWAY RD SAVANNAH GA 31404-5922

BI-MONTHLY Utility Bill

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Please...

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- 2. PAY THE EXACT TOTAL AMOUNT DUE AS SHOWN ON THE BILL.

FOR BILLING INFORMATION AND SERVICE PLEASE CALL 651-6460 BETWEEN THE HOURS OF 8:30 a.m. & 5:00 p.m. MONDAY - FRIDAY

4295

SERVICE FROM	SERVICE 10	NUMBER	DAYS	PREV.	READING	PRES. READING		DUE DATE
07/22/11	09/20/11	60		581		5869	52	10/23/11
WATER	SEWER	REFU	SE PREV		BALANCE	SERVICE FEES	OTHER	TOTAL DUE
\$58.28	\$0.00	\$0.0) \$0		0.00	\$0.00	\$0.00	\$58.28
ACCT NUMBER	METER NUMBER	SIZE	REFUS	REFUSE CAT		LED	SERVICE ADDRE	SS
044510C	38310979	1			10/03/1	10/03/11 4719 LA ROCHE AV		٩V

50 2470 Water

APPENDIX C

Reportable Quantities Screening Method Scoring

GEORGIA ENVIRONMENTAL PROTECTION DIVISION

REPORTABLE QUANTITIES SCREENING METHOD

E. Targets

1e. Exposure to groundwater release: exposure Known release >MCL, and known human >MCL.....(25) Known release MCL, and suspected human \geq exposure.....(20) release, MCL Known no exists, and known human exposure.....(18) Known release, > MCL, and known human exposure < MCL.....(15) Known release, no MCL exists, and suspected human exposure.....(12) Suspected release and human exposure suspected......(8) Known release \geq MCL, but no human exposure Known release, no MCL exists, and no human exposure suspected.....(3) Suspected release but no human exposure suspected.....(2) Potential future release......(1) release Known less than MCL.....(0) (only one choice allowed)

THE GROUNDWATER PATHWAY SCORE (S_{gw}) IS CALCULATED AS FOLLOWS:

$$S_{gw} = M x (2d + 3d) x (1e + 2e) / 442.8$$

Where:
$$M = A + ((1b + 2b) \times C)$$

If A = 45 then M = 45

```
If 2d is unknown, then 2d=4
If 3d is unknown, then 3d=4
```

SEE ATTACHED FORMS FOR THE GROUNDWATER AND ON-SITE EXPOSURE PATHWAY SCORE CALCULATIONS

If 1e includes known or suspected human exposure, 2e = 16If 1e = 0 then 2e = 1

Note: The denominator of 442.8 normalizes the groundwater

MARTHA'S DRY CLEANER GROUNDWATER PATHWAY

	SC	SCORE:	
HAS A RELEASE TO GROUNDWATER OCCURRED?	A.		
Known (45) Suspected (10) Potential Future (5) No Release (0)		45	
(If 45, go to D)		40	
SUSCEPTIBILITY RATING:			
Higher (6)Average (3)Lower (0)	1B.		
PHYSICAL STATE:			
Stable Solid (0) Unstable Solid (1) Powder/Ash (2) Liquid/Gas/Sludge (3)	2B.		
CONTAINMENT:			
Very Good (0) Good (1) Fair (2) Poor (3)	C.		
REGULATED CAS# Name	1D.		
SUBSTANCE: 127-18-4 Tetrachloroethene			
TOXICITY:	2D.		
None (0) Low (1) (2) (3) (4) (8) (16) High		4	
QUANTITY:	3D.		
Threshold (1) (2) (3) (4) (5) (6) (7) (8) Very Large		5	
EXPOSURE TO GROUNDWATER RELEASE:			
Known release \geq MCL and known human exposure \geq MCL (25)			
Known release \geq MCL and suspected human exposure (20)			
Known release, no MCL exists, and known human exposure (18)			
Known release \geq MCL and known human exposure $<$ MCL (15)			
Known release, no MCL, and suspected human exposure (12)			
Suspected release and human exposure suspected (8)	1E.	4	
Known release \geq MCL but no human exposure suspected (4)			
Known release, no MCL and no human exposure suspected (3)			
Suspected release, but no human exposure suspected (2)			
Potential future release (1)			
Known release < MCL (0)			
DISTANCE TO WELL OR SPRING:		0	
$< \frac{1}{2}$ mile (16) $\frac{1}{2} - 1$ mile (9) $1 - 2$ miles (4) $2 - 3$ miles (1) > 3 miles (0)	2E.	9	
GROUNDWATER PATHWAY SCORE:			
THRESHOLD: 10		11.9	

S_{gw} = M x (2D + 3D) x (1E + 2E)/ 442.8 Where M = A + [(1B + 2B) x C]

 $\label{eq:hardward} \begin{array}{l} If A = 45 \ then \ M = 45. \\ If 2D \ is \ unknown, \ then \ 2D = \ 4. \\ If 3D \ is \ unknown, \ then \ 3D = \ 4. \\ If 1E \ includes \ known \ or \ suspected \ human \ exposure, \ then \ 2E = 16. \\ If \ 1E = \ 0, \ then \ 2E = 1. \end{array}$

Note: The denominator of 442.8 normalizes the groundwater pathway score to a value between 0 and 100.

RQSM Guidance Manual

MARTHA'S DRY CLEANER ON-SITE EXPOSURE PATHWAY

	SCORE:	
ACCESS TO THE SITE:	A.	
Inaccessible (0) Limited Access (2) Unlimited Access (4)		2
HAS THERE BEEN A RELEASE?		
Yes (25) Suspected (15) No Release (0)	В.	25
CONTAINMENT:		
Soil Releases Very Good (0) (1) (2) (3) (4) (5) Poor	C.	0
Aboveground Releases: (0) (1) (2) (3)		0
REGULATED CAS# Name	1D.	
SUBSTANCE: 127-18-4 Tetrachloroethene		
TOXICITY:		
None (0) Low (1) (2) (4) (8) (16) High	2D.	4
QUANTITY:		
Threshold (1) (2) (3) (4) (5) (6) (7) (8) Very Large	3D.	5
DISTANCE TO NEAREST RESIDENT INDIVIDUAL:		
<300 (8) $301 - 1000$ (6) $1001 - 3000$ (4) $3001 - 1$ mile (2) > 1 mile (1)	1E.	8
IS THERE AN ON-SITE SENSITIVE ENVIRONMENT? Yes (1) No (0)	2E.	
ON-SITE EXPOSURE PATHWAY SCORE:		
THRESHOLD: 20		13.89

 $S_0 = A x (B + C) x (2D + 3D) x (1E + 2E) / 259.2$

If A or B is 0, then $S_0 = 0$. If 2D is unknown, the 2D = 4. If 3D is unknown, the 3D = 4.

Note: The denominator of 259.2 normalizes the on-site exposure pathway score to a value between 0 and 100.

APPENDIX D

Monitoring Well Logs













APPENDIX E

Slug Test Data







APPENDIX F

BIOCHLOR Model Results






APPENDIX G

Groundwater Field Sampling Data Sheets

FIELD SAMPLING	Consulting Engineers & Scientists			JOB NUMBER ES 117125 JOB NAME MARTHATS PUMPING WELL NO. (LOCATION)					
REPORT	Terracon (912) 629-40	000	2201 Rowland Ave Savannah GA, 31404	e DATE <u>9/23</u> TIME <u>11:55</u> 404					
SAMPLING IN	IFORMATION	SAMPLE I.D. NUM	BER:	_HAZARDOUS?:	YES	<u>NO UNK</u>	NOWN		
SOIL SAMPLING D. SAMPLING DATE: TIME:	ATA:	SAMPLER TYPE & SAMPLING DEPTH SAMPLE DESCRIF	MPLER TYPE & MATERIAL						
WELL SAMPLING [DATA:		SUBMER 1)	BLE + PER	ISTALTIC -	PULYETHY	INF		
SAMPLING DATE: TIME:		PURGE METHOD VOLUME OF WAT VOLUME OF WAT PURGE DATE SAMPLER TYPE & SAMPLE DESCRIF	& MATERIALSCOUNTREEMENT (gallons) ER PURGED (gallons) MATERIAL	START TIME	13:50 E		3:52		
		TOTAL WELL DEP	тн <u>2° ft</u> .	DEPTH TO GROU		72 ft.			
CONT	AINER								
TYPE	VOLUME	PRES	ERVATIVE/PREPARATION	NUMBER	FILTERING	ANALYSIS			
						-			
						2			
FIELD MEAS	UREMENTS	Pu	n. () 2						
BADA	ULTED			1st READING	2nd READING	3rd READING	4th READING		
			EQUIPMENTID	5.42	5-11	5.08			
pri(ore	P (C)		1	23.96	23.57	23.54			
SPEC. COI	ND (um/sm)	YC-	1 ml mpi	0.105	0.110	0.112			
C	DRP	().	1 336 1113	97.7	-11.1	-16.6			
TII	ME								
DA	TE	9	/23	16:45	16:50	16:55			
GENERAL IN		WEATHER	HOT 2 HUMID		AIR TEMP	90°F			
SPECIAL HANDLIN	IG								
MODE OF SHIPMENTCAR/TRUCKPLANECOMMER VEHOTHER									
COMMENTS (CALI	BRATIONS, FIELD N	ODIFICATIONS, INS	STRUMENT PROBLEMS)						
N/A: Not Applicable)								

FIELD SAMPLING REPORT	Cons Terracon (912) 629-40	Sulting Engineers & Scientists 2201 Rowland Ave Savannah GA, 31404	JOB NUMBER <u>ES 117125</u> JOB NAME <u>MARTHA'S DRY CLEANERS</u> PUMPING WELL NO. (LOCATION) <u>MW - 20</u> DATE <u>5/23</u> TIME <u>11:45</u>							
SAMPLING IN	FORMATION	SAMPLE I.D. NUMBER:H	SAMPLE I.D. NUMBER:HAZARDOUS?:YESNOUNKNOWN							
SOIL SAMPLING DATE: SAMPLING DATE: FIME:	ATA:									
WELL SAMPLING I SAMPLING DATE: TIME:	DATA: 9/33	PURGE METHOD & MATERIALS SVBMERID VOLUME OF WATER IN WELL & SAND PACK (gallons) 7-5 VOLUME OF WATER PURGED (gallons) 7-5 PURGE DATE 9/23 5 SAMPLER TYPE & MATERIAL 5 SAMPLE DESCRIPTION 5	19 START TIME	2:20 EN	POLYETH	2-34				
		TOTAL WELL DEPTH ft.	DEPTH TO GROUN	D WATER	<u>75_ft.</u>					
CONT TYPE	AINER VOLUME	PRESERVATIVE/PREPARATION	NUMBER	FILTERING	ANALYSIS					
EIELD MEA	SUREMENTS	$T_{12}D_{12}D_{12} = 20$. [4]							
PAR/ pH (S1	AMETER		1st READING 5.45	2nd READING	3rd READING	4th READING				
TE SPEC. C	MP (C) OND (um/sm)	YSI 556 MPS	25-2 0.042 173.3	25.12 0.041 16.0	25.37 0.040 - 1.5					
	TIME	9/23	14:50	14-55	15:00					
GENERAL	INFORMATION	WEATHER WARM & HUMID		AIR TEMP	90°					
		CAR/TRUCKPLANECOMMER \	/EH		OTHER					

Waldow Waldow Waldow Waldow

1 182

FIELD SAMPLING REPORT	Cons Terracon (912) 629-40	2201 Rowland Savannah GA, 3	Ave 31404	JOB NUMBER <u>FS (17)25</u> JOB NAME <u>MARTHA'S</u> PUMPING WELL NO. $NW - 21 S$ (LOCATION) <u>NW - 21 S</u> DATE <u>9/23</u> TIME <u>12:00</u>					
SAMPLING IN	FORMATION	SAMPLE I.D. NUMBER:		HAZARDOUS?:	_YES				
SOIL SAMPLING DATA: SAMPLING DATE:									
WELL SAMPLING D SAMPLING DATE: TIME:	9/23	PURGE METHOD & MATERIALS	PURGE METHOD & MATERIALS SUBMERSIBLE + [ERISTALTIC - POLYETHYLENE VOLUME OF WATER IN WELL & SAND PACK (gallons) VOLUME OF WATER PURGED (gallons) 66.64 PURGE DATE 9/23 START TIME 13:21 END TIME 13:25 SAMPLER TYPE & MATERIAL SAMPLE DESCRIPTION						
		TOTAL WELL DEPTH		DEPTH TO GROUN	D WATER	<u>, , , , , , , , , , , , , , , , , , , </u>			
CONT	AINER					ANAL	YSIS		
FIELD MEAS	SUREMENTS	T.	IRB	= 21.6					
PARAMETER pH (STO UNITS) TEMP (C) SPEC. COND (um/sm)		EQUIPMENT ID	PS	1st READING 5.70 27.62 0.245 7.2 16:15	2nd READING 5-46 27-61 0-271 -40-1 16:20	3rd READING 5:42 27-22 0.304 -46.2 16:25	4th READING		
TI	ME								
D/	ATE					L			
GENERAL IN	TTED BY	WEATHER			AIR TEMP				
SPECIAL HANDLIN MODE OF SHIPME COMMENTS (CAL	NG ENT IBRATIONS, FIELD	CAR/TRUCK PLANE MODIFICATIONS, INSTRUMENT PROBLEMS)	COMMER	VEH		OTHER			
- 2.85									
N/A: Not Applicabl	e								

FIELD SAMPLING REPORT	Cons Terracon (912) 629-40	Sulting Engineers & Scientists 2201 Rowland Ave Savannah GA, 31404			JOB NUMBER JOB NAME PUMPING WELL NO. (LOCATION) DATE DATE JA					
SAMPLING IN	FORMATION	SAMPLE I.D. N	UMBER:		HAZARDOUS?:	_YES		IOWN		
SOIL SAMPLING DA SAMPLING DATE: TIME:	NTA:	SAMPLER TYP SAMPLING DEI SAMPLE DESC								
WELL SAMPLING D SAMPLING DATE: TIME:	ATA: 9/23	PURGE METHO VOLUME OF W VOLUME OF W PURGE DATE SAMPLER TYP SAMPLE DESC SAM	DD & MATERIALS VATER IN WELL & SAND PACK (ga VATER PURGED (gallons) g/23 e & MATERIAL CRIPTION J = SHEEN ON THE DEPTH 48 ft.	2SI Nons) 22	DIFT INE DEPTH TO GROUN	15TALTIC 2:49 E DE THE L NO WATER 13	- POLYE ND TIME /ELL CAJ	3:18 1NG		
CONT/ TYPE	CONTAINER TYPE VOLUME		PRESERVATIVE/PREPARATION			FILTERING	ANAL	YSIS		
								s. J		
FIELD MEAS	UREMENTS		TURB = 241							
PARAN pH (STC	METER) UNITS)		EQUIPMENT ID		1st READING	2nd READING 7-72 71.57	3rd READING 7-58 31.49	4th READING		
SPEC. COI	r (c) ND (um/sm) r r		SI 576 MPS	>	0.25 -17.8 15:50	0.248 -51.4 15:55	0.246 -57-0 16:00			
	ME		9/23							
GENERAL IN	FORMATION	WEATHER	HOT 2 HUM	(D		AIR TEMP.	90°F			
SAMPLES COLLEC SPECIAL HANDLIN MODE OF SHIPME	CTED BY IG NT	CAR/T	RUCK PLANE COM	MER V	/EH	(DTHER			
COMMENTS (CALI N/A: Not Applicable	BRATIONS, FIELD	MODIFICATIONS	, INSTRUMENT PROBLEMS)							

FIELD SAMPLING REPORT	Con Terracon	Sulting Engi	acon neers & Scientists 2201 Rowland Ave Savannah GA 31404	JOB NUMBER ET 11712J JOB NAME MARTHA'S PUMPING WELL NO. (LOCATION) MW-22 DATE 9/23 TIME 12:07							
SAMPLING IN	FORMATION	SAMPLE I.D.	NUMBER:	HAZARDOUS?:	YES		NOWN				
			SAMIPLE I.D. NUMBER: HAZARDOUS (; TES NU UNNNUWN								
SAMPLING DATE:		SAMPLER TY	PE & MATERIAL								
TIME:		SAMPLING D	ЕРТН								
		SAMPLE DESCRIPTION									
WELL SAMPLING D	ATA:	0	CV (D 00 @D 8	IDIE + PER	HOTAL TIC	- PULYET	HYLENE				
SAMPLING DATE:	5/23	PURGE METH	HOD & MATERIALS	IVLE 4 CET	ISTAD LIC	TUCICI					
TIME:		VOLUME OF		S. FR							
			= 9/23	START TIME	12:38	END TIME	12:42				
		SAMPLER TY	PE & MATERIAL								
		SAMPLE DES	CRIPTION	12 T #1							
			TURBID	IN THE	BEGINN	ING					
		TOTAL WELL	DEPTH 20 ft.	DEPTH TO GROU	ND WATER	~ 6 (ft.					
CONTA											
TYPE	VOLUME	Р	RESERVATIVE/PREPARATION	NUMBER	FILTERING	ANA	LYSIS				
				88							
FIELD MEAS	UREMENTS		TUDR - 220								
					and READING						
PARAM	ETER		EQUIPMENTID	ISTREADING	D EA	5 5/	401 READING				
pH (STO	UNITS)			27.11	5.55	5.36					
TEMP	9 (C)			21.05	21.05	21.06					
SPEC. CON	D (um/sm)		YCT GC MPS	0.111	0.111	0.113					
0	rr		132 176 1113	5.3	27.5	-29.8					
TIM	E			15:20	15:25	15:30					
DAT	re			9/23							
GENERAL INF	ORMATION		LIDT > LULINO			GOOF					
		WEATHER	FUT C HUMP		AIR TEMP.	JU					
SAWFLES GULLEG											
SPECIAL HANDLING	3			/EU							
		CAR/TI	NOT PLANE COMMER V	En							
COMMENTS (CALIB	RATIONS, FIELD M	ODIFICATIONS	, INSTRUMENT PROBLEMS)								
N/A: Not Applicable											

FIELD SAMPLING REPORT	Cons Terracon (912) 629-40	Sulting Engineers & Scientists 2201 Rowland Ave Savannah GA, 31404	JOB NUMBER $_$ $_$ $_$ $_$ $_$ $_$ $_$ $_$ $_$ $_$							
SAMPLING IN	FORMATION	SAMPLE I.D. NUMBER:	HAZARDOUS?:	YESN		NWO				
SOIL SAMPLING DA	ATA:									
SAMPLING DATE:										
IIME:		SAMPLE DESCRIPTION								
WELL SAMPLING	DATA:	SUBMERSIBLE + PERISTALTIC - PULYETHYLENE								
SAMPLING DATE:	Jide	VOLUME OF WATER IN WELL & SAND PACK (gallor	is)							
		VOLUME OF WATER PURGED (gallons)	8/10	12:30 5		3:42				
			START TIME	[]						
		SAMPLE DESCRIPTION VERY	URBIP IN	the beg	INNING					
		TOTAL WELL DEPTH ft.	DEPTH TO GROUN	ND WATER 9	. 5 ft.					
CONT	AINER				ANAL	YSIS				
TYPE	VOLUME	PRESERVATIVE/PREPARATION	NUMBER	FILTERING	Punne					
FIELD MEA	SUREMENTS	TVRB = 5.88								
PARA	METER	EQUIPMENT ID	1st READING	2nd READING	3rd READING	4th READING				
pH (ST	O UNITS)		5-44	5-43	5.72					
TEN	MP (C)		28.0	20.04	20-12					
SPEC. CO	OND (um/sm)		0.272	0.209	0.301					
	orp		170	- 4.9	- 27-5					
Т	IME		12:10	12205	12.10					
D	ATE	9/23	17-00	17.05	• T - IV					
GENERAL I	NFORMATION	WEATHER		AIR TEMP.						
SAMPLES COLLE	CTED BY			- Jan - Sha						
SPECIAL HANDL	ING		ER VEH		OTHER					
MODE OF SHIPM	ENT		LIX VEID.							
COMMENTS (CAI	IBRATIONS, FIELD) MODIFICATIONS, INSTRUMENT PROBLEMS)								
N/A: Not Applicab	le									

APPENDIX H

GROUNDWATER LABORATORY TEST RESULTS



101B Estus Road Savannah, Ga. 31404 T: (912) 944-3748 F: (912) 234-9294

Laboratory Analytical Report

Client Report For:	lerracon
Attention:	Mr. Bill Anderson
Client Address:	2201 Rowland Ave.
	Savannah, GA 31410
Report Date:	October 03, 2011
LAB ID:	AL11SEP23-02
Project ID:	Martha's Dry Cleaners

Comment:

The following test results meet all NELAC requirements for analytes for which certification is available. Any deviations from these quality systems will be noted in this case narrative. All analyses performed by Avery Laboratories & Environmental Services, LLC unless noted. Parameters not perfromed by Avery Laboratories will be qualified with "Sub" in the qualifier field of this report.

For questions regarding this report, contact Robert Paul Grimm at (912)944-3748.

CASE NARRATIVE:

Matrix Spikes

Method SW8260b: Cis-1,2-Dichloroethane: The matrix spike/ matrix spike duplicate recoveries were outside the established laboratory control limits. The lab spike recoveries were inside acceptable limits, so the data was reported. The matrix spikes have been qualified accordingly.

Approved By:___

Date:October 03, 2011

Robert Paul Grimm, Technical Director

Note: The results in this report relate only to the samples submitted on the attached Chain of Custody.

COMMERCIAL LABORATORY STIPULATION

Georgia Rules for Commercial Environmental Laboratory Accreditation Chapter 391-3-26

Laboratory:	Avery Laboratories ar	nd Environmental Services, LLC	
Accreditor:	NELAC: State of Flori	da, Department of Health, Bureau	of Laboratories
Accreditation ID:	E87941		
Scope:	NON-POTABLE WAT WATER - GENERAL -POTABLE WATER - WATER - VOLATILE EXTRACTABLE ORG GENERAL CHEMIST SOLID AND CHEMIC	ER - EXTRACTABLE ORGANICS CHEMISTRY, NON-POTABLE WA PESTICIDES-HERBICIDES-PCB ORGANICS, SOLID AND CHEMIC GANICS, SOLID AND CHEMICAL M RY, SOLID AND CHEMICAL MAT AL MATERIALS - VOLATILE ORG	, NON-POTABLE ATER - METALS, NON S, NON-POTABLE CAL MATERIALS - MATERIALS - ERIALS - METALS, GANICS
Effective Date:	July 1, 2011	Expiration Date:	June 30, 2012

As per the Georgia EPD Rules and Regulations for Commercial Laboratories, Avery Laboratories and Environmental Services – Savannah is accredited by the Florida Department of Health under the National Environmental Laboratory Approval Program (NELAP). If you have any further questions regarding accreditation status for Avery Laboratories and Environmental Services, please contact: Paul Grimm.

Avery Laboratories and Environmental Services, LLC 101B Estus Drive Savannah, Georgia 31404 Phone: (912) 944-3748 FAX: (912) 234-9294

Sample Summary

Client Report For: Terracon

LAB ID: AL11SEP23-02

Lab Sample ID:	Client Sample ID:	Matrix:	Collection Date/Time	Receipt Date/Time
AL11SEP23-02-001	MW-20	Water	09/23/2011 15:07	09/23/2011 17:30
AL11SEP23-02-002	MW-22	Water	09/23/2011 15:38	09/23/2011 17:30
AL11SEP23-02-003	MW-21D	Water	09/23/2011 16:08	09/23/2011 17:30
AL11SEP23-02-004	MW-21S	Water	09/23/2011 16:26	09/23/2011 17:30
AL11SEP23-02-005	D-MW-21S	Water	09/23/2011 16:30	09/23/2011 17:30
AL11SEP23-02-006	MW-19	Water	09/23/2011 16:55	09/23/2011 17:30
AL11SEP23-02-007	MW-23	Water	09/23/2011 17:10	09/23/2011 17:30
AL11SEP23-02-008	Trip Blank	Water		09/23/2011 17:30

NELAP Accreditor: Florida Dept. of Health NELAP Laboratory ID: E87941 EPA Lab ID: GA01177, South Carolina ID: 98023

Client: Terracon Project: Martha's Dry Cleaners

Client Sample ID:MW-20

Collection Date:9/23/2011 3:07:00 PM

Lab ID: AL11SEP23-02-001

Analyses	Result	Qual Reporting Limit	Unit	BatchID	DF	Date Analyzed	Date Prepared	Analyst
Volatile Organics by GC/MS			SW-846	5030B/8260B				
Carbon disulfide	BRL	1.00	ug/L	Bat-092911-007	1	28 Sep 2011 16:46		RPG
trans-1,2-Dichloroethene	BRL	1.00	ug/L	Bat-092911-007	1	28 Sep 2011 16:46		RPG
cis-1,2-Dichloroethene	BRL	1.00	ug/L	Bat-092911-007	1	28 Sep 2011 16:46		RPG
Trichloroethene	BRL	1.00	ug/L	Bat-092911-007	1	28 Sep 2011 16:46		RPG
1,1,2-Trichloroethane	BRL	1.00	ug/L	Bat-092911-007	1	28 Sep 2011 16:46		RPG
Tetrachloroethene	BRL	1.00	ug/L	Bat-092911-007	1	28 Sep 2011 16:46		RPG
Dibromofluoromethane (% Recovery)	128	62-146	%	Bat-092911-007	1	28 Sep 2011 16:46		RPG
Toluene-d8 (% Recovery)	109	66.4-153	%	Bat-092911-007	1	28 Sep 2011 16:46		RPG
4-Bromofluorobenzene (% Recovery)	121	76.1-135	%	Bat-092911-007	1	28 Sep 2011 16:46		RPG

NELAP Accreditor: Florida Dept. of Health NELAP Laboratory ID: E87941 EPA Lab ID: GA01177, South Carolina ID: 98023

Client: Terracon Client Sample ID:MW-22

Project: Martha's Dry Cleaners

Collection Date:9/23/2011 3:38:00 PM

Lab ID: AL11SEP23-02-002

Analyses	Result	Qual Reporting Limit	Unit	BatchID	DF	Date Analyzed	Date Prepared	Analyst
Volatile Organics by GC/MS			SW-846 :	5030B/8260B				
Carbon disulfide	BRL	1.00	ug/L	Bat-092911-007	1	28 Sep 2011 17:15		RPG
trans-1,2-Dichloroethene	BRL	1.00	ug/L	Bat-092911-007	1	28 Sep 2011 17:15		RPG
cis-1,2-Dichloroethene	BRL	1.00	ug/L	Bat-092911-007	1	28 Sep 2011 17:15		RPG
Trichloroethene	BRL	1.00	ug/L	Bat-092911-007	1	28 Sep 2011 17:15		RPG
1,1,2-Trichloroethane	BRL	1.00	ug/L	Bat-092911-007	1	28 Sep 2011 17:15		RPG
Tetrachloroethene	BRL	1.00	ug/L	Bat-092911-007	1	28 Sep 2011 17:15		RPG
Dibromofluoromethane (% Recovery)	126	62-146	%	Bat-092911-007	1	28 Sep 2011 17:15		RPG
Toluene-d8 (% Recovery)	110	66.4-153	%	Bat-092911-007	1	28 Sep 2011 17:15		RPG
4-Bromofluorobenzene (% Recovery)	122	76.1-135	%	Bat-092911-007	1	28 Sep 2011 17:15		RPG

AL11SEP23-02-003

NELAP Accreditor: Florida Dept. of Health NELAP Laboratory ID: E87941 EPA Lab ID: GA01177, South Carolina ID: 98023

Client: Terracon

Lab ID:

Client Sample ID:MW-21D

Project: Martha's Dry Cleaners

Collection Date:9/23/2011 4:08:00 PM

Analyses	Result	Qual Reporting Limit	Unit	BatchID	DF	Date Analyzed	Date Prepared	Analyst
Volatile Organics by GC/MS			SW-846	5030B/8260B				
Carbon disulfide	BRL	1.00	ug/L	Bat-092911-007	1	28 Sep 2011 17:43		RPG
trans-1,2-Dichloroethene	BRL	1.00	ug/L	Bat-092911-007	1	28 Sep 2011 17:43		RPG
cis-1,2-Dichloroethene	BRL	1.00	ug/L	Bat-092911-007	1	28 Sep 2011 17:43		RPG
Trichloroethene	BRL	1.00	ug/L	Bat-092911-007	1	28 Sep 2011 17:43		RPG
1,1,2-Trichloroethane	BRL	1.00	ug/L	Bat-092911-007	1	28 Sep 2011 17:43		RPG
Tetrachloroethene	10.5	1.00	ug/L	Bat-092911-007	1	28 Sep 2011 17:43		RPG
Dibromofluoromethane (% Recovery)	125	62-146	%	Bat-092911-007	1	28 Sep 2011 17:43		RPG
Toluene-d8 (% Recovery)	118	66.4-153	%	Bat-092911-007	1	28 Sep 2011 17:43		RPG
4-Bromofluorobenzene (% Recovery)	120	76.1-135	%	Bat-092911-007	1	28 Sep 2011 17:43		RPG

NELAP Accreditor: Florida Dept. of Health NELAP Laboratory ID: E87941 EPA Lab ID: GA01177, South Carolina ID: 98023

Client: Terracon Client Sample ID:MW-21S

Project: Martha's Dry Cleaners

Collection Date:9/23/2011 4:26:00 PM

Lab ID: AL11SEP23-02-004

Analyses	Result	Qual Reporting Limit	Unit	BatchID	DF	Date Analyzed	Date Prepared	Analyst
Volatile Organics by GC/MS			SW-846	5030B/8260B				
Carbon disulfide	BRL	2.00	ug/L	Bat-092911-007	2	28 Sep 2011 20:07		RPG
trans-1,2-Dichloroethene	BRL	2.00	ug/L	Bat-092911-007	2	28 Sep 2011 20:07		RPG
cis-1,2-Dichloroethene	7.96	2.00	ug/L	Bat-092911-007	2	28 Sep 2011 20:07		RPG
Trichloroethene	4.28	2.00	ug/L	Bat-092911-007	2	28 Sep 2011 20:07		RPG
1,1,2-Trichloroethane	BRL	2.00	ug/L	Bat-092911-007	2	28 Sep 2011 20:07		RPG
Tetrachloroethene	270	2.00	ug/L	Bat-092911-007	2	28 Sep 2011 20:07		RPG
Dibromofluoromethane (% Recovery)	129	62-146	%	Bat-092911-007	2	28 Sep 2011 20:07		RPG
Toluene-d8 (% Recovery)	113	66.4-153	%	Bat-092911-007	2	28 Sep 2011 20:07		RPG
4-Bromofluorobenzene (% Recovery)	120	76.1-135	%	Bat-092911-007	2	28 Sep 2011 20:07		RPG

NELAP Accreditor: Florida Dept. of Health NELAP Laboratory ID: E87941 EPA Lab ID: GA01177, South Carolina ID: 98023

Client: Terracon

Lab ID:

Client Sample ID:D-MW-21S

Project: Martha's Dry Cleaners

Collection Date:9/23/2011 4:30:00 PM

AL11SEP23-02-005

Analyses	Result	Qual Reporting Limit	Unit	BatchID	DF	Date Analyzed	Date Prepared	Analyst
Volatile Organics by GC/MS			SW-846 \$	5030B/8260B				
Carbon disulfide	BRL	2.00	ug/L	Bat-092911-007	2	28 Sep 2011 20:35		RPG
trans-1,2-Dichloroethene	BRL	2.00	ug/L	Bat-092911-007	2	28 Sep 2011 20:35		RPG
cis-1,2-Dichloroethene	9.08	2.00	ug/L	Bat-092911-007	2	28 Sep 2011 20:35		RPG
Trichloroethene	5.00	2.00	ug/L	Bat-092911-007	2	28 Sep 2011 20:35		RPG
1,1,2-Trichloroethane	BRL	2.00	ug/L	Bat-092911-007	2	28 Sep 2011 20:35		RPG
Tetrachloroethene	324	2.00	ug/L	Bat-092911-007	2	28 Sep 2011 20:35		RPG
Dibromofluoromethane (% Recovery)	129	62-146	%	Bat-092911-007	2	28 Sep 2011 20:35		RPG
Toluene-d8 (% Recovery)	113	66.4-153	%	Bat-092911-007	2	28 Sep 2011 20:35		RPG
4-Bromofluorobenzene (% Recovery)	118	76.1-135	%	Bat-092911-007	2	28 Sep 2011 20:35		RPG

NELAP Accreditor: Florida Dept. of Health NELAP Laboratory ID: E87941 EPA Lab ID: GA01177, South Carolina ID: 98023

Client: Terracon

Client Sample ID:MW-19

Project: Martha's Dry Cleaners

Client Sample ID. WW-19

Collection Date:9/23/2011 4:55:00 PM

Lab ID: AL11SEP23-02-006

Analyses	Result	Qual Reporting Limit	Unit	BatchID	DF	Date Analyzed	Date Prepared	Analyst
Volatile Organics by GC/MS			SW-846	5030B/8260B				
Carbon disulfide	BRL	1.00	ug/L	Bat-092911-007	1	28 Sep 2011 18:12		RPG
trans-1,2-Dichloroethene	BRL	1.00	ug/L	Bat-092911-007	1	28 Sep 2011 18:12		RPG
cis-1,2-Dichloroethene	10.2	1.00	ug/L	Bat-092911-007	1	28 Sep 2011 18:12		RPG
Trichloroethene	1.86	1.00	ug/L	Bat-092911-007	1	28 Sep 2011 18:12		RPG
1,1,2-Trichloroethane	BRL	1.00	ug/L	Bat-092911-007	1	28 Sep 2011 18:12		RPG
Tetrachloroethene	16.6	1.00	ug/L	Bat-092911-007	1	28 Sep 2011 18:12		RPG
Dibromofluoromethane (% Recovery)	131	62-146	%	Bat-092911-007	1	28 Sep 2011 18:12		RPG
Toluene-d8 (% Recovery)	112	66.4-153	%	Bat-092911-007	1	28 Sep 2011 18:12		RPG
4-Bromofluorobenzene (% Recovery)	121	76.1-135	%	Bat-092911-007	1	28 Sep 2011 18:12		RPG

NELAP Accreditor: Florida Dept. of Health NELAP Laboratory ID: E87941 EPA Lab ID: GA01177, South Carolina ID: 98023

Client: Terracon Client Sample ID:MW-23

Project: Martha's Dry Cleaners

Collection Date:9/23/2011 5:10:00 PM

Lab ID: AL11SEP23-02-007

Analyses	Result	Qual Reporting Limit	Unit	BatchID	DF	Date Analyzed	Date Prepared	Analyst
Volatile Organics by GC/MS			SW-846	5030B/8260B				
Carbon disulfide	BRL	1.00	ug/L	Bat-092911-007	1	28 Sep 2011 18:41		RPG
trans-1,2-Dichloroethene	BRL	1.00	ug/L	Bat-092911-007	1	28 Sep 2011 18:41		RPG
cis-1,2-Dichloroethene	BRL	1.00	ug/L	Bat-092911-007	1	28 Sep 2011 18:41		RPG
Trichloroethene	BRL	1.00	ug/L	Bat-092911-007	1	28 Sep 2011 18:41		RPG
1,1,2-Trichloroethane	BRL	1.00	ug/L	Bat-092911-007	1	28 Sep 2011 18:41		RPG
Tetrachloroethene	BRL	1.00	ug/L	Bat-092911-007	1	28 Sep 2011 18:41		RPG
Dibromofluoromethane (% Recovery)	116	62-146	%	Bat-092911-007	1	28 Sep 2011 18:41		RPG
Toluene-d8 (% Recovery)	110	66.4-153	%	Bat-092911-007	1	28 Sep 2011 18:41		RPG
4-Bromofluorobenzene (% Recovery)	120	76.1-135	%	Bat-092911-007	1	28 Sep 2011 18:41		RPG

NELAP Accreditor: Florida Dept. of Health NELAP Laboratory ID: E87941 EPA Lab ID: GA01177, South Carolina ID: 98023

Client: Terracon

Client Sample ID: Trip Blank

Project: Martha's Dry Cleaners

Collection Date:

Lab ID: AL11SEP23-02-008

Analyses	Result	Qual Reporting Limit	Unit	BatchID	DF	Date Analyzed	Date Prepared	Analyst
Volatile Organics by GC/MS			SW-846 \$	5030B/8260B				
Carbon disulfide	BRL	1.00	ug/L	Bat-092911-007	1	28 Sep 2011 16:17		RPG
trans-1,2-Dichloroethene	BRL	1.00	ug/L	Bat-092911-007	1	28 Sep 2011 16:17		RPG
cis-1,2-Dichloroethene	BRL	1.00	ug/L	Bat-092911-007	1	28 Sep 2011 16:17		RPG
Trichloroethene	BRL	1.00	ug/L	Bat-092911-007	1	28 Sep 2011 16:17		RPG
1,1,2-Trichloroethane	BRL	1.00	ug/L	Bat-092911-007	1	28 Sep 2011 16:17		RPG
Tetrachloroethene	BRL	1.00	ug/L	Bat-092911-007	1	28 Sep 2011 16:17		RPG
Dibromofluoromethane (% Recovery)	130	62-146	%	Bat-092911-007	1	28 Sep 2011 16:17		RPG
Toluene-d8 (% Recovery)	117	66.4-153	%	Bat-092911-007	1	28 Sep 2011 16:17		RPG
4-Bromofluorobenzene (% Recovery)	119	76.1-135	%	Bat-092911-007	1	28 Sep 2011 16:17		RPG

Data Qualifier	Qualifier Definition
Н	The parameter was analyzed outside the method specified holding time.
I	The reported value is between the method detection limit and the practical quantitation limit.
J1	Estimated value- The reported value failed the established quality control criteria for accuracy and /or precision.
J2	Estimated value- The sample matrix interfered with the ability to make any accurate determination.
J3	Estimated Value- The data are questionable because of improper lab protocol.
L	Off scale high-The concentration of the analyte exceeds the linear range.
N	Presumptive evidence of presence of material. (tentatively identified compound)
0	Sampled, but analysis was lost or not performed.
S	The surrogate recovery was outside the established laboratory recovery limit.
U	Compound was analyzed but not detected.
V	Analyte was detected in both sample and method blank.
Y	The analysis was from an improperly preserved sample. The data may not be accurate.
D	Due to dilution, the spike and/ or surrogate has not been reported.
A	Detection limit elevated due to abundance of non-target analyte.
Z	See case narrative.
BB	The sample was received unpreserved. Sample was preserved at time of receipt or at time of sample preparation.
CC	The sample was received with insufficient preservation. The sample was properly preserved at time of receipt or at time of sample preparation.
DD	The vial analyzed for volatile analysis had headspace greater than 6mm. The results of the analysis may be bias low.
EE	The seed control factor for biochemical oxygen demand did not meet the method limits of 0.60-1.0 mg/l
FF	The blank for biochemical oxygen demand depleted more then the method limit of 0.20 mg/l.
BDL	Below the method detedtion limit.
BRL	Below the method reporting limit.
Sub	Subcontracted Parameter

Analytical QC Summary Report

Client: Terracon

COC #: AL11SEP23-02

Batch: Bat-092911-007

Sample:	Bat-092911-007-	LCS-01			QC Type: LCS				
Parameter	Result	Qual	Unit	Observed	True Value	Low Limit (%)	High Limit (%)	RPD Limit	
Carbon disulfide (% Recovery)	94		%	23.4 ug/L	25 ug/L	57.1	177		
trans-1,2-Dichloroethene (% Recovery)	121	J1	%	30.4 ug/L	25 ug/L	63.6	119		
cis-1,2-Dichloroethene (% Recovery)	122		%	30.4 ug/L	25 ug/L	67.2	132		
Trichloroethene (% Recovery)	92		%	22.9 ug/L	25 ug/L	60.9	128		
1,1,2-Trichloroethane (% Recovery)	104		%	26.0 ug/L	25 ug/L	79.4	119		
Tetrachloroethene (% Recovery)	104		%	26.0 ug/L	25 ug/L	63.8	141		
Dibromofluoromethane (% Recovery)	131		%	65.5 ug/L	50 ug/L	62	146		
Toluene-d8 (% Recovery)	121		%	60.6 ug/L	50 ug/L	66.4	153		
4-Bromofluorobenzene (% Recovery)	120		%	60.0 ug/L	50 ug/L	76.1	135		
Dilution Factor	1.0								
Analyzed By	RPG								
Analysis Date/Time	28 Sep 2011 10:58								

Sample:	: Bat-092911-007-	LCSD-01				QC Type: LCSD			
Parameter	Result	Qual	Unit	Observed	True Value	Low Limit (%)	High Limit (%)	RPD Limit	
Carbon disulfide (% Recovery)	88		%	21.9 ug/L	25 ug/L	57.1	177		
trans-1,2-Dichloroethene (% Recovery)	117		%	29.1 ug/L	25 ug/L	63.6	119		
cis-1,2-Dichloroethene (% Recovery)	131		%	32.8 ug/L	25 ug/L	67.2	132		
Trichloroethene (% Recovery)	88		%	22.0 ug/L	25 ug/L	60.9	128		
1,1,2-Trichloroethane (% Recovery)	99		%	24.8 ug/L	25 ug/L	79.4	119		
Tetrachloroethene (% Recovery)	96		%	24.1 ug/L	25 ug/L	63.8	141		
Dibromofluoromethane (% Recovery)	132		%	66.1 ug/L	50 ug/L	62	146		
Toluene-d8 (% Recovery)	110		%	55.2 ug/L	50 ug/L	66.4	153		
4-Bromofluorobenzene (% Recovery)	121		%	60.5 ug/L	50 ug/L	76.1	135		
Carbon disulfide (RPD)	7		%						
trans-1,2-Dichloroethene (RPD)	7		%						
cis-1,2-Dichloroethene (RPD)	8		%						

Avery Laboratories & Environmental Services, LLC

Date: 10/3/2011

Analytical QC Summary Report

Trichloroethene (RPD)	4	%
1,1,2-Trichloroethane (RPD)	5	%
Tetrachloroethene (RPD)	8	%
Dilution Factor	1.0	
Analyzed By	RPG	
Analysis Date/Time	28 Sep 2011 11:27	

Sample: Bat-092911-007-MB-01

Sample	MB-01				QC Type: MB				
Parameter	Result	Qual	Unit			RL			RPD Limit
Carbon disulfide	BRL		ug/L			1			
trans-1,2-Dichloroethene	BRL		ug/L			1			
cis-1,2-Dichloroethene	BRL		ug/L			1			
Trichloroethene	BRL		ug/L			1			
1,1,2-Trichloroethane	BRL		ug/L			1			
Tetrachloroethene	BRL		ug/L			1			
Dibromofluoromethane (% Recovery)	129		%	64.3 ug/L	50 ug/L		62	146	
Toluene-d8 (% Recovery)	118		%	59.1 ug/L	50 ug/L		66.4	153	
4-Bromofluorobenzene (% Recovery)	120		%	60.0 ug/L	50 ug/L		76.1	135	
Dilution Factor	1.0								
Analyzed By	RPG								
Analysis Date/Time	28 Sep 2011 12:24								

Sample:	02-002					QC Type: MS			
Parameter	Result	Qual	Unit	Observed	True Value	Spike Parent	Low Limit (%)	High Limit (%)	RPD Limit
Carbon disulfide (% Recovery)	88		%	44.1 ug/L	50 ug/L	0 ug/L	57.1	177	
trans-1,2-Dichloroethene (% Recovery)	114		%	56.9 ug/L	50 ug/L	0 ug/L	63.7	119	
cis-1,2-Dichloroethene (% Recovery)	136	J1	%	67.8 ug/L	50 ug/L	0 ug/L	67.2	132	
Trichloroethene (% Recovery)	90		%	44.8 ug/L	50 ug/L	0 ug/L	60.9	128	
1,1,2-Trichloroethane (% Recovery)	101		%	50.6 ug/L	50 ug/L	0 ug/L	79.4	119	
Tetrachloroethene (% Recovery)	100		%	49.8 ug/L	50 ug/L	0 ug/L	63.8	141	
Dibromofluoromethane (% Recovery)	132		%	66.0 ug/L	50 ug/L	62.9 ug/L	62	146	
Toluene-d8 (% Recovery)	113		%	56.6 ug/L	50 ug/L	54.8 ug/L	66.4	153	
4-Bromofluorobenzene (% Recovery)	125		%	62.3 ug/L	50 ug/L	61.1 ug/L	76.1	135	
Dilution Factor	1.0								
Analyzed By	RPG								

Analysis Date/Time

28 Sep 2011 21:04

Analytical QC Summary Report

Sample:	AL11SEP23-02-0	02				QC Type: MSD									
Parameter	Result	Qual	Unit	Observed	True Value	Spike Parent	Low Limit (%)	High Limit (%)	RPD Limit						
Carbon disulfide (% Recovery)	85		%	42.4 ug/L	50 ug/L	0 ug/L	57.1	177							
Carbon disulfide (RPD)	4		%						30						
trans-1,2-Dichloroethene (% Recovery)	113		%	56.6 ug/L	50 ug/L	0 ug/L	63.7	119							
trans-1,2-Dichloroethene (RPD)	0		%						30						
cis-1,2-Dichloroethene (RPD)	3		%						30						
cis-1,2-Dichloroethene (% Recovery)	132		%	65.8 ug/L	50 ug/L	0 ug/L	67.2	132							
Trichloroethene (% Recovery)	90		%	44.8 ug/L	50 ug/L	0 ug/L	60.9	128							
Trichloroethene (RPD)	0		%						30						
1,1,2-Trichloroethane (RPD)	1		%						30						
1,1,2-Trichloroethane (% Recovery)	100		%	50.2 ug/L	50 ug/L	0 ug/L	79.4	119							
Tetrachloroethene (% Recovery)	99		%	49.3 ug/L	50 ug/L	0 ug/L	63.8	141							
Tetrachloroethene (RPD)	0		%						30						
Dibromofluoromethane (% Recovery)	131		%	65.3 ug/L	50 ug/L	62.9 ug/L	62	146							
Toluene-d8 (% Recovery)	113		%	56.5 ug/L	50 ug/L	54.8 ug/L	66.4	153							
4-Bromofluorobenzene (% Recovery)	125		%	62.5 ug/L	50 ug/L	61.1 ug/L	76.1	135							
Dilution Factor	1.0														
Analyzed By	RPG														
Analysis Date/Time	28 Sep 2011 21:33														

60755

													Ser	Serial Number:												
		Ship To: 101 B Estus Dr. Savannah. Ga. 31404														A2115EP2302										
Avery Laboratories & Environmental Services, LLC		T 912 944-3748 F 912 234-9294															LAB NUMBER									
		email: pgrimm@avervlab.com																								
Entry Loss in 1997					cillali	• hg	,111		1 W	ave	er y	Iau	.00	m								-				
Client Information		Page 1 of 1					ect Na	ame:	: 1	MA	127	THA'S DRY CLEANERS								Subcontract Laboratory						
Customer: TERRACON		Sampler: JC 2 EB				Proj	ject Number:		er:	ESII		712	7125		State where			nated:			Nai	ne / Addre	ess/ Phor	ne		
Address: 2201 ROWLAND AVE.		Turn	Around Ti	me (Place	$\left\{ \right\}$														N							
City/State/Zip: SAVANNAH, GA 31404		24 Hours					T	1	UU																	
Contact: BILL ANDERSON		48 Hours					3	1	50											A						
Phone: 629-4000		72 Hours					- (1)	6	20	111																
Email:	Wiscunderson & terracon.com	5 Working D	Days			S	20	12	* ~	J																
Purchase Order #:	Purchase Order #:		Days	X		0.	- 1-	- 1-	-0	5										P						
Project Manager:	BILL ANDERSON	Other:				\vdash	-				_	_					_		+							
							-Li	7	ra	PE	30	<u></u>	77	78	26		2¢	9	+	_						
5	Sample Identification	Date	Time	Matrix	# of Containers	HCI	HCH	J J	HC	HC												Rema	rks			
	MW-20	9/23	15.0-	+W	3	1	/-	1,	1	1																
MW -22		9/23	15:38	W	3	1	-	-	-	1																
MW-21 D		1	16:08	W	3	1		1-	-	-					1		1		$\uparrow \uparrow$							
	MW-21 5		16:25	W	3	C	1.	1.	10	-	/	+	$\uparrow \uparrow$	+	\uparrow	\square	+	+	+							
	D-MW-215		16:30	(h)	3	1	1.	1.	1	1.		+		+				-	++							
			11:57	(1)	2			1			/	+		-	+	\square	+	+	+							
$m_{\rm b} = 23$			12:10	(.)	2	-		1	1.		-	+		-		\square	+	+	++	_						
			17-10	w	0			-			+		$\left \right $		+-	\vdash	+		++							
						\vdash	+	+	+	$\left \right $	+	+	$\left \right $	+	+	$\left \right $	+	_	++							
							-	+	+		-	+-	$\left \right $	+	+	\square	+	_	++							
Matrix Type	A = Air $W = Water$ $S = Solid$	N - Nonao	ucous (sol	vont agid	(ata)																					
		[ucous (301		rocor	avatia	vo: 1:	= Nor	long 2 = H2604 2 = 1											7 = 18/at		ther					
Instructions or Spec	al Requirements:					1	reser	vali	ve. 1.	- 1101	le z	- 112	304	3 = 1	11403	4 -	HUL	5-1	MeOn	0 - 14/	11304	7 - Wate		uner		
Temperature:	3.5°C	Custodv	Seals:	Yes	No					Cus	stoc	y S	eals	s Int	act:	Y	es	1	No							
Relinquished by			Date/Time: 9/23/11 530 Receiv								d by:												Date/Time: 9/23/11 5:30			
Relinquished by:		yenn on					Received by:																			
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