GROUNDWATER CORRECTIVE ACTION PLAN

Former Dry Cleaner Site
Tara Shopping Center
8564 Tara Boulevard
Jonesboro, Clayton County, Georgia
HSI# 10798

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ACRONYMS

Ashland	Ashland Inc.
CCWA	Clayton County Water Authority
cis-1,2-DCE	cis-1,2-dichloroethene
cm/s	centimeters per second
COC	constituent of concern
CAP	Corrective Action Plan
EDR	Environmental Database Resources
EHS Support	EHS Support, LLC
EPD	Georgia Environmental Protection Division
ERH	electric resistive heating
ESA	Environmental Site Assessment
ft. bgs	feet below ground surface
ft./d	feet per day
ft. msl	feet above mean sea level
HSI	Hazard Site Inventory
HSRA	Hazardous Site Responsible Act
ISCO	In-Situ Chemical Oxidation
$KMnO_4$	potassium permanganate
lbs	pounds
LDA	large diameter auger
MCL	maximum contaminant level
MEK	2-Butanone
mg/L	milligrams per liter
ORP	oxidation reduction potential
OSWER	Office of Solid Waste Emergency Response
PCE	tetrachloroethene
POE	point of exposure
PQL	practical quantitation limit
PRE	Preliminary Risk Evaluation
RRS	risk reduction standard
Site	Tara Shopping Center
Tara Retail	Tara Retail Holdings, LLC
TCE	trichloroethene
µg/L	micrograms per liter
UEC	Uniform Environmental Covenant
USEPA	United States Environmental Protection Agency
VC	vinyl chloride
VIRP	Voluntary Investigation and Remediation Plan
VRP	Voluntary Remediation Program
VOC	volatile organic compound

CERTIFICATION

"I certify under penalty of law that this report and all attachments were prepared by me or under my direct supervision in accordance with the Voluntary Remediation Program Act (O.C.G.A. Section 12-8-101, et seq.). I am a professional engineer/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 belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

Jonathan Patrick Waddell /PE037262
Printed Name and GA PE/PG Number

03/16/2016
Date

Signature and Stamp

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STATEMENT OF LIMITATIONS

This document is intended for the sole use of Ashland Inc. (Ashland). The scope of services performed during this investigation may not be appropriate to satisfy the needs of other users, and any use or re-use of this document or of the findings, conclusions, or recommendations presented herein is at the sole risk of said user.

Background information, design bases, and other data have been furnished to EHS Support, LLC. (EHS Support) by Ashland and/or third parties, which are used in preparing this document. EHS Support has relied on this information as furnished, and where applicable has made an attempt to confirm the accuracy of laboratory data based on available raw data reports.

Opinions presented herein apply to the existing and reasonably foreseeable site conditions at the time of our assessment. They cannot apply to site changes of which EHS Support is unaware and has not had the opportunity to review. Changes in the condition of this property may occur with time due to natural processes or works of man at the site or on adjacent properties. Changes in applicable standards may also occur as a result of legislation or the broadening of knowledge. Accordingly, the findings of this report may be invalidated, wholly or in part, by changes beyond our control.

EXECUTIVE SUMAMARY

On behalf of Ashland, EHS Support has prepared this Groundwater Corrective Action Plan (CAP) to summarize the remediation activities proposed to address off-site groundwater impacts associated with historical releases of tetrachloroethene (PCE) into the environment from the former dry cleaner site (the Site) at 8564 Tara Boulevard, Jonesboro, Clayton County, Georgia. Activities completed to identify the nature and extent of groundwater impacts were previously summarized in semi-annual progress reports including the most recent August 28, 2015 Voluntary Remediation Program (VRP) Semi-Annual Progress Report (EHS 2015a) and September 30, 2015 Supplemental document (EHS 2015b). The Georgia Environmental Protection Division (EPD) approved the completion of nature and extent investigation activities in a letter dated December 17, 2015 (EPD, 2015c).

On June 28, 2012, the Georgia EPD conditionally approved Ashland's Voluntary Investigation and Remediation Plan (VIRP) application. Under the Voluntary Remediation Program (VRP) program, Ashland also completed remediation of soil within the qualifying property to Type 5 Risk Reduction Standards (RRSs) defined by 391-3-19-.07 (10) (EPD 2015a), and established engineering and institutional controls including a Uniform Environmental Covenant (UEC) at the Site to restrict land use within the treatment area and restrict groundwater use across the Site. As a result, in 2015 the Site was reclassified from Class I (highest priority) to Class V requiring corrective action for groundwater.

Extensive groundwater investigations were completed between 2006 and 2015 to identify the nature and extent of groundwater impacts. The timeframe was driven by the ability to obtain access to off-site properties to complete investigation activities. Ashland currently maintains access agreements with eight (8) different property owners, including commercial and private land owners. The current groundwater monitoring well network consists of 51 monitoring wells (36 residuum wells and 15 bedrock wells) across the Study Area. The Study Area is defined as the area extending north to Robert E. Lee Parkway and Smith Street, east approximately 250 feet, south to Flint River Road, and approximately 590 feet west.

It has been suspected that undocumented historical releases to the storm sewer along Fayetteville Road, east of the Site (i.e., rear of property), are the source of secondary groundwater impacts originating approximately 300 feet south of the Site boundary beneath 8660 Tara Boulevard (also referred to Prax Air throughout the investigation history). Investigation activities have assessed the nature and extent of both sources (Site soil to groundwater and Off-site sewer to groundwater) and concluded that the end receptor is the creek west of Tara Boulevard.

Groundwater impacts are observed in both the residuum and the bedrock. Residuum and bedrock are hydraulically connected. The bedrock is in direct hydraulic connection with creek located approximately 410 feet west of the downgradient Site boundary and serves as a local groundwater sink and ultimate receptor for bedrock impacts. Water quality trends in select wells near historical source areas indicate that PCE concentrations are for the most part, decreasing or stable over time (approximately 8-10 years of monitoring record). These trend features indicate that the plume itself is practically stable and the plume appears to be in a near steady-state status. Since the trends are not increasing, it is anticipated that plume extents are not expanding, but are also relatively stationary and expected to shrink over time.

No complete exposure pathways to groundwater are present at the Site. In 2015, a UEC was recorded for the Site that restricts land use within the Type 5 RRS area and includes a 20-foot buffer to be inclusive of any residual soil impacts not directly addressed by in-situ soil remediation. The UEC also restricts groundwater use across the Site.

No potable wells were identified at the Site or within the Study Area. The closest active potable well (Camp Well) is beyond the limits of groundwater flow regime.

Properties within the Study Area are serviced by city water and sewer. Installation of potable and/or industrial wells within the Study Area are not anticipated; however, further action will be pursued to prevent the installation of potable wells within impacted properties. Proposed corrective action activities for impacted off-site commercial/industrial properties include institutional controls to restrict groundwater use at each property (Streamlined Uniform Environmental Covenants).

Direct contact to the creek is not anticipated based on limited access and perimeter fencing from residential properties to the west of the Study Area. However, an assessment of potential complete exposure pathways from exposure to surface water was completed to assess various conservative scenarios for potential receptors. The focused risk assessment for the residential child receptor determined that there were no unacceptable risks from exposure to surface water in the creek. For the purposes of evaluating a contingency plan, site-specific target levels were calculated for the surface water point of exposure (POE).

The focused risk assessment for the ecological receptors exposed to surface water in the creek downgradient of the Site determined that there were no significant potential risks to the selected assessment endpoints (benthic invertebrates and fishes). This conclusion was based on the quality of the unnamed creek (urbanized), the marginal potential estimated risk (HQ = 1.4) that was localized to the outfall pool, and a potential risk estimate based on both maximum exposure and conservative toxicological criteria.

A preliminary evaluation was completed to determine the effectiveness of intrinsic biogeochemical processes to support the restoration of groundwater to the extent practical under the VRP (or other state mandate). The evaluation included an assessment of groundwater biogeochemical parameters and initial Biochlor modeling used to estimate intrinsic decay rates for PCE. The initial results indicate the potential for PCE degradation to occur by metabolic (e.g., chlororespiration), cometabolic, and/or abiotic pathways. However, these potential pathways appear to be spatially heterogeneous across the Study Area, and limited in some areas by existing groundwater conditions. These naturally-occurring processes are believed to have been instrumental in promoting "stable" to "decreasing" trends for PCE in groundwater and a stable plume. Historical data for PCE, dating to 2006, was used to determine the statistical trend of data via the Mann Kendall statistical trend test. The trends are primarily "stable" to "decreasing", and support that the PCE plume underlying the Site is not increasing in volumetric extent, and has extended to the maximum extent spatially and vertically.

The combination of the groundwater biogeochemical monitoring results, Biochlor modeling results, and PCE trends support long-term monitoring as a remedial option, to continue to observe decreases towards regulatory standards. Decay rates estimated for the two (2) migration pathways support intrinsic degradation of PCE within a 30 year time period. Therefore, long term monitoring is proposed as the remedial alternative to monitor potential changes in the creek and groundwater immediately up gradient of the creek where longevity of data collection is limited.

Based on preliminary results of the VISL screening, further evaluation and/or soil gas sampling will be conducted to evaluate the vapor intrusion pathway. A scope of work to investigate the indoor air pathway will be submitted to the EPD in a separate document within 90 days of written approval of this CAP.

Nomenclature and Map Clarifications

Historical documents and figures have identified the surface water body west of the Site as intermittent stream, unnamed stream, and/or unnamed creek. For consistency, and in accordance with appropriate surface water body classification, the surface water body west of the Site is referred to as the unnamed creek or creek within this CAP.

Previous investigation documents incorrectly depicted the map scale as 1 inch = 120 feet. Corrections have been made and maps/figures in this report and accurately depict the map scale a 1 inch = 60 feet, where appropriate. The distance of the creek from the Site has been corrected from approximately 800 to approximately 410 feet west of the downgradient Site boundary. Horizontal scales in previously submitted cross sections and isoconcentration maps have been updated and are provided in this CAP for reference. All calculations for groundwater flow or exposure assessment have been verified.

1.0 INTRODUCTION

On behalf of Ashland, EHS Support has prepared this Groundwater Corrective Action Plan (CAP) to summarize the groundwater remediation activities proposed to address off-site groundwater impacts associated with historical releases of tetrachloroethene (PCE) into the environment from the former dry cleaner site (the Site) at 8564 Tara Boulevard, Jonesboro, Clayton County, Georgia. A Site location map is provided as **Figure 1**.

Activities completed to identify the nature and extent of groundwater impacts were previously summarized in semi-annual progress reports including the most recent August 28, 2015 VRP Semi-Annual Progress Report and September 30, 2015 Supplemental document. The Georgia Environmental Protection Division (EPD) approved the completion of nature and extent investigation activities in a letter dated December 17, 2015.

1.1 Environmental and Regulatory History

In August 2004, a Phase I Environmental Site Assessment (ESA) of 8560 Tara Boulevard (former Dunkin Donuts property) immediately south of the Tara Shopping Center was completed by the owner as part of a due diligence assessment. The Phase I ESA identified the dry cleaner Site as a recognized environmental condition and a limited site investigation of the Dunkin Donuts property was completed in September 2004. Tetrachloroethene and trichloroethene (TCE) were identified in groundwater above the Georgia Maximum Contaminant Levels (MCLs). The owner of the Dunkin Donuts property submitted a Release Notification/Reporting Form to the Georgia EPD Hazardous Sites Response Program in November 2004 and the Dunkin Donuts property was subsequently listed on the Georgia EPD Hazardous Site Index (HSI # 10798). The Dunkin Donuts property is identified on **Figure 2.**

The Georgia EPD speculated that releases from the dry cleaner Site were the probable source of impacts to the Dunkin Donuts property and concluded that releases of regulated substances had occurred at the dry cleaner Site. The Tara Shopping Center property was subsequently co-listed on HSI #10798. (**Figure 2**).

Alterman Enterprises, Ltd (former property owner of Tara Shopping Center) identified the owner of the dry cleaner Site (Mr. Kenneth Babb) as a responsible person under the Hazardous Site Response Act (HSRA). In turn, Mr. Babb identified Ashland as a supplier of PCE as a dry cleaning solvent. As a result of this contention, Ashland was also identified by the Georgia EPD as a responsible party under HSRA.

In November 2007, Tara Retail Holdings, LLC (Tara Retail) purchased the Tara Shopping Center property from Alterman Enterprises, Ltd. As part of the Prospective Purchaser Correction Action Plan (Peachtree, 2007), Ashland with the assistance of URS Corporation of Atlanta, Georgia initiated groundwater investigation activities. In November 2011, a Remediation Agreement was drafted after Tara Retail resigned from active participation in Site remediation efforts, and requested Ashland resume full oversight of both soil (source area) and a groundwater correction action under the Voluntary Remediation Program (VRP) (Ashland 2011).

On January 11, 2012, Ashland submitted the Voluntary Investigation and Remediation Plan (VIRP) application to the Georgia EPD (Ashland, 2012). On June 28, 2012, the Georgia EPD conditionally approved the VIRP application. Under the VRP program, Ashland recently completed the following:

- Delineation of Site related contaminants of concern (COCs) in soil and groundwater to Georgia EPD Type 1 Risk Reduction Standards (RSSs) published in 391-3-19-.07(6) (EPD 2015a).

- Delineation of Site related COCs in surface water to laboratory practical quantitation limits (PQLs)
- Remediation of soil within the qualifying property to Type 5 RRSs defined by 391-3-19-.07(10) (EPD 2015a)
- Establishment of engineering and institutional controls including a Uniform Environmental Covenant (UEC) at the Site to restrict land use within the treatment area and restrict groundwater use across the Site

In 2015, the Director reclassified the Site from Class I (highest priority) to Class V requiring corrective action for groundwater.

The purpose of this CAP is listed below:

- Summarize historical groundwater investigation activities
- Summarize nature and extent of Site related COCs in groundwater
- Summarize previous remedial actions to reduce COCs in soil and groundwater at the Site
- Evaluate potential complete exposure pathways to groundwater and surface water including focused risk evaluations for surface water receptor scenarios
- Based on risk, evaluate remedial alternatives for groundwater and surface water and propose remedial actions that will be protective of human health and environment

Finally, this CAP also presents the preliminary results of the evaluation of potential complete exposure pathways via vapor intrusion from groundwater.

1.2 Historical Submittals

The following documents were submitted during the nature and extent groundwater investigation:

- Groundwater Corrective Action Plan, March 2009
- Quarterly Pilot Test Progress Reports, 2010 (Multiple)
- Proposed Surface Water Monitoring Plan, February 2, 2011
- Surface Water Monitoring Report, May 23, 2011
- Pilot Test Effectiveness Report and Groundwater Corrective Action Work Plan, Dated July 8, 2011
- Surface Water Monitoring Report, December 21, 2011
- Voluntary Investigation and Remediation Plan, January 11, 2012
- Evaluation of the Applicability of PCE WQS and a Proposed Alternative Approach, June 19, 2012
- Voluntary Remediation Program Semi-Annual Progress Report #1, dated December 27, 2012
- Voluntary Remediation Program Semi-Annual Progress Report #2, dated June 28, 2013
- Voluntary Remediation Program Semi-Annual Progress Report #3, dated December 27, 2013
- Soil Remediation Completion Report, March 14, 2014
- Voluntary Remediation Program Semi-Annual Progress Report #4, dated June 27, 2014
- Voluntary Remediation Program Semi-Annual Progress Report #5, dated December 23, 2014
- Uniform Environmental Covenant and Monitoring & Maintenance Plan, May 29, 2015
- Voluntary Remediation Program Semi-Annual Status Report #6, dated August 28, 2015
- Voluntary Remediation Program Semi-Annual Progress Report, Supplemental Isoconcentration Maps, September 30, 2015

1.3 CAP Components

Pursuant to the Hazardous Site Response regulations Chapter 391-3-19-.06(6) (EPD 2015b), this CAP is presented in the Subsections listed below.

- Section 2.0 Property Description
- Section 3.0 Groundwater Investigation History
- Section 4.0 Nature and Extent of Impacts
- Section 5.0 Historical Remedial Actions
- Section 6.0 Preliminary Risk Evaluation
- Section 7.0 Remedial Action Evaluation
- Section 8.0 Remedy Selection

2.0 PROPERTY DESCRIPTION

The Site is located near the southeast end of the 6.9-acre Tara Shopping Center located between 8554-8600 Tara Boulevard, Jonesboro, Clayton County, Georgia. The Tara Shopping Center is comprised of two multi-tenant commercial buildings and surrounding asphalt parking areas to the west. Dry cleaning operations were conducted between 1970 and 2005 (35 years) by a tenant in the southernmost, west facing unit (8564 Tara Boulevard). The Tara Shopping Center and the dry cleaner Site are depicted on **Figure 2**. The Tara Shopping Center is surrounded to the north, west and south by commercial and retail properties; and, to the east by Fayetteville Road (State Highway 54) by residential properties. An aerial map showing surrounding properties is provided as **Figure 3**.

2.1 Hydrogeologic Setting

The Site is underlain by a surficial aquifer mostly composed of clay and silt-rich saprolitic sediments, which are in-situ weathered residuum of the underlying crystalline bedrock. The crystalline bedrock is part of the regional Piedmont aquifer system (Piedmont and Blue Ridge Provinces). The bedrock underneath the Site area is primarily granitic gneiss (URS, 2009a).

Generally, in the Piedmont aquifer system, the groundwater flow domain is localized to watershed scales. The characteristics of a groundwater setting within a small drainage basin are as follows:

- The watershed boundary at the ridgeline generally coincides with groundwater flow divides.
- Groundwater within the watershed naturally flows to local surface drainage patterns.
- Groundwater in the residuum is locally recharged from precipitation, exhibits inter-granular flow and discharges to nearby perennial streams and/or incised bedrock ravines.
- Groundwater in the bedrock is recharged through leakage from the overlying residuum. In this regard, groundwater in the bedrock and the residuum are hydraulically interconnected and share common hydrologic boundaries. Groundwater flows through interconnected fractures and may be more circuitous than those in the residuum.
- The ultimate point of exposure for groundwater beneath the Site in the residuum and bedrock is a downgradient creek, which hydraulically serves as a local groundwater sink.
- The potentiometric surfaces of both the residuum and the bedrock generally mimic a subdued expression of land surface topography (in the absence of major groundwater withdrawals).

The Site hydrogeologic framework is presented in **Figure 4**, which outlines the principle water-bearing zones, lithologies, and nomenclature used in this document. In summary, groundwater is encountered in the saprolite residuum (residuum) and the crystalline bedrock (bedrock) that underlies it.

2.1.1 Residuum

The residuum is composed primarily of clay and silt-rich saprolite (deeply weathered granitic bedrock). Sand-sized detritus, although present, is a minor constituent of the residuum as evidenced in almost all the boring logs for this lithologic unit. The thickness of the residuum is governed by the structural characteristics of the underlying bedrock. The structural deformation of the bedrock contributed to a setting where the bedrock surface elevations rapidly change immediately west of the Site. On this basis, the residuum thicknesses can range from 0 feet (absent) to approximately 60 feet.

Previous aquifer testing (slug tests) from 10 monitoring wells yielded an average hydraulic conductivity of approximately 1.26 feet per day (ft./d) for the residuum (URS, 2009a). This value is greater than the representative geology encountered for the residuum. Typically, clay and silt water-bearing zones exhibit hydraulic conductivities that are at least two orders of magnitude lower. In certain settings, slug tests may

not adequately stress groundwater conditions in the formation and the resulting analytical solutions can be biased high by the permeable sand packs surrounding the well screen. It is interpreted that the suspected high hydraulic conductivities could be an artifact of this bias. On this basis, the slug test results could represent the higher end of a range of possible hydraulic conductivities for the residuum. It is concluded that a more representative value of in the order of 0.01 ft./d to 0.1 ft./d is applicable for this clay/silt rich lithology.

There is no mappable confining bed that hydraulically separates groundwater between the two strata. Thus, in this context, groundwater in both water-bearing units are hydraulically connected and subject to unconfined water-table conditions. To gain additional insights to water quality, groundwater in the residuum is categorized between the upper and lower water-bearing zones. However, the overall hydraulic relationship between these two zones are similar (similar heads and hydraulic trends) and for practical purposes is classified as a single water-table regime (i.e., single fractured rock aquifer) sharing common hydraulic boundary conditions.

2.1.2 Bedrock

The Piedmont Province is underlain by a complex sequence of igneous and metamorphic rocks. The heterogeneity of the bedrock makeup arises from regionally older metamorphosed sedimentary sequences and igneous rocks that have been folded and intruded by younger rocks in the geologic past. The bedrock underneath the Site was further subjected to structural deformation (i.e. faulting) and subsequent erosion of the bedrock surfaces, and generally is deeply weathered. The bedrock topography is characterized by rapidly changing bedrock elevations that are indicative of localized faulting. Generally, the structural top of the bedrock ranges from a high of 870 feet above mean sea level (ft. msl) northwest of the Site that trends to a structural low of about 810 ft. msl southeast of the Site. The bedrock is also significantly incised by the unnamed creek (creek) located about 410 feet west of the Site. The structural surface of the bedrock is presented in **Figure 5**.

This bedrock region near the headwater to the creek is of interest to this study for two primary reasons. First, the creek is incised at least 25 feet into the bedrock ravine and therefore, provides a direct conduit to bedrock groundwater exiting the aquifer - a discharge boundary. As presented in the August 2015 Semi-Annual Statue Report, the ground surface elevation in the creek is approximately 851 ft. msl. Surface water in the creek is generally less than one foot in depth and measures at approximately 851.9 ft. msl. With the exception of monitoring well MW-24C, groundwater elevations are above the creek elevation supporting the creek is receiving groundwater. Consequently, the creek does intercept the water table in the bedrock relatively close to its headwater and acts as a hydraulic sink to bedrock groundwater.

Second, the top of bedrock near the ravine is very close to land surface, which significantly thins the residuum such that the residuum no longer supports a water-bearing zone immediately up gradient of the ravine. As shown in **Figure 5**, the bedrock elevations generally increase towards the creek. Based on the water table interpolation between well MW-20C and the up-gradient MW-16A/B/C, three observations are noted:

- The residuum effectively terminates in this local region as a water-bearing zone since it does not exist and cannot maintain continuity of flow;
- Groundwater in the residuum laterally transits into the bedrock aquifer setting; and
- The creek is the lowest hydraulic point in the aquifer setting and is a common discharge boundary to groundwater in both the bedrock and residuum water-bearing zones.

This structural geology and water-bearing zones across the investigation area are shown on hydrogeologic cross-sections (**Figure 6** through **Figure 8**). Cross-section C-C' displays the west to east subsurface setting

south of the creek and the Site (**Figure 7**). This cross section intercepts gauge SG-1 at the creek (west) and terminates at well MW-22A/B (east). Similar characteristics can be observed and shared in cross-section D-D', which represents the subsurface setting immediately north of the creek and the Site to the east (**Figure 8).**

2.2 Groundwater Flow Domain

The Site is situated within the watershed to the headwaters of the Flint River. The watershed boundaries, which follow topographic ridgelines that coincide with a natural groundwater divide, define the flow regime (**Figure 9**). Therefore, local groundwater is contained within each watershed and discharges to surface drainage features that intercept the water table. Additionally, groundwater cannot cross watershed boundaries.

On this basis, the hydraulic up-gradient regions at the Site are to the east and the south-southeast, where the watershed boundary generally delineates the groundwater divides between the current watershed and the Upper Little Cotton Indian Creek watershed (east) and the Murphy Creek-Flint River watershed (south-southeast) (**Figure 10)**. This concept is field supported by analytical results of groundwater samples collected from monitoring wells (MW-22 A/B and MW-23A/B) east and southeast of the Site, which are not impacted by former dry cleaning operations.

In the Site region, possible and potential down-gradient discharge boundaries for groundwater are the surface drainage features including the creek located approximately 410 feet west of the Site; the unnamed tributary (northwest of the Site); Cleburne's Creek (southwest of the Site); and, the Flint River further west (**Figure 10)**. Of these, the creek is the discharge boundary to local groundwater mostly because of its proximity – it is at a 3rd order stream (Strahler stream order) closest to the Site, it is deeply incised into the bedrock as discussed earlier (the lowest water-bearing zone in the aquifer system), and it intercepts the water-table.

As presented in the August 2015 Semi-Annual Status Report and consistent with 10 years of data collection, the groundwater head contours indicate that groundwater is flowing west from the Site and migrating towards the creek. To maintain continuity of lateral flow, it is inferred that residuum groundwater transits into the bedrock aquifer setting west of the lateral terminus of the residuum. Based on this feature, groundwater head contours within the residuum are terminated just up-gradient from this physical boundary. Therefore, a dashed symbol has been included on the July 2015 potentiometric surface contours maps near the creek. The groundwater flow potentiometric surface contours for the residuum water-bearing zone in July 2015 are presented in **Figure 11** (Upper Residuum) and **Figure 12** (Lower Residuum).

Groundwater flow potentiometric surface contours for the bedrock water-bearing zone is presented in **Figure 13**, and is also consistent with 10 years of data collection and support a creek discharge. This is principally supported by surrounding groundwater and surface water elevations in the headwater region of the creek and the incised nature of the creek deep into the bedrock itself.

In the up-gradient region (near the Site and Prax Air), a radial flow feature is inferred. On this basis, from the Site area, there is a north-northwest flow vector and a west flow towards the creek. However, based on our understanding of groundwater flow patterns within Piedmont fractured rock aquifers and the inferred groundwater head contours that curve towards the creek, it is interpreted that groundwater migrating north-northwest will ultimately discharge into the creek.

3.0 GROUNDWATER INVESTIGATION HISTORY

Extensive groundwater investigations were completed between 2006 and 2015 to identify the nature and extent of groundwater impacts. The timeframe was driven by the ability to obtain access to off-site properties to complete investigation activities. Ashland currently maintains access agreements with eight (8) different property owners, including commercial and private land owners. The current monitoring well network consists of 51 monitoring wells (36 residuum wells and 15 bedrock wells) across the Study Area. The Study Area is defined as the area extending north to Robert E. Lee Parkway and Smith Street, east approximately 250 feet, south to Flint River Road, and approximately 590 feet west. A monitoring well location map is provided as **Figure 14**. Monitoring well construction details are provided as **Table 1**.

3.1 Contaminants of Concern in Groundwater

The Site COCs in groundwater include:

- PCE
- TCE
- cis-1,2-dichlorothene (cis-1,2-DCE)
- vinyl chloride (VC)

Comprehensive groundwater sampling events were completed in August 2006, October 2008, August 2009, May 2011, May 2013 and July 2015. In addition, multiple groundwater sampling events were completed at a select number of monitoring wells as part of on-site remediation activities and off-site delineation activities. Exceedances PCE, TCE, cis-1,2-DCE and VC were identified in groundwater above their respective Type 1 RRSs listed in the table below.

Site COCs	Type 1 Groundwater RRS µg/L
PCE	5.0
TCE	5.0
cis-1,2-DCE	70
VC	2.0

Note: µg/L = micrograms per liter

A summary of analytical results from the last three comprehensive sampling events in May 2011, May 2013, and July 2015 compared to the Type 1 RRSs are provided on **Table 2**. A tabulated summary of Site COCs in groundwater for all routine and non-routine sampling events, including the most recent October 2015 sampling event for newly installed monitoring wells MW-15C, MW-23A/B, and MW-24C, is provided in **Appendix A**. A copy of the field sampling forms and analytical data package from the October 2015 sampling event is provided in **Appendix B.**

Lesser amounts of other volatile organic compounds (VOCs) were also identified within the Study Area, and are listed in the table below.

Potential Degradation Products of PCE	Other Compounds
1,1-Dichloroethene trans-1,2-Dichloroethene	1,2-Dichloroethane 1,2-Dichloropropane 2-Butanone (MEK) Acetone Benzene Bromoform Carbon disulfide Chlorobenzene Chloroform Dichlorobromomethane Ethylbenzene Styrene Toluene Xylenes, Total

The majority of the compounds listed above are not considered attributable to former dry cleaning operations at the Site and all compounds are below concentrations requiring remediation and; therefore, are not further assessed as part of this CAP. However, it is important to note these compounds have the potential to provide carbon sources for chlorinated organic degrading microbes (e.g., benzene, ethylbenzene, toluene, and xylenes); thereby, increasing the potential for natural degradation of Site COCs. An assessment of groundwater biogeochemistry at the Site was performed in 2015 and found evidence of specific microbes capable of degrading chlorinated organics (See **Section 4.6**).

3.2 Contaminants of Concern in Surface Water

The initial surface water samples collected in October 2009 and August 2010 identified the presence of PCE, TCE, and cis-1,2-DCE above the laboratory reporting limits in the creek approximately 410 feet west and downgradient of the Site boundary. In March 2011, surface water delineation activities were completed in accordance with the approved Proposed Surface Water Monitoring Plan, dated February 3, 2011 (EHS 2011a). Six surface water samples were collected from the creek. One grab sample was collected in the vicinity of the storm water outfall and five samples were collected downstream of the outfall on March 31, 2011. The results were summarized in the Surface Water Monitoring Report dated May 23, 2011 (EHS 2011b) and it was concluded that PCE and its degradation products were delineated within the upper reach of the creek. The results also concluded concentrations of PCE did not exceed the published United States Environmental Protection Agency (USEPA) Region 4 Freshwater Surface Water Chronic Screening Value of 84 µg/L (and alternative standards established for TCE, cis-1,2-DCE, and VC); therefore, a Preliminary Risk Evaluation (PRE) to evaluate ecological receptors was not required in 2011. (EHS, 2011b).

Additional surface water samples were collected in November 2011, May 2013 and July 2015. Analytical results were compared to the 2015 Georgia Water Use Classification and Water Quality Standards and 2015 USEPA Region 4 Freshwater Surface Chronic Screening Values (interim draft) summarized in the table below.

Compound	CAS #	Surface Water Quality Standards 391-3-6-.03(5) µg/L	USEPA Region 4 Surface Water Screening Values for Hazardous Waste Sites (Freshwater Screening Value/ Chronic Screening Value) µg/L	
		October 2, 2015	Circa 2011	2015
PCE	127-18-4	3.3	84	53
TCE	79-01-6	30	47[2]	200
cis-1,2-DCE	156-59-2	1[1]	1,350[2]	620
Vinyl Chloride	75-01-4	2.4	930[2]	930

Note: µg/L = micrograms per liter
[1]Laboratory Practical Quantitation Limit
[2] Alternate standard proposed in May 23, 2011 Surface Water Monitoring Report.

In 2015, an attempt was made to locate and sample the two surface water outfalls within the headwater of the creek. For the purpose of this investigation, outfall #1 (OF-1) is the outfall entering the creek from the north, capturing storm water run-off from 8557 Tara Boulevard. Outfall #2 (OF-2) is the outfall entering the creek from the south. Outfall #2 captures storm water east of the creek, including Tara Boulevard and Fayetteville Road (**Figure 2**). Outfall #2 is approximately 67 feet west and downstream of OF-1 (**Figure 14**). A grab sample was collected of the water in the vicinity of OF-2 on July 16, 2015. Due to overgrowth and rugged terrain, the location of OF-1 was not identified or sampled. Surface water samples SS-1 was collected approximately 85 feet west and downgradient of storm water outfall OF-2. Surface water sample SS-2 was collected approximately 170 feet west of SS-1 (or 255 feet downgradient of OF-2). Based on the terrain, a physical distance between these locations could not be measured in the field; therefore, the location of SS-1 and SS-2 (and the distance between) are based on survey data (**Figure 14**).

PCE, TCE and cis-1,2-DCE exceed the surface water quality standards, but are below the ecological screening standards, in samples collected from SS-1 and SS-2. PCE exceeds the surface water quality standard and ecological screening value at up gradient outfall sample location OF-2 at a concentration of 76 µg/L. A summary of analytical results from surface water sampling events between 2009 and 2015 are provided on **Table 3**.

4.0 NATURE AND EXTENT OF IMPACTS

Investigation activities have identified the nature and extent of impacts associated with releases at the former dry cleaner Site. It has been suspected that releases to the storm sewer along Fayetteville Road, east of the Site (i.e., rear of property), are the source of groundwater impacts originating approximately 300 feet south of the Site boundary beneath 8660 Tara Boulevard (also referred to Prax Air throughout the investigation history). Investigation activities have assessed the nature and extent of both sources (soil to groundwater and sewer to groundwater/surface water) and concluded the ultimate receptor is the creek west of Tara Boulevard. The nature and extent evaluation was presented in the August 28, 2015 VRP Semi-Annual status report (EHS 2015a) and was approved by the Georgia EPD in a letter dated December 17, 2015. Copies of the Isoconcentration Maps presented in the September 30, 2015 Supplemental are provided in **Appendix C**.

4.1 Lateral Plume Extents

Based on our current knowledge of groundwater flow characteristics in the residuum and the bedrock; and determination that the plume has reached a practically stable condition based on 10 years of monitoring data following cessation of operations, the following plume extents can be deduced:

The lateral extent of the residuum plume can be delineated as follows:

- Eastern extent: Based on the non-detections observed in well nests at MW-22A/B and MW-23A/B, the PCE plume extent in this region lies on the western edge of Fayetteville Road.
- Northern extent: Based on very low detections of PCE, the following line of wells generally determine the extent of PCE, from east to west: MW-14A (7.7 µg/L); MW-7B (5.4 µg/L); creek. Following solute transport conventions, the 5 µg/L extent will follow the groundwater flow paths that migrate to the creek from the area monitored by well MW-7B.
- Southern extent: The plume is contained north of the line of wells where PCE was not detected, from east to west MW-6A/B; MW-19A; MW-21B.
- Western extent: Terminus of the residuum near the headwaters of the creek.

The lateral extent of the bedrock plume can be delineated as follows:

- Eastern extent: The region near MW-1C (Site non-detect), MW-13C (Off-Site at 8 µg/L).
- Northern extent: The region near well MW-1C (non-detect), MW-7C (non-detect), MW-15C (10 µg/L) and MW-24C (41 µg/L). Based on anticipated dispersion and advection, the boundary near well MW-24C will follow groundwater flow stream lines towards the headwaters of the creek.
- Southern extent: The southern extent of the PCE plume likely follows groundwater flow streamlines from the creek; from east to west the area between well MW-13C (8 µg/L); MW-19C (200 µg/L) and MW-19D (12 µg/L); and MW-21C (non-detect)
- Western extent: Incised creek into bedrock where limited surface water sampling corroborated impacts from groundwater contribution.

4.2 Vertical Plume Extent

Based on the geophysical evidence from the 2009 investigation at the Site, the transmissive region of the bedrock is mostly concentrated in the upper regions as fracture development decreases with depth. This setting is also supported by the vertical distribution of concentrations between the residuum and bedrock and the bedrock itself.

Based on the lateral spread of the bedrock plume, the PCE impacts are mostly encountered just down-gradient (west) of the Prax Air facility (MW-5C; MW-16C; MW-19C/D; MW-20C; creek). Within this

area, it appears the primary transverse axis of the plume is near wells exhibiting relatively high PCE concentrations: MW-16C (820 µg/L) and MW-19C (200 µg/L).

The mid-screen elevations to wells MW-16C (805 ft. msl) and MW-19C (800 ft. msl) are compatible, and both wells are generally situated near the central axis of the plume. Well MW-19D, located next to MW-19C had a PCE detection of 12 µg/L and is installed approximately 20 feet deeper. Based on well MW-19C/D concentrations, a decrease with concentration is observed with depth and the vertical attenuation ratio is 16.6 within a depth of 20 feet between the sampling points [200 (µg/L) / 12 (µg/L)]. By applying this ratio to the PCE concentration observed at MW-16C, it is anticipated that the PCE concentration in groundwater 20 feet lower, at 780 ft. msl is about 50 µg/L (820 µg/L / 16.6). At, 760 ft. msl the projected concentration is about 3 µg/L (50 µg/L / 16.6). The field data indicates that due to anisotropy, plume migration dynamics favor lateral movement in the upper fractured portion of the bedrock and vertical concentrations in the lower competent portion of the bedrock is attenuated rapidly. On this basis, the possible depth of vertical impact near the axis of the plume in the bedrock could descend approximately to 760 ft. msl which is equivalent to about 100 feet of saturated thickness from the water table.

4.3 Volumetric Groundwater Flux and Creek Discharge Estimate

The volumetric groundwater flux estimate is an exercise to determine the amount of water that passes between the source and the groundwater sink. Basically, it is an evaluation to determine fluxes of contaminants in groundwater. In this case, an approximate volumetric groundwater flux was evaluated to determine how much baseflow is contributing to the creek near the headwater region.

In this exercise, a representative cross-sectional area was selected for the area between well nests MW-15, MW-16 and MW-19. This area was selected because the primary bedrock plume is passing through these wells and the groundwater passage is directly up-gradient from the creek. The length of this cross-sectional area is approximately 560 ft. The vertical thickness is estimated to be 100 feet. This thickness is based on the previous saturated thickness estimate from the vertical extent of PCE impacts at well MW-16C. This thickness represents both the impacted region of the bedrock and the residuum and likely transmissive region of the aquifer setting. If one assumes an average hydraulic conductivity of 1 ft./d (see **Section 4.1**) to represent the composite residuum/bedrock, then the transmissivity of the aquifer is 100 ft^2/d. A more representative hydraulic conductivity of 0.01 ft./d will yield a transmissivity of 1 ft^2/d as well.

Using the Darcy equation, the fluid flux is estimated as follows:

Flux = KIA where:

K = hydraulic conductivity (1 ft./d; 0.01 ft./d)

I = Hydraulic gradient (0.02)

A = Cross-sectional area (560 ft. x 100 ft.)

Based on this equation, the estimated volumetric groundwater flux ranges from 0.013 ft^3/s to 0.00013 ft^3/s. These fluxes are extremely small and are representative of the eventual range of baseflows that will discharge to the creek. Limited discharge measurements at the headwater segment of the creek in March 2011 yielded flows between 0.28 ft^3/s and 0.46 ft^3/s.

4.4 VOC Trends and Plume Stability

Since PCE is the parent compound for water quality impacts, its trend characteristics provide basic insights to plume stability including its spatial extents; especially in the down-gradient regions where the plume(s) typically contribute to a larger area in the residuum due to dispersion.

4.4.1 Site Trend Evaluation

Trend graphs for well nests MW-3 and MW-9 depict groundwater quality at the cross gradient southern property boundary (and the direction of the secondary source). Trend graphs for well nests MW-8, MW-10 and MW-11 depict groundwater quality at the down-gradient western property boundary. (**Figure 14**). The VOC trends graphs for PCE and its degradation products – TCE, cis-1,2-DCE and VC are presented in **Appendix D**.

The data set includes comprehensive sampling events between 2006 through 2015, quarterly sampling conducted between 2009 and 2011, and semi-annual sampling between 2004 and 2016 to evaluate the performance (effectiveness) of in-situ remediation activities.

The trends as shown indicate that either PCE concentrations are decreasing or stable over time. The exception is PCE concentration trends included at wells MW-10B and MW-10C that exhibit a possible break-through curve sometime in 2010/2011 time period (pre-treatment). A break-through curve generally represents a discrete (as opposed to continuous) recharge event of new water quality impacts to the aquifer system. However, it appears the break-through peaks have passed and the latest concentrations exhibit the tail end of the breakthrough event. Regardless, a number of trends that share either decreasing to stable concentrations confirm that the PCE plume(s) may be at or approaching near steady-state conditions within the scale of the Study Area. Further, concentrations are expected to continue to decrease as a result of source areas remediation and impeded groundwater flow around the solidified source material (i.e., monolith).

4.4.2 Off-Site Trend Evaluation

Trend graphs for well nests MW-13 and MW-5 depict groundwater quality within and down-gradient of the secondary source, respectively. Each trend graph is provided in **Appendix D**. The data set include comprehensive sampling events between 2006 through 2015. Similar to the Site, PCE concentrations are decreasing or stable. However, the presence of degradation products through vinyl chloride is observed. Concentrations in the vicinity of the off-site source are expected to continue to reduce due to the presence of additional carbon sources contributing to mass reduction.

4.5 Natural Attenuation Evaluation (Biochemical Evaluation)

A preliminary evaluation was completed to determine the effectiveness of intrinsic biogeochemical processes to support the restoration of groundwater to the extent practical under the VRP (or other state mandate). The evaluation included an assessment of groundwater biogeochemical parameters and initial Biochlor modeling used to estimate intrinsic decay rates for PCE. Provided below is a brief summary of assessment activities. A detailed discussion of data collection and supporting lines for natural attenuation processes, including Mann-Kendall and Biochlor modeling is presented in **Appendix E.**

4.5.1 Site Conditions

The following Site conditions were considered in this assessment:

- Horizontal delineation of groundwater impacts is complete.
- Vertical delineation is complete, as site-related COC impacts in groundwater are limited to and display decreasing trends with depth in underlying fractured bedrock.
- The predominant groundwater flow direction is to the west, within both the residuum and underlying fractured bedrock, and under varying hydraulic gradients.
- Bedrock outcrops within the incised creek west of the Site; therefore, residuum groundwater discharges into fractured bedrock before groundwater re-expresses itself into the creek.
- The unnamed creek is the ultimate groundwater sink and receptor.
- No private wells were identified within the limits of the investigation area.
- There are two primary source migration pathways (including soil to groundwater and storm water conveyance system to groundwater). Both plumes commingle south of the Site, prior to discharge to the creek.
- The area of concern is approximately twelve acres in size.
- Previous aquifer testing (i.e., slug tests) at the Site have yielded an average hydraulic conductivity of 1.26 feet per day within the residuum (URS, 2009b); however, the actual hydraulic conductivity (and associated flow gradients and velocities) may vary as a function of location within the fractured rock aquifer.

4.5.2 Initial Analytical Findings

The initial results indicate the potential for PCE degradation to occur by metabolic (e.g., chlororespiration), cometabolic, and/or abiotic pathways. However, these potential pathways appear to be spatially heterogeneous across the Study Area, and limited in some areas by existing groundwater conditions.

These naturally-occurring processes are believed to have been instrumental in promoting "stable" to "decreasing" trends for PCE in groundwater and a stable plume. Historical data for PCE, dating to 2006, was used to determine the statistical trend of data via the Mann Kendall statistical trend test. The trends are primarily "stable" to "decreasing", and support that the PCE plume underlying the Site is not increasing in volumetric extent, and has extended to the maximum extent spatially and vertically.

Decay rates estimated for the two (2) migration pathways support intrinsic degradation of PCE within a 30 year time period. Therefore, long term monitoring is proposed as the remedial alternative to monitor potential changes in the creek and groundwater immediately up gradient of the creek where longevity of data collection is limited.

4.5.3 Biochlor Modeling/Screening

Biochlor modeling was conducted to evaluate first-order decay rates for PCE along the two separate groundwater migration pathways observed at the Site. Biochlor (Natural Attenuation Decision Support System) version 2.2 was used for this purpose. Groundwater migration pathway #1 extended from the former Dry Cleaner source area westward towards the creek. Groundwater migration pathway #2 extended from the suspected storm sewer source westward towards the creek. Model inputs included site-specific and regional values, and PCE data from June/July 2015.

Modeling results indicate a decay rate of 0.198 per year along migration pathway #1, and a decay rate between 0.173 to 0.198 per year along migration pathway #2. In comparison to decay rates that are supportive of intrinsic degradation, which range from 0.13 per year (in 10 percent of plumes) to 0.23 per year (in 50 percent of plumes), at chlorinated ethene concentrations below 5 milligrams per liter (mg/L) the Site specific decay rates are within the range that supports the prospect of PCE degradation at the site over a 30-year time period. (EHS 2015a).

4.6 Conclusions

That the PCE plume has been determined to be stable, and delineated horizontally and vertically

That the creek is the local and groundwater sink and ultimate receptor for groundwater within the fractured rock aquifer (i.e., regolith and fractured rock).

The combination of the groundwater biogeochemical monitoring results, Biochlor modeling results, and PCE trends support long-term monitoring as a remedial option, to continue to observe decreases towards regulatory standards.

Decay rates estimated for the two (2) migration pathways support intrinsic degradation of PCE within a 30 year time period. Therefore, long term monitoring is proposed as the remedial alternative to monitor potential changes in the creek and groundwater immediately up gradient of the creek where longevity of data collection is limited.

5.0 HISTORICAL REMEDIAL ACTIONS

This section summarizes the remedial actions previously implemented to mitigate sources of PCE in soil and groundwater at the Site. This section also discusses the effectiveness and implementability of these remedies as it pertains to evaluating remedies to address impacted groundwater and surface water.

5.1 Cessation of Operations

Dry cleaning operations were conducted between 1970 and 2005 (35 years). The dry cleaning Facility ceased operations in 2005. Cessation of operations likely eliminated continued releases from facility operations including releases to the environment through poor waste management and/or material handling procedures. With this assumption, direct discharge to the environment (ground surface or sewer) ceased 10-11 years ago; therefore, impacts are between 10 and 45 years old.

5.2 In-Situ Chemical Oxidation (ISCO) / Permeable Reactive Zone Barrier

In 2009, an In-Situ Chemical Oxidation (ISCO) Pilot Test was implemented to determine whether or not potassium permanganate ($KMnO_4$) injection was a viable full-scale cleanup strategy for the Site groundwater. The objectives of the ISCO Pilot Test were to evaluate the effectiveness of $KMnO_4$ to reduce concentrations of VOCs in groundwater below Type 1 RRSs and to determine the effectiveness of utilizing soil fracturing in the upper and lower residuum to enhance the permeability of the low permeability soils allowing the KMnO4 slurry to more fully disperse aerially and increasing mass destruction of VOCs. The pilot test was implemented at the downgradient Site boundary (near MW-11A/B/C) pursuant to URS' *Groundwater CAP* dated August 10, 2009 (URS 2009a) and *Groundwater CAP Addendum* dated September 29, 2009 (URS 2009b), which provided technical justification for terminating the permeable reactive barrier zone (PRZ) at the top of bedrock. A summary of the pilot test is provided below.

5.2.1 Implementation and Performance Monitoring

A total of 8,000 pounds (lbs) of $KMnO_4$ was mixed with potable water and injected into three temporary injection points at the downgradient property boundary of the Site and immediately up gradient of well cluster MW-11A/B/C. The residuum was hydraulically fractured with slurried $KMnO_4$ at depths of 27, 31, 35, 39, 43 and 47 feet below ground surface (ft. bgs).

A Geoprobe® residuum sampling investigation of the fractures was conducted to delineate the extent of the fractures approximately six weeks after the $KMnO_4$ fracture injections. Macrocore® samples five feet long were collected continuously from 25 feet to 50 feet bgs, and were split in half for observation. Five of the ten locations encountered the permanganate slurry-filled fractures. A summary of Pilot Test implementation activities was provided in the January 18, 2010 *1st Quarterly PRZ Pilot Test Progress Report* submitted to Georgia EPD (URS 2010).

Between October 2009 and March 2011, select monitoring wells were sampled for VOCs analysis and screened in the field for oxidation reduction potential (ORP) to evaluate the effectiveness of the ISCO Pilot Test. A total of 10 data sets were collected from source area monitoring well cluster MW-2A/B/C, cross-gradient well clusters MW-8A/B/C and MW-10A/B/C, and downgradient well cluster MW-11A/B/C. In March 2011, a shallow monitoring well (MW-17A) was installed within the PRZ to evaluate groundwater conditions within the treatment area.

5.2.2 Pilot Test Effectiveness

The Pilot Test Effectiveness report dated July 8, 2011 (EHS 2011c), concluded that in-situ remediation (ISCO) was not a viable full-scale cleanup strategy for the Site groundwater, that low hydraulic conductivity soils encountered at the Site are likely limiting the delivery of the $KMnO_4$ slurry in the subsurface, and natural organic matter may have depleted the $KMnO_4$ before it has a chance to react with the VOCs in groundwater. More specifically:

> *The ISCO pilot test was not successful in significantly reducing the mass of contaminants in the groundwater in monitoring well MW-11A located immediately downgradient of the injection locations. However, based on the visual detection of $KMnO_4$ in the soil and groundwater and increased ORP concentrations in monitoring well clusters MW-11 and MW-8, it does appear that oxidizing conditions are present in portions of the PRZ. The chemical oxidation process has several effects on the subsurface, the reactions not only chemically oxidize dissolved phase contaminants, but the oxidation process can also attack the natural organic matter (NOM) in the soil, releasing sorbed materials into the groundwater. For example, VOCs bound in the smear zone can be liberated and dissolved into the groundwater if the organic matter it is bound to is destroyed. This effect may explain the slight increase in PCE concentrations in monitoring well MW-11A during the first two months after the $KMnO_4$ injection.*
>
> *Based on the data, it is inconclusive why the $KMnO_4$ had little impact on the reduction of VOCs in monitoring well MW-11A. The $KMnO_4$ could have been depleted by NOM before it reached monitoring well MW-11A or the fracturing process may have created preferential pathways adversely affecting the successful delivery of the $KMnO_4$ slurry throughout the 30 ft. bgs interval*. (EHS, 2011c).

Groundwater samples collected from cross gradient monitoring well MW-8B, two to six years after the injection, have shown potential evidence of $KMnO_4$ (i.e., purple hue). However, it is believed the ISCO is neutralized and is not providing contaminant reduction this long after the injection period. Trend graphs reporting the results of quarterly groundwater sampling following the ISCO injection between 2009 and 2011, as well as subsequent events in 2013 and 2015 are provided in **Appendix D**.

5.3 In-situ Solidification and Stabilization

In 2013 In-Situ Solidification/Stabilization was implemented as the remedial technology to immobilize Site-related COCs present in unsaturated and saturated soil within the source area. This decision was supported by the results of the treatability study, which determined that In-Situ Solidification/Stabilization was the best alternative to electric resistive heating (ERH) and excavation to mitigate VOC source because it was both implementable and effective. In order to achieve the target depth of 45 feet below grade, In-Situ Solidification/Stabilization was implemented using a large diameter auger (LDA). Approximately 16,000 cubic yards of soil was treated in place. As summarized in the *Soil Remediation Completion Report* dated March 14, 2014 (EHS 2014), the two tenant spaces including the former dry cleaner and adjoining nail salon were demolished to extend remediation efforts under the footprint of the dry cleaner unit and nail salon. This allowed the heaviest impacted soil to be treated in-place. A temporary sewer by-pass was installed to allow targeted soil treatment closer to the curb line east of the cleaners. Monitoring well cluster MW-2A/B/C, located within the Treatment Area, was properly abandoned in May 2013. In addition, approximately three to five feet of overlying soil was removed from the entire Treatment Area to allow for soil-mixing and resulting swell of material following the addition of reagents (i.e., carbon, slag and cement) to solidify contaminants in place.

A total of 328 eight-foot diameter overlapping columns were completed within and along the boundary of the Treatment Area. During implementation of the remediation, verification samples were collected to verify compliance with the performance specifications. Soil samples were collected at a rate of 1 per 250 cubic yards of soil treated in place. Soil was retreated and resampled until verification samples passed the threshold criteria. In conclusion, the remedial action was successful in removing the current and future exposure pathways to soil at the Site. The location of the Treatment Area is shown on **Figure 15**.

5.3.1 Engineering Controls

Following completion of in situ Solidification/Stabilization activities, the Treatment Area was graded to match the pre-existing sub-grade. A six-inch gravel sub-base and a two-inch thick asphalt cover was then placed over the Treatment Area. To ensure the integrity of the Treatment Area, the new asphalt cover was extended beyond the limits of the Treatment Area. In total, 22,869 square feet of the Site was repaved at the completion of the remediation work.

In addition, the engineering control addresses any residual soil not addressed by in-situ treatment due to Site constraints including subsurface utilities and adjacent Site buildings.

5.3.2 Institutional Controls

As noted above, a UEC was recorded for the Site with the Clayton County Clerk on August 12, 2015. The UEC establishes land use restrictions within the Type 5 RRS (treatment area) and restricts groundwater use across the entire Site. The UEC and Monitoring and Maintenance Plan describing the long term maintenance, monitoring, inspection, and reporting requirements of engineering controls and the monitoring well network **(Appendix F**).

5.3.3 Post Remediation Performance Monitoring

A semi-annual groundwater monitoring program was implemented between July 2014 and January 2016 at well nests MW-3, MW-8, MW-9, MW-10, and MW-11 to monitor the performance of In-situ Solidification/Stabilization to reduce groundwater concentration downgradient of the treated source area. The results of performance sampling are provided on **Table 4**. Trend chart for these wells are provided in **Appendix D.**

Overall, performance monitoring continues to support PCE concentrations within the residuum downgradient of the source treatment area are decreasing (well nests MW-8, MW-10, and MW-11). Concentrations of PCE within the residuum immediately cross gradient of the treatment area are stable to decreasing (well nests MW-3 and MW-9). PCE concentrations within nested bedrock monitoring wells (MW-8C, MW-10C, and MW-11C) are generally consistent with historical groundwater sample data and are below the Type 1 RRS of 5 µg/L (and below the laboratory method detection limit). In January 2015, PCE was reported at a concentration slightly above the Type 1 RRS at 7.6 µg/L in monitoring well MW-10C (**Table 4**). Groundwater sampling forms from the most recent sampling event (January 2016) and associated laboratory analytical data is provided in **Appendix B**.

It is anticipated PCE concentrations will continue to decline overtime following source treatment. Based on nearly 20 sampling events at well nests MW-8, MW-10, and MW-11, and 10 sampling events well nests MW-3 and MW-9, a sufficient dataset has been collected to support stable to decreasing trends, therefore; no further performance monitoring is recommended.

5.4 Alternate Remedies

5.4.1 Electro-Resistive Heating

Electro-Resistive Heating was initially proposed and approved by the Georgia EPD in 2009-2010 to treat soil and groundwater within the source area. While ERH was initially thought to be effective and implementable, the contractor could not provide a performance guarantee. For this reason, remedy implementation was not deemed proportional to the potential cost and safety concerns; therefore, ERH was eliminated as a remedial alternative.

5.4.2 Soil Excavation

In 2012, excavation of impacted soil to bedrock was evaluated as an alternative to ERH. However, based on the proposed depth of treatment (extending to 45 feet below grade) and the necessary set-backs to achieve those depths in the vicinity of buildings and roadways; excavation, while effective in removing source soil impacting groundwater, was not implementable. As a result, soil excavation was eliminated as a remedial alternative.

5.5 Discussion

In 2011, following completion of an in-situ pilot test, it was determined that implementation of a full-scale in-situ remedy to reduce PCE concentrations in groundwater below Type 1 RRSs was not a viable remedial alternative due to low permeable soils. Further, soil fracturing to enhance the permeability of the low permeability soils was not able to laterally disperse the reagents effectively to increase the mass destruction of VOCs. While evidence of injection is now visible in monitoring well MW-8B (purple hue) approximately 115 feet northwest and cross gradient of the area of injection, the reagents have neutralized and are no longer effective. Based on these results and the likelihood this method would be ineffective in the fractured bedrock setting, in-situ remediation through chemical injection has been eliminated for further evaluation.

In 2012, multiple remedial alternatives were evaluated to address both unsaturated and saturated soil. Soil excavation was not effective based on the target treatment depths exceeding 25 feet below grade. Thermal treatment while initially approved by Georgia EPD, this technology had too many uncertainties in the effectiveness including cost, safety, security and unknown duration. As a result, both methods were eliminated.

Excavation is not a viable candidate remedy to treat groundwater within the lower residuum and fractured bedrock and therefore, has been eliminated for further evaluation. Thermal treatment of groundwater through ERH presents the same levels of uncertainty as soil, but across a larger treatment area, resulting in exponential cost and duration. For this reason, and the unlikelihood this method would be effective in the fractured bedrock setting, ERH is not a suitable candidate remedy and has been eliminated.

In 2013 In-Situ Solidification/Stabilization was implemented. The success of this remedy is attributed to the Site preparation including building demolition, utility termination/bypass and proven technology within the southeastern portion of the United States. Using large diameter augers, the technology was effectively advanced to depths exceeding 40 feet below grade. The Site is further protected using engineering and institutional controls to maintain incomplete exposure pathway to groundwater and potential residual impacts soil. The overall cost to implement this technology was greater than $2.5MIL. While In-Situ Solidification/Stabilization was successful at the Site, it is not a suitable candidate to address impacted groundwater at depth and within the bedrock setting. Therefore, In-Situ Solidification/Stabilization is not a suitable candidate remedy and has been eliminated.

5.6 Conclusions

Other than the effectiveness of the remedies discussed above, the following Site characteristics are critical when evaluating a single groundwater remedy that can be effective in remediating groundwater.

- The lateral extent of groundwater impacts is approximately 12 acres and extending across eight properties and public roadways
- The vertical extent of impact is generally 100 feet of saturated thickness. The vertical characteristics vary from site to site (eight properties). In some instance the saturated residuum thickness is greater than bedrock thickness. For properties closest to the creek, bedrock is the predominant saturated zone because the residuum becomes absent west of the Site as bedrock rises to the surface
- Given the interbedded silts and clays of the residuum, in-situ remediation is limited to localized treatment and is not considered an effective means to broadly reduce VOC concentrations in groundwater
- Given the fractured bedrock setting, remedial actions to reduce VOC concentrations over the extensive area are considered technically impractical
    - Injectability concerns, given the inherent heterogeneity and anisotropy of groundwater flow in discrete fractures
    - Potential for injectants to be highly diluted and ineffective, and/or migrate rapidly outside of the desired treatment area due to fracture flow
    - Potential difficulties with monitoring the effectiveness of remedial action performance
    - Potential to alter existing biogeochemical processes promoting long-term degradation of PCE

Given the Site constraints listed above, active remediation including in-situ treatment, removal, and/or containment are not likely to be effective to reduce the highest mass concentrations within the lower residuum and fractured bedrock. A discussion of potential complete exposure pathway to groundwater and surface water is provided in the next Section.

6.0 PRELIMINARY RISK EVALUATION

Potential complete exposure pathways are limited to direct contact with groundwater and surface water. This section of the CAP identifies potential complete exposure pathways at the Site and within the Study Area. For ease of discussion, properties are listed in the table below and shown on **Figure 2**.

Location	Tax Parcel ID	Zoned	Description
Site	13242D B001	Commercial	Tara Shopping Center
Study Area	13242D B001A	Commercial	Vacant Outbuilding
	13242D B007 and B007Z	Commercial	Former Dunkin Donuts
	13242D B009 and B009Z	Commercial	Former Prax Air
	13242D B002 and B002Z	Commercial	Gas Station
	13242D A016 and A016A	Commercial	Former Hoops and Fitness
	13242D A012	Commercial	Outbuilding (Bail Bonds)
	13242D A001	Commercial	Flint River Shopping Center

As discussed in **Section 4.0**, the eastern extent of the Study Area is the western side of Fayetteville Road; therefore, no properties were identified east of Fayetteville Road.

The headwater of the creek is located within Tax Parcel 13242D A016 (Former Hoops and Fitness). As previously discussed, the creek is located in a deeply incised ravine with limited access. However, for the purpose of evaluating potential current and future exposure pathways, this section of the CAP presents the results of the focused risk evaluation to evaluate potential human health and ecological receptors within the creek.

6.1 Well Search

No potable wells were identified at the Site or within the Study Area.

In 2004, Georgia EPD identified one potable well within 0.5 mile south-south west of the Site (Tax Parcel 05242B D002) 8831 Fayetteville Road, Jonesboro, Georgia (Camp Well). This well was identified on the Site's Hazardous Site Inventory profile. Based on the groundwater CSM, the Camp Well is outside the groundwater flow regime associated with Site related COCs.

In 2014, environmental database files were obtained from Environmental Database Resources (EDR) of Shelton, Connecticut for the purpose of revaluating potential off-site sources of PCE. Historical documents included aerial photographs, topographic maps, and a 1.0 mile-radius of search report that included available well records. The co-listed Dunkin Donuts property was identified as a small quantity generator of PCE (and other solvents) in 2005. These activities are suspected to be associated with investigative derived waste from Phase II investigation activities leading to the listing on the HSI 10798.

Other than near-vicinity gasoline stations, the report identified the Flint River Road Dump south of the Study Area at 871 Flint River Road. The site was initially assessed in 1984 (Site ID 0401756) and issued a no further action in 1990. No additional information was provided. Based on groundwater flow regime, this Site is hydraulically cross gradient to the Study Area. A copy of the EDR report is provided electronically in **Appendix G**. The results of the well search are discussed below.

No private wells were identified within a 0.25 mile radius of the Site. Five potable wells were identified within 0.25 to 0.5 miles of the Site. Three potable wells were identified east and up gradient, and are not subject to further evaluation. Two potable wells were identified southwest of the Site and are noted in the table below.

Domestic Wells	Location	Date Installed	Unit	Depth (feet)	Status
USGS-333051084215601 (Camp Well)	0.25-0.5 miles SW Fayetteville Road	1958	Crystalline Bedrock	27-125	Active
USGS-333103084220901 (Barrenton Well)	0.25-0.5 miles WSW Flint River Road	1957	Crystalline Bedrock	74-200	Inactive

The Camp well was previously identified by the State during its initial site listing. Based on field reconnaissance, the Camp residence is still present and therefore it is assumed the well is still active.

The Barrenton well is suspected to be approximately 1700 feet west of the intersection of Flint River Road and Tara Boulevard on the south side of Flint River Road. The location is based on site coordinates, historical aerial photographs from 1955, 1964, 1968, 1993, and 2005 and historical topographic map from 1954, 1968, 1973, 1983, and 1993. According to the Clayton County Tax Assessor, the property (Tax Parcel 05242A A003) is currently owned by the Clayton County Water Authority (688 Flint River Road, Jonesboro, GA). Clayton County purchased the property in 1999. On-line Tax Records date back to 1984. Information on the Barrenton ownership was not readily available. A copy of the EDR historical aerial photographs and topographic maps are provided in **Appendix H**.

On August 21, 2014, representatives of EHS Support completed a field reconnaissance to determine the status of the well. It was confirmed that the residential dwelling is no longer present. EHS Support attempted to talk with on-site representatives at the Clayton County Water Authority (CCWA) Reclamation Center. The administrator was not aware of any private wells on the property. Mr. Brent Taylor, Clayton County Water Authority Maintenance Supervisor, was not aware of any private wells. Follow-up correspondence with Jeff Brandan and Terry Moy of CCWA in 2014 went unanswered. Recent attempts to reconnect have been unsuccessful. Based on property redevelopment at the well site, it is assumed the well is no longer in service and the property has been connected to the municipal water system.

No potable wells were identified at the Site or within the Study Area. Properties within the Study Area are serviced by city water and sewer. The closest active potable well (Camp Well) is beyond the limits of groundwater flow regime. Based on this information, no complete exposure pathways to potable water use were identified.

6.2 Ecological Risk Evaluation

6.2.1 Site

No ecological receptors were identified at the Site. The entire Site is paved asphalt and concrete (building slabs). A small portion of the southeast corner Site is unpaved and is outside the treatment area. There are no surface water bodies within the Site boundary. The Site UEC restricts land use within the Type 5 RRS area and includes a 20-foot buffer to be inclusive of any residual soil impacts not directly addressed by in-situ soil remediation.

6.2.2 Study Area

The closest surface water body is located approximately 410 feet west of the downgradient Site boundary and has been identified in investigation documents as the unnamed or intermittent creek or stream, and is referred to creek throughout the remainder of this CAP. There are two primary contributions to the creek. First, hydrogeological data has concluded groundwater from the Site and off-site impacted properties within the residuum and bedrock units discharge into this bedrock incised creek. Second, surface water run-off from properties surrounding the creek to the north, east, and south are discharged to the creek through a series of storm water outfalls.

6.2.3 Surface Water

The creek is a third order steam to the Flint River (**Figure 10**). The creek can be characterized as a highly urbanized, low quality surface water body. In the upper reaches of the system (immediately west of the Site), the surface water is contained within culverts and pipes discharging to an open channel. Evidence of high sediment loadings, waste, and debris are evident in the creek bed consistent with the highly urbanized nature of the area. On the basis of the creek characteristics, this ecological setting can be considered low quality.

In 2015, the USEPA Region 4 published interim draft Freshwater Surface Water Chronic Screening Values. The PCE value was reduced from 84 µg/L to 53 µg/L and standards were published for TCE (200 µg/L), cis-1,2-DCE (620 µg/L), and VC (930 µg/L). As a result, concentrations of PCE detected in outfall sample OF-2 (76 µg/) were above the interim standard and warrant further evaluation of ecological risk impacts. A Screening Level Ecological Risk Assessment (SLERA) was completed and is provided in **Appendix I**.

The focused risk assessment for the ecological receptors exposed to COC concentrations in the creek downgradient of the Site determined that there were no significant potential risks to the selected assessment endpoints (benthic invertebrates and fishes). This conclusion was based on the quality of the creek (urbanized), the marginal potential estimated risk (HQ = 1.4) that was localized to the outfall pool, and a potential risk estimate based on both maximum exposure and conservative toxicological criteria.

Further, surface water sample OF-2 was collected within the area of the outfall and is not likely indicative of a bedrock groundwater concentrations discharging to the creek.

6.3 Human Health Risk Evaluation

6.3.1 Site

No complete exposure pathways to groundwater are present at the Site. In 2015, a UEC was recorded for the Site that restricts groundwater use. Further, groundwater is greater than 10 feet below grade and therefore, construction and utility workers are not likely to come into direct contact with groundwater.

6.3.2 Study Area

As noted in **Section 5.1**, no potable wells are located within the Study Area. The Study Area is serviced by public water supply. Installation of potable and/or industrial wells are not anticipated; however, further action will be pursued to prevent the installation of potable wells within impacted properties. Proposed corrective action activities for impacted off-site commercial/industrial properties include institutional controls to restrict groundwater use at each property. Further, groundwater is greater than 10 feet below

grade; therefore, construction and utility workers are not likely to come into direct contact with groundwater.

6.3.3 Surface Water

Direct contact to the creek is not anticipated based on limited access and perimeter fencing from residential properties to the west of the Study Area (**Figure 3**). However, an assessment of potential risks to human receptors from exposure to surface water was completed to assess various conservative scenarios for potential receptors. Below is a summary of the focused surface water risk assessment for potential residential child receptors. A copy of the focused risk assessment and calculated risk values is provided in **Appendix J**.

Scenario 1: Child - 60 and 120 days per year

The current and future residential child receptor that is exposed for 60 days (2 to 6 years) and 120 days (6 to 16 years) to surface water COCs via incidental ingestion and dermal contact direct contact had a hazard index (HI) of 0.14 (child) and 0.16 (adult), and was below the acceptable limit (i.e., 1.0); the cumulative cancer risk (5.9×10^{-7}) was below the acceptable target cancer risk of 10^{-5}.

Scenario 2: Child - 120 and 160 days per year

The current and future residential child receptor that is exposed for 120 days (2 to 6 years) and 160 days (6 to 16 years) to surface water COCs via incidental ingestion and dermal contact direct contact had a HI of 0.29 (child) and 0.21 (adult), and was below the acceptable limit (i.e., 1.0); the cumulative cancer risk (8.9 x 10-7) was below the acceptable target cancer risk of 10^{-5}.

Based on the two scenarios listed above, the focused risk assessment for the residential child receptor determined that there were no unacceptable risks from exposure to surface water in the creek. However, for the purposes of evaluating a contingency plan, site-specific target levels were calculated for the surface water point of exposure from groundwater discharge to the creek. Site-specific target levels are provided in **Appendix J**.

6.4 Vapor Intrusion Evaluation

Groundwater data from the most recent sampling event completed in July 2015 were used to evaluate the potential for complete exposure pathways through vapor intrusion using the USEPA Vapor Intrusion Screening Level Calculator updated June 2015 (USEPA 2015c) and Office of Solid Waste Emergency Response (OSWER) *Draft Guidance for Evaluating Vapor Intrusions to Indoor Air Pathway from Groundwater and Soils* dated November 2002 (USEPA 2002) and *OSWER Technical Guidance for Assessing and Mitigating the Vapor Intrusion Pathway from Subsurface Vapor Sources to Indoor Air* (USEPA 2015b). Based on the preliminary results of the VISL screening, further evaluation and/or soil gas sampling will be pursued to evaluate the vapor intrusion pathway. A scope of work to investigate the indoor air pathway will be submitted to the EPD in a separate document within 90 days of written approval of this CAP.

6.5 Conclusions and Recommendations

Based on the information presented above, the following conclusions and recommendations are made about potential complete exposure pathways:

- No potable wells were identified at the Site or within the Study Area. The closest active potable well (Camp Well) is beyond the limits of groundwater flow regime.
- There are no complete exposure pathways to groundwater at the Site. In 2015, a UEC was recorded for the Site that restricts land use within the Type 5 RRS area and restricts groundwater use across the Site.
- There are no current complete exposure pathways to groundwater at properties within the Study Area. Properties within the Study Area are serviced by city water and sewer. Groundwater is greater than 10 feet below grade and not likely to be encountered by construction and/or utility workers.
- Installation of potable and/or industrial wells within the Study Area are not anticipated; however, further action will be pursued to prevent the installation of potable wells within impacted properties. Proposed corrective action activities for impacted off-site commercial/industrial properties include institutional controls to restrict groundwater use at each.
- Direct contact to the creek is not anticipated based on limited access and perimeter fencing from residential properties to the west of the Study Area. However, an assessment of potential risks to human receptors from exposure to surface water was completed. The focused risk assessment for the residential child receptor determined that there were no unacceptable risks from exposure to surface water in the creek. In addition, there is no unacceptable ecological risks.
- For the purposes of evaluating a contingency plan, creek-specific target levels were calculated for the surface water point of exposure (POE).
- Based on the preliminary results of the VISL screening, further evaluation and/or soil gas sampling will be pursued to evaluate the vapor intrusion pathway. A scope of work to investigate the indoor air pathway will be submitted to the EPD in a separate document within 90 days of written approval of this CAP.

7.0 REMEDIAL ACTION EVALUATION

This section provides a summary of proposed remedial actions to eliminate potential complete exposure pathways to groundwater and surface. These remedies are consistent with remedial clean-up goals for qualifying properties within the VRP program and include the use of Type 5 RRS for groundwater with institutional controls for commercial properties with known groundwater impacts. As described above in Section 4.5; naturally-occurring, intrinsic processes have been identified in the Study Area that are capable of reducing concentrations of PCE in groundwater within the long term. These processes, including metabolic, cometabolic, and/or abiotic pathways, are believed to be responsible for promoting statistically "stable" to "decreasing" concentration trends identified for PCE. Further, these processes also prevent expansion of the volumetric extent of existing groundwater impacts. As such, no further active groundwater remediation is proposed herein, given that these processes are occurring, and actively serving to reduce PCE concentrations and mass flux over time. Existing UECs and proposed UECs are described within the following subsections, which serve to establish land restrictions across the Study Area, and to restrict groundwater use and prevent exposures. Also, point of demonstration monitoring is proposed to confirm our understanding of impacts within select wells monitoring the downgradient groundwater plume and within the creek (i.e., local groundwater sink). Site-specific risk evaluations of the creek were performed to assess potential risks to potential human health and ecological risk receptors at this ultimate POE. Further details are provided as follows.

7.1 Site Groundwater

There are no complete exposure pathways to groundwater at the Site. Remediation activities were completed in 2013 to mitigate soil, including saturated soil. The UEC was recorded for the Site with the Clayton County Clerk on August 12, 2015. The UEC establishes land use restrictions within the Type 5 RRS Treatment Area, including a 20-foot buffer to address any residual impacts not addressed through remediation and restricts groundwater use across the entire Site.

There are no potable wells at the Site; the property is serviced by public water supply; and, there are no surface water bodies or sensitive ecological receptors at the Site. Depth to groundwater exceeds 10 feet below grade; therefore, construction worker or utility worker exposure to groundwater is not anticipated. Potential complete exposure pathways have been remediated through active remediation and engineering and institutional controls. Therefore, no further action is recommended for the Site to address groundwater.

7.2 Study Area

There are no current complete exposure pathways to impacted groundwater at properties within the Study Area. Properties within the Study Area are serviced by public water supply. Installation of potable and/or industrial wells are not anticipated; however, institutional controls will be pursued to prevent the installation of potable wells within impacted properties. Streamlined Uniform Environmental Covenants are proposed for properties identified downgradient of the Site with known groundwater impacts from former dry cleaning Site and are identified on **Figure 16**.

The properties with established environmental covenants are considered qualifying properties in accordance with the VRP Program. The groundwater remediation criteria for these properties is the Type 5 RRSs. Based on source remediation activities, stable to decreasing concentrations, and the proposal for institutional controls to eliminate the potential for future exposure pathways to groundwater, no further remediation is proposed for groundwater within the limits of qualifying properties. A scope of work for implementing Streamlined Uniform Environmental Covenants and point of demonstration monitoring is presented in **Section 8.0**.

7.3 Surface Water

Site-specific risk evaluations of the creek were performed to assess potential risks to potential human health and ecological risk receptors. Each evaluation concluded that there are no current exposure risks to Site-COCs in the creek. Because the creek is the POE for groundwater, a monitoring plan is proposed to monitor potential changes within the creek. Monitoring is proposed until such time enough data is collected to demonstrate 1) concentrations are below the Georgia Water Quality Standards, 2) concentrations remain below the calculated target screening levels; and/or 3) through statistical analysis concentrations no longer present a threat to human health and the environment. A scope of work for implementing a surface water monitoring plan is presented in **Section 8.0.**

8.0 REMEDY SELECTION

This section of the CAP outlines the proposed final remedy for groundwater corrective action for the dry cleaner remediation project identified as HSI 10798.

8.1 Streamlined Uniform Environmental Covenants

Streamlined Uniform Environmental Covenants are proposed for the following properties:

- 13242D B001A; 13242D B007 and B007Z; 13242D B009 and B009Z (South);
- 13242D B002 and B002Z; and 13242D A016 and A016A; 13242D A012; and, 13242D A001 (West-Southwest).

The location of proposed Streamlined Uniform Environmental Covenants is provided on **Figure 16**. Through successful negotiation, it is anticipated Streamlined Uniform Environmental Covenants can be completed within one year of the Georgia EPD approval. A copy of the Streamlined Uniform Environmental Covenant template is provided in **Appendix K**.

8.2 Groundwater Monitoring Program

8.2.1 Gauging, Inspection and Maintenance

All active monitoring wells and stream gauges will be gauged annually to verify groundwater flow direction. Inspection and maintenance of monitoring wells and observations within the creek setting will be completed concurrently with each gauging event. Any changes in site conditions (land use changes, new structures, etc.) will be documented. Maintenance will be completed within a reasonable timeframe following completion of inspection.

8.2.2 Groundwater Sampling

Point of Demonstration monitoring is proposed to monitor groundwater between the source and the POE (creek). The purpose of monitoring is to collect a minimum of eight datasets from newer monitoring wells (inclusive of historical events) such that statistical evaluation can be completed. The following schedule is proposed.

Zone A	Zone B	Zone C
• MW-13A • MW-15A • MW-16A	• MW-13B • MW-15B • MW-16B • MW-19B*	• MW-16C • MW-19C • MW-19D • MW-20C • MW-24C
Schedule • Zone A and B: Annually for 3 years • Zone C: Semi-annually for 3 years (* and MW-19B) • Re-evaluate sampling program after third annual sampling event and make recommendations based on statistical trend analysis.		

Chemical Analysis
- VOCs parameters for select wells using passive diffusion bags

8.3 Surface Water Monitoring Program

Collect water samples at four (4) locations for VOC analysis (same schedule as Zone C groundwater) on a semi-annual basis for three years.
- OF-2 (outfall entering creek from the south)
- SS-1 - existing
- SS-2 - existing
- SS-3 – approximately 800 feet downstream of SS-2

8.4 Well Abandonment

Based on completion of nature and extent delineation and multiple groundwater sampling events, a list of monitoring wells proposed for abandonment in accordance with the applicable state and or regulatory guidance is provided on **Table 5**.

8.5 Contingency Plan

8.5.1 Trigger Items

- Concentrations show a significant increasing trend over a 2-year period
- Confirmed public complaints (odors, etc.)
- Land use changes (e.g., commercial to residential or daycare)
- Damage to a monitoring well in the program

8.5.2 Responses

- Notify EPD within 24 hours
- Re-sample well within 14 calendar days, as needed, to validate any quality control/quality assurance issues, draft a plan to address the issue and submit to EPD

8.6 Reporting

- Semi-annual progress reports through Compliance Status Report (June 2017), annual thereafter

8.7 Cost and Schedule

A remediation cost estimate to implement the remedies presented in this CAP is provided on **Table 6**. A proposed remediation schedule is provided as **Figure 17**.

9.0 PROFESSIONAL SERVICES

A summary of professional engineer(s) and professional geologist(s) time to develop this CAP and associated supporting documents between August 2015 and February 2016 is provided as **Appendix L**. Certification of this CAP by a Professional Engineer is provided in the forward of this document.

10.0 REFERENCES

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USEPA, 2015b. OSWER Technical Guidance for Assessing and Mitigating the Vapor Intrusion Pathway from Subsurface Vapor Sources to Indoor Air (2015).

USEPA, 2015c. USEPA Vapor Intrusion Screening Level Calculator updated June 2015

TABLES

Table 1 - Monitoring Well Construction Details
Tara Shopping Center, 8564 Tara Blvd, Jonesboro, GA

Well Identification	Location	Water Bearing Unit	LONGITUDE	LATITUDE	Date Installed	Well Casing Diameter (in.)	Construction Material	Well Completion	Screen Interval (ft. bgs)	Screen Length (ft)	6-inch dia. Outer Steel Casing Depth (ft)	Total Depth of Boring (ft. bgs)	Date of Last Survey	Top of Casing Elevation (ft. above MSL)	Ground Surface Elevation (ft. above MSL)	Depth to Top of Bedrock Elevation (ft. above MSL)
MW-1A	TSC	Shallow	W084°21'43.441"	N033°31'14.642"	04/25/06	2-IN.	PVC	FM	15.0 - 25.0	10	n/a	25	7/24/2013	898.82	899.14	-
MW-1C	TSC	Bedrock	W084°21'43.438"	N033°31'14.688"	04/09/08	2-IN.	PVC	FM	83.0 - 98.0	15	69	99	7/24/2013	899.01	899.24	835.24
MW-3A	TSC	Shallow	W084°21'44.994"	N033°31'11.148"	05/03/06	2-IN.	PVC	FM	15.0 - 25.0	10	n/a	25	7/24/2013	892.41	892.70	-
MW-3B	TSC	Intermediate	W084°21'45.017"	N033°31'11.164"	05/03/06	2-IN.	PVC	FM	45.0 - 55.0	10	n/a	55	7/24/2013	892.54	892.70	837.70
MW-4A	Prax Air	Shallow	W084°21'45.768"	N033°31'09.223"	04/28/06	2-IN.	PVC	FM	15.0 - 25.0	10	n/a	25	7/24/2013	884.63	884.96	-
MW-4B	Prax Air	Intermediate	W084°21'45.792"	N033°31'09.225"	04/28/06	2-IN.	PVC	FM	50.0 - 60.0	10	n/a	60	7/24/2013	884.67	884.95	824.95
MW-5A	Prax Air	Shallow	W084°21-47.732"	N033°31'08.420"	05/01/06	2-IN.	PVC	FM	15.0 - 25.0	10	n/a	25	7/24/2013	883.48	883.72	-
MW-5B	Prax Air	Intermediate	W084°21-47.702"	N033°31'08.420"	05/01/06	2-IN.	PVC	FM	36.0 - 46.0	10	n/a	46	7/24/2013	883.43	883.72	837.72
MW-5C	Prax Air	Bedrock	W084°21-47.688"	N033°31'08.465"	04/10/08	2-IN.	PVC	FM	75.0 - 90.0	15	64	94.5	7/24/2013	883.64	883.88	824.88
MW-6A	Citgo	Shallow	W084°21'47.684"	N033°31'04.745"	05/02/06	2-IN.	PVC	FM	15.0 - 25.0	10	n/a	25	7/24/2013	881.41	881.70	-
MW-6B	Citgo	Intermediate	W084°21'47.679"	N033°31'04.776"	05/02/06	2-IN.	PVC	FM	57.0 - 67.0	10	n/a	67	7/24/2013	881.54	881.80	814.80
MW-7B	TSC	Intermediate	W084°21'47.387"	N033°31'14.510"	07/26/06	2-IN.	PVC	FM	23.0 - 33.0	10	n/a	33	7/24/2013	896.93	897.15	864.15
MW-7C	TSC	Bedrock	W084°21'47.376"	N033°31'14.571"	04/10/08	2-IN.	PVC	FM	52.0 - 62.0	10	38	65.5	7/24/2013	896.96	897.22	864.22
MW-8A	TSC	Shallow	W084°21'47.459"	N033°31'13.035"	07/26/06	2-IN.	PVC	FM	23.0 - 32.0	9	n/a	32.5	7/24/2013	895.14	895.27	-
MW-8B	TSC	Intermediate	W084°21'47.467"	N033°31'12.973"	07/26/06	2-IN.	PVC	FM	47.0 - 57.0	10	n/a	57	7/24/2013	895.02	895.26	838.26
MW-8C	TSC	Bedrock	W084°21'47.393"	N033°31'13.007"	04/10/08	2-IN.	PVC	FM	71.0 - 85.0	14	63	94	7/24/2013	895.04	895.27	837.27
MW-9A	TSC	Shallow	W084°21'46.332"	N033°31'10.621"	07/25/06	2-IN.	PVC	FM	20.0 - 30.0	10	n/a	32.5	7/24/2013	891.65	892.20	-
MW-9B	TSC	Intermediate	W084°21'46.369"	N033°31'10.619"	07/25/06	2-IN.	PVC	FM	52.0 - 62.0	10	n/a	62	7/24/2013	892.08	892.20	830.20
MW-9C	TSC	Bedrock	W084°21'46.255"	N033°31'10.639"	04/10/08	2-IN.	PVC	FM	85.0 - 100.0	15	81	109	7/24/2013	891.92	892.10	816.10
MW-10A	TSC	Shallow	W084°21'45.933"	N033°31'13.219"	02/19/08	2-IN.	PVC	FM	27.0 - 37.0	10	n/a	37	11/12/2014	896.76	897.09	-
MW-10B	TSC	Intermediate	W084°21'45.937"	N033°31'13.168"	02/19/08	2-IN.	PVC	FM	40.0 - 50.0	10	n/a	50	11/12/2014	896.55	896.95	-
MW-10C	TSC	Bedrock	W084°21'46.007"	N033°31'13.197"	04/10/08	2-IN.	PVC	FM	75.0 - 90.0	15	65	96	11/12/2014	896.65	896.99	832.99
MW-11A	L6 Clay	Shallow	W084°21'46.699"	N033°31'12.045"	02/20/08	2-IN.	PVC	FM	20.0 - 30.0	10	n/a	30	11/12/2014	893.90	894.24	-
MW-11B	L6 Clay	Intermediate	W084°21'46.685"	N033°31'12.016"	02/20/08	2-IN.	PVC	FM	46.0 - 56.0	10	n/a	57	11/12/2014	893.79	894.18	837.18
MW-11C	L6 Clay	Bedrock	W084°21'46.697"	N033°31'12.105"	04/10/08	2-IN.	PVC	FM	73.0 - 88.0	15	62	90.5	11/12/2014	894.06	894.41	837.41
MW-12A	TSC	Shallow	W084°21'45.293"	N033°31'10.615"	02/20/08	2-IN.	PVC	FM	20.0 - 30.0	10	n/a	30	7/24/2013	891.28	891.30	-
MW-13A	Prax Air	Shallow	W084°21'46.234"	N033°31'08.243"	03/27/08	2-IN.	PVC	FM	14.0 - 24.0	10	n/a	24	7/24/2013	881.08	881.35	-
MW-13B	Prax Air	Intermediate	W084°21'46.219"	N033°31'08.205"	03/27/08	2-IN.	PVC	FM	62.0 - 72.0	10	n/a	72	7/24/2013	881.09	881.30	809.30
MW-13C	Prax Air	Bedrock	W084°21'46.298"	N033°31'08.172"	10/15/08	2-IN.	PVC	FM	78.0 - 89.0	11	75	105	7/24/2013	881.16	881.36	810.36
MW-14A	TSC	Shallow	W084°21'43.295"	N033°31'15.361"	02/20/08	2-IN.	PVC	FM	25.0 - 35.0	10	n/a	35	7/24/2013	899.70	899.86	-
MW-15A	ROW	Shallow	W084°21-49.670"	N033°31'10.678"	09/18/08	2-IN.	PVC	FM	27.5 - 37.5	10	n/a	37.5	7/24/2013	888.05	888.30	-
MW-15B	ROW	Intermediate	W084°21-49.670"	N033°31'10.650"	09/19/08	2-IN.	PVC	FM	38.5 - 48.5	10	n/a	49	7/24/2013	888.09	888.30	839.30
MW-15C	H&F	Bedrock	W084°21'50.132"	N033°31'12.345"	06/11/15	2-IN.	PVC	FM	59.5 - 69.5	10	53	71	7/16/2015	890.47	890.73	842.73
MW-16A	ROW	Shallow	W084°21-50.051"	N033°31'08.670"	09/18/08	2-IN.	PVC	FM	22.0 - 32.0	10	n/a	32.5	7/24/2013	879.48	879.90	-
MW-16B	ROW	Intermediate	W084°21-50.055"	N033°31'08.648"	09/19/08	2-IN.	PVC	FM	34.0 - 44.0	10	n/a	44	7/24/2013	879.65	879.90	835.90
MW-16C	ROW	Bedrock	W084°21'50.116"	N033°31'08.668"	10/14/08	2-IN.	PVC	FM	58.0 - 68.0	10	44.5	74.5	7/24/2013	878.84	878.97	837.97
MW-17A	L6 Clay	Shallow	W084°21'46.525"	N033°31'12.035"	03/30/11	2-IN.	PVC	FM	20.0 - 30.0	10	na	30	7/16/2015	893.98	894.33	-
MW-18A	Al Karim	Shallow	W084°21'46.492"	N033°31'09.446"	11/27/12	2-IN.	PVC	FM	20.0 - 30.0	10	na	30	7/24/2013	888.29	888.63	-
MW-18B	Al Karim	Intermediate	W084°21'46.582"	N033°31'09.447"	11/27/12	2-IN.	PVC	FM	47.0 - 57.0	10	na	57	7/24/2013	888.23	888.60	-
MW-19A	FRSC	Shallow	W084°21-51.091"	N033°31'07.039"	12/05/12	2-IN.	PVC	FM	25.0 - 35.0	10	na	35	7/24/2013	879.94	880.10	-
MW-19B	FRSC	Intermediate	W084°21'50.971"	N033°31'06.994"	12/05/12	2-IN.	PVC	FM	50.0 - 60.0	10	na	60	7/24/2013	880.17	880.32	814.32
MW-19C	FRSC	Bedrock**	W084°21-51.035"	N033°31'07.019"	12/04/12	2-IN.	PVC	FM	75.0 - 85.0	10	na	85	7/24/2013	880.01	880.21	795.21
MW-19D	FRSC	Bedrock	W084°21'51.058"	N033°31'06.959"	09/02/14	2-IN.	PVC	FM	95.5 - 105.5	10	85	106	11/12/2014	880.08	880.35	814.35
MW-20C	FRSC	Bedrock	W084°21'54.294"	N033°31'09.877"	12/04/12	2-IN.	PVC	FM	35.0 - 45.0	10	n/a	45.5	7/24/2013	875.44	875.75	875.75
MW-21B	FRSC	Intermediate	W084°21'55.671"	N033°31'06.215"	08/29/14	2-IN.	PVC	FM	29.5 - 39.5	10	n/a	40	11/12/2014	871.40	871.74	825.74
MW-21C	FRSC	Bedrock	W084°21'55.674"	N033°31'06.160"	08/29/14	2-IN.	PVC	FM	64.5 - 74.5	10	46.75	75	11/12/2014	871.41	871.76	825.76
MW-22A	ADC	Shallow	W084°21'44.189"	N033°31'06.286"	09/03/14	2-IN.	PVC	FM	20.0 - 30.0	10	n/a	31	11/12/2014	883.00	883.54	-
MW-22B	ADC	Intermediate	W084°21'44.124"	N033°31'06.283"	09/03/14	2-IN.	PVC	FM	67.0 - 77.0	10	n/a	82	11/12/2014	883.29	883.61	806.11
MW-23A	Santos	Shallow	W084°21'43.454"	N033°31'10.767"	06/13/15	2-IN.	PVC	FM	10.0 - 20.0	10	n/a	20	7/16/2015	888.10	888.29	-
MW-23B	Santos	Intermediate	W084°21'43.444"	N033°31'10.841"	06/13/15	2-IN.	PVC	FM	59.5 - 69.5	10	n/a	70	7/16/2015	888.23	888.52	819.52
MW-24C	H&F	Bedrock	W084°21'53.946"	N033°31'12.542"	06/10/15	2-IN.	PVC	FM	33.5 - 43.5	10	n/a	44	7/16/2015	884.57	884.57	849.57
STREAM GAUGE (SG)	SG-1		W084°21'54.032"	N033°31'11.186"	7/24/2013	1-IN	STEEL	n/a	n/a n/a	n/a	n/a	n/a	7/24/2013	854.74	*851.39*	n/a

Table 1 - Monitoring Well Construction Details
Tara Shopping Center, 8564 Tara Blvd, Jonesboro, GA

Notes:
(in.) or IN = Inch
(ft. bgs) = feet below ground surface
(ft) = feet
(ft. above MSL) = feet above mean sea level
FM = Flush Mount
n/a = not applicable
** MW-19C - Identified a bedrock monitoring well during MW-19D well drilling/installation in August 2014.

Location Notes:

TSC	Tara Shopping Center (8564 Tara Shopping Center)
Prax Air	Nexair (formerly Prax Air) 8660 Tara Blvd
Citgo	Gas Station 8664 Tara Blvd
L6 Clay	Former USA Pay Day 8596 Tara Blvd (VACANT)
ROW	County Right of Way
H&F	Former Hoops and Fitness 8557 Tara Blvd
Al Karim	Pawn Shop (Former Dunkin Donuts) 8650 Tara Blvd
FRSC	Flint River Shopping Center 8639 Tara Blvd
ADC	What A Day Adult Day Care 177 College Street
Santos	Private Residence (Vacant) 117 Fayetteville Road

Table 2 - Summary of Groundwater Analytical Data (May 2011, May 2013, July 2015)
Tara Shopping Center, 8564 Tara Blvd., Jonesboro, GA

Sample ID	Type 1 Risk Reduction Standards	MW-1A	MW-1C	MW-1C	MW-1C	MW-2B	MW-2B	MW-2C	MW-2C	MW-3A	MW-3A	MW-3A	MW-3B	MW-3B
Lab Sample Number		**680-114152-5**	**680-68585-8**	**680-90099-1**	**680-114152-6**	**680-68710-1**	**680-90177-1**	**680-68710-2**	**680-90099-2**	**680-68585-3**	**680-90177-2**	**680-114236-10**	**680-68585-2**	**680-90177-3**
Sampling Date		**07/01/15**	**5/18/2011**	**05/07/13**	**07/01/15**	**5/23/2011**	**05/08/13**	**5/23/2011**	**05/07/13**	**5/17/2011**	**05/08/13**	**07/02/15**	**5/17/2011**	**05/08/13**
Matrix		**Water**	**Water**	**Water**	**Water**	**Water**	**Water**	**Water**	**Water**	**Water**	**Water**	**Water**	**Water**	**Water**
Dilution Factor		**1**	**1**	**1**	**1**	**1**	**10**	**1**	**1**	**1**	**1**	**1**	**1**	**1**
Units		**ug/L**	**ug/L**	**ug/L**	**ug/L**	**ug/L**	**ug/L**	**ug/L**	**ug/L**	**ug/L**	**ug/L**	**ug/L**	**ug/L**	**ug/L**
GC/MS VOA - 8260B		**Low**	**Low**	**Low**	**Low**	**Low**	**Low**	**Low**	**Low**	**Low**	**Low**	**Low**	**Low**	**Low**
VOC Constituents of Concern														
Tetrachloroethene	5	11	1 U	4	1 U	88	790	3.2	45	42	49	11	1 U	1 U
Trichloroethene	5	1 U	1 U	1 U	1 U	11	41	1 U	3.1	1 U	1 U	1 U	1 U	1 U
cis-1,2-Dichloroethene	70	1 U	1 U	1 U	1 U	26	39	1 U	5.6	1 U	1 U	1 U	1 U	1 U
Vinyl chloride	2	1 U	1 U	1 U	1 U	1 U	10 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Other VOC Detections														
1,1-Dichloroethene	7	1 U	1 U	1 U	1 U	1 U	10 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
1,2-Dichloroethane	5	1 U	1 U	1 U	1 U	1 U	10 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
1,2-Dichloropropane	5	1 U	1 U	1 U	1 U	1 U	10 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
2-Butanone (MEK)	200	10 U	10 U	10 U	10 U	10 U	100 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Acetone	400	10 U	25 U	25 U	10 U	25 U	250 U	25 U	25 U	25 U	25 U	10 U	25 U	25 U
Benzene	5	1 U	1 U	1 U	1 U	1 U	10 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Bromoform	80	1 U	1 U	1 U	1 U	1 U	10 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Carbon disulfide	400	2 U	2 U	2 U	2 U	2 U	20 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
Chlorobenzene	100	1 U	1 U	1 U	1 U	1 U	10 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Chloroform	80	1 U	1 U	1 U	1 U	1 U	10 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Dichlorobromomethane	80	1 U	1 U	1 U	1 U	1 U	10 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Ethylbenzene	700	1 U	1 U	1 U	1 U	1 U	10 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Styrene	100	1 U	1 U	1 U	1 U	1 U	10 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Toluene	1,000	1 U	1 U	1 U	1 U	1 U	10 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
trans-1,2-Dichloroethene	100	1 U	1 U	1 U	1 U	1 U	10 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Xylenes, Total	10,000	<1.0 U	2 U	2 U	1 U	2 U	20 U	2 U	2 U	2 U	2 U	<1.0 U	2 U	2 U
Other VOC Compounds														
1,1,1-Trichloroethane	200	1 U	1 U	1 U	1 U	1 U	10 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
1,1,2,2-Tetrachloroethane	0.2	1 U	1 U	1 U	1 U	1 U	10 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
1,1,2-Trichloroethane	5	1 U	1 U	1 U	1 U	1 U	10 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
1,1-Dichloroethane	400	1 U	1 U	1 U	1 U	1 U	10 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
2-Hexanone	NA	10 U	10 U	10 U	10 U	10 U	100 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
4-Methyl-2-pentanone (MIBK)	200	10 U	10 U	10 U	10 U	10 U	100 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Bromomethane	NA	5 U	1 U	5 U	5 U	1 U	50 U	1 U	5 U	1 U	5 U	5 U	1 U	5 U
Carbon tetrachloride	5	1 U	1 U	1 U	1 U	1 U	10 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Chlorodibromomethane	80	1 U	1 U	1 U	1 U	1 U	10 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Chloroethane	NA	5 U	1 U	5 U	5 U	1 U	50 U	1 U	5 U	1 U	5 U	5 U	1 U	5 U
Chloromethane	NA	1 U	1 U	1 U	1 U	1 U	10 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
cis-1,3-Dichloropropene	NA	1 U	1 U	1 U	1 U	1 U	10 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Methylene Chloride	3	5 U	5 U	5 U	5 U	5 U	50 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
trans-1,3-Dichloropropene	NA	1 U	1 U	1 U	1 U	1 U	10 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Total VOCs	NA	11	0	4	0	125	870	3.2	53.7	42	49	11	0	0

See last page for notes.

Table 2 - Summary of Groundwater Analytical Data (May 2011, May 2013, July 2015)
Tara Shopping Center, 8564 Tara Blvd., Jonesboro, GA

Sample ID	Type 1 Risk Reduction Standards	MW-3B	MW-4A	MW-4A	MW-4A	MW-4B	MW-4B	MW-4B	MW-5A	MW-5A	MW-5B	MW-5B	MW-5B	MW-5C	MW-5C
Lab Sample Number		680-114236-15	680-68710-8	680-90201-1	680-114236-21	680-68710-9	680-90201-2	680-114236-18	680-90201-3	680-114236-13	680-68710-12	680-90201-4	680-114574-17	680-68710-13	680-90201-5
Sampling Date		07/01/15	5/23/2011	05/09/13	07/02/15	5:40:00 PM	05/09/13	07/01/15	05/09/13	07/01/15	5/23/2011	05/09/13	07/15/15	5/23/2011	05/09/13
Matrix		Water	Water	Water	Water	Water	Water	Water	Water	Water	Water	Water	Water	Water	Water
Dilution Factor		1	1	1	1	1	1	1	1	1	20	5	1	1	1
Units		ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
GC/MS VOA - 8260B		Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low
VOC Constituents of Concern															
Tetrachloroethene	5	1 U	8.6	1.3	1.2 *	1.2	1 U	1 U	1 U	1 U	450	370	340 D	4.1	4.4
Trichloroethene	5	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	370	200	200 D	1.4	1.9
cis-1,2-Dichloroethene	70	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1600	580	570 D	28	17
Vinyl chloride	2	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	20 U	5 U	2.3	1 U	1 U
Other VOC Detections															
1,1-Dichloroethene	7	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	20 U	5 U	1 U	1 U	1 U
1,2-Dichloroethane	5	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	20 U	5 U	1 U	1 U	1 U
1,2-Dichloropropane	5	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	20 U	5 U	1 U	1 U	1 U
2-Butanone (MEK)	200	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	200 U	50 U	10 U	10 U	10 U
Acetone	400	10 U	25 U	25 U	10 U	25 U	25 U	10 U	25 U	10 U	500 U	130 U	10 U	25 U	25 U
Benzene	5	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	20 U	5 U	1	1 U	1 U
Bromoform	80	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	20 U	5 U	1 U	1 U	1 U
Carbon disulfide	400	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	40 U	10 U	2 U	2 U	2 U
Chlorobenzene	100	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	20 U	5 U	1 U	1 U	1 U
Chloroform	80	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	20 U	5 U	1 U	1 U	1 U
Dichlorobromomethane	80	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	20 U	5 U	1 U	1 U	1 U
Ethylbenzene	700	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	20 U	5 U	1 U	1 U	1 U
Styrene	100	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	20 U	5 U	1 U	1 U	1 U
Toluene	1,000	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	20 U	5 U	1 U	1 U	1 U
trans-1,2-Dichloroethene	100	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	20 U	5 U	4.6	1 U	1 U
Xylenes, Total	10,000	1 U	2 U	2 U	1 U	2 U	2 U	1 U	2 U	1 U	40 U	10 U	1 U	2 U	2 U
Other VOC Compounds															
1,1,1-Trichloroethane	200	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	20 U	5 U	1 U	1 U	1 U
1,1,2,2-Tetrachloroethane	0.2	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	20 U	5 U	1 U	1 U	1 U
1,1,2-Trichloroethane	5	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	20 U	5 U	1 U	1 U	1 U
1,1-Dichloroethane	400	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	20 U	5 U	1 U	1 U	1 U
2-Hexanone	NA	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	200 U	50 U	10 U	10 U	10 U
4-Methyl-2-pentanone (MIBK)	200	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	200 U	50 U	10 U	10 U	10 U
Bromomethane	NA	5 U	1 U	5 U	5 U	1 U	5 U	5 U	5 U	5 U	20 U	25 U	5 U	1 U	5 U
Carbon tetrachloride	5	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	20 U	5 U	1 U	1 U	1 U
Chlorodibromomethane	80	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	20 U	5 U	1 U	1 U	1 U
Chloroethane	NA	5 U	1 U	5 U	5 U	1 U	5 U	5 U	5 U	5 U	20 U	25 U	5 U	1 U	5 U
Chloromethane	NA	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	20 U	5 U	1 U	1 U	1 U
cis-1,3-Dichloropropene	NA	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	20 U	5 U	1 U	1 U	1 U
Methylene Chloride	3	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	100 U	25 U	5 U	5 U	5 U
trans-1,3-Dichloropropene	NA	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	20 U	5 U	1 U	1 U	1 U
Total VOCs	NA	0	8.6	1.3	1.2	1.2	0	0	0	0	2420	1150	1112.3	33.5	23.3

See last page for notes.

Table 2 - Summary of Groundwater Analytical Data (May 2011, May 2013, July 2015)
Tara Shopping Center, 8564 Tara Blvd., Jonesboro, GA

Sample ID	Type 1 Risk Reduction Standards	MW-5C	MW-6A	MW-6B	MW-7B	MW-7B	MW-7B	MW-7C	MW-7C	MW-7C	MW-8A	MW-8A	MW-8A
Lab Sample Number		680-114574-1	680-114152-7	680-114152-3	680-68585-17	680-90177-4	680-114236-16	680-68585-18	680-90177-5	680-114236-14	680-68585-11	680-90099-3	680-114574-2
Sampling Date		07/14/15	06/30/15	06/30/15	5/19/2011	05/08/13	07/01/15	5/19/2011	05/08/13	07/01/15	5/18/2011	05/07/13	07/14/15
Matrix		Water	Water	Water	Water	Water	Water	Water	Water	Water	Water	Water	Water
Dilution Factor		1	1	1	1	1	1	1	1	1	10	1	1
Units		ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
GC/MS VOA - 8260B		Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low
VOC Constituents of Concern													
Tetrachloroethene	5	2.9	1 U	1 U	8.5	5.3	5.4	1 U	3.6	1 U	630	140	96
Trichloroethene	5	2	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	17	9.2	1 U
cis-1,2-Dichloroethene	70	1.6	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	10 U	2.8	1 U
Vinyl chloride	2	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	10 U	1 U	1 U
Other VOC Detections													
1,1-Dichloroethene	7	<1.0 U	<1.0 U	<1.0 U	1 U	1 U	1 U	1 U	1 U	<1.0 U	10 U	1 U	<1.0 U
1,2-Dichloroethane	5	<1.0 U	<1.0 U	<1.0 U	1 U	1 U	1 U	1 U	1 U	<1.0 U	10 U	1 U	<1.0 U
1,2-Dichloropropane	5	<1.0 U	<1.0 U	<1.0 U	1 U	1 U	1 U	1 U	1 U	<1.0 U	10 U	1 U	<1.0 U
2-Butanone (MEK)	200	<10 U	<10 U	<10 U	10 U	10 U	10 U	10 U	10 U	<10 U	100 U	10 U	<10 U
Acetone	400	<10 U	<10 U	<10 U	25 U	25 U	10 U	25 U	25 U	<10 U	250 U	25 U	<10 U
Benzene	5	<1.0 U	<1.0 U	<1.0 U	1 U	1 U	1 U	1 U	1 U	<1.0 U	10 U	1 U	<1.0 U
Bromoform	80	<1.0 U	<1.0 U	<1.0 U	1 U	1 U	1 U	1 U	1 U	<1.0 U	10 U	1 U	<1.0 U
Carbon disulfide	400	<2.0 U	<2.0 U	<2.0 U	2 U	2 U	2 U	2 U	2 U	<2.0 U	20 U	2 U	<2.0 U
Chlorobenzene	100	<1.0 U	<1.0 U	<1.0 U	1 U	1 U	1 U	1 U	1 U	<1.0 U	10 U	1 U	<1.0 U
Chloroform	80	<1.0 U	<1.0 U	<1.0 U	1 U	1 U	1 U	1 U	1 U	<1.0 U	10 U	1.3	4.4
Dichlorobromomethane	80	<1.0 U	<1.0 U	<1.0 U	1 U	1 U	1 U	1 U	1 U	<1.0 U	10 U	1 U	<1.0 U
Ethylbenzene	700	<1.0 U	<1.0 U	<1.0 U	1 U	1 U	1 U	1 U	1 U	<1.0 U	10 U	1 U	<1.0 U
Styrene	100	<1.0 U	<1.0 U	<1.0 U	1 U	1 U	1 U	1 U	1 U	<1.0 U	10 U	1 U	<1.0 U
Toluene	1,000	<1.0 U	<1.0 U	<1.0 U	1 U	1 U	1 U	1 U	1 U	<1.0 U	10 U	1 U	<1.0 U
trans-1,2-Dichloroethene	100	<1.0 U	<1.0 U	<1.0 U	1 U	1 U	1 U	1 U	1 U	<1.0 U	10 U	1 U	<1.0 U
Xylenes, Total	10,000	<1.0 U	<1.0 U	<1.0 U	2 U	2 U	1 U	2 U	2 U	<1.0 U	20 U	2 U	<1.0 U
Other VOC Compounds													
1,1,1-Trichloroethane	200	<1.0 U	<1.0 U	<1.0 U	1 U	1 U	1 U	1 U	1 U	<1.0 U	10 U	1 U	<1.0 U
1,1,2,2-Tetrachloroethane	0.2	<1.0 U	<1.0 U	<1.0 U	1 U	1 U	1 U	1 U	1 U	<1.0 U	10 U	1 U	<1.0 U
1,1,2-Trichloroethane	5	<1.0 U	<1.0 U	<1.0 U	1 U	1 U	1 U	1 U	1 U	<1.0 U	10 U	1 U	<1.0 U
1,1-Dichloroethane	400	<1.0 U	<1.0 U	<1.0 U	1 U	1 U	1 U	1 U	1 U	<1.0 U	10 U	1 U	<1.0 U
2-Hexanone	NA	<10 U	<10 U	<10 U	10 U	10 U	10 U	10 U	10 U	<10 U	100 U	10 U	<10 U
4-Methyl-2-pentanone (MIBK)	200	<10 U	<10 U	<10 U	10 U	10 U	10 U	10 U	10 U	<10 U	100 U	10 U	<10 U
Bromomethane	NA	<5.0 U	<5.0 U	<5.0 U	1 U	5 U	5 U	1 U	5 U	<5.0 U	10 U	5 U	<5.0 U
Carbon tetrachloride	5	<1.0 U	<1.0 U	<1.0 U	1 U	1 U	1 U	1 U	1 U	<1.0 U	10 U	1 U	<1.0 U
Chlorodibromomethane	80	<1.0 U	<1.0 U	<1.0 U	1 U	1 U	1 U	1 U	1 U	<1.0 U	10 U	1 U	<1.0 U
Chloroethane	NA	<5.0 U	<5.0 U	<5.0 U	1 U	5 U	5 U	1 U	5 U	<5.0 U	10 U	5 U	<5.0 U
Chloromethane	NA	<1.0 U	<1.0 U	<1.0 U	1 U	1 U	1 U	1 U	1 U	<1.0 U	10 U	1 U	<1.0 U
cis-1,3-Dichloropropene	NA	<1.0 U	<1.0 U	<1.0 U	1 U	1 U	1 U	1 U	1 U	<1.0 U	10 U	1 U	<1.0 U
Methylene Chloride	3	<5.0 U	<5.0 U	<5.0 U	5 U	5 U	5 U	5 U	5 U	<5.0 U	50 U	5 U	<5.0 U
trans-1,3-Dichloropropene	NA	<1.0 U	<1.0 U	<1.0 U	1 U	1 U	1 U	1 U	1 U	<1.0 U	10 U	1 U	<1.0 U
Total VOCs	NA	6.5	0	0	8.5	5.3	5.4	0	3.6	0	647	153.3	100.4

See last page for notes.

Table 2 - Summary of Groundwater Analytical Data (May 2011, May 2013, July 2015)
Tara Shopping Center, 8564 Tara Blvd., Jonesboro, GA

Sample ID	Type 1 Risk Reduction Standards	MW-8B	MW-8B	MW-8B	MW-8C	MW-8C	MW-8C	MW-9A	MW-9A	MW-9A	MW-9B	MW-9B	MW-9B	MW-9C
Lab Sample Number		680-68585-9	680-90177-6	680-114574-7	680-68585-10	680-90099-4	680-114236-3	680-68585-6	680-90201-6	680-114574-8	680-68585-5	680-90177-7	680-114236-20	680-68585-7
Sampling Date		5/18/2011	05/08/13	07/14/15	5/18/2011	05/07/13	07/02/15	5/18/2011	05/09/13	07/14/15	5/18/2011	05/08/13	07/02/15	5/18/2011
Matrix		Water	Water	Water	Water	Water	Water	Water	Water	Water	Water	Water	Water	Water
Dilution Factor		2	1	2	1	1	1	10	2	1	1	1	1	1
Units		ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
GC/MS VOA - 8260B		Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low
VOC Constituents of Concern														
Tetrachloroethene	5	170	2.8	7.7	1 U	6.8	1 U	790	230	310 D	1 U	1 U	1 U	1 U
Trichloroethene	5	2 U	1 U	2 U	1 U	1 U	1 U	48	29	180	1 U	1 U	1 U	1 U
cis-1,2-Dichloroethene	70	2 U	1 U	2 U	1 U	1 U	1 U	10 U	4.7	7.9	1 U	1 U	1 U	1 U
Vinyl chloride	2	2 U	1 U	2 U	1 U	1 U	1 U	10 U	2 U	1 U	1 U	1 U	1 U	1 U
Other VOC Detections														
1,1-Dichloroethene	7	2 U	1 U	<2.0 U	1 U	1 U	<1.0 U	10 U	2 U	1 U	1 U	1 U	<1.0 U	1 U
1,2-Dichloroethane	5	2 U	1 U	<2.0 U	1 U	1 U	<1.0 U	10 U	2 U	1 U	1 U	1 U	<1.0 U	1 U
1,2-Dichloropropane	5	2 U	1 U	<2.0 U	1 U	1 U	<1.0 U	10 U	2 U	1 U	1 U	1 U	<1.0 U	1 U
2-Butanone (MEK)	200	20 U	10 U	<20 U	10 U	10 U	96	100 U	20 U	10 U	10 U	10 U	<10 U	10 U
Acetone	400	50 U	25 U	38	25 U	25 U	77	250 U	50 U	12	25 U	25 U	<10 U	25 U
Benzene	5	2 U	1 U	<2.0 U	1 U	1 U	<1.0 U	10 U	2 U	1 U	1 U	1 U	<1.0 U	1 U
Bromoform	80	2 U	1 U	<2.0 U	1 U	1 U	<1.0 U	10 U	2 U	1 U	1 U	1 U	<1.0 U	1 U
Carbon disulfide	400	4 U	2 U	<4.0 U	2 U	2 U	<2.0 U	20 U	4 U	2 U	2 U	2 U	<2.0 U	2 U
Chlorobenzene	100	2 U	1 U	<2.0 U	1 U	1 U	<1.0 U	10 U	2 U	1 U	1 U	1 U	<1.0 U	1 U
Chloroform	80	2 U	1.3	<2.0 U	1 U	1 U	<1.0 U	10 U	2 U	1 U	1 U	1 U	<1.0 U	4.9
Dichlorobromomethane	80	2 U	1 U	<2.0 U	1 U	1 U	<1.0 U	10 U	2 U	1 U	1 U	1 U	<1.0 U	1 U
Ethylbenzene	700	2 U	1 U	<2.0 U	1 U	1 U	<1.0 U	10 U	2 U	1 U	1 U	1 U	<1.0 U	1 U
Styrene	100	2 U	1 U	<2.0 U	1 U	1 U	<1.0 U	10 U	2 U	1 U	1 U	1 U	<1.0 U	1 U
Toluene	1,000	2 U	1 U	<2.0 U	1 U	1 U	<1.0 U	10 U	2 U	1 U	1 U	1 U	<1.0 U	1.5
trans-1,2-Dichloroethene	100	2 U	1 U	<2.0 U	1 U	1 U	<1.0 U	10 U	4.2	7.3	1 U	1 U	<1.0 U	1 U
Xylenes, Total	10,000	4 U	2 U	<2.0 U	2 U	2 U	<1.0 U	20 U	4 U	1 U	2 U	2 U	<1.0 U	2 U
Other VOC Compounds														
1,1,1-Trichloroethane	200	2 U	1 U	<2.0 U	1 U	1 U	<1.0 U	10 U	2 U	1 U	1 U	1 U	<1.0 U	1 U
1,1,2,2-Tetrachloroethane	0.2	2 U	1 U	<2.0 U	1 U	1 U	<1.0 U	10 U	2 U	1 U	1 U	1 U	<1.0 U	1 U
1,1,2-Trichloroethane	5	2 U	1 U	<2.0 U	1 U	1 U	<1.0 U	10 U	2 U	1 U	1 U	1 U	<1.0 U	1 U
1,1-Dichloroethane	400	2 U	1 U	<2.0 U	1 U	1 U	<1.0 U	10 U	2 U	1 U	1 U	1 U	<1.0 U	1 U
2-Hexanone	NA	20 U	10 U	<20 U	10 U	10 U	<10 U	100 U	20 U	10 U	10 U	10 U	<10 U	10 U
4-Methyl-2-pentanone (MIBK)	200	20 U	10 U	<20 U	10 U	10 U	<10 U	100 U	20 U	10 U	10 U	10 U	<10 U	10 U
Bromomethane	NA	2 U	5 U	<10 U	1 U	5 U	<5.0 U	10 U	10 U	5 U	1 U	5 U	<5.0 U	1 U
Carbon tetrachloride	5	2 U	1 U	<2.0 U	1 U	1 U	<1.0 U	10 U	2 U	1 U	1 U	1 U	<1.0 U	1 U
Chlorodibromomethane	80	2 U	1 U	<2.0 U	1 U	1 U	<1.0 U	10 U	2 U	1 U	1 U	1 U	<1.0 U	1 U
Chloroethane	NA	2 U	5 U	<10 U	1 U	5 U	<5.0 U	10 U	10 U	5 U	1 U	5 U	<5.0 U	1 U
Chloromethane	NA	2 U	1 U	<2.0 U	1 U	1 U	<1.0 U	10 U	2 U	1 U	1 U	1 U	<1.0 U	1 U
cis-1,3-Dichloropropene	NA	2 U	1 U	<2.0 U	1 U	1 U	<1.0 U	10 U	2 U	1 U	1 U	1 U	<1.0 U	1 U
Methylene Chloride	3	10 U	5 U	<10 U	5 U	5 U	<5.0 U	50 U	10 U	5 U	5 U	5 U	<5.0 U	5 U
trans-1,3-Dichloropropene	NA	2 U	1 U	<2.0 U	1 U	1 U	<1.0 U	10 U	2 U	1 U	1 U	1 U	<1.0 U	1 U
Total VOCs	NA	170	4.1	45.7	0	6.8	173	838	267.9	517.2	0	0	0	6.4

See last page for notes.

Table 2 - Summary of Groundwater Analytical Data (May 2011, May 2013, July 2015)
Tara Shopping Center, 8564 Tara Blvd., Jonesboro, GA

Sample ID	Type 1 Risk Reduction Standards	MW-9C	MW-9C	MW-10A	MW-10A	MA10B	MW-10A	MW-10B	MW-10B	MW-10C	MW-10C	MW-10C	MW-11A	MW-11A	MW-11B
Lab Sample Number		680-90177-8	680-114236-19	680-68585-13	680-90201-7	680-68585-12	680-114574-4	680-90177-9	680-114236-9	680-68585-14	680-90177-10	680-114236-8	680-90201-8	680-114593-1	680-90201-9
Sampling Date		05/08/13 7/01/2015 17:42:00		5/19/2011	05/09/13	5/19/2011	07/14/15	05/08/13	07/02/15	5/19/2011	05/08/13	07/02/15	05/09/13	07/16/15	05/09/13
Matrix		Water	Water	Water	Water	Water	Water	Water	Water	Water	Water	Water	Water	Water	Water
Dilution Factor		1	1	5	2	1	1	1	1	1	1	1	10	2	1
Units		ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
GC/MS VOA - 8260B		Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low
VOC Constituents of Concern															
Tetrachloroethene	5	1 U	1 U	380	270	1.2	220 D	7.7	1 U	1.1	20	3.4	1200	2.7	1 U
Trichloroethene	5	1 U	1 U	64	27	1 U	37	1 U	1 U	1 U	1 U	1 U	28	2 U	1 U
cis-1,2-Dichloroethene	70	1 U	1 U	42	10	1 U	21	1 U	1 U	1 U	1 U	1 U	19	2 U	1 U
Vinyl chloride	2	1 U	1 U	5 U	2 U	1 U	<1.0 U	1 U	1 U	1 U	1 U	1 U	10 U	2 U	1 U
Other VOC Detections															
1,1-Dichloroethene	7	1 U	<1.0 U	5 U	2 U	1 U	<1.0 U	1 U	<1.0 U	1 U	1 U	<1.0 U	10 U	<2.0 U	1 U
1,2-Dichloroethane	5	1 U	<1.0 U	5 U	2 U	1 U	<1.0 U	1 U	<1.0 U	1 U	1 U	<1.0 U	10 U	<2.0 U	1 U
1,2-Dichloropropane	5	1 U	<1.0 U	5 U	2 U	1 U	<1.0 U	1 U	<1.0 U	1 U	1 U	<1.0 U	10 U	<2.0 U	1 U
2-Butanone (MEK)	200	10 U	<10 U	50 U	20 U	10 U	<10 U	10 U	<10 U	10 U	10 U	<10 U	100 U	<20 U	10 U
Acetone	400	25 U	<10 U	120 U	50 U	25 U	<10 U	25 U	16	25 U	25 U	12	250 U	<20 U	25 U
Benzene	5	1 U	<1.0 U	5 U	2 U	1 U	<1.0 U	1 U	<1.0 U	1 U	1 U	<1.0 U	10 U	<2.0 U	1 U
Bromoform	80	1 U	<1.0 U	5 U	2 U	1 U	<1.0 U	1 U	<1.0 U	1 U	1 U	<1.0 U	10 U	<2.0 U	1 U
Carbon disulfide	400	2 U	<2.0 U	10 U	4 U	2 U	<2.0 U	2 U	<2.0 U	2 U	2 U	<2.0 U	20 U	<4.0 U	2 U
Chlorobenzene	100	1 U	<1.0 U	5 U	2 U	1 U	<1.0 U	1 U	<1.0 U	1 U	1 U	<1.0 U	10 U	<2.0 U	2.2
Chloroform	80	3.6	<1.0 U	9.2	9.7	1 U	4.9	1	<1.0 U	1 U	1 U	<1.0 U	10 U	<2.0 U	1 U
Dichlorobromomethane	80	1 U	<1.0 U	5 U	2 U	1 U	<1.0 U	1 U	<1.0 U	1 U	1 U	<1.0 U	10 U	<2.0 U	1 U
Ethylbenzene	700	1 U	<1.0 U	5 U	2 U	1 U	<1.0 U	1 U	<1.0 U	1 U	1 U	<1.0 U	10 U	<2.0 U	1 U
Styrene	100	1 U	<1.0 U	5 U	2 U	1 U	<1.0 U	1 U	<1.0 U	1 U	1 U	<1.0 U	10 U	<2.0 U	1 U
Toluene	1,000	1 U	<1.0 U	5 U	2 U	1 U	<1.0 U	1 U	<1.0 U	1 U	1 U	<1.0 U	10 U	<2.0 U	1 U
trans-1,2-Dichloroethene	100	1 U	<1.0 U	5 U	2 U	1 U	<1.0 U	1 U	<1.0 U	1 U	1 U	<1.0 U	10 U	<2.0 U	1 U
Xylenes, Total	10,000	2 U	<1.0 U	10 U	4 U	2 U	<1.0 U	2 U	<1.0 U	2 U	2 U	<1.0 U	20 U	<2.0 U	2 U
Other VOC Compounds															
1,1,1-Trichloroethane	200	1 U	<1.0 U	5 U	2 U	1 U	<1.0 U	1 U	<1.0 U	1 U	1 U	<1.0 U	10 U	<2.0 U	1 U
1,1,2,2-Tetrachloroethane	0.2	1 U	<1.0 U	5 U	2 U	1 U	<1.0 U	1 U	<1.0 U	1 U	1 U	<1.0 U	10 U	<2.0 U	1 U
1,1,2-Trichloroethane	5	1 U	<1.0 U	5 U	2 U	1 U	<1.0 U	1 U	<1.0 U	1 U	1 U	<1.0 U	10 U	<2.0 U	1 U
1,1-Dichloroethane	400	1 U	<1.0 U	5 U	2 U	1 U	<1.0 U	1 U	<1.0 U	1 U	1 U	<1.0 U	10 U	<2.0 U	1 U
2-Hexanone	NA	10 U	<10 U	50 U	20 U	10 U	<10 U	10 U	<10 U	10 U	10 U	<10 U	100 U	<20 U	10 U
4-Methyl-2-pentanone (MIBK)	200	10 U	<10 U	50 U	20 U	10 U	<10 U	10 U	<10 U	10 U	10 U	<10 U	100 U	<20 U	10 U
Bromomethane	NA	5 U	<5.0 U	5 U	10 U	1 U	<5.0 U	5 U	<5.0 U	1 U	5 U	<5.0 U	50 U	<10 U	5 U
Carbon tetrachloride	5	1 U	<1.0 U	5 U	2 U	1 U	<1.0 U	1 U	<1.0 U	1 U	1 U	<1.0 U	10 U	<2.0 U	1 U
Chlorodibromomethane	80	1 U	<1.0 U	5 U	2 U	1 U	<1.0 U	1 U	<1.0 U	1 U	1 U	<1.0 U	10 U	<2.0 U	1 U
Chloroethane	NA	5 U	<5.0 U	5 U	10 U	1 U	<5.0 U	5 U	<5.0 U	1 U	5 U	<5.0 U	50 U	<10 U	5 U
Chloromethane	NA	1 U	<1.0 U	5 U	2 U	1 U	<1.0 U	1 U	<1.0 U	1 U	1 U	<1.0 U	10 U	<2.0 U	1 U
cis-1,3-Dichloropropene	NA	1 U	<1.0 U	5 U	2 U	1 U	<1.0 U	1 U	<1.0 U	1 U	1 U	<1.0 U	10 U	<2.0 U	1 U
Methylene Chloride	3	5 U	<5.0 U	25 U	10 U	5 U	<5.0 U	5 U	<5.0 U	5 U	5 U	<5.0 U	50 U	<10 U	5 U
trans-1,3-Dichloropropene	NA	1 U	<1.0 U	5 U	2 U	1 U	<1.0 U	1 U	<1.0 U	1 U	1 U	<1.0 U	10 U	<2.0 U	1 U
Total VOCs	NA	3.6	0	495.2	316.7	1.2	282.9	8.7	16	1.1	20	15.4	1247	2.7	2.2

See last page for notes.

Table 2 - Summary of Groundwater Analytical Data (May 2011, May 2013, July 2015)
Tara Shopping Center, 8564 Tara Blvd., Jonesboro, GA

Sample ID	Type 1 Risk Reduction Standards	MW-11B	MW-11C	MW-11C	MW-11C	MW-12A	MW-12A	MW-12A	MW-13A	MW-13A	MW-13A	MW-13B	MW-13B	MW-13C	MW-13C
Lab Sample Number		680-114236-1	680-68585-1	680-90201-10	680-114236-2	680-68585-4	680-90201-11	680-114236-7	680-68710-5	680-90201-12	680-114574-16	680-90177-11	680-114574-5	680-68710-7	680-90177-12
Sampling Date		07/02/15	5/17/2011	05/09/13	07/02/15	5/17/2011	05/09/13	07/02/15	5/23/2011	05/09/13	07/15/15	05/08/13	07/14/15	5/23/2011	05/08/13
Matrix		Water	Water	Water	Water	Water	Water	Water	Water	Water	Water	Water	Water	Water	Water
Dilution Factor		2	1	1	1	1	1	1	25	1	1	1	1	1	1
Units		ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
GC/MS VOA - 8260B		Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low
VOC Constituents of Concern															
Tetrachloroethene	5	2 U	1 U	1.7	1 U	18	3.9	5.7	1200	17	750 D	27	290 D	39	21
Trichloroethene	5	2 U	1 U	1 U	1 U	1 U	1 U	1 U	800	29	730 D	4.1	130	8.1	2.6
cis-1,2-Dichloroethene	70	2 U	1 U	1 U	1 U	1 U	1 U	1 U	2300	120	2000 D	16	130	62	9
Vinyl chloride	2	2 U	1 U	1 U	1 U	1 U	1 U	1 U	71	9.2	180	1 U	1.9	1 U	1 U
Other VOC Detections															
1,1-Dichloroethene	7	<2.0 U	1 U	1 U	1 U	1 U	1 U	<1.0 U	25 U	1 U	3.4	1 U	<1.0 U	1 U	1 U
1,2-Dichloroethane	5	<2.0 U	1 U	1 U	1 U	1 U	1 U	<1.0 U	25 U	1 U	<1.0 U	1 U	<1.0 U	1 U	1 U
1,2-Dichloropropane	5	<2.0 U	1 U	1 U	1 U	1 U	1 U	<1.0 U	25 U	1 U	<1.0 U	1 U	<1.0 U	1 U	1 U
2-Butanone (MEK)	200	<20 U	10 U	10 U	10 U	10 U	10 U	<10 U	250 U	10 U	<10 U	10 U	<10 U	10 U	10 U
Acetone	400	28	25 U	25 U	10 U	25 U	25 U	<10 U	620 U	25 U	25	25 U	<10 U	25 U	25 U
Benzene	5	<2.0 U	1 U	1 U	1 U	1 U	1 U	<1.0 U	32	33	17	1 U	<1.0 U	1 U	1 U
Bromoform	80	<2.0 U	1 U	1 U	1 U	1 U	1 U	<1.0 U	25 U	1 U	<1.0 U	1 U	<1.0 U	1 U	1 U
Carbon disulfide	400	<4.0 U	2 U	2 U	2 U	2 U	2 U	<2.0 U	50 U	2 U	<2.0 U	2 U	<2.0 U	2 U	2 U
Chlorobenzene	100	<2.0 U	1 U	1 U	1 U	1 U	1 U	<1.0 U	25 U	1 U	<1.0 U	1 U	<1.0 U	1 U	1 U
Chloroform	80	<2.0 U	1 U	1 U	1 U	1 U	1 U	<1.0 U	25 U	1 U	<1.0 U	1 U	<1.0 U	1 U	1 U
Dichlorobromomethane	80	<2.0 U	1 U	1 U	1 U	1 U	1 U	<1.0 U	25 U	1 U	<1.0 U	1 U	<1.0 U	1 U	1 U
Ethylbenzene	700	<2.0 U	1 U	1 U	1 U	1 U	1 U	<1.0 U	25 U	1 U	<1.0 U	1 U	<1.0 U	1 U	1 U
Styrene	100	<2.0 U	1 U	1 U	1 U	1 U	1 U	<1.0 U	25 U	1 U	<1.0 U	1 U	<1.0 U	1 U	1 U
Toluene	1,000	<2.0 U	1 U	1 U	1 U	1 U	1 U	<1.0 U	25 U	1 U	<1.0 U	1 U	<1.0 U	1 U	1 U
trans-1,2-Dichloroethene	100	<2.0 U	1 U	1 U	1 U	1 U	1 U	<1.0 U	25 U	1 U	13	1 U	1.4	1 U	1 U
Xylenes, Total	10,000	<2.0 U	2 U	2 U	1 U	2 U	2 U	<1.0 U	50 U	2 U	<1.0 U	2 U	<1.0 U	2 U	2 U
Other VOC Compounds															
1,1,1-Trichloroethane	200	<2.0 U	1 U	1 U	1 U	1 U	1 U	<1.0 U	25 U	1 U	<1.0 U	1 U	<1.0 U	1 U	1 U
1,1,2,2-Tetrachloroethane	0.2	<2.0 U	1 U	1 U	1 U	1 U	1 U	<1.0 U	25 U	1 U	<1.0 U	1 U	<1.0 U	1 U	1 U
1,1,2-Trichloroethane	5	<2.0 U	1 U	1 U	1 U	1 U	1 U	<1.0 U	25 U	1 U	<1.0 U	1 U	<1.0 U	1 U	1 U
1,1-Dichloroethane	400	<2.0 U	1 U	1 U	1 U	1 U	1 U	<1.0 U	25 U	1 U	<1.0 U	1 U	<1.0 U	1 U	1 U
2-Hexanone	NA	<20 U	10 U	10 U	10 U	10 U	10 U	<10 U	250 U	10 U	<10 U	10 U	<10 U	10 U	10 U
4-Methyl-2-pentanone (MIBK)	200	<20 U	10 U	10 U	10 U	10 U	10 U	<10 U	250 U	10 U	<10 U	10 U	<10 U	10 U	10 U
Bromomethane	NA	<10 U	1 U	5 U	5 U	1 U	5 U	<5.0 U	25 U	5 U	<5.0 U	5 U	<5.0 U	1 U	5 U
Carbon tetrachloride	5	<2.0 U	1 U	1 U	1 U	1 U	1 U	<1.0 U	25 U	1 U	<1.0 U	1 U	<1.0 U	1 U	1 U
Chlorodibromomethane	80	<2.0 U	1 U	1 U	1 U	1 U	1 U	<1.0 U	25 U	1 U	<1.0 U	1 U	<1.0 U	1 U	1 U
Chloroethane	NA	<10 U	1 U	5 U	5 U	1 U	5 U	<5.0 U	25 U	5 U	<5.0 U	5 U	<5.0 U	1 U	5 U
Chloromethane	NA	<2.0 U	1 U	1 U	1 U	1 U	1 U	<1.0 U	25 U	1 U	<1.0 U	1 U	<1.0 U	1 U	1 U
cis-1,3-Dichloropropene	NA	<2.0 U	1 U	1 U	1 U	1 U	1 U	<1.0 U	25 U	1 U	<1.0 U	1 U	<1.0 U	1 U	1 U
Methylene Chloride	3	<10 U	5 U	5 U	5 U	5 U	5 U	<5.0 U	120 U	5 U	<5.0 U	5 U	<5.0 U	5 U	5 U
trans-1,3-Dichloropropene	NA	<2.0 U	1 U	1 U	1 U	1 U	1 U	<1.0 U	25 U	1 U	<1.0 U	1 U	<1.0 U	1 U	1 U
Total VOCs	NA	28	0	1.7	0	18	3.9	5.7	4403	208.2	3718.4	47.1	551.4	109.1	32.6

See last page for notes.

Table 2 - Summary of Groundwater Analytical Data (May 2011, May 2013, July 2015)
Tara Shopping Center, 8564 Tara Blvd., Jonesboro, GA

Sample ID	Type 1 Risk Reduction Standards	MW-13C	MW-14A	MW-14A	MW-14A	MW-15A	MW-15A	MW-15A	MW-15A	MW-15B	MW-15B	MW-15B	MW-15C	MW-16A	MW-16A
Lab Sample Number		680-114574-3	680-68585-16	680-90177-13	680-114236-4	680-68627-2	680-68627-2	680-90177-14	680-114574-13	680-68627-1	680-90177-15	680-114574-14	680-114574-15	680-68710-4	680-90201-13
Sampling Date		07/14/15	5/19/2011	05/08/13	07/02/15	5/20/2011	5/20/2011	05/08/13	07/15/15	5/20/2011	05/08/13	07/15/15	07/15/15	5/23/2011	05/09/13
Matrix		Water	Water	Water	Water	Water	Water	Water	Water	Water	Water	Water	Water	Water	Water
Dilution Factor		1	1	1	1	100	5	5	2	1	1	1	1	10	5
Units		ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
GC/MS VOA - 8260B		Low	Low	Low	Low	Low	SECONDARY|Low	Low	Low	Low	Low	Low	Low	Low	Low
VOC Constituents of Concern															
Tetrachloroethene	5	7.5	5.9	7	7.7	350	370 H	460	320	98	110	72	10	930	300
Trichloroethene	5	1.2	1 U	1 U	1 U	100 U	70 H	73	87	4.5	3.4	3.1	1.9	110	43
cis-1,2-Dichloroethene	70	3.1	1 U	1 U	1 U	100 U	17 H	11	19	1.1	1 U	1 U	1 U	200	55
Vinyl chloride	2	1 U	1 U	1 U	1 U	100 U	5 U	5 U	2 U	1 U	1 U	1 U	1 U	10 U	5 U
Other VOC Detections															
1,1-Dichloroethene	7	<1.0 U	1 U	1 U	<1.0 U	100 U	5 U	5 U	<2.0 U	1 U	1 U	<1.0 U	<1.0 U	10 U	5 U
1,2-Dichloroethane	5	<1.0 U	1 U	1 U	<1.0 U	100 U	5 U	5 U	<2.0 U	1 U	1 U	<1.0 U	<1.0 U	10 U	5 U
1,2-Dichloropropane	5	<1.0 U	1 U	1 U	<1.0 U	100 U	5 U	5 U	<2.0 U	1 U	1 U	<1.0 U	<1.0 U	10 U	5 U
2-Butanone (MEK)	200	<10 U	10 U	10 U	<10 U	1000 U	50 U	50 U	<20 U	10 U	10 U	<10 U	<10 U	100 U	50 U
Acetone	400	<10 U	25 U	25 U	<10 U	2500 U	120 U	130 U	<20 U	25 U	25 U	<10 U	<10 U	250 U	130 U
Benzene	5	<1.0 U	1 U	1 U	<1.0 U	100 U	5 U	5 U	<2.0 U	1 U	1 U	<1.0 U	<1.0 U	10 U	5 U
Bromoform	80	<1.0 U	1 U	1 U	<1.0 U	100 U	5 U	5 U	<2.0 U	1 U	1 U	<1.0 U	<1.0 U	10 U	5 U
Carbon disulfide	400	<2.0 U	2 U	2 U	<2.0 U	200 U	10 U	10 U	<4.0 U	2 U	2 U	<2.0 U	30	20 U	10 U
Chlorobenzene	100	<1.0 U	1 U	1 U	<1.0 U	100 U	5 U	5 U	<2.0 U	1 U	1 U	<1.0 U	<1.0 U	10 U	5 U
Chloroform	80	<1.0 U	1 U	1 U	<1.0 U	100 U	5 U	5 U	<2.0 U	1 U	1 U	<1.0 U	22	10 U	5 U
Dichlorobromomethane	80	<1.0 U	1 U	1 U	<1.0 U	100 U	5 U	5 U	<2.0 U	1 U	1 U	<1.0 U	1.6	10 U	5 U
Ethylbenzene	700	<1.0 U	1 U	1 U	<1.0 U	100 U	5 U	5 U	<2.0 U	1 U	1 U	<1.0 U	<1.0 U	10 U	5 U
Styrene	100	<1.0 U	1 U	1 U	<1.0 U	100 U	5 U	5 U	<2.0 U	1 U	1 U	<1.0 U	<1.0 U	10 U	5 U
Toluene	1,000	<1.0 U	1 U	1 U	<1.0 U	100 U	5 U	5 U	<2.0 U	1 U	1 U	<1.0 U	<1.0 U	10 U	5 U
trans-1,2-Dichloroethene	100	<1.0 U	1 U	1 U	<1.0 U	100 U	5 U	5 U	<2.0 U	1 U	1 U	<1.0 U	<1.0 U	10 U	5 U
Xylenes, Total	10,000	<1.0 U	2 U	2 U	<1.0 U	200 U	10 U	10 U	<2.0 U	2 U	2 U	<1.0 U	<1.0 U	20 U	10 U
Other VOC Compounds															
1,1,1-Trichloroethane	200	<1.0 U	1 U	1 U	<1.0 U	100 U	5 U	5 U	<2.0 U	1 U	1 U	<1.0 U	<1.0 U	10 U	5 U
1,1,2,2-Tetrachloroethane	0.2	<1.0 U	1 U	1 U	<1.0 U	100 U	5 U	5 U	<2.0 U	1 U	1 U	<1.0 U	<1.0 U	10 U	5 U
1,1,2-Trichloroethane	5	<1.0 U	1 U	1 U	<1.0 U	100 U	5 U	5 U	<2.0 U	1 U	1 U	<1.0 U	<1.0 U	10 U	5 U
1,1-Dichloroethane	400	<1.0 U	1 U	1 U	<1.0 U	100 U	5 U	5 U	<2.0 U	1 U	1 U	<1.0 U	<1.0 U	10 U	5 U
2-Hexanone	NA	<10 U	10 U	10 U	<10 U	1000 U	50 U	50 U	<20 U	10 U	10 U	<10 U	<10 U	100 U	50 U
4-Methyl-2-pentanone (MIBK)	200	<10 U	10 U	10 U	<10 U	1000 U	50 U	50 U	<20 U	10 U	10 U	<10 U	<10 U	100 U	50 U
Bromomethane	NA	<5.0 U	1 U	5 U	<5.0 U	100 U	5 U	25 U	<10 U	1 U	5 U	<5.0 U	<5.0 U	10 U	25 U
Carbon tetrachloride	5	<1.0 U	1 U	1 U	<1.0 U	100 U	5 U	5 U	<2.0 U	1 U	1 U	<1.0 U	<1.0 U	10 U	5 U
Chlorodibromomethane	80	<1.0 U	1 U	1 U	<1.0 U	100 U	5 U	5 U	<2.0 U	1 U	1 U	<1.0 U	<1.0 U	10 U	5 U
Chloroethane	NA	<5.0 U	1 U	5 U	<5.0 U	100 U	5 U	25 U	<10 U	1 U	5 U	<5.0 U	<5.0 U	10 U	25 U
Chloromethane	NA	<1.0 U	1 U	1 U	<1.0 U	100 U	5 U	5 U	<2.0 U	1 U	1 U	<1.0 U	<1.0 U	10 U	5 U
cis-1,3-Dichloropropene	NA	<1.0 U	1 U	1 U	<1.0 U	100 U	5 U	5 U	<2.0 U	1 U	1 U	<1.0 U	<1.0 U	10 U	5 U
Methylene Chloride	3	<5.0 U	5 U	5 U	<5.0 U	500 U	25 U	25 U	<10 U	5 U	5 U	<5.0 U	<5.0 U	50 U	25 U
trans-1,3-Dichloropropene	NA	<1.0 U	1 U	1 U	<1.0 U	100 U	5 U	5 U	<2.0 U	1 U	1 U	<1.0 U	<1.0 U	10 U	5 U
Total VOCs	NA	11.8	5.9	7	7.7	350	457	544	426	103.6	113.4	75.1	65.5	1240	398

See last page for notes.

Table 2 - Summary of Groundwater Analytical Data (May 2011, May 2013, July 2015)
Tara Shopping Center, 8564 Tara Blvd., Jonesboro, GA

Sample ID	Type 1 Risk Reduction Standards	MW-16A	MW-16B	MW-16B	MW-16B	MW-16C	MW-16C	MW-17A	MW-17A	MW-17A	MW-18A	MW-18A	MW-18B	MW-18B	MW-19A
Lab Sample Number		680-114574-18	680-68710-3	680-90201-14	680-114574-19	680-90201-15	680-114574-20	680-68585-15	680-90201-16	680-114574-6	680-90099-5	680-114236-23	680-90099-6	680-114236-22	680-90099-7
Sampling Date		07/15/15	5/23/2011	05/09/13	07/15/15	05/09/13	07/15/15	5/19/2011	05/09/13	07/14/15	05/07/13	07/02/15	05/07/13	07/02/15	05/07/13
Matrix		Water	Water	Water	Water	Water	Water	Water	Water	Water	Water	Water	Water	Water	Water
Dilution Factor		1	10	10	1	5	1	2	10	2	1	1	1	1	5
Units		ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
GC/MS VOA - 8260B		Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low
VOC Constituents of Concern															
Tetrachloroethene	5	400 D	1200	1000	980 D	840	820 D	350	930	3.1	3.9	1.3	4.3	2.1	5 U
Trichloroethene	5	49	100	68	92	58	72	2 U	10 U	2 U	1 U	1 U	1 U	1 U	5 U
cis-1,2-Dichloroethene	70	93	210	120	190	72	110	2 U	10 U	2 U	1 U	1	1 U	1 U	5 U
Vinyl chloride	2	1 U	10 U	10 U	1 U	5 U	1 U	2 U	10 U	2 U	1 U	1 U	1 U	1 U	5 U
Other VOC Detections															
1,1-Dichloroethene	7	<1.0 U	10 U	10 U	<1.0 U	5 U	<1.0 U	2 U	10 U	<2.0 U	1 U	<1.0 U	1 U	<1.0 U	5 U
1,2-Dichloroethane	5	<1.0 U	10 U	10 U	<1.0 U	5 U	<1.0 U	2 U	10 U	<2.0 U	1 U	<1.0 U	1 U	<1.0 U	67
1,2-Dichloropropane	5	<1.0 U	10 U	10 U	<1.0 U	5 U	<1.0 U	2 U	10 U	<2.0 U	1 U	<1.0 U	1 U	<1.0 U	5 U
2-Butanone (MEK)	200	<10 U	100 U	100 U	<10 U	50 U	<10 U	20 U	100 U	<20 U	10 U	<10 U	10 U	<10 U	50 U
Acetone	400	<10 U	250 U	250 U	<10 U	130 U	<10 U	50 U	250 U	98	25 U	<10 U	25 U	<10 U	130 U
Benzene	5	<1.0 U	10 U	10 U	<1.0 U	5 U	<1.0 U	2 U	10 U	<2.0 U	1 U	<1.0 U	1 U	<1.0 U	750
Bromoform	80	<1.0 U	10 U	10 U	<1.0 U	5 U	<1.0 U	2 U	10 U	2.1	1 U	<1.0 U	1 U	<1.0 U	5 U
Carbon disulfide	400	<2.0 U	20 U	20 U	<2.0 U	10 U	<2.0 U	4 U	20 U	<4.0 U	2 U	<2.0 U	2 U	<2.0 U	10 U
Chlorobenzene	100	<1.0 U	10 U	10 U	<1.0 U	5 U	<1.0 U	2 U	10 U	<2.0 U	1 U	<1.0 U	1 U	<1.0 U	5 U
Chloroform	80	<1.0 U	10 U	10 U	<1.0 U	5 U	<1.0 U	2.1	10 U	<2.0 U	1 U	<1.0 U	1 U	<1.0 U	5 U
Dichlorobromomethane	80	<1.0 U	10 U	10 U	<1.0 U	5 U	<1.0 U	2 U	10 U	<2.0 U	1 U	<1.0 U	1 U	<1.0 U	5 U
Ethylbenzene	700	<1.0 U	10 U	10 U	<1.0 U	5 U	<1.0 U	2 U	10 U	<2.0 U	1 U	<1.0 U	1 U	<1.0 U	22
Styrene	100	<1.0 U	10 U	10 U	<1.0 U	5 U	<1.0 U	2 U	10 U	<2.0 U	1 U	<1.0 U	1 U	<1.0 U	5 U
Toluene	1,000	<1.0 U	10 U	10 U	<1.0 U	5 U	<1.0 U	2 U	10 U	<2.0 U	1 U	<1.0 U	1 U	<1.0 U	5 U
trans-1,2-Dichloroethene	100	2.8	10 U	10 U	17	5 U	2	2 U	10 U	<2.0 U	1 U	<1.0 U	1 U	<1.0 U	5 U
Xylenes, Total	10,000	<1.0 U	20 U	20 U	<1.0 U	10 U	<1.0 U	4 U	20 U	<2.0 U	2 U	<1.0 U	2 U	<1.0 U	89
Other VOC Compounds															
1,1,1-Trichloroethane	200	<1.0 U	10 U	10 U	<1.0 U	5 U	<1.0 U	2 U	10 U	<2.0 U	1 U	<1.0 U	1 U	<1.0 U	5 U
1,1,2,2-Tetrachloroethane	0.2	<1.0 U	10 U	10 U	<1.0 U	5 U	<1.0 U	2 U	10 U	<2.0 U	1 U	<1.0 U	1 U	<1.0 U	5 U
1,1,2-Trichloroethane	5	<1.0 U	10 U	10 U	<1.0 U	5 U	<1.0 U	2 U	10 U	<2.0 U	1 U	<1.0 U	1 U	<1.0 U	5 U
1,1-Dichloroethane	400	<1.0 U	10 U	10 U	<1.0 U	5 U	<1.0 U	2 U	10 U	<2.0 U	1 U	<1.0 U	1 U	<1.0 U	5 U
2-Hexanone	NA	<10 U	100 U	100 U	<10 U	50 U	<10 U	20 U	100 U	<20 U	10 U	<10 U	10 U	<10 U	50 U
4-Methyl-2-pentanone (MIBK)	200	<10 U	100 U	100 U	<10 U	50 U	<10 U	20 U	100 U	<20 U	10 U	<10 U	10 U	<10 U	50 U
Bromomethane	NA	<5.0 U	10 U	50 U	<5.0 U	25 U	<5.0 U	2 U	50 U	<10 U	5 U	<5.0 U	5 U	<5.0 U	25 U
Carbon tetrachloride	5	<1.0 U	10 U	10 U	<1.0 U	5 U	<1.0 U	2 U	10 U	<2.0 U	1 U	<1.0 U	1 U	<1.0 U	5 U
Chlorodibromomethane	80	<1.0 U	10 U	10 U	<1.0 U	5 U	<1.0 U	2 U	10 U	<2.0 U	1 U	<1.0 U	1 U	<1.0 U	5 U
Chloroethane	NA	<5.0 U	10 U	50 U	<5.0 U	25 U	<5.0 U	2 U	50 U	<10 U	5 U	<5.0 U	5 U	<5.0 U	25 U
Chloromethane	NA	<1.0 U	10 U	10 U	<1.0 U	5 U	<1.0 U	2 U	10 U	<2.0 U	1 U	<1.0 U	1 U	<1.0 U	5 U
cis-1,3-Dichloropropene	NA	<1.0 U	10 U	10 U	<1.0 U	5 U	<1.0 U	2 U	10 U	<2.0 U	1 U	<1.0 U	1 U	<1.0 U	5 U
Methylene Chloride	3	<5.0 U	50 U	50 U	<5.0 U	25 U	<5.0 U	10 U	50 U	<10 U	5 U	<5.0 U	5 U	<5.0 U	25 U
trans-1,3-Dichloropropene	NA	<1.0 U	10 U	10 U	<1.0 U	5 U	<1.0 U	2 U	10 U	<2.0 U	1 U	<1.0 U	1 U	<1.0 U	5 U
Total VOCs	NA	544.8	1510	1188	1279	970	1004	352.1	930	103.2	3.9	2.3	4.3	2.1	995

See last page for notes.

Table 2 - Summary of Groundwater Analytical Data (May 2011, May 2013, July 2015)
Tara Shopping Center, 8564 Tara Blvd., Jonesboro, GA

Sample ID	Type 1 Risk Reduction Standards	MW-19A	MW-19A	MW-19B	MW-19B	MW-19C	MW-19C	MW-19C	MW-19D	MW-19D	MW-20C	MW-20C	MW-21B	MW-21C	MW-22A
Lab Sample Number		680-114236-17	680-114236-17	680-90099-8	680-114574-10	680-107535-8	680-90177-16	680-114574-9	680-107535-7	680-114574-11	680-90201-17	680-114236-6	680-114152-8	680-114152-9	680-114152-1
Sampling Date		07/01/15	07/01/15	05/07/13	07/14/15	11/19/14	05/08/13	07/14/201	11/19/14	07/14/15	05/09/13	07/02/15	07/01/15	07/01/15	06/30/15
Matrix		Water	Water	Water	Water	Water	Water	Water	Water	Water	Water	Water	Water	Water	Water
Dilution Factor		5	1	5	1	2	1	1	1	1	1	1	1	1	1
Units		ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
GC/MS VOA - 8260B		Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low
VOC Constituents of Concern															
Tetrachloroethene	5	5 U	1 U	370	370 D	290	150	200	94	12	18	53	1 U	1 U	1 U
Trichloroethene	5	5 U	1 U	27	34	18	7.2	18	7.1	1.2	1.1	5	1 U	1 U	1 U
cis-1,2-Dichloroethene	70	5 U	1 U	44	47	33	14	32	13	1.9	1.4	4.9	1 U	1 U	1 U
Vinyl chloride	2	5 U	1 U	5 U	1 U	2 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Other VOC Detections															
1,1-Dichloroethene	7	<5.0 U	<1.0 U	5 U	1 U	<2.0 U	1 U	<1.0 U	<1.0 U	<1.0 U	1 U	<1.0 U	1 U	<1.0 U	<1.0 U
1,2-Dichloroethane	5	90	68	5 U	1 U	<2.0 U	1 U	<1.0 U	<1.0 U	<1.0 U	1 U	<1.0 U	1 U	<1.0 U	<1.0 U
1,2-Dichloropropane	5	<5.0 U	2	5 U	1 U	<2.0 U	1 U	<1.0 U	<1.0 U	<1.0 U	1 U	<1.0 U	1 U	<1.0 U	<1.0 U
2-Butanone (MEK)	200	<50 U	<10 U	50 U	<10 U	<20 U	72	<10 U	<10 U	<10 U	10 U	<10 U	10 U	<10 U	<10 U
Acetone	400	<50 U	<10 U	130 U	<10 U	<20 U	25 U	<10 U	<10 U	<10 U	25 U	<10 U	10 U	<10 U	<10 U
Benzene	5	450	450 D	5 U	<1.0 U	<2.0 U	1 U	<1.0 U	<1.0 U	<1.0 U	1 U	<1.0 U	1 U	<1.0 U	<1.0 U
Bromoform	80	<5.0 U	<1.0 U	5 U	<1.0 U	<2.0 U	1 U	<1.0 U	<1.0 U	<1.0 U	1 U	<1.0 U	1 U	<1.0 U	<1.0 U
Carbon disulfide	400	<10 U	<2.0 U	10 U	<2.0 U	<4.0 U	2 U	<2.0 U	<2.0 U	<2.0 U	2 U	<2.0 U	2 U	<2.0 U	<2.0 U
Chlorobenzene	100	<5.0 U	<1.0 U	5 U	<1.0 U	<2.0 U	1 U	<1.0 U	<1.0 U	<1.0 U	1 U	<1.0 U	1 U	<1.0 U	<1.0 U
Chloroform	80	<5.0 U	<1.0 U	5 U	<1.0 U	<2.0 U	4.9	<1.0 U	11	<1.0 U	1.1	<1.0 U	1 U	2	<1.0 U
Dichlorobromomethane	80	<5.0 U	<1.0 U	5 U	<1.0 U	<2.0 U	1 U	<1.0 U	<1.0 U	<1.0 U	1 U	<1.0 U	1 U	<1.0 U	<1.0 U
Ethylbenzene	700	14	12	5 U	<1.0 U	<2.0 U	1 U	<1.0 U	<1.0 U	<1.0 U	1 U	<1.0 U	1 U	<1.0 U	<1.0 U
Styrene	100	<5.0 U	1.8	5 U	<1.0 U	<2.0 U	1 U	<1.0 U	<1.0 U	<1.0 U	1 U	<1.0 U	1 U	<1.0 U	<1.0 U
Toluene	1,000	<5.0 U	<1.0 U	5 U	<1.0 U	<2.0 U	1 U	<1.0 U	<1.0 U	<1.0 U	1 U	<1.0 U	1 U	<1.0 U	<1.0 U
trans-1,2-Dichloroethene	100	<5.0 U	<1.0 U	5 U	1	<2.0 U	1 U	1.2	<1.0 U	<1.0 U	1 U	<1.0 U	1 U	<1.0 U	<1.0 U
Xylenes, Total	10,000	66	63	10 U	<1.0 U	<4.0 U	2 U	<1.0 U	<2.0 U	<1.0 U	2 U	<1.0 U	1 U	<1.0 U	<1.0 U
Other VOC Compounds															
1,1,1-Trichloroethane	200	<5.0 U	<1.0 U	5 U	1 U	<2.0 U	1 U	<1.0 U	<1.0 U	<1.0 U	1 U	<1.0 U	1 U	<1.0 U	<1.0 U
1,1,2,2-Tetrachloroethane	0.2	<5.0 U	<1.0 U	5 U	1 U	<2.0 U	1 U	<1.0 U	<1.0 U	<1.0 U	1 U	<1.0 U	1 U	<1.0 U	<1.0 U
1,1,2-Trichloroethane	5	<5.0 U	<1.0 U	5 U	1 U	<2.0 U	1 U	<1.0 U	<1.0 U	<1.0 U	1 U	<1.0 U	1 U	<1.0 U	<1.0 U
1,1-Dichloroethane	400	<5.0 U	<1.0 U	5 U	1 U	<2.0 U	1 U	<1.0 U	<1.0 U	<1.0 U	1 U	<1.0 U	1 U	<1.0 U	<1.0 U
2-Hexanone	NA	<50 U	<10 U	50 U	<10 U	<20 U	10 U	<10 U	<10 U	<10 U	10 U	<10 U	10 U	<10 U	<10 U
4-Methyl-2-pentanone (MIBK)	200	<50 U	<10 U	50 U	<10 U	<20 U	10 U	<10 U	<10 U	<10 U	10 U	<10 U	10 U	<10 U	<10 U
Bromomethane	NA	<25 U	<5.0 U	25 U	<5.0 U	<10 U	5 U	<5.0 U	<5.0 U	<5.0 U	5 U	<5.0 U	5 U	<5.0 U	<5.0 U
Carbon tetrachloride	5	<5.0 U	<1.0 U	5 U	<1.0 U	<2.0 U	1 U	<1.0 U	<1.0 U	<1.0 U	1 U	<1.0 U	1 U	<1.0 U	<1.0 U
Chlorodibromomethane	80	<5.0 U	<1.0 U	5 U	<1.0 U	<2.0 U	1 U	<1.0 U	<1.0 U	<1.0 U	1 U	<1.0 U	1 U	<1.0 U	<1.0 U
Chloroethane	NA	<25 U	<5.0 U	25 U	<5.0 U	<10 U	5 U	<5.0 U	<5.0 U	<5.0 U	5 U	<5.0 U	5 U	<5.0 U	<5.0 U
Chloromethane	NA	<5.0 U	<1.0 U	5 U	<1.0 U	<2.0 U	1 U	<1.0 U	<1.0 U	<1.0 U	1 U	<1.0 U	1 U	<1.0 U	<1.0 U
cis-1,3-Dichloropropene	NA	<5.0 U	<1.0 U	5 U	<1.0 U	<2.0 U	1 U	<1.0 U	<1.0 U	<1.0 U	1 U	<1.0 U	1 U	<1.0 U	<1.0 U
Methylene Chloride	3	<25 U	<5.0 U	25 U	<5.0 U	<10 U	5 U	<5.0 U	<5.0 U	<5.0 U	5 U	<5.0 U	5 U	<5.0 U	<5.0 U
trans-1,3-Dichloropropene	NA	<5.0 U	<1.0 U	5 U	<1.0 U	<2.0 U	1 U	<1.0 U	<1.0 U	<1.0 U	1 U	<1.0 U	1 U	<1.0 U	<1.0 U
Total VOCs	NA	710	662.8	441	452	341	248.1	251.2	125.1	15.1	21.6	62.9	0	2	0

See last page for notes.

Table 2 - Summary of Groundwater Analytical Data (May 2011, May 2013, July 2015)
Tara Shopping Center, 8564 Tara Blvd., Jonesboro, GA

Sample ID	Type 1 Risk Reduction Standards	MW-22B	MW-23A	MW-23B	MW-24C
Lab Sample Number		680-114152-2	680-114152-10	680-114152-4	680-114236-5
Sampling Date		06/30/15	06/30/15	06/30/15	07/02/15
Matrix		Water	Water	Water	Water
Dilution Factor		1	1	1	1
Units		ug/L	ug/L	ug/L	ug/L
GC/MS VOA - 8260B		Low	Low	Low	Low
VOC Constituents of Concern					
Tetrachloroethene	5	1 U	1 U	1 U	41
Trichloroethene	5	1 U	1 U	1 U	1 U
cis-1,2-Dichloroethene	70	1 U	1 U	1 U	1 U
Vinyl chloride	2	1 U	1 U	1 U	1 U
Other VOC Detections					
1,1-Dichloroethene	7	<1.0 U	<1.0 U	<1.0 U	<1.0 U
1,2-Dichloroethane	5	<1.0 U	<1.0 U	<1.0 U	<1.0 U
1,2-Dichloropropane	5	<1.0 U	<1.0 U	<1.0 U	<1.0 U
2-Butanone (MEK)	200	<10 U	<10 U	<10 U	<10 U
Acetone	400	<10 U	<10 U	<10 U	<10 U
Benzene	5	<1.0 U	<1.0 U	6.7	<1.0 U
Bromoform	80	<1.0 U	<1.0 U	<1.0 U	<1.0 U
Carbon disulfide	400	<2.0 U	<2.0 U	<2.0 U	<2.0 U
Chlorobenzene	100	<1.0 U	<1.0 U	<1.0 U	<1.0 U
Chloroform	80	2.4	3.7	7.5	1.8
Dichlorobromomethane	80	<1.0 U	<1.0 U	<1.0 U	<1.0 U
Ethylbenzene	700	<1.0 U	<1.0 U	1.1	<1.0 U
Styrene	100	<1.0 U	<1.0 U	<1.0 U	<1.0 U
Toluene	1,000	<1.0 U	<1.0 U	5.4	<1.0 U
trans-1,2-Dichloroethene	100	<1.0 U	<1.0 U	<1.0 U	<1.0 U
Xylenes, Total	10,000	<1.0 U	<1.0 U	1.8	<1.0 U
Other VOC Compounds					
1,1,1-Trichloroethane	200	<1.0 U	<1.0 U	<1.0 U	<1.0 U
1,1,2,2-Tetrachloroethane	0.2	<1.0 U	<1.0 U	<1.0 U	<1.0 U
1,1,2-Trichloroethane	5	<1.0 U	<1.0 U	<1.0 U	<1.0 U
1,1-Dichloroethane	400	<1.0 U	<1.0 U	<1.0 U	<1.0 U
2-Hexanone	NA	<10 U	<10 U	<10 U	<10 U
4-Methyl-2-pentanone (MIBK)	200	<10 U	<10 U	<10 U	<10 U
Bromomethane	NA	<5.0 U	<5.0 U	<5.0 U	<5.0 U
Carbon tetrachloride	5	<1.0 U	<1.0 U	<1.0 U	<1.0 U
Chlorodibromomethane	80	<1.0 U	<1.0 U	<1.0 U	<1.0 U
Chloroethane	NA	<5.0 U	<5.0 U	<5.0 U	<5.0 U
Chloromethane	NA	<1.0 U	<1.0 U	<1.0 U	<1.0 U
cis-1,3-Dichloropropene	NA	<1.0 U	<1.0 U	<1.0 U	<1.0 U
Methylene Chloride	3	<5.0 U	<5.0 U	<5.0 U	<5.0 U
trans-1,3-Dichloropropene	NA	<1.0 U	<1.0 U	<1.0 U	<1.0 U
Total VOCs	NA	2.4	3.7	22.5	42.8

See last page for notes.

NOTES:

µg/L	micrograms per liter
D	Diluted Value. Dilutions were noted on MW-8A, MW-8B, MW-11A, and MW-11B due to color and is indicative of 2009 permanganate injections.
U	Value not detected above the laboratory reporting limit.
Yellow	Exceedance of Type 1 Risk Reduction Standard for Groundwater.
GC/MS VOA - 8260B	Gas Chromatography/Mass Spec Volatile Organic Analysis USEPA Method 8260B
NA	Not Available

Table 3- Summary of Surface Water Analytical Data
Tara Shopping Center, 8564 Tara Blvd, Jonesboro, GA

HSI 10798

Sample ID	Geogia Water Quality Standards October 2015	Ecological Screening Values Region 4 Surface Water Screening Values for Hazardous Waste Sites 2015		OF-2	SS-1					
Lab Sample Number				680-114593-2	680-51535-4	680-60784-11	680-66971-1	680-74007-1	680-90270-5	680-114593-3
Sampling Date				7/16/2015 10:30	10/5/2009 16:45	8/27/2010 14:50	3/30/2011 15:15	11/2/2011 11:15	5/10/2013 9:30	7/16/2015 12:26
Matrix				Water	Water	Water	Water	Water	Water	Water
Dilution Factor				1	1	1	1	1	1	1
Units		Chronic	Acute	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
VOC Constituents of Concern										
Tetrachloroethene	3.3	53	430	**76**	16	**170**	33	52	39	36
Trichloroethene	30	200	2,000	12	1.2	15	2.4	3.7	2.5	2.7
cis-1,2-Dichloroethene[(1)]	1	620	5,500	5.9	1.9	9.8	2	5.6	2.3	2.3
Vinyl chloride	2.4	930	8,400	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Other VOC Compounds										
1,1,1-Trichloroethane	NA	76	690	1 U	1 U	1 U	1 U	1 U	1 U	1 U
1,1,2,2-Tetrachloroethane	4.0	200	910	1 U	1 U	1 U	1 U	1 U	1 U	1 U
1,1,2-Trichloroethane	NA	730	3,200	1 U	1 U	1 U	1 U	1 U	1 U	1 U
1,1-Dichloroethane	NA	410	3,700	1 U	1 U	1 U	1 U	1 U	1 U	1 U
1,1-Dichloroethene	7,100	130	1,200	1 U	1 U	1 U	1 U	1 U	1 U	1 U
1,2-Dichloroethane	37	2,000	8,200	1 U	1 U	1 U	1 U	1 U	1 U	1 U
1,2-Dichloropropane	15	520	3,300	1 U	1 U	1 U	1 U	1 U	1 U	1 U
2-Butanone (MEK)	NA	22,000	200,000	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2-Hexanone	NA	99	1,800	10 U	10 U	10 U	10 U	10 U	10 U	10 U
4-Methyl-2-pentanone (MIBK)	NA	170	2,200	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Acetone	NA	1,700	15,000	10 U	25 U	25 U	25 U	25 U	25 U	10 U
Benzene	51	160	700	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Bromoform	140	230	1,100	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Bromomethane	1,500	16	38	5 U	1 U	1 U	1 U	1 U	5 U	5 U
Carbon disulfide	NA	15	130	2 U	2 U	2 U	2 U	2 U	2 U	2 U
Carbon tetrachloride	1.6	77	690	1 U*	1 U	1 U	1 U	1 U	1 U	1 U
Chlorobenzene	1,600	25	220	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Chlorodibromomethane	13	320	2,900	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Chloroethane	NA	NA	NA	5 U	1 U	1 U	1 U	1 U	5 U	5 U
Chloroform	470	140	1,300	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Chloromethane	NA	NA	NA	1 U	1 U	1 U	1 U	1 U	1 U	1 U
cis-1,3-Dichloropropene	21	1.7	15	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Dichlorobromomethane	17	340	3,100	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Ethylbenzene	2100	61	550	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Methylene Chloride	590	1,500	8,500	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Styrene	NA	32	290	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Toluene	5,980	62	560	1 U	1 U	1 U	1 U	1 U	1 U	1 U
trans-1,2-Dichloroethene	10,000	558	10,046	1 U	1 U	1 U	1 U	1 U	1 U	1 U
trans-1,3-Dichloropropene	21	1.7	15	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Xylenes, Total	NA	27	240	1 U	2 U	2 U	2 U	2 U	2 U	1 U
Total VOCs	NA	NA	NA	93.9	19.1	194.8	37.4	61.3	43.8	41

Table 3- Summary of Surface Water Analytical Data
Tara Shopping Center, 8564 Tara Blvd, Jonesboro, GA

HSI 10798

Sample ID	Geogia Water Quality Standards October 2015	Ecological Screening Values Region 4 Surface Water Screening Values for Hazardous Waste Sites 2015		SS-2						
Lab Sample Number				680-51535-5	680-60784-12	680-66971-2	680-74007-2	680-90270-4	680-90270-3	680-114593-4
Sampling Date				10/5/2009 16:55	8/27/2010 14:50	3/30/2011 15:30	11/2/2011 11:30	5/10/2013 9:20	5/10/2013 9:22	7/16/2015 13:02
Matrix				Water	Water	Water	Water	Water	Water	Water
Dilution Factor				1	1	1	1	1	1	1
Units		Chronic	Acute	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
VOC Constituents of Concern									DUP051013	
Tetrachloroethene	3.3	53	430	22	**81**	12	4	7.1	7.7	17
Trichloroethene	30	200	2,000	1 U	5.9	1 U	1 U	1 U	1 U	1 U
cis-1,2-Dichloroethene[(1)]	1	620	5,500	1	6.5	1 U	1 U	1 U	1 U	1 U
Vinyl chloride	2.4	930	8,400	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Other VOC Compounds										
1,1,1-Trichloroethane	NA	76	690	1 U	1 U	1 U	1 U	1 U	1 U	1 U
1,1,2,2-Tetrachloroethane	4.0	200	910	1 U	1 U	1 U	1 U	1 U	1 U	1 U
1,1,2-Trichloroethane	NA	730	3,200	1 U	1 U	1 U	1 U	1 U	1 U	1 U
1,1-Dichloroethane	NA	410	3,700	1 U	1 U	1 U	1 U	1 U	1 U	1 U
1,1-Dichloroethene	7,100	130	1,200	1 U	1 U	1 U	1 U	1 U	1 U	1 U
1,2-Dichloroethane	37	2,000	8,200	1 U	1 U	1 U	1 U	1 U	1 U	1 U
1,2-Dichloropropane	15	520	3,300	1 U	1 U	1 U	1 U	1 U	1 U	1 U
2-Butanone (MEK)	NA	22,000	200,000	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2-Hexanone	NA	99	1,800	10 U	10 U	10 U	10 U	10 U	10 U	10 U
4-Methyl-2-pentanone (MIBK)	NA	170	2,200	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Acetone	NA	1,700	15,000	25 U	25 U	25 U	25 U	25 U	25 U	25 U
Benzene	51	160	700	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Bromoform	140	230	1,100	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Bromomethane	1,500	16	38	1 U	1 U	1 U	1 U	5 U	5 U	5 U
Carbon disulfide	NA	15	130	2 U	2 U	2 U	2 U	2 U	2 U	2 U
Carbon tetrachloride	1.6	77	690	1 U	1 U	1 U	1 U	1 U	1 U	1 U*
Chlorobenzene	1,600	25	220	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Chlorodibromomethane	13	320	2,900	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Chloroethane	NA	NA	NA	1 U	1 U	1 U	1 U	5 U	5 U	5 U
Chloroform	470	140	1,300	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Chloromethane	NA	NA	NA	1 U	1 U	1 U	1 U	1 U	1 U	1 U
cis-1,3-Dichloropropene	21	1.7	15	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Dichlorobromomethane	17	340	3,100	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Ethylbenzene	2100	61	550	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Methylene Chloride	590	1,500	8,500	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Styrene	NA	32	290	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Toluene	5,980	62	560	1 U	1 U	1 U	1 U	1 U	1 U	1 U
trans-1,2-Dichloroethene	10,000	558	10,046	1 U	1 U	1 U	1 U	1 U	1 U	1 U
trans-1,3-Dichloropropene	21	1.7	15	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Xylenes, Total	NA	27	240	2 U	2 U	2 U	2 U	2 U	2 U	1 U
Total VOCs	NA	NA	NA	23	93.4	12	4	7.1	7.7	17

Table 3- Summary of Surface Water Analytical Data
Tara Shopping Center, 8564 Tara Blvd, Jonesboro, GA

Sample ID	Geogia Water Quality Standards October 2015	Ecological Screening Values Region 4 Surface Water Screening Values for Hazardous Waste Sites 2015		T-1		T-2	T-3	T-4
Lab Sample Number				680-66971-3	680-66971-7	680-66971-4	680-66971-5	680-66971-6
Sampling Date				3/30/2011 15:45	3/30/2011 15:50	3/30/2011 16:00	3/30/2011 16:15	3/30/2011 17:00
Matrix				Water	Water	Water	Water	Water
Dilution Factor				1	1	1	1	1
Units		Chronic	Acute	ug/L	ug/L	ug/L	ug/L	ug/L
VOC Constituents of Concern					DUP033011			
Tetrachloroethene	3.3	53	430	1.3	1.5	1 U	1 U	1 U
Trichloroethene	30	200	2,000	1 U	1 U	1 U	1 U	1 U
cis-1,2-Dichloroethene[(1)]	1	620	5,500	1 U	1 U	1 U	1 U	1 U
Vinyl chloride	2.4	930	8,400	1 U	1 U	1 U	1 U	1 U
Other VOC Compounds								
1,1,1-Trichloroethane	NA	76	690	1 U	1 U	1 U	1 U	1 U
1,1,2,2-Tetrachloroethane	4.0	200	910	1 U	1 U	1 U	1 U	1 U
1,1,2-Trichloroethane	NA	730	3,200	1 U	1 U	1 U	1 U	1 U
1,1-Dichloroethane	NA	410	3,700	1 U	1 U	1 U	1 U	1 U
1,1-Dichloroethene	7,100	130	1,200	1 U	1 U	1 U	1 U	1 U
1,2-Dichloroethane	37	2,000	8,200	1 U	1 U	1 U	1 U	1 U
1,2-Dichloropropane	15	520	3,300	1 U	1 U	1 U	1 U	1 U
2-Butanone (MEK)	NA	22,000	200,000	10 U	10 U	10 U	10 U	10 U
2-Hexanone	NA	99	1,800	10 U	10 U	10 U	10 U	10 U
4-Methyl-2-pentanone (MIBK)	NA	170	2,200	10 U	10 U	10 U	10 U	10 U
Acetone	NA	1,700	15,000	25 U	25 U	25 U	25 U	25 U
Benzene	51	160	700	1 U	1 U	1 U	1 U	1 U
Bromoform	140	230	1,100	1 U	1 U	1 U	1 U	1 U
Bromomethane	1,500	16	38	1 U	1 U	1 U	1 U	1 U
Carbon disulfide	NA	15	130	2 U	2 U	2 U	2 U	2 U
Carbon tetrachloride	1.6	77	690	1 U	1 U	1 U	1 U	1 U
Chlorobenzene	1,600	25	220	1 U	1 U	1 U	1 U	1 U
Chlorodibromomethane	13	320	2,900	1 U	1 U	1 U	1 U	1 U
Chloroethane	NA	NA	NA	1 U	1 U	1 U	1 U	1 U
Chloroform	470	140	1,300	1 U	1 U	1 U	1 U	1 U
Chloromethane	NA	NA	NA	1 U	1 U	1 U	1 U	1 U
cis-1,3-Dichloropropene	21	1.7	15	1 U	1 U	1 U	1 U	1 U
Dichlorobromomethane	17	340	3,100	1 U	1 U	1 U	1 U	1 U
Ethylbenzene	2100	61	550	1 U	1 U	1 U	1 U	1 U
Methylene Chloride	590	1,500	8,500	5 U	5 U	5 U	5 U	5 U
Styrene	NA	32	290	1 U	1 U	1 U	1 U	1 U
Toluene	5,980	62	560	1 U	1 U	1 U	1 U	1 U
trans-1,2-Dichloroethene	10,000	558	10,046	1 U	1 U	1 U	1 U	1 U
trans-1,3-Dichloropropene	21	1.7	15	1 U	1 U	1 U	1 U	1 U
Xylenes, Total	NA	27	240	2 U	2 U	2 U	2 U	2 U
Total VOCs	NA	NA	NA	1.3	1.5	0	0	0

Table 3- Summary of Surface Water Analytical Data
Tara Shopping Center, 8564 Tara Blvd, Jonesboro, GA

Notes:

ug/L	micrograms per liter
(1)	Laboratory Practical Quantitation Limit for GA Water Quality Standards
U	Value not detected above the laboratory reporting limit.
*	RPD of the LCS and LCSD exceeds the control limits
NA	Not Available
Yellow	Exceedance of Geogia Water Quality Standards October 2015
Underline	Exceedance of Ecological Screening Values Region 4 Surface Water Screening Chronic Values for Hazardous Waste Sites 2015
Italic	Exceedance of Ecological Screening Values Region 4 Surface Water Screening Acute Values for Hazardous Waste Sites 2015
Black	Detected Above Laboratory PQL
GC/MS VOA - 8260B	Gas Chromatography/Mass Spec Volatile Organic Analysis USEPA Method 8260B

Table 4 - Summary of VOC Performance Monitoring Analytical Data
Tara Shopping Center, 8564 Tara Boulevard, Jonesboro, GA

Sample ID	Type 1 Risk Reductions Standards	MW-3A				MW-3B			
Lab Sample Number		**680-103647-1**	**680-109331-12**	**680-114236-10**	**680-121300-11**	**680-109331-3**	**680-103647-2**	**680-114236-15**	**680-121300-2**
Sampling Date		7/22/2014	1/22/2015	7/2/2015	1/26/2016	1/21/2015	7/22/2014	7/1/2015	1/25/2016
Matrix		Water	Water	Water	Water	Water	Water	Water	Water
Dilution Factor		1	1	1	1	1	1	1	1
Units		ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
GC/MS VOA - 8260B		Low	Low	Low	Low	Low	Low	Low	Low
VOC Constituents of Concern									
Tetrachloroethene	5	60	75	11	41	1 U	1 U	1 U	1 U
Trichloroethene	5	1.1	1 U	1 U	1.5	1 U	1 U	1 U	1 U
cis-1,2-Dichloroethene	70	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Vinyl chloride	2	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Other VOC Compounds									
1,1,1-Trichloroethane	200	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
1,1,2,2-Tetrachloroethane	0.2	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
1,1,2-Trichloroethane	5	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
1,1-Dichloroethane	400	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
1,1-Dichloroethene	7	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
1,2-Dichloroethane	5	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
1,2-Dichloropropane	5	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
2-Butanone (MEK)	200	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2-Hexanone	NA	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
4-Methyl-2-pentanone (MIBK)	200	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Acetone	400	25 U	10 U	10 U	10 U	10 U	25 U	10 U	10 U
Benzene	5	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Bromoform	80	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Bromomethane	NA	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Carbon disulfide	400	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
Carbon tetrachloride	5	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Chlorobenzene	100	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Chlorodibromomethane	80	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Chloroethane	NA	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Chloroform	80	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Chloromethane	NA	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
cis-1,3-Dichloropropene	NA	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Dichlorobromomethane	80	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Ethylbenzene	700	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Methylene Chloride	3	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Styrene	100	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Toluene	1000	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
trans-1,2-Dichloroethene	100	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
trans-1,3-Dichloropropene	NA	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Xylenes, Total	10000	2 U	1 U	1 U	1 U	1 U	2 U	1 U	1 U
Total VOCS	NA	61.1	75	11	42.5	0	0	0	0

See last page for notes.

Table 4 - Summary of VOC Performance Monitoring Analytical Data
Tara Shopping Center, 8564 Tara Boulevard, Jonesboro, GA

Sample ID	Type 1 Risk Reductions Standards	MW-8A				MW-8B			
Lab Sample Number		**680-103647-3**	**680-109331-13**	**680-114574-2**	**680-121300-13**	**680-103647-4**	**680-109331-8**	**680-114574-7**	**680-121300-12**
Sampling Date		7/23/2014	1/22/2015	7/14/2015	1/26/2016	7/23/2014	1/21/2015	7/14/2015	1/26/2016
Matrix		Water	Water	Water	Water	Water	Water	Water	Water
Dilution Factor		10	10	1	1	2	5	2	1
Units		ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
GC/MS VOA - 8260B		Low	Low	Low	Low	Low	Low	Low	Low
VOC Constituents of Concern						**DUP1**			
Tetrachloroethene	5	550	570	96	83	190	310	7.7	12
Trichloroethene	5	32	46	1 U	1 U	2 U	5 U	2 U	1 U
cis-1,2-Dichloroethene	70	12	22	1 U	1 U	2 U	5 U	2 U	1 U
Vinyl chloride	2	10 U	10 U	1 U	1 U	2 U	5 U	2 U	1 U
Other VOC Compounds									
1,1,1-Trichloroethane	200	10 U	10 U	1 U	1 U	2 U	5 U	2 U	1 U
1,1,2,2-Tetrachloroethane	0.2	10 U	10 U	1 U	1 U	2 U	5 U	2 U	1 U
1,1,2-Trichloroethane	5	10 U	10 U	1 U	1 U	2 U	5 U	2 U	1 U
1,1-Dichloroethane	400	10 U	10 U	1 U	1 U	2 U	5 U	2 U	1 U
1,1-Dichloroethene	7	10 U	10 U	1 U	1 U	2 U	5 U	2 U	1 U
1,2-Dichloroethane	5	10 U	10 U	1 U	1 U	2 U	5 U	2 U	1 U
1,2-Dichloropropane	5	10 U	10 U	1 U	1 U	2 U	5 U	2 U	1 U
2-Butanone (MEK)	200	100 U	100 U	10 U	10 U	20 U	50 U	20 U	10 U
2-Hexanone	NA	100 U	100 U	10 U	10 U	20 U	50 U	20 U	10 U
4-Methyl-2-pentanone (MIBK)	200	100 U	100 U	10 U	10 U	20 U	50 U	20 U	10 U
Acetone	400	250 U	100 U	10 U	15	50 U	50 U	38	10 U
Benzene	5	10 U	10 U	1 U	1 U	2 U	5 U	2 U	1 U
Bromoform	80	10 U	10 U	1 U	1 U	2 U	5 U	2 U	1 U
Bromomethane	NA	50 U	50 U	5 U	5 U	10 U	25 U	10 U	5 U
Carbon disulfide	400	20 U	20 U	2 U	2 U	4 U	10 U	4 U	2 U
Carbon tetrachloride	5	10 U	10 U	1 U	1 U	2 U	5 U	2 U	1 U
Chlorobenzene	100	10 U	10 U	1 U	1 U	2 U	5 U	2 U	1 U
Chlorodibromomethane	80	10 U	10 U	1 U	1 U	2 U	5 U	2 U	1 U
Chloroethane	NA	50 U	50 U	5 U	5 U	10 U	25 U	10 U	5 U
Chloroform	80	10 U	10 U	4.4	3.3	2 U	5 U	2 U	1 U
Chloromethane	NA	10 U	10 U	1 U	1 U	2 U	5 U	2 U	1 U
cis-1,3-Dichloropropene	NA	10 U	10 U	1 U	1 U	2 U	5 U	2 U	1 U
Dichlorobromomethane	80	10 U	10 U	1 U	1 U	2 U	5 U	2 U	1 U
Ethylbenzene	700	10 U	10 U	1 U	1 U	2 U	5 U	2 U	1 U
Methylene Chloride	3	50 U	50 U	5 U	5 U	10 U	25 U	10 U	5 U
Styrene	100	10 U	10 U	1 U	1 U	2 U	5 U	2 U	1 U
Toluene	1000	10 U	10 U	1 U	1 U	2 U	5 U	2 U	1 U
trans-1,2-Dichloroethene	100	10 U	10 U	1 U	1 U	2 U	5 U	2 U	1 U
trans-1,3-Dichloropropene	NA	10 U	10 U	1 U	1 U	2 U	5 U	2 U	1 U
Xylenes, Total	10000	20 U	10 U	1 U	1 U	4 U	5 U	2 U	1 U
Total VOCS	NA	594	638	100.4	101.3	190	310	45.7	12

See last page for notes.

Table 4 - Summary of VOC Performance Monitoring Analytical Data
Tara Shopping Center, 8564 Tara Boulevard, Jonesboro, GA

Sample ID	Type 1 Risk Reductions Standards	MW-8C				MW-9A			
Lab Sample Number		**680-103647-5**	**680-109331-9**	**680-114236-3**	**680-121300-6**	**680-103647-6**	**680-109331-14**	**680-114574-8**	**680-121300-14**
Sampling Date		7/23/2014	1/21/2015	7/2/2015	1/25/2016	7/23/2014	1/22/2015	7/14/2015	1/26/2016
Matrix		Water	Water	Water	Water	Water	Water	Water	Water
Dilution Factor		1	1	1	1	5	5	1	1
Units		ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
GC/MS VOA - 8260B		Low	Low	Low	Low	Low	Low	Low	Low
VOC Constituents of Concern									
Tetrachloroethene	5	1 U	1 U	1 U	1 U	370	560	310 D	520 D
Trichloroethene	5	1 U	1 U	1 U	1 U	230	86	180	100
cis-1,2-Dichloroethene	70	1 U	1 U	1 U	1 U	8.5	6.6	7.9	10
Vinyl chloride	2	1 U	1 U	1 U	1 U	5 U	5 U	1 U	1 U
Other VOC Compounds									
1,1,1-Trichloroethane	200	1 U	1 U	1 U	1 U	5 U	5 U	1 U	1 U
1,1,2,2-Tetrachloroethane	0.2	1 U	1 U	1 U	1 U	5 U	5 U	1 U	1 U
1,1,2-Trichloroethane	5	1 U	1 U	1 U	1 U	5 U	5 U	1 U	1 U
1,1-Dichloroethane	400	1 U	1 U	1 U	1 U	5 U	5 U	1 U	1 U
1,1-Dichloroethene	7	1 U	1 U	1 U	1 U	5 U	5 U	1 U	1 U
1,2-Dichloroethane	5	1 U	1 U	1 U	1 U	5 U	5 U	1 U	1 U
1,2-Dichloropropane	5	1 U	1 U	1 U	1 U	5 U	5 U	1 U	1 U
2-Butanone (MEK)	200	18	34	96	52	50 U	50 U	10 U	10 U
2-Hexanone	NA	10 U	10 U	10 U	10 U	50 U	50 U	10 U	10 U
4-Methyl-2-pentanone (MIBK)	200	10 U	10 U	10 U	10 U	50 U	50 U	10 U	10 U
Acetone	400	25 U	26	77	48	130 U	91	12	21
Benzene	5	1 U	1 U	1 U	1 U	5 U	5 U	1 U	1 U
Bromoform	80	1 U	1 U	1 U	1 U	5 U	5 U	1 U	1 U
Bromomethane	NA	5 U	5 U	5 U	5 U	25 U	25 U	5 U	5 U
Carbon disulfide	400	2.3	2 U	2 U	2 U	10 U	10 U	2 U	2 U
Carbon tetrachloride	5	1 U	1 U	1 U	1 U	5 U	5 U	1 U	1 U
Chlorobenzene	100	1 U	1 U	1 U	1 U	5 U	5 U	1 U	1 U
Chlorodibromomethane	80	1 U	1 U	1 U	1 U	5 U	5 U	1 U	1 U
Chloroethane	NA	5 U	5 U	5 U	5 U	25 U	25 U	5 U	5 U
Chloroform	80	1 U	1 U	1 U	1 U	5 U	5 U	1 U	1 U
Chloromethane	NA	1.3	1.3	1 U	1 U	5 U	5 U	1 U	1 U
cis-1,3-Dichloropropene	NA	1 U	1 U	1 U	1 U	5 U	5 U	1 U	1 U
Dichlorobromomethane	80	1 U	1 U	1 U	1 U	5 U	5 U	1 U	1 U
Ethylbenzene	700	1 U	1 U	1 U	1 U	5 U	5 U	1 U	1 U
Methylene Chloride	3	5 U	5 U	5 U	5 U	25 U	25 U	5 U	5 U
Styrene	100	1 U	1 U	1 U	1 U	5 U	5 U	1 U	1 U
Toluene	1000	1 U	1 U	1 U	1 U	5 U	5 U	1 U	1 U
trans-1,2-Dichloroethene	100	1 U	1 U	1 U	1 U	7.3	5.1	7.3	2.8
trans-1,3-Dichloropropene	NA	1 U	1 U	1 U	1 U	5 U	5 U	1 U	1 U
Xylenes, Total	10000	2 U	1 U	1 U	1 U	10 U	5 U	1 U	1 U
Total VOCS	NA	21.6	61.3	173	100	615.8	748.7	517.2	653.8

See last page for notes.

Table 4 - Summary of VOC Performance Monitoring Analytical Data
Tara Shopping Center, 8564 Tara Boulevard, Jonesboro, GA

Sample ID	Type 1 Risk Reductions Standards	MW-9B				MW-9C			
Lab Sample Number		**680-103647-7**	**680-109331-4**	**680-114236-20**	**680-121300-3**	**680-103647-8**	**680-109331-5**	**680-114236-19**	**680-121300-4**
Sampling Date		7/23/2014	1/21/2015	7/2/2015	1/25/2016	7/23/2014	1/21/2015	7/1/2015	1/25/2016
Matrix		Water	Water	Water	Water	Water	Water	Water	Water
Dilution Factor		1	1	1	1	1	1	1	1
Units		ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
GC/MS VOA - 8260B		Low	Low	Low	Low	Low	Low	Low	Low
VOC Constituents of Concern									
Tetrachloroethene	5	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Trichloroethene	5	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
cis-1,2-Dichloroethene	70	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Vinyl chloride	2	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Other VOC Compounds									
1,1,1-Trichloroethane	200	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
1,1,2,2-Tetrachloroethane	0.2	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
1,1,2-Trichloroethane	5	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
1,1-Dichloroethane	400	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
1,1-Dichloroethene	7	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
1,2-Dichloroethane	5	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
1,2-Dichloropropane	5	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
2-Butanone (MEK)	200	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2-Hexanone	NA	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
4-Methyl-2-pentanone (MIBK)	200	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Acetone	400	25 U	10 U	10 U	10 U	110	10 U	10 U	10 U
Benzene	5	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Bromoform	80	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Bromomethane	NA	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Carbon disulfide	400	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
Carbon tetrachloride	5	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Chlorobenzene	100	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Chlorodibromomethane	80	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Chloroethane	NA	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Chloroform	80	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Chloromethane	NA	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
cis-1,3-Dichloropropene	NA	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Dichlorobromomethane	80	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Ethylbenzene	700	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Methylene Chloride	3	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Styrene	100	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Toluene	1000	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
trans-1,2-Dichloroethene	100	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
trans-1,3-Dichloropropene	NA	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Xylenes, Total	10000	2 U	1 U	1 U	1 U	2 U	1 U	1 U	1 U
Total VOCS	NA	0	0	0	0	110	0	0	0

See last page for notes.

Table 4 - Summary of VOC Performance Monitoring Analytical Data
Tara Shopping Center, 8564 Tara Boulevard, Jonesboro, GA

Sample ID	Type 1 Risk Reductions Standards	MW-10A				MW-10B				
Lab Sample Number		**680-103647-9**	**680-109331-15**	**680-114574-4**	**680-121300-15**	**680-103647-10**	**680-109331-10**	**680-109331-2**	**680-114236-9**	**680-121300-7**
Sampling Date		7/23/2014	1/22/2015	7/14/2015	1/26/2016	7/23/2014	1/22/2015	1/22/2015	7/2/2015	1/26/2016
Matrix		Water	Water	Water	Water	Water	Water	Water	Water	Water
Dilution Factor		5	5	1	1	1	1	1	1	1
Units		ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
GC/MS VOA - 8260B		Low	Low	Low	Low	Low	Low	Low	Low	Low
VOC Constituents of Concern								**DUP-1**		
Tetrachloroethene	5	480	660	220 D	73	76	1 U	1 U	1 U	1 U
Trichloroethene	5	82	130	37	7.5	1.8	1 U	1 U	1 U	1 U
cis-1,2-Dichloroethene	70	41	73	21	4.4	1.7	1 U	1 U	1 U	1 U
Vinyl chloride	2	5 U	5 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Other VOC Compounds										
1,1,1-Trichloroethane	200	5 U	5 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
1,1,2,2-Tetrachloroethane	0.2	5 U	5 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
1,1,2-Trichloroethane	5	5 U	5 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
1,1-Dichloroethane	400	5 U	5 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
1,1-Dichloroethene	7	5 U	5 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
1,2-Dichloroethane	5	5 U	5 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
1,2-Dichloropropane	5	5 U	5 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
2-Butanone (MEK)	200	50 U	50 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2-Hexanone	NA	50 U	50 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
4-Methyl-2-pentanone (MIBK)	200	50 U	50 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Acetone	400	130 U	50 U	10 U	10 U	25 U	10 U	10 U	16	10 U
Benzene	5	5 U	5 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Bromoform	80	5 U	5 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Bromomethane	NA	25 U	25 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Carbon disulfide	400	10 U	10 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
Carbon tetrachloride	5	5 U	5 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Chlorobenzene	100	5 U	5 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Chlorodibromomethane	80	5 U	5 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Chloroethane	NA	25 U	25 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Chloroform	80	14	14	4.9	1.2	1 U	1 U	1 U	1 U	1 U
Chloromethane	NA	5 U	5 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
cis-1,3-Dichloropropene	NA	5 U	5 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Dichlorobromomethane	80	5 U	5 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Ethylbenzene	700	5 U	5 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Methylene Chloride	3	25 U	25 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Styrene	100	5 U	5 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Toluene	1000	5 U	5 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
trans-1,2-Dichloroethene	100	5 U	5 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
trans-1,3-Dichloropropene	NA	5 U	5 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Xylenes, Total	10000	10 U	5 U	1 U	1 U	2 U	1 U	1 U	1 U	1 U
Total VOCS	NA	617	877	282.9	86.1	79.5	0	0	16	0

See last page for notes.

Table 4 - Summary of VOC Performance Monitoring Analytical Data
Tara Shopping Center, 8564 Tara Boulevard, Jonesboro, GA

Sample ID	Type 1 Risk Reductions Standards	MW-10C			
Lab Sample Number		**680-103647-11**	**680-109331-11**	**680-114236-8**	**680-121300-8**
Sampling Date		7/23/2014	1/22/2015	7/2/2015	1/25/2016
Matrix		Water	Water	Water	Water
Dilution Factor		1	1	1	1
Units		ug/L	ug/L	ug/L	ug/L
GC/MS VOA - 8260B		Low	Low	Low	Low
VOC Constituents of Concern					
Tetrachloroethene	5	3.2	7.6	3.4	1.1
Trichloroethene	5	1 U	1	1 U	1 U
cis-1,2-Dichloroethene	70	1 U	1 U	1 U	1 U
Vinyl chloride	2	1 U	1 U	1 U	1 U
Other VOC Compounds					
1,1,1-Trichloroethane	200	1 U	1 U	1 U	1 U
1,1,2,2-Tetrachloroethane	0.2	1 U	1 U	1 U	1 U
1,1,2-Trichloroethane	5	1 U	1 U	1 U	1 U
1,1-Dichloroethane	400	1 U	1 U	1 U	1 U
1,1-Dichloroethene	7	1 U	1 U	1 U	1 U
1,2-Dichloroethane	5	1 U	1 U	1 U	1 U
1,2-Dichloropropane	5	1 U	1 U	1 U	1 U
2-Butanone (MEK)	200	10 U	10 U	10 U	10 U
2-Hexanone	NA	10 U	10 U	10 U	10 U
4-Methyl-2-pentanone (MIBK)	200	10 U	10 U	10 U	10 U
Acetone	400	25 U	10 U	12	10 U
Benzene	5	1 U	1 U	1 U	1 U
Bromoform	80	1 U	1 U	1 U	1 U
Bromomethane	NA	5 U	5 U	5 U	5 U
Carbon disulfide	400	2 U	2 U	2 U	2 U
Carbon tetrachloride	5	1 U	1 U	1 U	1 U
Chlorobenzene	100	1 U	1 U	1 U	1 U
Chlorodibromomethane	80	1 U	1 U	1 U	1 U
Chloroethane	NA	5 U	5 U	5 U	5 U
Chloroform	80	1 U	1 U	1 U	1 U
Chloromethane	NA	1 U	1 U	1 U	1 U
cis-1,3-Dichloropropene	NA	1 U	1 U	1 U	1 U
Dichlorobromomethane	80	1 U	1 U	1 U	1 U
Ethylbenzene	700	1 U	1 U	1 U	1 U
Methylene Chloride	3	5 U	5 U	5 U	5 U
Styrene	100	1 U	1 U	1 U	1 U
Toluene	1000	1 U	1 U	1 U	1 U
trans-1,2-Dichloroethene	100	1 U	1 U	1 U	1 U
trans-1,3-Dichloropropene	NA	1 U	1 U	1 U	1 U
Xylenes, Total	10000	2 U	1 U	1 U	1 U
Total VOCS	NA	3.2	8.6	15.4	1.1

See last page for notes.

Table 4 - Summary of VOC Performance Monitoring Analytical Data
Tara Shopping Center, 8564 Tara Boulevard, Jonesboro, GA

Sample ID	Type 1 Risk Reductions Standards	MW-11A				MW-11B			
Lab Sample Number		**680-103647-12**	**680-109331-16**	**680-114593-1**	**680-121300-9**	**680-103647-13**	**680-109331-6**	**680-114236-1**	**680-121300-10**
Sampling Date		7/22/2014	1/22/2015	7/16/2015	1/25/2016	7/22/2014	1/21/2015	7/2/2015	1/26/2016
Matrix		Water	Water	Water	Water	Water	Water	Water	Water
Dilution Factor		5	5	2	1	1	1	2	1
Units		ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
GC/MS VOA - 8260B		Low	Low	Low	Low	Low	Low	Low	Low
VOC Constituents of Concern									
Tetrachloroethene	5	5 U	5 U	2.7	2.7	19	1 U	2 U	1 U
Trichloroethene	5	5 U	5 U	2 U	1 U	1.8	1 U	2 U	1 U
cis-1,2-Dichloroethene	70	5 U	5 U	2 U	1 U	1 U	1 U	2 U	1 U
Vinyl chloride	2	5 U	5 U	2 U	1 U	1 U	1 U	2 U	1 U
Other VOC Compounds									
1,1,1-Trichloroethane	200	5 U	5 U	2 U	1 U	1 U	1 U	2 U	1 U
1,1,2,2-Tetrachloroethane	0.2	5 U	5 U	2 U	1 U	1 U	1 U	2 U	1 U
1,1,2-Trichloroethane	5	5 U	5 U	2 U	1 U	1 U	1 U	2 U	1 U
1,1-Dichloroethane	400	5 U	5 U	2 U	1 U	1 U	1 U	2 U	1 U
1,1-Dichloroethene	7	5 U	5 U	2 U	1 U	1 U	1 U	2 U	1 U
1,2-Dichloroethane	5	5 U	5 U	2 U	1 U	1 U	1 U	2 U	1 U
1,2-Dichloropropane	5	5 U	5 U	2 U	1 U	1 U	1 U	2 U	1 U
2-Butanone (MEK)	200	50 U	50 U	20 U	10 U	10 U	10 U	20 U	10 U
2-Hexanone	NA	50 U	50 U	20 U	10 U	10 U	10 U	20 U	10 U
4-Methyl-2-pentanone (MIBK)	200	50 U	50 U	20 U	10 U	10 U	10 U	20 U	10 U
Acetone	400	130 U	50 U	20 U	29	25 U	10 U	28	10 U
Benzene	5	5 U	5 U	2 U	1 U	1 U	1 U	2 U	1 U
Bromoform	80	5 U	5 U	2 U	1.7	1 U	1 U	2 U	1 U
Bromomethane	NA	25 U	25 U	10 U	5 U	5 U	5 U	10 U	5 U
Carbon disulfide	400	10 U	10 U	4 U	2 U	2 U	2 U	4 U	2 U
Carbon tetrachloride	5	5 U	5 U	2 U	1 U	1 U	1 U	2 U	1 U
Chlorobenzene	100	5 U	5 U	2 U	1 U	1 U	1 U	2 U	1 U
Chlorodibromomethane	80	5 U	5 U	2 U	1 U	1 U	1 U	2 U	1 U
Chloroethane	NA	25 U	25 U	10 U	5 U	5 U	5 U	10 U	5 U
Chloroform	80	5 U	5 U	2 U	1	1 U	1 U	2 U	1 U
Chloromethane	NA	5 U	5 U	2 U	1 U	1 U	1 U	2 U	1 U
cis-1,3-Dichloropropene	NA	5 U	5 U	2 U	1 U	1 U	1 U	2 U	1 U
Dichlorobromomethane	80	5 U	5 U	2 U	1 U	1 U	1 U	2 U	1 U
Ethylbenzene	700	5 U	5 U	2 U	1 U	1 U	1 U	2 U	1 U
Methylene Chloride	3	25 U	25 U	10 U	5 U	5 U	5 U	10 U	5 U
Styrene	100	5 U	5 U	2 U	1 U	1 U	1 U	2 U	1 U
Toluene	1000	5 U	5 U	2 U	1 U	1 U	1 U	2 U	1 U
trans-1,2-Dichloroethene	100	5 U	5 U	2 U	1 U	1 U	1 U	2 U	1 U
trans-1,3-Dichloropropene	NA	5 U	5 U	2 U	1 U	1 U	1 U	2 U	1 U
Xylenes, Total	10000	10 U	5 U	2 U	1 U	2 U	1 U	2 U	1 U
Total VOCS	NA	0	0	2.7	34.4	20.8	0	28	0

See last page for notes.

Sample ID	Type 1 Risk Reductions Standards	MW-11C				
Lab Sample Number		**680-103647-14**	**680-109331-7**	**680-114236-2**	**680-121300-5**	**680-121300-16**
Sampling Date		7/22/2014	1/21/2015	7/2/2015	1/25/2016	1/25/2016
Matrix		Water	Water	Water	Water	Water
Dilution Factor		1	1	1	1	1
Units		ug/L	ug/L	ug/L	ug/L	ug/L
GC/MS VOA - 8260B		Low	Low	Low	Low	Low
VOC Constituents of Concern						**Dup1**
Tetrachloroethene	5	1 U	1	1 U	1 U	1 U
Trichloroethene	5	1 U	1 U	1 U	1 U	1 U
cis-1,2-Dichloroethene	70	1 U	1 U	1 U	1 U	1 U
Vinyl chloride	2	1 U	1 U	1 U	1 U	1 U
Other VOC Compounds						
1,1,1-Trichloroethane	200	1 U	1 U	1 U	1 U	1 U
1,1,2,2-Tetrachloroethane	0.2	1 U	1 U	1 U	1 U	1 U
1,1,2-Trichloroethane	5	1 U	1 U	1 U	1 U	1 U
1,1-Dichloroethane	400	1 U	1 U	1 U	1 U	1 U
1,1-Dichloroethene	7	1 U	1 U	1 U	1 U	1 U
1,2-Dichloroethane	5	1 U	1 U	1 U	1 U	1 U
1,2-Dichloropropane	5	1 U	1 U	1 U	1 U	1 U
2-Butanone (MEK)	200	10 U	10 U	10 U	10 U	10 U
2-Hexanone	NA	10 U	10 U	10 U	10 U	10 U
4-Methyl-2-pentanone (MIBK)	200	10 U	10 U	10 U	10 U	10 U
Acetone	400	25 U	10 U	10 U	10 U	10 U
Benzene	5	1 U	1 U	1 U	1 U	1 U
Bromoform	80	1 U	1 U	1 U	1 U	1 U
Bromomethane	NA	5 U	5 U	5 U	5 U	5 U
Carbon disulfide	400	2 U	2 U	2 U	2 U	2 U
Carbon tetrachloride	5	1 U	1 U	1 U	1 U	1 U
Chlorobenzene	100	1 U	1 U	1 U	1 U	1 U
Chlorodibromomethane	80	1 U	1 U	1 U	1 U	1 U
Chloroethane	NA	5 U	5 U	5 U	5 U	5 U
Chloroform	80	1 U	1 U	1 U	1 U	1 U
Chloromethane	NA	1 U	1 U	1 U	1 U	1 U
cis-1,3-Dichloropropene	NA	1 U	1 U	1 U	1 U	1 U
Dichlorobromomethane	80	1 U	1 U	1 U	1 U	1 U
Ethylbenzene	700	1 U	1 U	1 U	1 U	1 U
Methylene Chloride	3	5 U	5 U	5 U	5 U	5 U
Styrene	100	1 U	1 U	1 U	1 U	1 U
Toluene	1000	1 U	1 U	1 U	1 U	1 U
trans-1,2-Dichloroethene	100	1 U	1 U	1 U	1 U	1 U
trans-1,3-Dichloropropene	NA	1 U	1 U	1 U	1 U	1 U
Xylenes, Total	10000	2 U	1 U	1 U	1 U	1 U
Total VOCS	NA	0	1	0	0	0

See last page for notes.

Table 5 - Proposed Monitoring Well Abandonment Program
Tara Shopping Center, 8564 Tara Blvd., Jonesboro, GA

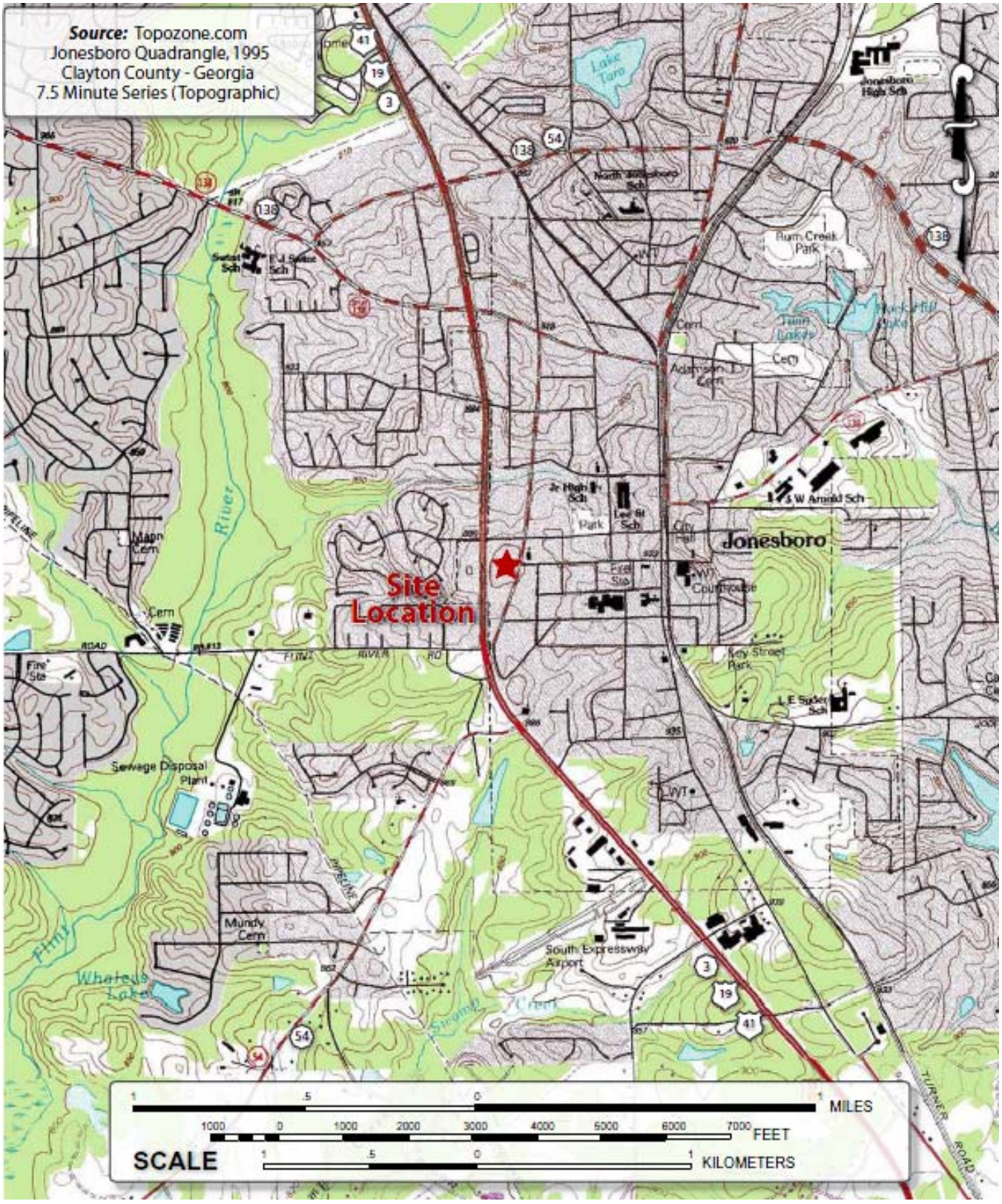
Monitoring Well	Zone	Justification
MW-1A	Upper Residuum	· Screened across water table interface upgrade of Treatment Area and is has been dry during 4 of 6 monitoring events between 2006 and 2015.
		· Monitoring MW-14A is approximately 75 feet north of MW-1A and is proposed at the up gradient well location.
MW-1C	Bedrock	· Well nest with MW-1A.
		· No Site COCs were identified in this well since installation in 2008.
		· Based on eight sampling events
MW-3B	Lower Residuum	· Well nest with MW-3A.
		· No Site COCs were identified in this well since installation in 2006.
		· Based on ten sampling events
		· PCE Concentrations in MW-3A are stable and less than an order of magnitude above the Type 1 RRS.
MW-4B	Lower Residuum	· Well nest with MW-4A.
		· No Site COCs were identified in this well since installation in 2006.
		· Based on seven sampling events
		· PCE Concentrations in MW-4A are stable and are at, or below, the Type 1 RRS
MW-6A MW-6B	Upper and Lower Residuum	· Cross gradient well nest to the south
		· No Site COCs were identified in this well nest since installation in 2006.
		· Based on five sampling events
MW-7C	Bedrock	· Well nest with MW-7B.
		· No Site COCs were identified in this well since installation in 2008.
		· Based on six sampling events
		· PCE Concentrations in MW-7B are stable and are at, or below, the Type 1 RRS
MW-9B	Lower Residuum	· Well nest with MW-9A and MW-9C.
		· No Site COCs were identified in this well since installation in 2006.
		· Based on 10 sampling events
MW-9C	Bedrock	· Well nest with MW-9A and MW-9B.
		· No Site COCs were identified in this well since installation in 2008.
		· Based on 9 sampling events
MW-12A	Upper Residuum	· Well nested with MW-3A/B
		· Same screen interval as well MW-3A
		· Similar COC concentrations as MW-3A. MW-12A does not provide additional benefit.
MW-17A	Upper Residuum	· Well nested with MW-11A/B/C
		· Well specifically installed for PRZ monitoring
		· Same screen interval as well MW-11A
MW-22A MW-22B	Upper and Lower Residuum	· Up gradient well nest
		· No Site COCs were identified in this well nest following two sampling events.
MW-23A MW-23B	Upper and Lower Residuum	· Up gradient well nest
		· No Site COCs were identified in this well nest following two sampling events.

Table 6 - Groundwater Corrective Action Plan Cost Estimate
Tara Shopping Center, 8564 Tara Blvd, Jonesboro, GA

HSI 10798

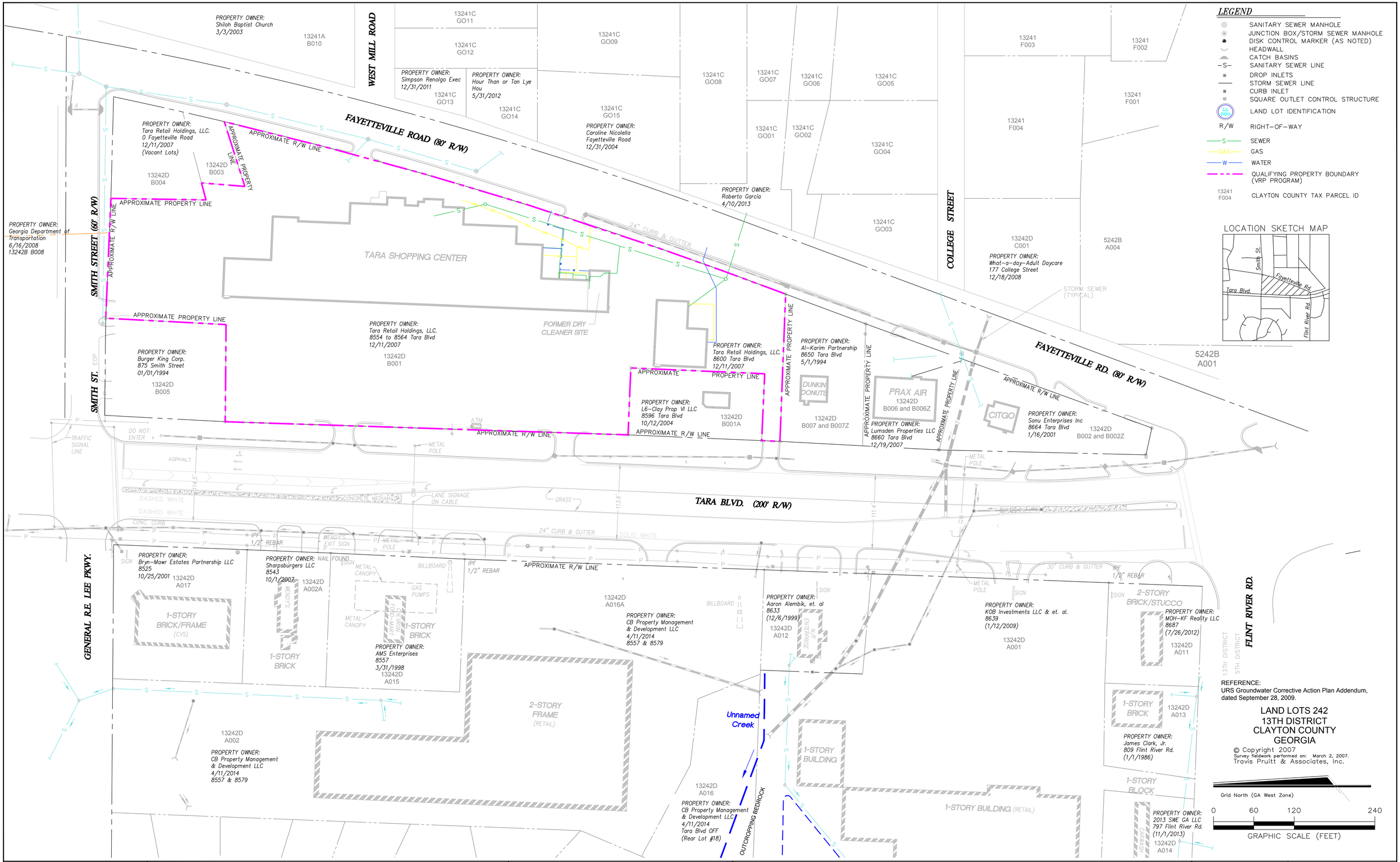
TASK		COST ESTIMATE
100 Remedial System		$ 31,757
	Streamlined Uniform Environmental Covenants	
200 System Operation and Maintenance		$ -
300 Investigation		$ 204,739
	Well Repair	
	Well Abandonment	
	June 2016 VRP Semi Annual Status Report	
	Vapor Intrusion Work plan	
	Vapor Intrusion Investigation	
	December 2016 VRP Semi-Annual Status Report	
	June 2017 Compliance Status Report	
400 Monitoring		$ 95,267
	Point of Demonstrations Groundwater Monitoring	
	Annual Monitoring: A &B Zone Wells	
	Semi-Annual Monitoring: C Zone Wells and Surface Water	
	Annual Monitoring Well Inspection	
	Reporting	
500 Project Management		$ 40,801
600 Agency Oversight		$ 8,856
700 Other		$ 22,270
800 Risk Assessment		$ -
	Total	**$ 403,690**

FIGURES



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FIGURE 1
SITE LOCATION MAP
TARA SHOPPING CENTER
8564 TARA BOULEVARD
JONESBORO, CLAYTON COUNTY, GEORGIA
HSI # 10798



EHS Support consider it done

REVISIONS				
Rev.		By:	Disc.: Map scale updated based on Clayton County GIS Viewer	Date: 02/2016
Rev.		By:	Disc.:	Date:
Rev.		By:	Disc.:	Date:
Rev.		By:	Disc.:	Date:

TARA HOLDINGS
8564 TARA BOULEVARD
JONESBORO, GEORGIA

FIGURE 2
SITE PLAN, TAX PARCEL INFORMATION AND QUALIFYING PROPERTY BOUNDARY

Drawn By:	MDO	Date Drawn:	02/2016
Reviewed By:	MSS	Date Reviewed:	02/2016
Scale:	1" = 60'	Plot Date:	02/2016
Project No.:	C00342	Figure 2	



Notes:
Property Boundary lines and Edge of Pavement provided to EHS Support by URS Corporation.
Aerial Imagery is from the National Agriculture Imagery Program (NAIP), 2013.

Service Layer Credits: Source: Esri, Digital Globe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community

EHS Support consider it done	TARA HOLDINGS 8564 TARA BOULEVARD JONESBORO, GEORGIA HSI 10798	AERIAL SITE PLAN AND SURROUNDING LAND USE	FIGURE 3

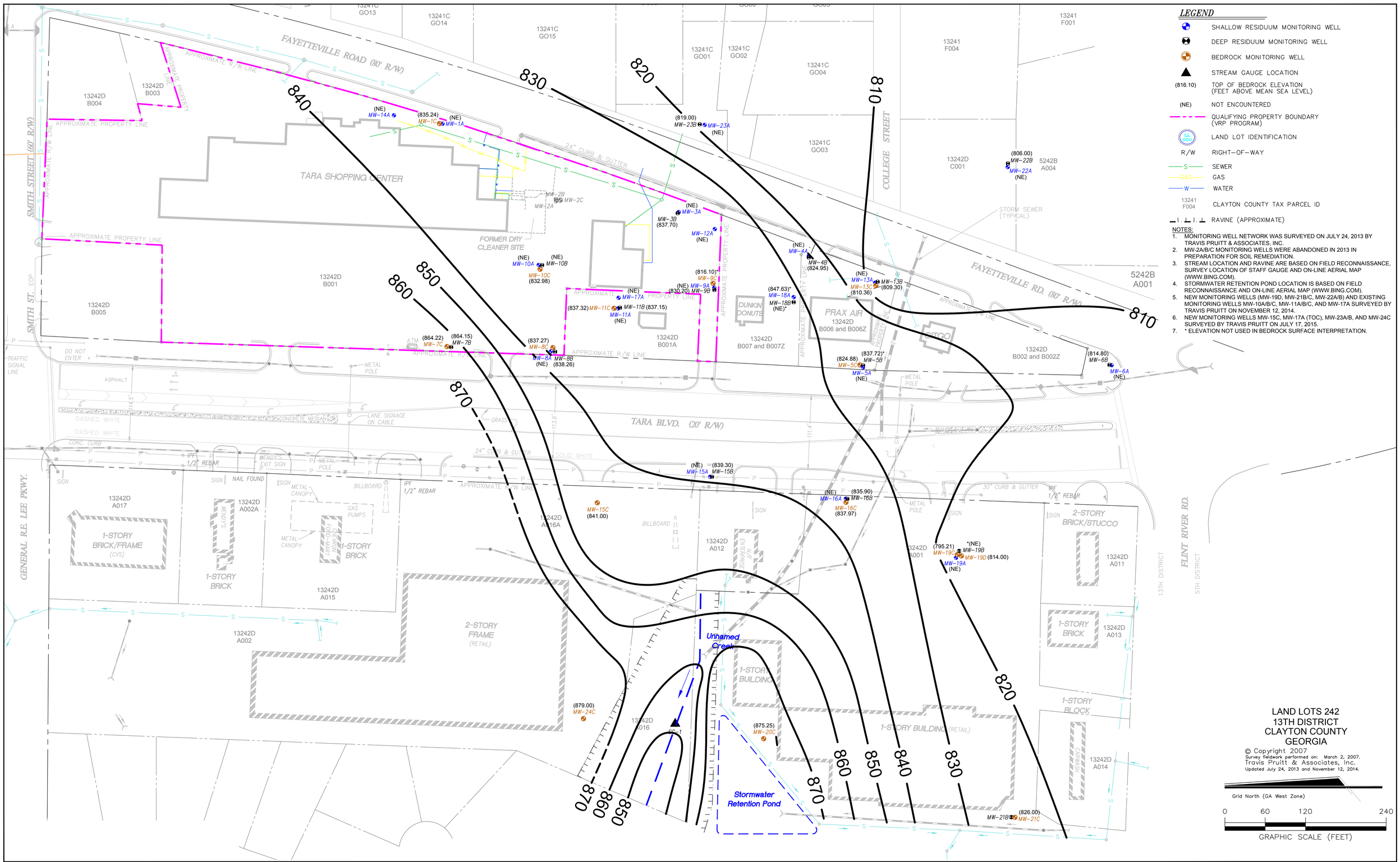
D:\EHSS_GIS\C00342_Alterman\01_ANALYSIS\20160205_BaseMaps\Figure 3 - Aerial Site Plan and Surrounding Land Use - 20160217.mxd

Printed 2/17/2016 1:57:48 PM by mholinger

Hydrogeologic Unit/ Hydrologic Boundary	Principal Lithology	Unit Thickness	Comments
Residuum (Upper/Lower) Piedmont Province	Saprolite • primarily clays and silts with minor sand 	0 – Approx. 70 feet Varying Thickness and Saturated Thickness	• Unconfined water-bearing zone • Absent/discontinuous (pinches out) west/downgradient of Tara Boulevard near the unnamed creek • Saturated thickness below the Site >20 feet below grade • Increased saturated thickness east/upgradient and south/side gradient of the Site • Not a drinking water resource within the Study Area.
Bedrock Piedmont Crystalline-rock aquifer system	 Granitic gneiss also referenced to as: • granite and amphibolite • biotite gneiss • non-porphyritic granite	>100+ feet Varying depth below grade Saturated >100 feet	• Present at depth beneath the Site and south of the Site (>50 feet or ~830 feet above mean sea level) • Expresses/Outcrops along the banks of the unnamed creek west of the Site (~870 feet above mean sea level). • Groundwater under unconfined conditions • Not a drinking water resource within the Study Area. Potable water in Clayton County is provided by the Clayton County Water Authority utilizing surface water reservoirs
Unnamed Creek /Third Order Stream	Shallow, low velocity stream incised into outcropping granitic gneiss, with fines and organic material. 	< 1 foot depth	• Incised into outcropping bedrock • Surface flow contributed by natural storm water runoff, culvert stormwater, and groundwater baseflow • Abundant debris/trash/litter • Discharge to tributary of Flint River watershed

- The "Site" is defined as the Tara Shopping Center (former Dry Cleaner property) at 8564 Tara Boulevard, Jonesboro, GA.
- The "Study Area" is defined as the area surrounding the Site – Generally, the eastern extent is "Fayetteville Road". Southern extent is the intersection of Fayetteville Road and Tara Boulevard (at Flint River Road) and Flint River Road. Northern extent is the general vicinity near the property line of the Tara Shopping Center towards Smith Street. Western extent is the unnamed creek and its headwater region.

Tara Shopping Center **Jonesboro, GA** **HSI 10798** EHS Support *08/24/2015*	**HYDROGEOLOGIC FRAMEWORK** **Site and Study Area**	**FIGURE** **4**



LEGEND

- SHALLOW RESIDUUM MONITORING WELL
- DEEP RESIDUUM MONITORING WELL
- BEDROCK MONITORING WELL
- STREAM GAUGE LOCATION
- (816.10) TOP OF BEDROCK ELEVATION (FEET ABOVE MEAN SEA LEVEL)
- (NE) NOT ENCOUNTERED
- QUALIFYING PROPERTY BOUNDARY (VRP PROGRAM)
- LAND LOT IDENTIFICATION
- R/W RIGHT-OF-WAY
- S SEWER
- GAS GAS
- W WATER
- 13241 F004 CLAYTON COUNTY TAX PARCEL ID
- RAVINE (APPROXIMATE)

NOTES:

1. MONITORING WELL NETWORK WAS SURVEYED ON JULY 24, 2013 BY TRAVIS PRUITT & ASSOCIATES, INC.
2. MW-2A/B/C MONITORING WELLS WERE ABANDONED IN 2013 IN PREPARATION FOR SOIL REMEDIATION.
3. STREAM LOCATION AND RAVINE ARE BASED ON FIELD RECONNAISSANCE, SURVEY LOCATION OF STAFF GAUGE AND ON-LINE AERIAL MAP (WWW.BING.COM).
4. STORMWATER RETENTION POND LOCATION IS BASED ON FIELD RECONNAISSANCE AND ON-LINE AERIAL MAP (WWW.BING.COM).
5. NEW MONITORING WELLS (MW-19D, MW-21B/C, MW-22A/B) AND EXISTING MONITORING WELLS MW-10A/B/C, MW-11A/B/C, AND MW-17A SURVEYED BY TRAVIS PRUITT ON NOVEMBER 12, 2014.
6. NEW MONITORING WELLS MW-15C, MW-17A (TOC), MW-23A/B, AND MW-24C SURVEYED BY TRAVIS PRUITT ON JULY 17, 2015.
7. * ELEVATION NOT USED IN BEDROCK SURFACE INTERPRETATION.

LAND LOTS 242
13TH DISTRICT
CLAYTON COUNTY
GEORGIA

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Survey fieldwork performed on: March 2, 2007.
Travis Pruitt & Associates, Inc.
Updated July 24, 2013 and November 12, 2014.

Grid North (GA West Zone)

0 60 120 240

GRAPHIC SCALE (FEET)

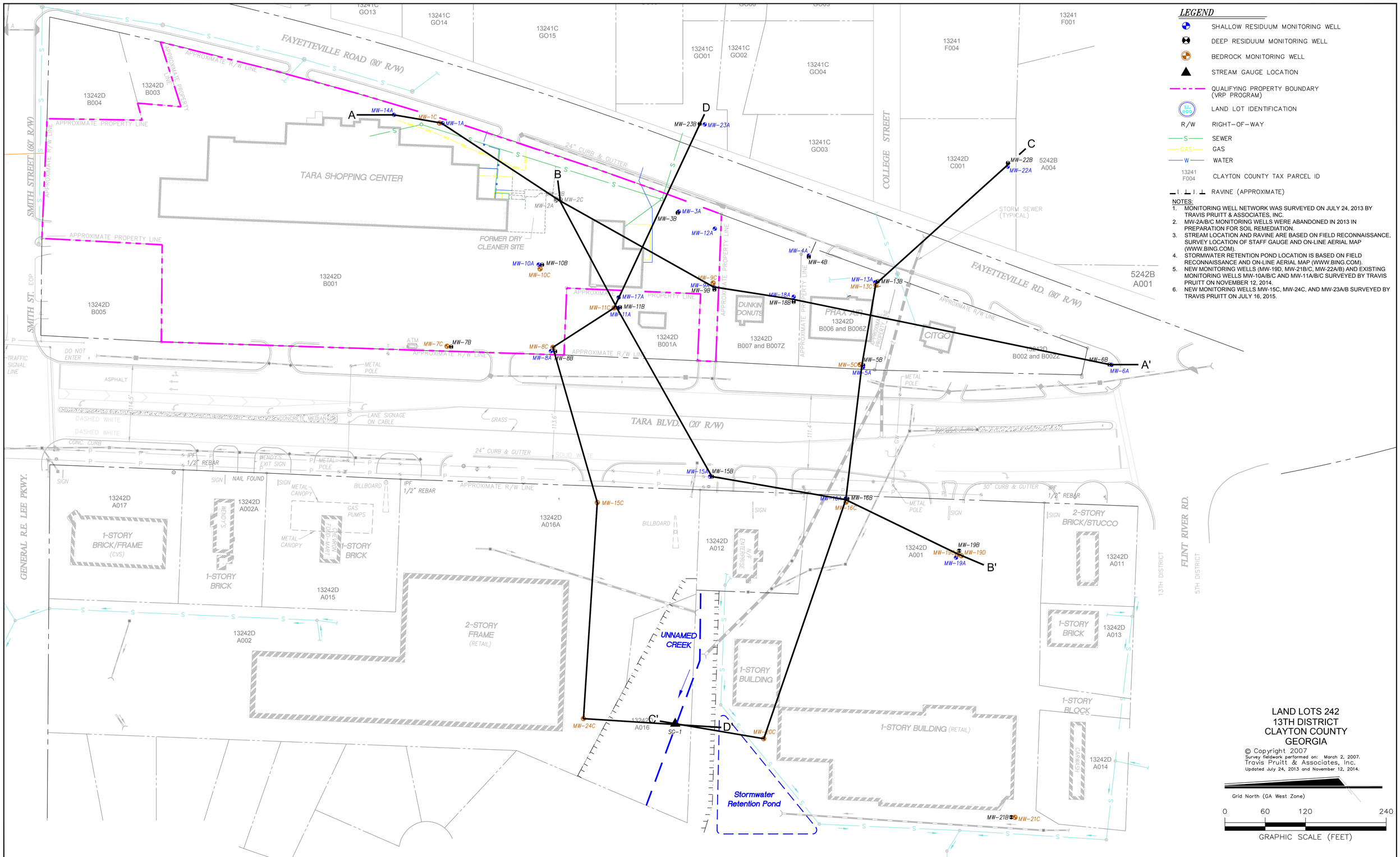
EHS Support consider it done

REVISIONS				
Rev.		By:	Disc.: Map scale updated based on Clayton County GIS Viewer	Date: 02/2016
Rev.		By:	Disc.:	Date:
Rev.		By:	Disc.:	Date:
Rev.		By:	Disc.:	Date:

TARA SHOPPING CENTER
8564 Tara Boulevard, Jonesboro, Clayton County, GA.
Tax Parcel ID 13242D B001; HSI Site No. 10798

FIGURE 5
STRUCTURAL SURFACE CONTOUR: TOP OF BEDROCK

Drawn By:	MDO	Date Drawn:	02/2016
Reviewed By:	MSS	Date Reviewed:	02/2016
Scale:	1" = 60'	Plot Date:	02/2016
Project No.:	C00342	Figure 5	



LEGEND

- SHALLOW RESIDUUM MONITORING WELL
- DEEP RESIDUUM MONITORING WELL
- BEDROCK MONITORING WELL
- STREAM GAUGE LOCATION
- QUALIFYING PROPERTY BOUNDARY (VRP PROGRAM)
- LAND LOT IDENTIFICATION
- R/W — RIGHT-OF-WAY
- S — SEWER
- GAS — GAS
- W — WATER
- 13241 F004 — CLAYTON COUNTY TAX PARCEL ID
- RAVINE (APPROXIMATE)

NOTES:

1. MONITORING WELL NETWORK WAS SURVEYED ON JULY 24, 2013 BY TRAVIS PRUITT & ASSOCIATES, INC.
2. MW-2A/B/C MONITORING WELLS WERE ABANDONED IN 2013 IN PREPARATION FOR SOIL REMEDIATION.
3. STREAM LOCATION AND RAVINE ARE BASED ON FIELD RECONNAISSANCE, SURVEY LOCATION OF STAFF GAUGE AND ON-LINE AERIAL MAP (WWW.BING.COM).
4. STORMWATER RETENTION POND LOCATION IS BASED ON FIELD RECONNAISSANCE AND ON-LINE AERIAL MAP (WWW.BING.COM).
5. NEW MONITORING WELLS (MW-19D, MW-21B/C, MW-22A/B) AND EXISTING MONITORING WELLS MW-10A/B/C AND MW-11A/B/C SURVEYED BY TRAVIS PRUITT ON NOVEMBER 12, 2014.
6. NEW MONITORING WELLS MW-15C, MW-24C, AND MW-23A/B SURVEYED BY TRAVIS PRUITT ON JULY 16, 2015.

LAND LOTS 242
13TH DISTRICT
CLAYTON COUNTY
GEORGIA

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Survey fieldwork performed on: March 2, 2007.
Travis Pruitt & Associates, Inc.
Updated July 24, 2013 and November 12, 2014.

Grid North (GA West Zone)

0 60 120 240

GRAPHIC SCALE (FEET)

EHS Support consider it done

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Rev.		By:	Disc.:	Date:
Rev.		By:	Disc.:	Date:
Rev.		By:	Disc.:	Date:

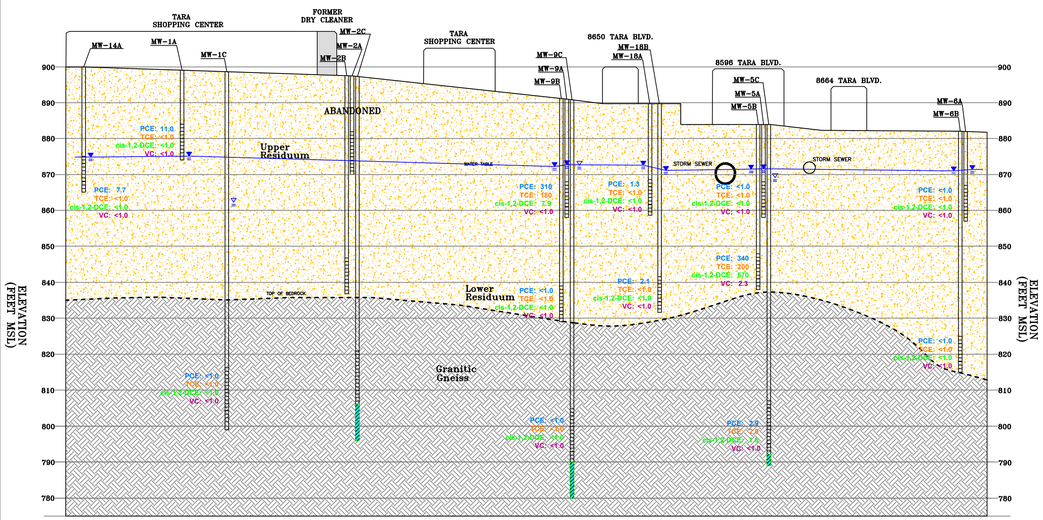
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8564 TARA BOULEVARD
JONESBORO, GEORGIA

FIGURE 6
CROSS SECTION LOCATION MAP

Drawn By:	MDO	Date Drawn:	02/2016
Reviewed By:	MSS	Date Reviewed:	02/2016
Scale:	1" = 60'	Plot Date:	02/2016
Project No.:	C00342	Figure 6	

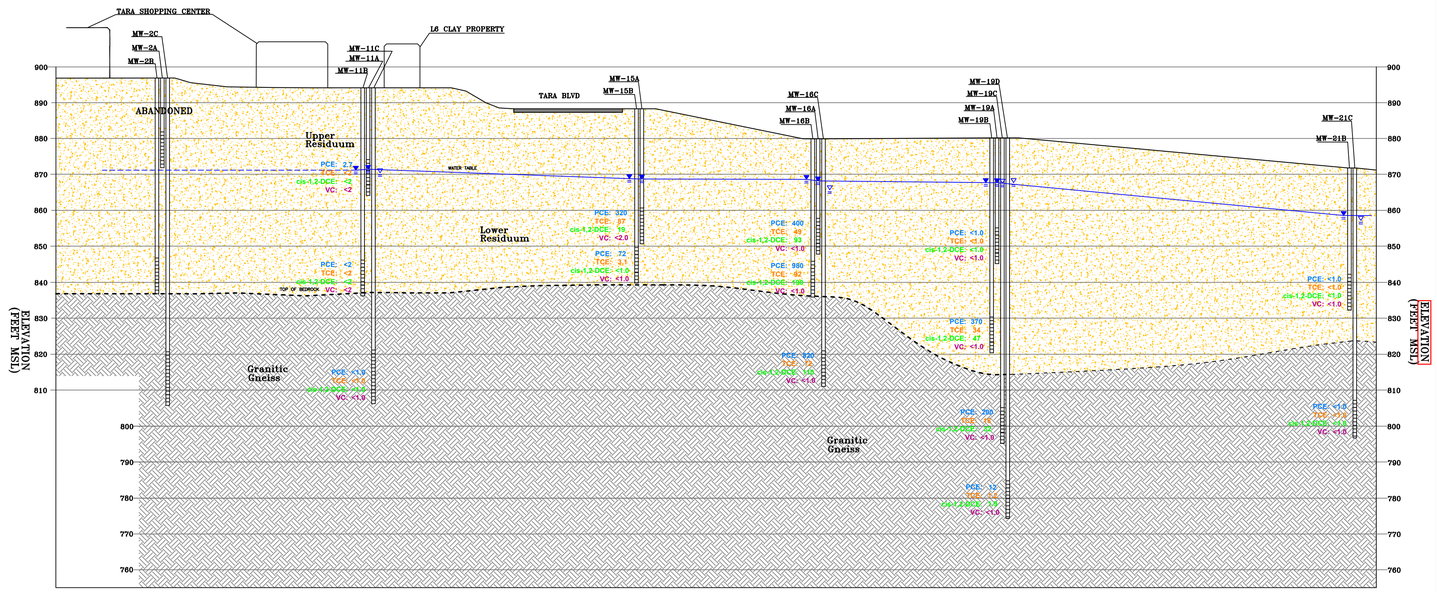
NORTHEAST
A

SOUTHWEST
A'



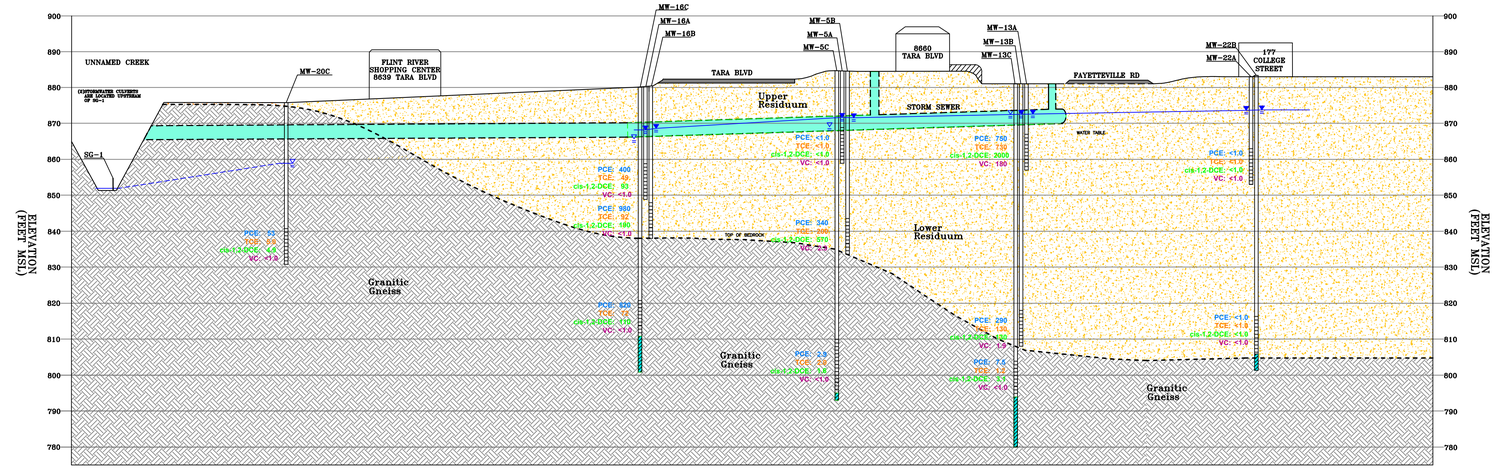
EAST
B

WEST
B'



WEST
C'

EAST
C



LEGEND

- UPPER RESIDUUM
  LOWER RESIDUUM
  (Clayey Silt)
- BEDROCK
- = SCREEN INTERVAL
- = BENTONITE
- MW = MONITORING WELL
- = RESIDUUM GROUNDWATER ELEVATION (Elevation recorded on June 29, 2015)
- = BEDROCK GROUNDWATER ELEVATION (Elevation recorded on June 29, 2015)

Notes:

1. Staff Gauge installed into unnamed creek in July 2013. Piece of steel rebar set into ground and painted orange.
2. Original cross section prepared by URS Corporation. Location of sub-grade sewer line has not been verified and is based on historic drawing previously prepared by URS Corporation, Groundwater Corrective Action Plan, March 20, 2009 and Groundwater Corrective Action Plan Addendum, September 28, 2009.
3. Storm water culverts identified in the field and are depicted on site plans. Both culverts drain in upgradient section of ravine.
4. Horizontal Scale is 1" = 80'.

References:

1. URS Corporation, Groundwater Corrective Action Plan, March 20, 2009.
2. Groundwater Corrective Action Plan Addendum, September 28, 2009.
3. Travis Pruitt Survey Report completed on, July 31, 2013.
   Updated February 3, 2014, July 24, 2014, November 12, 2014, and July 17, 2015 (New Wells).

EHS Support consider it done

REVISIONS				
Rev.		By:	Disc.: Horizontal scale updated	Date: 02/2016
Rev.		By:	Disc.:	Date:
Rev.		By:	Disc.:	Date:
Rev.		By:	Disc.:	Date:

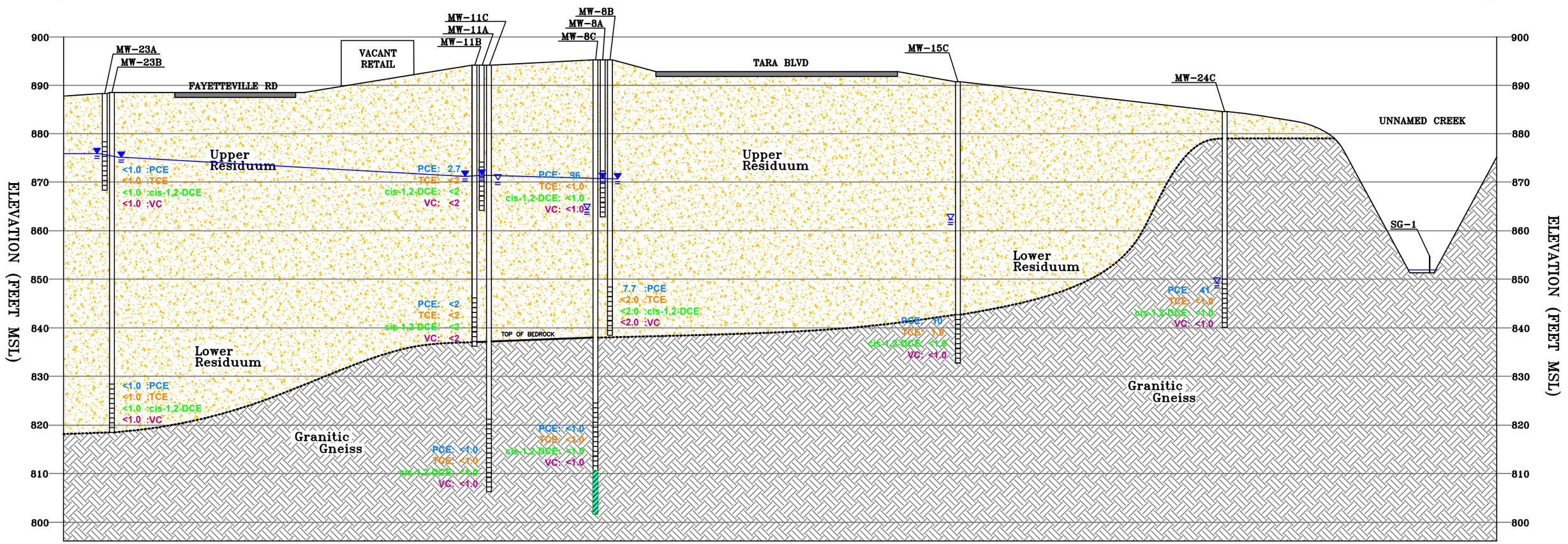
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JONESBORO, GEORGIA

FIGURE 7
CROSS SECTIONS A-A', B-B' AND C-C'

Drawn By:	MDO	Date Drawn:	02/2016
Reviewed By:	MSS	Date Reviewed:	02/2016
Scale:	AS SHOWN	Plot Date:	02/2016
Project No.:	C00342	Figure 7	

EAST
D

WEST
D'



LEGEND

- UPPER RESIDUUM / LOWER RESIDUUM (Clayey Silt)
- BEDROCK
- = SCREEN INTERVAL
- = BENTONITE
- MW = MONITORING WELL
- = RESIDUUM GROUNDWATER ELEVATION (Elevation recorded on June 29, 2015)
- = BEDROCK GROUNDWATER ELEVATION (Elevation recorded on June 29, 2015)

Notes:
1. Horizontal Scale is 1" = 80'.

References:

1. URS Corporation, Groundwater Corrective Action Plan, March 20, 2009.
2. Travis Pruitt Survey Report completed on, July 31, 2013.
   Updated February 3, 2014, July 24, 2014, November 12, 2014, and July 17, 2015 (New Wells).

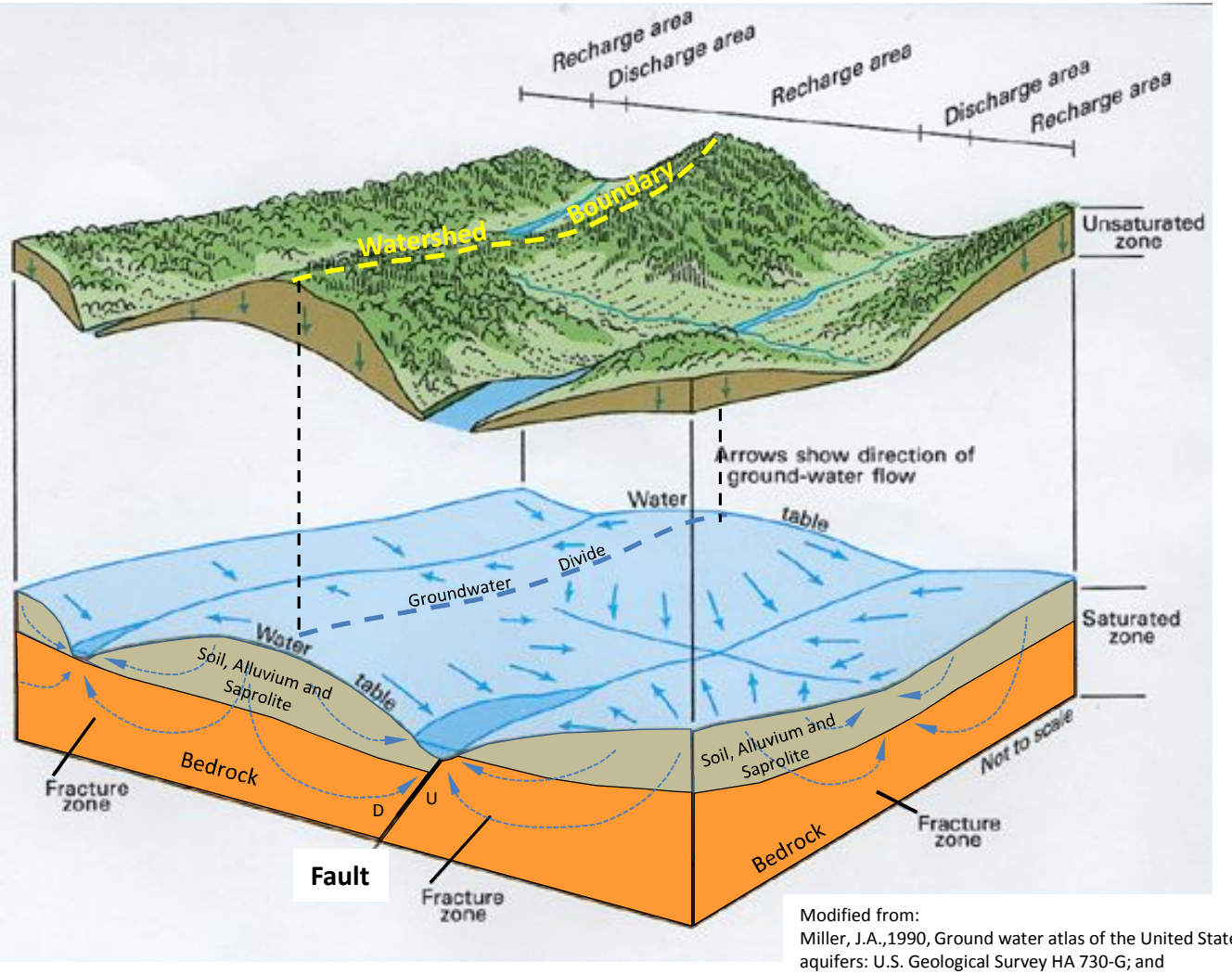
EHS Support *consider it done*

REVISIONS				
Rev.		By:	Disc.: Horizontal scale updated	Date: 02/2016
Rev.		By:	Disc.:	Date:
Rev.		By:	Disc.:	Date:
Rev.		By:	Disc.:	Date:

TARA SHOPPING CENTER
8564 Tara Boulevard, Jonesboro,
Clayton County, Georgia
Tax Parcel ID 13242D B001
HSI Site No. 10798

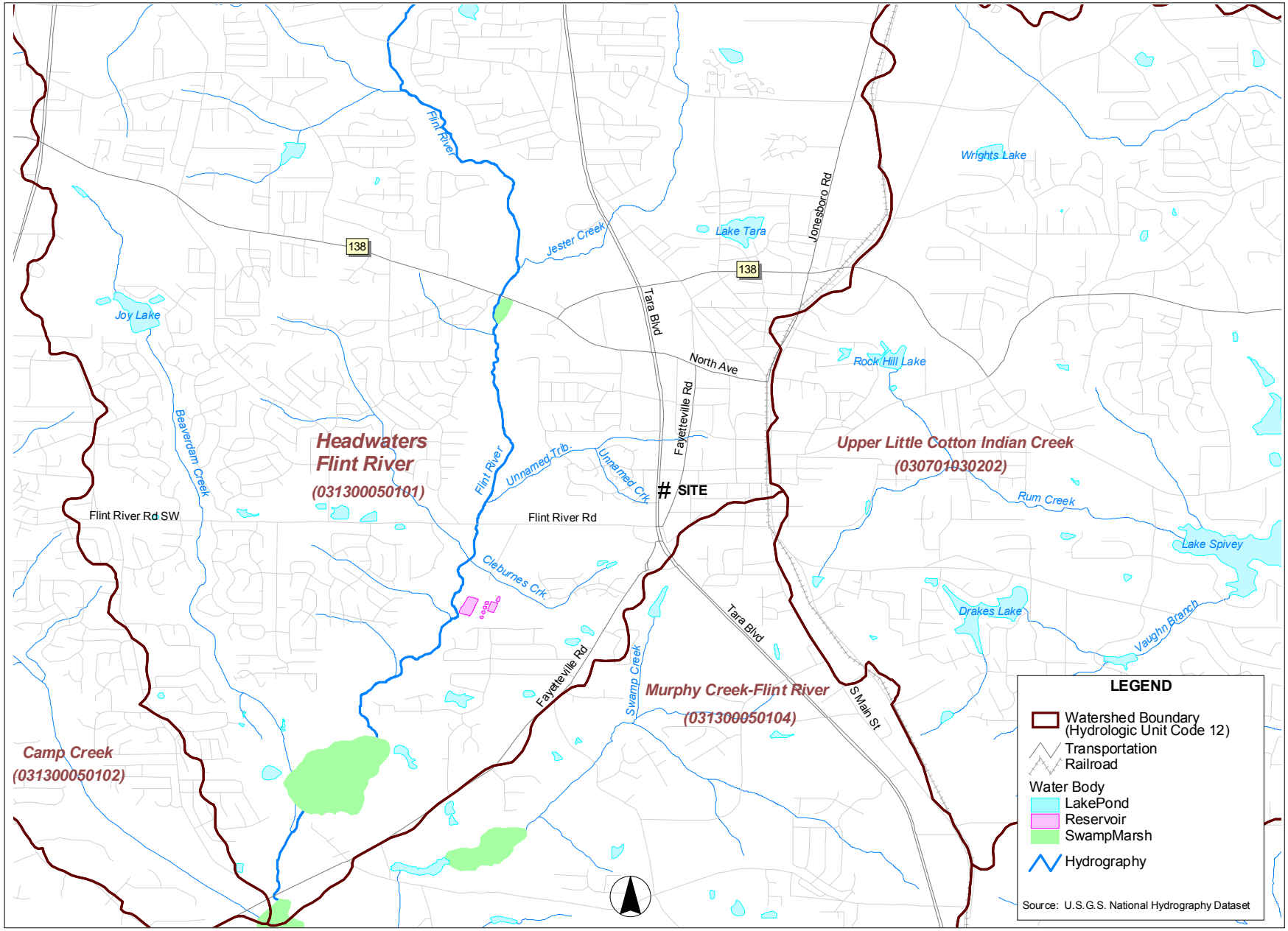
FIGURE 8
CROSS SECTION D - D'

Drawn By:	MDO	Date Drawn:	08/2015
Reviewed By:	MSS	Date Reviewed:	08/2015
Scale:	AS SHOWN	Plot Date:	08/2015
Project No.:	C00342	Figure 8	



Modified from:
Miller, J.A.,1990, Ground water atlas of the United States – Piedmont and Blue Ridge aquifers: U.S. Geological Survey HA 730-G; and
Legrand, H.E., 2004, A master conceptual model for hydrogeological site characterization in the Piedmont and Mountain region of North Carolina, A guidance manual: North Carolina Department of Environment and Natural Resources

JONESBORO GEORGIA EHS Support May, 2011	CONCEPTUAL VIEW OF GROUNDWATER FLOW IN THE PIEDMONT AQUIFER SYSTEM	FIGURE 9

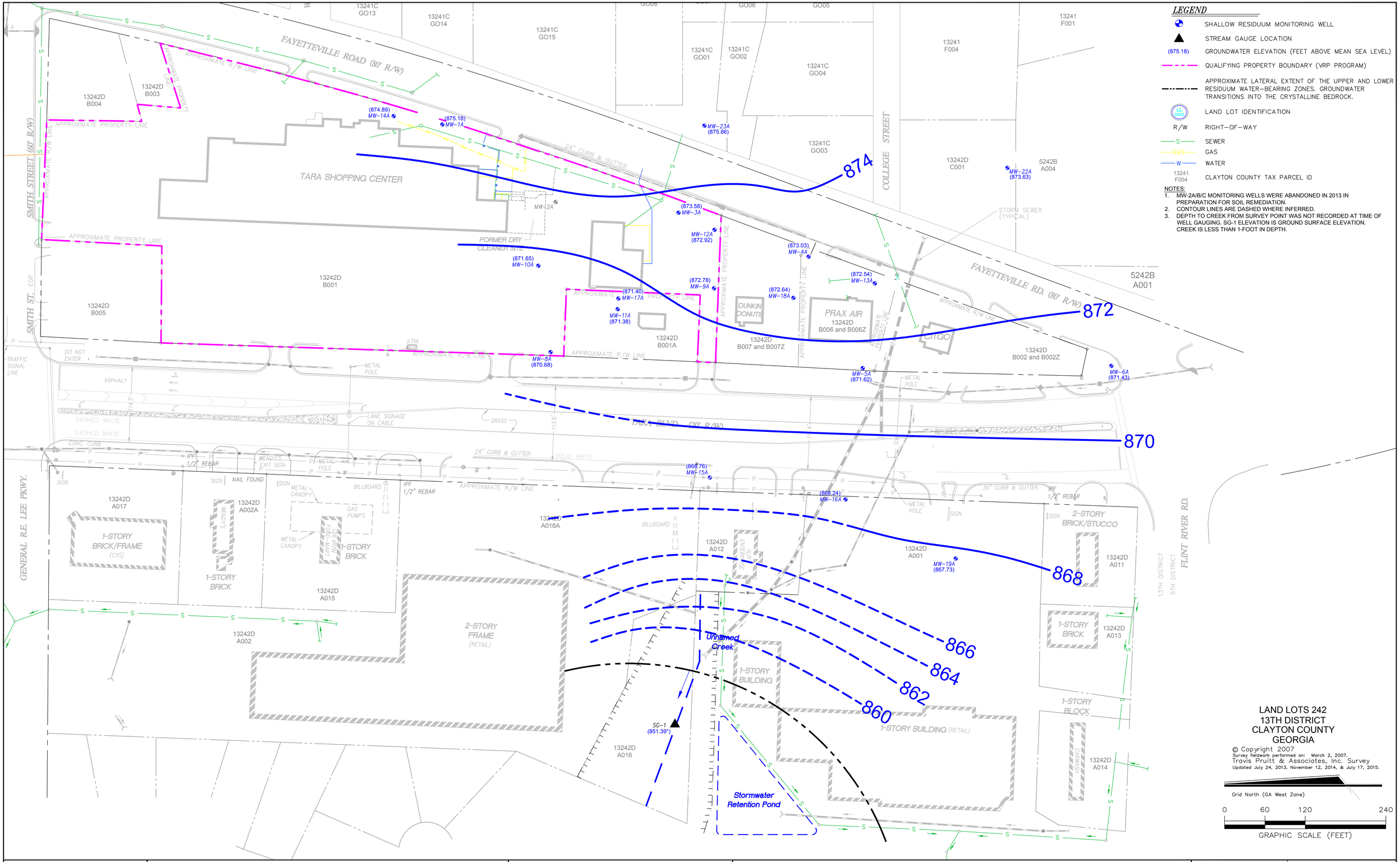


JONESBORO
GEORGIA

EHS Support May, 2011

WATERSHED BOUNDARIES

FIGURE 10



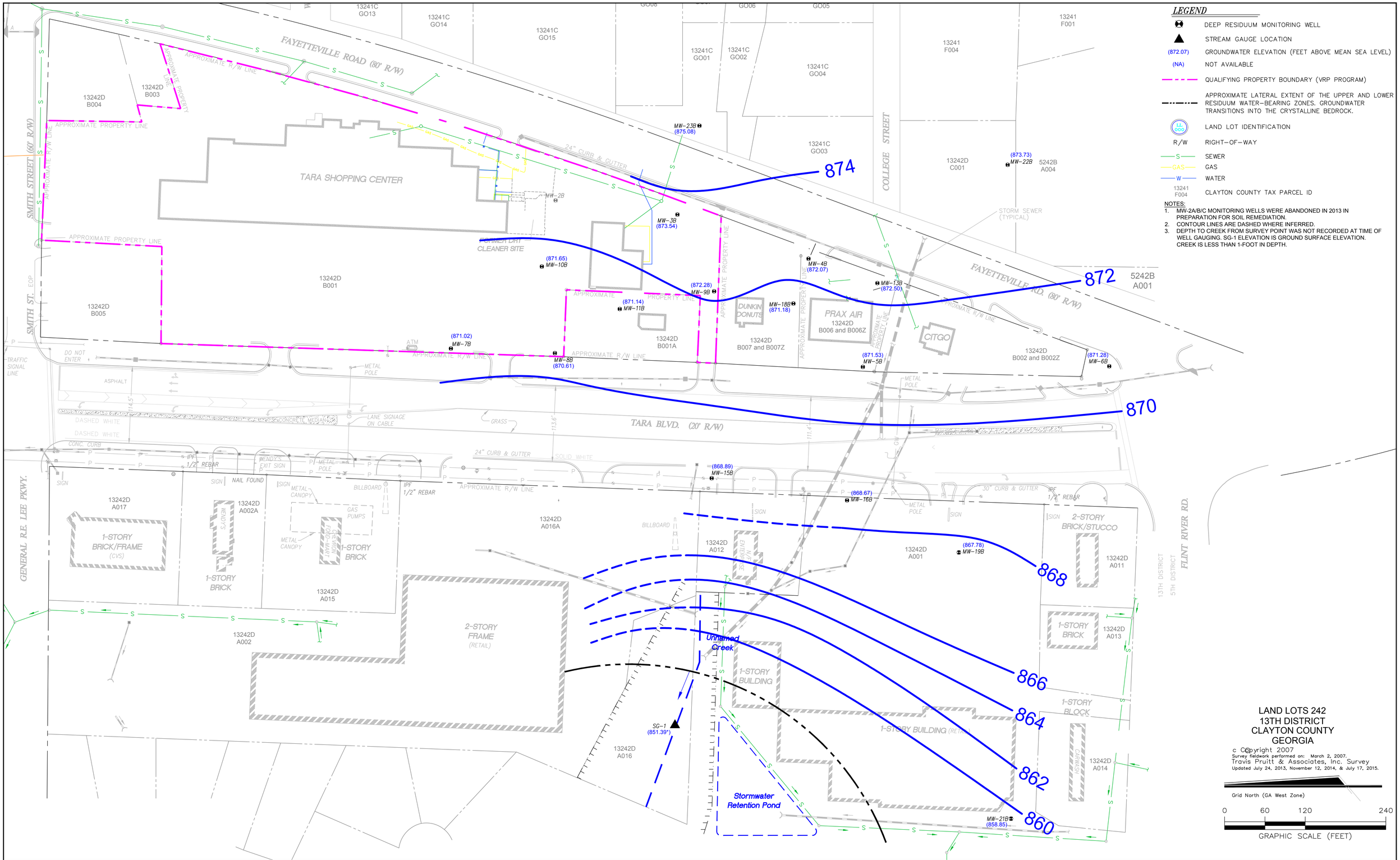
EHS Support consider it done

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Rev.		By:	Disc.:	Date:

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FIGURE 11
UPPER RESIDUUM POTENTIOMETRIC SURFACE CONTOUR: JUNE 29, 2015

Drawn By:	MDO	Date Drawn:	02/2016
Reviewed By:	MSS	Date Reviewed:	02/2016
Scale:	1" = 60'	Plot Date:	02/2016
Project No.:	C00342	Figure 11	



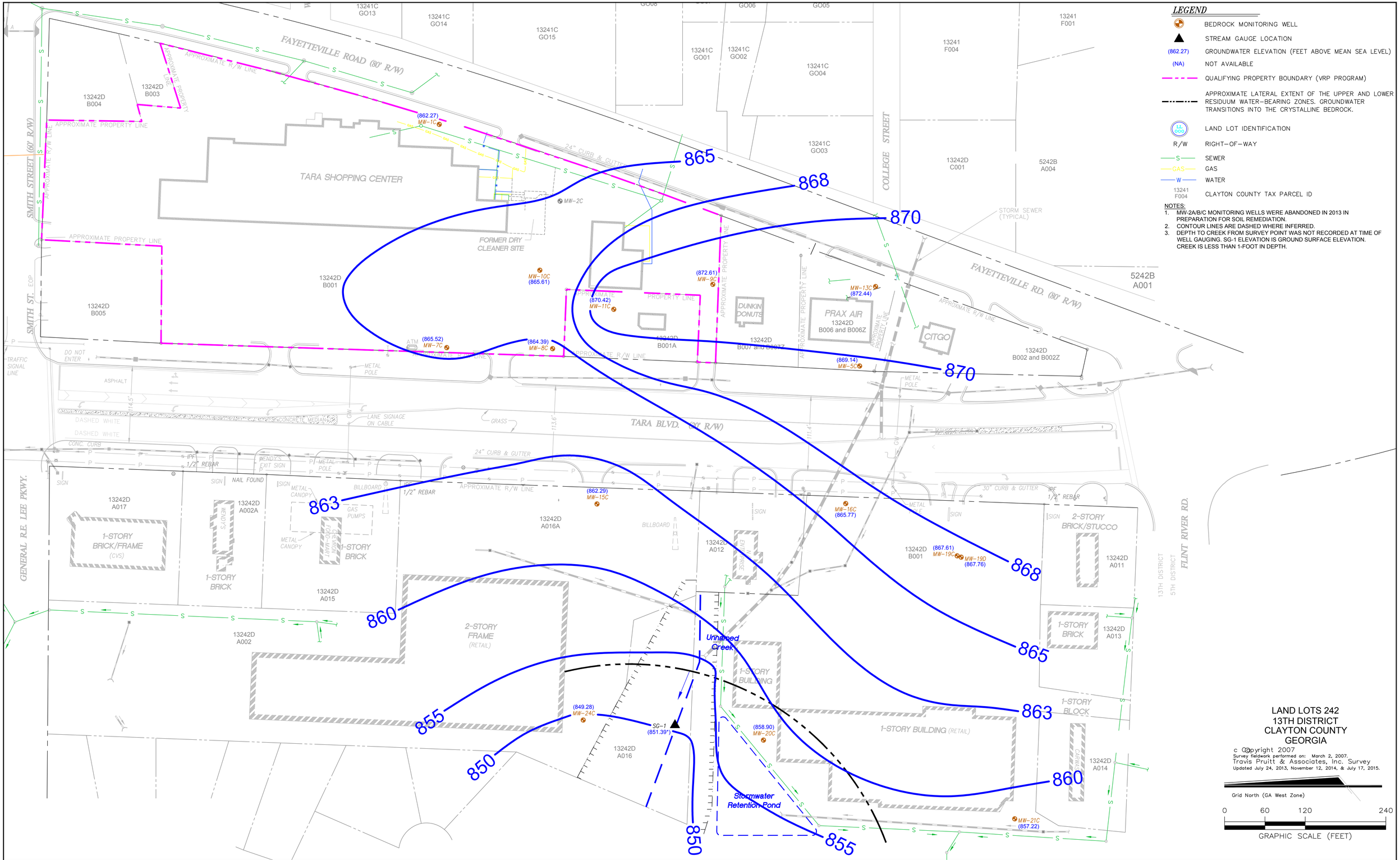
EHS Support consider it done

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Rev.		By:	Disc.:	Date:
Rev.		By:	Disc.:	Date:

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JONESBORO, GEORGIA

FIGURE 12
LOWER RESIDUUM POTENTIOMETRIC SURFACE CONTOUR: JUNE 29, 2015

Drawn By:	MDO	Date Drawn:	02/2016
Reviewed By:	MSS	Date Reviewed:	02/2016
Scale:	1" = 60'	Plot Date:	02/2016
Project No.:	C00342	Figure 12	



LEGEND

- BEDROCK MONITORING WELL
- STREAM GAUGE LOCATION
- (862.27) GROUNDWATER ELEVATION (FEET ABOVE MEAN SEA LEVEL)
- (NA) NOT AVAILABLE
- QUALIFYING PROPERTY BOUNDARY (VRP PROGRAM)
- APPROXIMATE LATERAL EXTENT OF THE UPPER AND LOWER RESIDUUM WATER-BEARING ZONES. GROUNDWATER TRANSITIONS INTO THE CRYSTALLINE BEDROCK.
- 12, 0GG LAND LOT IDENTIFICATION
- R/W RIGHT-OF-WAY
- S SEWER
- GAS GAS
- W WATER
- 13241 F004 CLAYTON COUNTY TAX PARCEL ID

NOTES:
1. MW-2A/B/C MONITORING WELLS WERE ABANDONED IN 2013 IN PREPARATION FOR SOIL REMEDIATION.
2. CONTOUR LINES ARE DASHED WHERE INFERRED.
3. DEPTH TO CREEK FROM SURVEY POINT WAS NOT RECORDED AT TIME OF WELL GAUGING. SG-1 ELEVATION IS GROUND SURFACE ELEVATION. CREEK IS LESS THAN 1-FOOT IN DEPTH.

LAND LOTS 242
13TH DISTRICT
CLAYTON COUNTY
GEORGIA

c Copyright 2007
Survey fieldwork performed on: March 2, 2007.
Travis Pruitt & Associates, Inc. Survey
Updated July 24, 2013, November 12, 2014, & July 17, 2015.

Grid North (GA West Zone)

0 60 120 240
GRAPHIC SCALE (FEET)

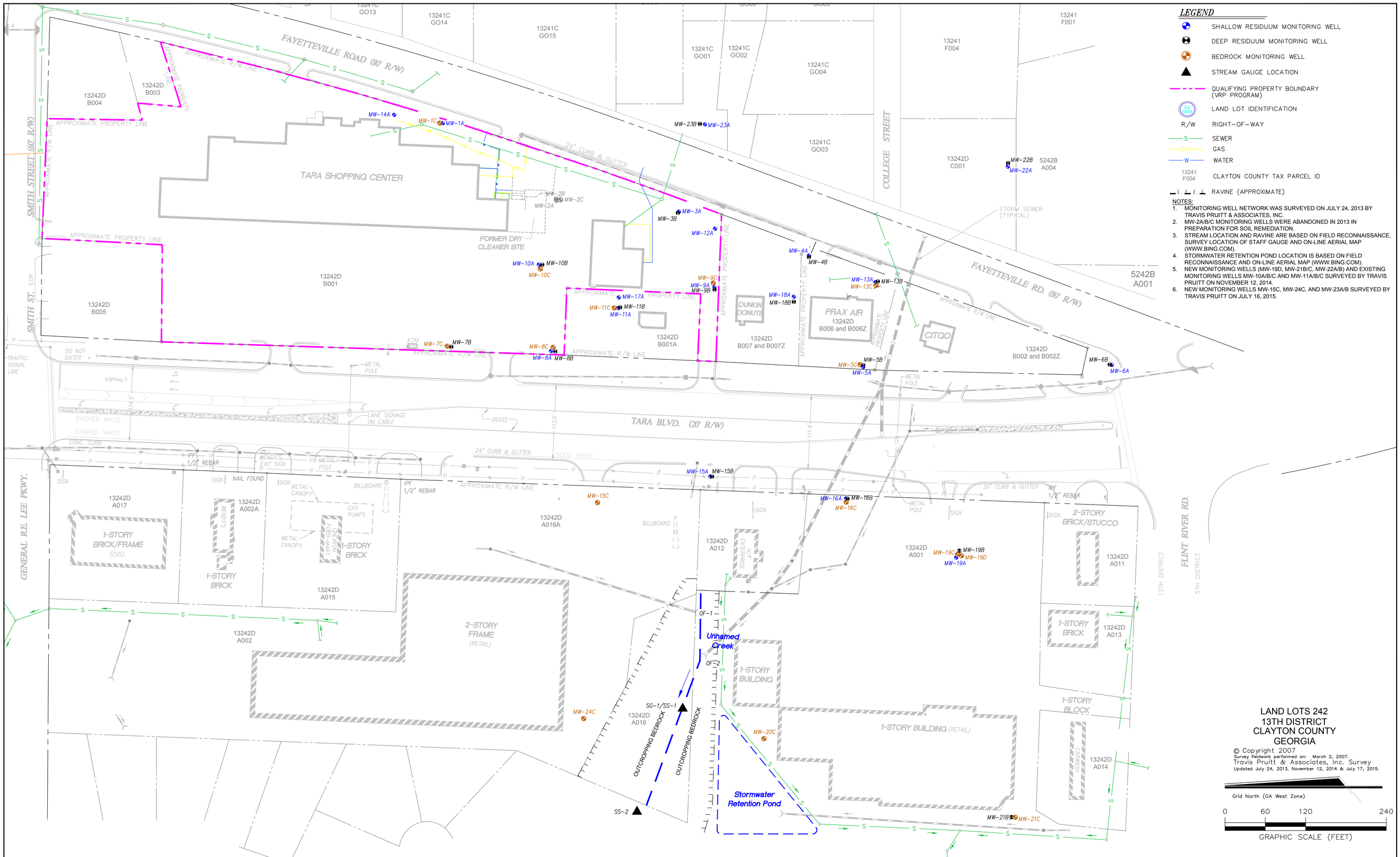
EHS Support consider it done

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Rev.		By:	Disc.:	Date:

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JONESBORO, GEORGIA

FIGURE 13
BEDROCK POTENTIOMETRIC SURFACE CONTOUR: JUNE 29, 2015

Drawn By:	MDO	Date Drawn:	02/2016
Reviewed By:	MSS	Date Reviewed:	02/2016
Scale:	1" = 60'	Plot Date:	02/2016
Project No.:	C00342	Figure 13	



LEGEND

- SHALLOW RESIDUUM MONITORING WELL
- DEEP RESIDUUM MONITORING WELL
- BEDROCK MONITORING WELL
- STREAM GAUGE LOCATION
- QUALIFYING PROPERTY BOUNDARY (VRP PROGRAM)
- LAND LOT IDENTIFICATION
- R/W — RIGHT-OF-WAY
- S — SEWER
- GAS — GAS
- W — WATER
- 13241 F004 — CLAYTON COUNTY TAX PARCEL ID
- RAVINE (APPROXIMATE)

NOTES:

1. MONITORING WELL NETWORK WAS SURVEYED ON JULY 24, 2013 BY TRAVIS PRUITT & ASSOCIATES, INC.
2. MW-2A/B/C MONITORING WELLS WERE ABANDONED IN 2013 IN PREPARATION FOR SOIL REMEDIATION.
3. STREAM LOCATION AND RAVINE ARE BASED ON FIELD RECONNAISSANCE, SURVEY LOCATION OF STAFF GAUGE AND ON-LINE AERIAL MAP (WWW.BING.COM).
4. STORMWATER RETENTION POND LOCATION IS BASED ON FIELD RECONNAISSANCE AND ON-LINE AERIAL MAP (WWW.BING.COM).
5. NEW MONITORING WELLS (MW-19D, MW-21B/C, MW-22A/B) AND EXISTING MONITORING WELLS MW-10A/B/C AND MW-11A/B/C SURVEYED BY TRAVIS PRUITT ON NOVEMBER 12, 2014.
6. NEW MONITORING WELLS MW-15C, MW-24C, AND MW-23A/B SURVEYED BY TRAVIS PRUITT ON JULY 16, 2015.

LAND LOTS 242
13TH DISTRICT
CLAYTON COUNTY
GEORGIA

© Copyright 2007
Survey fieldwork performed on: March 2, 2007.
Travis Pruitt & Associates, Inc. Survey
Updated July 24, 2013, November 12, 2014 & July 17, 2015.

Grid North (GA West Zone)

0 60 120 240

GRAPHIC SCALE (FEET)

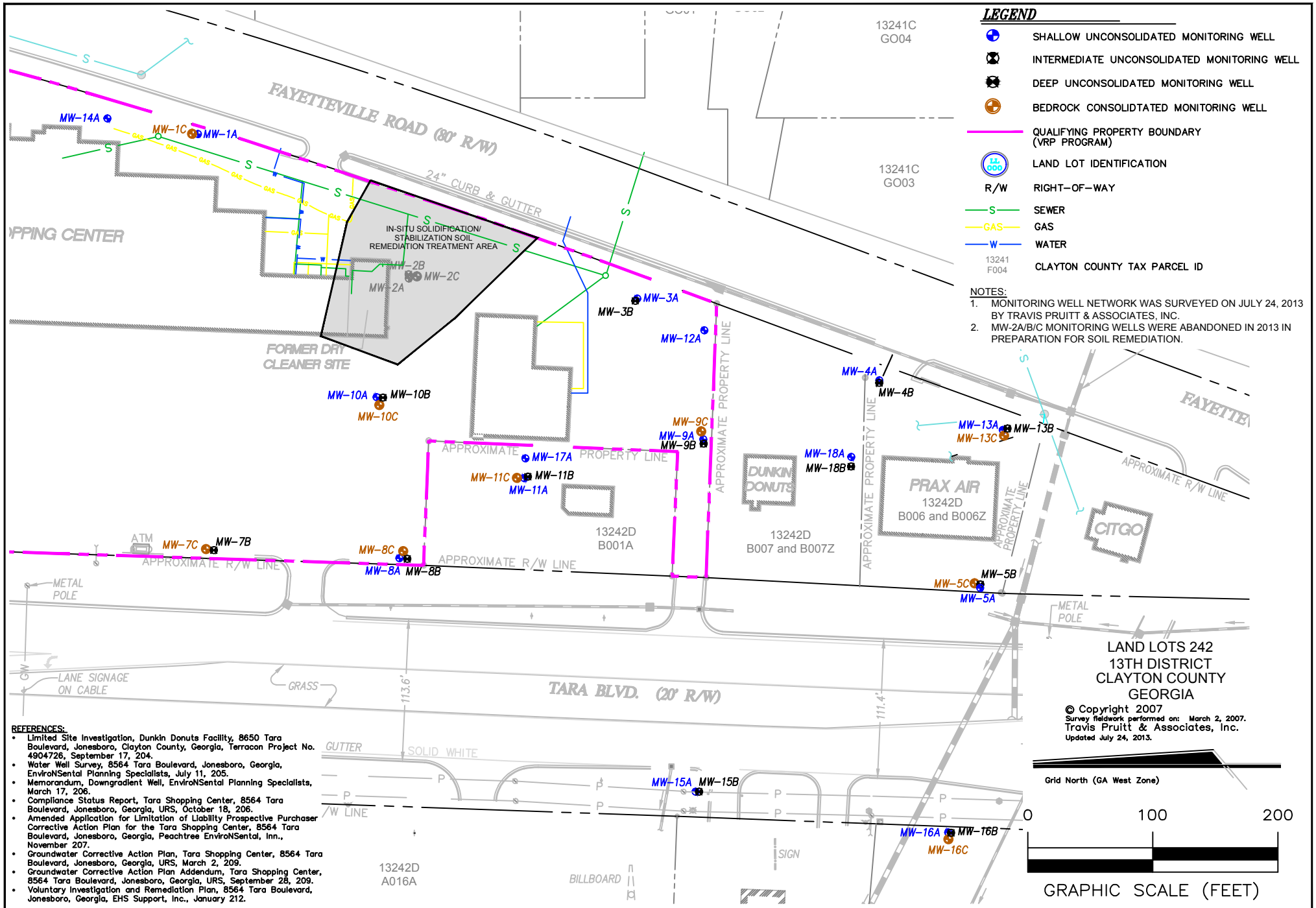
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JONESBORO, GEORGIA

FIGURE 14
MONITORING WELL NETWORK

Drawn By:	MDO	Date Drawn:	02/2016
Reviewed By:	MSS	Date Reviewed:	02/2016
Scale:	1" = 60'	Plot Date:	02/2016
Project No.:	C00342	Figure 14	



REFERENCES:

- Limited Site Investigation, Dunkin Donuts Facility, 8650 Tara Boulevard, Jonesboro, Clayton County, Georgia, Terracon Project No. 4904726, September 17, 204.
- Water Well Survey, 8564 Tara Boulevard, Jonesboro, Georgia, EnviroNSental Planning Specialists, July 11, 205.
- Memorandum, Downgradient Well, EnviroNSental Planning Specialists, March 17, 206.
- Compliance Status Report, Tara Shopping Center, 8564 Tara Boulevard, Jonesboro, Georgia, URS, October 18, 206.
- Amended Application for Limitation of Liability Prospective Purchaser Corrective Action Plan for the Tara Shopping Center, 8564 Tara Boulevard, Jonesboro, Georgia, Peachtree EnviroNSental, Inn., November 207.
- Groundwater Corrective Action Plan, Tara Shopping Center, 8564 Tara Boulevard, Jonesboro, Georgia, URS, March 2, 209.
- Groundwater Corrective Action Plan Addendum, Tara Shopping Center, 8564 Tara Boulevard, Jonesboro, Georgia, URS, September 28, 209.
- Voluntary Investigation and Remediation Plan, 8564 Tara Boulevard, Jonesboro, Georgia, EHS Support, Inc., January 212.

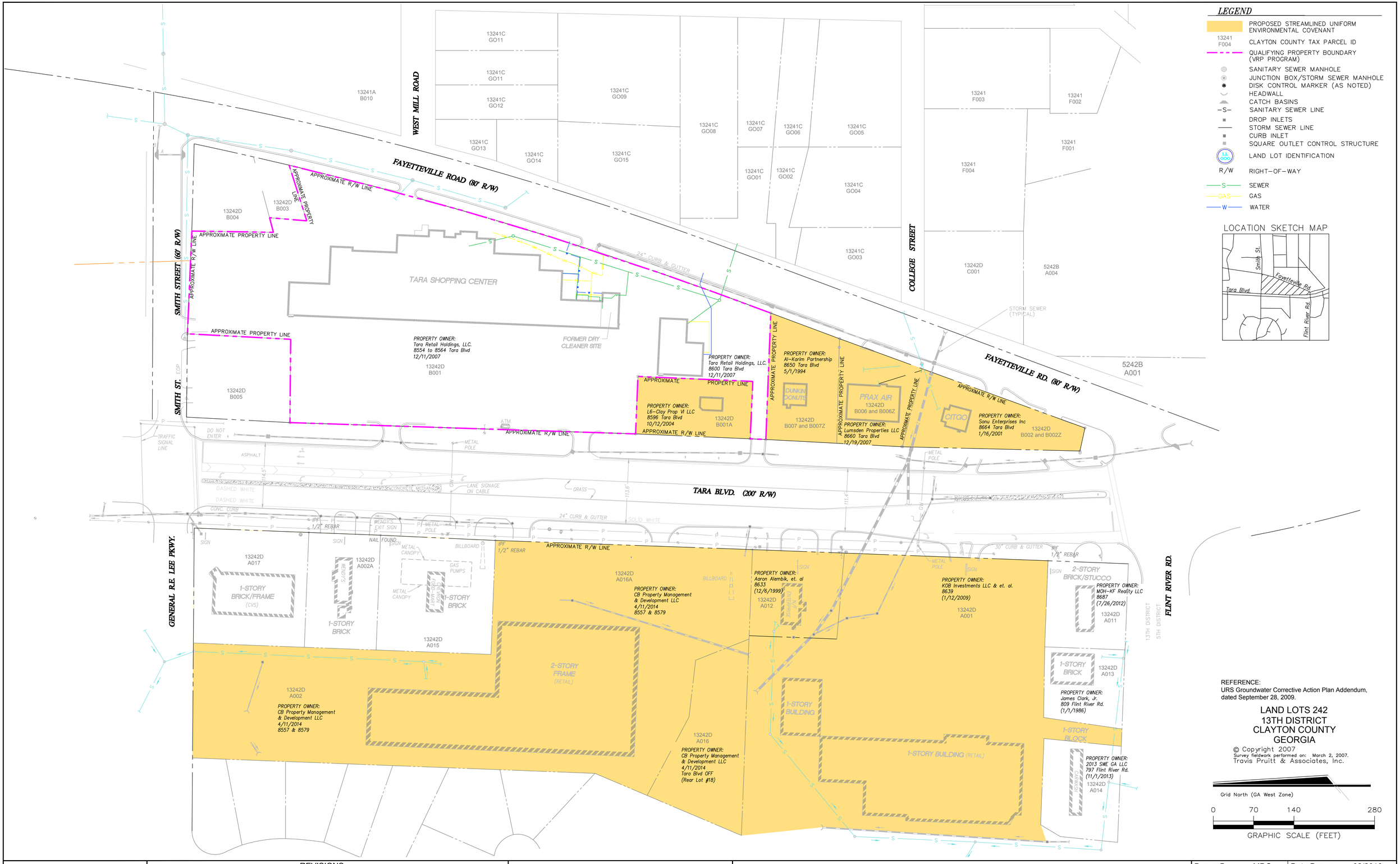
EHS Support consider it done

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Rev.		By:	Date:

TARA HOLDINGS
8564 TARA BOULEVARD
JONESBORO, GEORGIA
HSI # 10798

FIGURE 15
SOIL TREATMENT AREA

Drawn By:	MDO	Date Drawn:	02/2016
Reviewed By:	MSS	Date Reviewed:	02/2016
Scale:	1" = 100'	Plot Date:	02/2016
Project Number.:	C00342		



EHS Support consider it done

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Rev.		By:	Disc.:	Date:
Rev.		By:	Disc.:	Date:

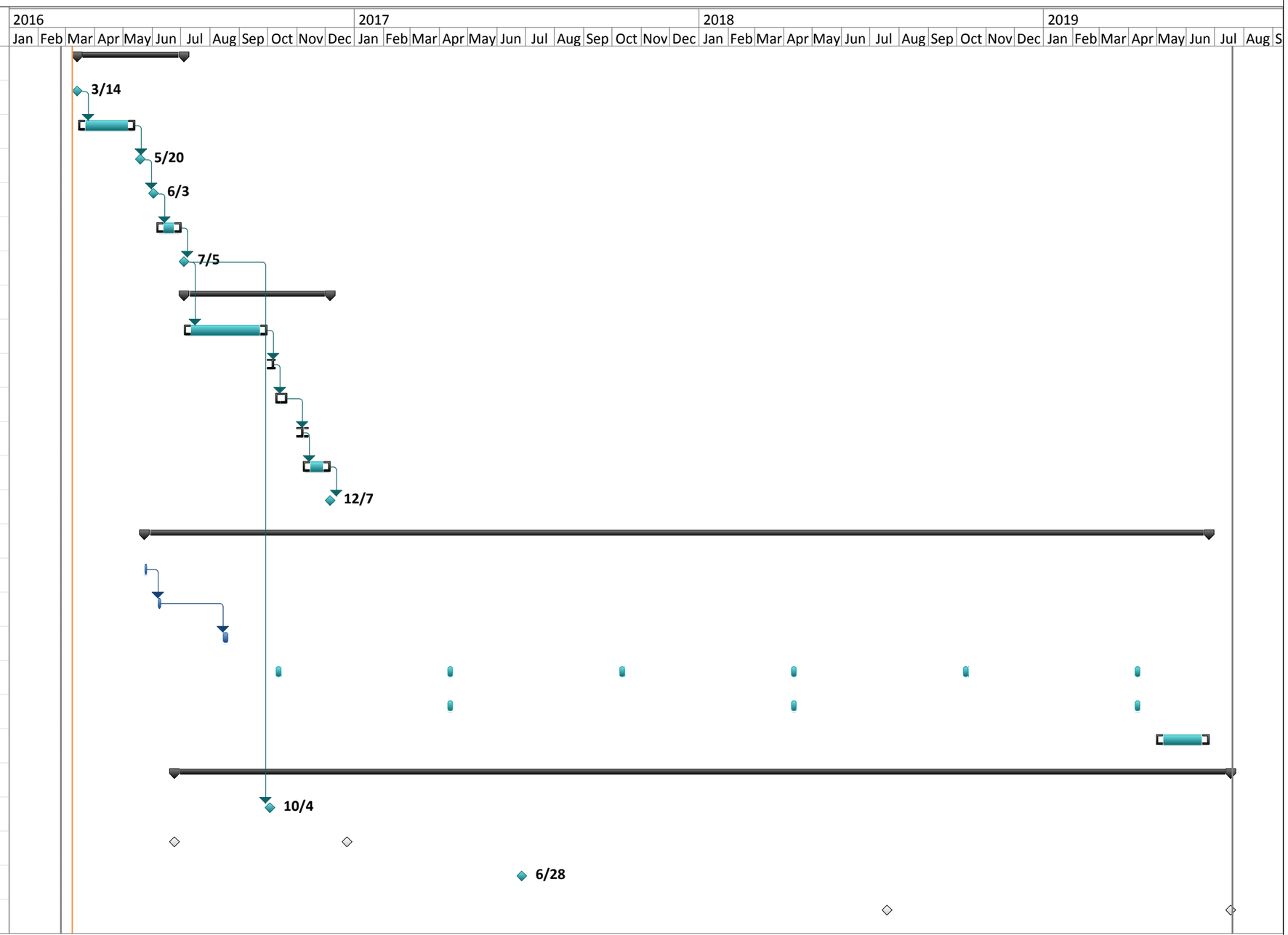
TARA HOLDINGS
8564 TARA BOULEVARD
JONESBORO, GEORGIA

FIGURE 16
PROPOSED STREAMLINED UNIFORM ENVIRONMENTAL COVENANT LOCATIONS

Drawn By:	MDO	Date Drawn:	02/2016
Reviewed By:	MSS	Date Reviewed:	02/2016
Scale:	1" = 70'	Plot Date:	02/2016
Project No.:	C00342	Figure 16	

Figure 17
Proposed Remediation Schedule
Corrective Action Work Plan Implementation

ID	Number1	Task Name
1	**1**	**Groundwater Corrective Action Work Plan**
2	1.1	Draft Submittal
3	1.2	GA EPD Review (assumed 60 days)
4	1.3	Meeting with GA EPD
5	1.4	Final Submittal
6	1.5	GA EPD Review (assumed 30 days)
7	1.6	GA EPD Approval
8	**2**	**Streamlined Uniform Environmental Covenants**
9	2.1	Negotiation with Property Owners
10	2.2	Draft Covenants
11	2.3	Record with Clayton County
12	2.4	Final Distribution to GA EPD
13	2.5	GA EPD Review (assumed 30 days)
14	2.6	GA EPD Approval
15	**3**	**Point of Demonstration Monitoring**
16	3.1	Initial Well Inspection
17	3.2	Tentative Corrective Action for Wells
18	3.3	Tentative Well Abandonment
19	3.4	Semi-Annual Monitoring
26	3.5	Annual Monitoring / Well Inspection
30	3.6	Evaluation of Monitoring Frequency
31	**4**	**Deliverables**
32	4.1	Vapor Intrusion Work Plan
33	4.2	VRP Semi-Annual Progress Reports
36	4.3	Compliance Status Report
37	4.4	Annual Monitoring Reports



Note: The June 28, 2016 VRP Progress Report will summarize results of well inspection/maintenance activities, proposed well abandonment activities, and status of groundwater corrective action

APPENDIX A

Groundwater Analytical Data Overtime

Appendix A
Groundwater Analytical Data Overtime, 2006 through 2016
Tara Shopping Center, 8564 Tara Blvd, Jonesboro, Georgia

Well ID	Sample Date	Tetrachloroethene (PCE)	Trichloroethene (TCE)	cis-1,2-Dichloroethene (cis-1, 2 DCE)	Vinyl Chloride (VC)
		ug/L	ug/L	ug/L	ug/L
Type 1/3 RRS		5	5	70	2
MW-1A	11-May-06	4.3	<1.0	<1.0	<1.0
MW-1A	20-Oct-08	DRY	DRY	DRY	DRY
MW-1A	20-Aug-09	DRY	DRY	DRY	DRY
MW-1A	16-May-11	DRY	DRY	DRY	DRY
MW-1A	7-May-13	DRY	DRY	DRY	DRY
MW-1A	1-Jul-15	11	<1.0	<1.0	<1.0
MW-1C(73-83)	8-Apr-08	<1.0	<1.0	<1.0	<1.0
MW-1C (86-B)	8-Apr-08	<1.0	<1.0	<1.0	<1.0
MW-1C	21-Oct-08	<1.0	<1.0	<1.0	NA
MW-1C	24-Aug-09	<1.0	<1.0	<1.0	<10
MW-1C	18-May-11	<1.0	<1.0	<1.0	<1.0
MW-1C	7-May-13	4.0	<1.0	<1.0	<1.0
MW-1C	1-Jul-15	<1.0	<1.0	<1.0	<1.0
MW-3A	9-May-06	14	<1.0	<1.0	<1.0
MW-3A	5-Mar-08	20	<1.0	<1.0	<1.0
MW-3A	20-Oct-08	64	<1.0	<1.0	<1.0
MW-3A	20-Aug-09	38	<1.0	<1.0	<1.0
MW-3A	17-May-11	42	<1.0	<1.0	<1.0
MW-3A	8-May-13	49	<1.0	<1.0	<1.0
MW-3A	22-Jul-14	60	1.1	<1.0	<1.0
MW-3A	22-Jan-15	75	<1.0	<1.0	<1.0
MW-3A	2-Jul-15	11	<1.0	<1.0	<1.0
MW-3A	26-Jan-16	41	1.5	<1.0	<1.0
MW-3B	10-May-06	<1.0	<1.0	<1.0	<1.0
MW-3B	5-Mar-08	<1.0	<1.0	<1.0	<1.0
MW-3B	20-Oct-08	<1.0	<1.0	<1.0	<1.0
MW-3B	20-Aug-09	<1.0	<1.0	<1.0	<1.0
MW-3B	17-May-11	<1.0	<1.0	<1.0	<1.0
MW-3B	8-May-13	<1.0	<1.0	<1.0	<1.0
MW-3B	22-Jul-14	<1.0	<1.0	<1.0	<1.0
MW-3B	21-Jan-15	<1.0	<1.0	<1.0	<1.0
MW-3B	1-Jul-15	<1.0	<1.0	<1.0	<1.0
MW-3B	25-Jan-16	<1.0	<1.0	<1.0	<1.0
MW-4A	10-May-06	4.7	<1.0	<1.0	<1.0
MW-4A	5-Mar-08	5.9	<1.0	<1.0	<1.0
MW-4A	22-Oct-08	33	<1.0	<1.0	<1.0
MW-4A	24-Aug-09	3.6	<1.0	<1.0	<1.0
MW-4A	23-May-11	8.6	<1.0	<1.0	<1.0
MW-4A	9-May-13	1.3	<1.0	<1.0	<1.0
MW-4A	2-Jul-15	1.2	<1.0	<1.0	<1.0

Appendix A
Groundwater Analytical Data Overtime, 2006 through 2016
Tara Shopping Center, 8564 Tara Blvd, Jonesboro, Georgia

Well ID	Sample Date	Tetrachloroethene (PCE)	Trichloroethene (TCE)	cis-1,2-Dichloroethene (cis-1, 2 DCE)	Vinyl Chloride (VC)
		ug/L	ug/L	ug/L	ug/L
Type 1/3 RRS		5	5	70	2
MW-4B	10-May-06	<1.0	<1.0	<1.0	<1.0
MW-4B	5-Mar-08	<1.0	<1.0	<1.0	<1.0
MW-4B	22-Oct-08	<1.0	<1.0	<1.0	<1.0
MW-4B	24-Aug-09	<1.0	<1.0	<1.0	<1.0
MW-4B	23-May-11	1.2	<1.0	<1.0	<1.0
MW-4B	9-May-13	<1.0	<1.0	<1.0	<1.0
MW-4B	1-Jul-15	<1.0	<1.0	<1.0	<1.0
MW-5A	10-May-06	3.9	1.8	4.0	<1.0
MW-5A	5-Mar-08	59	41	110	4.7
MW-5A	21-Oct-08	30	19	63	NA
MW-5A	24-Aug-09	6.5	6.5	14	<4.0
MW-5A	23-May-11	4.3	5.0	15	<1.0
MW-5A	9-May-13	<1.0	<1.0	<1.0	<1.0
MW-5A	1-Jul-15	<1.0	<1.0	<1.0	<1.0
MW-5B	9-May-06	4,300	1,900	3,800	<50
MW-5B	5-Mar-08	540	420	1,100	<10
MW-5B	21-Oct-08	130	99	300	NA
MW-5B	21-Oct-08	350	290	740	<5.0
MW-5B	23-May-11	450	370	1,600	<20
MW-5B	9-May-13	370	200	580	<5.0
MW-5B	15-Jul-15	340	200	570	2.3
MW-5C (63-73)	10-Apr-08	140	5.5	5.2	<1.0
MW-5C (82-B)	10-Apr-08	120	5.1	5.1	<2.0
MW-5C	21-Oct-08	11	1.1	72	NA
MW-5C	24-Aug-09	15	1.6	12	<1.0
MW-5C	23-May-11	4.1	1.4	28	<1.0
MW-5C	9-May-13	4.4	1.9	17	<1.0
MW-5C	14-Jul-15	2.9	2.0	2	<1.0
MW-6A	9-May-06	<1.0	<1.0	<1.0	<1.0
MW-6A	5-Mar-08	<1.0	<1.0	<1.0	<1.0
MW-6A	20-Oct-08	<1.0	<1.0	<1.0	<1.0
MW-6A	21-Aug-09	<1.0	<1.0	<1.0	<1.0
MW-6A	16-May-11	NS	NS	NS	NS
MW-6A	9-May-13	NS	NS	NS	NS
MW-6A	30-Jun-15	<1.0	<1.0	<1.0	<1.0
MW-6B	9-May-06	<1.0	<1.0	<1.0	<1.0
MW-6B	5-Mar-08	<1.0	<1.0	<1.0	<1.0
MW-6B	20-Oct-08	<1.0	<1.0	<1.0	<1.0
MW-6B	21-Aug-09	<1.0	<1.0	<1.0	<1.0
MW-6B	16-May-11	NS	NS	NS	NS
MW-6B	9-May-13	NS	NS	NS	NS
MW-6B	30-Jun-15	<1.0	<1.0	<1.0	<1.0

Appendix A
Groundwater Analytical Data Overtime, 2006 through 2016
Tara Shopping Center, 8564 Tara Blvd, Jonesboro, Georgia

Well ID	Sample Date	Tetrachloroethene (PCE)	Trichloroethene (TCE)	cis-1,2-Dichloroethene (cis-1, 2 DCE)	Vinyl Chloride (VC)
		ug/L	ug/L	ug/L	ug/L
Type 1/3 RRS		5	5	70	2
MW-7B	2-Aug-06	3.5	<1.0	<1.0	<1.0
MW-7B	5-Mar-08	2.4	<1.0	<1.0	<1.0
MW-7B	20-Oct-08	3.1	<1.0	<1.0	<1.0
MW-7B	20-Aug-09	2.3	<1.0	<1.0	<1.0
MW-7B	16-May-11	8.5	<1.0	<1.0	<1.0
MW-7B	8-May-13	5.3	<1.0	<1.0	<1.0
MW-7B	1-Jul-15	5.4	<1.0	<1.0	<1.0
MW-7C (54-B)	9-Apr-08	1.7	<1.0	<1.0	<1.0
MW-7C	20-Oct-08	<1.0	<1.0	<1.0	<1.0
MW-7C	20-Aug-09	<1.0	<1.0	<1.0	<1.0
MW-7C	19-May-11	<1.0	<1.0	<1.0	<1.0
MW-7C	8-May-13	3.6	<1.0	<1.0	<1.0
MW-7C	1-Jul-15	<1.0	<1.0	<1.0	<1.0
MW-8A	2-Aug-06	550	58	25	<5.0
MW-8A	5-Mar-08	710	91	35	<5.0
MW-8A	27-Oct-08	490	56	25	<4.0
MW-8A	20-Aug-09	760	83	30	<4.0
MW-8A	16-Oct-09	750	64	26	<5.0
MW-8A	12-Nov-09	850	69	24	<5.0
MW-8A	17-Dec-09	910	60	27	<5.0
MW-8A	29-Jan-10	84	6.4	3.1	<1.0
MW-8A	25-Feb-10	930	53	24	<1.0
MW-8A	23-Mar-10	840	31	8.9	<1.0
MW-8A	27-Apr-10	760	<10	<10	<10
MW-8A	25-May-10	600	<10	<10	<10
MW-8A	26-Aug-10	DRY	DRY	DRY	DRY
MW-8A	31-Mar-11	DRY	DRY	DRY	DRY
MW-8A	18-May-11	630	17	<10	<10
MW-8A	7-May-13	140	9.2	2.8	<1.0
MW-8A	23-Jul-14	550	32	12.0	<10
MW-8A	22-Jan-15	570	46	22	<10
MW-8A	14-Jul-15	96	<1.0	<1.0	<1.0
MW-8A	25-Jan-16	83	<1.0	<1.0	<1.0

Well ID	Sample Date	Tetrachloroethene (PCE)	Trichloroethene (TCE)	cis-1,2-Dichloroethene (cis-1, 2 DCE)	Vinyl Chloride (VC)
		ug/L	ug/L	ug/L	ug/L
Type 1/3 RRS		5	5	70	2
MW-8B	2-Aug-06	86	7.7	3.6	<1.0
MW-8B	5-Mar-08	140	10	5.4	<1.0
MW-8B	16-Oct-08	75	4.4	2.7	<1.0
MW-8B	19-Aug-09	98	5.9	2.7	<1.0
MW-8B	16-Oct-09	150	7.0	3.7	<1.0
MW-8B	12-Nov-09	190	9.2	3.3	<2.0
MW-8B	17-Dec-09	220	11	4.8	<2.0
MW-8B	29-Jan-10	180	8.8	4.3	<2.0
MW-8B	25-Feb-10	290	13	4.5	<2.0
MW-8B	23-Mar-10	260	12	4.4	<2.0
MW-8B	27-Apr-10	200	8.2	3.2	<2.0
MW-8B	25-May-10	180	5	2.0	<2.0
MW-8B	26-Aug-10	240	13	5.3	<2.0
MW-8B	31-Mar-11	220	<2.0	<2.0	<2.0
MW-8B	18-May-11	170	<2.0	<2.0	<2.0
MW-8B	8-May-13	2.8	<1.0	<1.0	<1.0
MW-8B	23-Jul-14	190	<2.0	<2.0	<2.0
MW-8B	21-Jan-15	310	<5.0	<5.0	<5.0
MW-8B	14-Jul-15	8	<2.0	<2.0	<2.0
MW-8B	26-Jan-16	12	<1.0	<1.0	<1.0
MW-8C (62-72)	11-Apr-08	<1.0	1.9	<1.0	<1.0
MW-8C (76-B)	11-Apr-08	<2.0	<2.0	<2.0	<1.0
MW-8C	16-Oct-08	<1.0	<1.0	<1.0	<1.0
MW-8C	19-Aug-09	<1.0	<1.0	<1.0	<1.0
MW-8C	16-Oct-09	<1.0	<1.0	<1.0	<1.0
MW-8C	12-Nov-09	<1.0	<1.0	<1.0	<1.0
MW-8C	17-Dec-09	<1.0	<1.0	<1.0	<1.0
MW-8C	29-Jan-10	<1.0	<1.0	<1.0	<1.0
MW-8C	25-Feb-10	<1.0	<1.0	<1.0	<1.0
MW-8C	23-Mar-10	<1.0	<1.0	<1.0	<1.0
MW-8C	27-Apr-10	<1.0	<1.0	<1.0	<1.0
MW-8C	25-May-10	<1.0	<1.0	<1.0	<1.0
MW-8C	26-Aug-10	<1.0	<1.0	<1.0	<1.0
MW-8C	31-Mar-11	<2.0	<2.0	<2.0	<2.0
MW-8C	18-May-11	<1.0	<1.0	<1.0	<1.0
MW-8C	7-May-13	6.8	<1.0	<1.0	<1.0
MW-8C	23-Jul-14	<1.0	<1.0	<1.0	<1.0
MW-8C	21-Jan-15	<1.0	<1.0	<1.0	<1.0
MW-8C	2-Jul-15	<1.0	<1.0	<1.0	<1.0
MW-8C	25-Jan-16	<1.0	<1.0	<1.0	<1.0

Appendix A
Groundwater Analytical Data Overtime, 2006 through 2016
Tara Shopping Center, 8564 Tara Blvd, Jonesboro, Georgia

Well ID	Sample Date	Tetrachloroethene (PCE)	Trichloroethene (TCE)	cis-1,2-Dichloroethene (cis-1, 2 DCE)	Vinyl Chloride (VC)
		ug/L	ug/L	ug/L	ug/L
Type 1/3 RRS		5	5	70	2
MW-9A	2-Aug-06	1,000	15	<10	<10
MW-9A	5-Mar-08	110	3.8	<1.0	<1.0
MW-9A	20-Oct-08	75	3.5	<1.0	<1.0
MW-9A	20-Aug-09	240	25	3.1	<1.0
MW-9A	18-May-11	790	48	<10	<10
MW-9A	9-May-13	230	29	4.7	2.0
MW-9A	23-Jul-14	370	230	8.5	<5.0
MW-9A	22-Jan-15	560	86	6.6	<5.0
MW-9A	14-Jul-15	310	180	7.9	<1.0
MW-9A	26-Jan-16	520	100	10	<1.0
MW-9B	2-Aug-06	4.7	1.0	<1.0	<1.0
MW-9B	5-Mar-08	<1.0	<1.0	<1.0	<1.0
MW-9B	20-Oct-08	<1.0	<1.0	<1.0	<1.0
MW-9B	20-Aug-09	<1.0	<1.0	<1.0	<1.0
MW-9B	18-May-11	<1.0	<1.0	<1.0	<1.0
MW-9B	8-May-13	<1.0	<1.0	<1.0	<1.0
MW-9B	23-Jul-14	<1.0	<1.0	<1.0	<1.0
MW-9B	21-Jan-15	<1.0	<1.0	<1.0	<1.0
MW-9B	2-Jul-15	<1.0	<1.0	<1.0	<1.0
MW-9B	25-Jan-16	<1.0	<1.0	<1.0	<1.0
MW-9C (79-89)	11-Apr-08	<1.0	<1.0	<1.0	<1.0
MW-9C	20-Oct-08	<1.0	<1.0	<1.0	<1.0
MW-9C	20-Aug-09	<1.0	<1.0	<1.0	<1.0
MW-9C	18-May-11	<1.0	<1.0	<1.0	<1.0
MW-9C	8-May-13	<1.0	<1.0	<1.0	<1.0
MW-9C	23-Jul-14	<1.0	<1.0	<1.0	<1.0
MW-9C	21-Jan-15	<1.0	<1.0	<1.0	<1.0
MW-9C	1-Jul-15	<1.0	<1.0	<1.0	<1.0
MW-9C	25-Jan-16	<1.0	<1.0	<1.0	<1.0

Well ID	Sample Date	Tetrachloroethene (PCE)	Trichloroethene (TCE)	cis-1,2-Dichloroethene (cis-1, 2 DCE)	Vinyl Chloride (VC)
		ug/L	ug/L	ug/L	ug/L
Type 1/3 RRS		5	5	70	2
MW-10A	5-Mar-08	670	110	46	<5.0
MW-10A	22-Oct-08	1,700	250	83	<20
MW-10A	21-Aug-09	770	94	49	<5.0
MW-10A	16-Oct-09	800	85	35	<5.0
MW-10A	13-Nov-09	570	64	25	<5.0
MW-10A	17-Dec-09	650	75	34	<5.0
MW-10A	28-Jan-10	180	12	6.1	<2.0
MW-10A	25-Feb-10	260	18	8.5	<2.0
MW-10A	23-Mar-10	290	23	10	<2.0
MW-10A	27-Apr-10	360	29	14	<2.0
MW-10A	25-May-10	360	29	13	<2.0
MW-10A	27-Aug-10	770	83	31	<5.0
MW-10A	31-Mar-11	590	79	32	<5.0
MW-10A	16-May-11	380	64	42	<5.0
MW-10A	9-May-13	270	27	10	<2.0
MW-10A	23-Jul-14	480	82	41	<5.0
MW-10A	22-Jan-15	660	130	73	<5.0
MW-10A	14-Jul-15	220	37	21	<1.0
MW-10A	26-Jan-16	73	7.5	4.4	<1.0
MW-10B	5-Mar-08	2.6	<1.0	<1.0	<1.0
MW-10B	22-Oct-08	3.4	<1.0	<1.0	<1.0
MW-10B	21-Aug-09	<1.0	<1.0	<1.0	<1.0
MW-10B	16-Oct-09	2.0	<1.0	<1.0	<1.0
MW-10B	13-Nov-09	1.0	<1.0	<1.0	<1.0
MW-10B	17-Dec-09	1.2	<1.0	<1.0	<1.0
MW-10B	28-Jan-10	<1.0	<1.0	<1.0	<1.0
MW-10B	25-Feb-10	<1.0	<1.0	<1.0	<1.0
MW-10B	23-Mar-10	<1.0	<1.0	<1.0	<1.0
MW-10B	27-Apr-10	<1.0	<1.0	<1.0	<1.0
MW-10B	25-May-10	<1.0	<1.0	<1.0	<1.0
MW-10B	27-Aug-10	<1.0	<1.0	<1.0	<1.0
MW-10B	31-Mar-11	3.3	<1.0	<1.0	<1.0
MW-10B	18-May-11	1.2	<1.0	<1.0	<1.0
MW-10B	8-May-13	7.7	<1.0	<1.0	<1.0
MW-10B	23-Jul-14	76.0	1.8	1.7	<1.0
MW-10B	22-Jan-15	<1.0	<1.0	<1.0	<1.0
MW-10B	2-Jul-15	<1.0	<1.0	<1.0	<1.0
MW-10B	26-Jan-16	<1.0	<1.0	<1.0	<1.0

Well ID	Sample Date	Tetrachloroethene (PCE)	Trichloroethene (TCE)	cis-1,2-Dichloroethene (cis-1, 2 DCE)	Vinyl Chloride (VC)
		ug/L	ug/L	ug/L	ug/L
Type 1/3 RRS		5	5	70	2
MW-10C (76-86)	11-Apr-08	<1.0	<1.0	<1.0	<1.0
MW-10C (90-B)	11-Apr-08	<1.0	<1.0	<1.0	<1.0
MW-10C	22-Oct-08	<1.0	<1.0	<1.0	<1.0
MW-10C	21-Aug-09	<1.0	<1.0	<1.0	<1.0
MW-10C	16-Oct-09	<1.0	<1.0	<1.0	<1.0
MW-10C	13-Nov-09	<1.0	<1.0	<1.0	<1.0
MW-10C	17-Dec-09	<1.0	<1.0	<1.0	<1.0
MW-10C	28-Jan-10	<1.0	<1.0	<1.0	<1.0
MW-10C	25-Feb-10	<1.0	<1.0	<1.0	<1.0
MW-10C	23-Mar-10	<1.0	<1.0	<1.0	<1.0
MW-10C	27-Apr-10	2.7	<1.0	<1.0	<1.0
MW-10C	25-May-10	<1.0	<1.0	<1.0	<1.0
MW-10C	27-Aug-10	<1.0	<1.0	<1.0	<1.0
MW-10C	31-Mar-11	<1.0	<1.0	<1.0	<1.0
MW-10C	19-May-11	1.1	<1.0	<1.0	<1.0
MW-10C	8-May-13	20	<1.0	<1.0	<1.0
MW-10C	23-Jul-14	3.2	<1.0	<1.0	<1.0
MW-10C	22-Jan-15	7.6	1.0	<1.0	<1.0
MW-10C	2-Jul-15	3.4	<1.0	<1.0	<1.0
MW-10C	25-Jan-16	1.1	<1.0	<1.0	<1.0
MW-11A	5-Mar-08	5,100	100	80	<50
MW-11A	17-Oct-08	2,600	67	53	<50
MW-11A	20-Aug-09	4,700	100	71	<50
MW-11A	5-Oct-09	6,500	82	89	<50
MW-11A	13-Nov-09	6,000	110	65	<50
MW-11A	17-Dec-09	5,400	89	69	<50
MW-11A	29-Jan-10	2,700	61	<50	<50
MW-11A	25-Feb-10	3,300	62	39	<20
MW-11A	23-Mar-10	3,000	53	51	<50
MW-11A	27-Apr-10	2,700	65	<50	<50
MW-11A	25-May-10	2,900	61	<50	<50
MW-11A	27-Aug-10	3,800	72	69	<50
MW-11A	31-Mar-11	3,300	74	54	<50
MW-11A	16-May-11	DRY	DRY	DRY	DRY
MW-11A	9-May-13	1200.0	28.0	19.0	<10
MW-11A	22-Jul-14	<5.0	<5.0	<5.0	<5.0
MW-11A	22-Jan-15	<5.0	<5.0	<5.0	<5.0
MW-11A	16-Jul-15	2.7	<2	<2	<2
MW-11A	25-Jan-16	2.7	<1.0	<1.0	<1.0

Well ID	Sample Date	Tetrachloroethene (PCE)	Trichloroethene (TCE)	cis-1,2-Dichloroethene (cis-1, 2 DCE)	Vinyl Chloride (VC)
		ug/L	ug/L	ug/L	ug/L
Type 1/3 RRS		5	5	70	2
MW-11B	5-Mar-08	3.2	<1.0	<1.0	<1.0
MW-11B	16-Oct-08	<1.0	<1.0	<1.0	<1.0
MW-11B	20-Aug-09	<1.0	<1.0	<1.0	<1.0
MW-11B	5-Oct-09	<1.0	<1.0	<1.0	<1.0
MW-11B	13-Nov-09	<1.0	<1.0	<1.0	<1.0
MW-11B	17-Dec-09	<1.0	<1.0	<1.0	<1.0
MW-11B	29-Jan-10	<1.0	<1.0	<1.0	<1.0
MW-11B	25-Feb-10	<1.0	<1.0	<1.0	<1.0
MW-11B	23-Mar-10	<1.0	<1.0	<1.0	<1.0
MW-11B	27-Apr-10	<200	<200	<200	<200
MW-11B	25-May-10	<200	<200	<200	<200
MW-11B	27-Aug-10	<200	<200	<200	<200
MW-11B	31-Mar-11	140	<50	<50	<50
MW-11B	19-May-11	NS	NS	NS	NS
MW-11B	9-May-13	<1.0	<1.0	<1.0	<1.0
MW-11B	22-Jul-14	19	1.8	<1.0	<1.0
MW-11B	21-Jan-15	<1.0	<1.0	<1.0	<1.0
MW-11B	2-Jul-15	<2.0	<2.0	<2.0	<2.0
MW-11B	26-Jan-16	<1.0	<1.0	<1.0	<1.0
MW-11C (62-72)	7-Apr-08	1.1	<1.0	<1.0	<1.0
MW-11C (76 - B)	7-Apr-08	<1.0	<1.0	<1.0	<1.0
MW-11C	16-Oct-08	<1.0	<1.0	<1.0	<1.0
MW-11C	20-Aug-09	<1.0	<1.0	<1.0	<1.0
MW-11C	5-Oct-09	<1.0	<1.0	<1.0	<1.0
MW-11C	13-Nov-09	<50	<50	<50	<50
MW-11C	17-Dec-09	<1.0	<1.0	<1.0	<1.0
MW-11C	29-Jan-10	<1.0	<1.0	<1.0	<1.0
MW-11C	25-Feb-10	<1.0	<1.0	<1.0	<1.0
MW-11C	23-Mar-10	<1.0	<1.0	<1.0	<1.0
MW-11C	27-Apr-10	<1.0	<1.0	<1.0	<1.0
MW-11C	25-May-10	1.1	<1.0	<1.0	<1.0
MW-11C	27-Aug-10	1.6	<1.0	<1.0	<1.0
MW-11C	31-Mar-11	<1.0	<1.0	<1.0	<1.0
MW-11C	17-May-11	<1.0	<1.0	<1.0	<1.0
MW-11C	9-May-13	1.7	<1.0	<1.0	<1.0
MW-11C	22-Jul-14	<1.0	<1.0	<1.0	<1.0
MW-11C	21-Jan-15	1.0	<1.0	<1.0	<1.0
MW-11C	2-Jul-15	<1.0	<1.0	<1.0	<1.0
MW-11C	25-Jan-16	<1.0	<1.0	<1.0	<1.0

Well ID	Sample Date	Tetrachloroethene (PCE)	Trichloroethene (TCE)	cis-1,2-Dichloroethene (cis-1, 2 DCE)	Vinyl Chloride (VC)
		ug/L	ug/L	ug/L	ug/L
Type 1/3 RRS		5	5	70	2
MW-12A	5-Mar-08	12	<1.0	<1.0	<1.0
MW-12A	20-Oct-08	23	<1.0	1.0	<1.0
MW-12A	20-Aug-09	22	<1.0	<1.0	<1.0
MW-12A	17-May-11	18	<1.0	<1.0	<1.0
MW-12A	9-May-13	3.9	<1.0	<1.0	<1.0
MW-12A	2-Jul-15	5.7	<1.0	<1.0	<1.0
MW-13A	5-Mar-08	1,400	640	1,300	31
MW-13A	21-Oct-08	1,100	500	1,300	NA
MW-13A	24-Aug-09	1,200	840	2,300	79
MW-13A	23-May-11	1,200	800	2,300	71
MW-13A	9-May-13	17	29	120	9
MW-13A	15-Jul-15	750	730	2,000	180
MW-13B	5-Mar-08	17	2.2	9.1	<1.0
MW-13B	21-Oct-08	4.1	<1.0	3.1	NA
MW-13B	24-Aug-09	14	5.4	12	<1.0
MW-13B	23-May-11	20	5.5	21	<1.0
MW-13B	8-May-13	27	4.1	16	<1.0
MW-13B	14-Jul-15	290	130	130	1.9
MW-13C	15-Oct-08	93	7.3	28	<1.0
MW-13C	20-Oct-08	19	1.1	5.3	NA
MW-13C	24-Aug-09	21	3.7	24	<1.0
MW-13C	23-May-11	39	8.1	62	<1.0
MW-13C	8-May-13	21	2.6	9.0	<1.0
MW-13C	14-Jul-15	8	1.2	3.1	<1.0
MW-14A	5-Mar-08	2.2	<1.0	<1.0	<1.0
MW-14A	21-Oct-08	4.6	<1.0	<1.0	NA
MW-14A	21-Aug-09	3.5	<1.0	<1.0	<1.0
MW-14A	19-May-11	5.9	<1.0	<1.0	<1.0
MW-14A	8-May-13	7	<1.0	<1.0	<1.0
MW-14A	2-Jul-15	7.7	<1.0	<1.0	<1.0
MW-15A	17-Oct-08	750	31	<10	<10
MW-15A	21-Aug-09	1,300	55	10	<10
MW-15A	20-May-11	350	<100	<100	<100
MW-15A	8-May-13	460	73	11	<5.0
MW-15A	15-Jul-15	320	87	19	<2.0
MW-15B	17-Oct-08	150	2.1	<2.0	<2.0
MW-15B	21-Aug-09	130	2.3	<2.0	<2.0
MW-15B	20-May-11	98	4.5	1.1	<1.0
MW-15B	8-May-13	110	3.4	<1.0	<1.0
MW-15B	15-Jul-15	72	3.1	<1.0	<1.0

Well ID	Sample Date	Tetrachloroethene (PCE)	Trichloroethene (TCE)	cis-1,2-Dichloroethene (cis-1, 2 DCE)	Vinyl Chloride (VC)
		ug/L	ug/L	ug/L	ug/L
Type 1/3 RRS		5	5	70	2
MW-15C	15-Jul-15	10	1.9	<1.0	<1.0
MW-15C	16-Oct-15	4.7	<1.0	<1.0	<1.0
MW-16A	17-Oct-08	620	87	98	<10
MW-16A	21-Aug-09	1,000	220	200	<10
MW-16A	23-May-11	930	110	200	<10
MW-16A	9-May-13	300	43	55	<5.0
MW-16A	15-Jul-15	400	49	93	<1.0
MW-16B	16-Oct-08	510	35	49	<1.0
MW-16B	21-Aug-09	760	84	96	<5.0
MW-16B	23-May-11	1,200	100	210	<10
MW-16B	9-May-13	1,000	68	120	<10
MW-16B	15-Jul-15	980	92	190	<1.0
MW-16C (41 - 56)	14-Oct-08	830	63	71	<1.0
MW-16C (56 - 74)	14-Oct-08	820	64	63	<1.0
MW-16C	16-Oct-08	640	49	65	<1.0
MW-16C	21-Aug-09	540	55	37	<5.0
MW-16C	20-May-11	780	61	62	<5.0
MW-16C	9-May-13	840	58	72	<5.0
MW-16C	15-Jul-15	820	72	110	<1.0
MW-17A	31-Mar-11	950	<10	<10	<10
MW-17A	19-May-11	350	<2.0	<2.0	<2.0
MW-17A	9-May-13	930	<10	<10	<10
MW-17A	14-Jul-15	3.1	<2.0	<2.0	<2.0
MW-18A	7-May-13	3.9	<1.0	<1.0	<1.0
MW-18A	2-Jul-15	1.3	<1.0	<1.0	<1.0
MW-18B	7-May-13	4.3	<1.0	<1.0	<1.0
MW-18B	2-Jul-15	2.1	<1.0	<1.0	<1.0
MW-19A	7-May-13	<5.0	<5.0	<5.0	<5.0
MW-19A	19-Nov-14	<5.0	<5.0	<5.0	<5.0
MW-19A	1-Jul-15	<5.0	<5.0	<5.0	<5.0
MW-19B	7-May-13	370	27	44	<5.0
MW-19B	19-Nov-14	870	67	100	<5.0
MW-19B	14-Jul-15	370	34	47	<1.0
MW-19C	8-May-13	150	7.5	14	<1.0
MW-19C	19-Nov-14	290	18	33	<2.0
MW-19C	14-Jul-15	200	18	32	<1.0
MW-19D	19-Nov-14	94	7.1	13	<1.0
MW-19D	14-Jul-15	12	1.2	1.9	<1.0
MW-20C	9-May-13	18	1.1	1.4	<1.0
MW-20C	2-Jul-15	53	5	4.9	<1.0
MW-21B	19-Nov-14	<1.0	<1.0	<1.0	<1.0
MW-21B	1-Jul-15	<1.0	<1.0	<1.0	<1.0

Appendix A
Groundwater Analytical Data Overtime, 2006 through 2016
Tara Shopping Center, 8564 Tara Blvd, Jonesboro, Georgia

Well ID	Sample Date	Tetrachloroethene (PCE)	Trichloroethene (TCE)	cis-1,2-Dichloroethene (cis-1, 2 DCE)	Vinyl Chloride (VC)
		ug/L	ug/L	ug/L	ug/L
Type 1/3 RRS		5	5	70	2
MW-21C	19-Nov-14	<1.0	<1.0	<1.0	<1.0
MW-21C	1-Jul-15	<1.0	<1.0	<1.0	<1.0
MW-22A	19-Nov-14	<1.0	<1.0	<1.0	<1.0
MW-22A	30-Jun-15	<1.0	<1.0	<1.0	<1.0
MW-22B	19-Nov-14	<1.0	<1.0	<1.0	<1.0
MW-22B	30-Jun-15	<1.0	<1.0	<1.0	<1.0
MW-23A	30-Jun-15	<1.0	<1.0	<1.0	<1.0
MW-23A	16-Oct-15	<1.0	<1.0	<1.0	<1.0
MW-23B	30-Jun-15	<1.0	<1.0	<1.0	<1.0
MW-23B	16-Oct-15	<1.0	<1.0	<1.0	<1.0
MW-24C	2-Jul-15	41	<1.0	<1.0	<1.0
MW-24C	16-Oct-15	20	<1.0	<1.0	<1.0

Notes:
Shading - Concentrations exceeds Type 1 and 3 Risk Reduction Standard (RRS).
< Value - Concentration was not detected above the method detection limit.
NS - Not Sampled

APPENDIX B

Groundwater Sampling Forms and Laboratory Analytical Reports (CD)

SAMPLING LOG

Client/Project: Ashland Altivia
Site Location: Altivia "Jonesboro
Sampling Personnel: Eddie Jordan
Job Number: 240457580
Weather: 69° clear

Event: N/A
Well ID: MW-15C
Date: 10/16/15
Time In: 1350 Time Out: 1515

WELL INFORMATION

		TIC	TOC	BGS
Depth to Water	(feet)		26.81	
Total Depth	(feet)			69.5
Screened Interval	(feet)			59.5 69.5
Pump Intake ~	(feet)		64.5	

check where appropriate

Well Type: Flushmount ☑ Stick-Up ☐
Well Locked: Yes ☑ No ☐
Measuring Point Marked: Yes ☑ No ☐
Well Diameter: 1" ☐ 2" ☑ Other: ____

WELL WATER INFORMATION

Length of Water Column:	(feet)	42.69
Volume of Water in Well:	(gal)	6.9
Pumping Rate of Pump:	(mL/min)	.5
PumpStart: 1358	Pump Stop:	1505
Minutes of Pumping:		67
Total Volume Removed: 0	(ml)	2615

Conversion Factors

gallons per feet of water column:	1" ID	2" ID	4" ID	6" ID
	0.041	0.163	0.653	1.469

1 gal = 3.785 L = 3785 mL = 0.1337 cubic ft.

Unit Stability

pH	DO	Cond	ORP	Temp
± 0.2	± 1 mg/L	± 5.0%	± 10%	± 5%

SAMPLING INFORMATION

Analyses:
VOC 8260 ☑
Metals 6010 ☐
Inorganics Various ☐
☐
Other: ____ ☐
____ ☐
Sample ID: MW-15C
Sample Time: 1451
MS/MSD: Yes ☐ No ☑
Duplicate: Yes ☐ No ☑
Duplicate ID: N/A
Total Bottles: 3

EVACUATION INFORMATION

Evacuation Method:	Bailer ☐	Peristaltic ☐	Bladder ☑	Other Pump ☐	____
Tubing Used:	Teflon ☑	Polyethylene ☐			
Sampling Method:	Bailer ☐	Peristaltic ☐	Bladder ☑	Other Pump ☐	____

Did well go dry? Yes ☐ No ☑ Water Quality Meter Type: YSI

Time / Parameter	1	2	3	4	5	6	7	8	9
	1425	1430	1435	1440	1445	1450			
Rate (ml/min)	.5	.5	.5	.5	.5	.5			
Depth to Water (ft. TOC)	26.92	26.94	26.96	26.96	26.96	26.96			
Temperature (°C)	28.95	29.13	28.99	28.97	28.97	28.97			
pH	9.77	10.04	10.03	10.02	10.07	10.05			
Conductance (mS/cm)	0.242	0.294	0.311	0.307	0.307	0.304			
Dissolved Oxygen mg/L)	5.72	6.72	5.89	3.58	3.53	3.60			
Turbidity (NTU)	7.43	6.99	6.82	5.74	6.75	5.62			
ORP (mV)	278.8	199.0	150.7	120.7	114.2	118.5			

Time / Parameter	10	11	12
Rate (ml/min)			
Depth to Water (ft. TIC)			
Temperature (°C)			
pH			
Conductance (mS/cm)			
Dissolved Oxygen mg/L)			
Turbidity (NTU)			
ORP (mV)			

Water Level Equipment Used: Heron

Decontamination Fluids Used: DI H_2O Alconox

Sample Observations: N/A

MISCELLANEOUS OBSERVATIONS/PROBLEMS

Had to change Air bottles during purge time

SAMPLE DESTINATION
Laboratory: Test America
Shipped Via: Federal Express ☐ UPS ☐ Other ☑
Sample was shipped day of sampling ☑ picked up on ☐
Chain of Custody Signed By: Eddie Jordan

SAMPLING LOG

Client/Project: Ashland Altemun
Site Location: Jonesboro Altemun
Sampling Personnel: Eddie Jordan
Job Number: 240957580
Weather: 66° clear

Event: N/A
Well ID: MW-23A
Date: 10/16/15
Time In: 1009 Time Out: 1052

WELL INFORMATION

		TIC	TOC	BGS
Depth to Water	(feet)		15.26	
Total Depth	(feet)		~~30~~	30
Screened Interval	(feet)			20-30
Pump Intake –	(feet)		25	

check where appropriate

Well Type: Flushmount ☑ Stick-Up ☐
Well Locked: Yes ☑ No ☐
Measuring Point Marked: Yes ☑ No ☐
Well Diameter: 1" ☐ 2" ☑ Other: ____

WELL WATER INFORMATION

Length of Water Column:	(feet)	14.74
Volume of Water in Well:	(gal)	2.4
Pumping Rate of Pump:	(mL/min)	150
PumpStart: 1013	Pump Stop:	1047
Minutes of Pumping:		15
Total Volume Removed: 0	(ml)	17

Conversion Factors

gallons per feet of water column:	1" ID	2" ID	4" ID	6" ID
	0.041	0.163	0.653	1.469

1 gal = 3.785 L = 3785 mL = 0.1337 cubic ft.

Unit Stability

pH	DO	Cond	ORP	Temp
± 0.2	± 1 mg/L	± 5.0%	± 10%	± 5%

SAMPLING INFORMATION

Analyses:

VOC	8260	☑
Metals	6010	☐
Inorganics	Various	☐
		☐
Other:		☐
		☐

Sample ID: MW-23A
Sample Time: 1045
MS/MSD: Yes ☐ No ☑
Duplicate: Yes ☐ No ☑
Duplicate ID: N/A
Total Bottles: 3

EVACUATION INFORMATION

Evacuation Method:	Bailer ☐	Peristaltic ☐	Bladder ☑	Other Pump ☐		
Tubing Used:	Teflon ☑	Polyethylene ☐				
Sampling Method:	Bailer ☐	Peristaltic ☐	Bladder ☑	Other Pump ☐		
Did well go dry?	Yes ☐	No ☑	Water Quality Meter Type:	YSI		

Time / Parameter	1	2	3	4	5	6	7	8	9
	1015	1020	1025	1030	1035	1040			
Rate (ml/min)	150	150	150	150	150	150			
Depth to Water (ft. TOC)	15.28	15.29	15.29	15.29	15.29	15.29			
Temperature (°C)	17.04	16.81	16.74	16.69	16.71	16.78			
pH	4.90	4.73	4.65	4.51	4.51	4.51			
Conductance (mS/cm)	0.202	0.190	0.184	0.173	0.172	0.170			
Dissolved Oxygen mg/L)	9.34	8.72	5.27	4.19	4.04	4.03			
Turbidity (NTU)	1.73	1.52	1.47	1.39	1.23	1.15			
ORP (mV)	152.1	155.2	163.7	172.3	179.7	182.4			

Time / Parameter	10	11	12
Rate (ml/min)			
Depth to Water (ft. TIC)			
Temperature (°C)			
pH			
Conductance (mS/cm)			
Dissolved Oxygen mg/L)			
Turbidity (NTU)			
ORP (mV)			

Water Level Equipment Used:
Heron

Decontamination Fluids Used:
DI H2O Alconox

Sample Observations:
N/A

MISCELLANEOUS OBSERVATIONS/PROBLEMS

SAMPLE DESTINATION

Laboratory: Test America
Shipped Via: ☐ Federal Express ☐ UPS ☑ Other

Sample was ☑ shipped day of sampling ☐ picked up on

Chain of Custody Signed By: Eddie Jordan

SAMPLING LOG

Client/Project: Ashland Allerman
Site Location: Ironton
Sampling Personnel: Eddie Jerden
Job Number: E0409570
Weather: 64° Clear

Event: N/A
Well ID: MW-23B
Date: 10/16/25
Time In: 1114 Time Out: 1215

WELL INFORMATION

		TIC	TOC	BGS
Depth to Water	(feet)		15.54	
Total Depth	(feet)		69	
Screened Interval	(feet)			59-69
Pump Intake –	(feet)		64	

check where appropriate

Well Type: Flushmount ☑ Stick-Up ☐
Well Locked: Yes ☑ No ☐
Measuring Point Marked: Yes ☑ No ☐
Well Diameter: 1" ☐ 2" ☑ Other:

WELL WATER INFORMATION

Length of Water Column:	(feet)	53.16
Volume of Water in Well:	(gal)	8.66
Pumping Rate of Pump:	(mL/min)	150
PumpStart: 1128	Pump Stop:	1206
Minutes of Pumping:		45
Total Volume Removed: 0	(ml)	2215

Conversion Factors

gallons per feet of water column:	1" ID	2" ID	4" ID	6" ID
	0.041	0.163	0.653	1.469

1 gal = 3.785 L = 3785 mL = 0.1337 cubic ft.

Unit Stability

pH	DO	Cond	ORP	Temp
± 0.2	± 1 mg/L	± 5.0%	± 10%	± 5%

SAMPLING INFORMATION

Analyses:
VOC 8260 ☑
Metals 6010 ☐
Inorganics Various ☐
☐
Other: ☐
☐
Sample ID: MW-20B
Sample Time: 1207
MS/MSD: Yes ☐ No ☐
Duplicate: Yes ☐ No ☐
Duplicate ID:
Total Bottles:

EVACUATION INFORMATION

Evacuation Method: Bailer ☐ Peristaltic ☐ Bladder ☑ Other Pump ☐
Tubing Used: Teflon ☑ Polyethylene ☐
Sampling Method: Bailer ☐ Peristaltic ☐ Bladder ☑ Other Pump ☐
Did well go dry? Yes ☐ No ☑ Water Quality Meter Type: YSI

Time / Parameter	1	2	3	4	5	6	7	8	9
	1130	1135	1140	1145	1150	1155	1200		
Rate (ml/min)	150	150	150	150	150	150	150		
Depth to Water (ft. TOC)	15.89	15.91	15.92	15.91	15.91	15.91	15.91		
Temperature (°C)	18.99	17.63	17.13	17.18	17.27	17.20	17.04		
pH	7.14	6.45	6.01	6.01	6.06	6.06	6.06		
Conductance (mS/cm)	0.203	0.200	0.195	0.195	0.195	0.195	0.199		
Dissolved Oxygen mg/L)	6.83	8.75	9.05	9.01	9.03	9.23	9.37		
Turbidity (NTU)	18.2	17.9	14.7	12.8	11.7	10.2	9.8		
ORP (mV)	236.7	227.0	217.6	219.0	221.1	226.1	230.6		

Time / Parameter	10	11	12
Rate (ml/min)			
Depth to Water (ft. TIC)			
Temperature (°C)			
pH			
Conductance (mS/cm)			
Dissolved Oxygen mg/L)			
Turbidity (NTU)			
ORP (mV)			

Water Level Equipment Used:
Heron

Decontamination Fluids Used:
DI H_2O Alconox

Sample Observations:

MISCELLANEOUS OBSERVATIONS/PROBLEMS

* pump stop @ 1150

SAMPLE DESTINATION
Laboratory: Test America
Shipped Via: ☐ Federal Express ☐ UPS ☐ Other
Sample was ☑ shipped day of sampling ☐ picked up on
Chain of Custody Signed By: Eddie Jerden

SAMPLING LOG

Client/Project: Ashland Alterman
Site Location: Alterman "Jonesboro"
Sampling Personnel: Eddie Jordan
Job Number: E040957580
Weather: 67° clear

Event: N/A
Well ID: MW-24C
Date: 10/16/15
Time In: 1245 Time Out: 1352

WELL INFORMATION

		TIC	TOC	BGS
Depth to Water	(feet)		35.41	
Total Depth	(feet)			43.5
Screened Interval	(feet)			33.5-43.5
Pump Intake ~	(feet)		38.5	

check where appropriate

Well Type: Flushmount ☑ Stick-Up ☐
Well Locked: Yes ☑ No ☐
Measuring Point Marked: Yes ☑ No ☐
Well Diameter: 1" ☐ 2" ☑ Other: ____

WELL WATER INFORMATION

Length of Water Column:	(feet)	8.04
Volume of Water in Well:	(gal)	1.31
Pumping Rate of Pump:	(mL/min)	.5
PumpStart: 1305	Pump Stop:	1338
Minutes of Pumping:		23
Total Volume Removed: 0	(ml)	11.5

Conversion Factors

gallons per feet of water column:	1" ID	2" ID	4" ID	6" ID
	0.041	0.163	0.653	1.469

1 gal = 3.785 L = 3785 mL = 0.1337 cubic ft

Unit Stability

pH	DO	Cond	ORP	Temp
± 0.2	± 1 mg/L	± 5.0%	± 10%	± 5%

SAMPLING INFORMATION

Analyses:

VOC	8260	☑
Metals	6010	☐
Inorganics	Various	☐
		☐
Other:		☐
		☐

Sample ID: MW-24C
Sample Time: 1325
MS/MSD: Yes ☐ No ☑
Duplicate: Yes ☐ No ☑
Duplicate ID: N/A
Total Bottles: 3

EVACUATION INFORMATION

Evacuation Method:	Bailer ☐	Peristaltic ☐	Bladder ☑	Other Pump ☐		
Tubing Used:	Teflon ☑	Polyethylene ☐				
Sampling Method:	Bailer ☐	Peristaltic ☐	Bladder ☑	Other Pump ☐		

Did well go dry? Yes ☐ No ☑ Water Quality Meter Type: YSI

Time / Parameter	1	2	3	4	5	6	7	8	9
	1311	1316	1321	1326	1331	1336			
Rate (ml/min)	.5	.5	.5	.5	.5	.5			
Depth to Water (ft. TOC)	35.49	35.51	35.51	35.51	35.51	35.51			
Temperature (°C)	21.52	19.70	19.52	19.39	19.35	19.35			
pH	5.73	5.25	5.25	5.27	5.27	5.28			
Conductance (mS/cm)	0.103	0.094	0.093	0.093	0.093	0.092			
Dissolved Oxygen mg/L)	4.84	3.84	3.75	3.73	3.69	3.66			
Turbidity (NTU)	7.65	6.27	3.86	9.62	9.65	9.43			
ORP (mV)	225.9	227.9	225.1	222.9	223.3	222.7			

Time / Parameter	10	11	12
Rate (ml/min)			
Depth to Water (ft. TIC)			
Temperature (°C)			
pH			
Conductance (mS/cm)			
Dissolved Oxygen mg/L)			
Turbidity (NTU)			
ORP (mV)			

Water Level Equipment Used: Heron

Decontamination Fluids Used: DI H_2O Alconox

Sample Observations: N/A

MISCELLANEOUS OBSERVATIONS/PROBLEMS

SAMPLE DESTINATION

Laboratory: Test America
Shipped Via: Federal Express ☐ UPS ☐ Other ☑
Sample was: shipped day of sampling ☑ picked up on ☐
Chain of Custody Signed By: Eddie Jordan

SAMPLING LOG

Client/Project: Ashland Altivia
Site Location: Doraville GA
Sampling Personnel:
Job Number: 60409575 80
Weather: 47° sunny

Event:
Well ID: MW-3A
Date: 1/26/16
Time In: 1015 Time Out: 1115

WELL INFORMATION

		TIC	TOC	BGS
Depth to Water	(feet)	16.73	16.73	
Total Depth	(feet)	25.5	25.15	
Screened Interval	(feet)	15-25	14.94	
Pump Intake ~	(feet)	20		

check where appropriate
Well Type: Flushmount ☑ Stick-Up ☐
Well Locked: Yes ☑ No ☐
Measuring Point Marked: Yes ☑ No ☐
Well Diameter: 1" ☐ 2" ☑ Other:

WELL WATER INFORMATION

Length of Water Column:	(feet)	8.77
Volume of Water in Well:	(gal)	1.42
Pumping Rate of Pump:	(mL/min)	83
PumpStart: 1024	Pump Stop:	1104
Minutes of Pumping:		33
Total Volume Removed: 0	(ml)	2739

Conversion Factors

gallons per feet of water column:	1" ID	2" ID	4" ID	6" ID
	0.041	0.163	0.653	1.469

1 gal = 3.785 L = 3785 mL = 0.1337 cubic ft.

Unit Stability

pH	DO	Cond	ORP	Temp
± 0.2	± 1 mg/L	± 5.0%	± 10%	± 5%

SAMPLING INFORMATION

Analyses:
VOC 8260 ☑
Metals 6010 ☐
Inorganics Various ☐
☐
Other: ☐
☐
Sample ID: MW-3A
Sample Time: 1103
MS/MSD: Yes ☐ No ☑
Duplicate: Yes ☐ No ☑
Duplicate ID: N/A
Total Bottles: 3

EVACUATION INFORMATION

Evacuation Method: Bailer ☐ Peristaltic ☐ Bladder ☑ Other Pump ☐ _____
Tubing Used: Teflon ☑ Polyethylene ☐
Sampling Method: Bailer ☐ Peristaltic ☐ Bladder ☑ Other Pump ☐ _____

Did well go dry? Yes ☐ No ☑ 83 ml/min Water Quality Meter Type: YSI

Time / Parameter	1	2	3	4	5	6	7	8	9
	1035	1040	1045	1050	1055	1100	1105		
Rate (ml/min)	83	83	83	83	83	83	83		
Depth to Water (ft. TOC)	16.85	16.91	16.96	16.87	16.86	16.86	16.86		
Temperature (°C)	16.18	17.32	17.28	16.47	16.23	16.13	16.13		
pH	5.65	5.24	5.21	5.08	5.03	5.01	5.01		
Conductance (mS/cm)	.014	.014	.050	.054	.052	.053	.053		
Dissolved Oxygen mg/L	8.35	7.96	2.54	.92	.96	.97	.97		
Turbidity (NTU)	—	10.25	9.19	5.51	4.45	5.25	5.25		
ORP (mV)	308.3	351.5	364.	373.8	380.9	385.0	385.0		

Time / Parameter	10	11	12
Rate (ml/min)			
Depth to Water (ft. TIC)			
Temperature (°C)			
pH			
Conductance (mS/cm)			
Dissolved Oxygen mg/L			
Turbidity (NTU)			
ORP (mV)			

Water Level Equipment Used: Solinst
Decontamination Fluids Used: H_2O alconox
Sample Observations:

MISCELLANEOUS OBSERVATIONS/PROBLEMS

SAMPLE DESTINATION
Laboratory: test american Savannah
Shipped Via: Federal Express ☐ UPS ☐ Other ☑
Sample was shipped day of sampling ☐ picked up on 1/27/16 ☐
Chain of Custody Signed By:

10:39
10:35

SAMPLING LOG

Client/Project: Ashland Afterman
Site Location: Jonesboro, GA
Sampling Personnel:
Job Number: 240957580
Weather: 35° Sunny

Event:
Well ID: MW-30
Date: 1/25/16
Time In: 0839 Time Out: 1015

WELL INFORMATION

		TIC	TOC	BGS
Depth to Water	(feet)		17.45	
Total Depth	(feet)		56.6	
Screened Interval	(feet)		45-55	
Pump Intake ~	(feet)		50	

check where appropriate

Well Type: Flushmount ☑ Stick-Up ☐
Well Locked: Yes ☑ No ☐
Measuring Point Marked: Yes ☑ No ☐
Well Diameter: 1" ☐ 2" ☑ Other:

WELL WATER INFORMATION

Length of Water Column:	(feet)	37.75
Volume of Water in Well:	(gal)	6.37
Pumping Rate of Pump:	(mL/min)	50
PumpStart: 0927	Pump Stop:	1003
Minutes of Pumping:		4x30
Total Volume Removed: 0 (ml)		1500

Conversion Factors

gallons per feet of water column:	1" ID	2" ID	4" ID	6" ID
	0.041	0.163	0.653	1.469

1 gal = 3.785 L =3785 mL = 0.1337 cubic ft.

Unit Stability

	Turb	pH	DO	Cond	ORP	Temp
Stabilized/not below 10 NTU		± 0.1	± 0.2 mg/l	± 5.0%	± 10%	± 5%

SAMPLING INFORMATION

Analyses:
VOC 8260 ☑
Metals 6010 ☐
Inorganics Various ☐
☐
Other: ☐
☐
Sample ID: MW-30
Sample Time: 1002
MS/MSD: Yes ☐ No ☑
Duplicate: Yes ☐ No ☑
Duplicate ID: N/A
Total Bottles: 3

EVACUATION INFORMATION

Evacuation Method: Bailer ☐ Peristaltic ☐ Bladder ☑ Other Pump ☐
Tubing Used: Teflon ☑ Polyethylene ☐
Sampling Method: Bailer ☐ Peristaltic ☐ Bladder ☑ Other Pump ☐

Did well go dry? Yes ☐ No ☑ Water Quality Meter Type: YSI

Time / Parameter	1	2	3	4	5	6	7	8	9
	0932	0937	0942	0947	0952	0957			
Rate (ml/min)	50	50	50	50	50	50			
Depth to Water (ft. TOC)	17.12	17.20	17.21	17.25	17.29	17.30			
Temperature (°C)	16.43	16.41	16.39	16.37	16.36	16.36			
pH	4.96	5.17	5.18	5.17	5.18	5.18			
Conductance (mS/cm)	0.125	0.102	0.102	0.101	0.101	0.101			
Dissolved Oxygen mg/L)	7.45	5.42	5.06	5.02	5.58	5.52			
Turbidity (NTU)	24.8	20.3	18.2	17.80	17.9	17.5			
ORP (mV)	104.3	91.3	99.7	111.5	112.7	114.7			

Time / Parameter	10	11	12
Rate (ml/min)			
Depth to Water (ft. TIC)			
Temperature (°C)			
pH			
Conductance (mS/cm)			
Dissolved Oxygen mg/L)			
Turbidity (NTU)			
ORP (mV)			

Water Level Equipment Used: Solinst
Decontamination Fluids Used: H2O Alconox
Sample Observations:

MISCELLANEOUS OBSERVATIONS/PROBLEMS

SAMPLE DESTINATION

Laboratory: Test America Savannah
Shipped Via: Federal Express ☐ UPS ☐ Other ☑
Sample was shipped day of sampling ☐ picked up on 1/27/16 ☑
Chain of Custody Signed By: CJB

SAMPLING LOG

Client/Project: Ashland Alternative
Site Location: Jonestown, GA
Sampling Personnel:
Job Number: E0409575 80
Weather: 50 cloudy

Event:
Well ID: MW-8A
Date: 1/26/16
Time In: 1223 Time Out: 1320

WELL INFORMATION

		TIC	TOC	BGS
Depth to Water	(feet)		23.98	
Total Depth	(feet)		34.04	
Screened Interval	(feet)		23-33	
Pump Intake ~	(feet)		27.66	

check where appropriate

Well Type: Flushmount ☑ Stick-Up ☐
Well Locked: Yes ☑ No ☐
Measuring Point Marked: Yes ☑ No ☐
Well Diameter: 1" ☐ 2" ☑ Other:

WELL WATER INFORMATION

Length of Water Column:	(feet)	7.96
Volume of Water in Well:	(gal)	1.26
Pumping Rate of Pump:	(mL/min)	95.45
PumpStart: 1235	Pump Stop:	1315
Minutes of Pumping:		40
Total Volume Removed: 0	(ml)	1818

Conversion Factors

gallons per feet of water column:	1" ID	2" ID	4" ID	6" ID
	0.041	0.163	0.653	1.469

1 gal = 3.785 L = 3785 mL = 0.1337 cubic ft.

Unit Stability

pH	DO	Cond	ORP	Temp
±0.2	±1 mg/L	±5.0%	±10%	±5%

SAMPLING INFORMATION

Analyses:
VOC 8260 ☑
Metals 6010 ☐
Inorganics Various ☐
☐
Other: ☐
☐

Sample ID: MW 8A
Sample Time: 1314
MS/MSD: Yes ☐ No ☑
Duplicate: Yes ☐ No ☑
Duplicate ID: N/A
Total Bottles: 3

EVACUATION INFORMATION

Evacuation Method: Bailer ☐ Peristaltic ☐ Bladder ☑ Other Pump ☐
Tubing Used: Teflon ☑ Polyethylene ☐
Sampling Method: Bailer ☐ Peristaltic ☐ Bladder ☑ Other Pump ☐

Did well go dry? Yes ☐ No ☑ Water Quality Meter Type: YSI

Time / Parameter	1	2	3	4	5	6	7	8	9
	1246	1251	1256	1301	1306	1311	1314 EV		
Rate (ml/min)									
Depth to Water (ft. TOC)	23.95	23.98	23.98	23.97	23.98	23.98			
Temperature (°C)	16.92	18.89	19.19	19.30	19.48	19.60			
pH	5.82	5.47	5.41	5.34	5.30	5.30			
Conductance (mS/cm)	.097	.099	.101	.103	.104	.104			
Dissolved Oxygen mg/L	4.22	2.31	2.30	2.29	2.31	2.32			
Turbidity (NTU)	24.1	18.9	19.5	12.20	12.36	11.99			
ORP (mV)	613.3	677.5	698.2	714.2	725.4	729.5			

Time / Parameter	10	11	12
Rate (ml/min)			
Depth to Water (ft. TIC)			
Temperature (°C)			
pH			
Conductance (mS/cm)			
Dissolved Oxygen mg/L			
Turbidity (NTU)			
ORP (mV)			

Water Level Equipment Used: Solinst
Decontamination Fluids Used: H2O alconox
Sample Observations: water has purple tint

MISCELLANEOUS OBSERVATIONS/PROBLEMS

SAMPLE DESTINATION

Laboratory: test america Savannah
Shipped Via: ☐ Federal Express ☐ UPS ☑ Other
Sample was ☐ shipped day of sampling ☐ picked up on 1/27/16
Chain of Custody Signed By: EJ2

1235
1246

SAMPLING LOG

Client/Project: Ashland Alterman
Site Location: Jonesboro, GA
Sampling Personnel:
Job Number: 60409575 80
Weather: 47° cloudy

Event:
Well ID: MW-8D
Date: 1/26/16
Time In: 1126 Time Out: 1230

WELL INFORMATION

		TIC	TOC	BGS
Depth to Water	(feet)		23.90	
Total Depth	(feet)		57.3	
Screened Interval	(feet)		47-57	
Pump Intake ~	(feet)		40.6	

check where appropriate

Well Type: Flushmount ☑ Stick-Up ☐
Well Locked: Yes ☑ No ☐
Measuring Point Marked: Yes ☑ No ☐
Well Diameter: 1" ☐ 2" ☑ Other:

WELL WATER INFORMATION

Length of Water Column:	(feet)	33.4
Volume of Water in Well:	(gal)	5.44
Pumping Rate of Pump:	(mL/min)	45.45
PumpStart: 1138	Pump Stop:	1218
Minutes of Pumping:		40
Total Volume Removed: 0	(ml)	1818

Conversion Factors

gallons per feet of water column:	1" ID	2" ID	4" ID	6" ID
	0.041	0.163	0.653	1.469

1 gal = 3.785 L = 3785 mL = 0.1337 cubic ft.

Unit Stability

	Turb	pH	DO	Cond	ORP	Temp
Stabilized not below 10 NTU		± 0.1	0.2 mg/l	± 5.0%	± 10%	± 5%

SAMPLING INFORMATION

Analyses:
VOC 8260 ☑
Metals 6010 ☐
Inorganics Various ☐
Other: ☐ ☐ ☐
Sample ID: MW-8D
Sample Time: 1217
MS/MSD: Yes ☐ No ☑
Duplicate: Yes ☐ No ☑
Duplicate ID: MW-8D
Total Bottles: 3

EVACUATION INFORMATION

Evacuation Method:	Bailer ☐	Peristaltic ☐	Bladder ☐	Other Pump ☑		
Tubing Used:	Teflon ☑	Polyethylene ☐				
Sampling Method:	Bailer ☐	Peristaltic ☐	Bladder ☑	Other Pump ☐		

Did well go dry? Yes ☐ No ☑ Water Quality Meter Type: YSI

Time / Parameter	1	2	3	4	5	6	7	8	9
	1144	1154	1154	1204	1209	1214			
Rate (ml/min)	45.45	45.45	45.45	45.45	45.45	45.45			
Depth to Water (ft. TOC)	23.91	23.94	23.91	23.91	23.91	23.91			
Temperature (°C)	17.21	17.48	16.59	16.50	16.44	16.49			
pH	6.05	6.09	6.09	6.05	6.05	6.05			
Conductance (mS/cm)	0.161	0.169	0.172	0.172	0.172	0.172			
Dissolved Oxygen mg/L)	7.25	5.87	6.25	5.34	5.23	5.18			
Turbidity (NTU)	12.92	11.87	10.24	9.30	8.86	7.66			
ORP (mV)	557.2	624.5	649.4	661.8	670.4	675.4			

Time / Parameter	10	11	12
Rate (ml/min)			
Depth to Water (ft. TIC)			
Temperature (°C)			
pH			
Conductance (mS/cm)			
Dissolved Oxygen mg/L)			
Turbidity (NTU)			
ORP (mV)			

Water Level Equipment Used: Solinst
Decontamination Fluids Used: H_2O alconox
Sample Observations: water has purplish tint

MISCELLANEOUS OBSERVATIONS/PROBLEMS

SAMPLE DESTINATION

Laboratory: test america
Shipped Via: ☐ Federal Express ☐ UPS ☐ Other
Sample was ☐ shipped day of sampling ☑ picked up on 1/27/16
Chain of Custody Signed By:

SAMPLING LOG

Client/Project: *Ashland Alterman*
Site Location: Jonesboro, GA
Sampling Personnel:
Job Number: 240957580
Weather: 50° sunny

Event:
Well ID: MW-8C
Date: 1/25/18
Time In: 1710 Time Out: 1810

WELL INFORMATION

		TIC	TOC	BGS
Depth to Water	(feet)		30.10	
Total Depth	(feet)		85.15	
Screened Interval	(feet)		71-85	
Pump Intake ~	(feet)		78	

check where appropriate
Well Type: Flushmount ☑ Stick-Up ☐
Well Locked: Yes ☑ No ☐
Measuring Point Marked: Yes ☑ No ☐
Well Diameter: 1" ☐ 2" ☑ Other: ____

WELL WATER INFORMATION

Length of Water Column:	(feet)	55.05
Volume of Water in Well:	(gal)	8.97
Pumping Rate of Pump:	(mL/min)	100
PumpStart: 1728	Pump Stop:	1804
Minutes of Pumping:	32	
Total Volume Removed:	0 (ml)	3200

Conversion Factors

gallons per feet of water column:	1" ID	2" ID	4" ID	6" ID
	0.041	0.163	0.653	1.469

1 gal = 3.785 L = 3785 mL = 0.1337 cubic ft.

Unit Stability

	Turb	pH	DO	Cond	ORP	Temp
Stabilized not below 10 NTU		± 0.1	± 0.2 mg/L	± 5.0%	± 10%	± 5%

SAMPLING INFORMATION

Analyses:
VOC 8260 ☑
Metals 6010 ☐
Inorganics Various ☐
☐
Other: ☐
☐

Sample ID: MW-8C
Sample Time: 1803
MS/MSD: Yes ☐ No ☑
Duplicate: Yes ☐ No ☑
Duplicate ID: N/A
Total Bottles: 3

EVACUATION INFORMATION

Evacuation Method:	Bailer ☑	Peristaltic ☐	Bladder ☐	Other Pump ☐		
Tubing Used:	Teflon ☑	Polyethylene ☐				
Sampling Method:	Bailer ☐	Peristaltic ☐	Bladder ☑	Other Pump ☐		

Did well go dry? Yes ☐ No ☑ Water Quality Meter Type: YSI

Time / Parameter	1	2	3	4	5	6	7	8	9
	1733	1738	1743	1748	1753	1758			
Rate (ml/min)	100	100	100	100	100	100			
Depth to Water (ft. TOC)	29.75	30.98	32.93	34.9	37.23	39.24			
Temperature (°C)	17.13	19.30	19.43	19.63	19.48	19.42			
pH	9.48	9.54	9.55	9.55	9.55	9.54			
Conductance (mS/cm)	0.416	0.822	0.826	0.827	0.825	0.824			
Dissolved Oxygen mg/L)	9.60	3.60	3.81	3.94	3.03	2.66			
Turbidity (NTU)	8.26	4.98	5.02	4.57	3.40	5.65			
ORP (mV)	8.0	-91.2	-155.2	-150.2	-210.6	-216.3			

Time / Parameter	10	11	12
Rate (ml/min)			
Depth to Water (ft. TIC)			
Temperature (°C)			
pH			
Conductance (mS/cm)			
Dissolved Oxygen mg/L)			
Turbidity (NTU)			
ORP (mV)			

Water Level Equipment Used: Solinst

Decontamination Fluids Used: H_2O liquinox

Sample Observations:

MISCELLANEOUS OBSERVATIONS/PROBLEMS

SAMPLE DESTINATION
Laboratory: Test America Savannah
Shipped Via: Federal Express ☐ UPS ☐ Other ☑
Sample was: shipped day of sampling ☐ picked up on ☑
Chain of Custody Signed By: EZ 1/27/18

SAMPLING LOG

Client/Project: Ashland Attorney
Site Location: Jonesboro, GA
Sampling Personnel:
Job Number: 240957580
Weather: 50° cloudy

Event:
Well ID: MW-9A
Date: 1/26/16
Time In: 1413 Time Out:

WELL INFORMATION

		TIC	TOC	BGS
Depth to Water	(feet)		16.56	
Total Depth	(feet)		33.5	
Screened Interval	(feet)		20-30	
Pump Intake ~	(feet)		25.03	

check where appropriate
Well Type: Flushmount ☑ Stick-Up ☐
Well Locked: Yes ☐ No ☐
Measuring Point Marked: Yes ☑ No ☐
Well Diameter: 1" ☐ 2" ☑ Other:

WELL WATER INFORMATION

Length of Water Column:	(feet)	16.94
Volume of Water in Well:	(gal)	2.76
Pumping Rate of Pump:	(mL/min)	166
PumpStart: 1417	Pump Stop:	1458
Minutes of Pumping:		41
Total Volume Removed: 0	(ml)	6806

Conversion Factors

gallons per feet of water column:	1" ID	2" ID	4" ID	6" ID
	0.041	0.163	0.653	1.469

1 gal = 3.785 L = 3785 mL = 0.1337 cubic ft.

Unit Stability

pH	DO	Cond	ORP	Temp
±0.2	±1 mg/L	±5.0%	±10%	±5%

SAMPLING INFORMATION

Analyses:
VOC 8260 ☑
Metals 6010 ☐
Inorganics Various ☐
☐
Other: ☐
☐
Sample ID: MW-9A
Sample Time: 1457
MS/MSD: Yes ☐ No ☑
Duplicate: Yes ☐ No ☑
Duplicate ID: N/A
Total Bottles: 3

EVACUATION INFORMATION

Evacuation Method: Bailer ☐ Peristaltic ☐ Bladder ☑ Other Pump ☐
Tubing Used: Teflon ☑ Polyethylene ☐
Sampling Method: Bailer ☐ Peristaltic ☐ Bladder ☑ Other Pump ☐
Did well go dry? Yes ☐ No ☑ Water Quality Meter Type: YSI

Time / Parameter	1 1420	2 1425	3 1430	4 1435	5 1440	6 1445	7 1450	8 1455	9 1457
Rate (ml/min)									
Depth to Water (ft. TOC)	16.60	16.59	16.59	16.59	16.55	16.60	16.60	16.60	
Temperature (°C)	17.92	18.36	18.40	18.37	18.37	18.25	18.37	18.41	
pH	5.39	4.92	4.89	4.88	4.88	4.89	4.88	4.89	
Conductance (mS/cm)	0.056	0.050	0.049	0.049	0.049	0.049	0.049	0.049	
Dissolved Oxygen mg/L)	10.41	9.60	9.26	8.87	8.82	8.52	8.11	7.96	
Turbidity (NTU)	28.3	23.80	17.4	16.9	16.0	13.4	11.6	9.53	
ORP (mV)	527.6	481.6	415.10	370.2	338.3	296.9	276.3	268.2	

Time / Parameter	10	11	12
Rate (ml/min)			
Depth to Water (ft. TIC)			
Temperature (°C)			
pH			
Conductance (mS/cm)			
Dissolved Oxygen mg/L)			
Turbidity (NTU)			
ORP (mV)			

Water Level Equipment Used:
Solinst

Decontamination Fluids Used:
H2O Alconox

Sample Observations:

MISCELLANEOUS OBSERVATIONS/PROBLEMS

SAMPLE DESTINATION
Laboratory: Test America Savannah
Shipped Via: Federal Express ☐ UPS ☐ Other ☑
Sample was shipped day of sampling ☐ picked up on 1/27/16 ☐
Chain of Custody Signed By:

2:17
2:20

SAMPLING LOG

Client/Project: *Ashland Alterman*
Site Location: Jonesboro, GA
Sampling Personnel:
Job Number: 40957580
Weather: 35° cloudy

Event:
Well ID: MW-9B
Date: 1/25/16
Time In: 1011 Time Out: 1110

WELL INFORMATION

		TIC	TOC	BGS
Depth to Water	(feet)		18.5	
Total Depth	(feet)		64.4	
Screened Interval	(feet)		52-62	
Pump Intake –	(feet)		57	

check where appropriate

Well Type: Flushmount ☑ Stick-Up ☐
Well Locked: Yes ☑ No ☐
Measuring Point Marked: Yes ☑ No ☐
Well Diameter: 1" ☐ 2" ☑ Other:

WELL WATER INFORMATION

Length of Water Column:	(feet)	45.9
Volume of Water in Well:	(gal)	7.4
Pumping Rate of Pump:	(mL/min)	166.7
PumpStart: 1033	Pump Stop:	1106
Minutes of Pumping:		33
Total Volume Removed: 0	(ml)	5478

Conversion Factors

gallons per feet of water column:	1" ID	2" ID	4" ID	6" ID
	0.041	0.163	0.653	1.469

1 gal = 3.785 L = 3785 mL = 0.1337 cubic ft.

Unit Stability

	Turb	pH	DO	Cond	ORP	Temp
Stabilized not below 10 NTU		± 0.1	0.2 mg/l	± 5.0%	± 10%	± 5%

SAMPLING INFORMATION

Analyses:
VOC 8260 ☑
Metals 6010 ☐
Inorganics Various ☐
Other: ☐ ☐ ☐
Sample ID: MW-9B
Sample Time: 1105
MS/MSD: Yes ☐ No ☑
Duplicate: Yes ☐ No ☑
Duplicate ID: N/A
Total Bottles: 3

EVACUATION INFORMATION

Evacuation Method: Bailer ☐ Peristaltic ☐ Bladder ☑ Other Pump ☐
Tubing Used: Teflon ☑ Polyethylene ☐
Sampling Method: Bailer ☐ Peristaltic ☐ Bladder ☐ Other Pump ☐
Did well go dry? Yes ☐ No ☑ Water Quality Meter Type: YSI

Time / Parameter	1	2	3	4	5	6	7	8	9
	1037	1092	1047	1052	1557	1102			
Rate (ml/min)	166	166	166	166	166	166			
Depth to Water (ft. TOC)	18.09	18.13	18.13	18.13	18.13	18.13			
Temperature (°C)	15.48	17.00	17.26	17.23	17.22	17.22			
pH	6.01	6.40	6.38	6.35	6.34	6.34			
Conductance (mS/cm)	0.181	0.186	0.186	0.189	0.189	0.190			
Dissolved Oxygen mg/L)	6.99	5.14	4.13	3.98	3.83	3.84			
Turbidity (NTU)	11.32	3.70	3.41	4.79	5.21	7.53			
ORP (mV)	147.5	132.3	130.3	130.8	130.8	131.8			

Time / Parameter	10	11	12
Rate (ml/min)			
Depth to Water (ft. TIC)			
Temperature (°C)			
pH			
Conductance (mS/cm)			
Dissolved Oxygen mg/L)			
Turbidity (NTU)			
ORP (mV)			

Water Level Equipment Used: Solinist
Decontamination Fluids Used: H_2O . Alconox
Sample Observations:

MISCELLANEOUS OBSERVATIONS/PROBLEMS

SAMPLE DESTINATION

Laboratory: test America Savannah
Shipped Via: Federal Express ☐ UPS ☐ Other ☑
Sample was shipped day of sampling ☐ picked up on 1/27/16 ☑
Chain of Custody Signed By:

SAMPLING LOG

Client/Project: *Ashland Alterman*
Site Location: Jonesboro, GA
Sampling Personnel:
Job Number: 240457580
Weather: 37° Sunny

Event:
Well ID: MW-9C
Date: 1/25/16
Time In: 1126 Time Out: 1230

WELL INFORMATION

		TIC	TOC	BGS
Depth to Water	(feet)		19.49	
Total Depth	(feet)		100.21	
Screened Interval	(feet)		85-100	
Pump Intake ~	(feet)		92.5	

check where appropriate

Well Type: Flushmount ☑ Stick-Up ☐
Well Locked: Yes ☑ No ☐
Measuring Point Marked: Yes ☑ No ☐
Well Diameter: 1" ☐ 2" ☑ Other: ____

WELL WATER INFORMATION

Length of Water Column:	(feet)	80.72
Volume of Water in Well:	(gal)	13.15
Pumping Rate of Pump:	(mL/min)	62
PumpStart: 1131	Pump Stop:	1221
Minutes of Pumping:		
Total Volume Removed: 0	(ml)	

Conversion Factors

gallons per feet of water column:	1" ID	2" ID	4" ID	6" ID
	0.041	0.163	0.653	1.469

1 gal = 3.785 L = 3785 mL = 0.1337 cubic ft

Unit Stability

	Turb	pH	DO	Cond	ORP	Temp
Stabilized or below 10 NTU		± 0.1	± 0.2 mg/l	± 5.0%	± 10%	± 5%

SAMPLING INFORMATION

Analyses:
VOC 8260 ☑
Metals 6010 ☐
Inorganics Various ☐
☐
Other: ____ ☐
☐

Sample ID: MW-9C
Sample Time: 1220
MS/MSD: Yes ☐ No ☑
Duplicate: Yes ☐ No ☑
Duplicate ID: N/A
Total Bottles: 3

EVACUATION INFORMATION

Evacuation Method: Bailer ☐ Peristaltic ☐ Bladder ☑ Other Pump ☐ ____
Tubing Used: Teflon ☑ Polyethylene ☐
Sampling Method: Bailer ☐ Peristaltic ☐ Bladder ☑ Other Pump ☐ ____

Did well go dry? Yes ☐ No ☑ Water Quality Meter Type: YSI

Time / Parameter	1	2	3	4	5	6	7	8	9
	1134	1144	1149	1154	1159	1204	1209	1214	
Rate (ml/min)	62	62	62	62	62	62	62	62	
Depth to Water (ft. TOC)	18.07	18.91	20.55	21.48	22.50	23.11	23.31	23.38	
Temperature (°C)	15.68	17.35	17.45	17.46	17.42	17.33	17.33	17.29	
pH	8.80	7.22	7.11	7.05	6.94	6.72	6.53	6.35	
Conductance (mS/cm)	0.213	0.250	0.248	0.247	0.245	0.239	0.234	0.230	
Dissolved Oxygen (mg/L)	6.43	5.18	4.01	5.24	4.62	4.16	4.10	5.65	
Turbidity (NTU)	60.3	78.4	71.4	53.6	44.4	42.0	42.5	43.2	
ORP (mV)	-32.1	-41.8	-51.3	-60.9	-61.9	-43.2	-43.9	-44.2	

Time / Parameter	10	11	12
Rate (ml/min)			
Depth to Water (ft. TIC)			
Temperature (°C)			
pH			
Conductance (mS/cm)			
Dissolved Oxygen (mg/L)			
Turbidity (NTU)			
ORP (mV)			

Water Level Equipment Used: Solinist

Decontamination Fluids Used: H_2O alconox

Sample Observations:

MISCELLANEOUS OBSERVATIONS/PROBLEMS

SAMPLE DESTINATION

Laboratory: Test America - Savannah
Shipped Via: Federal Express ☐ UPS ☐ Other ☑
Sample was: shipped day of sampling ☐ picked up on ☑
Chain of Custody Signed By: CM 1/27/16

SAMPLING LOG

Client/Project: Ashland Alferman
Site Location: Jonesboro, GA
Sampling Personnel:
Job Number: 60409575 80
Weather: 55° cloudy

Event:
Well ID: MW-10A
Date: 1/26/16
Time In: 1506 Time Out: 1700

WELL INFORMATION

		TIC	TOC	BGS
Depth to Water	(feet)		24.49	
Total Depth	(feet)		38.09	
Screened Interval	(feet)		27-37	
Pump Intake ~	(feet)		32.5	

check where appropriate

Well Type: Flushmount ☑ Stick-Up ☐
Well Locked: Yes ☑ No ☐
Measuring Point Marked: Yes ☑ No ☐
Well Diameter: 1" ☐ 2" ☑ Other:

WELL WATER INFORMATION

Length of Water Column:	(feet)	13.6
Volume of Water in Well:	(gal)	2.21
Pumping Rate of Pump:	(mL/min)	100
PumpStart: 1620	Pump Stop:	1656
Minutes of Pumping:		36
Total Volume Removed: 0 (ml)		3600

Conversion Factors

gallons per feet of water column:	1" ID	2" ID	4" ID	6" ID
	0.041	0.163	0.653	1.469

1 gal = 3.785 L =3785 mL = 0.1337 cubic ft.

Unit Stability

Turb	pH	DO	Cond	ORP	Temp
Stabilized/not below 10 NTU	± 0.1	0.2 mg/l	± 5.0%	± 10%	± 5%

SAMPLING INFORMATION

Analyses:
VOC 8260 ☑
Metals 6010 ☐
Inorganics Various ☐
☐
Other: ☐
☐
Sample ID: MW-10A
Sample Time: 1655
MS/MSD: Yes ☐ No ☑
Duplicate: Yes ☐ No ☑
Duplicate ID: N/A
Total Bottles: 3

EVACUATION INFORMATION

Evacuation Method:	Bailer ☐	Peristaltic ☐	Bladder ☑	Other Pump ☒		
Tubing Used:	Teflon ☑	Polyethylene ☐				
Sampling Method:	Bailer ☐	Peristaltic ☐	Bladder ☑	Other Pump ☐		

Did well go dry? Yes ☐ No ☑ Water Quality Meter Type: YSI

Time / Parameter	1	2	3	4	5	6	7	8	9
	1625	1630	1635	1640	1645	1650			
Rate (ml/min)	100	100	100	100	100	100			
Depth to Water (ft. TOC)	24.50	24.49	24.50	24.50	24.51	24.52			
Temperature (°C)	20.26	22.14	22.05	20.98	20.94	20.91			
pH	5.68	5.46	5.53	5.52	5.64	5.61			
Conductance (mS/cm)	0.098	0.092	0.092	0.096	0.104	0.101			
Dissolved Oxygen mg/L)	7.40	5.11	4.73	5.59	4.81	4.55			
Turbidity (NTU)	49.6	38.7	35.10	31.4	34.2	31.0			
ORP (mV)	369.4	356.3	362.5	368.7	367.1	369.8			

Time / Parameter	10	11	12
Rate (ml/min)			
Depth to Water (ft. TIC)			
Temperature (°C)			
pH			
Conductance (mS/cm)			
Dissolved Oxygen mg/L)			
Turbidity (NTU)			
ORP (mV)			

Water Level Equipment Used: Solinist
Decontamination Fluids Used: H_2O
Sample Observations:

MISCELLANEOUS OBSERVATIONS/PROBLEMS

SAMPLE DESTINATION

Laboratory: Test America Savannah
Shipped Via: ☐ Federal Express ☐ UPS ☑ Other
Sample was ☐ shipped day of sampling ☑ picked up on 1/27/16
Chain of Custody Signed By:

SAMPLING LOG

Client/Project: Ashland Alterman
Site Location: Jonesboro, GA
Sampling Personnel:
Job Number: 240955780
Weather: 45° Sunny
Event:
Well ID: MW-10B
Date: 1/26/16
Time In: Time Out:

WELL INFORMATION

		TIC	TOC	BGS
Depth to Water	(feet)		24.33	
Total Depth	(feet)		29.31	
Screened Interval	(feet)		40-30	
Pump Intake ~	(feet)		26.82	

check where appropriate

Well Type: Flushmount ☑ Stick-Up ☐
Well Locked: Yes ☑ No ☐
Measuring Point Marked: Yes ☑ No ☐
Well Diameter: 1" ☐ 2" ☑ Other: ____

WELL WATER INFORMATION

Length of Water Column:	(feet)	4.48
Volume of Water in Well:	(gal)	0.81
Pumping Rate of Pump:	(mL/min)	100
PumpStart: 0902	Pump Stop:	0934
Minutes of Pumping:		32
Total Volume Removed: 0	(ml)	3200

Conversion Factors

gallons per feet of water column:	1" ID	2" ID	4" ID	6" ID
	0.041	0.163	0.653	1.469

1 gal = 3.785 L =3785 mL = 0.1337 cubic ft.

Unit Stability

	Turb	pH	DO	Cond	ORP	Temp
Stabilizednor below 10 NTU		± 0.1	0.2 mg/	± 5.0%	± 10%	± 5%

SAMPLING INFORMATION

Analyses:
VOC 8260 ☑
Metals 6010 ☐
Inorganics Various ☐
Other: ☐ ☐

Sample ID: MW-10B
Sample Time: 0933
MS/MSD: Yes ☐ No ☑
Duplicate: Yes ☐ No ☑
Duplicate ID: N/A
Total Bottles: 3

EVACUATION INFORMATION

Evacuation Method: Bailer ☐ Peristaltic ☐ Bladder ☑ Other Pump ☐
Tubing Used: Teflon ☑ Polyethylene ☐
Sampling Method: Bailer ☐ Peristaltic ☐ Bladder ☑ Other Pump ☐
Did well go dry? Yes ☐ No ☐ Water Quality Meter Type: YSI

Time / Parameter	1	2	3	4	5	6	7	8	9
	0907	0912	0917	0922	0927	0932			
Rate (ml/min)	100	100	100	100	100	100			
Depth to Water (ft. TOC)	24.35	24.91	24.95	25.95	26.01	26.0			
Temperature (°C)	22.05	21.94	21.82	21.75	21.72	21.74			
pH	5.61	5.64	5.63	5.52	5.51	5.60			
Conductance (mS/cm)	0.102	0.103	0.097	0.098	0.099	0.098			
Dissolved Oxygen mg/L)	4.57	4.72	5.57	5.62	5.73	5.93			
Turbidity (NTU)	13.2	14.2	12.7	11.2	13.9	13.9			
ORP (mV)	370.2	362.9	368.7	362.1	367.2	367.5			

Time / Parameter	10	11	12
Rate (ml/min)			
Depth to Water (ft. TIC)			
Temperature (°C)			
pH			
Conductance (mS/cm)			
Dissolved Oxygen mg/L)			
Turbidity (NTU)			
ORP (mV)			

Water Level Equipment Used: Solinist
Decontamination Fluids Used: H2O Alconox
Sample Observations:

MISCELLANEOUS OBSERVATIONS/PROBLEMS

SAMPLE DESTINATION
Laboratory: Test America Savannah
Shipped Via: Federal Express ☐ UPS ☐ Other ☑
Sample was shipped day of sampling ☐ picked up on 1/27/16 ☐
Chain of Custody Signed By:

8-6 8-8

SAMPLING LOG

Client/Project: *Ashland Alferman*
Site Location: Jonesboro, GA
Sampling Personnel:
Job Number: 40957580
Weather:

Event:
Well ID: MW-10C
Date: 1/25/16
Time In: 1610 Time Out:

WELL INFORMATION

		TIC	TOC	BGS
Depth to Water	(feet)		30.15	
Total Depth	(feet)		87.99	
Screened Interval	(feet)		75-90	
Pump Intake ~	(feet)		82.5	

check where appropriate

Well Type: Flushmount ☑ Stick-Up ☐
Well Locked: Yes ☑ No ☐
Measuring Point Marked: Yes ☑ No ☐
Well Diameter: 1" ☐ 2" ☑ Other:

WELL WATER INFORMATION

Length of Water Column:	(feet)	57.84
Volume of Water in Well:	(gal)	9.4
Pumping Rate of Pump:	(mL/min)	711.4
PumpStart: 1620	Pump Stop:	1801
Minutes of Pumping:		41
Total Volume Removed: 0	(ml)	2927

Conversion Factors

gallons per feet of water column:	1" ID	2" ID	4" ID	6" ID
	0.041	0.163	0.653	1.469

1 gal = 3.785 L = 3785 mL = 0.1337 cubic ft.

Unit Stability

	Turb	pH	DO	Cond	ORP	Temp
Stabilized no below 10 NTU		± 0.1	0.2 mg/l	± 5.0%	± 10%	± 5%

SAMPLING INFORMATION

Analyses:
VOC 8260 ☑
Metals 6010 ☐
Inorganics Various ☐
☐
Other: ☐
☐

Sample ID: MW-10C
Sample Time: 1700
MS/MSD: Yes ☐ No ☑
Duplicate: Yes ☐ No ☑
Duplicate ID: N/A
Total Bottles: 3

EVACUATION INFORMATION

Evacuation Method: Bailer ☐ Peristaltic ☐ Bladder ☑ Other Pump ☐
Tubing Used: Teflon ☑ Polyethylene ☐
Sampling Method: Bailer ☐ Peristaltic ☐ Bladder ☑ Other Pump ☐

Did well go dry? Yes ☐ No ☑ Water Quality Meter Type: YSI

Time / Parameter	1	2	3	4	5	6	7	8	9
	1627	1632	1637	1642	1647	1652	1655		
Rate (ml/min)	499	499	499	499	499	0	499		
Depth to Water (ft. TOC)	29.82	30.85	32.39	33.42	34.52		35.81		
Temperature (°C)	20.79	20.84	20.75	20.25	20.64		20.13		
pH	7.46	8.61	8.72	8.74	8.63	N/S	8.62		
Conductance (mS/cm)	0.088	0.103	0.102	0.084	0.102	N/S	0.105		
Dissolved Oxygen mg/L)	6.40	4.10	3.55	3.64	3.44	N/S	3.62		
Turbidity (NTU)	9.54	11.9	11.4	11.2	12.7	N/S	12.0		
ORP (mV)	430.1	352.3	333.5	324.6	323.6		320.2		

Time / Parameter	10	11	12
Rate (ml/min)			
Depth to Water (ft. TIC)			
Temperature (°C)			
pH			
Conductance (mS/cm)			
Dissolved Oxygen mg/L)			
Turbidity (NTU)			
ORP (mV)			

Water Level Equipment Used: Solinst
Decontamination Fluids Used: H_2O Alconox
Sample Observations:

MISCELLANEOUS OBSERVATIONS/PROBLEMS

SAMPLE DESTINATION

Laboratory:
Shipped Via: ☐ Federal Express ☐ UPS ☐ Other
Sample was ☐ shipped day of sampling ☐ picked up on
Chain of Custody Signed By:

SAMPLING LOG

Client/Project: *Ashland Alterman*
Site Location: Jonesboro, GA
Sampling Personnel:
Job Number: 240957580
Weather: 45° Sunny

Event:
Well ID: MW-11A
Date: 1/25/16
Time In: 1407 Time Out: 1510

WELL INFORMATION

		TIC	TOC	BGS
Depth to Water	(feet)		21.82	
Total Depth	(feet)		30.51	
Screened Interval	(feet)		20-30	
Pump Intake –	(feet)		25	

check where appropriate

Well Type: Flushmount ☑ Stick-Up ☐
Well Locked: Yes ☑ No ☐
Measuring Point Marked: Yes ☑ No ☐
Well Diameter: 1" ☐ 2" ☑ Other: ____

WELL WATER INFORMATION

Length of Water Column:	(feet)	8.69
Volume of Water in Well:	(gal)	1.41
Pumping Rate of Pump:	(mL/min)	62
PumpStart: 1420	Pump Stop:	1458
Minutes of Pumping:		38
Total Volume Removed: 0	(ml)	2356

Conversion Factors

gallons per feet of water column:	1" ID	2" ID	4" ID	6" ID
	0.041	0.163	0.653	1.469

1 gal = 3.785 L =3785 mL = 0.1337 cubic ft.

Unit Stability

	Turb	pH	DO	Cond	ORP	Temp
Stabilized(or below 10 NTU		± 0.1	± 0.2 mg/	± 5.0%	± 10%	± 5%

SAMPLING INFORMATION

Analyses:
VOC 8260 ☑
Metals 6010 ☐
Inorganics Various ☐
☐
Other: ____ ☐
☐

Sample ID: MW-11A
Sample Time: 1457
MS/MSD: Yes ☐ No ☑
Duplicate: Yes ☐ No ☑
Duplicate ID: N/A
Total Bottles: 3

EVACUATION INFORMATION

Evacuation Method: Bailer ☐ Peristaltic ☐ Bladder ☑ Other Pump ☐ ____
Tubing Used: Teflon ☑ Polyethylene ☐
Sampling Method: Bailer ☐ Peristaltic ☐ Bladder ☑ Other Pump ☐ ____

Did well go dry? Yes ☐ No ☑ Water Quality Meter Type: YSI

Time / Parameter	1	2	3	4	5	6	7	8	9
	1428	1433	1438	1443	1448	1453			
Rate (ml/min)	62	62	62	62	62	62			
Depth to Water (ft. TOC)	21.95	22.10	22.10	22.14	22.18	22.20			
Temperature (°C)	19.56	19.41	20.19	20.42	20.22	20.30			
pH	5.21	4.67	4.74	4.73	4.72	4.71			
Conductance (mS/cm)	0.025	0.083	0.083	0.089	0.092	0.087			
Dissolved Oxygen mg/L)	10.13	9.35	8.52	8.30	8.39	8.27			
Turbidity (NTU)	6.25	4.53	4.89	3.24	2.83	2.80			
ORP (mV)	685.8	780.6	791.2	804.0	811.8	816.4			

Time / Parameter	10	11	12
Rate (ml/min)			
Depth to Water (ft. TIC)			
Temperature (°C)			
pH			
Conductance (mS/cm)			
Dissolved Oxygen mg/L)			
Turbidity (NTU)			
ORP (mV)			

Water Level Equipment Used: Solinist

Decontamination Fluids Used: H_2O liquinox

Sample Observations: purple water

MISCELLANEOUS OBSERVATIONS/PROBLEMS

SAMPLE DESTINATION

Laboratory: Test america Savannah
Shipped Via: Federal Express ☐ UPS ☐ Other ☑
Sample was shipped day of sampling ☐ picked up on 1/27/16 ☑
Chain of Custody Signed By: EZ

SAMPLING LOG

Client/Project: *Ashland Alterman*
Site Location: Jonesboro, GA
Sampling Personnel:
Job Number: E04095780
Weather: 50° sunny windy

Event:
Well ID: MW-11B
Date: 1/26/16
Time In: 0950 Time Out: 1015

WELL INFORMATION

		TIC	TOC	BGS
Depth to Water	(feet)		21.87	
Total Depth	(feet)		25	
Screened Interval	(feet)		46-56	
Pump Intake ~	(feet)		N/A	

check where appropriate
Well Type: Flushmount ☑ Stick-Up ☐
Well Locked: Yes ☑ No ☐
Measuring Point Marked: Yes ☑ No ☐
Well Diameter: 1" ☐ 2" ☑ Other:

WELL WATER INFORMATION

Total Purging volume

Length of Water Column:	(feet)	3.13
Volume of Water in Well:	(gal)	0.5
Pumping Rate of Pump:	(mL/min)	N/A
PumpStart: N/A	Pump Stop:	N/A
Minutes of Pumping:		N/A
Total Volume Removed: 0	(ml)	

Conversion Factors

gallons per feet of water column:	1" ID	2" ID	4" ID	6" ID
	0.041	0.163	0.653	1.469

1 gal = 3.785 L = 3785 mL = 0.1337 cubic ft.

Unit Stability

Turb	pH	DO	Cond	ORP	Temp
Stabilized not below 10 NTU	± 0.1	± 0.2 mg/l	± 5.0%	± 10%	± 5%

SAMPLING INFORMATION

Analyses:
VOC 8260 ☑
Metals 6010 ☐
Inorganics Various ☐
Other: ☐ ☐ ☐
Sample ID: MW-11B
Sample Time: 1007
MS/MSD: Yes ☐ No ☑
Duplicate: Yes ☐ No ☑
Duplicate ID: N/A
Total Bottles: 3

EVACUATION INFORMATION

Evacuation Method:	Bailer ☑	Peristaltic ☐	Bladder ☐	Other Pump ☐		
Tubing Used:	Teflon ☐	Polyethylene ☐	N/A			
Sampling Method:	Bailer ☑	Peristaltic ☐	Bladder ☐	Other Pump ☐		

Did well go dry? Yes ☐ No ☑ Water Quality Meter Type: YSI

Time / Parameter	1 Initial 0958	2 1st 1001	3 2nd 1003	4 3rd 1005	5	6	7	8	9
Rate (ml/min)	N/A	N/A	N/A	N/A					
Depth to Water (ft. TOC)	N/A	N/A	N/A	N/A					
Temperature (°C)	19.47	19.93	20.10	19.81					
pH	9.91	9.95	9.95	9.95					
Conductance (mS/cm)	0.338	0.364	0.365	0.365					
Dissolved Oxygen mg/L)	6.01	5.88	5.80	5.84					
Turbidity (NTU)	11.81	9.74	10.75	15.7					
ORP (mV)	58.6	59.3	61.7	62.0					

Time / Parameter	10	11	12
Rate (ml/min)			
Depth to Water (ft. TIC)			
Temperature (°C)			
pH			
Conductance (mS/cm)			
Dissolved Oxygen mg/L)			
Turbidity (NTU)			
ORP (mV)			

Water Level Equipment Used: Solinst
Decontamination Fluids Used: H2O cleaner
Sample Observations: on 3rd well volume water turned purplish.

MISCELLANEOUS OBSERVATIONS/PROBLEMS
* obstruction @ 25ft Pump would Not pass Total 57 ft
* Not Sampled in low flow * Sampled in thick well volume method
* Once reading @ Each well volume
* 1 well volume = .5 gallons

SAMPLE DESTINATION
Laboratory: test american Savannah
Shipped Via: Federal Express ☐ UPS ☐ Other ☑
Sample was shipped day of sampling ☐ picked up on 1/27/16 ☐
Chain of Custody Signed By: EZB

SAMPLING LOG

Client/Project: *Ashland Alterman*
Site Location: Jonesboro, GA
Sampling Personnel:
Job Number: 60404575 86
Weather: 45° Sunny

Event:
Well ID: MW-11C
Date: 1/25/16
Time In: 1325 Time Out: 1410

WELL INFORMATION

		TIC	TOC	BGS
Depth to Water	(feet)		23.15	
Total Depth	(feet)		87.4	
Screened Interval	(feet)		73-88	
Pump Intake ~	(feet)		80.5	

check where appropriate

Well Type: Flushmount ☑ Stick-Up ☐
Well Locked: Yes ☑ No ☐
Measuring Point Marked: Yes ☑ No ☐
Well Diameter: 1" ☐ 2" ☑ Other: ____

WELL WATER INFORMATION

Length of Water Column:	(feet)	64.75
Volume of Water in Well:	(gal)	10.55
Pumping Rate of Pump:	(mL/min)	62.5
PumpStart: 1323	Pump Stop:	
Minutes of Pumping:		
Total Volume Removed: 0	(ml)	

Conversion Factors

gallons per feet of water column:	1" ID	2" ID	4" ID	6" ID
	0.041	0.163	0.653	1.469

1 gal = 3.785 L = 3785 mL = 0.1337 cubic ft.

Unit Stability	Turb	pH	DO	Cond	ORP	Temp
Stabilized/or below 10 NTU		± 0.1	± 0.2 mg/l	± 5.0%	± 10%	± 5%

SAMPLING INFORMATION

Analyses:
VOC 8260 ☑
Metals 6010 ☐
Inorganics Various ☐
☐
Other: ____ ☐
☐

Sample ID: MW-11C
Sample Time: 1400
MS/MSD: Yes ☐ No ☑
Duplicate: Yes ☑ No ☐
Duplicate ID: Dup-1
Total Bottles: 3+3

EVACUATION INFORMATION

Evacuation Method:	Bailer ☐	Peristaltic ☐	Bladder ☑	Other Pump ☐	____
Tubing Used:	Teflon ☑	Polyethylene ☐			
Sampling Method:	Bailer ☐	Peristaltic ☐	Bladder ☑	Other Pump ☐	____

Did well go dry? Yes ☐ No ☑ Water Quality Meter Type: ~~YSI~~ YSI

Time / Parameter	1	2	3	4	5	6	7	8	9
	1331	1336	1341	1346	1351	1356			
Rate (ml/min)	62.5	62.5	62.5	62.5	62.5	62.5			
Depth to Water (ft. TOC)	23.21	23.31	23.40	23.43	23.50	23.50			
Temperature (°C)	18.85	19.69	19.51	19.39	19.37	19.35			
pH	6.61	6.43	6.41	6.40	6.40	6.43			
Conductance (mS/cm)	0.157	0.284	0.283	0.283	0.283	0.283			
Dissolved Oxygen mg/L)	10.44	8.76	2.01	1.78	1.82	1.94			
Turbidity (NTU)	6.57	2.97	1.24	1.08	1.01	2.14			
ORP (mV)	14.9	12.07	12.09	14.3	16.1	19.1			

Time / Parameter	10	11	12
Rate (ml/min)			
Depth to Water (ft. TIC)			
Temperature (°C)			
pH			
Conductance (mS/cm)			
Dissolved Oxygen mg/L)			
Turbidity (NTU)			
ORP (mV)			

Water Level Equipment Used: Solinist

Decontamination Fluids Used: H_2O alconox

Sample Observations:

MISCELLANEOUS OBSERVATIONS/PROBLEMS

SAMPLE DESTINATION

Laboratory: test America Savannah
Shipped Via: Federal Express ☐ UPS ☐ Other ☑
Sample was shipped day of sampling ☐ picked up on 1/27/16 ☐
Chain of Custody Signed By: EZL

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING



ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica Savannah
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Savannah, GA 31404
Tel: (912)354-7858

TestAmerica Job ID: 680-117982-1
Client Project/Site: Ashland Alterman

For:
EHS Support, LLC
4694 Cemetary Rd, PMB 104
Hilliard, Ohio 43026

Attn: Ms. Michelle Stayrook

Authorized for release by:
10/23/2015 5:58:50 PM

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

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

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Job ID: 680-117982-1

Laboratory: TestAmerica Savannah

Narrative

CASE NARRATIVE

Client: EHS Support, LLC

Project: Ashland Alterman

Report Number: 680-117982-1

With the exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. In addition all laboratory quality control samples were within established control limits, with any exceptions noted below. Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. In the event of interference or analytes present at high concentrations, samples may be diluted. For diluted samples, the reporting limits are adjusted relative to the dilution required.

RECEIPT

The samples were received on 10/17/2015; the samples arrived in good condition, properly preserved and on ice. The temperature of the coolers at receipt was 1.3 C.

VOLATILE ORGANIC COMPOUNDS (GC-MS)

Samples Trip Blank (680-117982-1), MW-15C (680-117982-2), MW-24 (680-117982-3), MW-23B (680-117982-4) and MW-23A (680-117982-5) were analyzed for Volatile Organic Compounds (GC-MS) in accordance with EPA SW-846 Method 8260B. The samples were analyzed on 10/21/2015.

Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate (MS/MSD) associated with preparation batch 680-406496 and analytical batch 680-406615.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Sample Summary

Client: EHS Support, LLC
Project/Site: Ashland Alterman

TestAmerica Job ID: 680-117982-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
680-117982-1	Trip Blank	Water	10/16/15 09:15	10/17/15 08:10
680-117982-2	MW-15C	Water	10/16/15 14:51	10/17/15 08:10
680-117982-3	MW-24	Water	10/16/15 13:29	10/17/15 08:10
680-117982-4	MW-23B	Water	10/16/15 12:03	10/17/15 08:10
680-117982-5	MW-23A	Water	10/16/15 10:45	10/17/15 08:10

Method Summary

Client: EHS Support, LLC
Project/Site: Ashland Alterman

TestAmerica Job ID: 680-117982-1

Method	Method Description	Protocol	Laboratory
8260B	Volatile Organic Compounds (GC/MS)	SW846	TAL SAV

Protocol References:

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL SAV = TestAmerica Savannah, 5102 LaRoche Avenue, Savannah, GA 31404, TEL (912)354-7858

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains no Free Liquid
DER	Duplicate error ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision level concentration
MDA	Minimum detectable activity
EDL	Estimated Detection Limit
MDC	Minimum detectable concentration
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative error ratio
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Detection Summary

Client: EHS Support, LLC
Project/Site: Ashland Alterman

TestAmerica Job ID: 680-117982-1

Client Sample ID: Trip Blank — Lab Sample ID: 680-117982-1

No Detections.

Client Sample ID: MW-15C — Lab Sample ID: 680-117982-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Carbon disulfide	12		2.0		ug/L	1		8260B	Total/NA
Chloroform	12		1.0		ug/L	1		8260B	Total/NA
Tetrachloroethene	4.7		1.0		ug/L	1		8260B	Total/NA

Client Sample ID: MW-24 — Lab Sample ID: 680-117982-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Tetrachloroethene	20		1.0		ug/L	1		8260B	Total/NA

Client Sample ID: MW-23B — Lab Sample ID: 680-117982-4

No Detections.

Client Sample ID: MW-23A — Lab Sample ID: 680-117982-5

No Detections.

This Detection Summary does not include radiochemical test results.

Client Sample ID: Trip Blank

Lab Sample ID: 680-117982-1

Date Collected: 10/16/15 09:15
Matrix: Water
Date Received: 10/17/15 08:10

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	<1.0		1.0		ug/L			10/21/15 11:05	1
1,1,2,2-Tetrachloroethane	<1.0		1.0		ug/L			10/21/15 11:05	1
1,1,2-Trichloroethane	<1.0		1.0		ug/L			10/21/15 11:05	1
1,1-Dichloroethane	<1.0		1.0		ug/L			10/21/15 11:05	1
1,1-Dichloroethene	<1.0		1.0		ug/L			10/21/15 11:05	1
1,2-Dichloroethane	<1.0		1.0		ug/L			10/21/15 11:05	1
1,2-Dichloropropane	<1.0		1.0		ug/L			10/21/15 11:05	1
2-Butanone (MEK)	<10		10		ug/L			10/21/15 11:05	1
2-Hexanone	<10		10		ug/L			10/21/15 11:05	1
4-Methyl-2-pentanone (MIBK)	<10		10		ug/L			10/21/15 11:05	1
Acetone	<10		10		ug/L			10/21/15 11:05	1
Benzene	<1.0		1.0		ug/L			10/21/15 11:05	1
Bromoform	<1.0		1.0		ug/L			10/21/15 11:05	1
Bromomethane	<5.0		5.0		ug/L			10/21/15 11:05	1
Carbon disulfide	<2.0		2.0		ug/L			10/21/15 11:05	1
Carbon tetrachloride	<1.0		1.0		ug/L			10/21/15 11:05	1
Chlorobenzene	<1.0		1.0		ug/L			10/21/15 11:05	1
Chlorodibromomethane	<1.0		1.0		ug/L			10/21/15 11:05	1
Chloroethane	<5.0		5.0		ug/L			10/21/15 11:05	1
Chloroform	<1.0		1.0		ug/L			10/21/15 11:05	1
Chloromethane	<1.0		1.0		ug/L			10/21/15 11:05	1
cis-1,2-Dichloroethene	<1.0		1.0		ug/L			10/21/15 11:05	1
cis-1,3-Dichloropropene	<1.0		1.0		ug/L			10/21/15 11:05	1
Dichlorobromomethane	<1.0		1.0		ug/L			10/21/15 11:05	1
Ethylbenzene	<1.0		1.0		ug/L			10/21/15 11:05	1
Methylene Chloride	<5.0		5.0		ug/L			10/21/15 11:05	1
Styrene	<1.0		1.0		ug/L			10/21/15 11:05	1
Tetrachloroethene	<1.0		1.0		ug/L			10/21/15 11:05	1
Toluene	<1.0		1.0		ug/L			10/21/15 11:05	1
trans-1,2-Dichloroethene	<1.0		1.0		ug/L			10/21/15 11:05	1
trans-1,3-Dichloropropene	<1.0		1.0		ug/L			10/21/15 11:05	1
Trichloroethene	<1.0		1.0		ug/L			10/21/15 11:05	1
Vinyl chloride	<1.0		1.0		ug/L			10/21/15 11:05	1
Xylenes, Total	<1.0		1.0		ug/L			10/21/15 11:05	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*99*		*70 - 130*		*10/21/15 11:05*	*1*
1,2-Dichloroethane-d4 (Surr)	*85*		*70 - 130*		*10/21/15 11:05*	*1*
Dibromofluoromethane (Surr)	*90*		*70 - 130*		*10/21/15 11:05*	*1*
4-Bromofluorobenzene (Surr)	*100*		*70 - 130*		*10/21/15 11:05*	*1*

Client Sample ID: MW-15C

Lab Sample ID: 680-117982-2

Date Collected: 10/16/15 14:51
Matrix: Water
Date Received: 10/17/15 08:10

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	<1.0		1.0		ug/L			10/21/15 12:58	1
1,1,2,2-Tetrachloroethane	<1.0		1.0		ug/L			10/21/15 12:58	1
1,1,2-Trichloroethane	<1.0		1.0		ug/L			10/21/15 12:58	1

Client Sample ID: MW-15C

Lab Sample ID: 680-117982-2

Date Collected: 10/16/15 14:51

Matrix: Water

Date Received: 10/17/15 08:10

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethane	<1.0		1.0		ug/L			10/21/15 12:58	1
1,1-Dichloroethene	<1.0		1.0		ug/L			10/21/15 12:58	1
1,2-Dichloroethane	<1.0		1.0		ug/L			10/21/15 12:58	1
1,2-Dichloropropane	<1.0		1.0		ug/L			10/21/15 12:58	1
2-Butanone (MEK)	<10		10		ug/L			10/21/15 12:58	1
2-Hexanone	<10		10		ug/L			10/21/15 12:58	1
4-Methyl-2-pentanone (MIBK)	<10		10		ug/L			10/21/15 12:58	1
Acetone	<10		10		ug/L			10/21/15 12:58	1
Benzene	<1.0		1.0		ug/L			10/21/15 12:58	1
Bromoform	<1.0		1.0		ug/L			10/21/15 12:58	1
Bromomethane	<5.0		5.0		ug/L			10/21/15 12:58	1
Carbon disulfide	**12**		2.0		ug/L			10/21/15 12:58	1
Carbon tetrachloride	<1.0		1.0		ug/L			10/21/15 12:58	1
Chlorobenzene	<1.0		1.0		ug/L			10/21/15 12:58	1
Chlorodibromomethane	<1.0		1.0		ug/L			10/21/15 12:58	1
Chloroethane	<5.0		5.0		ug/L			10/21/15 12:58	1
Chloroform	**12**		1.0		ug/L			10/21/15 12:58	1
Chloromethane	<1.0		1.0		ug/L			10/21/15 12:58	1
cis-1,2-Dichloroethene	<1.0		1.0		ug/L			10/21/15 12:58	1
cis-1,3-Dichloropropene	<1.0		1.0		ug/L			10/21/15 12:58	1
Dichlorobromomethane	<1.0		1.0		ug/L			10/21/15 12:58	1
Ethylbenzene	<1.0		1.0		ug/L			10/21/15 12:58	1
Methylene Chloride	<5.0		5.0		ug/L			10/21/15 12:58	1
Styrene	<1.0		1.0		ug/L			10/21/15 12:58	1
Tetrachloroethene	**4.7**		1.0		ug/L			10/21/15 12:58	1
Toluene	<1.0		1.0		ug/L			10/21/15 12:58	1
trans-1,2-Dichloroethene	<1.0		1.0		ug/L			10/21/15 12:58	1
trans-1,3-Dichloropropene	<1.0		1.0		ug/L			10/21/15 12:58	1
Trichloroethene	<1.0		1.0		ug/L			10/21/15 12:58	1
Vinyl chloride	<1.0		1.0		ug/L			10/21/15 12:58	1
Xylenes, Total	<1.0		1.0		ug/L			10/21/15 12:58	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*98*		*70 - 130*		*10/21/15 12:58*	*1*
1,2-Dichloroethane-d4 (Surr)	*85*		*70 - 130*		*10/21/15 12:58*	*1*
Dibromofluoromethane (Surr)	*90*		*70 - 130*		*10/21/15 12:58*	*1*
4-Bromofluorobenzene (Surr)	*98*		*70 - 130*		*10/21/15 12:58*	*1*

Client Sample ID: MW-24

Lab Sample ID: 680-117982-3

Date Collected: 10/16/15 13:29

Matrix: Water

Date Received: 10/17/15 08:10

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	<1.0		1.0		ug/L			10/21/15 13:20	1
1,1,2,2-Tetrachloroethane	<1.0		1.0		ug/L			10/21/15 13:20	1
1,1,2-Trichloroethane	<1.0		1.0		ug/L			10/21/15 13:20	1
1,1-Dichloroethane	<1.0		1.0		ug/L			10/21/15 13:20	1
1,1-Dichloroethene	<1.0		1.0		ug/L			10/21/15 13:20	1
1,2-Dichloroethane	<1.0		1.0		ug/L			10/21/15 13:20	1

Client Sample ID: MW-24

Date Collected: 10/16/15 13:29
Date Received: 10/17/15 08:10

Lab Sample ID: 680-117982-3
Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,2-Dichloropropane	<1.0		1.0		ug/L			10/21/15 13:20	1
2-Butanone (MEK)	<10		10		ug/L			10/21/15 13:20	1
2-Hexanone	<10		10		ug/L			10/21/15 13:20	1
4-Methyl-2-pentanone (MIBK)	<10		10		ug/L			10/21/15 13:20	1
Acetone	<10		10		ug/L			10/21/15 13:20	1
Benzene	<1.0		1.0		ug/L			10/21/15 13:20	1
Bromoform	<1.0		1.0		ug/L			10/21/15 13:20	1
Bromomethane	<5.0		5.0		ug/L			10/21/15 13:20	1
Carbon disulfide	<2.0		2.0		ug/L			10/21/15 13:20	1
Carbon tetrachloride	<1.0		1.0		ug/L			10/21/15 13:20	1
Chlorobenzene	<1.0		1.0		ug/L			10/21/15 13:20	1
Chlorodibromomethane	<1.0		1.0		ug/L			10/21/15 13:20	1
Chloroethane	<5.0		5.0		ug/L			10/21/15 13:20	1
Chloroform	<1.0		1.0		ug/L			10/21/15 13:20	1
Chloromethane	<1.0		1.0		ug/L			10/21/15 13:20	1
cis-1,2-Dichloroethene	<1.0		1.0		ug/L			10/21/15 13:20	1
cis-1,3-Dichloropropene	<1.0		1.0		ug/L			10/21/15 13:20	1
Dichlorobromomethane	<1.0		1.0		ug/L			10/21/15 13:20	1
Ethylbenzene	<1.0		1.0		ug/L			10/21/15 13:20	1
Methylene Chloride	<5.0		5.0		ug/L			10/21/15 13:20	1
Styrene	<1.0		1.0		ug/L			10/21/15 13:20	1
Tetrachloroethene	**20**		1.0		ug/L			10/21/15 13:20	1
Toluene	<1.0		1.0		ug/L			10/21/15 13:20	1
trans-1,2-Dichloroethene	<1.0		1.0		ug/L			10/21/15 13:20	1
trans-1,3-Dichloropropene	<1.0		1.0		ug/L			10/21/15 13:20	1
Trichloroethene	<1.0		1.0		ug/L			10/21/15 13:20	1
Vinyl chloride	<1.0		1.0		ug/L			10/21/15 13:20	1
Xylenes, Total	<1.0		1.0		ug/L			10/21/15 13:20	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*98*		*70 - 130*		*10/21/15 13:20*	*1*
1,2-Dichloroethane-d4 (Surr)	*86*		*70 - 130*		*10/21/15 13:20*	*1*
Dibromofluoromethane (Surr)	*91*		*70 - 130*		*10/21/15 13:20*	*1*
4-Bromofluorobenzene (Surr)	*100*		*70 - 130*		*10/21/15 13:20*	*1*

Client Sample ID: MW-23B

Date Collected: 10/16/15 12:03
Date Received: 10/17/15 08:10

Lab Sample ID: 680-117982-4
Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	<1.0		1.0		ug/L			10/21/15 13:43	1
1,1,2,2-Tetrachloroethane	<1.0		1.0		ug/L			10/21/15 13:43	1
1,1,2-Trichloroethane	<1.0		1.0		ug/L			10/21/15 13:43	1
1,1-Dichloroethane	<1.0		1.0		ug/L			10/21/15 13:43	1
1,1-Dichloroethene	<1.0		1.0		ug/L			10/21/15 13:43	1
1,2-Dichloroethane	<1.0		1.0		ug/L			10/21/15 13:43	1
1,2-Dichloropropane	<1.0		1.0		ug/L			10/21/15 13:43	1
2-Butanone (MEK)	<10		10		ug/L			10/21/15 13:43	1
2-Hexanone	<10		10		ug/L			10/21/15 13:43	1

Client Sample ID: MW-23B

Date Collected: 10/16/15 12:03
Date Received: 10/17/15 08:10

Lab Sample ID: 680-117982-4
Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
4-Methyl-2-pentanone (MIBK)	<10		10		ug/L			10/21/15 13:43	1
Acetone	<10		10		ug/L			10/21/15 13:43	1
Benzene	<1.0		1.0		ug/L			10/21/15 13:43	1
Bromoform	<1.0		1.0		ug/L			10/21/15 13:43	1
Bromomethane	<5.0		5.0		ug/L			10/21/15 13:43	1
Carbon disulfide	<2.0		2.0		ug/L			10/21/15 13:43	1
Carbon tetrachloride	<1.0		1.0		ug/L			10/21/15 13:43	1
Chlorobenzene	<1.0		1.0		ug/L			10/21/15 13:43	1
Chlorodibromomethane	<1.0		1.0		ug/L			10/21/15 13:43	1
Chloroethane	<5.0		5.0		ug/L			10/21/15 13:43	1
Chloroform	<1.0		1.0		ug/L			10/21/15 13:43	1
Chloromethane	<1.0		1.0		ug/L			10/21/15 13:43	1
cis-1,2-Dichloroethene	<1.0		1.0		ug/L			10/21/15 13:43	1
cis-1,3-Dichloropropene	<1.0		1.0		ug/L			10/21/15 13:43	1
Dichlorobromomethane	<1.0		1.0		ug/L			10/21/15 13:43	1
Ethylbenzene	<1.0		1.0		ug/L			10/21/15 13:43	1
Methylene Chloride	<5.0		5.0		ug/L			10/21/15 13:43	1
Styrene	<1.0		1.0		ug/L			10/21/15 13:43	1
Tetrachloroethene	<1.0		1.0		ug/L			10/21/15 13:43	1
Toluene	<1.0		1.0		ug/L			10/21/15 13:43	1
trans-1,2-Dichloroethene	<1.0		1.0		ug/L			10/21/15 13:43	1
trans-1,3-Dichloropropene	<1.0		1.0		ug/L			10/21/15 13:43	1
Trichloroethene	<1.0		1.0		ug/L			10/21/15 13:43	1
Vinyl chloride	<1.0		1.0		ug/L			10/21/15 13:43	1
Xylenes, Total	<1.0		1.0		ug/L			10/21/15 13:43	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*99*		*70 - 130*		*10/21/15 13:43*	*1*
1,2-Dichloroethane-d4 (Surr)	*86*		*70 - 130*		*10/21/15 13:43*	*1*
Dibromofluoromethane (Surr)	*91*		*70 - 130*		*10/21/15 13:43*	*1*
4-Bromofluorobenzene (Surr)	*99*		*70 - 130*		*10/21/15 13:43*	*1*

Client Sample ID: MW-23A

Date Collected: 10/16/15 10:45
Date Received: 10/17/15 08:10

Lab Sample ID: 680-117982-5
Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	<1.0		1.0		ug/L			10/21/15 14:05	1
1,1,2,2-Tetrachloroethane	<1.0		1.0		ug/L			10/21/15 14:05	1
1,1,2-Trichloroethane	<1.0		1.0		ug/L			10/21/15 14:05	1
1,1-Dichloroethane	<1.0		1.0		ug/L			10/21/15 14:05	1
1,1-Dichloroethene	<1.0		1.0		ug/L			10/21/15 14:05	1
1,2-Dichloroethane	<1.0		1.0		ug/L			10/21/15 14:05	1
1,2-Dichloropropane	<1.0		1.0		ug/L			10/21/15 14:05	1
2-Butanone (MEK)	<10		10		ug/L			10/21/15 14:05	1
2-Hexanone	<10		10		ug/L			10/21/15 14:05	1
4-Methyl-2-pentanone (MIBK)	<10		10		ug/L			10/21/15 14:05	1
Acetone	<10		10		ug/L			10/21/15 14:05	1
Benzene	<1.0		1.0		ug/L			10/21/15 14:05	1

Client: EHS Support, LLC
Project/Site: Ashland Alterman

TestAmerica Job ID: 680-117982-1

Client Sample ID: MW-23A
Date Collected: 10/16/15 10:45
Date Received: 10/17/15 08:10

Lab Sample ID: 680-117982-5
Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Bromoform	<1.0		1.0		ug/L			10/21/15 14:05	1
Bromomethane	<5.0		5.0		ug/L			10/21/15 14:05	1
Carbon disulfide	<2.0		2.0		ug/L			10/21/15 14:05	1
Carbon tetrachloride	<1.0		1.0		ug/L			10/21/15 14:05	1
Chlorobenzene	<1.0		1.0		ug/L			10/21/15 14:05	1
Chlorodibromomethane	<1.0		1.0		ug/L			10/21/15 14:05	1
Chloroethane	<5.0		5.0		ug/L			10/21/15 14:05	1
Chloroform	<1.0		1.0		ug/L			10/21/15 14:05	1
Chloromethane	<1.0		1.0		ug/L			10/21/15 14:05	1
cis-1,2-Dichloroethene	<1.0		1.0		ug/L			10/21/15 14:05	1
cis-1,3-Dichloropropene	<1.0		1.0		ug/L			10/21/15 14:05	1
Dichlorobromomethane	<1.0		1.0		ug/L			10/21/15 14:05	1
Ethylbenzene	<1.0		1.0		ug/L			10/21/15 14:05	1
Methylene Chloride	<5.0		5.0		ug/L			10/21/15 14:05	1
Styrene	<1.0		1.0		ug/L			10/21/15 14:05	1
Tetrachloroethene	<1.0		1.0		ug/L			10/21/15 14:05	1
Toluene	<1.0		1.0		ug/L			10/21/15 14:05	1
trans-1,2-Dichloroethene	<1.0		1.0		ug/L			10/21/15 14:05	1
trans-1,3-Dichloropropene	<1.0		1.0		ug/L			10/21/15 14:05	1
Trichloroethene	<1.0		1.0		ug/L			10/21/15 14:05	1
Vinyl chloride	<1.0		1.0		ug/L			10/21/15 14:05	1
Xylenes, Total	<1.0		1.0		ug/L			10/21/15 14:05	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*98*		*70 - 130*		*10/21/15 14:05*	*1*
1,2-Dichloroethane-d4 (Surr)	*87*		*70 - 130*		*10/21/15 14:05*	*1*
Dibromofluoromethane (Surr)	*92*		*70 - 130*		*10/21/15 14:05*	*1*
4-Bromofluorobenzene (Surr)	*100*		*70 - 130*		*10/21/15 14:05*	*1*

Surrogate Summary

Client: EHS Support, LLC
Project/Site: Ashland Alterman

TestAmerica Job ID: 680-117982-1

Method: 8260B - Volatile Organic Compounds (GC/MS)

Matrix: Water **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)			
Lab Sample ID	Client Sample ID	TOL (70-130)	12DCE (70-130)	DBFM (70-130)	BFB (70-130)
680-117982-1	Trip Blank	99	85	90	100
680-117982-2	MW-15C	98	85	90	98
680-117982-3	MW-24	98	86	91	100
680-117982-4	MW-23B	99	86	91	99
680-117982-5	MW-23A	98	87	92	100
LCS 680-406615/4	Lab Control Sample	96	104	102	90
LCSD 680-406615/5	Lab Control Sample Dup	96	105	103	90
MB 680-406615/9	Method Blank	99	85	91	98

Surrogate Legend

TOL = Toluene-d8 (Surr)
12DCE = 1,2-Dichloroethane-d4 (Surr)
DBFM = Dibromofluoromethane (Surr)
BFB = 4-Bromofluorobenzene (Surr)

Method: 8260B - Volatile Organic Compounds (GC/MS)

Lab Sample ID: MB 680-406615/9
Matrix: Water
Analysis Batch: 406615

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	<1.0		1.0		ug/L			10/21/15 10:42	1
1,1,2,2-Tetrachloroethane	<1.0		1.0		ug/L			10/21/15 10:42	1
1,1,2-Trichloroethane	<1.0		1.0		ug/L			10/21/15 10:42	1
1,1-Dichloroethane	<1.0		1.0		ug/L			10/21/15 10:42	1
1,1-Dichloroethene	<1.0		1.0		ug/L			10/21/15 10:42	1
1,2-Dichloroethane	<1.0		1.0		ug/L			10/21/15 10:42	1
1,2-Dichloropropane	<1.0		1.0		ug/L			10/21/15 10:42	1
2-Butanone (MEK)	<10		10		ug/L			10/21/15 10:42	1
2-Hexanone	<10		10		ug/L			10/21/15 10:42	1
4-Methyl-2-pentanone (MIBK)	<10		10		ug/L			10/21/15 10:42	1
Acetone	<10		10		ug/L			10/21/15 10:42	1
Benzene	<1.0		1.0		ug/L			10/21/15 10:42	1
Bromoform	<1.0		1.0		ug/L			10/21/15 10:42	1
Bromomethane	<5.0		5.0		ug/L			10/21/15 10:42	1
Carbon disulfide	<2.0		2.0		ug/L			10/21/15 10:42	1
Carbon tetrachloride	<1.0		1.0		ug/L			10/21/15 10:42	1
Chlorobenzene	<1.0		1.0		ug/L			10/21/15 10:42	1
Chlorodibromomethane	<1.0		1.0		ug/L			10/21/15 10:42	1
Chloroethane	<5.0		5.0		ug/L			10/21/15 10:42	1
Chloroform	<1.0		1.0		ug/L			10/21/15 10:42	1
Chloromethane	<1.0		1.0		ug/L			10/21/15 10:42	1
cis-1,2-Dichloroethene	<1.0		1.0		ug/L			10/21/15 10:42	1
cis-1,3-Dichloropropene	<1.0		1.0		ug/L			10/21/15 10:42	1
Dichlorobromomethane	<1.0		1.0		ug/L			10/21/15 10:42	1
Ethylbenzene	<1.0		1.0		ug/L			10/21/15 10:42	1
Methylene Chloride	<5.0		5.0		ug/L			10/21/15 10:42	1
Styrene	<1.0		1.0		ug/L			10/21/15 10:42	1
Tetrachloroethene	<1.0		1.0		ug/L			10/21/15 10:42	1
Toluene	<1.0		1.0		ug/L			10/21/15 10:42	1
trans-1,2-Dichloroethene	<1.0		1.0		ug/L			10/21/15 10:42	1
trans-1,3-Dichloropropene	<1.0		1.0		ug/L			10/21/15 10:42	1
Trichloroethene	<1.0		1.0		ug/L			10/21/15 10:42	1
Vinyl chloride	<1.0		1.0		ug/L			10/21/15 10:42	1
Xylenes, Total	<1.0		1.0		ug/L			10/21/15 10:42	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*99*		*70 - 130*		*10/21/15 10:42*	*1*
1,2-Dichloroethane-d4 (Surr)	*85*		*70 - 130*		*10/21/15 10:42*	*1*
Dibromofluoromethane (Surr)	*91*		*70 - 130*		*10/21/15 10:42*	*1*
4-Bromofluorobenzene (Surr)	*98*		*70 - 130*		*10/21/15 10:42*	*1*

Lab Sample ID: LCS 680-406615/4
Matrix: Water
Analysis Batch: 406615

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,1,1-Trichloroethane	50.0	49.2		ug/L		98	74 - 128
1,1,2,2-Tetrachloroethane	50.0	47.5		ug/L		95	72 - 128

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 680-406615/4
Matrix: Water
Analysis Batch: 406615

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,1,2-Trichloroethane	50.0	49.3		ug/L		99	79 - 125
1,1-Dichloroethane	50.0	49.4		ug/L		99	80 - 120
1,1-Dichloroethene	50.0	46.5		ug/L		93	74 - 125
1,2-Dichloroethane	50.0	51.1		ug/L		102	75 - 130
1,2-Dichloropropane	50.0	51.6		ug/L		103	80 - 123
2-Butanone (MEK)	250	240		ug/L		96	75 - 133
2-Hexanone	250	245		ug/L		98	70 - 141
4-Methyl-2-pentanone (MIBK)	250	253		ug/L		101	75 - 135
Acetone	250	227		ug/L		91	60 - 154
Benzene	50.0	49.0		ug/L		98	73 - 131
Bromoform	50.0	45.8		ug/L		92	69 - 135
Bromomethane	50.0	40.4		ug/L		81	20 - 180
Carbon disulfide	50.0	47.2		ug/L		94	73 - 127
Carbon tetrachloride	50.0	40.9		ug/L		82	75 - 130
Chlorobenzene	50.0	47.9		ug/L		96	80 - 120
Chlorodibromomethane	50.0	54.1		ug/L		108	71 - 136
Chloroethane	50.0	46.6		ug/L		93	50 - 151
Chloroform	50.0	51.0		ug/L		102	79 - 122
Chloromethane	50.0	45.6		ug/L		91	63 - 126
cis-1,2-Dichloroethene	50.0	50.7		ug/L		101	80 - 122
cis-1,3-Dichloropropene	50.0	51.3		ug/L		103	80 - 133
Dichlorobromomethane	50.0	53.1		ug/L		106	77 - 129
Ethylbenzene	50.0	47.5		ug/L		95	80 - 120
Methylene Chloride	50.0	48.5		ug/L		97	76 - 129
Styrene	50.0	51.2		ug/L		102	80 - 122
Tetrachloroethene	50.0	48.6		ug/L		97	77 - 123
Toluene	50.0	49.4		ug/L		99	80 - 122
trans-1,2-Dichloroethene	50.0	49.4		ug/L		99	78 - 123
trans-1,3-Dichloropropene	50.0	38.4		ug/L		77	74 - 140
Trichloroethene	50.0	48.2		ug/L		96	80 - 123
Vinyl chloride	50.0	44.6		ug/L		89	68 - 132
Xylenes, Total	100	96.5		ug/L		97	80 - 120

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Toluene-d8 (Surr)	*96*		*70 - 130*
1,2-Dichloroethane-d4 (Surr)	*104*		*70 - 130*
Dibromofluoromethane (Surr)	*102*		*70 - 130*
4-Bromofluorobenzene (Surr)	*90*		*70 - 130*

Lab Sample ID: LCSD 680-406615/5
Matrix: Water
Analysis Batch: 406615

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
1,1,1-Trichloroethane	50.0	49.8		ug/L		100	74 - 128	1	20
1,1,2,2-Tetrachloroethane	50.0	47.9		ug/L		96	72 - 128	1	20
1,1,2-Trichloroethane	50.0	50.0		ug/L		100	79 - 125	1	20
1,1-Dichloroethane	50.0	49.9		ug/L		100	80 - 120	1	20

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCSD 680-406615/5
Matrix: Water
Analysis Batch: 406615

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
1,1-Dichloroethene			50.0	45.9		ug/L		92	74 - 125	1	20
1,2-Dichloroethane			50.0	53.3		ug/L		107	75 - 130	4	20
1,2-Dichloropropane			50.0	52.7		ug/L		105	80 - 123	2	20
2-Butanone (MEK)			250	251		ug/L		100	75 - 133	5	30
2-Hexanone			250	256		ug/L		102	70 - 141	5	40
4-Methyl-2-pentanone (MIBK)			250	254		ug/L		101	75 - 135	0	30
Acetone			250	237		ug/L		95	60 - 154	4	40
Benzene			50.0	49.4		ug/L		99	73 - 131	1	30
Bromoform			50.0	46.1		ug/L		92	69 - 135	1	20
Bromomethane			50.0	46.1		ug/L		92	20 - 180	13	40
Carbon disulfide			50.0	47.2		ug/L		94	73 - 127	0	20
Carbon tetrachloride			50.0	41.8		ug/L		84	75 - 130	2	20
Chlorobenzene			50.0	47.2		ug/L		94	80 - 120	2	20
Chlorodibromomethane			50.0	56.2		ug/L		112	71 - 136	4	20
Chloroethane			50.0	44.9		ug/L		90	50 - 151	4	30
Chloroform			50.0	51.1		ug/L		102	79 - 122	0	20
Chloromethane			50.0	45.9		ug/L		92	63 - 126	1	30
cis-1,2-Dichloroethene			50.0	51.4		ug/L		103	80 - 122	1	20
cis-1,3-Dichloropropene			50.0	54.3		ug/L		109	80 - 133	6	20
Dichlorobromomethane			50.0	54.2		ug/L		108	77 - 129	2	20
Ethylbenzene			50.0	46.9		ug/L		94	80 - 120	1	20
Methylene Chloride			50.0	50.5		ug/L		101	76 - 129	4	20
Styrene			50.0	50.8		ug/L		102	80 - 122	1	20
Tetrachloroethene			50.0	48.3		ug/L		97	77 - 123	0	20
Toluene			50.0	49.7		ug/L		99	80 - 122	0	20
trans-1,2-Dichloroethene			50.0	48.9		ug/L		98	78 - 123	1	20
trans-1,3-Dichloropropene			50.0	41.7		ug/L		83	74 - 140	8	20
Trichloroethene			50.0	48.4		ug/L		97	80 - 123	0	20
Vinyl chloride			50.0	44.1		ug/L		88	68 - 132	1	30
Xylenes, Total			100	95.3		ug/L		95	80 - 120	1	20

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
Toluene-d8 (Surr)	*96*		*70 - 130*
1,2-Dichloroethane-d4 (Surr)	*105*		*70 - 130*
Dibromofluoromethane (Surr)	*103*		*70 - 130*
4-Bromofluorobenzene (Surr)	*90*		*70 - 130*

QC Association Summary

Client: EHS Support, LLC
Project/Site: Ashland Alterman

TestAmerica Job ID: 680-117982-1

GC/MS VOA

Analysis Batch: 406615

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-117982-1	Trip Blank	Total/NA	Water	8260B	
680-117982-2	MW-15C	Total/NA	Water	8260B	
680-117982-3	MW-24	Total/NA	Water	8260B	
680-117982-4	MW-23B	Total/NA	Water	8260B	
680-117982-5	MW-23A	Total/NA	Water	8260B	
LCS 680-406615/4	Lab Control Sample	Total/NA	Water	8260B	
LCSD 680-406615/5	Lab Control Sample Dup	Total/NA	Water	8260B	
MB 680-406615/9	Method Blank	Total/NA	Water	8260B	

Lab Chronicle

Client: EHS Support, LLC
Project/Site: Ashland Alterman

TestAmerica Job ID: 680-117982-1

Client Sample ID: Trip Blank
Date Collected: 10/16/15 09:15
Date Received: 10/17/15 08:10

Lab Sample ID: 680-117982-1
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	5 mL	5 mL	406615	10/21/15 11:05	JD1	TAL SAV
	Instrument ID: CMSS									

Client Sample ID: MW-15C
Date Collected: 10/16/15 14:51
Date Received: 10/17/15 08:10

Lab Sample ID: 680-117982-2
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	5 mL	5 mL	406615	10/21/15 12:58	JD1	TAL SAV
	Instrument ID: CMSS									

Client Sample ID: MW-24
Date Collected: 10/16/15 13:29
Date Received: 10/17/15 08:10

Lab Sample ID: 680-117982-3
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	5 mL	5 mL	406615	10/21/15 13:20	JD1	TAL SAV
	Instrument ID: CMSS									

Client Sample ID: MW-23B
Date Collected: 10/16/15 12:03
Date Received: 10/17/15 08:10

Lab Sample ID: 680-117982-4
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	5 mL	5 mL	406615	10/21/15 13:43	JD1	TAL SAV
	Instrument ID: CMSS									

Client Sample ID: MW-23A
Date Collected: 10/16/15 10:45
Date Received: 10/17/15 08:10

Lab Sample ID: 680-117982-5
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	5 mL	5 mL	406615	10/21/15 14:05	JD1	TAL SAV
	Instrument ID: CMSS									

Laboratory References:
TAL SAV = TestAmerica Savannah, 5102 LaRoche Avenue, Savannah, GA 31404, TEL (912)354-7858

Savannah
5102 LaRoche Avenue

Savannah, GA 31404
phone 912.354.7858 fax 912 352.0165

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

TestAmerica Laboratories, Inc.

Client Contact	Project Manager: Michael Dever (Ashland)	Site Contact:	Date:	COC No:
Michelle Stayrook	Tel/Fax: 614-790-1586	Lab Contact: Jerry Lanier	Carrier: TA-Atlanta	____ of ____ COCs
EHS Support	**Analysis Turnaround Time**			Job No.
4694 Cemetery Road, PMB 104, Hilliard, Ohio 43026-1124	Calendar (C) or Work Days (W) ____			
(412) 807-1494 Phone	TAT if different from Below ____			SDG No
(877) 293-6642 eFAX	■ 2 weeks			
Project Name: Ashland Alterman	☐ 1 week			
Site: Tara Shopping Center, 8564 Tara Blvd. Jonesboro, GA	☐ 2 days			
P O #	☐ 1 day			

Sample Identification	Sample Date	Sample Time	Sample Type	Matrix	# of Cont.	Filtered Sample	Volatiles - 8260B	Sample Specific Notes:
Trip Blank	10/16/15	0915			2		X	
MW-15C	10/16/15	1451			3		X	
MW-24	10/16/15	1329			3		X	
MW-23B	10/16/15	1203			3		X	
MW-23A	10/16/15	1045			3		X	

680-117982 Chain of Custody

Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other ___NONE_____

Possible Hazard Identification
■ *Non-Hazard* ☐ *Flammable* ☐ *Skin Irritant* *Poison B* ☐ *Unknown* ☐

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ *Return To Client* ■ *Disposal By Lab* ☐ *Archive For* _____ *Months*

Special Instructions/QC Requirements & Comments:
Analysis and Reporting set up for Condensed Dilution Formatting. Email sampling log-in, COCs, and final results to michelle.stayrook@ehs-support.com. Email draft invoices for approval to michelle.stayrook@ehs-support.com. Direct Bill To Ashland under existing contract pricing.

Relinquished by:	Company:	Date/Time:	Received by	Company:	Date/Time:
Eddie J Jarvis	AvalonGroup 1621	10/16/15		10-16-15	1621
Relinquished by:	Company	Date/Time:	Received by:	Company	Date/Time:
	TTA 10-16-15	1621			
Relinquished by	Company	Date/Time:	Received by	Company:	Date/Time:
				SAW.	10-17-15 0810

680-117982 1.4(CF)1.8°C

10/23/2015

Login Sample Receipt Checklist

Client: EHS Support, LLC

Job Number: 680-117982-1

Login Number: 117982
List Number: 1
Creator: Banda, Christy S

List Source: TestAmerica Savannah

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	N/A	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	N/A	
Multiphasic samples are not present.	N/A	
Samples do not require splitting or compositing.	N/A	
Residual Chlorine Checked.	N/A	

Certification Summary

Client: EHS Support, LLC
Project/Site: Ashland Alterman

TestAmerica Job ID: 680-117982-1

Laboratory: TestAmerica Savannah

The certifications listed below are applicable to this report.

Authority	Program	EPA Region	Certification ID	Expiration Date
Georgia	State Program	4	803	06-30-16

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING



ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica Savannah
5102 LaRoche Avenue
Savannah, GA 31404
Tel: (912)354-7858

TestAmerica Job ID: 680-121300-1
Client Project/Site: Ashland Alterman

For:
EHS Support, LLC
4694 Cemetary Rd, PMB 104
Hilliard, Ohio 43026

Attn: Ms. Michelle Stayrook

Authorized for release by:
2/2/2016 12:07:55 PM
Bernard Kirkland, Manager of Project Management
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Designee for

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LINKS

Review your project results through TotalAccess

Have a Question? Ask The Expert

Visit us at: www.testamericainc.com

The test results in this report meet all 2003 NELAC and 2009 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

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

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

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Job ID: 680-121300-1

Laboratory: TestAmerica Savannah

Narrative

CASE NARRATIVE

Client: EHS Support, LLC

Project: Ashland Alterman

Report Number: 680-121300-1

With the exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. In addition all laboratory quality control samples were within established control limits, with any exceptions noted below. Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. In the event of interference or analytes present at high concentrations, samples may be diluted. For diluted samples, the reporting limits are adjusted relative to the dilution required.

RECEIPT

The samples were received on 01/28/2016; the samples arrived in good condition, properly preserved and on ice. The temperature of the coolers at receipt was 5.0 C.

The container label for the following samples did not match the information listed on the Chain-of-Custody (COC): MW-9B (680-121300-3), MW-11A (680-121300-9) and MW-10A (680-121300-15). For sample ID MW-9B (680-121300-3) and MW-11A (680-121300-9), the containers list MW-9C and MW-11C. The time on the coc and the containers agree. For sample ID MW-10A (680-121300-15), the ID is a match but the time on the sample containers listed 16:55, while the COC list 1506. Samples were logged as per the COC.

The following samples contained residual chlorine upon receipt: MW-11A (680-121300-9), MW-8B (680-121300-12) and MW-8A (680-121300-13).

VOLATILE ORGANIC COMPOUNDS (GC-MS)

Samples Trip Blank (680-121300-1), MW-3B (680-121300-2), MW-9B (680-121300-3), MW-9C (680-121300-4), MW-11C (680-121300-5), MW-8C (680-121300-6), MW-10B (680-121300-7), MW-10C (680-121300-8), MW-11A (680-121300-9), MW-11B (680-121300-10), MW-3A (680-121300-11), MW-8B (680-121300-12), MW-8A (680-121300-13), MW-9A (680-121300-14), MW-10A (680-121300-15), DUP-1 (680-121300-16) and Equipment Blank (680-121300-17) were analyzed for Volatile Organic Compounds (GC-MS) in accordance with EPA SW-846 Method 8260B. The samples were analyzed on 01/29/2016 and 02/01/2016.

Sample MW-9A (680-121300-14)[5X] required dilution prior to analysis. The reporting limits have been adjusted accordingly.

Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate/sample duplicate (MS/MSD/DUP) associated with analytical batch 680-419959.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Sample Summary

Client: EHS Support, LLC
Project/Site: Ashland Alterman

TestAmerica Job ID: 680-121300-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
680-121300-1	Trip Blank	Water	01/25/16 07:00	01/28/16 08:40
680-121300-2	MW-3B	Water	01/25/16 10:02	01/28/16 08:40
680-121300-3	MW-9B	Water	01/25/16 11:05	01/28/16 08:40
680-121300-4	MW-9C	Water	01/25/16 12:20	01/28/16 08:40
680-121300-5	MW-11C	Water	01/25/16 14:00	01/28/16 08:40
680-121300-6	MW-8C	Water	01/25/16 18:03	01/28/16 08:40
680-121300-7	MW-10B	Water	01/26/16 09:33	01/28/16 08:40
680-121300-8	MW-10C	Water	01/25/16 17:00	01/28/16 08:40
680-121300-9	MW-11A	Water	01/25/16 14:57	01/28/16 08:40
680-121300-10	MW-11B	Water	01/26/16 10:07	01/28/16 08:40
680-121300-11	MW-3A	Water	01/26/16 11:03	01/28/16 08:40
680-121300-12	MW-8B	Water	01/26/16 12:17	01/28/16 08:40
680-121300-13	MW-8A	Water	01/26/16 13:14	01/28/16 08:40
680-121300-14	MW-9A	Water	01/26/16 14:57	01/28/16 08:40
680-121300-15	MW-10A	Water	01/26/16 15:06	01/28/16 08:40
680-121300-16	DUP-1	Water	01/25/16 00:00	01/28/16 08:40
680-121300-17	Equipment Blank	Water	01/26/16 13:30	01/28/16 08:40

Method Summary

Client: EHS Support, LLC
Project/Site: Ashland Alterman

TestAmerica Job ID: 680-121300-1

Method	Method Description	Protocol	Laboratory
8260B	Volatile Organic Compounds (GC/MS)	SW846	TAL SAV

Protocol References:

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL SAV = TestAmerica Savannah, 5102 LaRoche Avenue, Savannah, GA 31404, TEL (912)354-7858

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains no Free Liquid
DER	Duplicate error ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision level concentration
MDA	Minimum detectable activity
EDL	Estimated Detection Limit
MDC	Minimum detectable concentration
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative error ratio
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Detection Summary

Client: EHS Support, LLC
Project/Site: Ashland Alterman

TestAmerica Job ID: 680-121300-1

Client Sample ID: Trip Blank — Lab Sample ID: 680-121300-1

No Detections.

Client Sample ID: MW-3B — Lab Sample ID: 680-121300-2

No Detections.

Client Sample ID: MW-9B — Lab Sample ID: 680-121300-3

No Detections.

Client Sample ID: MW-9C — Lab Sample ID: 680-121300-4

No Detections.

Client Sample ID: MW-11C — Lab Sample ID: 680-121300-5

No Detections.

Client Sample ID: MW-8C — Lab Sample ID: 680-121300-6

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
2-Butanone (MEK)	52		10		ug/L	1		8260B	Total/NA
Acetone	48		10		ug/L	1		8260B	Total/NA

Client Sample ID: MW-10B — Lab Sample ID: 680-121300-7

No Detections.

Client Sample ID: MW-10C — Lab Sample ID: 680-121300-8

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Tetrachloroethene	1.1		1.0		ug/L	1		8260B	Total/NA

Client Sample ID: MW-11A — Lab Sample ID: 680-121300-9

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Acetone	29		10		ug/L	1		8260B	Total/NA
Bromoform	1.7		1.0		ug/L	1		8260B	Total/NA
Chloroform	1.0		1.0		ug/L	1		8260B	Total/NA
Tetrachloroethene	2.7		1.0		ug/L	1		8260B	Total/NA

Client Sample ID: MW-11B — Lab Sample ID: 680-121300-10

No Detections.

Client Sample ID: MW-3A — Lab Sample ID: 680-121300-11

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Tetrachloroethene	41		1.0		ug/L	1		8260B	Total/NA
Trichloroethene	1.5		1.0		ug/L	1		8260B	Total/NA

Client Sample ID: MW-8B — Lab Sample ID: 680-121300-12

This Detection Summary does not include radiochemical test results.

TestAmerica Savannah

Detection Summary

Client: EHS Support, LLC
Project/Site: Ashland Alterman

TestAmerica Job ID: 680-121300-1

Client Sample ID: MW-8B (Continued) — Lab Sample ID: 680-121300-12

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Tetrachloroethene	12		1.0		ug/L	1		8260B	Total/NA

Client Sample ID: MW-8A — Lab Sample ID: 680-121300-13

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Acetone	15		10		ug/L	1		8260B	Total/NA
Chloroform	3.3		1.0		ug/L	1		8260B	Total/NA
Tetrachloroethene	83		1.0		ug/L	1		8260B	Total/NA

Client Sample ID: MW-9A — Lab Sample ID: 680-121300-14

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Acetone	21		10		ug/L	1		8260B	Total/NA
cis-1,2-Dichloroethene	10		1.0		ug/L	1		8260B	Total/NA
trans-1,2-Dichloroethene	2.8		1.0		ug/L	1		8260B	Total/NA
Trichloroethene	100		1.0		ug/L	1		8260B	Total/NA
Tetrachloroethene - DL	520		5.0		ug/L	5		8260B	Total/NA

Client Sample ID: MW-10A — Lab Sample ID: 680-121300-15

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloroform	1.2		1.0		ug/L	1		8260B	Total/NA
cis-1,2-Dichloroethene	4.4		1.0		ug/L	1		8260B	Total/NA
Tetrachloroethene	73		1.0		ug/L	1		8260B	Total/NA
Trichloroethene	7.5		1.0		ug/L	1		8260B	Total/NA

Client Sample ID: DUP-1 — Lab Sample ID: 680-121300-16

No Detections.

Client Sample ID: Equipment Blank — Lab Sample ID: 680-121300-17

No Detections.

This Detection Summary does not include radiochemical test results.

Client Sample ID: Trip Blank

Lab Sample ID: 680-121300-1

Date Collected: 01/25/16 07:00
Matrix: Water
Date Received: 01/28/16 08:40

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	<1.0		1.0		ug/L			02/01/16 12:10	1
1,1,2,2-Tetrachloroethane	<1.0		1.0		ug/L			02/01/16 12:10	1
1,1,2-Trichloroethane	<1.0		1.0		ug/L			02/01/16 12:10	1
1,1-Dichloroethane	<1.0		1.0		ug/L			02/01/16 12:10	1
1,1-Dichloroethene	<1.0		1.0		ug/L			02/01/16 12:10	1
1,2-Dichloroethane	<1.0		1.0		ug/L			02/01/16 12:10	1
1,2-Dichloropropane	<1.0		1.0		ug/L			02/01/16 12:10	1
2-Butanone (MEK)	<10		10		ug/L			02/01/16 12:10	1
2-Hexanone	<10		10		ug/L			02/01/16 12:10	1
4-Methyl-2-pentanone (MIBK)	<10		10		ug/L			02/01/16 12:10	1
Acetone	<10		10		ug/L			02/01/16 12:10	1
Benzene	<1.0		1.0		ug/L			02/01/16 12:10	1
Bromoform	<1.0		1.0		ug/L			02/01/16 12:10	1
Bromomethane	<5.0		5.0		ug/L			02/01/16 12:10	1
Carbon disulfide	<2.0		2.0		ug/L			02/01/16 12:10	1
Carbon tetrachloride	<1.0		1.0		ug/L			02/01/16 12:10	1
Chlorobenzene	<1.0		1.0		ug/L			02/01/16 12:10	1
Chlorodibromomethane	<1.0		1.0		ug/L			02/01/16 12:10	1
Chloroethane	<5.0		5.0		ug/L			02/01/16 12:10	1
Chloroform	<1.0		1.0		ug/L			02/01/16 12:10	1
Chloromethane	<1.0		1.0		ug/L			02/01/16 12:10	1
cis-1,2-Dichloroethene	<1.0		1.0		ug/L			02/01/16 12:10	1
cis-1,3-Dichloropropene	<1.0		1.0		ug/L			02/01/16 12:10	1
Dichlorobromomethane	<1.0		1.0		ug/L			02/01/16 12:10	1
Ethylbenzene	<1.0		1.0		ug/L			02/01/16 12:10	1
Methylene Chloride	<5.0		5.0		ug/L			02/01/16 12:10	1
Styrene	<1.0		1.0		ug/L			02/01/16 12:10	1
Tetrachloroethene	<1.0		1.0		ug/L			02/01/16 12:10	1
Toluene	<1.0		1.0		ug/L			02/01/16 12:10	1
trans-1,2-Dichloroethene	<1.0		1.0		ug/L			02/01/16 12:10	1
trans-1,3-Dichloropropene	<1.0		1.0		ug/L			02/01/16 12:10	1
Trichloroethene	<1.0		1.0		ug/L			02/01/16 12:10	1
Vinyl chloride	<1.0		1.0		ug/L			02/01/16 12:10	1
Xylenes, Total	<1.0		1.0		ug/L			02/01/16 12:10	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*101*		*70 - 130*		*02/01/16 12:10*	*1*
1,2-Dichloroethane-d4 (Surr)	*103*		*70 - 130*		*02/01/16 12:10*	*1*
Dibromofluoromethane (Surr)	*103*		*70 - 130*		*02/01/16 12:10*	*1*
4-Bromofluorobenzene (Surr)	*101*		*70 - 130*		*02/01/16 12:10*	*1*

Client Sample ID: MW-3B

Lab Sample ID: 680-121300-2

Date Collected: 01/25/16 10:02
Matrix: Water
Date Received: 01/28/16 08:40

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	<1.0		1.0		ug/L			01/29/16 12:50	1
1,1,2,2-Tetrachloroethane	<1.0		1.0		ug/L			01/29/16 12:50	1
1,1,2-Trichloroethane	<1.0		1.0		ug/L			01/29/16 12:50	1

Client Sample ID: MW-3B

Date Collected: 01/25/16 10:02
Date Received: 01/28/16 08:40

Lab Sample ID: 680-121300-2
Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethane	<1.0		1.0		ug/L			01/29/16 12:50	1
1,1-Dichloroethene	<1.0		1.0		ug/L			01/29/16 12:50	1
1,2-Dichloroethane	<1.0		1.0		ug/L			01/29/16 12:50	1
1,2-Dichloropropane	<1.0		1.0		ug/L			01/29/16 12:50	1
2-Butanone (MEK)	<10		10		ug/L			01/29/16 12:50	1
2-Hexanone	<10		10		ug/L			01/29/16 12:50	1
4-Methyl-2-pentanone (MIBK)	<10		10		ug/L			01/29/16 12:50	1
Acetone	<10		10		ug/L			01/29/16 12:50	1
Benzene	<1.0		1.0		ug/L			01/29/16 12:50	1
Bromoform	<1.0		1.0		ug/L			01/29/16 12:50	1
Bromomethane	<5.0		5.0		ug/L			01/29/16 12:50	1
Carbon disulfide	<2.0		2.0		ug/L			01/29/16 12:50	1
Carbon tetrachloride	<1.0		1.0		ug/L			01/29/16 12:50	1
Chlorobenzene	<1.0		1.0		ug/L			01/29/16 12:50	1
Chlorodibromomethane	<1.0		1.0		ug/L			01/29/16 12:50	1
Chloroethane	<5.0		5.0		ug/L			01/29/16 12:50	1
Chloroform	<1.0		1.0		ug/L			01/29/16 12:50	1
Chloromethane	<1.0		1.0		ug/L			01/29/16 12:50	1
cis-1,2-Dichloroethene	<1.0		1.0		ug/L			01/29/16 12:50	1
cis-1,3-Dichloropropene	<1.0		1.0		ug/L			01/29/16 12:50	1
Dichlorobromomethane	<1.0		1.0		ug/L			01/29/16 12:50	1
Ethylbenzene	<1.0		1.0		ug/L			01/29/16 12:50	1
Methylene Chloride	<5.0		5.0		ug/L			01/29/16 12:50	1
Styrene	<1.0		1.0		ug/L			01/29/16 12:50	1
Tetrachloroethene	<1.0		1.0		ug/L			01/29/16 12:50	1
Toluene	<1.0		1.0		ug/L			01/29/16 12:50	1
trans-1,2-Dichloroethene	<1.0		1.0		ug/L			01/29/16 12:50	1
trans-1,3-Dichloropropene	<1.0		1.0		ug/L			01/29/16 12:50	1
Trichloroethene	<1.0		1.0		ug/L			01/29/16 12:50	1
Vinyl chloride	<1.0		1.0		ug/L			01/29/16 12:50	1
Xylenes, Total	<1.0		1.0		ug/L			01/29/16 12:50	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*98*		*70 - 130*		*01/29/16 12:50*	*1*
1,2-Dichloroethane-d4 (Surr)	*102*		*70 - 130*		*01/29/16 12:50*	*1*
Dibromofluoromethane (Surr)	*105*		*70 - 130*		*01/29/16 12:50*	*1*
4-Bromofluorobenzene (Surr)	*102*		*70 - 130*		*01/29/16 12:50*	*1*

Client Sample ID: MW-9B

Date Collected: 01/25/16 11:05
Date Received: 01/28/16 08:40

Lab Sample ID: 680-121300-3
Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	<1.0		1.0		ug/L			01/29/16 13:12	1
1,1,2,2-Tetrachloroethane	<1.0		1.0		ug/L			01/29/16 13:12	1
1,1,2-Trichloroethane	<1.0		1.0		ug/L			01/29/16 13:12	1
1,1-Dichloroethane	<1.0		1.0		ug/L			01/29/16 13:12	1
1,1-Dichloroethene	<1.0		1.0		ug/L			01/29/16 13:12	1
1,2-Dichloroethane	<1.0		1.0		ug/L			01/29/16 13:12	1

Client Sample ID: MW-9B

Lab Sample ID: 680-121300-3

Date Collected: 01/25/16 11:05

Matrix: Water

Date Received: 01/28/16 08:40

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,2-Dichloropropane	<1.0		1.0		ug/L			01/29/16 13:12	1
2-Butanone (MEK)	<10		10		ug/L			01/29/16 13:12	1
2-Hexanone	<10		10		ug/L			01/29/16 13:12	1
4-Methyl-2-pentanone (MIBK)	<10		10		ug/L			01/29/16 13:12	1
Acetone	<10		10		ug/L			01/29/16 13:12	1
Benzene	<1.0		1.0		ug/L			01/29/16 13:12	1
Bromoform	<1.0		1.0		ug/L			01/29/16 13:12	1
Bromomethane	<5.0		5.0		ug/L			01/29/16 13:12	1
Carbon disulfide	<2.0		2.0		ug/L			01/29/16 13:12	1
Carbon tetrachloride	<1.0		1.0		ug/L			01/29/16 13:12	1
Chlorobenzene	<1.0		1.0		ug/L			01/29/16 13:12	1
Chlorodibromomethane	<1.0		1.0		ug/L			01/29/16 13:12	1
Chloroethane	<5.0		5.0		ug/L			01/29/16 13:12	1
Chloroform	<1.0		1.0		ug/L			01/29/16 13:12	1
Chloromethane	<1.0		1.0		ug/L			01/29/16 13:12	1
cis-1,2-Dichloroethene	<1.0		1.0		ug/L			01/29/16 13:12	1
cis-1,3-Dichloropropene	<1.0		1.0		ug/L			01/29/16 13:12	1
Dichlorobromomethane	<1.0		1.0		ug/L			01/29/16 13:12	1
Ethylbenzene	<1.0		1.0		ug/L			01/29/16 13:12	1
Methylene Chloride	<5.0		5.0		ug/L			01/29/16 13:12	1
Styrene	<1.0		1.0		ug/L			01/29/16 13:12	1
Tetrachloroethene	<1.0		1.0		ug/L			01/29/16 13:12	1
Toluene	<1.0		1.0		ug/L			01/29/16 13:12	1
trans-1,2-Dichloroethene	<1.0		1.0		ug/L			01/29/16 13:12	1
trans-1,3-Dichloropropene	<1.0		1.0		ug/L			01/29/16 13:12	1
Trichloroethene	<1.0		1.0		ug/L			01/29/16 13:12	1
Vinyl chloride	<1.0		1.0		ug/L			01/29/16 13:12	1
Xylenes, Total	<1.0		1.0		ug/L			01/29/16 13:12	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*97*		*70 - 130*		*01/29/16 13:12*	*1*
1,2-Dichloroethane-d4 (Surr)	*103*		*70 - 130*		*01/29/16 13:12*	*1*
Dibromofluoromethane (Surr)	*105*		*70 - 130*		*01/29/16 13:12*	*1*
4-Bromofluorobenzene (Surr)	*101*		*70 - 130*		*01/29/16 13:12*	*1*

Client Sample ID: MW-9C

Lab Sample ID: 680-121300-4

Date Collected: 01/25/16 12:20

Matrix: Water

Date Received: 01/28/16 08:40

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	<1.0		1.0		ug/L			01/29/16 13:33	1
1,1,2,2-Tetrachloroethane	<1.0		1.0		ug/L			01/29/16 13:33	1
1,1,2-Trichloroethane	<1.0		1.0		ug/L			01/29/16 13:33	1
1,1-Dichloroethane	<1.0		1.0		ug/L			01/29/16 13:33	1
1,1-Dichloroethene	<1.0		1.0		ug/L			01/29/16 13:33	1
1,2-Dichloroethane	<1.0		1.0		ug/L			01/29/16 13:33	1
1,2-Dichloropropane	<1.0		1.0		ug/L			01/29/16 13:33	1
2-Butanone (MEK)	<10		10		ug/L			01/29/16 13:33	1
2-Hexanone	<10		10		ug/L			01/29/16 13:33	1

Client Sample ID: MW-9C

Date Collected: 01/25/16 12:20
Date Received: 01/28/16 08:40

Lab Sample ID: 680-121300-4
Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
4-Methyl-2-pentanone (MIBK)	<10		10		ug/L			01/29/16 13:33	1
Acetone	<10		10		ug/L			01/29/16 13:33	1
Benzene	<1.0		1.0		ug/L			01/29/16 13:33	1
Bromoform	<1.0		1.0		ug/L			01/29/16 13:33	1
Bromomethane	<5.0		5.0		ug/L			01/29/16 13:33	1
Carbon disulfide	<2.0		2.0		ug/L			01/29/16 13:33	1
Carbon tetrachloride	<1.0		1.0		ug/L			01/29/16 13:33	1
Chlorobenzene	<1.0		1.0		ug/L			01/29/16 13:33	1
Chlorodibromomethane	<1.0		1.0		ug/L			01/29/16 13:33	1
Chloroethane	<5.0		5.0		ug/L			01/29/16 13:33	1
Chloroform	<1.0		1.0		ug/L			01/29/16 13:33	1
Chloromethane	<1.0		1.0		ug/L			01/29/16 13:33	1
cis-1,2-Dichloroethene	<1.0		1.0		ug/L			01/29/16 13:33	1
cis-1,3-Dichloropropene	<1.0		1.0		ug/L			01/29/16 13:33	1
Dichlorobromomethane	<1.0		1.0		ug/L			01/29/16 13:33	1
Ethylbenzene	<1.0		1.0		ug/L			01/29/16 13:33	1
Methylene Chloride	<5.0		5.0		ug/L			01/29/16 13:33	1
Styrene	<1.0		1.0		ug/L			01/29/16 13:33	1
Tetrachloroethene	<1.0		1.0		ug/L			01/29/16 13:33	1
Toluene	<1.0		1.0		ug/L			01/29/16 13:33	1
trans-1,2-Dichloroethene	<1.0		1.0		ug/L			01/29/16 13:33	1
trans-1,3-Dichloropropene	<1.0		1.0		ug/L			01/29/16 13:33	1
Trichloroethene	<1.0		1.0		ug/L			01/29/16 13:33	1
Vinyl chloride	<1.0		1.0		ug/L			01/29/16 13:33	1
Xylenes, Total	<1.0		1.0		ug/L			01/29/16 13:33	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*99*		*70 - 130*		*01/29/16 13:33*	*1*
1,2-Dichloroethane-d4 (Surr)	*103*		*70 - 130*		*01/29/16 13:33*	*1*
Dibromofluoromethane (Surr)	*106*		*70 - 130*		*01/29/16 13:33*	*1*
4-Bromofluorobenzene (Surr)	*101*		*70 - 130*		*01/29/16 13:33*	*1*

Client Sample ID: MW-11C

Date Collected: 01/25/16 14:00
Date Received: 01/28/16 08:40

Lab Sample ID: 680-121300-5
Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	<1.0		1.0		ug/L			01/29/16 13:54	1
1,1,2,2-Tetrachloroethane	<1.0		1.0		ug/L			01/29/16 13:54	1
1,1,2-Trichloroethane	<1.0		1.0		ug/L			01/29/16 13:54	1
1,1-Dichloroethane	<1.0		1.0		ug/L			01/29/16 13:54	1
1,1-Dichloroethene	<1.0		1.0		ug/L			01/29/16 13:54	1
1,2-Dichloroethane	<1.0		1.0		ug/L			01/29/16 13:54	1
1,2-Dichloropropane	<1.0		1.0		ug/L			01/29/16 13:54	1
2-Butanone (MEK)	<10		10		ug/L			01/29/16 13:54	1
2-Hexanone	<10		10		ug/L			01/29/16 13:54	1
4-Methyl-2-pentanone (MIBK)	<10		10		ug/L			01/29/16 13:54	1
Acetone	<10		10		ug/L			01/29/16 13:54	1
Benzene	<1.0		1.0		ug/L			01/29/16 13:54	1

Client Sample ID: MW-11C

Date Collected: 01/25/16 14:00
Date Received: 01/28/16 08:40

Lab Sample ID: 680-121300-5
Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Bromoform	<1.0		1.0		ug/L			01/29/16 13:54	1
Bromomethane	<5.0		5.0		ug/L			01/29/16 13:54	1
Carbon disulfide	<2.0		2.0		ug/L			01/29/16 13:54	1
Carbon tetrachloride	<1.0		1.0		ug/L			01/29/16 13:54	1
Chlorobenzene	<1.0		1.0		ug/L			01/29/16 13:54	1
Chlorodibromomethane	<1.0		1.0		ug/L			01/29/16 13:54	1
Chloroethane	<5.0		5.0		ug/L			01/29/16 13:54	1
Chloroform	<1.0		1.0		ug/L			01/29/16 13:54	1
Chloromethane	<1.0		1.0		ug/L			01/29/16 13:54	1
cis-1,2-Dichloroethene	<1.0		1.0		ug/L			01/29/16 13:54	1
cis-1,3-Dichloropropene	<1.0		1.0		ug/L			01/29/16 13:54	1
Dichlorobromomethane	<1.0		1.0		ug/L			01/29/16 13:54	1
Ethylbenzene	<1.0		1.0		ug/L			01/29/16 13:54	1
Methylene Chloride	<5.0		5.0		ug/L			01/29/16 13:54	1
Styrene	<1.0		1.0		ug/L			01/29/16 13:54	1
Tetrachloroethene	<1.0		1.0		ug/L			01/29/16 13:54	1
Toluene	<1.0		1.0		ug/L			01/29/16 13:54	1
trans-1,2-Dichloroethene	<1.0		1.0		ug/L			01/29/16 13:54	1
trans-1,3-Dichloropropene	<1.0		1.0		ug/L			01/29/16 13:54	1
Trichloroethene	<1.0		1.0		ug/L			01/29/16 13:54	1
Vinyl chloride	<1.0		1.0		ug/L			01/29/16 13:54	1
Xylenes, Total	<1.0		1.0		ug/L			01/29/16 13:54	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*99*		*70 - 130*		*01/29/16 13:54*	*1*
1,2-Dichloroethane-d4 (Surr)	*102*		*70 - 130*		*01/29/16 13:54*	*1*
Dibromofluoromethane (Surr)	*107*		*70 - 130*		*01/29/16 13:54*	*1*
4-Bromofluorobenzene (Surr)	*101*		*70 - 130*		*01/29/16 13:54*	*1*

Client Sample ID: MW-8C

Date Collected: 01/25/16 18:03
Date Received: 01/28/16 08:40

Lab Sample ID: 680-121300-6
Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	<1.0		1.0		ug/L			01/29/16 14:16	1
1,1,2,2-Tetrachloroethane	<1.0		1.0		ug/L			01/29/16 14:16	1
1,1,2-Trichloroethane	<1.0		1.0		ug/L			01/29/16 14:16	1
1,1-Dichloroethane	<1.0		1.0		ug/L			01/29/16 14:16	1
1,1-Dichloroethene	<1.0		1.0		ug/L			01/29/16 14:16	1
1,2-Dichloroethane	<1.0		1.0		ug/L			01/29/16 14:16	1
1,2-Dichloropropane	<1.0		1.0		ug/L			01/29/16 14:16	1
2-Butanone (MEK)	**52**		10		ug/L			01/29/16 14:16	1
2-Hexanone	<10		10		ug/L			01/29/16 14:16	1
4-Methyl-2-pentanone (MIBK)	<10		10		ug/L			01/29/16 14:16	1
Acetone	**48**		10		ug/L			01/29/16 14:16	1
Benzene	<1.0		1.0		ug/L			01/29/16 14:16	1
Bromoform	<1.0		1.0		ug/L			01/29/16 14:16	1
Bromomethane	<5.0		5.0		ug/L			01/29/16 14:16	1
Carbon disulfide	<2.0		2.0		ug/L			01/29/16 14:16	1

Client Sample ID: MW-8C

Date Collected: 01/25/16 18:03
Date Received: 01/28/16 08:40

Lab Sample ID: 680-121300-6
Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Carbon tetrachloride	<1.0		1.0		ug/L			01/29/16 14:16	1
Chlorobenzene	<1.0		1.0		ug/L			01/29/16 14:16	1
Chlorodibromomethane	<1.0		1.0		ug/L			01/29/16 14:16	1
Chloroethane	<5.0		5.0		ug/L			01/29/16 14:16	1
Chloroform	<1.0		1.0		ug/L			01/29/16 14:16	1
Chloromethane	<1.0		1.0		ug/L			01/29/16 14:16	1
cis-1,2-Dichloroethene	<1.0		1.0		ug/L			01/29/16 14:16	1
cis-1,3-Dichloropropene	<1.0		1.0		ug/L			01/29/16 14:16	1
Dichlorobromomethane	<1.0		1.0		ug/L			01/29/16 14:16	1
Ethylbenzene	<1.0		1.0		ug/L			01/29/16 14:16	1
Methylene Chloride	<5.0		5.0		ug/L			01/29/16 14:16	1
Styrene	<1.0		1.0		ug/L			01/29/16 14:16	1
Tetrachloroethene	<1.0		1.0		ug/L			01/29/16 14:16	1
Toluene	<1.0		1.0		ug/L			01/29/16 14:16	1
trans-1,2-Dichloroethene	<1.0		1.0		ug/L			01/29/16 14:16	1
trans-1,3-Dichloropropene	<1.0		1.0		ug/L			01/29/16 14:16	1
Trichloroethene	<1.0		1.0		ug/L			01/29/16 14:16	1
Vinyl chloride	<1.0		1.0		ug/L			01/29/16 14:16	1
Xylenes, Total	<1.0		1.0		ug/L			01/29/16 14:16	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*98*		*70 - 130*		*01/29/16 14:16*	*1*
1,2-Dichloroethane-d4 (Surr)	*101*		*70 - 130*		*01/29/16 14:16*	*1*
Dibromofluoromethane (Surr)	*105*		*70 - 130*		*01/29/16 14:16*	*1*
4-Bromofluorobenzene (Surr)	*102*		*70 - 130*		*01/29/16 14:16*	*1*

Client Sample ID: MW-10B

Date Collected: 01/26/16 09:33
Date Received: 01/28/16 08:40

Lab Sample ID: 680-121300-7
Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	<1.0		1.0		ug/L			01/29/16 14:37	1
1,1,2,2-Tetrachloroethane	<1.0		1.0		ug/L			01/29/16 14:37	1
1,1,2-Trichloroethane	<1.0		1.0		ug/L			01/29/16 14:37	1
1,1-Dichloroethane	<1.0		1.0		ug/L			01/29/16 14:37	1
1,1-Dichloroethene	<1.0		1.0		ug/L			01/29/16 14:37	1
1,2-Dichloroethane	<1.0		1.0		ug/L			01/29/16 14:37	1
1,2-Dichloropropane	<1.0		1.0		ug/L			01/29/16 14:37	1
2-Butanone (MEK)	<10		10		ug/L			01/29/16 14:37	1
2-Hexanone	<10		10		ug/L			01/29/16 14:37	1
4-Methyl-2-pentanone (MIBK)	<10		10		ug/L			01/29/16 14:37	1
Acetone	<10		10		ug/L			01/29/16 14:37	1
Benzene	<1.0		1.0		ug/L			01/29/16 14:37	1
Bromoform	<1.0		1.0		ug/L			01/29/16 14:37	1
Bromomethane	<5.0		5.0		ug/L			01/29/16 14:37	1
Carbon disulfide	<2.0		2.0		ug/L			01/29/16 14:37	1
Carbon tetrachloride	<1.0		1.0		ug/L			01/29/16 14:37	1
Chlorobenzene	<1.0		1.0		ug/L			01/29/16 14:37	1
Chlorodibromomethane	<1.0		1.0		ug/L			01/29/16 14:37	1

Client Sample ID: MW-10B

Lab Sample ID: 680-121300-7

Date Collected: 01/26/16 09:33

Matrix: Water

Date Received: 01/28/16 08:40

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloroethane	<5.0		5.0		ug/L			01/29/16 14:37	1
Chloroform	<1.0		1.0		ug/L			01/29/16 14:37	1
Chloromethane	<1.0		1.0		ug/L			01/29/16 14:37	1
cis-1,2-Dichloroethene	<1.0		1.0		ug/L			01/29/16 14:37	1
cis-1,3-Dichloropropene	<1.0		1.0		ug/L			01/29/16 14:37	1
Dichlorobromomethane	<1.0		1.0		ug/L			01/29/16 14:37	1
Ethylbenzene	<1.0		1.0		ug/L			01/29/16 14:37	1
Methylene Chloride	<5.0		5.0		ug/L			01/29/16 14:37	1
Styrene	<1.0		1.0		ug/L			01/29/16 14:37	1
Tetrachloroethene	<1.0		1.0		ug/L			01/29/16 14:37	1
Toluene	<1.0		1.0		ug/L			01/29/16 14:37	1
trans-1,2-Dichloroethene	<1.0		1.0		ug/L			01/29/16 14:37	1
trans-1,3-Dichloropropene	<1.0		1.0		ug/L			01/29/16 14:37	1
Trichloroethene	<1.0		1.0		ug/L			01/29/16 14:37	1
Vinyl chloride	<1.0		1.0		ug/L			01/29/16 14:37	1
Xylenes, Total	<1.0		1.0		ug/L			01/29/16 14:37	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*101*		*70 - 130*		*01/29/16 14:37*	*1*
1,2-Dichloroethane-d4 (Surr)	*103*		*70 - 130*		*01/29/16 14:37*	*1*
Dibromofluoromethane (Surr)	*105*		*70 - 130*		*01/29/16 14:37*	*1*
4-Bromofluorobenzene (Surr)	*104*		*70 - 130*		*01/29/16 14:37*	*1*

Client Sample ID: MW-10C

Lab Sample ID: 680-121300-8

Date Collected: 01/25/16 17:00

Matrix: Water

Date Received: 01/28/16 08:40

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	<1.0		1.0		ug/L			01/29/16 14:59	1
1,1,2,2-Tetrachloroethane	<1.0		1.0		ug/L			01/29/16 14:59	1
1,1,2-Trichloroethane	<1.0		1.0		ug/L			01/29/16 14:59	1
1,1-Dichloroethane	<1.0		1.0		ug/L			01/29/16 14:59	1
1,1-Dichloroethene	<1.0		1.0		ug/L			01/29/16 14:59	1
1,2-Dichloroethane	<1.0		1.0		ug/L			01/29/16 14:59	1
1,2-Dichloropropane	<1.0		1.0		ug/L			01/29/16 14:59	1
2-Butanone (MEK)	<10		10		ug/L			01/29/16 14:59	1
2-Hexanone	<10		10		ug/L			01/29/16 14:59	1
4-Methyl-2-pentanone (MIBK)	<10		10		ug/L			01/29/16 14:59	1
Acetone	<10		10		ug/L			01/29/16 14:59	1
Benzene	<1.0		1.0		ug/L			01/29/16 14:59	1
Bromoform	<1.0		1.0		ug/L			01/29/16 14:59	1
Bromomethane	<5.0		5.0		ug/L			01/29/16 14:59	1
Carbon disulfide	<2.0		2.0		ug/L			01/29/16 14:59	1
Carbon tetrachloride	<1.0		1.0		ug/L			01/29/16 14:59	1
Chlorobenzene	<1.0		1.0		ug/L			01/29/16 14:59	1
Chlorodibromomethane	<1.0		1.0		ug/L			01/29/16 14:59	1
Chloroethane	<5.0		5.0		ug/L			01/29/16 14:59	1
Chloroform	<1.0		1.0		ug/L			01/29/16 14:59	1
Chloromethane	<1.0		1.0		ug/L			01/29/16 14:59	1

Client Sample ID: MW-10C

Date Collected: 01/25/16 17:00
Date Received: 01/28/16 08:40

Lab Sample ID: 680-121300-8
Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
cis-1,2-Dichloroethene	<1.0		1.0		ug/L			01/29/16 14:59	1
cis-1,3-Dichloropropene	<1.0		1.0		ug/L			01/29/16 14:59	1
Dichlorobromomethane	<1.0		1.0		ug/L			01/29/16 14:59	1
Ethylbenzene	<1.0		1.0		ug/L			01/29/16 14:59	1
Methylene Chloride	<5.0		5.0		ug/L			01/29/16 14:59	1
Styrene	<1.0		1.0		ug/L			01/29/16 14:59	1
Tetrachloroethene	**1.1**		1.0		ug/L			01/29/16 14:59	1
Toluene	<1.0		1.0		ug/L			01/29/16 14:59	1
trans-1,2-Dichloroethene	<1.0		1.0		ug/L			01/29/16 14:59	1
trans-1,3-Dichloropropene	<1.0		1.0		ug/L			01/29/16 14:59	1
Trichloroethene	<1.0		1.0		ug/L			01/29/16 14:59	1
Vinyl chloride	<1.0		1.0		ug/L			01/29/16 14:59	1
Xylenes, Total	<1.0		1.0		ug/L			01/29/16 14:59	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*99*		*70 - 130*		*01/29/16 14:59*	*1*
1,2-Dichloroethane-d4 (Surr)	*103*		*70 - 130*		*01/29/16 14:59*	*1*
Dibromofluoromethane (Surr)	*106*		*70 - 130*		*01/29/16 14:59*	*1*
4-Bromofluorobenzene (Surr)	*102*		*70 - 130*		*01/29/16 14:59*	*1*

Client Sample ID: MW-11A

Date Collected: 01/25/16 14:57
Date Received: 01/28/16 08:40

Lab Sample ID: 680-121300-9
Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	<1.0		1.0		ug/L			02/01/16 12:31	1
1,1,2,2-Tetrachloroethane	<1.0		1.0		ug/L			02/01/16 12:31	1
1,1,2-Trichloroethane	<1.0		1.0		ug/L			02/01/16 12:31	1
1,1-Dichloroethane	<1.0		1.0		ug/L			02/01/16 12:31	1
1,1-Dichloroethene	<1.0		1.0		ug/L			02/01/16 12:31	1
1,2-Dichloroethane	<1.0		1.0		ug/L			02/01/16 12:31	1
1,2-Dichloropropane	<1.0		1.0		ug/L			02/01/16 12:31	1
2-Butanone (MEK)	<10		10		ug/L			02/01/16 12:31	1
2-Hexanone	<10		10		ug/L			02/01/16 12:31	1
4-Methyl-2-pentanone (MIBK)	<10		10		ug/L			02/01/16 12:31	1
Acetone	**29**		10		ug/L			02/01/16 12:31	1
Benzene	<1.0		1.0		ug/L			02/01/16 12:31	1
Bromoform	**1.7**		1.0		ug/L			02/01/16 12:31	1
Bromomethane	<5.0		5.0		ug/L			02/01/16 12:31	1
Carbon disulfide	<2.0		2.0		ug/L			02/01/16 12:31	1
Carbon tetrachloride	<1.0		1.0		ug/L			02/01/16 12:31	1
Chlorobenzene	<1.0		1.0		ug/L			02/01/16 12:31	1
Chlorodibromomethane	<1.0		1.0		ug/L			02/01/16 12:31	1
Chloroethane	<5.0		5.0		ug/L			02/01/16 12:31	1
Chloroform	**1.0**		1.0		ug/L			02/01/16 12:31	1
Chloromethane	<1.0		1.0		ug/L			02/01/16 12:31	1
cis-1,2-Dichloroethene	<1.0		1.0		ug/L			02/01/16 12:31	1
cis-1,3-Dichloropropene	<1.0		1.0		ug/L			02/01/16 12:31	1
Dichlorobromomethane	<1.0		1.0		ug/L			02/01/16 12:31	1

Client Sample ID: MW-11A

Lab Sample ID: 680-121300-9

Date Collected: 01/25/16 14:57

Matrix: Water

Date Received: 01/28/16 08:40

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ethylbenzene	<1.0		1.0		ug/L			02/01/16 12:31	1
Methylene Chloride	<5.0		5.0		ug/L			02/01/16 12:31	1
Styrene	<1.0		1.0		ug/L			02/01/16 12:31	1
Tetrachloroethene	**2.7**		1.0		ug/L			02/01/16 12:31	1
Toluene	<1.0		1.0		ug/L			02/01/16 12:31	1
trans-1,2-Dichloroethene	<1.0		1.0		ug/L			02/01/16 12:31	1
trans-1,3-Dichloropropene	<1.0		1.0		ug/L			02/01/16 12:31	1
Trichloroethene	<1.0		1.0		ug/L			02/01/16 12:31	1
Vinyl chloride	<1.0		1.0		ug/L			02/01/16 12:31	1
Xylenes, Total	<1.0		1.0		ug/L			02/01/16 12:31	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*76*		*70 - 130*		*02/01/16 12:31*	*1*
1,2-Dichloroethane-d4 (Surr)	*102*		*70 - 130*		*02/01/16 12:31*	*1*
Dibromofluoromethane (Surr)	*105*		*70 - 130*		*02/01/16 12:31*	*1*
4-Bromofluorobenzene (Surr)	*101*		*70 - 130*		*02/01/16 12:31*	*1*

Client Sample ID: MW-11B

Lab Sample ID: 680-121300-10

Date Collected: 01/26/16 10:07

Matrix: Water

Date Received: 01/28/16 08:40

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	<1.0		1.0		ug/L			02/01/16 12:53	1
1,1,2,2-Tetrachloroethane	<1.0		1.0		ug/L			02/01/16 12:53	1
1,1,2-Trichloroethane	<1.0		1.0		ug/L			02/01/16 12:53	1
1,1-Dichloroethane	<1.0		1.0		ug/L			02/01/16 12:53	1
1,1-Dichloroethene	<1.0		1.0		ug/L			02/01/16 12:53	1
1,2-Dichloroethane	<1.0		1.0		ug/L			02/01/16 12:53	1
1,2-Dichloropropane	<1.0		1.0		ug/L			02/01/16 12:53	1
2-Butanone (MEK)	<10		10		ug/L			02/01/16 12:53	1
2-Hexanone	<10		10		ug/L			02/01/16 12:53	1
4-Methyl-2-pentanone (MIBK)	<10		10		ug/L			02/01/16 12:53	1
Acetone	<10		10		ug/L			02/01/16 12:53	1
Benzene	<1.0		1.0		ug/L			02/01/16 12:53	1
Bromoform	<1.0		1.0		ug/L			02/01/16 12:53	1
Bromomethane	<5.0		5.0		ug/L			02/01/16 12:53	1
Carbon disulfide	<2.0		2.0		ug/L			02/01/16 12:53	1
Carbon tetrachloride	<1.0		1.0		ug/L			02/01/16 12:53	1
Chlorobenzene	<1.0		1.0		ug/L			02/01/16 12:53	1
Chlorodibromomethane	<1.0		1.0		ug/L			02/01/16 12:53	1
Chloroethane	<5.0		5.0		ug/L			02/01/16 12:53	1
Chloroform	<1.0		1.0		ug/L			02/01/16 12:53	1
Chloromethane	<1.0		1.0		ug/L			02/01/16 12:53	1
cis-1,2-Dichloroethene	<1.0		1.0		ug/L			02/01/16 12:53	1
cis-1,3-Dichloropropene	<1.0		1.0		ug/L			02/01/16 12:53	1
Dichlorobromomethane	<1.0		1.0		ug/L			02/01/16 12:53	1
Ethylbenzene	<1.0		1.0		ug/L			02/01/16 12:53	1
Methylene Chloride	<5.0		5.0		ug/L			02/01/16 12:53	1
Styrene	<1.0		1.0		ug/L			02/01/16 12:53	1

Client Sample ID: MW-11B

Lab Sample ID: 680-121300-10

Date Collected: 01/26/16 10:07

Matrix: Water

Date Received: 01/28/16 08:40

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Tetrachloroethene	<1.0		1.0		ug/L			02/01/16 12:53	1
Toluene	<1.0		1.0		ug/L			02/01/16 12:53	1
trans-1,2-Dichloroethene	<1.0		1.0		ug/L			02/01/16 12:53	1
trans-1,3-Dichloropropene	<1.0		1.0		ug/L			02/01/16 12:53	1
Trichloroethene	<1.0		1.0		ug/L			02/01/16 12:53	1
Vinyl chloride	<1.0		1.0		ug/L			02/01/16 12:53	1
Xylenes, Total	<1.0		1.0		ug/L			02/01/16 12:53	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*102*		*70 - 130*		*02/01/16 12:53*	*1*
1,2-Dichloroethane-d4 (Surr)	*102*		*70 - 130*		*02/01/16 12:53*	*1*
Dibromofluoromethane (Surr)	*101*		*70 - 130*		*02/01/16 12:53*	*1*
4-Bromofluorobenzene (Surr)	*98*		*70 - 130*		*02/01/16 12:53*	*1*

Client Sample ID: MW-3A

Lab Sample ID: 680-121300-11

Date Collected: 01/26/16 11:03

Matrix: Water

Date Received: 01/28/16 08:40

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	<1.0		1.0		ug/L			01/29/16 15:20	1
1,1,2,2-Tetrachloroethane	<1.0		1.0		ug/L			01/29/16 15:20	1
1,1,2-Trichloroethane	<1.0		1.0		ug/L			01/29/16 15:20	1
1,1-Dichloroethane	<1.0		1.0		ug/L			01/29/16 15:20	1
1,1-Dichloroethene	<1.0		1.0		ug/L			01/29/16 15:20	1
1,2-Dichloroethane	<1.0		1.0		ug/L			01/29/16 15:20	1
1,2-Dichloropropane	<1.0		1.0		ug/L			01/29/16 15:20	1
2-Butanone (MEK)	<10		10		ug/L			01/29/16 15:20	1
2-Hexanone	<10		10		ug/L			01/29/16 15:20	1
4-Methyl-2-pentanone (MIBK)	<10		10		ug/L			01/29/16 15:20	1
Acetone	<10		10		ug/L			01/29/16 15:20	1
Benzene	<1.0		1.0		ug/L			01/29/16 15:20	1
Bromoform	<1.0		1.0		ug/L			01/29/16 15:20	1
Bromomethane	<5.0		5.0		ug/L			01/29/16 15:20	1
Carbon disulfide	<2.0		2.0		ug/L			01/29/16 15:20	1
Carbon tetrachloride	<1.0		1.0		ug/L			01/29/16 15:20	1
Chlorobenzene	<1.0		1.0		ug/L			01/29/16 15:20	1
Chlorodibromomethane	<1.0		1.0		ug/L			01/29/16 15:20	1
Chloroethane	<5.0		5.0		ug/L			01/29/16 15:20	1
Chloroform	<1.0		1.0		ug/L			01/29/16 15:20	1
Chloromethane	<1.0		1.0		ug/L			01/29/16 15:20	1
cis-1,2-Dichloroethene	<1.0		1.0		ug/L			01/29/16 15:20	1
cis-1,3-Dichloropropene	<1.0		1.0		ug/L			01/29/16 15:20	1
Dichlorobromomethane	<1.0		1.0		ug/L			01/29/16 15:20	1
Ethylbenzene	<1.0		1.0		ug/L			01/29/16 15:20	1
Methylene Chloride	<5.0		5.0		ug/L			01/29/16 15:20	1
Styrene	<1.0		1.0		ug/L			01/29/16 15:20	1
Tetrachloroethene	**41**		1.0		ug/L			01/29/16 15:20	1
Toluene	<1.0		1.0		ug/L			01/29/16 15:20	1
trans-1,2-Dichloroethene	<1.0		1.0		ug/L			01/29/16 15:20	1

Client Sample ID: MW-3A

Date Collected: 01/26/16 11:03
Date Received: 01/28/16 08:40

Lab Sample ID: 680-121300-11

Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
trans-1,3-Dichloropropene	<1.0		1.0		ug/L			01/29/16 15:20	1
Trichloroethene	**1.5**		1.0		ug/L			01/29/16 15:20	1
Vinyl chloride	<1.0		1.0		ug/L			01/29/16 15:20	1
Xylenes, Total	<1.0		1.0		ug/L			01/29/16 15:20	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*99*		*70 - 130*		*01/29/16 15:20*	*1*
1,2-Dichloroethane-d4 (Surr)	*102*		*70 - 130*		*01/29/16 15:20*	*1*
Dibromofluoromethane (Surr)	*104*		*70 - 130*		*01/29/16 15:20*	*1*
4-Bromofluorobenzene (Surr)	*103*		*70 - 130*		*01/29/16 15:20*	*1*

Client Sample ID: MW-8B

Date Collected: 01/26/16 12:17
Date Received: 01/28/16 08:40

Lab Sample ID: 680-121300-12

Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	<1.0		1.0		ug/L			02/01/16 13:14	1
1,1,2,2-Tetrachloroethane	<1.0		1.0		ug/L			02/01/16 13:14	1
1,1,2-Trichloroethane	<1.0		1.0		ug/L			02/01/16 13:14	1
1,1-Dichloroethane	<1.0		1.0		ug/L			02/01/16 13:14	1
1,1-Dichloroethene	<1.0		1.0		ug/L			02/01/16 13:14	1
1,2-Dichloroethane	<1.0		1.0		ug/L			02/01/16 13:14	1
1,2-Dichloropropane	<1.0		1.0		ug/L			02/01/16 13:14	1
2-Butanone (MEK)	<10		10		ug/L			02/01/16 13:14	1
2-Hexanone	<10		10		ug/L			02/01/16 13:14	1
4-Methyl-2-pentanone (MIBK)	<10		10		ug/L			02/01/16 13:14	1
Acetone	<10		10		ug/L			02/01/16 13:14	1
Benzene	<1.0		1.0		ug/L			02/01/16 13:14	1
Bromoform	<1.0		1.0		ug/L			02/01/16 13:14	1
Bromomethane	<5.0		5.0		ug/L			02/01/16 13:14	1
Carbon disulfide	<2.0		2.0		ug/L			02/01/16 13:14	1
Carbon tetrachloride	<1.0		1.0		ug/L			02/01/16 13:14	1
Chlorobenzene	<1.0		1.0		ug/L			02/01/16 13:14	1
Chlorodibromomethane	<1.0		1.0		ug/L			02/01/16 13:14	1
Chloroethane	<5.0		5.0		ug/L			02/01/16 13:14	1
Chloroform	<1.0		1.0		ug/L			02/01/16 13:14	1
Chloromethane	<1.0		1.0		ug/L			02/01/16 13:14	1
cis-1,2-Dichloroethene	<1.0		1.0		ug/L			02/01/16 13:14	1
cis-1,3-Dichloropropene	<1.0		1.0		ug/L			02/01/16 13:14	1
Dichlorobromomethane	<1.0		1.0		ug/L			02/01/16 13:14	1
Ethylbenzene	<1.0		1.0		ug/L			02/01/16 13:14	1
Methylene Chloride	<5.0		5.0		ug/L			02/01/16 13:14	1
Styrene	<1.0		1.0		ug/L			02/01/16 13:14	1
Tetrachloroethene	**12**		1.0		ug/L			02/01/16 13:14	1
Toluene	<1.0		1.0		ug/L			02/01/16 13:14	1
trans-1,2-Dichloroethene	<1.0		1.0		ug/L			02/01/16 13:14	1
trans-1,3-Dichloropropene	<1.0		1.0		ug/L			02/01/16 13:14	1
Trichloroethene	<1.0		1.0		ug/L			02/01/16 13:14	1
Vinyl chloride	<1.0		1.0		ug/L			02/01/16 13:14	1

Client Sample ID: MW-8B

Lab Sample ID: 680-121300-12

Date Collected: 01/26/16 12:17

Matrix: Water

Date Received: 01/28/16 08:40

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Xylenes, Total	<1.0		1.0		ug/L			02/01/16 13:14	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*77*		*70 - 130*		*02/01/16 13:14*	*1*
1,2-Dichloroethane-d4 (Surr)	*101*		*70 - 130*		*02/01/16 13:14*	*1*
Dibromofluoromethane (Surr)	*103*		*70 - 130*		*02/01/16 13:14*	*1*
4-Bromofluorobenzene (Surr)	*98*		*70 - 130*		*02/01/16 13:14*	*1*

Client Sample ID: MW-8A

Lab Sample ID: 680-121300-13

Date Collected: 01/26/16 13:14

Matrix: Water

Date Received: 01/28/16 08:40

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	<1.0		1.0		ug/L			01/29/16 15:42	1
1,1,2,2-Tetrachloroethane	<1.0		1.0		ug/L			01/29/16 15:42	1
1,1,2-Trichloroethane	<1.0		1.0		ug/L			01/29/16 15:42	1
1,1-Dichloroethane	<1.0		1.0		ug/L			01/29/16 15:42	1
1,1-Dichloroethene	<1.0		1.0		ug/L			01/29/16 15:42	1
1,2-Dichloroethane	<1.0		1.0		ug/L			01/29/16 15:42	1
1,2-Dichloropropane	<1.0		1.0		ug/L			01/29/16 15:42	1
2-Butanone (MEK)	<10		10		ug/L			01/29/16 15:42	1
2-Hexanone	<10		10		ug/L			01/29/16 15:42	1
4-Methyl-2-pentanone (MIBK)	<10		10		ug/L			01/29/16 15:42	1
Acetone	**15**		10		ug/L			01/29/16 15:42	1
Benzene	<1.0		1.0		ug/L			01/29/16 15:42	1
Bromoform	<1.0		1.0		ug/L			01/29/16 15:42	1
Bromomethane	<5.0		5.0		ug/L			01/29/16 15:42	1
Carbon disulfide	<2.0		2.0		ug/L			01/29/16 15:42	1
Carbon tetrachloride	<1.0		1.0		ug/L			01/29/16 15:42	1
Chlorobenzene	<1.0		1.0		ug/L			01/29/16 15:42	1
Chlorodibromomethane	<1.0		1.0		ug/L			01/29/16 15:42	1
Chloroethane	<5.0		5.0		ug/L			01/29/16 15:42	1
Chloroform	**3.3**		1.0		ug/L			01/29/16 15:42	1
Chloromethane	<1.0		1.0		ug/L			01/29/16 15:42	1
cis-1,2-Dichloroethene	<1.0		1.0		ug/L			01/29/16 15:42	1
cis-1,3-Dichloropropene	<1.0		1.0		ug/L			01/29/16 15:42	1
Dichlorobromomethane	<1.0		1.0		ug/L			01/29/16 15:42	1
Ethylbenzene	<1.0		1.0		ug/L			01/29/16 15:42	1
Methylene Chloride	<5.0		5.0		ug/L			01/29/16 15:42	1
Styrene	<1.0		1.0		ug/L			01/29/16 15:42	1
Tetrachloroethene	**83**		1.0		ug/L			01/29/16 15:42	1
Toluene	<1.0		1.0		ug/L			01/29/16 15:42	1
trans-1,2-Dichloroethene	<1.0		1.0		ug/L			01/29/16 15:42	1
trans-1,3-Dichloropropene	<1.0		1.0		ug/L			01/29/16 15:42	1
Trichloroethene	<1.0		1.0		ug/L			01/29/16 15:42	1
Vinyl chloride	<1.0		1.0		ug/L			01/29/16 15:42	1
Xylenes, Total	<1.0		1.0		ug/L			01/29/16 15:42	1

Client Sample ID: MW-8A

Date Collected: 01/26/16 13:14
Date Received: 01/28/16 08:40

Lab Sample ID: 680-121300-13
Matrix: Water

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*100*		*70 - 130*		*01/29/16 15:42*	*1*
1,2-Dichloroethane-d4 (Surr)	*103*		*70 - 130*		*01/29/16 15:42*	*1*
Dibromofluoromethane (Surr)	*105*		*70 - 130*		*01/29/16 15:42*	*1*
4-Bromofluorobenzene (Surr)	*103*		*70 - 130*		*01/29/16 15:42*	*1*

Client Sample ID: MW-9A

Date Collected: 01/26/16 14:57
Date Received: 01/28/16 08:40

Lab Sample ID: 680-121300-14
Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	<1.0		1.0		ug/L			02/01/16 14:18	1
1,1,2,2-Tetrachloroethane	<1.0		1.0		ug/L			02/01/16 14:18	1
1,1,2-Trichloroethane	<1.0		1.0		ug/L			02/01/16 14:18	1
1,1-Dichloroethane	<1.0		1.0		ug/L			02/01/16 14:18	1
1,1-Dichloroethene	<1.0		1.0		ug/L			02/01/16 14:18	1
1,2-Dichloroethane	<1.0		1.0		ug/L			02/01/16 14:18	1
1,2-Dichloropropane	<1.0		1.0		ug/L			02/01/16 14:18	1
2-Butanone (MEK)	<10		10		ug/L			02/01/16 14:18	1
2-Hexanone	<10		10		ug/L			02/01/16 14:18	1
4-Methyl-2-pentanone (MIBK)	<10		10		ug/L			02/01/16 14:18	1
Acetone	**21**		10		ug/L			02/01/16 14:18	1
Benzene	<1.0		1.0		ug/L			02/01/16 14:18	1
Bromoform	<1.0		1.0		ug/L			02/01/16 14:18	1
Bromomethane	<5.0		5.0		ug/L			02/01/16 14:18	1
Carbon disulfide	<2.0		2.0		ug/L			02/01/16 14:18	1
Carbon tetrachloride	<1.0		1.0		ug/L			02/01/16 14:18	1
Chlorobenzene	<1.0		1.0		ug/L			02/01/16 14:18	1
Chlorodibromomethane	<1.0		1.0		ug/L			02/01/16 14:18	1
Chloroethane	<5.0		5.0		ug/L			02/01/16 14:18	1
Chloroform	<1.0		1.0		ug/L			02/01/16 14:18	1
Chloromethane	<1.0		1.0		ug/L			02/01/16 14:18	1
cis-1,2-Dichloroethene	**10**		1.0		ug/L			02/01/16 14:18	1
cis-1,3-Dichloropropene	<1.0		1.0		ug/L			02/01/16 14:18	1
Dichlorobromomethane	<1.0		1.0		ug/L			02/01/16 14:18	1
Ethylbenzene	<1.0		1.0		ug/L			02/01/16 14:18	1
Methylene Chloride	<5.0		5.0		ug/L			02/01/16 14:18	1
Styrene	<1.0		1.0		ug/L			02/01/16 14:18	1
Toluene	<1.0		1.0		ug/L			02/01/16 14:18	1
trans-1,2-Dichloroethene	**2.8**		1.0		ug/L			02/01/16 14:18	1
trans-1,3-Dichloropropene	<1.0		1.0		ug/L			02/01/16 14:18	1
Trichloroethene	**100**		1.0		ug/L			02/01/16 14:18	1
Vinyl chloride	<1.0		1.0		ug/L			02/01/16 14:18	1
Xylenes, Total	<1.0		1.0		ug/L			02/01/16 14:18	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*102*		*70 - 130*		*02/01/16 14:18*	*1*
1,2-Dichloroethane-d4 (Surr)	*102*		*70 - 130*		*02/01/16 14:18*	*1*
Dibromofluoromethane (Surr)	*104*		*70 - 130*		*02/01/16 14:18*	*1*
4-Bromofluorobenzene (Surr)	*98*		*70 - 130*		*02/01/16 14:18*	*1*

Client Sample ID: MW-9A

Lab Sample ID: 680-121300-14

Date Collected: 01/26/16 14:57

Matrix: Water

Date Received: 01/28/16 08:40

Method: 8260B - Volatile Organic Compounds (GC/MS) - DL

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Tetrachloroethene	**520**		5.0		ug/L			01/29/16 17:08	5

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*98*		*70 - 130*		*01/29/16 17:08*	*5*
1,2-Dichloroethane-d4 (Surr)	*104*		*70 - 130*		*01/29/16 17:08*	*5*
Dibromofluoromethane (Surr)	*106*		*70 - 130*		*01/29/16 17:08*	*5*
4-Bromofluorobenzene (Surr)	*102*		*70 - 130*		*01/29/16 17:08*	*5*

Client Sample ID: MW-10A

Lab Sample ID: 680-121300-15

Date Collected: 01/26/16 15:06

Matrix: Water

Date Received: 01/28/16 08:40

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	<1.0		1.0		ug/L			02/01/16 13:35	1
1,1,2,2-Tetrachloroethane	<1.0		1.0		ug/L			02/01/16 13:35	1
1,1,2-Trichloroethane	<1.0		1.0		ug/L			02/01/16 13:35	1
1,1-Dichloroethane	<1.0		1.0		ug/L			02/01/16 13:35	1
1,1-Dichloroethene	<1.0		1.0		ug/L			02/01/16 13:35	1
1,2-Dichloroethane	<1.0		1.0		ug/L			02/01/16 13:35	1
1,2-Dichloropropane	<1.0		1.0		ug/L			02/01/16 13:35	1
2-Butanone (MEK)	<10		10		ug/L			02/01/16 13:35	1
2-Hexanone	<10		10		ug/L			02/01/16 13:35	1
4-Methyl-2-pentanone (MIBK)	<10		10		ug/L			02/01/16 13:35	1
Acetone	<10		10		ug/L			02/01/16 13:35	1
Benzene	<1.0		1.0		ug/L			02/01/16 13:35	1
Bromoform	<1.0		1.0		ug/L			02/01/16 13:35	1
Bromomethane	<5.0		5.0		ug/L			02/01/16 13:35	1
Carbon disulfide	<2.0		2.0		ug/L			02/01/16 13:35	1
Carbon tetrachloride	<1.0		1.0		ug/L			02/01/16 13:35	1
Chlorobenzene	<1.0		1.0		ug/L			02/01/16 13:35	1
Chlorodibromomethane	<1.0		1.0		ug/L			02/01/16 13:35	1
Chloroethane	<5.0		5.0		ug/L			02/01/16 13:35	1
Chloroform	**1.2**		1.0		ug/L			02/01/16 13:35	1
Chloromethane	<1.0		1.0		ug/L			02/01/16 13:35	1
cis-1,2-Dichloroethene	**4.4**		1.0		ug/L			02/01/16 13:35	1
cis-1,3-Dichloropropene	<1.0		1.0		ug/L			02/01/16 13:35	1
Dichlorobromomethane	<1.0		1.0		ug/L			02/01/16 13:35	1
Ethylbenzene	<1.0		1.0		ug/L			02/01/16 13:35	1
Methylene Chloride	<5.0		5.0		ug/L			02/01/16 13:35	1
Styrene	<1.0		1.0		ug/L			02/01/16 13:35	1
Tetrachloroethene	**73**		1.0		ug/L			02/01/16 13:35	1
Toluene	<1.0		1.0		ug/L			02/01/16 13:35	1
trans-1,2-Dichloroethene	<1.0		1.0		ug/L			02/01/16 13:35	1
trans-1,3-Dichloropropene	<1.0		1.0		ug/L			02/01/16 13:35	1
Trichloroethene	**7.5**		1.0		ug/L			02/01/16 13:35	1
Vinyl chloride	<1.0		1.0		ug/L			02/01/16 13:35	1
Xylenes, Total	<1.0		1.0		ug/L			02/01/16 13:35	1

Client Sample ID: MW-10A

Lab Sample ID: 680-121300-15

Date Collected: 01/26/16 15:06

Matrix: Water

Date Received: 01/28/16 08:40

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*101*		*70 - 130*		*02/01/16 13:35*	*1*
1,2-Dichloroethane-d4 (Surr)	*102*		*70 - 130*		*02/01/16 13:35*	*1*
Dibromofluoromethane (Surr)	*105*		*70 - 130*		*02/01/16 13:35*	*1*
4-Bromofluorobenzene (Surr)	*101*		*70 - 130*		*02/01/16 13:35*	*1*

Client Sample ID: DUP-1

Lab Sample ID: 680-121300-16

Date Collected: 01/25/16 00:00

Matrix: Water

Date Received: 01/28/16 08:40

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	<1.0		1.0		ug/L			02/01/16 13:57	1
1,1,2,2-Tetrachloroethane	<1.0		1.0		ug/L			02/01/16 13:57	1
1,1,2-Trichloroethane	<1.0		1.0		ug/L			02/01/16 13:57	1
1,1-Dichloroethane	<1.0		1.0		ug/L			02/01/16 13:57	1
1,1-Dichloroethene	<1.0		1.0		ug/L			02/01/16 13:57	1
1,2-Dichloroethane	<1.0		1.0		ug/L			02/01/16 13:57	1
1,2-Dichloropropane	<1.0		1.0		ug/L			02/01/16 13:57	1
2-Butanone (MEK)	<10		10		ug/L			02/01/16 13:57	1
2-Hexanone	<10		10		ug/L			02/01/16 13:57	1
4-Methyl-2-pentanone (MIBK)	<10		10		ug/L			02/01/16 13:57	1
Acetone	<10		10		ug/L			02/01/16 13:57	1
Benzene	<1.0		1.0		ug/L			02/01/16 13:57	1
Bromoform	<1.0		1.0		ug/L			02/01/16 13:57	1
Bromomethane	<5.0		5.0		ug/L			02/01/16 13:57	1
Carbon disulfide	<2.0		2.0		ug/L			02/01/16 13:57	1
Carbon tetrachloride	<1.0		1.0		ug/L			02/01/16 13:57	1
Chlorobenzene	<1.0		1.0		ug/L			02/01/16 13:57	1
Chlorodibromomethane	<1.0		1.0		ug/L			02/01/16 13:57	1
Chloroethane	<5.0		5.0		ug/L			02/01/16 13:57	1
Chloroform	<1.0		1.0		ug/L			02/01/16 13:57	1
Chloromethane	<1.0		1.0		ug/L			02/01/16 13:57	1
cis-1,2-Dichloroethene	<1.0		1.0		ug/L			02/01/16 13:57	1
cis-1,3-Dichloropropene	<1.0		1.0		ug/L			02/01/16 13:57	1
Dichlorobromomethane	<1.0		1.0		ug/L			02/01/16 13:57	1
Ethylbenzene	<1.0		1.0		ug/L			02/01/16 13:57	1
Methylene Chloride	<5.0		5.0		ug/L			02/01/16 13:57	1
Styrene	<1.0		1.0		ug/L			02/01/16 13:57	1
Tetrachloroethene	<1.0		1.0		ug/L			02/01/16 13:57	1
Toluene	<1.0		1.0		ug/L			02/01/16 13:57	1
trans-1,2-Dichloroethene	<1.0		1.0		ug/L			02/01/16 13:57	1
trans-1,3-Dichloropropene	<1.0		1.0		ug/L			02/01/16 13:57	1
Trichloroethene	<1.0		1.0		ug/L			02/01/16 13:57	1
Vinyl chloride	<1.0		1.0		ug/L			02/01/16 13:57	1
Xylenes, Total	<1.0		1.0		ug/L			02/01/16 13:57	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*101*		*70 - 130*		*02/01/16 13:57*	*1*
1,2-Dichloroethane-d4 (Surr)	*103*		*70 - 130*		*02/01/16 13:57*	*1*
Dibromofluoromethane (Surr)	*105*		*70 - 130*		*02/01/16 13:57*	*1*

Client Sample ID: DUP-1

Lab Sample ID: 680-121300-16

Date Collected: 01/25/16 00:00

Matrix: Water

Date Received: 01/28/16 08:40

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	*100*		*70 - 130*		*02/01/16 13:57*	*1*

Client Sample ID: Equipment Blank

Lab Sample ID: 680-121300-17

Date Collected: 01/26/16 13:30

Matrix: Water

Date Received: 01/28/16 08:40

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	<1.0		1.0		ug/L			01/29/16 11:46	1
1,1,2,2-Tetrachloroethane	<1.0		1.0		ug/L			01/29/16 11:46	1
1,1,2-Trichloroethane	<1.0		1.0		ug/L			01/29/16 11:46	1
1,1-Dichloroethane	<1.0		1.0		ug/L			01/29/16 11:46	1
1,1-Dichloroethene	<1.0		1.0		ug/L			01/29/16 11:46	1
1,2-Dichloroethane	<1.0		1.0		ug/L			01/29/16 11:46	1
1,2-Dichloropropane	<1.0		1.0		ug/L			01/29/16 11:46	1
2-Butanone (MEK)	<10		10		ug/L			01/29/16 11:46	1
2-Hexanone	<10		10		ug/L			01/29/16 11:46	1
4-Methyl-2-pentanone (MIBK)	<10		10		ug/L			01/29/16 11:46	1
Acetone	<10		10		ug/L			01/29/16 11:46	1
Benzene	<1.0		1.0		ug/L			01/29/16 11:46	1
Bromoform	<1.0		1.0		ug/L			01/29/16 11:46	1
Bromomethane	<5.0		5.0		ug/L			01/29/16 11:46	1
Carbon disulfide	<2.0		2.0		ug/L			01/29/16 11:46	1
Carbon tetrachloride	<1.0		1.0		ug/L			01/29/16 11:46	1
Chlorobenzene	<1.0		1.0		ug/L			01/29/16 11:46	1
Chlorodibromomethane	<1.0		1.0		ug/L			01/29/16 11:46	1
Chloroethane	<5.0		5.0		ug/L			01/29/16 11:46	1
Chloroform	<1.0		1.0		ug/L			01/29/16 11:46	1
Chloromethane	<1.0		1.0		ug/L			01/29/16 11:46	1
cis-1,2-Dichloroethene	<1.0		1.0		ug/L			01/29/16 11:46	1
cis-1,3-Dichloropropene	<1.0		1.0		ug/L			01/29/16 11:46	1
Dichlorobromomethane	<1.0		1.0		ug/L			01/29/16 11:46	1
Ethylbenzene	<1.0		1.0		ug/L			01/29/16 11:46	1
Methylene Chloride	<5.0		5.0		ug/L			01/29/16 11:46	1
Styrene	<1.0		1.0		ug/L			01/29/16 11:46	1
Tetrachloroethene	<1.0		1.0		ug/L			01/29/16 11:46	1
Toluene	<1.0		1.0		ug/L			01/29/16 11:46	1
trans-1,2-Dichloroethene	<1.0		1.0		ug/L			01/29/16 11:46	1
trans-1,3-Dichloropropene	<1.0		1.0		ug/L			01/29/16 11:46	1
Trichloroethene	<1.0		1.0		ug/L			01/29/16 11:46	1
Vinyl chloride	<1.0		1.0		ug/L			01/29/16 11:46	1
Xylenes, Total	<1.0		1.0		ug/L			01/29/16 11:46	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	*101*		*70 - 130*		*01/29/16 11:46*	*1*
1,2-Dichloroethane-d4 (Surr)	*101*		*70 - 130*		*01/29/16 11:46*	*1*
Dibromofluoromethane (Surr)	*105*		*70 - 130*		*01/29/16 11:46*	*1*
4-Bromofluorobenzene (Surr)	*102*		*70 - 130*		*01/29/16 11:46*	*1*

Surrogate Summary

Client: EHS Support, LLC
Project/Site: Ashland Alterman

TestAmerica Job ID: 680-121300-1

Method: 8260B - Volatile Organic Compounds (GC/MS)

Matrix: Water

Prep Type: Total/NA

		Percent Surrogate Recovery (Acceptance Limits)			
		TOL	12DCE	DBFM	BFB
Lab Sample ID	Client Sample ID	(70-130)	(70-130)	(70-130)	(70-130)
680-121300-1	Trip Blank	101	103	103	101
680-121300-2	MW-3B	98	102	105	102
680-121300-3	MW-9B	97	103	105	101
680-121300-4	MW-9C	99	103	106	101
680-121300-5	MW-11C	99	102	107	101
680-121300-6	MW-8C	98	101	105	102
680-121300-7	MW-10B	101	103	105	104
680-121300-8	MW-10C	99	103	106	102
680-121300-9	MW-11A	76	102	105	101
680-121300-10	MW-11B	102	102	101	98
680-121300-11	MW-3A	99	102	104	103
680-121300-12	MW-8B	77	101	103	98
680-121300-13	MW-8A	100	103	105	103
680-121300-14 - DL	MW-9A	98	104	106	102
680-121300-14	MW-9A	102	102	104	98
680-121300-15	MW-10A	101	102	105	101
680-121300-16	DUP-1	101	103	105	100
680-121300-17	Equipment Blank	101	101	105	102
LCS 680-419959/3	Lab Control Sample	99	97	103	101
LCS 680-420206/4	Lab Control Sample	97	108	110	98
LCSD 680-419959/4	Lab Control Sample Dup	101	97	104	101
LCSD 680-420206/5	Lab Control Sample Dup	98	104	108	99
MB 680-419959/7	Method Blank	102	99	102	100
MB 680-420206/8	Method Blank	102	103	103	99

Surrogate Legend

TOL = Toluene-d8 (Surr)
12DCE = 1,2-Dichloroethane-d4 (Surr)
DBFM = Dibromofluoromethane (Surr)
BFB = 4-Bromofluorobenzene (Surr)

Method: 8260B - Volatile Organic Compounds (GC/MS)

Lab Sample ID: MB 680-419959/7
Matrix: Water
Analysis Batch: 419959

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	<1.0		1.0		ug/L			01/29/16 10:59	1
1,1,2,2-Tetrachloroethane	<1.0		1.0		ug/L			01/29/16 10:59	1
1,1,2-Trichloroethane	<1.0		1.0		ug/L			01/29/16 10:59	1
1,1-Dichloroethane	<1.0		1.0		ug/L			01/29/16 10:59	1
1,1-Dichloroethene	<1.0		1.0		ug/L			01/29/16 10:59	1
1,2-Dichloroethane	<1.0		1.0		ug/L			01/29/16 10:59	1
1,2-Dichloropropane	<1.0		1.0		ug/L			01/29/16 10:59	1
2-Butanone (MEK)	<10		10		ug/L			01/29/16 10:59	1
2-Hexanone	<10		10		ug/L			01/29/16 10:59	1
4-Methyl-2-pentanone (MIBK)	<10		10		ug/L			01/29/16 10:59	1
Acetone	<10		10		ug/L			01/29/16 10:59	1
Benzene	<1.0		1.0		ug/L			01/29/16 10:59	1
Bromoform	<1.0		1.0		ug/L			01/29/16 10:59	1
Bromomethane	<5.0		5.0		ug/L			01/29/16 10:59	1
Carbon disulfide	<2.0		2.0		ug/L			01/29/16 10:59	1
Carbon tetrachloride	<1.0		1.0		ug/L			01/29/16 10:59	1
Chlorobenzene	<1.0		1.0		ug/L			01/29/16 10:59	1
Chlorodibromomethane	<1.0		1.0		ug/L			01/29/16 10:59	1
Chloroethane	<5.0		5.0		ug/L			01/29/16 10:59	1
Chloroform	<1.0		1.0		ug/L			01/29/16 10:59	1
Chloromethane	<1.0		1.0		ug/L			01/29/16 10:59	1
cis-1,2-Dichloroethene	<1.0		1.0		ug/L			01/29/16 10:59	1
cis-1,3-Dichloropropene	<1.0		1.0		ug/L			01/29/16 10:59	1
Dichlorobromomethane	<1.0		1.0		ug/L			01/29/16 10:59	1
Ethylbenzene	<1.0		1.0		ug/L			01/29/16 10:59	1
Methylene Chloride	<5.0		5.0		ug/L			01/29/16 10:59	1
Styrene	<1.0		1.0		ug/L			01/29/16 10:59	1
Tetrachloroethene	<1.0		1.0		ug/L			01/29/16 10:59	1
Toluene	<1.0		1.0		ug/L			01/29/16 10:59	1
trans-1,2-Dichloroethene	<1.0		1.0		ug/L			01/29/16 10:59	1
trans-1,3-Dichloropropene	<1.0		1.0		ug/L			01/29/16 10:59	1
Trichloroethene	<1.0		1.0		ug/L			01/29/16 10:59	1
Vinyl chloride	<1.0		1.0		ug/L			01/29/16 10:59	1
Xylenes, Total	<1.0		1.0		ug/L			01/29/16 10:59	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*102*		*70 - 130*		*01/29/16 10:59*	*1*
1,2-Dichloroethane-d4 (Surr)	*99*		*70 - 130*		*01/29/16 10:59*	*1*
Dibromofluoromethane (Surr)	*102*		*70 - 130*		*01/29/16 10:59*	*1*
4-Bromofluorobenzene (Surr)	*100*		*70 - 130*		*01/29/16 10:59*	*1*

Lab Sample ID: LCS 680-419959/3
Matrix: Water
Analysis Batch: 419959

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
1,1,1-Trichloroethane			50.0	54.0		ug/L		108	74 - 128		
1,1,2,2-Tetrachloroethane			50.0	44.3		ug/L		89	72 - 128		

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 680-419959/3
Matrix: Water
Analysis Batch: 419959

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,1,2-Trichloroethane	50.0	48.4		ug/L		97	79 - 125
1,1-Dichloroethane	50.0	50.6		ug/L		101	80 - 120
1,1-Dichloroethene	50.0	53.0		ug/L		106	74 - 125
1,2-Dichloroethane	50.0	48.5		ug/L		97	75 - 130
1,2-Dichloropropane	50.0	50.7		ug/L		101	80 - 123
2-Butanone (MEK)	250	230		ug/L		92	75 - 133
2-Hexanone	250	227		ug/L		91	70 - 141
4-Methyl-2-pentanone (MIBK)	250	226		ug/L		90	75 - 135
Acetone	250	214		ug/L		85	60 - 154
Benzene	50.0	51.2		ug/L		102	73 - 131
Bromoform	50.0	45.7		ug/L		91	69 - 135
Bromomethane	50.0	45.2		ug/L		90	20 - 180
Carbon disulfide	50.0	52.5		ug/L		105	73 - 127
Carbon tetrachloride	50.0	53.8		ug/L		108	75 - 130
Chlorobenzene	50.0	50.0		ug/L		100	80 - 120
Chlorodibromomethane	50.0	50.1		ug/L		100	71 - 136
Chloroethane	50.0	52.2		ug/L		104	50 - 151
Chloroform	50.0	51.8		ug/L		104	79 - 122
Chloromethane	50.0	53.6		ug/L		107	63 - 126
cis-1,2-Dichloroethene	50.0	52.1		ug/L		104	80 - 122
cis-1,3-Dichloropropene	50.0	50.8		ug/L		102	80 - 133
Dichlorobromomethane	50.0	50.4		ug/L		101	77 - 129
Ethylbenzene	50.0	50.9		ug/L		102	80 - 120
Methylene Chloride	50.0	50.1		ug/L		100	76 - 129
Styrene	50.0	51.9		ug/L		104	80 - 122
Tetrachloroethene	50.0	54.5		ug/L		109	77 - 123
Toluene	50.0	51.7		ug/L		103	80 - 122
trans-1,2-Dichloroethene	50.0	51.7		ug/L		103	78 - 123
trans-1,3-Dichloropropene	50.0	51.2		ug/L		102	74 - 140
Trichloroethene	50.0	54.1		ug/L		108	80 - 123
Vinyl chloride	50.0	57.6		ug/L		115	68 - 132
Xylenes, Total	100	104		ug/L		104	80 - 120

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Toluene-d8 (Surr)	*99*		*70 - 130*
1,2-Dichloroethane-d4 (Surr)	*97*		*70 - 130*
Dibromofluoromethane (Surr)	*103*		*70 - 130*
4-Bromofluorobenzene (Surr)	*101*		*70 - 130*

Lab Sample ID: LCSD 680-419959/4
Matrix: Water
Analysis Batch: 419959

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
1,1,1-Trichloroethane	50.0	53.8		ug/L		108	74 - 128	0	20
1,1,2,2-Tetrachloroethane	50.0	44.9		ug/L		90	72 - 128	1	20
1,1,2-Trichloroethane	50.0	49.2		ug/L		98	79 - 125	2	20
1,1-Dichloroethane	50.0	51.3		ug/L		103	80 - 120	1	20

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCSD 680-419959/4
Matrix: Water
Analysis Batch: 419959

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
1,1-Dichloroethene	50.0	50.9		ug/L		102	74 - 125	4	20
1,2-Dichloroethane	50.0	51.2		ug/L		102	75 - 130	5	20
1,2-Dichloropropane	50.0	51.4		ug/L		103	80 - 123	1	20
2-Butanone (MEK)	250	237		ug/L		95	75 - 133	3	30
2-Hexanone	250	234		ug/L		93	70 - 141	3	40
4-Methyl-2-pentanone (MIBK)	250	230		ug/L		92	75 - 135	2	30
Acetone	250	229		ug/L		92	60 - 154	7	40
Benzene	50.0	51.2		ug/L		102	73 - 131	0	30
Bromoform	50.0	48.1		ug/L		96	69 - 135	5	20
Bromomethane	50.0	48.0		ug/L		96	20 - 180	6	40
Carbon disulfide	50.0	52.5		ug/L		105	73 - 127	0	20
Carbon tetrachloride	50.0	54.1		ug/L		108	75 - 130	1	20
Chlorobenzene	50.0	49.8		ug/L		100	80 - 120	0	20
Chlorodibromomethane	50.0	50.5		ug/L		101	71 - 136	1	20
Chloroethane	50.0	53.1		ug/L		106	50 - 151	2	30
Chloroform	50.0	52.5		ug/L		105	79 - 122	1	20
Chloromethane	50.0	53.1		ug/L		106	63 - 126	1	30
cis-1,2-Dichloroethene	50.0	52.2		ug/L		104	80 - 122	0	20
cis-1,3-Dichloropropene	50.0	51.8		ug/L		104	80 - 133	2	20
Dichlorobromomethane	50.0	51.4		ug/L		103	77 - 129	2	20
Ethylbenzene	50.0	52.1		ug/L		104	80 - 120	2	20
Methylene Chloride	50.0	51.2		ug/L		102	76 - 129	2	20
Styrene	50.0	52.7		ug/L		105	80 - 122	2	20
Tetrachloroethene	50.0	54.8		ug/L		110	77 - 123	1	20
Toluene	50.0	52.6		ug/L		105	80 - 122	2	20
trans-1,2-Dichloroethene	50.0	52.0		ug/L		104	78 - 123	1	20
trans-1,3-Dichloropropene	50.0	52.1		ug/L		104	74 - 140	2	20
Trichloroethene	50.0	52.8		ug/L		106	80 - 123	2	20
Vinyl chloride	50.0	58.1		ug/L		116	68 - 132	1	30
Xylenes, Total	100	106		ug/L		106	80 - 120	2	20

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
Toluene-d8 (Surr)	*101*		*70 - 130*
1,2-Dichloroethane-d4 (Surr)	*97*		*70 - 130*
Dibromofluoromethane (Surr)	*104*		*70 - 130*
4-Bromofluorobenzene (Surr)	*101*		*70 - 130*

Lab Sample ID: MB 680-420206/8
Matrix: Water
Analysis Batch: 420206

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	<1.0		1.0		ug/L			02/01/16 10:22	1
1,1,2,2-Tetrachloroethane	<1.0		1.0		ug/L			02/01/16 10:22	1
1,1,2-Trichloroethane	<1.0		1.0		ug/L			02/01/16 10:22	1
1,1-Dichloroethane	<1.0		1.0		ug/L			02/01/16 10:22	1
1,1-Dichloroethene	<1.0		1.0		ug/L			02/01/16 10:22	1
1,2-Dichloroethane	<1.0		1.0		ug/L			02/01/16 10:22	1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 680-420206/8
Matrix: Water
Analysis Batch: 420206

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,2-Dichloropropane	<1.0		1.0		ug/L			02/01/16 10:22	1
2-Butanone (MEK)	<10		10		ug/L			02/01/16 10:22	1
2-Hexanone	<10		10		ug/L			02/01/16 10:22	1
4-Methyl-2-pentanone (MIBK)	<10		10		ug/L			02/01/16 10:22	1
Acetone	<10		10		ug/L			02/01/16 10:22	1
Benzene	<1.0		1.0		ug/L			02/01/16 10:22	1
Bromoform	<1.0		1.0		ug/L			02/01/16 10:22	1
Bromomethane	<5.0		5.0		ug/L			02/01/16 10:22	1
Carbon disulfide	<2.0		2.0		ug/L			02/01/16 10:22	1
Carbon tetrachloride	<1.0		1.0		ug/L			02/01/16 10:22	1
Chlorobenzene	<1.0		1.0		ug/L			02/01/16 10:22	1
Chlorodibromomethane	<1.0		1.0		ug/L			02/01/16 10:22	1
Chloroethane	<5.0		5.0		ug/L			02/01/16 10:22	1
Chloroform	<1.0		1.0		ug/L			02/01/16 10:22	1
Chloromethane	<1.0		1.0		ug/L			02/01/16 10:22	1
cis-1,2-Dichloroethene	<1.0		1.0		ug/L			02/01/16 10:22	1
cis-1,3-Dichloropropene	<1.0		1.0		ug/L			02/01/16 10:22	1
Dichlorobromomethane	<1.0		1.0		ug/L			02/01/16 10:22	1
Ethylbenzene	<1.0		1.0		ug/L			02/01/16 10:22	1
Methylene Chloride	<5.0		5.0		ug/L			02/01/16 10:22	1
Styrene	<1.0		1.0		ug/L			02/01/16 10:22	1
Tetrachloroethene	<1.0		1.0		ug/L			02/01/16 10:22	1
Toluene	<1.0		1.0		ug/L			02/01/16 10:22	1
trans-1,2-Dichloroethene	<1.0		1.0		ug/L			02/01/16 10:22	1
trans-1,3-Dichloropropene	<1.0		1.0		ug/L			02/01/16 10:22	1
Trichloroethene	<1.0		1.0		ug/L			02/01/16 10:22	1
Vinyl chloride	<1.0		1.0		ug/L			02/01/16 10:22	1
Xylenes, Total	<1.0		1.0		ug/L			02/01/16 10:22	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*102*		*70 - 130*		*02/01/16 10:22*	*1*
1,2-Dichloroethane-d4 (Surr)	*103*		*70 - 130*		*02/01/16 10:22*	*1*
Dibromofluoromethane (Surr)	*103*		*70 - 130*		*02/01/16 10:22*	*1*
4-Bromofluorobenzene (Surr)	*99*		*70 - 130*		*02/01/16 10:22*	*1*

Lab Sample ID: LCS 680-420206/4
Matrix: Water
Analysis Batch: 420206

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,1,1-Trichloroethane	50.0	56.1		ug/L		112	74 - 128
1,1,2,2-Tetrachloroethane	50.0	48.0		ug/L		96	72 - 128
1,1,2-Trichloroethane	50.0	53.6		ug/L		107	79 - 125
1,1-Dichloroethane	50.0	53.0		ug/L		106	80 - 120
1,1-Dichloroethene	50.0	51.5		ug/L		103	74 - 125
1,2-Dichloroethane	50.0	55.9		ug/L		112	75 - 130
1,2-Dichloropropane	50.0	53.2		ug/L		106	80 - 123
2-Butanone (MEK)	250	256		ug/L		102	75 - 133

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 680-420206/4
Matrix: Water
Analysis Batch: 420206

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
2-Hexanone	250	260		ug/L		104	70 - 141
4-Methyl-2-pentanone (MIBK)	250	256		ug/L		103	75 - 135
Acetone	250	255		ug/L		102	60 - 154
Benzene	50.0	52.4		ug/L		105	73 - 131
Bromoform	50.0	53.8		ug/L		108	69 - 135
Bromomethane	50.0	56.1		ug/L		112	20 - 180
Carbon disulfide	50.0	52.8		ug/L		106	73 - 127
Carbon tetrachloride	50.0	58.3		ug/L		117	75 - 130
Chlorobenzene	50.0	48.9		ug/L		98	80 - 120
Chlorodibromomethane	50.0	57.8		ug/L		116	71 - 136
Chloroethane	50.0	52.8		ug/L		106	50 - 151
Chloroform	50.0	54.2		ug/L		108	79 - 122
Chloromethane	50.0	55.0		ug/L		110	63 - 126
cis-1,2-Dichloroethene	50.0	54.7		ug/L		109	80 - 122
cis-1,3-Dichloropropene	50.0	55.7		ug/L		111	80 - 133
Dichlorobromomethane	50.0	56.8		ug/L		114	77 - 129
Ethylbenzene	50.0	49.4		ug/L		99	80 - 120
Methylene Chloride	50.0	52.9		ug/L		106	76 - 129
Styrene	50.0	51.2		ug/L		102	80 - 122
Tetrachloroethene	50.0	55.9		ug/L		112	77 - 123
Toluene	50.0	53.2		ug/L		106	80 - 122
trans-1,2-Dichloroethene	50.0	53.0		ug/L		106	78 - 123
trans-1,3-Dichloropropene	50.0	57.2		ug/L		114	74 - 140
Trichloroethene	50.0	54.8		ug/L		110	80 - 123
Vinyl chloride	50.0	57.4		ug/L		115	68 - 132
Xylenes, Total	100	102		ug/L		102	80 - 120

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Toluene-d8 (Surr)	*97*		*70 - 130*
1,2-Dichloroethane-d4 (Surr)	*108*		*70 - 130*
Dibromofluoromethane (Surr)	*110*		*70 - 130*
4-Bromofluorobenzene (Surr)	*98*		*70 - 130*

Lab Sample ID: LCSD 680-420206/5
Matrix: Water
Analysis Batch: 420206

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
1,1,1-Trichloroethane	50.0	56.4		ug/L		113	74 - 128	1	20
1,1,2,2-Tetrachloroethane	50.0	47.5		ug/L		95	72 - 128	1	20
1,1,2-Trichloroethane	50.0	52.4		ug/L		105	79 - 125	2	20
1,1-Dichloroethane	50.0	52.8		ug/L		106	80 - 120	0	20
1,1-Dichloroethene	50.0	52.8		ug/L		106	74 - 125	2	20
1,2-Dichloroethane	50.0	53.9		ug/L		108	75 - 130	4	20
1,2-Dichloropropane	50.0	52.8		ug/L		106	80 - 123	1	20
2-Butanone (MEK)	250	251		ug/L		100	75 - 133	2	30
2-Hexanone	250	253		ug/L		101	70 - 141	3	40
4-Methyl-2-pentanone (MIBK)	250	251		ug/L		100	75 - 135	2	30

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCSD 680-420206/5
Matrix: Water
Analysis Batch: 420206

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Acetone			250	247		ug/L		99	60 - 154	3	40
Benzene			50.0	52.6		ug/L		105	73 - 131	0	30
Bromoform			50.0	53.5		ug/L		107	69 - 135	1	20
Bromomethane			50.0	54.6		ug/L		109	20 - 180	3	40
Carbon disulfide			50.0	53.7		ug/L		107	73 - 127	2	20
Carbon tetrachloride			50.0	59.3		ug/L		119	75 - 130	2	20
Chlorobenzene			50.0	48.9		ug/L		98	80 - 120	0	20
Chlorodibromomethane			50.0	57.1		ug/L		114	71 - 136	1	20
Chloroethane			50.0	54.2		ug/L		108	50 - 151	3	30
Chloroform			50.0	54.2		ug/L		108	79 - 122	0	20
Chloromethane			50.0	55.8		ug/L		112	63 - 126	1	30
cis-1,2-Dichloroethene			50.0	54.6		ug/L		109	80 - 122	0	20
cis-1,3-Dichloropropene			50.0	55.7		ug/L		111	80 - 133	0	20
Dichlorobromomethane			50.0	54.5		ug/L		109	77 - 129	4	20
Ethylbenzene			50.0	49.7		ug/L		99	80 - 120	1	20
Methylene Chloride			50.0	52.4		ug/L		105	76 - 129	1	20
Styrene			50.0	50.8		ug/L		102	80 - 122	1	20
Tetrachloroethene			50.0	57.2		ug/L		114	77 - 123	2	20
Toluene			50.0	53.0		ug/L		106	80 - 122	0	20
trans-1,2-Dichloroethene			50.0	53.0		ug/L		106	78 - 123	0	20
trans-1,3-Dichloropropene			50.0	56.4		ug/L		113	74 - 140	1	20
Trichloroethene			50.0	54.7		ug/L		109	80 - 123	0	20
Vinyl chloride			50.0	59.7		ug/L		119	68 - 132	4	30
Xylenes, Total			100	102		ug/L		102	80 - 120	0	20

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
Toluene-d8 (Surr)	*98*		*70 - 130*
1,2-Dichloroethane-d4 (Surr)	*104*		*70 - 130*
Dibromofluoromethane (Surr)	*108*		*70 - 130*
4-Bromofluorobenzene (Surr)	*99*		*70 - 130*

QC Association Summary

Client: EHS Support, LLC
Project/Site: Ashland Alterman

TestAmerica Job ID: 680-121300-1

GC/MS VOA

Analysis Batch: 419959

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-121300-2	MW-3B	Total/NA	Water	8260B	
680-121300-3	MW-9B	Total/NA	Water	8260B	
680-121300-4	MW-9C	Total/NA	Water	8260B	
680-121300-5	MW-11C	Total/NA	Water	8260B	
680-121300-6	MW-8C	Total/NA	Water	8260B	
680-121300-7	MW-10B	Total/NA	Water	8260B	
680-121300-8	MW-10C	Total/NA	Water	8260B	
680-121300-11	MW-3A	Total/NA	Water	8260B	
680-121300-13	MW-8A	Total/NA	Water	8260B	
680-121300-14 - DL	MW-9A	Total/NA	Water	8260B	
680-121300-17	Equipment Blank	Total/NA	Water	8260B	
LCS 680-419959/3	Lab Control Sample	Total/NA	Water	8260B	
LCSD 680-419959/4	Lab Control Sample Dup	Total/NA	Water	8260B	
MB 680-419959/7	Method Blank	Total/NA	Water	8260B	

Analysis Batch: 420206

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-121300-1	Trip Blank	Total/NA	Water	8260B	
680-121300-9	MW-11A	Total/NA	Water	8260B	
680-121300-10	MW-11B	Total/NA	Water	8260B	
680-121300-12	MW-8B	Total/NA	Water	8260B	
680-121300-14	MW-9A	Total/NA	Water	8260B	
680-121300-15	MW-10A	Total/NA	Water	8260B	
680-121300-16	DUP-1	Total/NA	Water	8260B	
LCS 680-420206/4	Lab Control Sample	Total/NA	Water	8260B	
LCSD 680-420206/5	Lab Control Sample Dup	Total/NA	Water	8260B	
MB 680-420206/8	Method Blank	Total/NA	Water	8260B	

Lab Chronicle

Client: EHS Support, LLC
Project/Site: Ashland Alterman

TestAmerica Job ID: 680-121300-1

Client Sample ID: Trip Blank
Date Collected: 01/25/16 07:00
Date Received: 01/28/16 08:40

Lab Sample ID: 680-121300-1
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	5 mL	5 mL	420206	02/01/16 12:10	DAS	TAL SAV
	Instrument ID: CMSP2									

Client Sample ID: MW-3B
Date Collected: 01/25/16 10:02
Date Received: 01/28/16 08:40

Lab Sample ID: 680-121300-2
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	5 mL	5 mL	419959	01/29/16 12:50	CEJ	TAL SAV
	Instrument ID: CMSP2									

Client Sample ID: MW-9B
Date Collected: 01/25/16 11:05
Date Received: 01/28/16 08:40

Lab Sample ID: 680-121300-3
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	5 mL	5 mL	419959	01/29/16 13:12	CEJ	TAL SAV
	Instrument ID: CMSP2									

Client Sample ID: MW-9C
Date Collected: 01/25/16 12:20
Date Received: 01/28/16 08:40

Lab Sample ID: 680-121300-4
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	5 mL	5 mL	419959	01/29/16 13:33	CEJ	TAL SAV
	Instrument ID: CMSP2									

Client Sample ID: MW-11C
Date Collected: 01/25/16 14:00
Date Received: 01/28/16 08:40

Lab Sample ID: 680-121300-5
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	5 mL	5 mL	419959	01/29/16 13:54	CEJ	TAL SAV
	Instrument ID: CMSP2									

Client Sample ID: MW-8C
Date Collected: 01/25/16 18:03
Date Received: 01/28/16 08:40

Lab Sample ID: 680-121300-6
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	5 mL	5 mL	419959	01/29/16 14:16	CEJ	TAL SAV
	Instrument ID: CMSP2									

Lab Chronicle

Client: EHS Support, LLC
Project/Site: Ashland Alterman

TestAmerica Job ID: 680-121300-1

Client Sample ID: MW-10B
Date Collected: 01/26/16 09:33
Date Received: 01/28/16 08:40

Lab Sample ID: 680-121300-7
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	5 mL	5 mL	419959	01/29/16 14:37	CEJ	TAL SAV
	Instrument ID: CMSP2									

Client Sample ID: MW-10C
Date Collected: 01/25/16 17:00
Date Received: 01/28/16 08:40

Lab Sample ID: 680-121300-8
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	5 mL	5 mL	419959	01/29/16 14:59	CEJ	TAL SAV
	Instrument ID: CMSP2									

Client Sample ID: MW-11A
Date Collected: 01/25/16 14:57
Date Received: 01/28/16 08:40

Lab Sample ID: 680-121300-9
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	5 mL	5 mL	420206	02/01/16 12:31	DAS	TAL SAV
	Instrument ID: CMSP2									

Client Sample ID: MW-11B
Date Collected: 01/26/16 10:07
Date Received: 01/28/16 08:40

Lab Sample ID: 680-121300-10
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	5 mL	5 mL	420206	02/01/16 12:53	DAS	TAL SAV
	Instrument ID: CMSP2									

Client Sample ID: MW-3A
Date Collected: 01/26/16 11:03
Date Received: 01/28/16 08:40

Lab Sample ID: 680-121300-11
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	5 mL	5 mL	419959	01/29/16 15:20	CEJ	TAL SAV
	Instrument ID: CMSP2									

Client Sample ID: MW-8B
Date Collected: 01/26/16 12:17
Date Received: 01/28/16 08:40

Lab Sample ID: 680-121300-12
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	5 mL	5 mL	420206	02/01/16 13:14	DAS	TAL SAV
	Instrument ID: CMSP2									

Lab Chronicle

Client: EHS Support, LLC
Project/Site: Ashland Alterman

TestAmerica Job ID: 680-121300-1

Client Sample ID: MW-8A
Date Collected: 01/26/16 13:14
Date Received: 01/28/16 08:40

Lab Sample ID: 680-121300-13
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	5 mL	5 mL	419959	01/29/16 15:42	CEJ	TAL SAV
	Instrument ID: CMSP2									

Client Sample ID: MW-9A
Date Collected: 01/26/16 14:57
Date Received: 01/28/16 08:40

Lab Sample ID: 680-121300-14
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B	DL	5	5 mL	5 mL	419959	01/29/16 17:08	CEJ	TAL SAV
	Instrument ID: CMSP2									
Total/NA	Analysis	8260B		1	5 mL	5 mL	420206	02/01/16 14:18	DAS	TAL SAV
	Instrument ID: CMSP2									

Client Sample ID: MW-10A
Date Collected: 01/26/16 15:06
Date Received: 01/28/16 08:40

Lab Sample ID: 680-121300-15
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	5 mL	5 mL	420206	02/01/16 13:35	DAS	TAL SAV
	Instrument ID: CMSP2									

Client Sample ID: DUP-1
Date Collected: 01/25/16 00:00
Date Received: 01/28/16 08:40

Lab Sample ID: 680-121300-16
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	5 mL	5 mL	420206	02/01/16 13:57	DAS	TAL SAV
	Instrument ID: CMSP2									

Client Sample ID: Equipment Blank
Date Collected: 01/26/16 13:30
Date Received: 01/28/16 08:40

Lab Sample ID: 680-121300-17
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	5 mL	5 mL	419959	01/29/16 11:46	CEJ	TAL SAV
	Instrument ID: CMSP2									

Laboratory References:
TAL SAV = TestAmerica Savannah, 5102 LaRoche Avenue, Savannah, GA 31404, TEL (912)354-7858

Ashland Alterman Post Remediation GW Sampling SOW - July 2014.pdf - Adobe Reader

File Edit View Window Help

Savannah
5102 LaRoche Avenue

Savannah, GA 31404
phone 912.354.7858 fax 912.352.0165

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

TestAmerica Laboratories, Inc.

Client Contact	Project Manager: Michael Dever (Ashland)	Site Contact:	Date:	COC No:
Michelle Staymook	Tel/Fax: 614-790-1586	Lab Contact: Jerry Lanier	Carrier: TA-Atlanta	of COCs
EHS Support	Analysis Turnaround Time			Job No.
4684 Cemetery Road, PMB 104, Hilliard, Ohio 43026-1124	Calendar (C) or Work Days (W)			
(412) 807-1494 Phone	TAT if different from Below			SDG No.
(877) 293-6642 eFAX	■ 2 weeks			
Project Name: Ashland Alterman	☐ 1 week			
Site: Tara Shopping Center, 8564 Tara Blvd. Jonesboro, GA	☐ 2 days			
P O #	☐ 1 day			

Sample Identification	Sample Date	Sample Time	Sample Type	Matrix	# of cont.	Filtered Sample (Yes or No) Volatiles - 8260B	Sample Specific Notes:
Trip Blank	1/25/16	0700			2	X	
MW-3B	1/25/16	1002	GW	G	3	X	
MW-9B	1/25/16	1105	GW	G	3	X	
MW-9C	1/25/16	1220	GW	G	3	X	
MW-11C	1/25/16	1400	GW	G	3	X	
MW-8C	1/25/16	1803	GW	G	3	X	
MW-10B	1/26/16	0933	GW	G	3	X	
MW-10C	1/25/16	1705	GW	G	3	X	
MW-11A	1/25/16	1457	GW	G	3	X	
MW-11B	1/26/16	1007	GW	G	3	X	
MW-3A	1/26/16	1103	GW	G	3	X	
MW-8B	1/26/16	1217	GW	G	3	X	

680-121300 Chain of Custody

Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other 1 NONE

Possible Hazard Identification
■ Non-Hazard ☐ Flammable ☐ Skin Irritant Poison B ☐ Unknown ☐

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return To Client ■ Disposal By Lab ☐ Archive For ____ Months

Special Instructions/QC Requirements & Comments:
Analysis and Reporting set up for Condensed Dilution Formatting. Email sampling log-in, COCs, and final results to michelle.staymook@ehs-support.com. Email draft invoices for approval to michelle.staymook@ehs-support.com. Direct Bill To Ashland under existing contract pricing.

Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
[signature]	Ame Group	1/27/16 1215	[signature]	TA	1/27/16 1320
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
[signature]	TA	1/27/16 1620	[signature]	TA	1-28-16 9:15
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time

4.6/5.0 CF

681-Atlanta

Savannah
5102 LaRoche Avenue
Savannah, GA 31404
phone 912.354.7858 fax 912.352.0165

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING
TestAmerica Laboratories, Inc.

Client Contact	Project Manager: Michael Dever (Ashland)	Site Contact:	Date:	COC No:
Michelle Stayrook	Tel/Fax: 614-790-1586	Lab Contact: Jerry Lanier	Carrier: TA-Atlanta	of COCs
EHS Support	Analysis Turnaround Time			Job No.
4694 Cemetery Road, PMB 104, Hilliard, Ohio 43026-1124	Calendar (C) or Work Days (W)			
(412) 807-1484 Phone	TAT if different from Below			SDG No
(877) 293-6642 eFAX	■ 2 weeks			
Project Name: Ashland Alterman	☐ 1 week			
Site: Tara Shopping Center, 8564 Tara Blvd Jonesboro, GA	☐ 2 days			
P O #	☐ 1 day			

Sample Identification	Sample Date	Sample Time	Sample Type	Matrix	# of Cont.	Filtered Sample (Y/N)	Volatiles - 8260B	Sample Specific Notes:
MW-8A	1/26/16	1314	GW	G	3		X	
MW-9A	1/26/16	1459	GW	G	3		X	
MW-10A	1/26/15	1508	GW	G	3		X	
Dup-1	1/25/16	0000	GW	G	3		X	
Equipment Blank	1/26/16	1330		G	3		X	

Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other 1 NONE

Possible Hazard Identification
■ Non-Hazard ☐ Flammable ☐ Skin Irritant Poison B ☐ Unknown ☐

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return To Client ■ Disposal By Lab ☐ Archive For _____ Months

Special Instructions/QC Requirements & Comments:
Analysis and Reporting set up for Condensed Dilution Formatting. Email sampling log-in, COCs, and final results to michelle.stayrook@ehs-support.com. Email draft invoices for approval to michelle.stayrook@ehs-support.com.
Direct Bill To Ashland under existing contract pricing.

1245

Relinquished by	Company	Date/Time	Received by	Company	Date/Time
Edward Jones	Antea Group	1/27/15			1/27/16 1320
Relinquished by:	Company: TA	Date/Time: 1/27/16 1620	Received by:	Company: TA	Date/Time: 1-28-16
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:

4.6/5.0 CF
Ce80-121300

Login Sample Receipt Checklist

Client: EHS Support, LLC

Job Number: 680-121300-1

Login Number: 121300
List Number: 1
Creator: White, Menica R

List Source: TestAmerica Savannah

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	N/A	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	N/A	
Samples do not require splitting or compositing.	N/A	
Residual Chlorine Checked.	N/A	

Certification Summary

Client: EHS Support, LLC
Project/Site: Ashland Alterman

TestAmerica Job ID: 680-121300-1

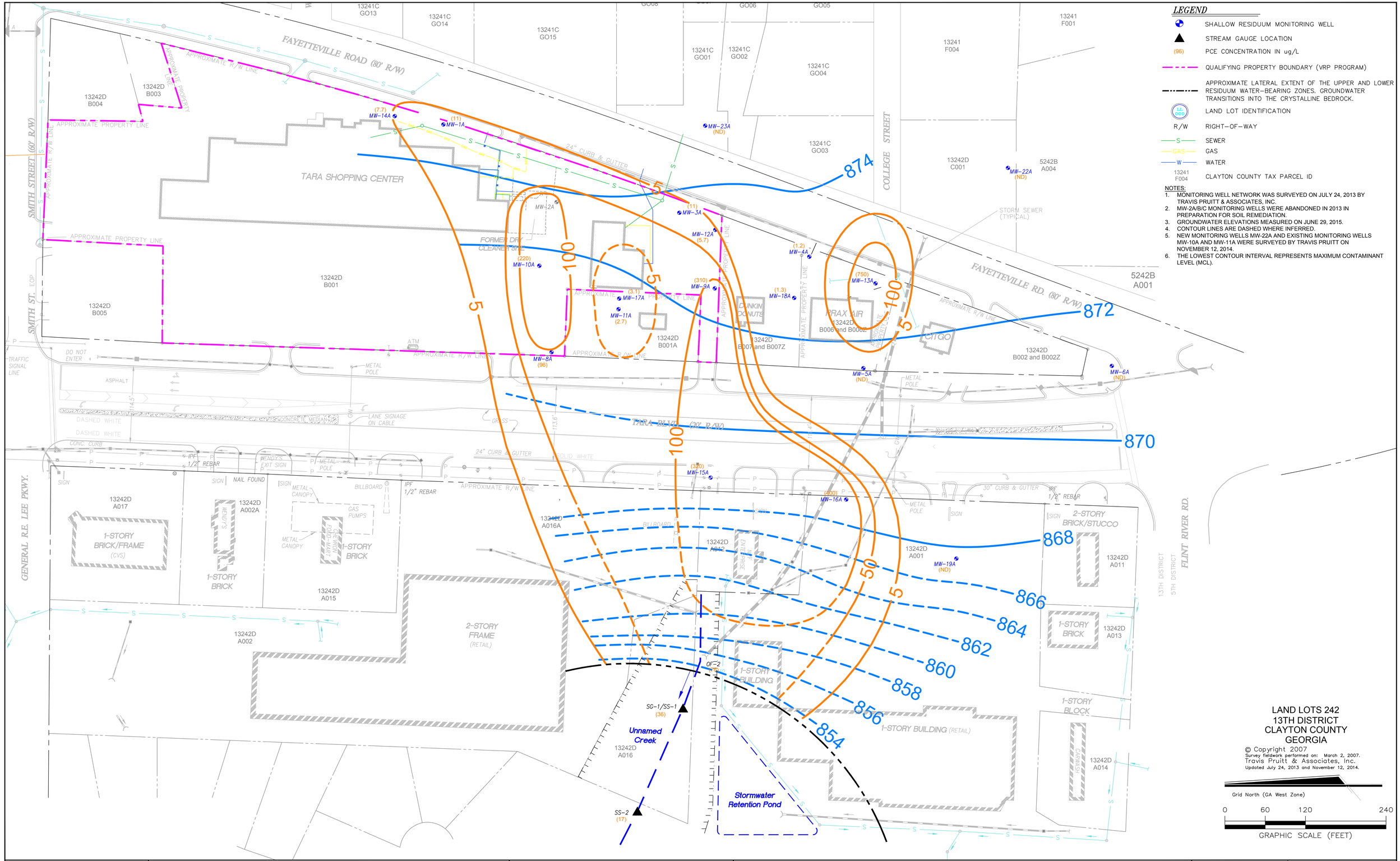
Laboratory: TestAmerica Savannah

The certifications listed below are applicable to this report.

Authority	Program	EPA Region	Certification ID	Expiration Date
Georgia	State Program	4	803	06-30-16

APPENDIX C

Isoconcentration Maps



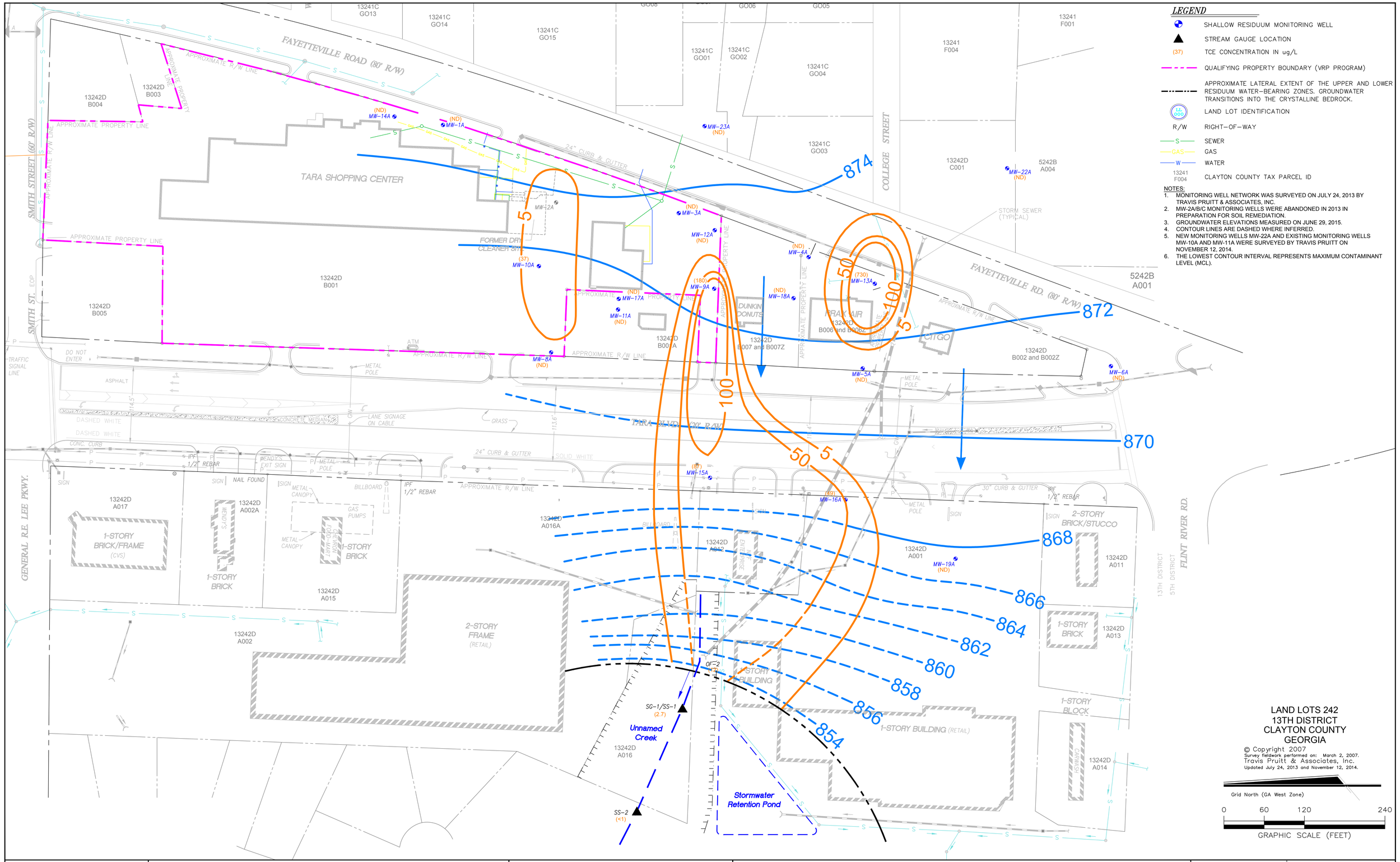
EHS Support consider it done

REVISIONS				
Rev.		By:	Disc.: Map scale updated based on Clayton County GIS Viewer	Date: 02/2016
Rev.		By:	Disc.:	Date:
Rev.		By:	Disc.:	Date:
Rev.		By:	Disc.:	Date:

TARA SHOPPING CENTER
8564 Tara Boulevard, Jonesboro, Clayton County, GA.
Tax Parcel ID 13242D B001; HSI Site No. 10798

FIGURE 1
PCE ISOCONTOUR MAP - A ZONE
JUNE / JULY 2015

Drawn By:	MDO	Date Drawn:	08/2015
Reviewed By:	MSS	Date Reviewed:	08/2015
Scale:	1" = 60'	Plot Date:	08/2015
Project Number.:	C00342		



LEGEND

- SHALLOW RESIDUUM MONITORING WELL
- STREAM GAUGE LOCATION
- (37) TCE CONCENTRATION IN ug/L
- QUALIFYING PROPERTY BOUNDARY (VRP PROGRAM)
- APPROXIMATE LATERAL EXTENT OF THE UPPER AND LOWER RESIDUUM WATER-BEARING ZONES. GROUNDWATER TRANSITIONS INTO THE CRYSTALLINE BEDROCK.
- LAND LOT IDENTIFICATION
- R/W RIGHT-OF-WAY
- S SEWER
- GAS GAS
- W WATER
- 13241 F004 CLAYTON COUNTY TAX PARCEL ID

NOTES:

1. MONITORING WELL NETWORK WAS SURVEYED ON JULY 24, 2013 BY TRAVIS PRUITT & ASSOCIATES, INC.
2. MW-2A/B/C MONITORING WELLS WERE ABANDONED IN 2013 IN PREPARATION FOR SOIL REMEDIATION.
3. GROUNDWATER ELEVATIONS MEASURED ON JUNE 29, 2015.
4. CONTOUR LINES ARE DASHED WHERE INFERRED.
5. NEW MONITORING WELLS MW-22A AND EXISTING MONITORING WELLS MW-10A AND MW-11A WERE SURVEYED BY TRAVIS PRUITT ON NOVEMBER 12, 2014.
6. THE LOWEST CONTOUR INTERVAL REPRESENTS MAXIMUM CONTAMINANT LEVEL (MCL).

LAND LOTS 242
13TH DISTRICT
CLAYTON COUNTY
GEORGIA

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Survey fieldwork performed on: March 2, 2007.
Travis Pruitt & Associates, Inc.
Updated July 24, 2013 and November 12, 2014.

Grid North (GA West Zone)

0 60 120 240
GRAPHIC SCALE (FEET)

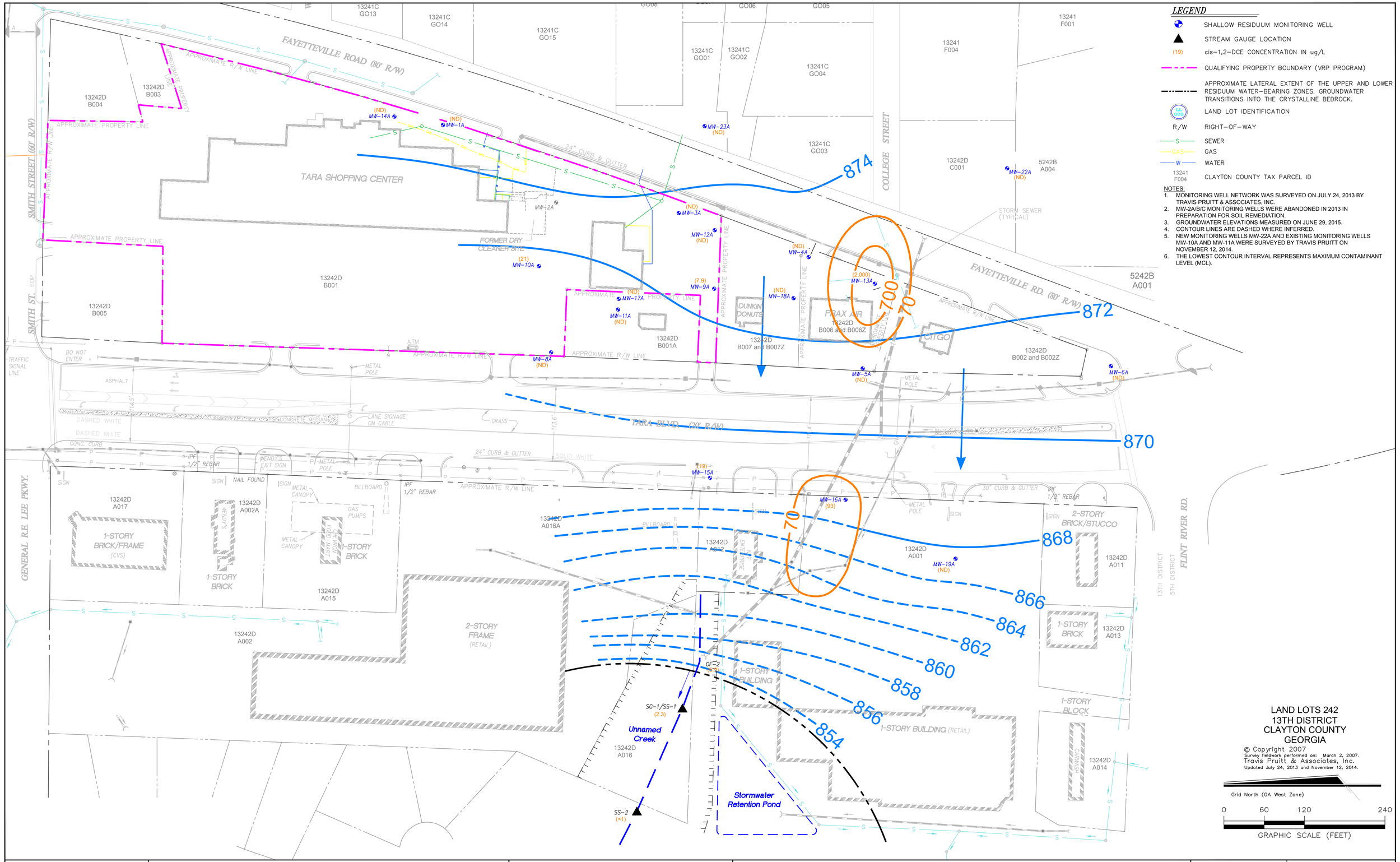
EHS Support consider it done

REVISIONS				
Rev.		By:	Disc.: Map scale updated based on Clayton County GIS Viewer	Date: 02/2016
Rev.		By:	Disc.:	Date:
Rev.		By:	Disc.:	Date:
Rev.		By:	Disc.:	Date:

TARA SHOPPING CENTER
8564 Tara Boulevard, Jonesboro, Clayton County, GA.
Tax Parcel ID 13242D B001; HSI Site No. 10798

FIGURE 2
TCE ISOCONTOUR MAP - A ZONE
JUNE / JULY 2015

Drawn By:	MDO	Date Drawn:	08/2015
Reviewed By:	MSS	Date Reviewed:	08/2015
Scale:	1" = 60'	Plot Date:	08/2015
Project Number.:	C00342		



LEGEND

- SHALLOW RESIDUUM MONITORING WELL
- STREAM GAUGE LOCATION
- (19) cis-1,2-DCE CONCENTRATION IN ug/L
- QUALIFYING PROPERTY BOUNDARY (VRP PROGRAM)
- APPROXIMATE LATERAL EXTENT OF THE UPPER AND LOWER RESIDUUM WATER-BEARING ZONES. GROUNDWATER TRANSITIONS INTO THE CRYSTALLINE BEDROCK.
- LAND LOT IDENTIFICATION
- R/W RIGHT-OF-WAY
- S SEWER
- GAS GAS
- W WATER
- 13241 F004 CLAYTON COUNTY TAX PARCEL ID

NOTES:

1. MONITORING WELL NETWORK WAS SURVEYED ON JULY 24, 2013 BY TRAVIS PRUITT & ASSOCIATES, INC.
2. MW-2A/B/C MONITORING WELLS WERE ABANDONED IN 2013 IN PREPARATION FOR SOIL REMEDIATION.
3. GROUNDWATER ELEVATIONS MEASURED ON JUNE 29, 2015.
4. CONTOUR LINES ARE DASHED WHERE INFERRED.
5. NEW MONITORING WELLS MW-22A AND EXISTING MONITORING WELLS MW-10A AND MW-11A WERE SURVEYED BY TRAVIS PRUITT ON NOVEMBER 12, 2014.
6. THE LOWEST CONTOUR INTERVAL REPRESENTS MAXIMUM CONTAMINANT LEVEL (MCL).

LAND LOTS 242
13TH DISTRICT
CLAYTON COUNTY
GEORGIA

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Survey fieldwork performed on: March 2, 2007.
Travis Pruitt & Associates, Inc.
Updated July 24, 2013 and November 12, 2014.

Grid North (GA West Zone)

0 60 120 240
GRAPHIC SCALE (FEET)

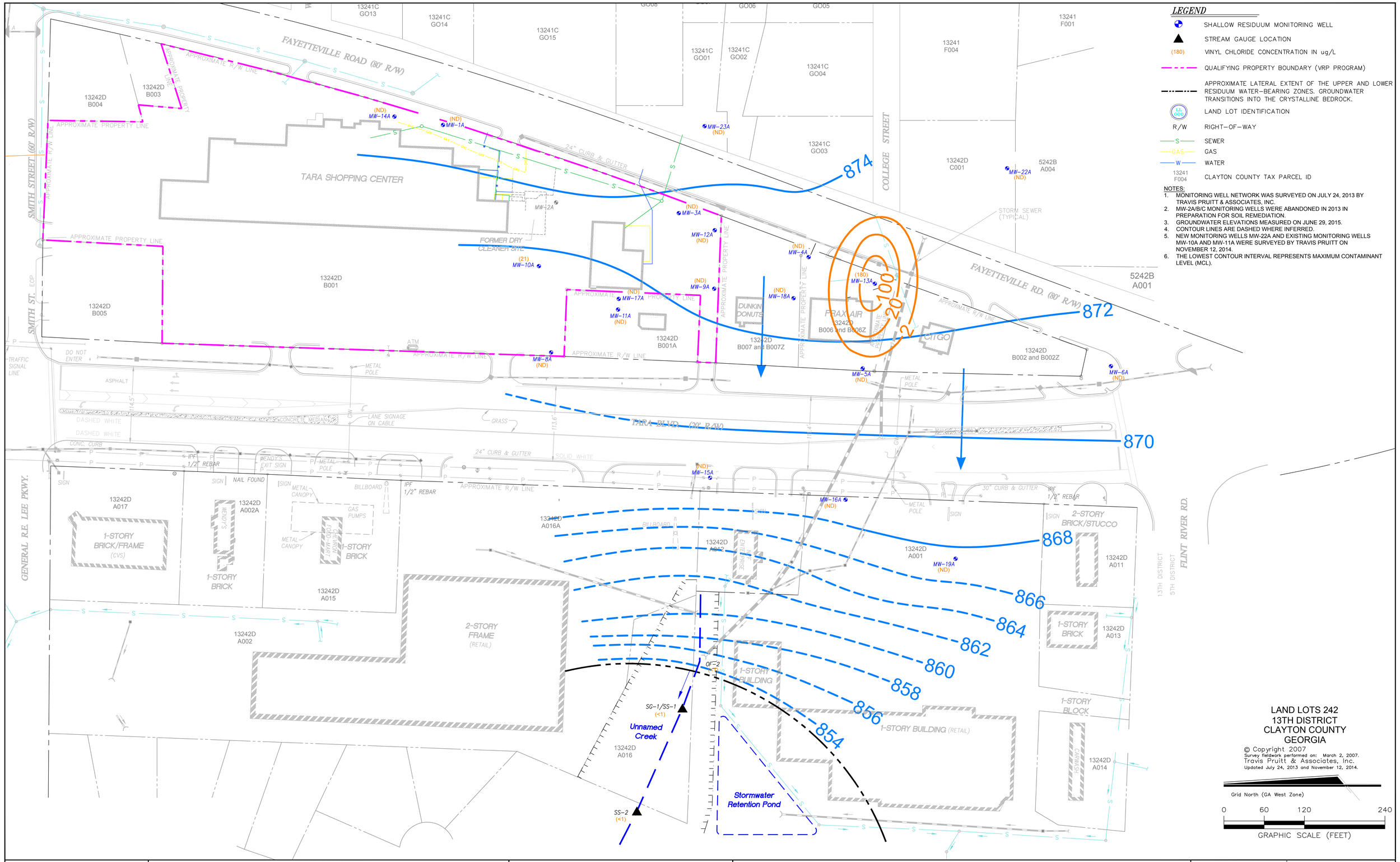
EHS Support consider it done

REVISIONS				
Rev.		By:	Disc.: Map scale updated based on Clayton County GIS Viewer	Date: 02/2016
Rev.		By:	Disc.:	Date:
Rev.		By:	Disc.:	Date:
Rev.		By:	Disc.:	Date:

TARA SHOPPING CENTER
8564 Tara Boulevard, Jonesboro, Clayton County, GA.
Tax Parcel ID 13242D B001; HSI Site No. 10798

FIGURE 3
cis-1,2-DCE ISOCONTOUR MAP - A ZONE
JUNE / JULY 2015

Drawn By:	MDO	Date Drawn:	08/2015
Reviewed By:	MSS	Date Reviewed:	08/2015
Scale:	1" = 60'	Plot Date:	08/2015
Project Number.:	C00342		



LEGEND

- SHALLOW RESIDUUM MONITORING WELL
- STREAM GAUGE LOCATION
- (180) VINYL CHLORIDE CONCENTRATION IN ug/L
- QUALIFYING PROPERTY BOUNDARY (VRP PROGRAM)
- APPROXIMATE LATERAL EXTENT OF THE UPPER AND LOWER RESIDUUM WATER-BEARING ZONES. GROUNDWATER TRANSITIONS INTO THE CRYSTALLINE BEDROCK.
- LAND LOT IDENTIFICATION
- R/W RIGHT-OF-WAY
- S SEWER
- GAS GAS
- W WATER
- 13241 F004 CLAYTON COUNTY TAX PARCEL ID

NOTES:

1. MONITORING WELL NETWORK WAS SURVEYED ON JULY 24, 2013 BY TRAVIS PRUITT & ASSOCIATES, INC.
2. MW-2A/B/C MONITORING WELLS WERE ABANDONED IN 2013 IN PREPARATION FOR SOIL REMEDIATION.
3. GROUNDWATER ELEVATIONS MEASURED ON JUNE 29, 2015.
4. CONTOUR LINES ARE DASHED WHERE INFERRED.
5. NEW MONITORING WELLS MW-22A AND EXISTING MONITORING WELLS MW-10A AND MW-11A WERE SURVEYED BY TRAVIS PRUITT ON NOVEMBER 12, 2014.
6. THE LOWEST CONTOUR INTERVAL REPRESENTS MAXIMUM CONTAMINANT LEVEL (MCL).

LAND LOTS 242
13TH DISTRICT
CLAYTON COUNTY
GEORGIA

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Grid North (GA West Zone)

0 60 120 240
GRAPHIC SCALE (FEET)

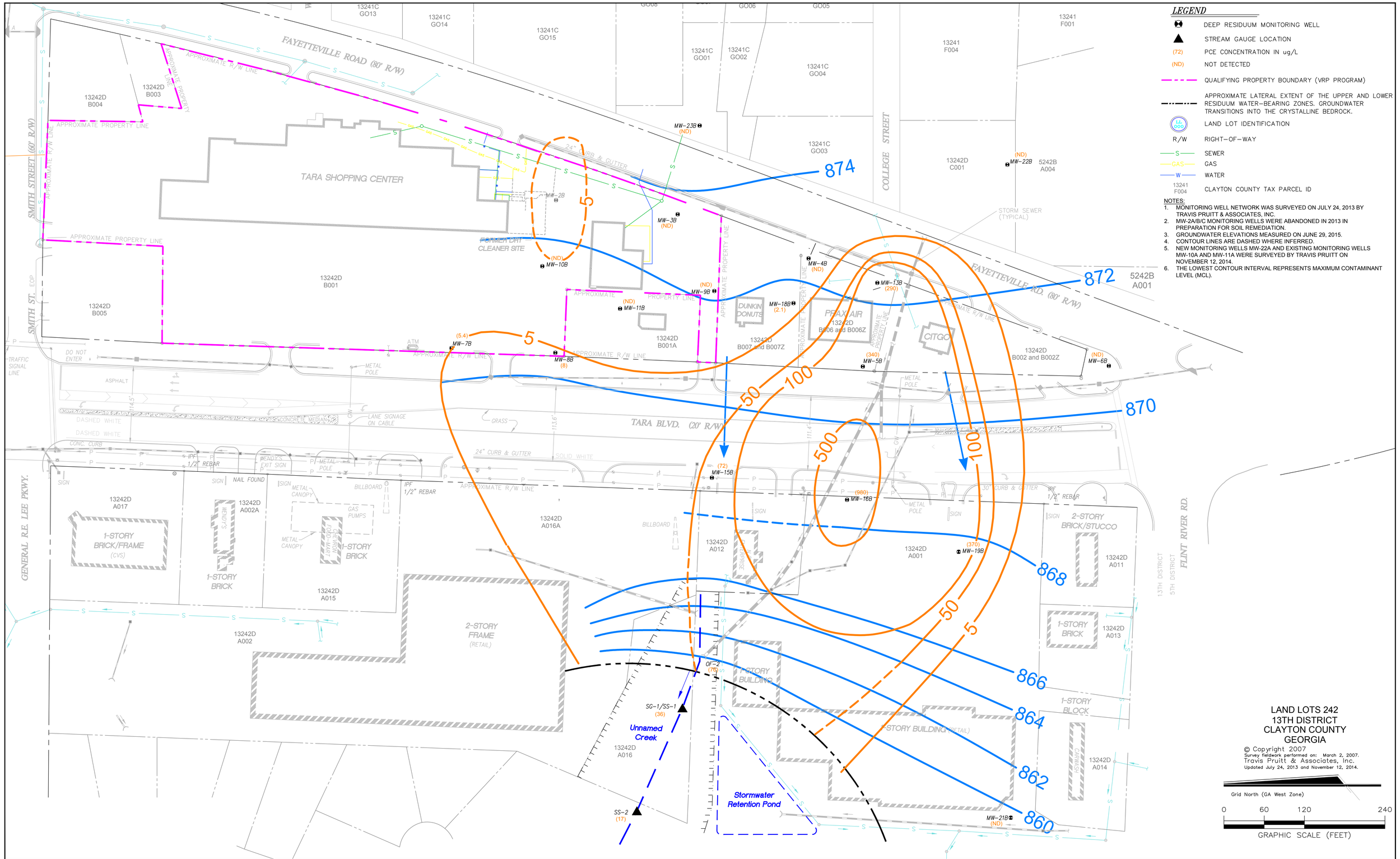
EHS Support consider it done

REVISIONS				
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Rev.		By:	Disc.:	Date:
Rev.		By:	Disc.:	Date:
Rev.		By:	Disc.:	Date:

TARA SHOPPING CENTER
8564 Tara Boulevard, Jonesboro, Clayton County, GA.
Tax Parcel ID 13242D B001; HSI Site No. 10798

FIGURE 4
VINYL CHLORIDE ISOCONTOUR MAP - A ZONE
JUNE / JULY 2015

Drawn By:	MDO	Date Drawn:	08/2015
Reviewed By:	MSS	Date Reviewed:	08/2015
Scale:	1" = 60'	Plot Date:	08/2015
Project Number.:	C00342		



LEGEND

- DEEP RESIDUUM MONITORING WELL
- STREAM GAUGE LOCATION
- (72) PCE CONCENTRATION IN ug/L
- (ND) NOT DETECTED
- QUALIFYING PROPERTY BOUNDARY (VRP PROGRAM)
- APPROXIMATE LATERAL EXTENT OF THE UPPER AND LOWER RESIDUUM WATER-BEARING ZONES. GROUNDWATER TRANSITIONS INTO THE CRYSTALLINE BEDROCK.
- LAND LOT IDENTIFICATION
- R/W RIGHT-OF-WAY
- S SEWER
- GAS GAS
- W WATER
- 13241 F004 CLAYTON COUNTY TAX PARCEL ID

NOTES:

1. MONITORING WELL NETWORK WAS SURVEYED ON JULY 24, 2013 BY TRAVIS PRUITT & ASSOCIATES, INC.
2. MW-2A/B/C MONITORING WELLS WERE ABANDONED IN 2013 IN PREPARATION FOR SOIL REMEDIATION.
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Grid North (GA West Zone)

0 60 120 240

GRAPHIC SCALE (FEET)

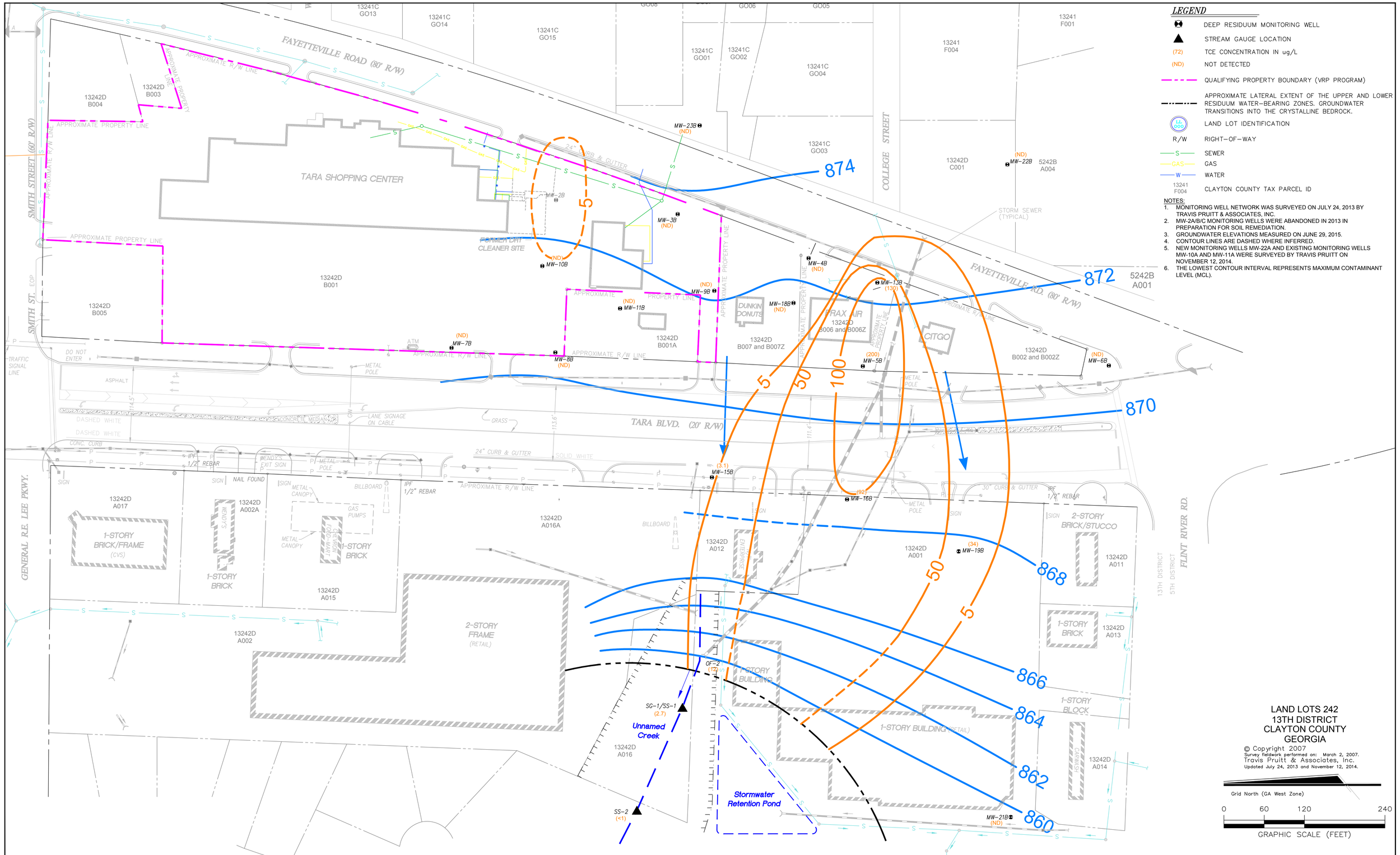
EHS Support consider it done

REVISIONS				
Rev.		By:	Disc.: Map scale updated based on Clayton County GIS Viewer	Date: 02/2016
Rev.		By:	Disc.:	Date:
Rev.		By:	Disc.:	Date:
Rev.		By:	Disc.:	Date:

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Tax Parcel ID 13242D B001; HSI Site No. 10798

FIGURE 5
PCE ISOCONTOUR MAP - B ZONE
JUNE / JULY 2015

Drawn By:	MDO	Date Drawn:	08/2015
Reviewed By:	MSS	Date Reviewed:	08/2015
Scale:	1" = 60'	Plot Date:	08/2015
Project Number.:	C00342		



LEGEND

- DEEP RESIDUUM MONITORING WELL
- STREAM GAUGE LOCATION
- (72) TCE CONCENTRATION IN ug/L
- (ND) NOT DETECTED
- QUALIFYING PROPERTY BOUNDARY (VRP PROGRAM)
- APPROXIMATE LATERAL EXTENT OF THE UPPER AND LOWER RESIDUUM WATER-BEARING ZONES. GROUNDWATER TRANSITIONS INTO THE CRYSTALLINE BEDROCK.
- LAND LOT IDENTIFICATION
- R/W RIGHT-OF-WAY
- S SEWER
- GAS GAS
- W WATER
- 13241 F004 CLAYTON COUNTY TAX PARCEL ID

NOTES:

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6. THE LOWEST CONTOUR INTERVAL REPRESENTS MAXIMUM CONTAMINANT LEVEL (MCL).

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0 60 120 240

GRAPHIC SCALE (FEET)

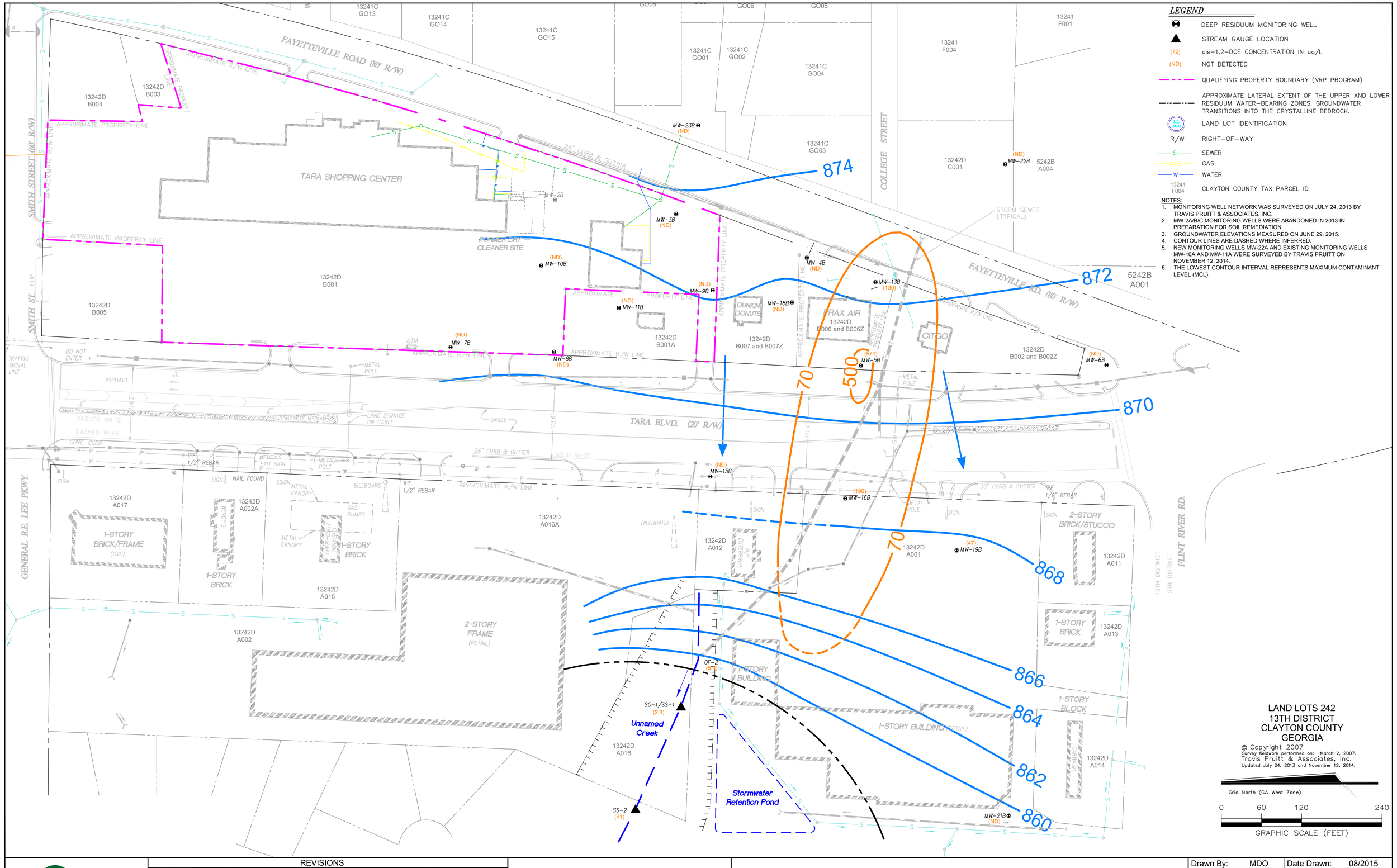
EHS Support consider it done

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Tax Parcel ID 13242D B001; HSI Site No. 10798

FIGURE 6
TCE ISOCONTOUR MAP - B ZONE
JUNE / JULY 2015

Drawn By:	MDO	Date Drawn:	08/2015
Reviewed By:	MSS	Date Reviewed:	08/2015
Scale:	1" = 60'	Plot Date:	08/2015
Project Number.:	C00342		



LEGEND

- DEEP RESIDUUM MONITORING WELL
- STREAM GAUGE LOCATION
- (72) cis-1,2-DCE CONCENTRATION IN ug/L
- (ND) NOT DETECTED
- QUALIFYING PROPERTY BOUNDARY (VRP PROGRAM)
- APPROXIMATE LATERAL EXTENT OF THE UPPER AND LOWER RESIDUUM WATER-BEARING ZONES. GROUNDWATER TRANSITIONS INTO THE CRYSTALLINE BEDROCK.
- LAND LOT IDENTIFICATION
- R/W RIGHT-OF-WAY
- S SEWER
- GAS GAS
- W WATER
- 13241 F004 CLAYTON COUNTY TAX PARCEL ID

NOTES:

1. MONITORING WELL NETWORK WAS SURVEYED ON JULY 24, 2013 BY TRAVIS PRUITT & ASSOCIATES, INC.
2. MW-2A/B/C MONITORING WELLS WERE ABANDONED IN 2013 IN PREPARATION FOR SOIL REMEDIATION.
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6. THE LOWEST CONTOUR INTERVAL REPRESENTS MAXIMUM CONTAMINANT LEVEL (MCL).

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0 60 120 240

GRAPHIC SCALE (FEET)

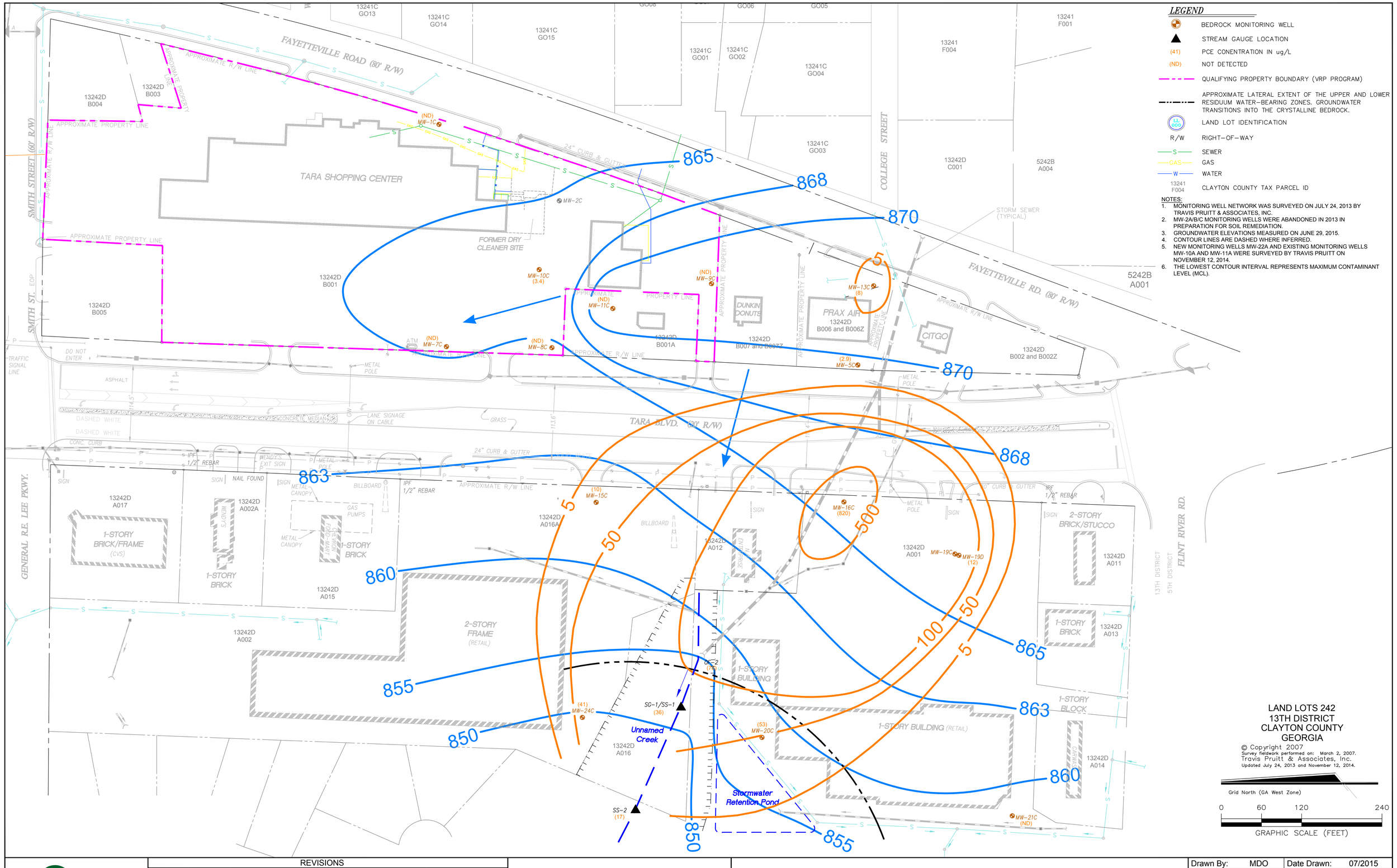
EHS Support consider it done

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Rev.		By:	Disc.:	Date:
Rev.		By:	Disc.:	Date:

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Tax Parcel ID 13242D B001; HSI Site No. 10798

FIGURE 7
cis-1,2-DCE ISOCONTOUR MAP - B ZONE
JUNE / JULY 2015

Drawn By:	MDO	Date Drawn:	08/2015
Reviewed By:	MSS	Date Reviewed:	08/2015
Scale:	1" = 60'	Plot Date:	08/2015
Project Number.:	C00342		



LEGEND

- BEDROCK MONITORING WELL
- STREAM GAUGE LOCATION
- (41) PCE CONENTRATION IN ug/L
- (ND) NOT DETECTED
- QUALIFYING PROPERTY BOUNDARY (VRP PROGRAM)
- APPROXIMATE LATERAL EXTENT OF THE UPPER AND LOWER RESIDUUM WATER-BEARING ZONES. GROUNDWATER TRANSITIONS INTO THE CRYSTALLINE BEDROCK.
- LAND LOT IDENTIFICATION
- R/W RIGHT-OF-WAY
- S SEWER
- GAS GAS
- W WATER
- 13241 F004 CLAYTON COUNTY TAX PARCEL ID

NOTES:

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0 60 120 240
GRAPHIC SCALE (FEET)

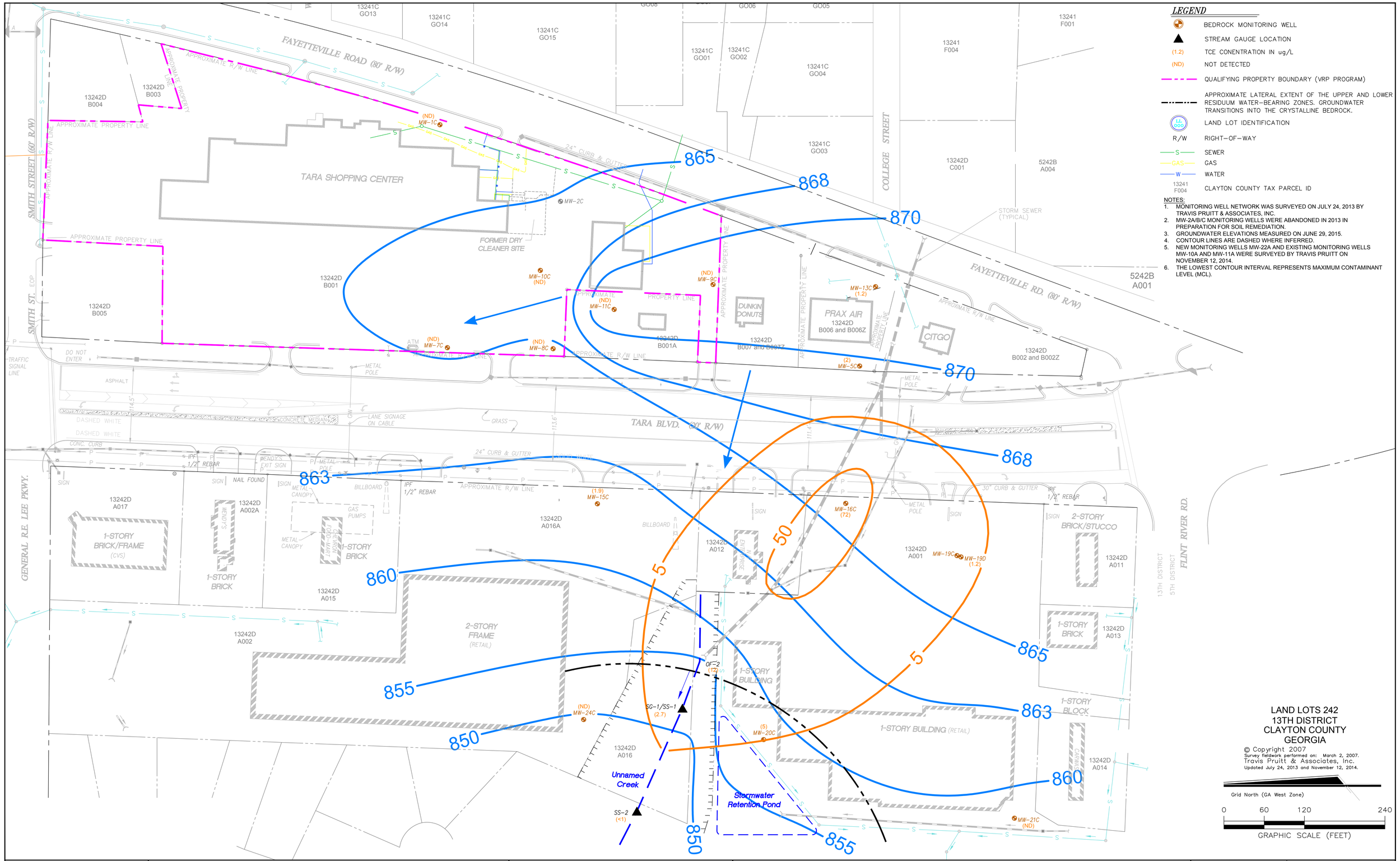
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FIGURE 8
PCE ISOCONTOUR MAP - C ZONE
JUNE / JULY 2015

Drawn By:	MDO	Date Drawn:	07/2015
Reviewed By:	MSS	Date Reviewed:	07/2015
Scale:	1" = 60'	Plot Date:	07/2015
Project Number.:	C00342		



LEGEND

- BEDROCK MONITORING WELL
- STREAM GAUGE LOCATION
- (1.2) TCE CONENTRATION IN ug/L
- (ND) NOT DETECTED
- QUALIFYING PROPERTY BOUNDARY (VRP PROGRAM)
- APPROXIMATE LATERAL EXTENT OF THE UPPER AND LOWER RESIDUUM WATER-BEARING ZONES. GROUNDWATER TRANSITIONS INTO THE CRYSTALLINE BEDROCK.
- LAND LOT IDENTIFICATION
- R/W RIGHT-OF-WAY
- S SEWER
- GAS GAS
- W WATER
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0 60 120 240
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Rev.		By:	Disc.:	Date:

TARA SHOPPING CENTER
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Tax Parcel ID 13242D B001; HSI Site No. 10798

FIGURE 9
TCE ISOCONTOUR MAP - C ZONE
JUNE / JULY 2015

Drawn By:	MDO	Date Drawn:	07/2015
Reviewed By:	MSS	Date Reviewed:	07/2015
Scale:	1" = 60'	Plot Date:	07/2015
Project Number.:	C00342		

LEGEND

- BEDROCK MONITORING WELL
- STREAM GAUGE LOCATION
- (1.2) cis-1,2-DCE CONCENTRATION IN ug/L
- (ND) NOT DETECTED
- QUALIFYING PROPERTY BOUNDARY (VRP PROGRAM)
- APPROXIMATE LATERAL EXTENT OF THE UPPER AND LOWER RESIDUUM WATER-BEARING ZONES. GROUNDWATER TRANSITIONS INTO THE CRYSTALLINE BEDROCK.
- LAND LOT IDENTIFICATION
- R/W RIGHT-OF-WAY
- S SEWER
- GAS GAS
- W WATER
- 13241 F004 CLAYTON COUNTY TAX PARCEL ID

NOTES:

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Grid North (GA West Zone)

0 60 120 240
GRAPHIC SCALE (FEET)

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Tax Parcel ID 13242D B001; HSI Site No. 10798

FIGURE 10
cis-1,2-DCE ISOCONTOUR MAP - C ZONE
JUNE / JULY 2015

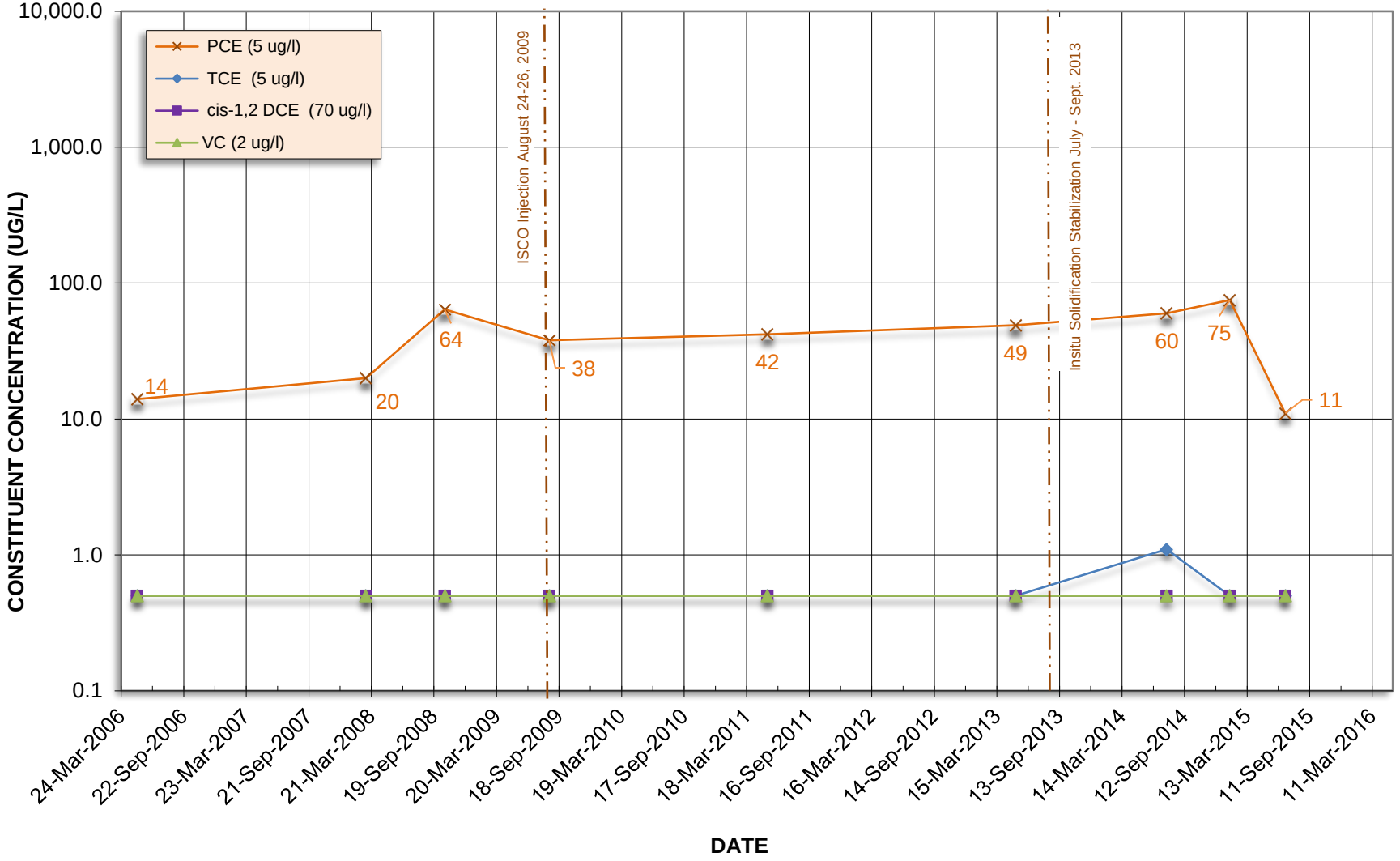
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Reviewed By:	MSS	Date Reviewed:	07/2015
Scale:	1" = 60'	Plot Date:	07/2015
Project Number.:	C00342		

APPENDIX D

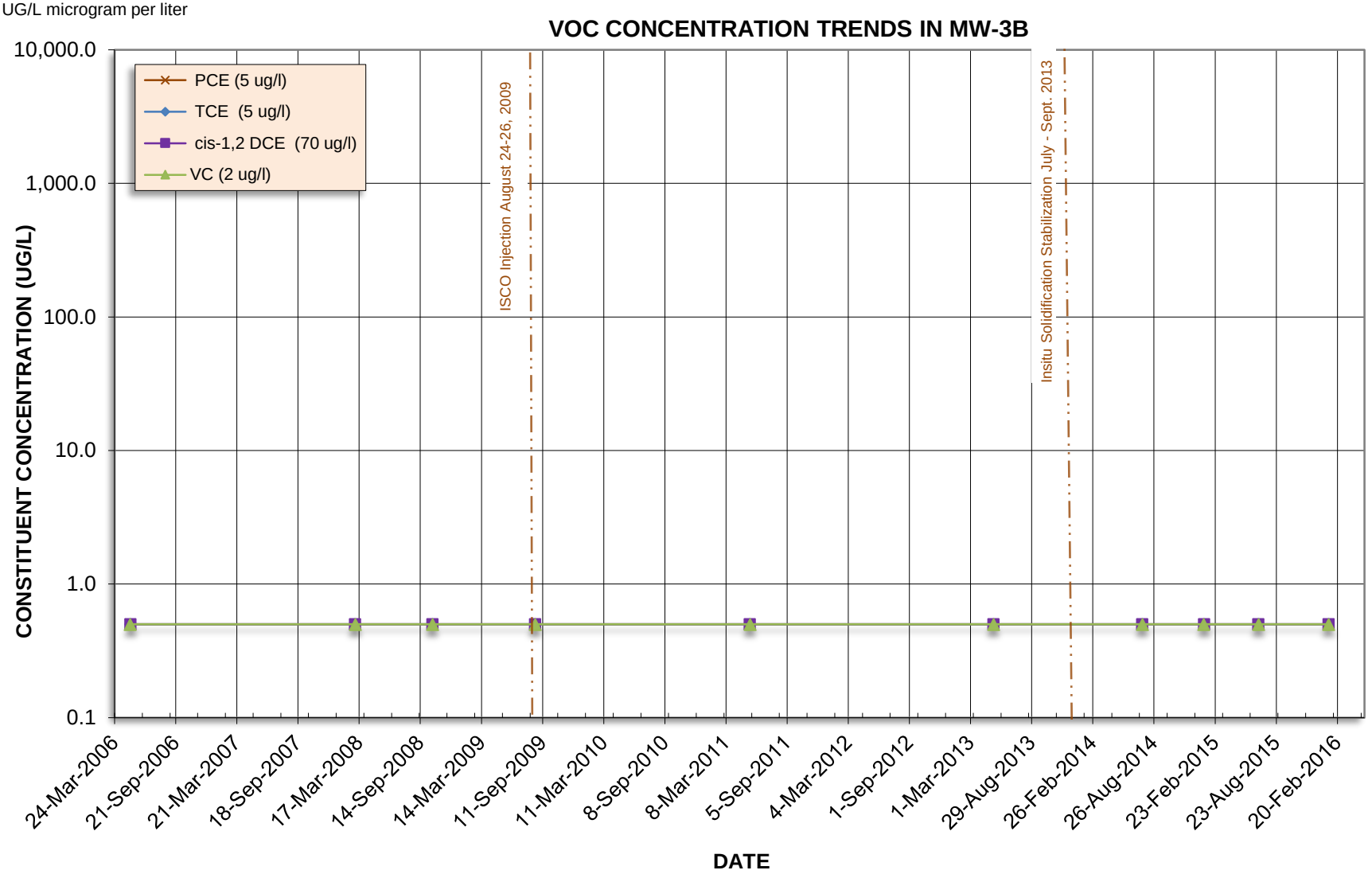
VOC Trend Maps

Notes:
Non detects are shown as 1/2 the detection limit.
MW-3A is cross gradient to treatment activities.
UG/L microgram per liter

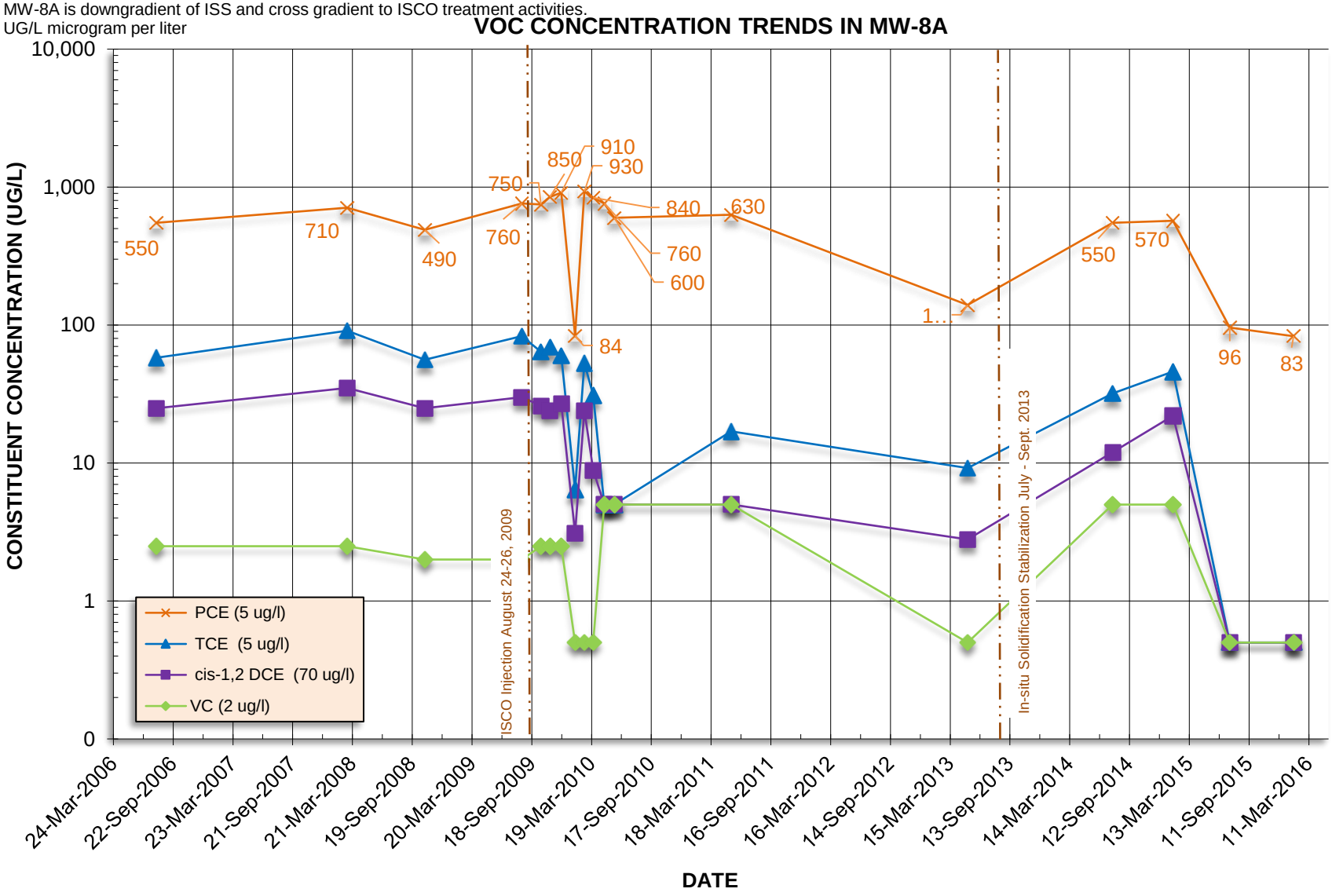
VOC CONCENTRATION TRENDS IN MW-3A



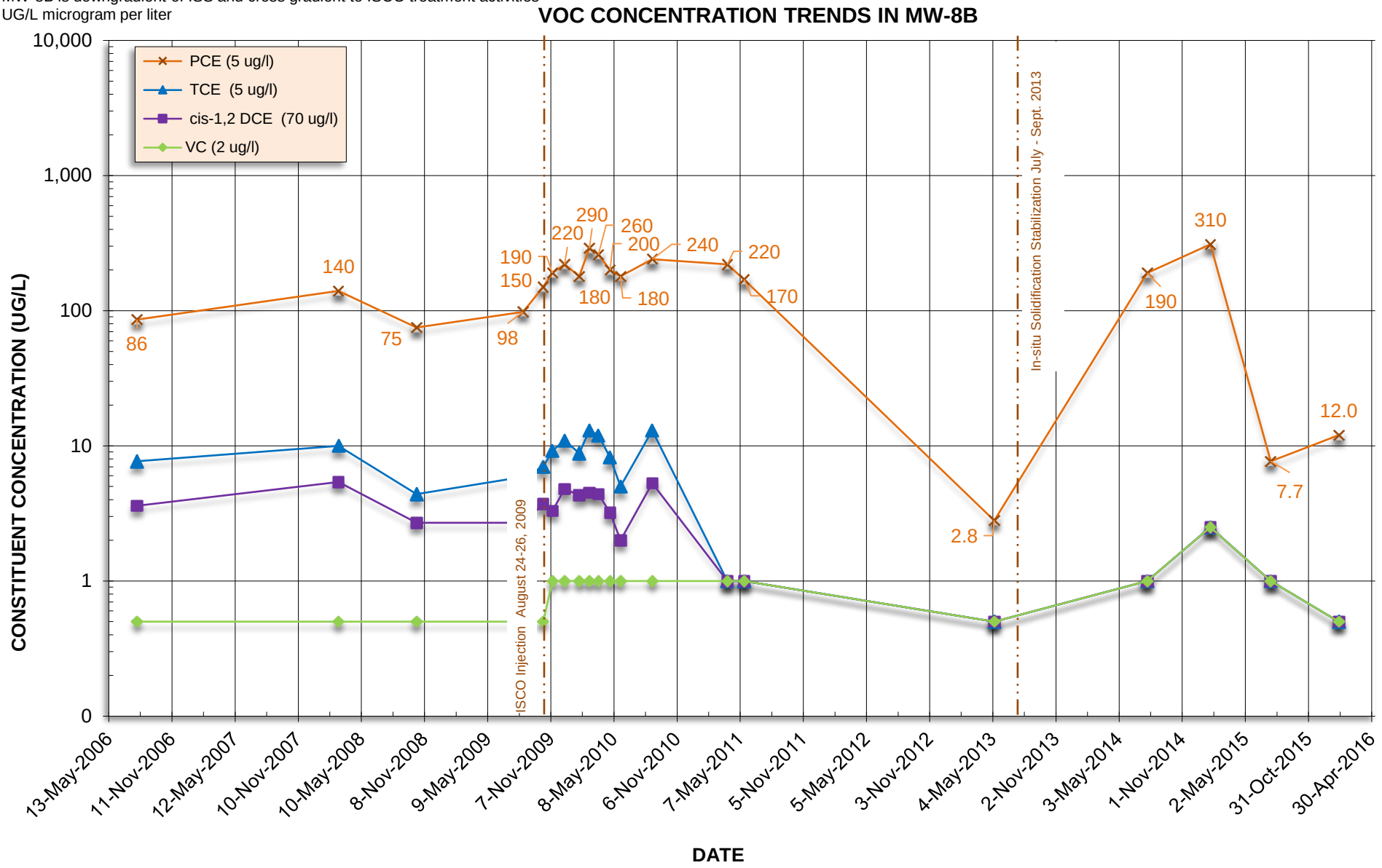
Notes:
Non detects are shown as 1/2 the detection limit.
MW-3B is cross gradient to treatment activities.
UG/L microgram per liter



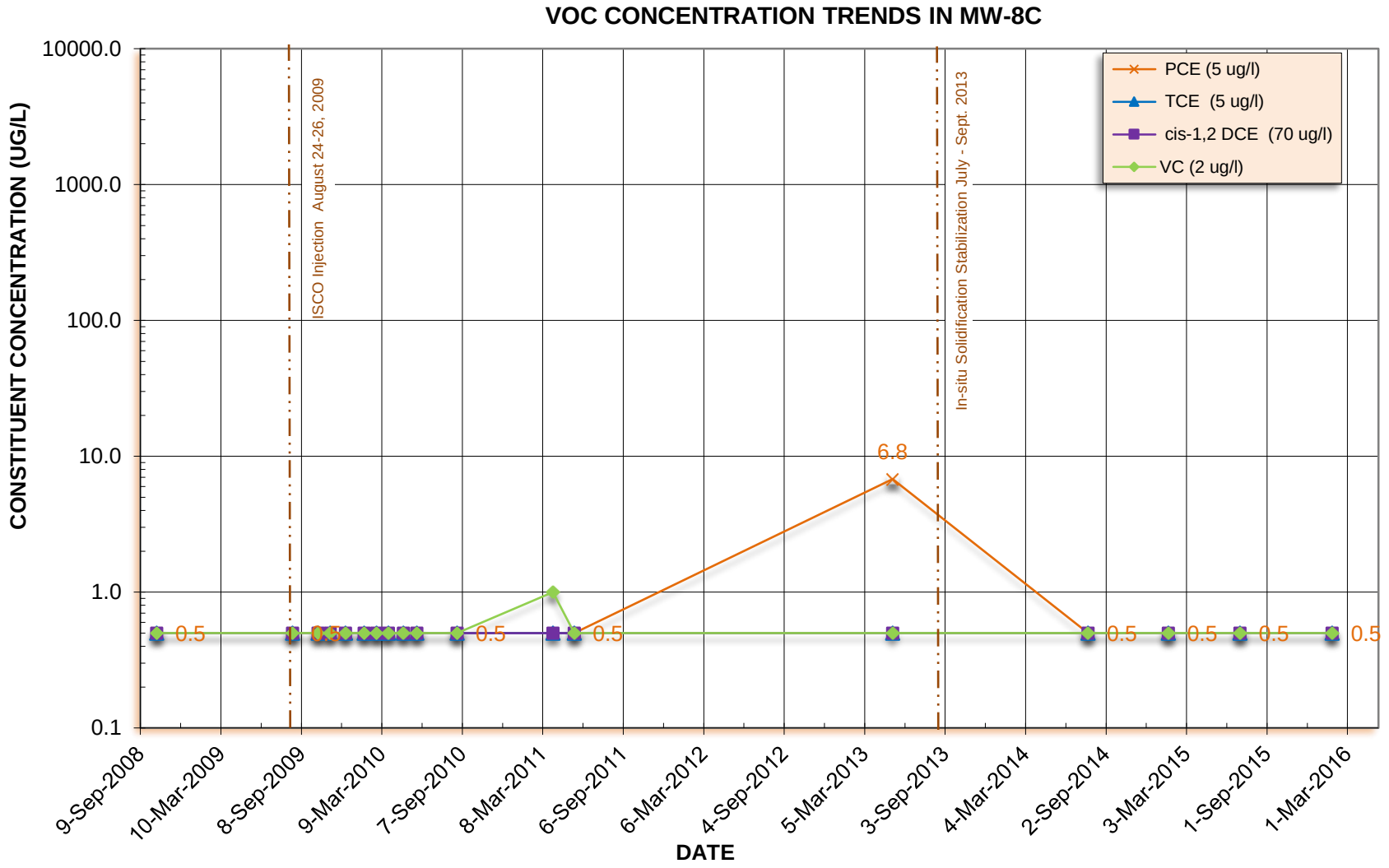
Notes:
Non detects are shown as 1/2 the detection limit.
MW-8A is downgradient of ISS and cross gradient to ISCO treatment activities.
UG/L microgram per liter



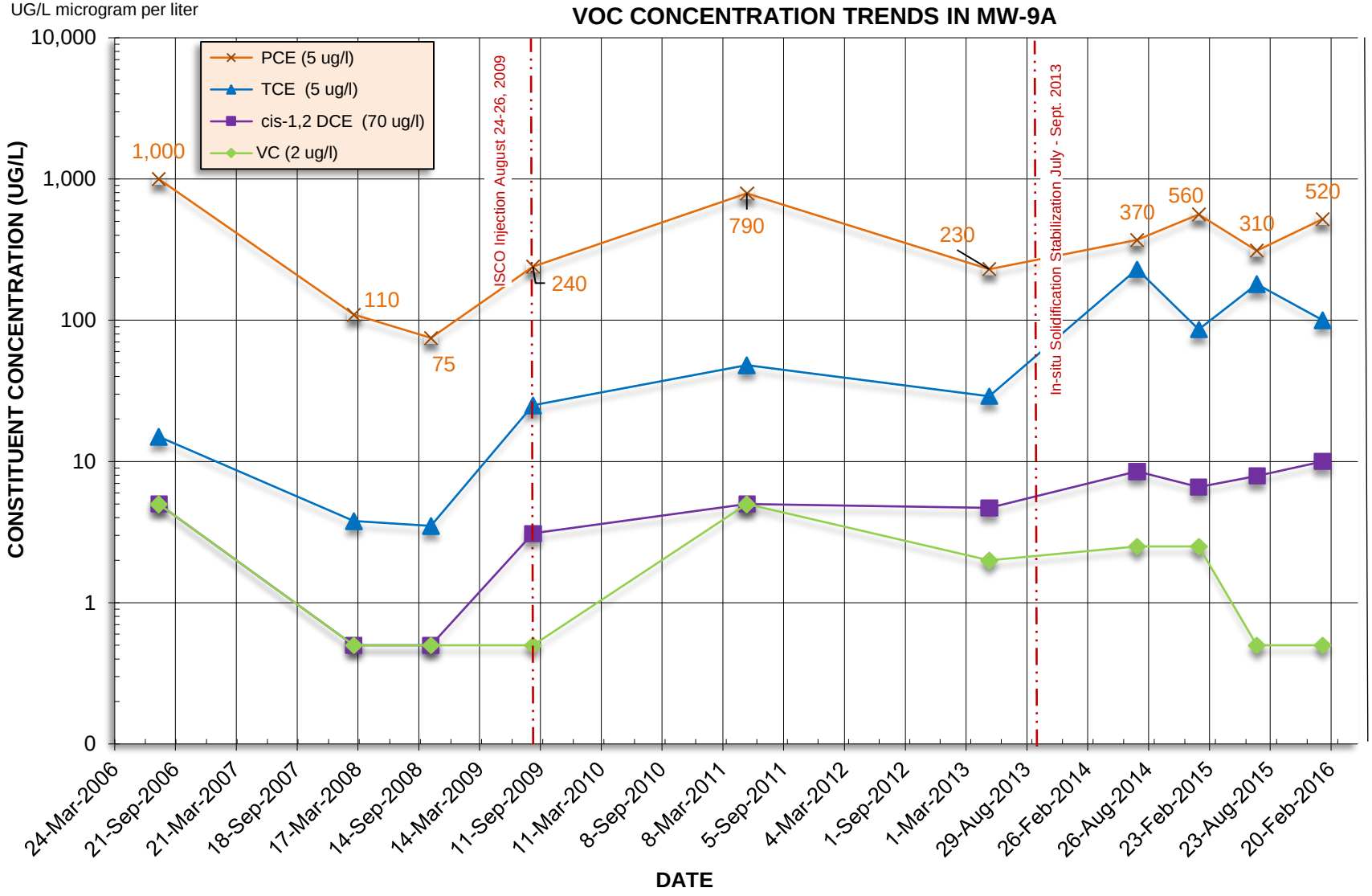
Notes
Non detects are shown as 1/2 the detection limit.
MW-8B is downgradient of ISS and cross gradient to ISCO treatment activities
UG/L microgram per liter



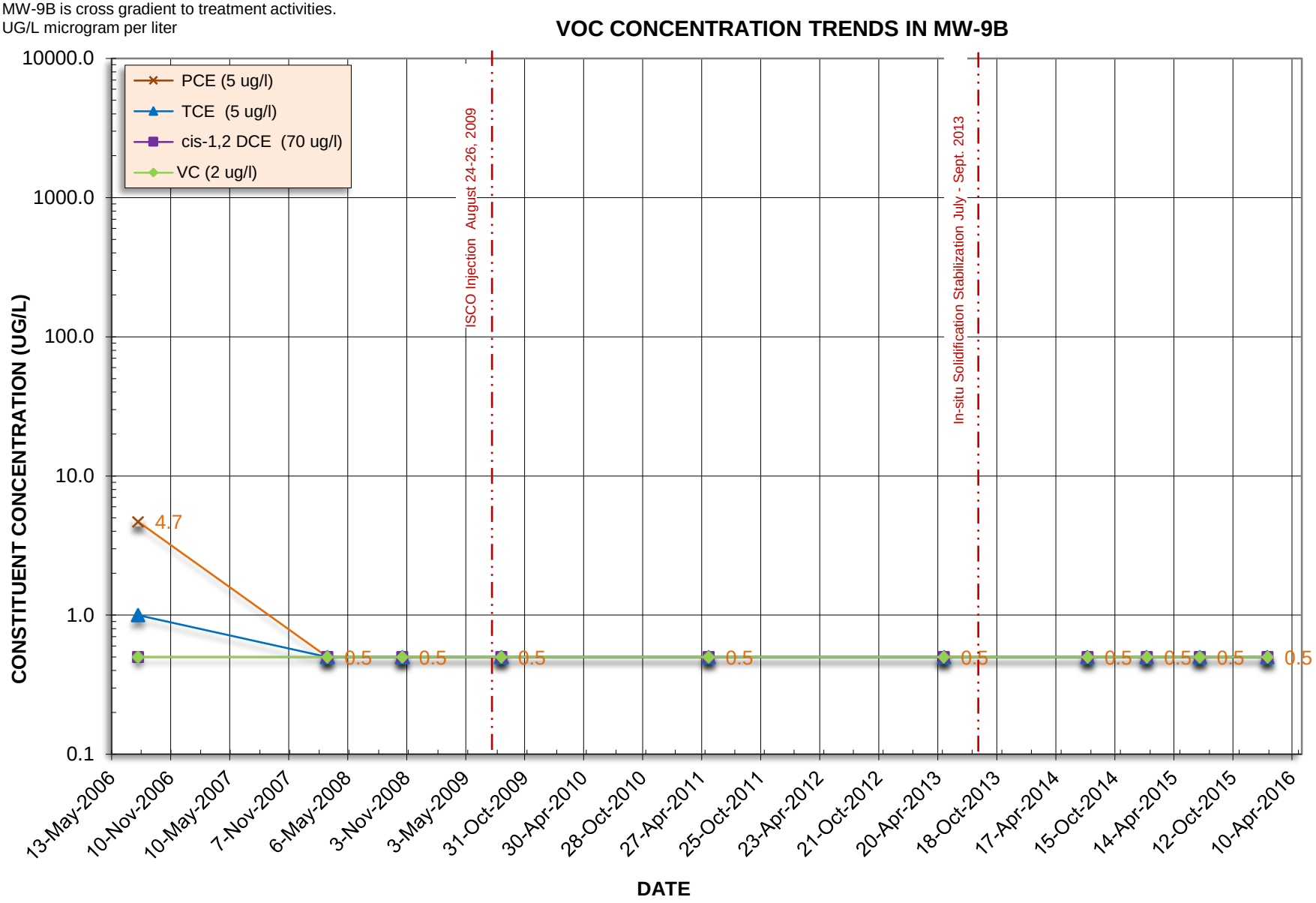
Notes:
Non detects are shown as 1/2 the detection limit.
MW-8C is downgradient of ISS and cross gradient to ISCO treatment activities
UG/L microgram per liter



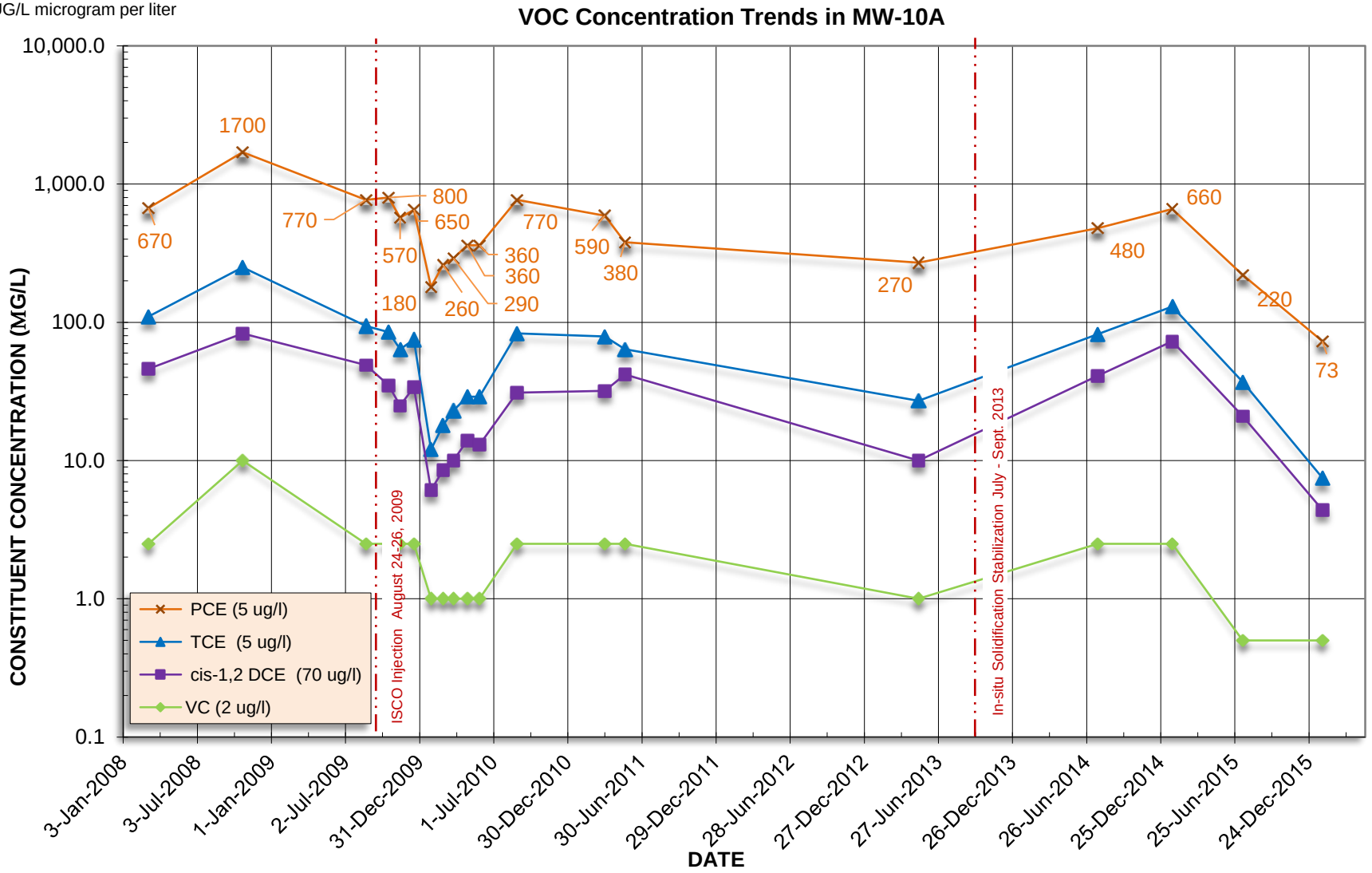
Notes:
Non detects are shown as 1/2 the detection limit.
MW-9A is cross gradient to treatment activities.
UG/L microgram per liter



Notes:
Non detects are shown as 1/2 the detection limit.
MW-9B is cross gradient to treatment activities.
UG/L microgram per liter

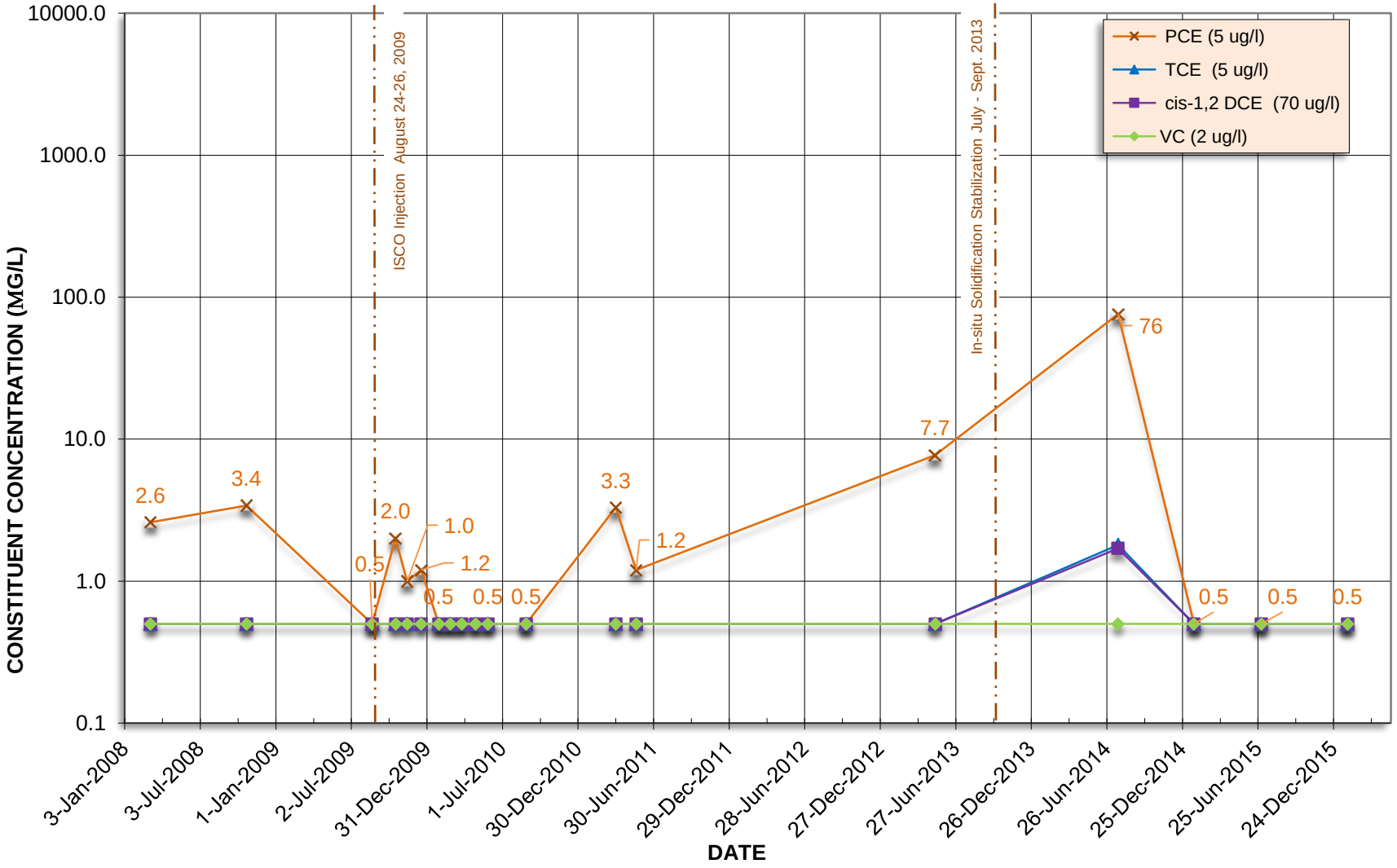


Notes:
Non detects are shown as 1/2 the detection limit.
MW-10A is downgradient of ISS and upgradien of ISCO treatment activiites.
UG/L microgram per liter



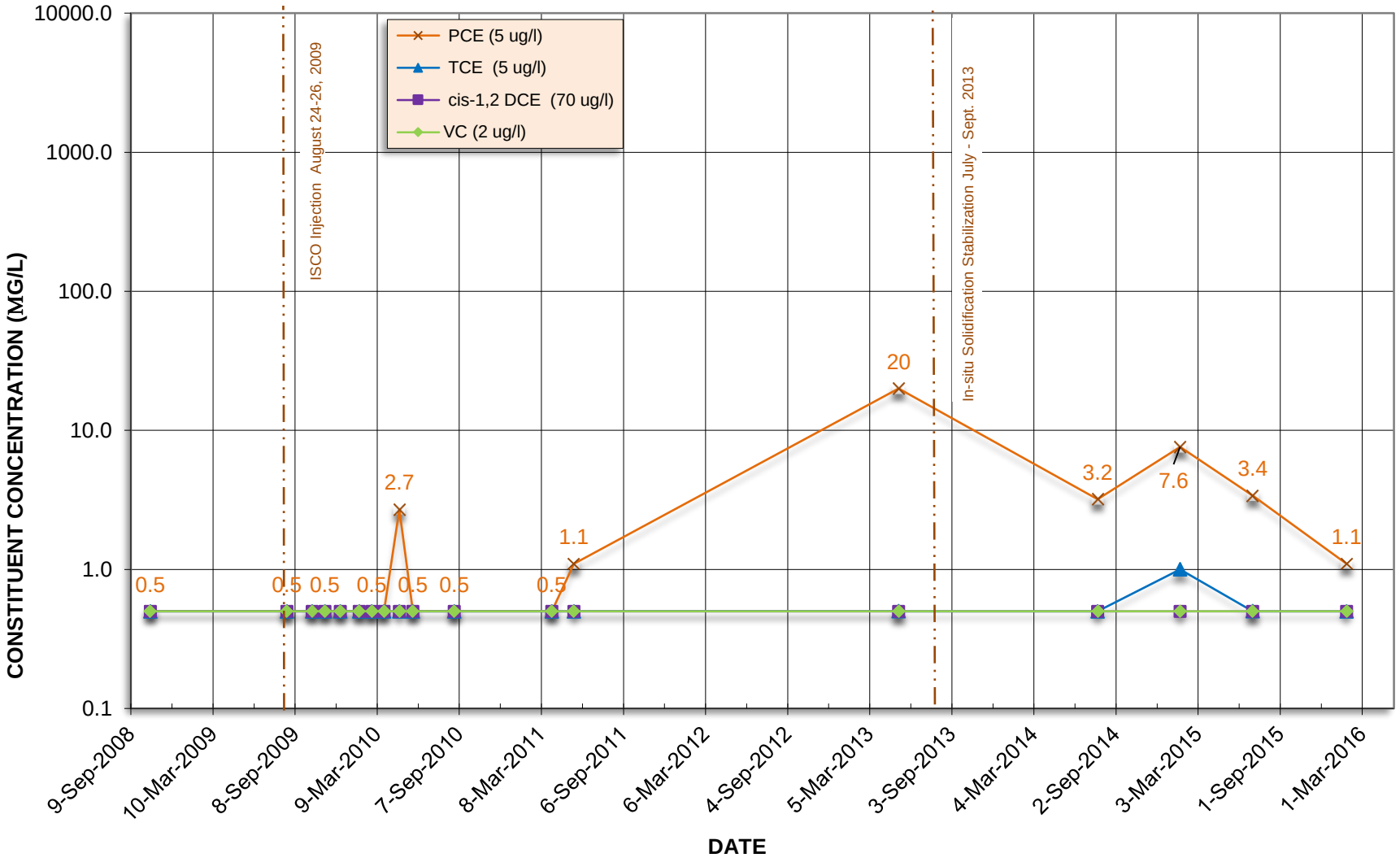
Notes:
Non detects are shown as 1/2 the detection limit.
MW-10B is downgradient of ISS and upgradien of ISCO treatment activiites.
UG/L microgram per liter

VOC CONCENTRATION TRENDS IN MW-10B

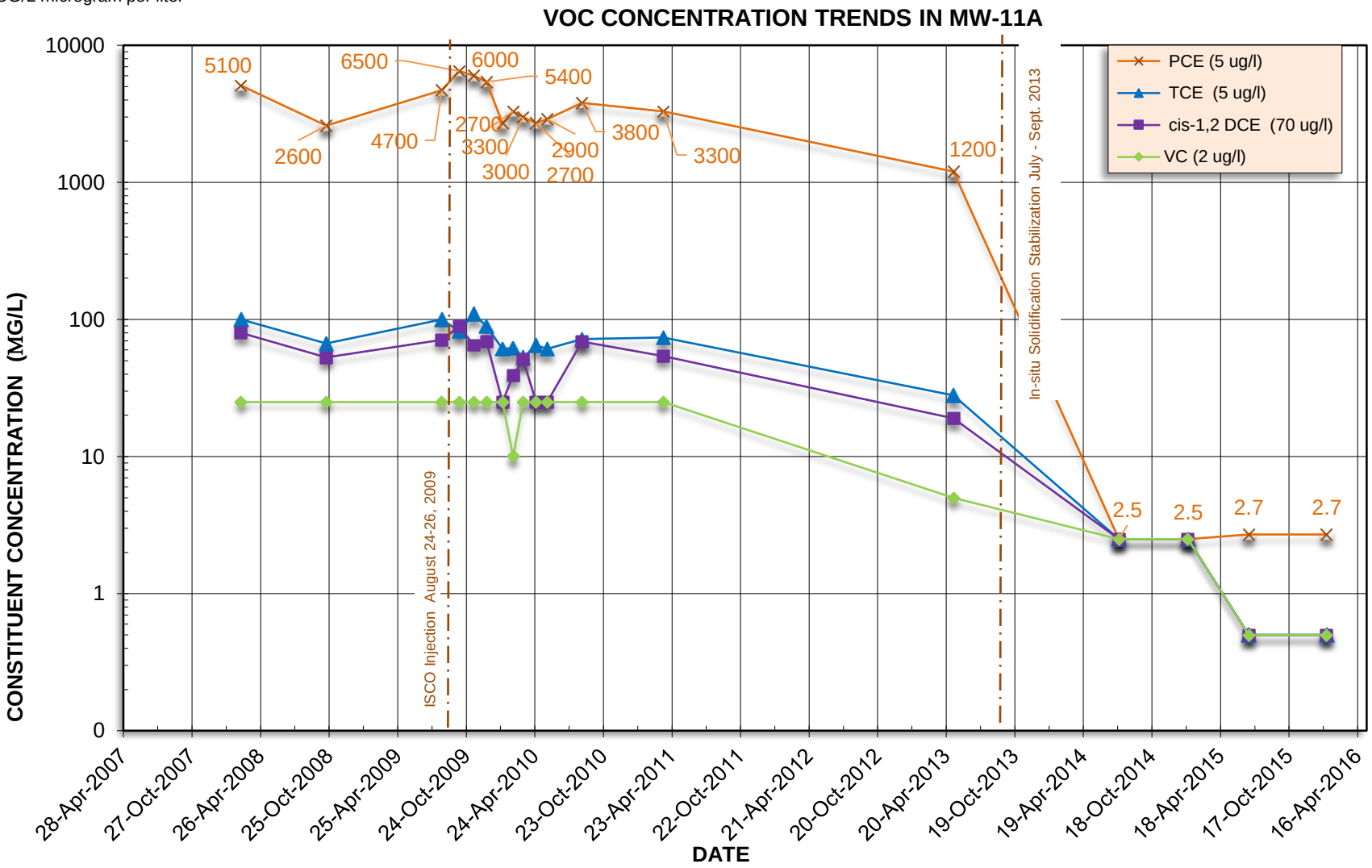


Notes:
Non detects are shown as 1/2 the detection limit.
MW-10C is downgradient of ISS and upgradien of ISCO treatment activiites.
UG/L microgram per liter

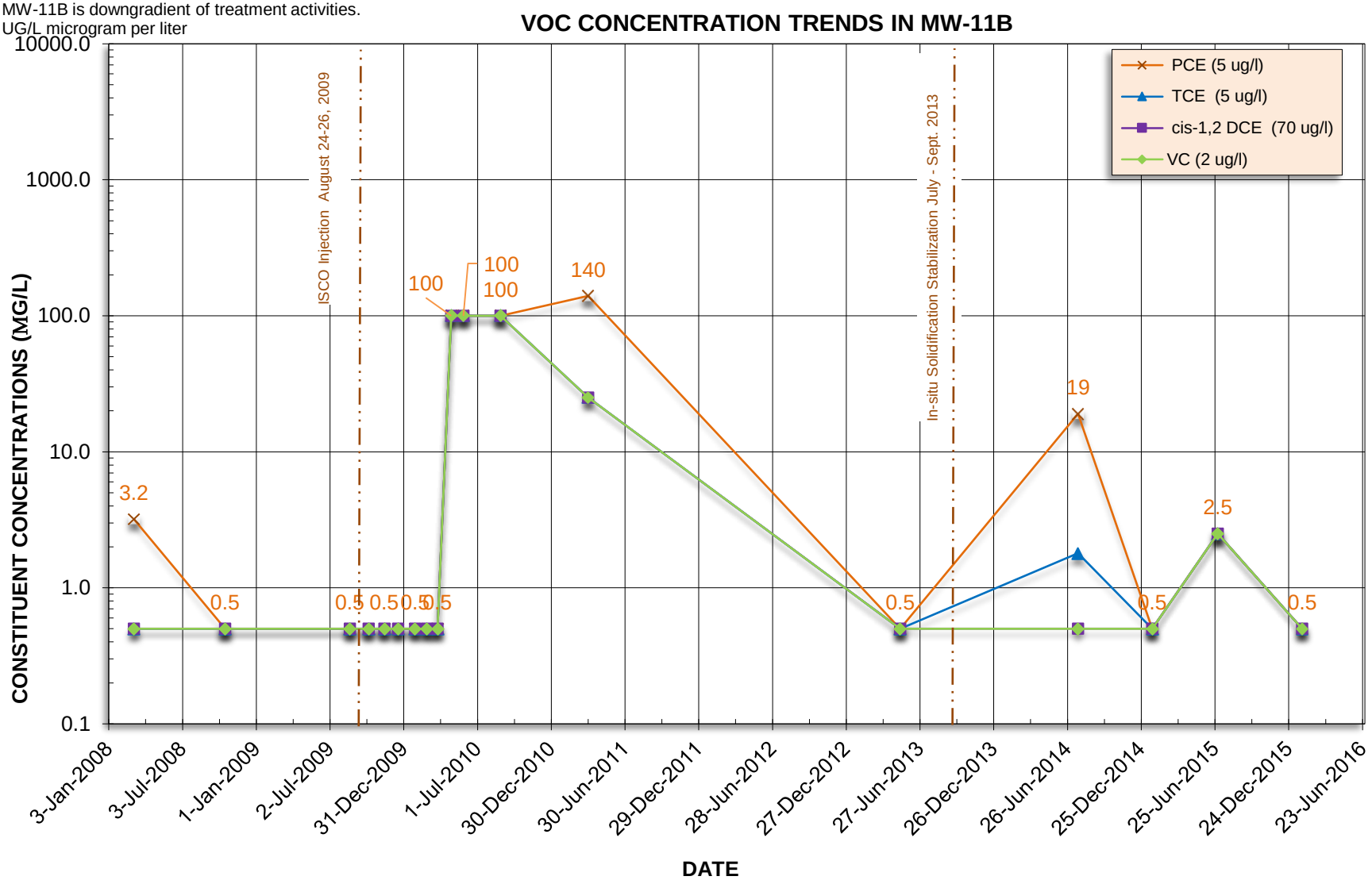
VOC CONCENTRATION TRENDS IN MW-10C



Notes:
Non detects are shown as 1/2 the detection limit.
MW-11A is downgradient of treatment activities.
UG/L microgram per liter

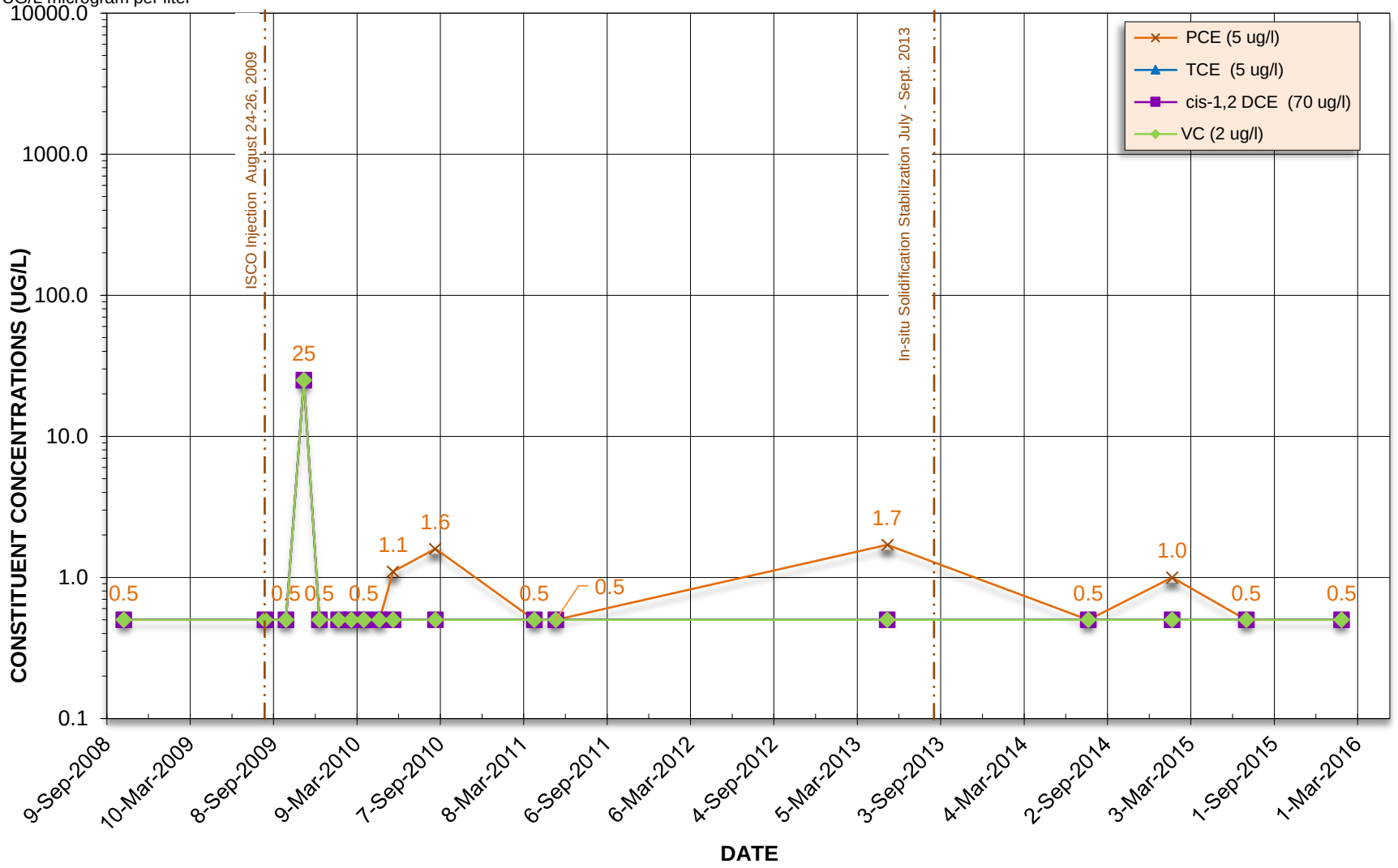


Notes:
Non detects are shown as 1/2 the detection limit.
MW-11B is downgradient of treatment activities.
UG/L microgram per liter

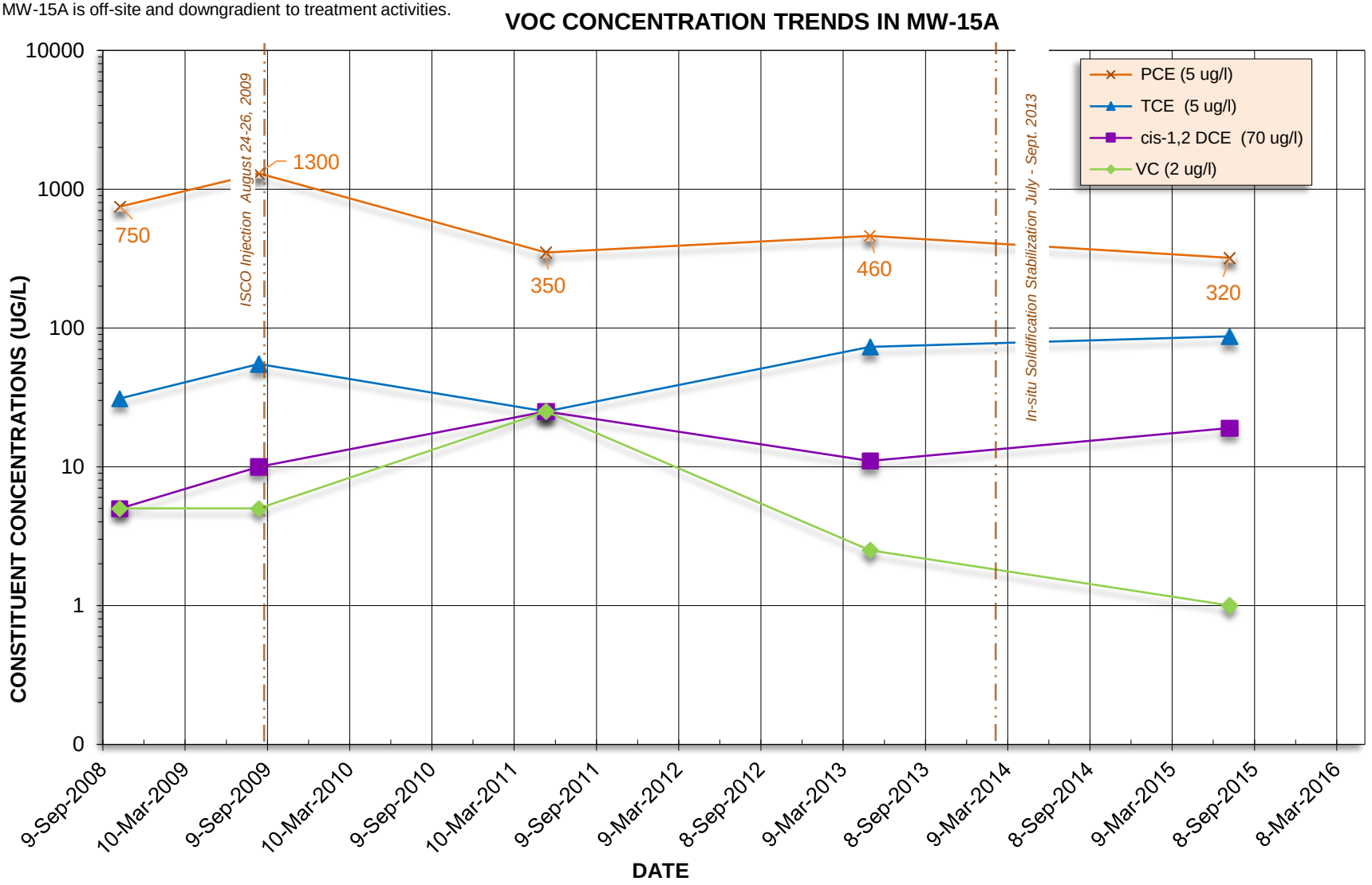


Notes:
Non detects are shown as 1/2 the detection limit.
MW-11C is downgradient of treatment activities.
UG/L microgram per liter

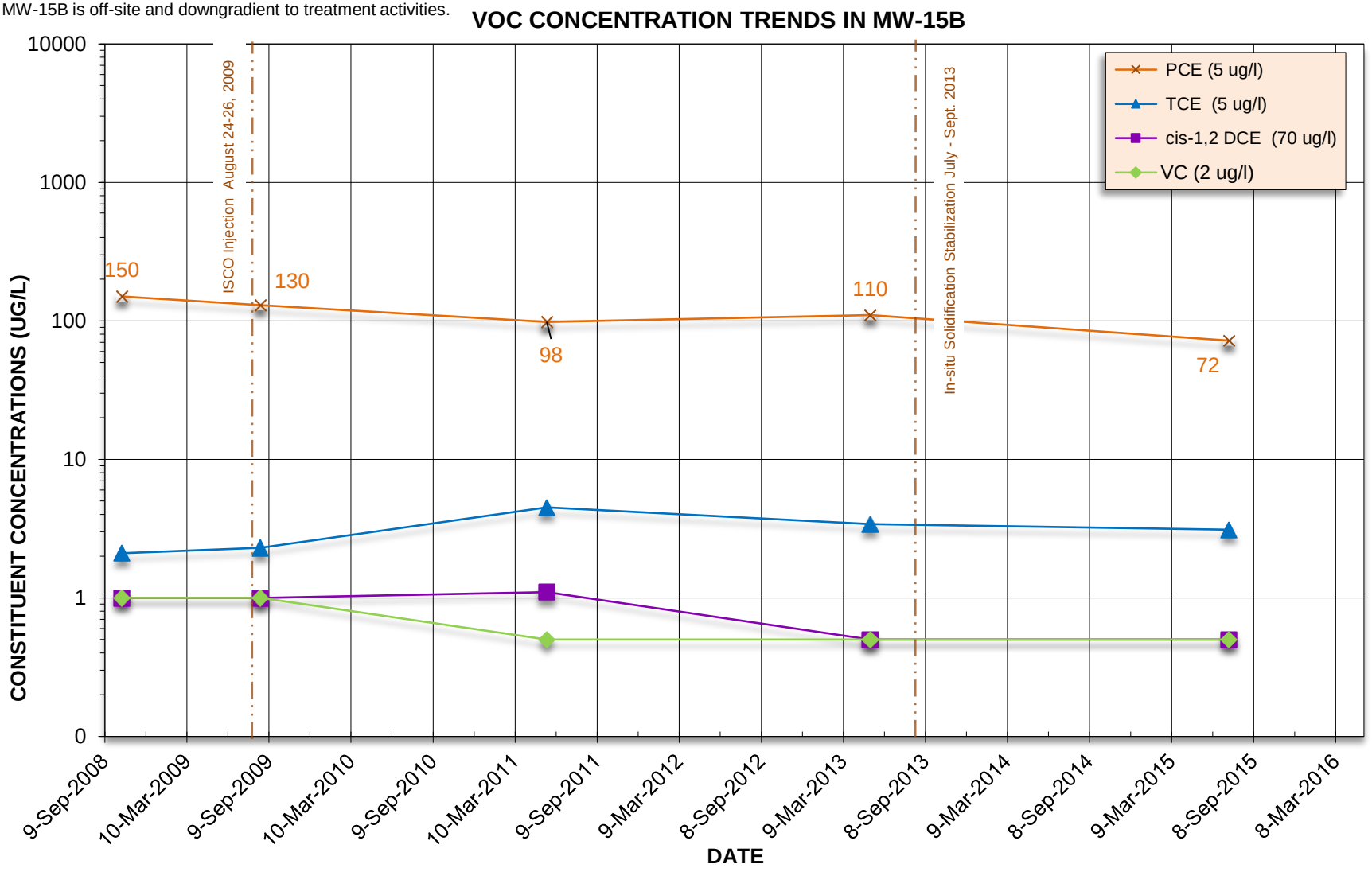
VOC CONCENTRATION TRENDS IN MW-11C



Notes:
Non detects are shown as 1/2 the detection limit.
MW-15A is off-site and downgradient to treatment activities.

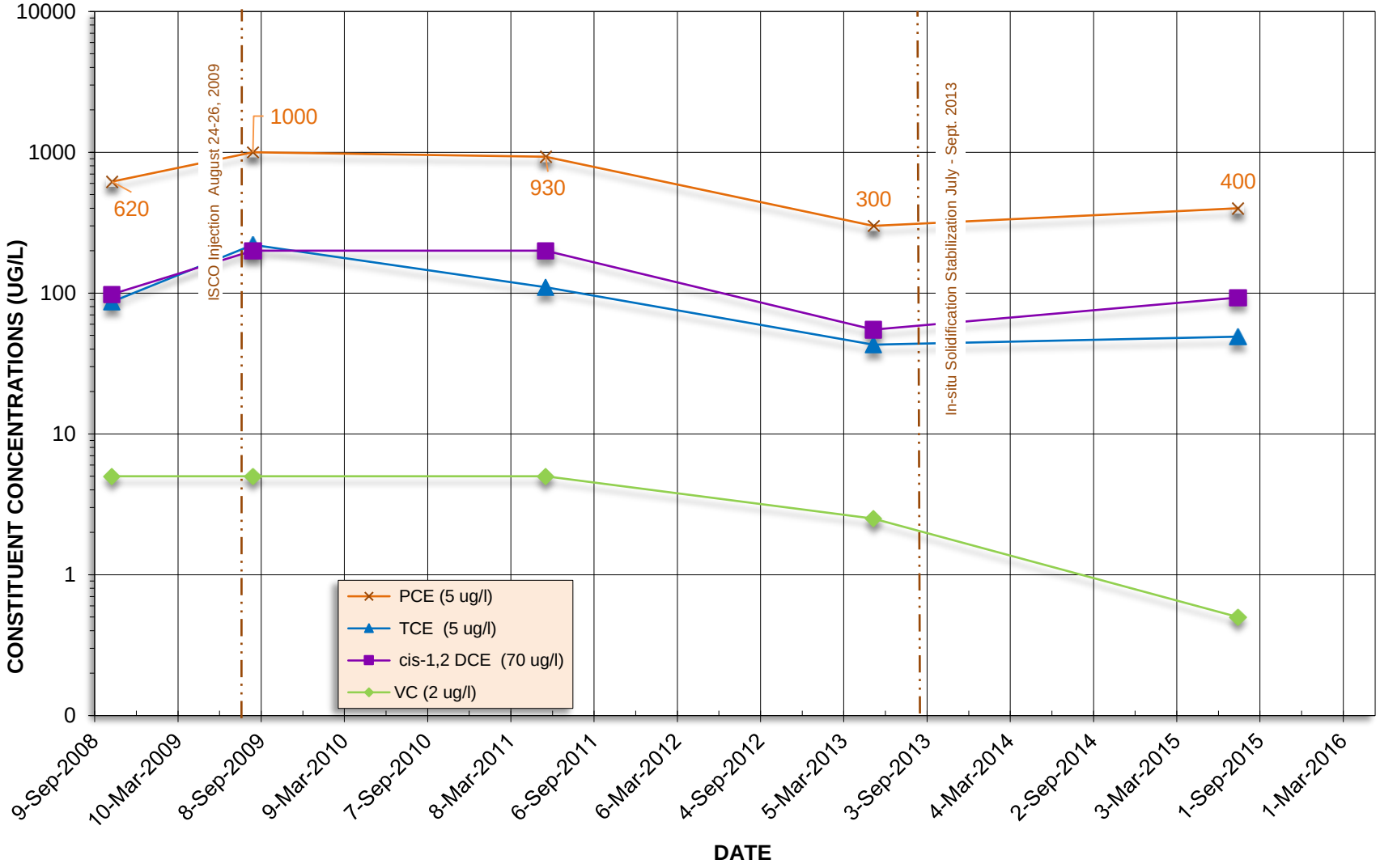


Notes:
Non detects are shown as 1/2 the detection limit.
MW-15B is off-site and downgradient to treatment activities.

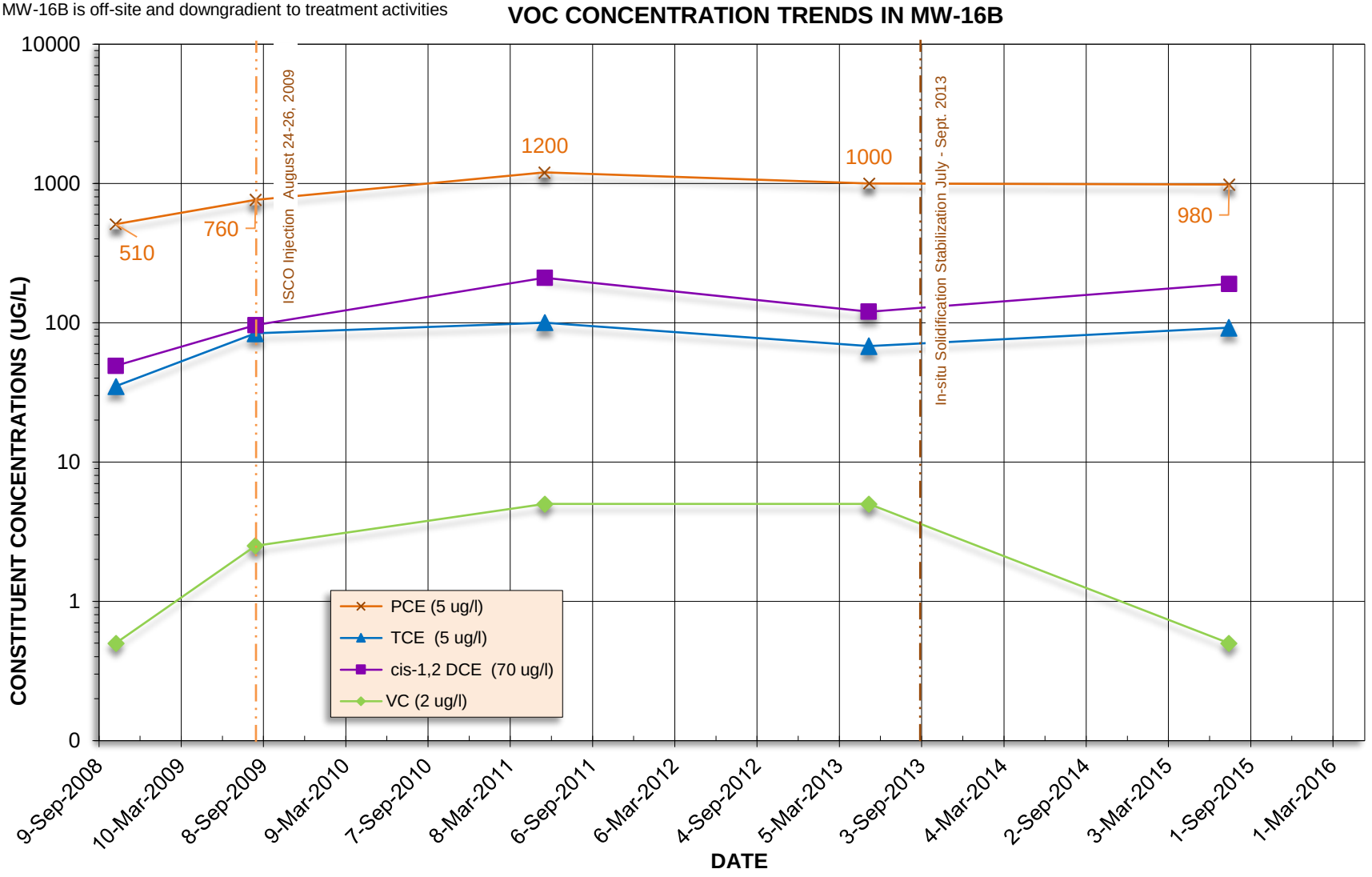


Notes:
Non detects are shown as 1/2 the detection limit.
MW-16A is off-site downgradient to treatment activities

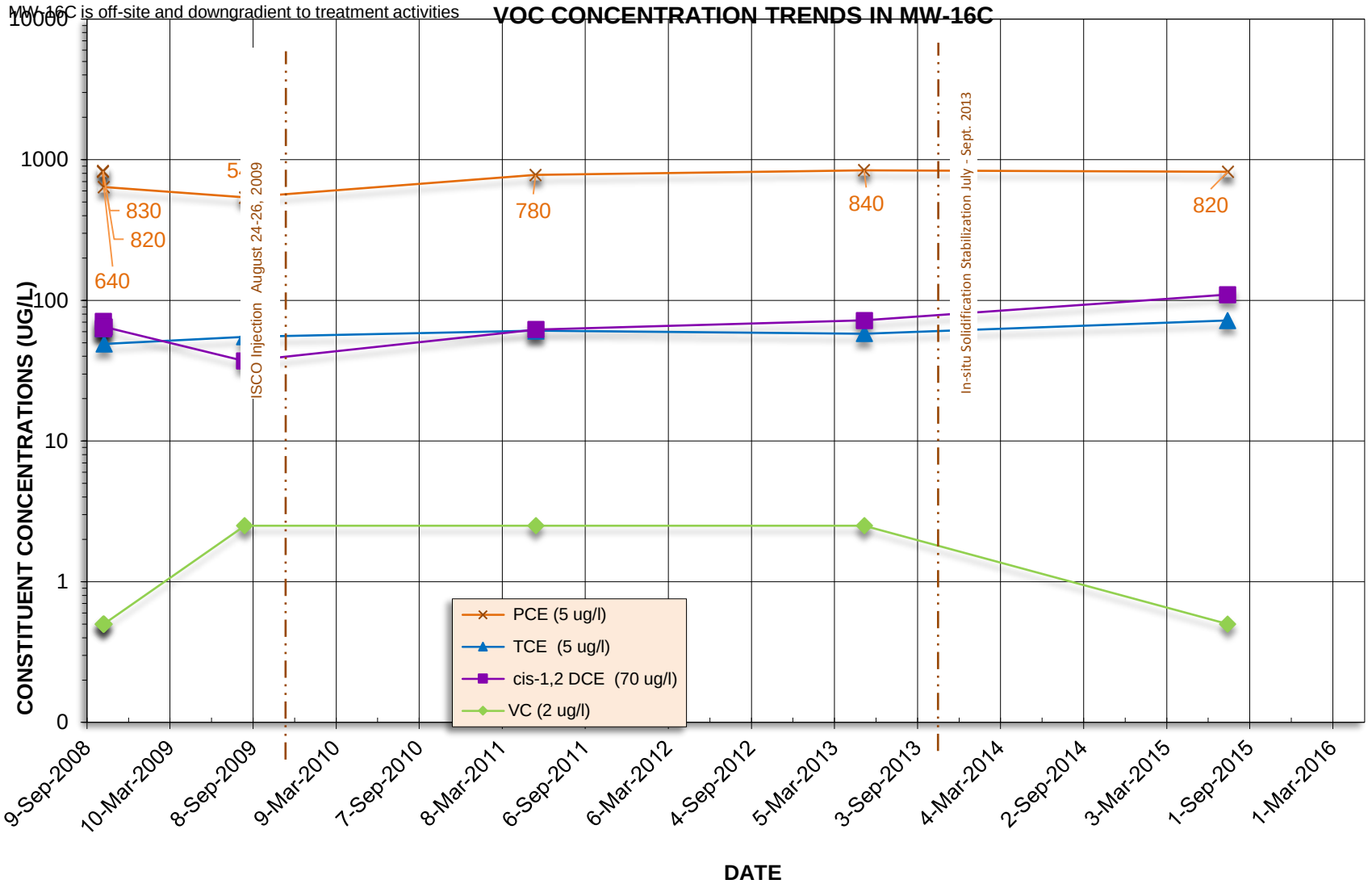
VOC CONCENTRATION TRENDS IN MW-16A



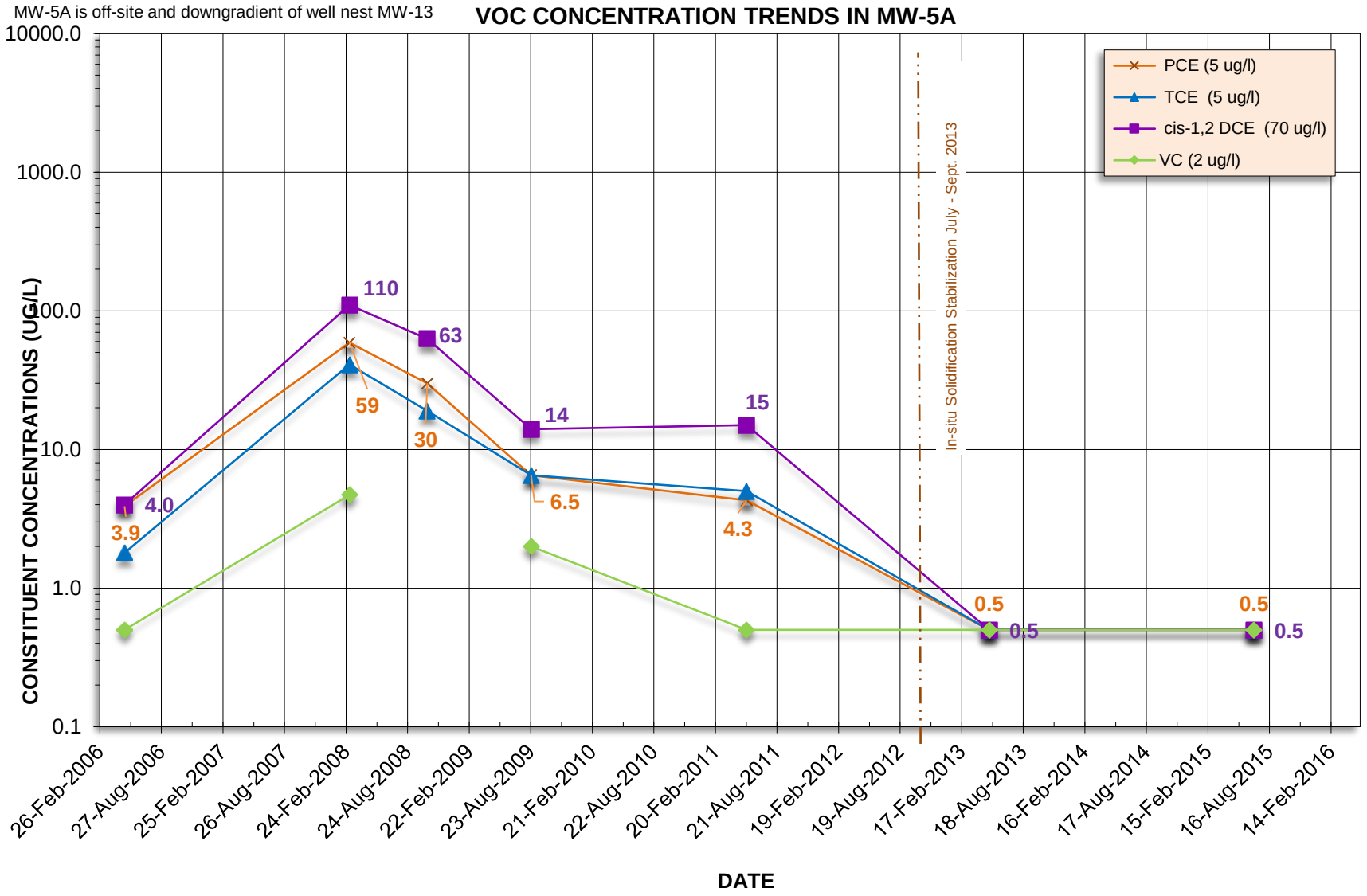
Notes:
Non detects are shown as 1/2 the detection limit.
MW-16B is off-site and downgradient to treatment activities



Notes:
Non detects are shown as 1/2 the detection limit.
MW-16C is off-site and downgradient to treatment activities

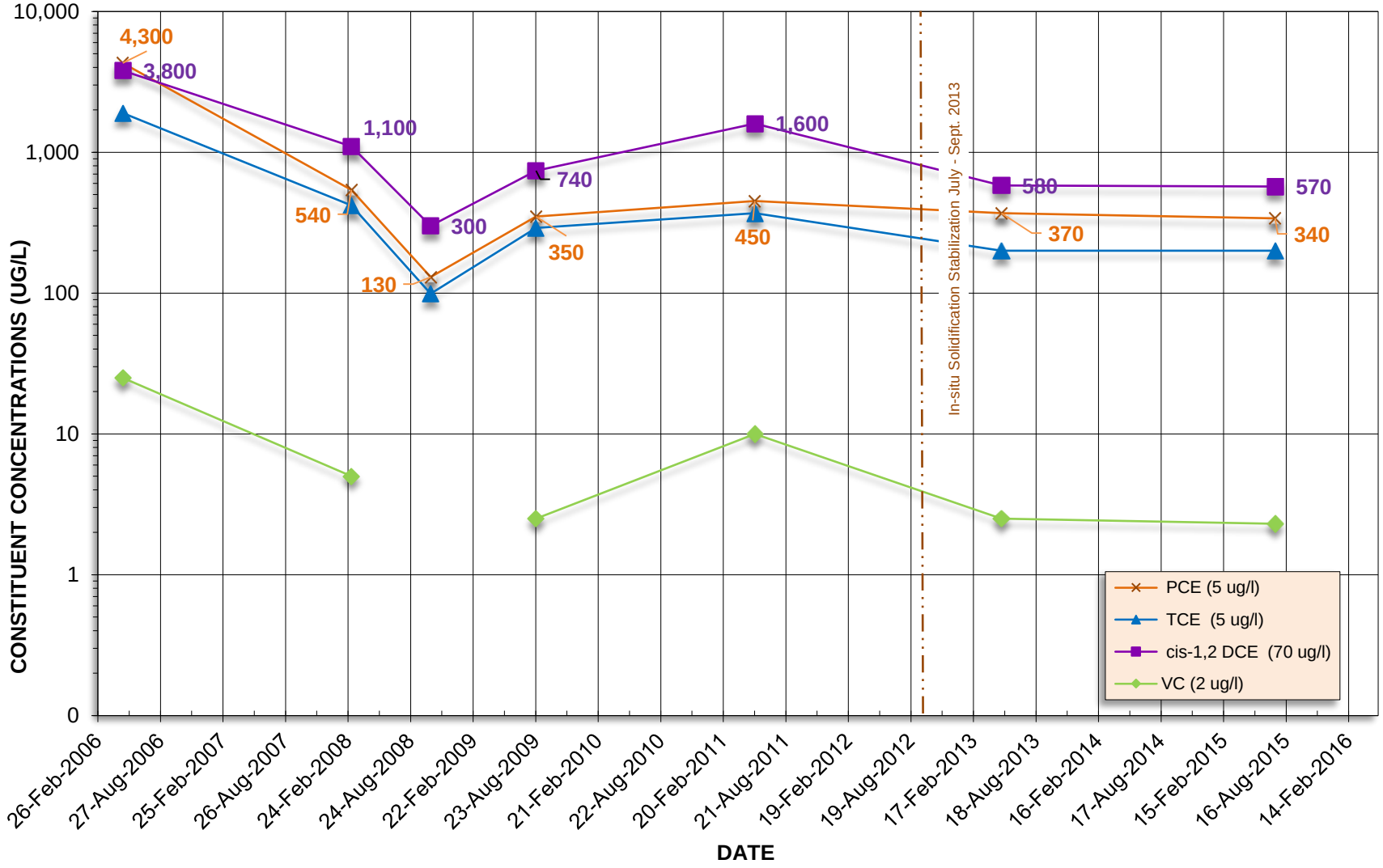


Notes:
Non detects are shown as 1/2 the detection limit.
MW-5A is off-site and downgradient of well nest MW-13



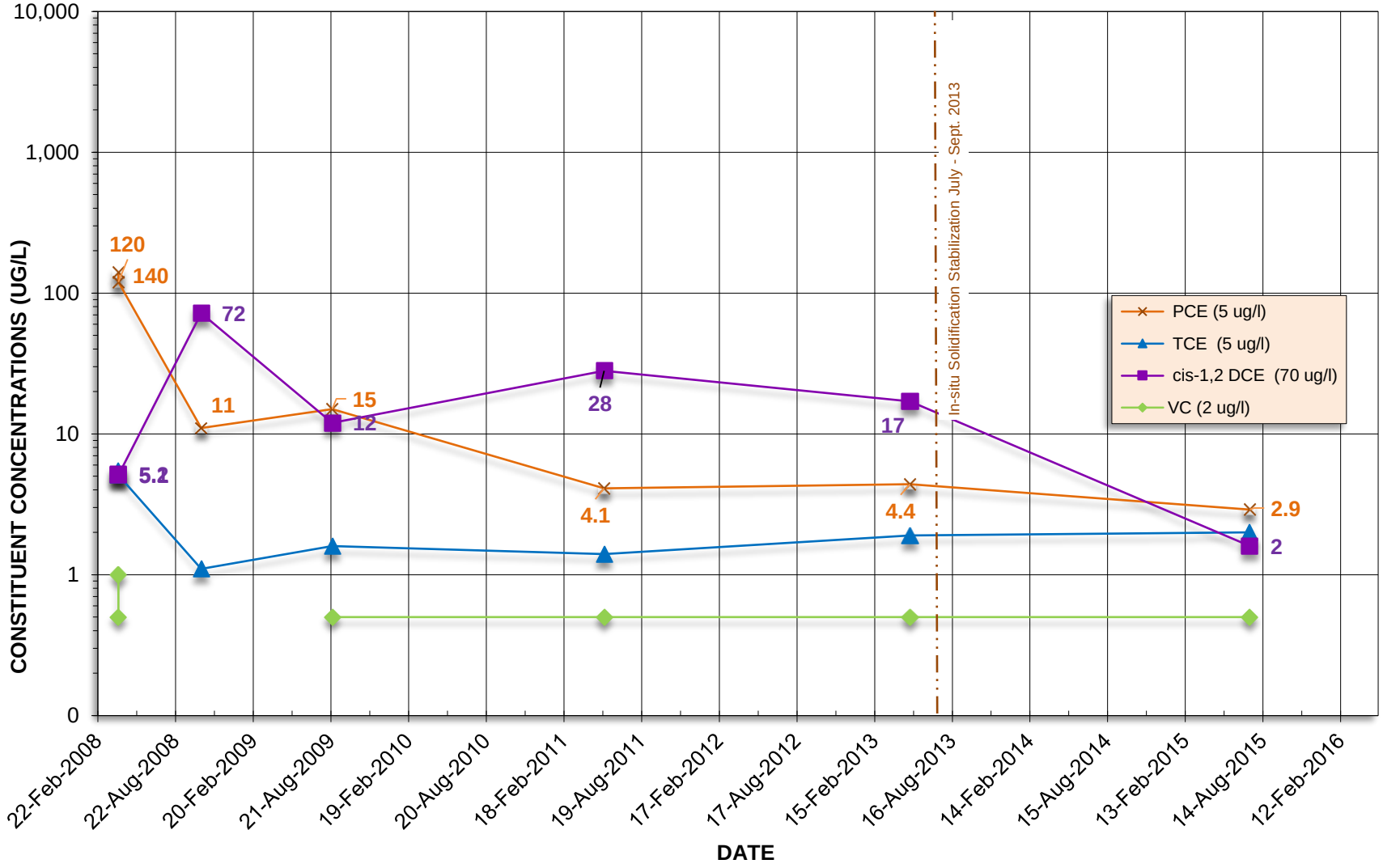
Notes:
Non detects are shown as 1/2 the detection limit.
MW-5B is off-site and downgradient of well nest MW-13.

VOC CONCENTRATION TRENDS IN MW-5B



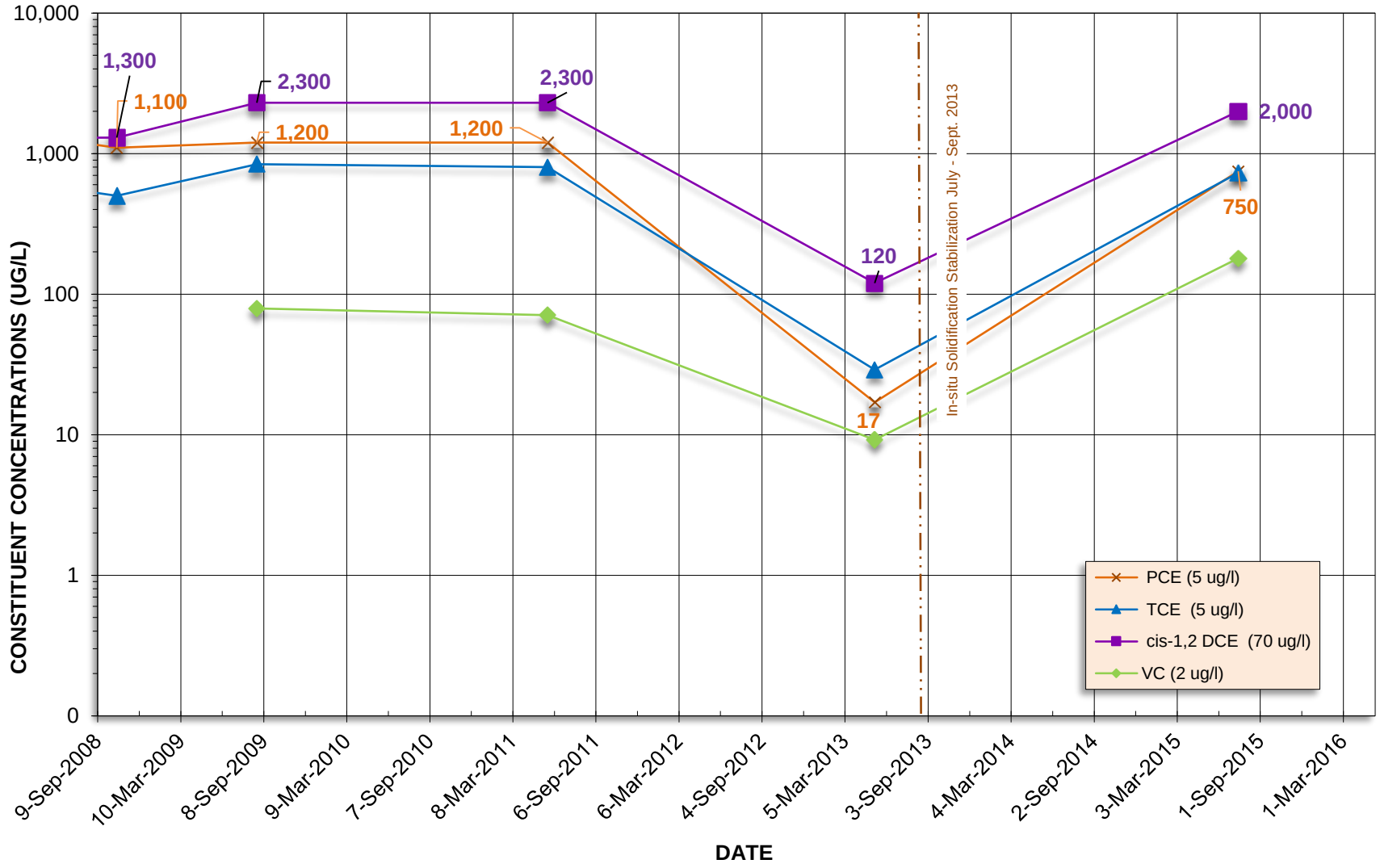
Notes:
Non detects are shown as 1/2 the detection limit.
MW-5C is off-site and downgradient of MW-13 well nest.

VOC CONCENTRATION TRENDS IN MW-5C



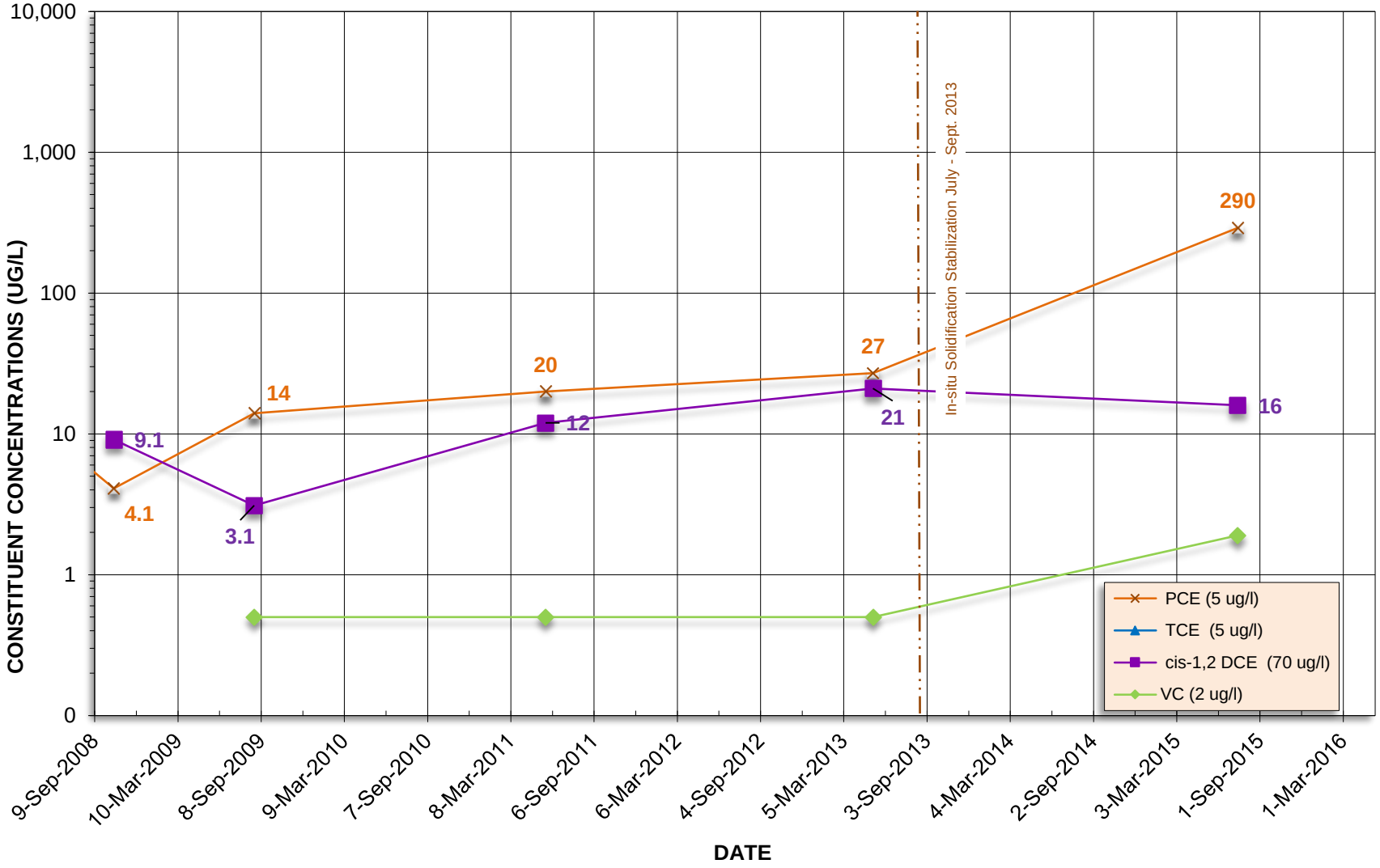
Notes:
Non detects are shown as 1/2 the detection limit.
MW-13A is off-site and cross gradient to treatment activities

VOC CONCENTRATION TRENDS IN MW-13A



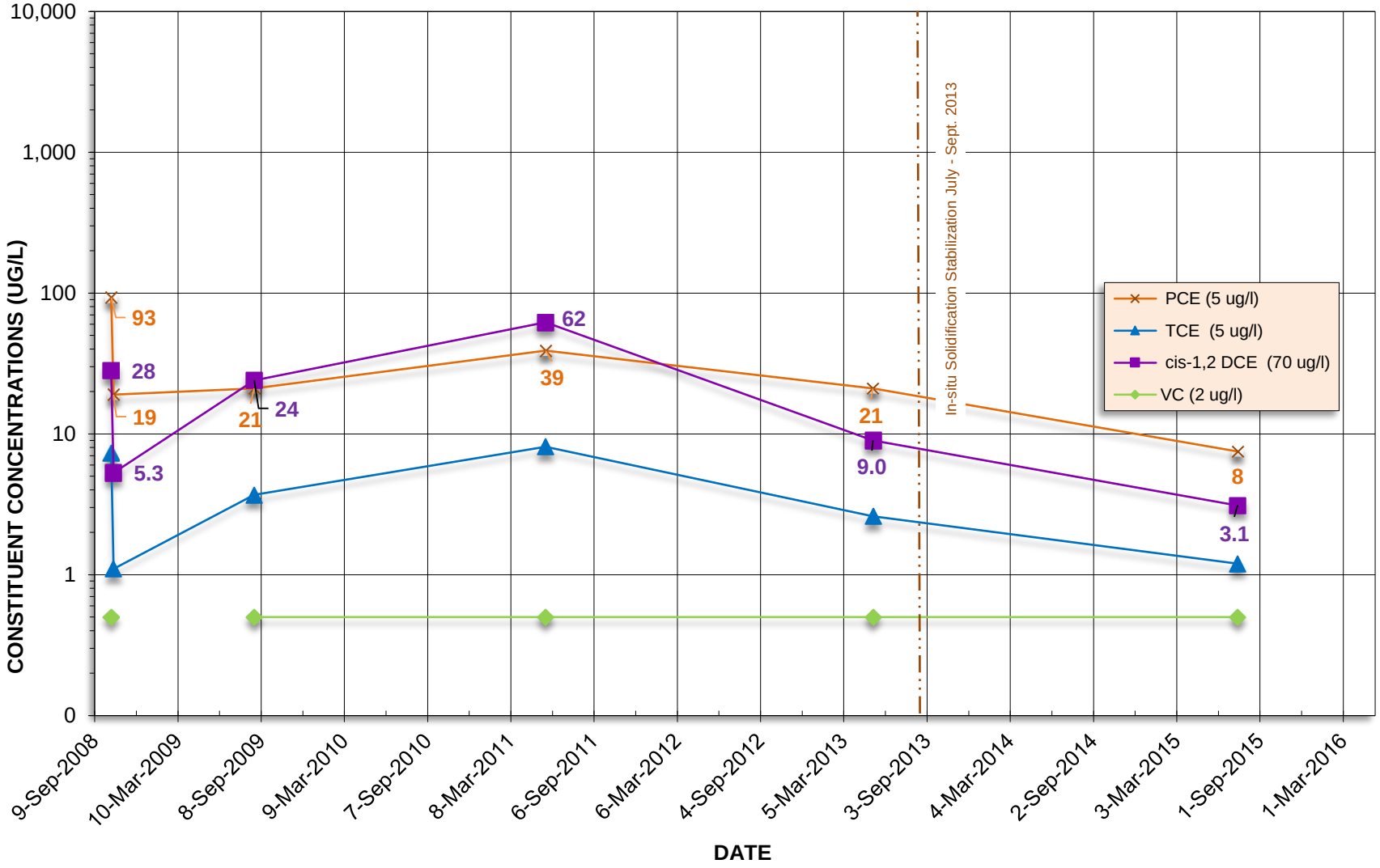
Notes:
Non detects are shown as 1/2 the detection limit.
MW-13B is off-site and cross gradient to treatment activities

VOC CONCENTRATION TRENDS IN MW-13B



Notes:
Non detects are shown as 1/2 the detection limit.
MW-13C is off-site cross gradient to treatment activities

VOC CONCENTRATION TRENDS IN MW-13C



APPENDIX E

Natural Attenuation Evaluation

MEMO

To: Michael Dever, Ashland Inc.

Cc: Michelle Stayrook, Pat Peterson

From: Jonathan Waddell

Date: March 14, 2016

Re: **Alterman – Evaluation of Intrinsic Biogeochemical Processes**

The purpose of this memorandum (memo) is to summarize the evaluation of intrinsic biogeochemical processes to support tetrachloroethene (PCE) degradation underlying the former dry cleaner property at 8564 Tara Boulevard, Jonesboro, Georgia and the surrounding Study Area.

Corrective action activities were completed in 2013 to address source area soil impacts at the Site. Groundwater investigation activities were completed between 2006 and 2015 to determine the nature and extent of groundwater impacts, primarily PCE and degradation products migrating off-site. The monitoring well network consists of thirty-six residuum and fifteen bedrock monitoring wells.

On December 17, 2015, the Georgia Environmental Protection Division (EPD) approved investigation activities completed to identify the nature and extent of groundwater impacts. Based on investigation activities, the following Site conditions were used to assess the efficacy of intrinsic biogeochemical processes for support of PCE degradation.

Site Conditions

- Horizontal delineation of groundwater impacts is complete.
- Vertical delineation is complete, as groundwater impacts are limited to and display decreasing trends with depth in underlying fractured bedrock.
- The predominant groundwater flow direction is to the west, within both the residuum and underlying fractured bedrock, and under varying hydraulic gradients.
- Bedrock outcrops within the incised creek west of the Site; therefore, residuum groundwater discharges into fractured bedrock before groundwater re-expresses itself into the creek.
- The unnamed creek is the ultimate groundwater sink and receptor.
- No private wells were identified within the limits of the investigation area.
- There are two primary source migration pathways (including soil to groundwater and stormwater conveyance system to groundwater. Both plumes commingle south of the Site, prior to discharge to the creek.
- The area of concern is approximately twelve acres in size.
- Previous aquifer testing (i.e., slug tests) at the Site have yielded an average hydraulic conductivity of 1.26 feet per day within the residuum (URS, 2009); however, the actual hydraulic conductivity (and associated flow gradients and velocities) may vary as a function of location within the fractured rock aquifer.

1.0 Objective

An evaluation was completed to determine the effectiveness of existing and intrinsic biogeochemical processes to achieve restoration of groundwater to the extent practical under the Voluntary Remediation

Program (or other state mandate). The evaluation included an assessment of select biogeochemical parameters and initial Biochlor modeling used to estimate intrinsic decay rates for PCE.

Provided below is a brief summary of assessment activities. A detailed discussion of data collection and Biochlor modeling is presented in **Attachment A** and **Attachment B**, respectively.

2.0 Data Collection

The first comprehensive post soil remediation groundwater monitoring event was conducted in late June/early July 2015. Groundwater sample collection was conducted in accordance with the Sampling and Analysis Plan (SAP) prepared by EHS Support LLC (EHS Support) on June 23, 2015 and revised on July 10, 2015. The objective was to evaluate current conditions of groundwater and to evaluate the naturally-occurring degradation processes for PCE. A visual summary of potential PCE degradation pathways is provided in **Figure 1.**

Groundwater samples were collected in the field by Antea Group from June 30 to July 11, 2015, and shipped to TestAmerica, Pace Analytical, and Microbial Insights for analysis. The parameters used for this evaluation are listed on the table below. The monitoring well network is provided in **Figure 2**.

Parameter	All Wells	Select Wells
General water quality parameters (DO, pH, ORP, etc.)	X	-
Volatile Organic Compounds	X	-
Dissolved Gases (ethene, ethane, methane, and acetylene)	X*	-
Biogeochemical parameters (terminal electron acceptors and products)	-	MW-5B, MW-11A, MW-15A/B/C, and MW-16A/B/C
Total organic carbon and volatile fatty acids	-	MW-5B, MW-11A, MW-15A/B/C, and MW-16A/B/C
Carbon dioxide and chloride	-	MW-5B, MW-11A, MW-15A/B/C, and MW-16A/B/C
Molecular-Based Analyses via QuantArray® Chlor	-	MW-5B, MW-11C, MW-15A, and MW-16A
Compound Specific Isotope Analysis (CSIA)	-	MW-5B, MW-11C, MW-15A, and MW-16A

*Except non-impacted wells MW-1C, MW-3B, MW-4B, MW-7C, MW-8C, MW-9B/C, MW-11B/C, MW-21B/C, MW-22A/B, and MW-23A.

General water quality parameters, biogeochemical parameters, and CSIA results are summarized in **Tables 1**, **2**, and **3**, respectively. A summary of initial findings is presented below. A detailed evaluation of the monitoring event is summarized in **Attachment A.**

2.1 Initial Analytical Findings

The initial results indicate the potential for PCE degradation to occur by metabolic (e.g., chlororespiration), cometabolic, and abiotic pathways. The natural occurrence of these degradation pathways is supported by the lines of evidence listed below.

- Detection of *Dehalococcoides* (*Dhc.*) species and reductive dehalogenase genes in well MW-11A, which are capable of complete reductive dechlorination of PCE to ethene, with lesser quantities of *Dhc.* detected in wells MW-15A and MW-16A (see Microbial Insights Table 1 in **Attachment D**).
- Detection of other chlororespiring populations (e.g., *Dehalobacter*, *Desulfuromonas*, and/or *Desulfitobacterium*) in wells MW-11A and MW-16A, capable of reductively dechlorinating PCE to cis 1,2-DCE (see Microbial Insights Table 1 in **Attachment D**).
- Detection of ethene and ethane, the end products of chlororespiration, at concentrations up to 6.7- and 39-micrograms per liter (ug/L), respectively, and in both shallow overburden and underlying bedrock wells (see **Table 2**).
- Detection of genes (e.g., particulate methane monooxygenase (PMMO), soluble methane monooxygenase (SMMO), and toluene monooxygenase) in several wells, which when expressed, are capable of promoting aerobic cometabolic degradation of PCE (see Microbial Insights Table 1 in **Attachment D**).
- Detection of ethenotroph genes (i.e., EtnC and EtnE) and sulfate-reducing bacteria (SRBs) provides potential for additional PCE degradation pathways, via aerobic cometabolism of vinyl chloride and abiotic degradation to acetylene, respectively (see Microbial Insights Table 1 in **Attachment D**).

Although this potential is present; these pathways appear to be limited by existing groundwater conditions. Specifically:

- pH values within the majority of the wells, as shown in **Table 1**, are generally characterized by a value below 6.0 standard units (s.u.), which is below the optimum range for chlororespiration (generally between 6.0- and 8.0-s.u.).
- Positive ORP values and oxic conditions (see **Table 1**) predominate in groundwater. Aerobic and oxidizing conditions limit the growth and proliferation of chlororespiring populations. Charts demonstrating the proportion of chlororespiring populations to each other and to total Eubacteria are included in **Figure 3**. Also, establishment of dominant anaerobic terminal electron accepting processes (TEAPs) (e.g., nitrate reduction, iron reduction, and sulfate reduction) appears to be limited.
- Limited concentrations of total organic carbon (TOC) and volatile fatty acids (VFAs) are present within groundwater to serve as electron donor/carbon source for chlororespiration (see **Table 2**).
- Although SRBs are detectable; both oxidized and reduced sulfur species are limited within groundwater, as shown in **Table 2**, and lack of detection of acetylene indicates that abiotic degradation processes may be limited.
- These limiting conditions are reflected within the CSIA data, as summarized in **Table 3**. Although yielding some fractionation (indicative of degradation) for PCE, fractionation values are low and representative of slow degradation processes (e.g., aerobic cometabolism). Similarly, fractionation of reductive dechlorination daughter products TCE and cis 1,2-dichloroethene (cis 1,2-DCE) indicates slow to minimal degradation. Further, fractionation along potential groundwater migration pathways (stemming from the Site and Stormwater Conveyance System sources) does not appear to be significant, as the greatest fractionation for PCE is detected within upgradient well locations (e.g., MW-5B and MW-11A).

2.2 Trend Evaluation

Historical data for PCE, dating to 2006, was used to determine the statistical trend of data via the Mann Kendall statistical trend test. The trends are primarily "stable" to "decreasing", and support that the PCE plume underlying the study area is not increasing in volumetric extent, and has extended to the maximum extent spatially and vertically. Further information is as follows.

The Mann-Kendall test is used to determine, for the central value or median of a data set, whether there is a statistical upward (i.e., "increasing") or downward (i.e., "decreasing") trend with time, or whether the trend is "stable". Each data point is incorporated independently via the Mann Kendall test, and no specific periodicity or frequency distribution of data is required. Further, the test is nonparametric, and as such, no assumption of normality in distribution of the data is required.

Mann-Kendall statistical test results for PCE are included in **Attachment C**. As shown, the following trends were identified:

- "Decreasing" trends for MW-2B (at >99.9% confidence), MW-2C (at >99.9% confidence), MW-11A (at 99.9% confidence), MW-13A (at 95.2% confidence), MW-15B (at 95.8% confidence)
- "Probably decreasing" trends for MW-10A (at 94.4% confidence)
- "Stable" trends for MW-8A, MW-12A, MW-13C, MW-15A, and MW-16A
- "No trend" for wells MW-2A, MW-3A, MW-5A, MW-5B, MW-5C, MW-8B, MW-9A, MW-10B, MW-16B, and MW-16C.

For those data sets that exhibit "No Trend", the graphical times series of these data (see at bottom of Mann Kendall spreadsheets in **Attachment C**) generally indicate stable to decreasing slopes.

2.3 Data Summary

In summary, lines of evidence of intrinsic degradation processes were detected in groundwater that support PCE degradation at the Study Area. These naturally-occurring processes are believed to have been instrumental in promoting "stable" to "decreasing" trends for PCE in groundwater (see **Attachment C**), and a stable plume. However, these processes were detected in localized areas (both spatially and vertically), as described in more detail in **Table 4**, and were not ubiquitous across the study area. For example, vertical differences in daughter product formation within well nests MW-15, MW-16, and MW-19 are shown in **Figures 4** through **6**, respectively. Further, these processes are occurring within a long-term timeframe.

3.0 Biochlor Modeling/Screening

Biochlor modeling was conducted to evaluate first-order decay rates for PCE along the two separate groundwater migration pathways observed at the study area. Biochlor (Natural Attenuation Decision Support System) version 2.2 was used for this purpose. Groundwater migration pathway #1 extended from the former Dry Cleaner source area westward towards the creek. Groundwater migration pathway #2 extended from the suspected storm sewer source westward towards the creek. Groundwater migration pathways used for Biochlor modeling are depicted in **Figure 7**. Model inputs included site-specific and regional values, and PCE data from June/July 2015. The input parameters used for Biochlor modeling are listed on the table below.

Parameter	Value	Source
Hydraulic Conductivity	$4.5x10^{-4}$ centimeter per second (cm/s)	Average value from ten slug tests in residuum, as reported by URS (2009)
Hydraulic gradient	Varies	Site-specific, derived from June 2015 hydraulic head values along migration pathways
Effective porosity	0.2 (20%)	Based on assumed average between residuum and fractured bedrock
Longitudinal dispersivity	30 to 45 feet	Based on literature ranges in crystalline rock (see **Attachment B**)
Transverse dispersivity	Varies	Calculated as 10% of longitudinal dispersivity
Bulk density	1.24 kilograms per liter (kg/L)	Based on literature values in Piedmont (see **Attachment B**)
Fraction of organic carbon	0.001	Based on average of site-specific TOC data (see **Table 2**) within residuum and fractured rock
KOC	95 Liters per kilogram (L/kg)	Biochlor default value for PCE
Simulation time	4 to 7 years	Depends on extent of historical data from select wells in migration pathway
Modeled area width	400 feet	Based on recent isoconcentration maps for PCE
Source Thickness and width	Varies	Assumed as 40 feet thick and 35 feet wide for all source areas

Provided below is a summary of initial Biochlor modeling results. A full discussion is provided in **Attachment B.**

3.1 Initial Model Findings

Modeling results indicate a decay rate of 0.198 per year along migration pathway #1, and a decay rate between 0.173 to 0.198 per year along migration pathway #2. In comparison to decay rates that are supportive of intrinsic attenuation, which range from 0.13 per year (in 10 percent of plumes) to 0.23 per year (in 50 percent of plumes), at chlorinated ethene concentrations below 5 milligrams per liter (mg/L) the Site specific decay rates are within the range that supports the prospect of PCE degradation at the study area over a 30-year time period. (Wilson, 2014).

4.0 Conclusions and Recommendations

The combination of the biogeochemical monitoring results, Biochlor modeling results, and PCE trends support that PCE decreases will continue to occur towards regulatory standards over the long-term. Decay rates estimated for the two (2) migration pathways support degradation of PCE within a 30 year time period.

In summary, the following conclusions are noted:

- Lines of evidence described above demonstrate the potential for intrinsic PCE degradation processes (e.g., chlororespiration, aerobic cometabolism, etc.) to occur within the study area within a 30 year time period.

- Historical and recent PCE data, upon evaluation via Mann Kendall Statistical Trend Tests, demonstrates primarily "stable" to "decreasing" trends (see **Attachment C**). Results of trend testing indicate that PCE impacts have extended to the maximum extent volumetrically, and are in the process of decreasing.
- Receptors and exposure pathways do not currently exist for groundwater underlying the Study Area; future receptors and exposure pathways will be minimized.
- Point of demonstration monitoring is recommended from select wells to confirm existing trends in groundwater. No further active remediation to be proposed.

References

Wilson, J.T. (2014). The Contribution of Abiotic Transformations on Magnetite and Iron Sulfides to the Attenuation of Chlorinated Solvents. Microbial Insights Webinar. December 15.

Attachments

Tables

Table 1 – Summary of General Water Quality Parameters
Table 2 – Summary of Biogeochemical Parameters
Table 3 – Summary of Compound Specific Isotope Analysis Results
Table 4 – Summary of Biogeochemical Parameters as a Function of Source and Migration Pathway

Figures

Figure 1 – Potential PCE Degradation Pathways
Figure 2 – Monitoring Well Network
Figure 3 – Comparative Charts between Chlororespiring Species and Other Populations
Figure 4 – MW-15 Well Nest – Chlorinated Ethene Micromolar Distribution
Figure 5 – MW-16 Well Nest – Chlorinated Ethene Micromolar Distribution
Figure 6 – MW-19 Well Nest – Chlorinated Ethene Micromolar Distribution
Figure 7 – Groundwater Migration Pathways used for Biochlor Modeling

Attachments

Attachment A – Summary of Monitoring Event for Biogeochemical Parameters
Attachment B – Biochlor Modeling Results
- B-1 – Biochlor Modeling Results for Migration Pathway #1
- B-2 – Biochlor Modeling Results for Migration Pathway #2A
- B-3 – Biochlor Modeling Results for Migration Pathway #1B

Attachment C – Mann Kendall Statistical Trend Tests
- C-1 – Wells MW-2A/B/C, MW-3A, and MW-5A/B/C
- C-2 – Wells MW-8A/B, MW-9A, MW-10A/B, MW-11A, and MW-12A
- C-3 – Wells MW-13A/C, MW-15A/B, and MW-16A/B/C

Attachment D – Laboratory Analytical Reports
- D-1 – Pace Analytical Report ID 16056-678667
- D-2 – Pace Analytical Report ID 16105-680565
- D-3 – Pace Analytical Report ID 16116-689011
- D-4 – Pace Analytical Report ID 16119-683698
- D-5 – Pace Analytical Report ID 16144-683787
- D-6 – Pace Analytical Report ID 16145-689016
- D-7 – Microbial Insights Report ID 042MG

TABLES

Table 1
Summary of General Water Quality Parameters
Tara Shopping Center - Jonesboro, GA

Well ID	Date	Time	Temp (°C)	pH (s.u.)	Specific Conductance (µS)	DO (mg/L)	ORP (mV)	Turbidity (NTU)
MW-1A	7/11/2015	10:54	20.15	5.28	0.05	9.85	91.7	
MW-1C	7/1/2015	11:55	21.04	10.16	0.486	21.09	139.5	0.9
MW-3A	7/2/2015	18:03	18.58	5.05	0.025	6.74	182.5	5.03
MW-3B	7/1/2015	13:09	19.95	4.93	0.085	21.2	155.9	8.27
MW-4A	7/2/2015	10:25	20.17	4.6	0.133	1.44	253.07	1.01
MW-4B	7/1/2015	17:55	20.64	5.08	0.78	4.03	169.9	1.32
MW-5A	7/1/2015	14:55	19.28	6.27	0.302	0.16	38.3	3.92
MW-5B	7/15/2015	12:18	20.53	5.09	0.088	1.28	416.7	3.9
MW-5C	7/14/2015	9:11	22.71	6.55	0.206	0.74	69.5	2.38
MW-6A	6/30/2015	16:20	19.59	5.54	0.107	0.34	518.4	1.06
MW-6B	6/30/2015	16:11	19.86	5.44	0.048	6.77	118.2	8.92
MW-7B	7/1/2015	16:01	22.97	5	0.035	11.5	185.6	7.64
MW-7C	7/1/2015	14:55	27.92	6.48	0.076	1.01	91.5	7.21
MW-8A	7/14/2015	9:15	22.84	2.84	0.075	6.22	823.1	7.8
MW-8B	7/14/2015	12:28	24.44	5.58	0.147	3.91	730.6	5.55
MW-8C	7/2/2015	11:40	29.4	9.1	0.768	4.33	-94.4	1.14
MW-9A	7/14/2015	13:20	19.68	3.08	0.046	3.18	414	3.2
MW-9B	7/2/2015	10:05	19.22	6.04	0.165	8.85	62.5	1.27
MW-9C	7/1/2015	17:38	18.83	6.36	0.18	1.15	31.8	n.m.
MW-10A	7/14/2015	10:33	24.52	4.62	0.65	5.92	683.2	2.4
MW-10B	7/2/2015	18:15	24.56	11.47	0.444	9.01	51.1	16.8
MW-10C	7/2/2015	17:15	26.41	10.01	0.056	6.12	37.4	0.71
MW-11A	7/16/2015	9:35	22.16	4.28	0.059	10.13	846.4	9.3
MW-11B	7/2/2015	14:40	21.04	8.52	0.163	6.6	475.4	4.07
MW-11C	7/2/2015	15:50	21.22	6.06	0.246	1.91	606.9	1.88
MW-12A	7/2/2015	17:02	18.58	4.66	0.048	2.39	170.3	1.59
MW-13A	7/15/2015	14:08	23.17	4.82	0.077	1.33	320.2	21
MW-13B	7/14/2015	11:20	23.87	6.15	0.144	3.23	41.1	9.38
MW-13C	7/14/2015	10:27	25.38	9.18	0.137	0.97	26	5.68
MW-14A	7/2/2015	13:37	25.22	4.81	0.103	9.65	160.6	2.64
MW-15A	7/15/2015	12:08	23.07	5.16	0.085	0.31	61.6	1.12
MW-15B	7/15/2015	10:34	23.92	5.81	0.146	3.68	59.6	21.2
MW-15C	7/15/2015	8:49	25.46	10.32	0.32	2.28	116.7	2.91
MW-16A	7/15/2015	10:21	21.18	5.57	0.1	1.45	294.6	3.9
MW-16B	7/15/2015	8:53	20.8	5.73	0.136	10.77	308.7	2.6
MW-16C	7/15/2015	14:28	23.4	6.32	0.16	0.72	32	0.82
MW-17A	7/14/2015	11:43	20.87	3.83	0.349	16.34	935	5.2
MW-18A	7/2/2015	12:50	22.62	4.77	0.07	1.56	183.1	0.71
MW-18B	7/2/2015	11:40	21.47	5.61	0.141	4.15	163	6.85

Table 1
Summary of General Water Quality Parameters
Tara Shopping Center - Jonesboro, GA

Well ID	Date	Time	Temp (°C)	pH (s.u.)	Specific Conductance (µS)	DO (mg/L)	ORP (mV)	Turbidity (NTU)
MW-19A	7/1/2015	10:25	23.87	5.21	0.064	4.56	27.9	1.14
MW-19B	7/14/2015	15:10	25.25	5.48	0.081	0.75	292.1	0.2
MW-19C	7/14/2015	14:21	25.48	7.7	0.187	1.01	149.2	2.3
MW-19D	7/14/2015	16:04	26.55	7.48	0.063	0.49	211.7	10.2
MW-20C	7/2/2015	15:52	23.12	6.73	0.187	14.59	118.4	0.58
MW-21B	7/1/2015	11:20	21.18	4.53	0.033	8.79	284.1	0.69
MW-21C	7/1/2015	12:25	21.34	7.49	0.169	7.41	203.1	0.75
MW-22A	6/30/2015	14:12	16.41	4.09	0.022	3	146.7	1.72
MW-22B	6/30/2015	14:52	16.81	5.8	0.151	634	113.6	1.37
MW-23A	6/30/2015	18:00	16.1	5.84	0.193	4.04	179.3	1.22
MW-23B	6/30/2015	17:47	17.87	9.52	0.184	0.84	118.2	5.54
MW-24C	7/2/2015	14:45	21.64	4.92	0.095	6.07	137.7	n.m.

Notes:

ID, Identification; Temp, termperature; °C, degrees celsius; s.u., standard units; µS, microsiemens; DO, dissolved oxygen; mg/L, milligrams per liter; ORP, oxidation-reduction potential; mV, millivolts; NTU, nephelometric turbidity units; n.m., not measured

Table 2
Summary of Biogeochemical Parameters
Tara Shopping Center - Jonesboro, GA

Sample ID	Units	MW-1A	MW-1C	MW-3A	MW-3B	MW-4A	MW-4B	MW-5A	MW-5B	MW-5C	MW-6A	MW-6B	MW-7B	MW-7C	MW-8A	MW-8B	MW-8C	MW-9A	MW-9B
Sampling Date		**7/1/2015**	**7/1/2015**	**7/2/2015**	**7/1/2015**	**7/2/2015**	**7/1/2015**	**7/1/2015**	**7/15/2015**	**7/14/2015**	**6/30/2015**	**6/30/2015**	**7/1/2015**	**7/1/2015**	**7/14/2015**	**7/14/2015**	**7/2/2015**	**7/14/2015**	**7/2/2015**
Chlorinated Ethenes																			
Tetrachloroethene (PCE)	ug/L	**11**	<1.0	**11**	<1.0	**1.2**	<1.0	<1.0	**340 D**	**2.9**	<1.0	<1.0	**5.4**	<1.0	**96**	**7.7**	<1.0	**310 D**	<1.0
Trichloroethene (TCE)	ug/L	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	**200 D**	**2.0**	<1.0	<1.0	<1.0	<1.0	<1.0	<2.0	<1.0	**180**	<1.0
cis-1,2-Dichloroethene (cis 1,2-DCE)	ug/L	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	**570 D**	**1.6**	<1.0	<1.0	<1.0	<1.0	<1.0	<2.0	<1.0	**79**	<1.0
trans-1,2-Dichloroethene (trans 1,2-DCE)	ug/L	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	**4.6**	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<2.0	<1.0	**7.3**	<1.0
1,1-Dichloroethene (1,1-DCE)	ug/L	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0
Vinyl chloride	ug/L	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	**2.3**	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0
Terminal End Products																			
Ethene	ug/L	<0.10		<0.10		<0.10		<0.10	<0.10	**2**	<0.10	<0.10	<0.10		<0.10	<0.10		<0.10	
Ethane	ug/L	<0.10		<0.10		<0.10		<0.10	**39**	<0.10	<0.10	<0.10	<0.10		<0.10	<0.10		<0.10	
Chloride	mg/L								**8.8**										
Acetylene	ug/L	<0.50		<0.50		<0.50		<0.50	<0.50	<0.50	<0.50	<0.50	<0.50		<0.50	<0.50		<0.50	
Terminal Electron Acceptors																			
Dissolved Oxygen (DO)	mg/L	**9.85**	**21.09**	**6.74**	**21.2**	**1.44**	**4.03**	**0.16**	**1.28**	**0.74**	**0.34**	**6.77**	**11.5**	**1.01**	**6.22**	**3.91**	**4.41**	**3.18**	**8.85**
Nitrate as N	mg/L								**0.087**										
Iron (Total)	ug/L								<100										
Iron (Dissolved)	ug/L								<100										
Manganese (Total)	ug/L								**81**										
Sulfate	mg/L								<1.0										
Methane	ug/L	**16**		<0.50		<0.50		**250**	**250**	**5.5**	**2.7**	<0.50	<0.50		**39**	<0.50		**150**	
Terminal Electron Accepting Products																			
Nitrite as N	mg/L								<0.050										
Ferrous Iron	mg/L								<0.10 HF										
Manganese (Dissolved)	ug/L								**79**										
Sulfide	mg/L								<10										
Carbon Dioxide	mg/L								**110**										
Available Electon Accepting Donors / Carbon Source																			
Total Organic Carbon	mg/L								<1.0										
Lactic Acid	mg/L								<0.10										
Acetic Acid	mg/L								<0.070										
Propionic Acid	mg/L								<0.050										
Formic Acid	mg/L								<0.10										
Butyric Acid	mg/L								<0.050										
Pyruvic Acid	mg/L								<0.15										
i-Pentanoic Acid	mg/L								<0.15										
Pentanoic Acid	mg/L								<0.070										
i-Hexanoic Acid	mg/L								<0.20										
Hexanoic Acid	mg/L								<0.50										

See last page for notes.

Table 2
Summary of Biogeochemical Parameters
Tara Shopping Center - Jonesboro, GA

Sample ID	Units	MW-9C	MW-10A	MW-10B	MW-10C	MW-11A	MW-11B	MW-11C	MW-12A	MW-13A	MW-13B	MW-13C	MW-14A	MW-15A	MW-15B	MW-15C	MW-16A	MW-16B	MW-16C
Sampling Date		**7/1/2015**	**7/14/2015**	**7/2/2015**	**7/2/2015**	**7/16/2015**	**7/2/2015**	**7/2/2015**	**7/2/2015**	**7/15/2015**	**7/14/2015**	**7/14/2015**	**7/2/2015**	**7/15/2015**	**7/15/2015**	**7/15/2015**	**7/15/2015**	**7/15/2015**	**7/15/2015**
Chlorinated Ethenes																			
Tetrachloroethene (PCE)	ug/L	<1.0	**220 D**	<1.0	**3.4**	**2.7**	<2.0	<1.0	**5.7**	**750 D**	**290 D**	**7.5**	**7.7**	**320**	**72**	**10**	**400 D**	**980 D**	**820 D**
Trichloroethene (TCE)	ug/L	<1.0	**37**	<1.0	<1.0	<2.0	<2.0	<1.0	<1.0	**730 D**	**130**	**1.2**	<1.0	**87**	**3.1**	**1.9**	**49**	**92**	**72**
cis-1,2-Dichloroethene (cis 1,2-DCE)	ug/L	<1.0	**21**	<1.0	<1.0	<2.0	<2.0	<1.0	<1.0	**2000 D**	**130**	**3.1**	<1.0	**19**	<1.0	<1.0	**93**	**190**	**110**
trans-1,2-Dichloroethene (trans 1,2-DCE)	ug/L	<1.0	<1.0	<1.0	<1.0	<2.0	<2.0	<1.0	<1.0	**13**	**1.4**	<1.0	<1.0	<2.0	<1.0	<1.0	**2.8**	**17**	**2.0**
1,1-Dichloroethene (1,1-DCE)	ug/L	<1.0	<1.0	<1.0	<1.0	<2.0	<2.0	<1.0	<1.0	**3.4**	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	<1.0	<1.0
Vinyl chloride	ug/L	<1.0	<1.0	<1.0	<1.0	<2.0	<2.0	<1.0	<1.0	**180**	**1.9**	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	<1.0	<1.0
Terminal End Products																			
Ethene	ug/L		<0.10	<0.10	**0.56**	<0.10			<0.10	**2.2**	<0.10	<0.10	<0.10	<0.10	<0.10	**1.8**	<0.10	<0.10	**0.26**
Ethane	ug/L		<0.10	<0.10	<0.10	<0.10			<0.10	**8.1**	**1.2**	<0.10	<0.10	<0.10	<0.10	**0.27**	<0.10	<0.10	<0.10
Chloride	mg/L					<13								**16**	**14**	**9.4**	**1.7**	**4.1**	**4.6**
Acetylene	ug/L		<0.50	<0.50	<0.50	<0.50			<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Terminal Electron Acceptors																			
Dissolved Oxygen (DO)	mg/L	**1.15**	**5.92**	**9.01**	**6.12**	**10.13**	**6.6**	**1.91**	**2.39**	**1.33**	**3.23**	**0.97**	**9.65**	**0.31**	**3.68**	**2.28**	**1.48**	**10.77**	**0.22**
Nitrate as N	mg/L					<1.3								**1.9 D**	**6.9 E**	<0.050	**0.83**	**3.1**	**2.8**
Iron (Total)	ug/L					<100								<100	**3600**	<100	**230**	<100	<100
Iron (Dissolved)	ug/L					<100								<100	**520**	<100	<100	<100	<100
Manganese (Total)	ug/L					**11000**								**190**	**110**	<5.0	**19**	**7.0**	**6.2**
Sulfate	mg/L					<25								<1.0	<1.0	**20**	<1.0	<1.0	**2.1**
Methane	ug/L		<0.50	**2.4**	**3.2**	**0.61**			<0.50	**210**	**1.9**	<0.50	<0.50	**33**	<0.50	**1**	**8.2**	<0.50	**72**
Terminal Electron Accepting Products																			
Nitrite as N	mg/L					<1.3								<0.050	<0.10	<0.050	<0.050	<0.10	<0.050
Ferrous Iron	mg/L					<5.0 HF								<0.10 HF	<0.10 HF	<0.10 HF	<0.10 HF	<0.10 HF	<0.10 HF
Manganese (Dissolved)	ug/L					**11000**								**190**	**58**	<5.0	**14**	**10**	<5.0
Sulfide	mg/L					<10								<10	<10	<10	<10	<10	<10
Carbon Dioxide	mg/L					**210**								**160**			**56**		
Available Electon Accepting Donors / Carbon Source																			
Total Organic Carbon	mg/L					**1.1**								<1.0	<1.0	**1.5**	<1.0	<1.0	<1.0
Lactic Acid	mg/L					<0.10								<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Acetic Acid	mg/L					**0.08**								<0.070	**0.11**	**0.1**	<0.070	**7.5**	<0.070
Propionic Acid	mg/L					<0.050								<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Formic Acid	mg/L					**0.13**								<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Butyric Acid	mg/L					<0.050								<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Pyruvic Acid	mg/L					<0.15								<0.15	<0.15	<0.15	<0.15	<0.15	<0.15
i-Pentanoic Acid	mg/L					<0.15								<0.15	<0.15	<0.15	<0.15	<0.15	<0.15
Pentanoic Acid	mg/L					<0.070								<0.070	<0.070	<0.070	<0.070	<0.070	<0.070
i-Hexanoic Acid	mg/L					<0.20								<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Hexanoic Acid	mg/L					<0.50								<0.50	<0.50	<0.50	<0.50	<0.50	<0.50

See last page for notes.

Table 2
Summary of Biogeochemical Parameters
Tara Shopping Center - Jonesboro, GA

Sample ID	Units	MW-17A	MW-18A	MW-18B	MW-19A	MW-19B	MW-19C	MW-19D	MW-20C	MW-21B	MW-21C	MW-22A	MW-22B	MW-23A	MW-23B	MW-24C	OF-2	SG-1	SG-2
Sampling Date		**7/14/2015**	**7/2/2015**	**7/2/2015**	**7/1/2015**	**7/14/2015**	**7/14/2015**	**7/14/2015**	**7/2/2015**	**7/1/2015**	**7/1/2015**	**6/30/2015**	**6/30/2015**	**6/30/2015**	**6/30/2015**	**7/2/2015**	**7/16/2015**	**7/16/2015**	**7/16/2015**
Chlorinated Ethenes																			
Tetrachloroethene (PCE)	ug/L	**3.1**	**1.3**	**2.1**	<1.0	**370 D**	**200**	**12**	**53**	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	**41**	**76**	**36**	**17**
Trichloroethene (TCE)	ug/L	<2.0	<1.0	<1.0	<1.0	**34**	**18**	**1.2**	**5.0**	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	**12**	**2.7**	<1.0
cis-1,2-Dichloroethene (cis 1,2-DCE)	ug/L	<2.0	**1.0**	<1.0	<1.0	**47**	**32**	**1.9**	**4.9**	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	**5.9**	**2.3**	<1.0
trans-1,2-Dichloroethene (trans 1,2-DCE)	ug/L	<2.0	<1.0	<1.0	<1.0	**1.0**	**1.2**	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
1,1-Dichloroethene (1,1-DCE)	ug/L	<2.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Vinyl chloride	ug/L	<2.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Terminal End Products																			
Ethene	ug/L	<0.10	<0.10	<0.10	**2.1**	<0.10	0.42	**0.22**	<0.10						**6.7**	**0.46**			
Ethane	ug/L	<0.10	<0.10	<0.10	**6.4**	<0.10	<0.10	<0.10	**0.22**						**5.2**	**0.41**			
Chloride	mg/L																		
Acetylene	ug/L	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50						<0.50	<0.50			
Terminal Electron Acceptors																			
Dissolved Oxygen (DO)	mg/L	**16.34**	**1.56**	**4.15**	**4.56**	**0.75**	**1.01**	**0.49**	**14.59**	**8.79**	**7.41**	**3.0**	**6.34**	**4.04**	**0.84**	**6.07**		**4.63**	
Nitrate as N	mg/L																		
Iron (Total)	ug/L																		
Iron (Dissolved)	ug/L																		
Manganese (Total)	ug/L																		
Sulfate	mg/L																		
Methane	ug/L	**56**	**4.3**	**0.57**	**660**	<0.50	**4.5**	<0.50	**0.94**						**7.7**	**1.2**			
Terminal Electron Accepting Products																			
Nitrite as N	mg/L																		
Ferrous Iron	mg/L																		
Manganese (Dissolved)	ug/L																		
Sulfide	mg/L																		
Carbon Dioxide	mg/L																		
Available Electon Accepting Donors / Carbon Source																			
Total Organic Carbon	mg/L																		
Lactic Acid	mg/L																		
Acetic Acid	mg/L																		
Propionic Acid	mg/L																		
Formic Acid	mg/L																		
Butyric Acid	mg/L																		
Pyruvic Acid	mg/L																		
i-Pentanoic Acid	mg/L																		
Pentanoic Acid	mg/L																		
i-Hexanoic Acid	mg/L																		
Hexanoic Acid	mg/L																		

See last page for notes.

Table 2
Summary of Biogeochemical Parameters
Tara Shopping Center - Jonesboro, GA

Notes:
ID, Identification; mg/L, milligrams per liter; µg/L, micrograms per liter;
"<", Compound was analyzed for, but not detected below the reporting limit
"D", sample or extract reanalyzed at a dilution factor greater than 1
"E", Reported value is esitmated due to the presence of interference
"HF", field parameter with a holding time of 15 minutes

Table 3
Summary of Compound Specific Isotope Analysis Results
Tara Shopping Center - Jonesboro, GA

Analyte	Analysis	Units	Site (Source 1)	Stormwater Conveyance System (Source 2)	Wells Downgradient of Sources 1 and 2													
					MW-15A							MW-16A						
						In Comparison to Source 1			In Comparison to Source 2				In Comparison to Source 1			In Comparison to Source 2		
			MW-11C	MW-5B	Results	α_1	ε_1	f_1	α_2	ε_2	f_2	Results	α_1	ε_1	f_1	α_2	ε_2	f_2
PCE	TA (8260B)	µg/L	< 1.0	340	320							400						
	Pace (8260B)	µg/L	3.9	512	441							459						
	Pace ($\delta^{13}C$)	$^0/_{00}$	-19.94	-21.25	-23.43	1.0035737	3.5737326	0.37660	1.0022323	2.2323029	0.3766006	-21.48	1.00157381	1.5738053	0.37587	1.000235	0.2350488	0.375867
TCE	TA (8260B)	µg/L	< 1.0	200	87							49						
	Pace (8260B)	µg/L	< 1.0	274	109							58.6						
	Pace ($\delta^{13}C$)	$^0/_{00}$	-	-24.01	-26.86	NA	NA	NA	1.0029287	2.9286639	0.3778946	-25.02	NA	NA	NA	1.0010359	1.0359187	0.3771999
cDCE	TA (8260B)	µg/L	< 1.0	570	19							93						
	Pace (8260B)	µg/L	< 1.0	897	25.9							137						
	Pace ($\delta^{13}C$)	$^0/_{00}$	-	-24.71	-27.27	NA	NA	NA	1.0026318	2.6317683	0.3780496	-23.24	NA	NA	NA	0.998495	-1.504976	0.3765291
VC	TA (8260B)	µg/L	< 1.0	2.3	< 2.0							< 1.0						
	Pace (8260B)	µg/L	< 1.0	2.3	< 1.0							< 1.0						
	Pace ($\delta^{13}C$)	$^0/_{00}$	-	1.61	-	NA	NA	NA	NA	NA	NA	-	NA	NA	NA	NA	NA	NA

Analyte	Analysis	Units	[1]Undegraded	MW-11C				MW-5B				MW-15A				MW-16A			
				Results	In comparison to Undegraded			Results	In comparison to Undegraded			Results	In comparison to Undegraded			Results	In comparison to Undegraded		
					α	Ɛ	*f*		α	Ɛ	*f*		α	Ɛ	*f*		α	Ɛ	*f*
PCE	TA (8260B)	µg/L		< 1.0				340				320				400			
	Pace (8260B)	µg/L		3.9				512				441				459			
	Pace ($\delta^{13}C$)	$^0/_{00}$	-25	-19.94	0.9948371	-5.162949	0.3752886	-21.25	0.9961686	-3.831418	0.37578	-23.43	0.99839233	-1.607668	0.3766006	-21.48	0.9964027	-3.597269	0.37587

Notes:

PCE, tetrachloroethene; TCE, trichloroethene; cDCE, cis 1,2-dichloroethene; VC, vinyl chloride; TA, TestAmerica; Pace, Pace Analytical; µg/L, micrograms per liter; $^0/_{00}$, per mil (parts per thousand); "<", non-detect below reporting limit.

α, stable isotope fractionation factor

Ɛ, stable isotope enrichment factor - the larger the fractionation, the more negative the value of epsilon

f, ratio of concentrations of the compound between source and downgradient groundwater

1 - Undegraded ȝ13C for parent chlorinated ethenes reported by US EPA (2008) to range from -25 to -35 $^0/_{00}$. Conservatively assumed at -25 $^0/_{00}$ for evaluation.

Table 4
Summary of Biogeochemical Parameters as a Function of Source and Migration Pathway
Tara Shopping Center - Jonesboro, GA

Area	Water Bearing Unit	Representative Wells in Area	Dominant Terminal Electron Accepting Processes (TEAPs)	Aerobic Degradation Characteristics	Anaerobic Degradation Characteristics	Abiotic Degradation Characteristics	Other
Site (Source 1)	Upper Residuum	MW-8A, MW-10A, and MW-11A	- Aerobic conditions are dominant, with elevated concentrations (~10 mg/L) in MW-11A - Indications of manganese reduction observed in well MW-11A. - Other TEAPs (other than some methane) not detected.	- Soluble methane monooxygenase (SMMO) detected at low concentration, indicating limited potential for aerobic cometabolism of PCE - 210 mg/L of CO_2 detected.	- Incomplete reductive dechlorination to cis 1,2-DCE in MW-10A - Low concentrations of PCE in MW-8A and MW-11A - No detection of ethene or ethane - Dehalococcoides (Dhc.) species detected at 39.4 cells per mL in MW-11A, with detectable reductive dehalogenase genes - Other PCE chlororespiring species detected	- Sulfate reducing bacteria (SRBs) detected at 10 cells per mL, indicating some potential for iron-sulfide catalyzed abiotic reactions - No acetylene detected in each of the three (3) wells	- TOC, and acetic and formic acids detected in MW-11A which may serve as carbon source and/or electron donors. May be derived from prior permanganate injection. - pH values all below 6.0 s.u., ranging from 2.84- to 4.62-s.u.
	Lower Residuum	MW-8B, MW-10B, and MW-11B	- Aerobic conditions observed. - Some methane detected in MW-10B, potentially from methanogenesis.	- No data collected	- Low concentrations of PCE detected in MW-8B, and non-detect in other wells. - No ethene or ethane detected.	- No acetylene detected in MW-8B and MW-10B	- pH value in MW-8B just below 6.0 s.u. - Alkaline pH values detected in MW-10B and MW-11B - No TOC or VFA data collected
	Fractured Bedrock	MW-8C, MW-10C, and MW-11C	- Aerobic conditions observed. - Some methane detected in MW-10C, potentially from methanogenesis.	- No data collected	- Low concentrations of PCE and ethene detected in MW-10C. - PCE non-detect in MW-8C and MW-11C.	- No acetylene detected in MW-10C	- Alkaline pH values detected in MW-8C and MW-10C - pH in MW-11C within physiological range (from 6.0 to 8.0 s.u.) - No TOC or VFA data collected
Stormwater Conveyance System (Source 2)	Upper Residuum	MW-3A, MW-5A, and MW-13A	- Aerobic conditions observed in MW-3A - Potential anaerobic conditions in MW-5A and MW-13A, and elevated methane concentrations (likely from methanogenesis)	- No data collected	- Low PCE detected in MW-3A and no PCE in MW-5A, with no ethene or ethane detected - Full reductive dechlorination identified in MW-13A, with elevated daughter product, ethene, and ethane production	- No acetylene detected in each of the three (3) wells	- pH value in MW-5A within physiological range, and MW-3A and MW-13A below - No TOC or VFA data collected
	Lower Residuum	MW-3B, MW-5B, and MW-13B	- Elevated DO detected in MW-3B - Potentially anaerobic conditions observed in MW-5B with elevated levels of methane, reduced manganese, and oxidized nitrate - Aerobic conditions observed in MW-13B with low levels of methane produced	- Detectable SMMO and particulate methane monooxygenases (PMMO) detected in MW-5B, indicating capability for aerobic cometabolism of PCE - CO_2 detected at 110 mg/L in MW-5B	- Full reductive dechlorination identified in MW-5B and MW-13B, with daughter product and ethane production - No Dhc. species, reductive dehalogenase genes, or other pertinent PCE-chlororespirers detected in MW-5B	- SRBs detected at low concentration in MW-5B, indicating a limited potential for iron-sulfide catalyzed reactions - No detection of iron or sulfur species, which can promote abiotic mineral-catalyzed reactions - No acetylene detected.	- pH value in MW-13B within physiological range, and MW-3B and MW-5B below - No TOC or VFAs detected in MW-5B to serve as potential electron donor
	Fractured Bedrock	MW-5C and MW-13C	- Potential anaerobic conditions in MW-5C and MW-13C - Methane detected in MW-5C, but non-detect in MW-13C	- No data collected	- Low levels of PCE, TCE, and cis 1,2-DCE detected in MW-5C and MW-13C - Ethene detected in MW-5C, but no ethene or ethane in MW-13C	- No acetylene detected in both wells	- pH value in MW-5C within physiological pH range, and MW-13C alkaline - No TOC or VFA data collected

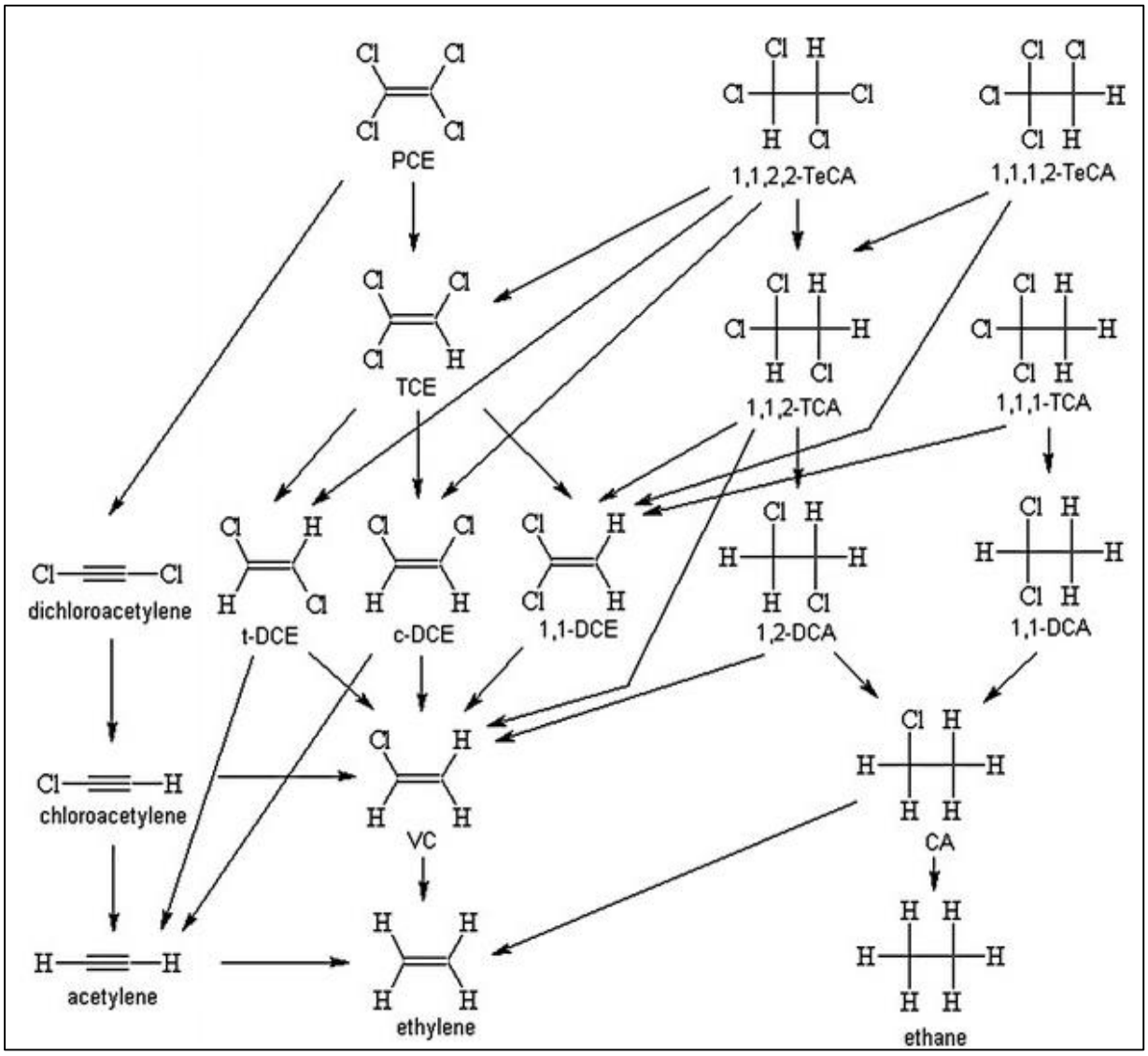
Table 4
Summary of Biogeochemical Parameters as a Function of Source and Migration Pathway
Tara Shopping Center - Jonesboro, GA

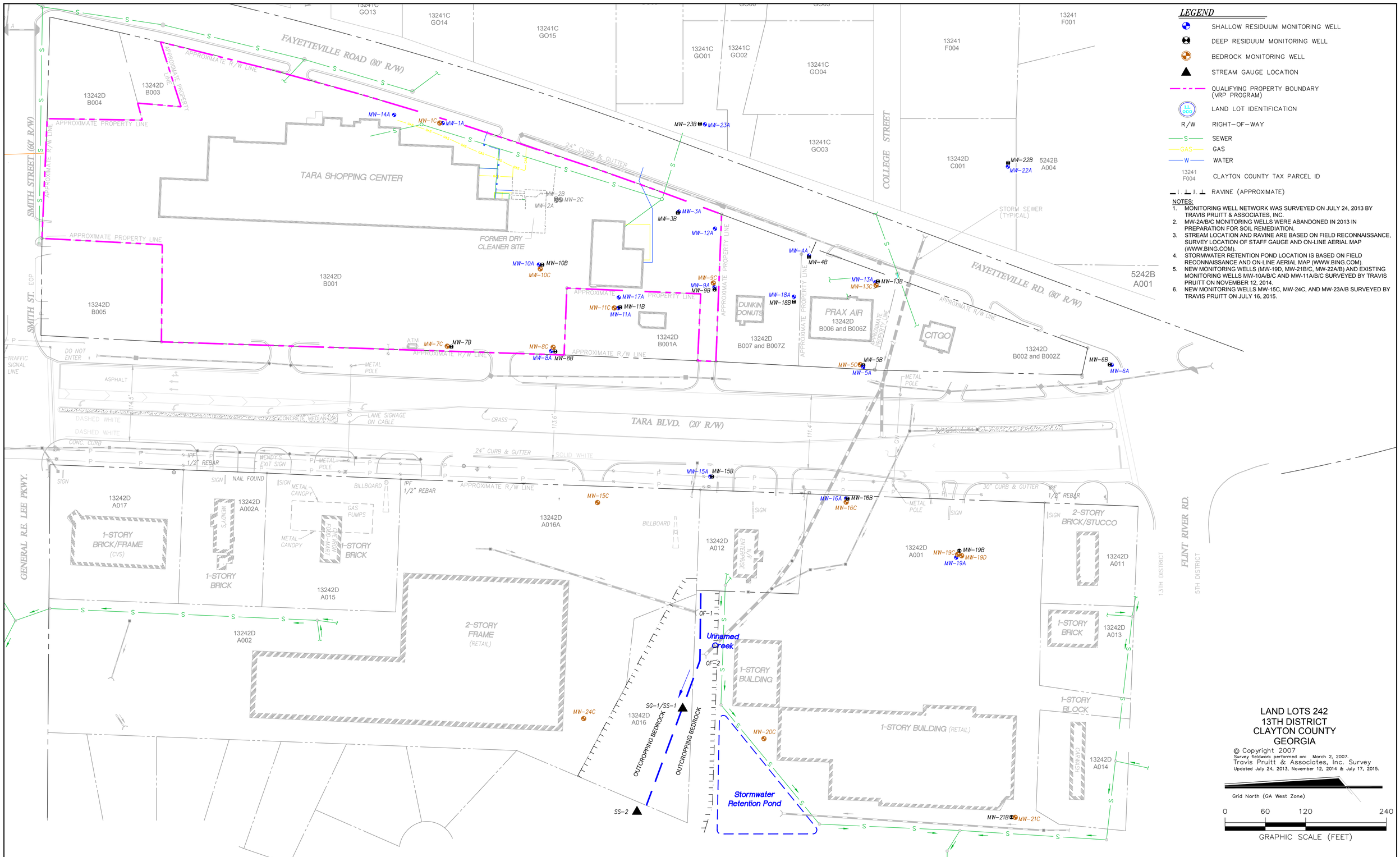
Area	Water Bearing Unit	Representative Wells in Area	Dominant Terminal Electron Accepting Processes (TEAPs)	Aerobic Degradation Characteristics	Anaerobic Degradation Characteristics	Abiotic Degradation Characteristics	Other
Downgradient	Upper Residuum	MW-15A, MW-16A, and MW-19A	- MW-15A and MW-16A potentially anaerobic, but MW-19A aerobic - Oxidized nitrate and iron, and manganese reduction in MW-15A and MW-16A - Methane production in MW-15A and MW-16A, and greatest in MW-19A	- SMMO, PMMO, and toluene monooxygenase detected indicated potential for aerobic cometabolism - Epoxyalkane transferase detected, indicating potential for aerobic cometabolism of vinyl chloride - Elevated concentrations of CO_2 detected in MW-15A and MW-16A	- PCE dechlorination to DCE isomers observed in MW-15A and MW-16A, no PCE in MW-19A - Ethene and ethane detected in MW-19A, but non-detect in MW-15A and MW-16A	- No SRBs detected in well MW-15A and no dissolved iron or sulfide detected, indicating limited potential for abiotic reactions from mackinawite and pyrite. However, reactions from magnetite may occur. - No acetylene detected in each of the three (3) wells	- pH values all below physiological range, between 5.0 and 6.0 s.u. - No TOC or VFAs detected, which could serve as electron donors
	Lower Residuum	MW-15B, MW-16B, and MW-19B	- Anaerobic conditions in MW-19B, but aerobic in MW-15B and MW-16B - Nitrate accumulation and manganese reduction in wells MW-15B and MW-16B, with some iron reduction in MW-15B - No methane production observed	- No data collected	- PCE dechlorination to TCE in MW-15B, and to DCE isomers observed in MW-16B and MW-19B - No ethene and ethane detected	- Total and dissolved iron detected in MW-15B, which is likely within oxidized ferric state. May support production of magnetite and associated PCE abiotic degradation. - No acetylene detected in each of the three (3) wells	- pH values all below physiological range, between 5.0 and 6.0 s.u. - No TOC detected, but acetic acid detected in both MW-15B and MW-16B, and could serve as electron donor
	Fractured Bedrock	MW-15C, MW-16C, MW-19C, and MW-19D	- Anaerobic to mildly oxic conditions observed - Accumulation of oxidized nitrate and manganese in MW-16C, and sulfate in MW-15C and MW-16C - methane production detected in MW-15C, MW-16C, and MW-19C, but non-detect in MW-19C	- No data collected	- PCE dechlorination to TCE in MW-15C, and to DCE isomers observed in MW-16C, MW-19C, and MW-19D - Ethene detected in MW-15C, MW-16C, and MW-19D, and ethane detected in MW-15C only	- No detection of iron or sulfur species, which can promote abiotic mineral-catalyzed reactions - No acetylene detected in each of the four (4) wells	- pH values in MW-16C, MW-19C, and MW-19D within physiological range, and MW-15C alkaline - TOC and acetic acid detected in MW-15C, which could serve as electron donor - No TOC or VFAs detected in MW-16C
	Fractured Bedrock (Near Creek)	MW-20C and MW-24C	- Aerobic and oxidizing conditions were observed in both wells - Some methane production was detected in both wells	- No data collected	- PCE dechlorination to cis 1,2-DCE observed in MW-20C, but on PCE detected in MW-24C - Ethene and ethane detected in MW-24C, but only ethane detected in MW-20C	- No acetylene detected in both wells	- pH in MW-20C was within physiological range, however in MW-24C the pH was just below 5.0 s.u. - No TOC or VFA data collected

Notes:
Parameters to support TEAP evaluation (e.g., nitrate, nitrite, total and dissolved iron, ferrous iron, total and dissolved manganese, sulfate, and sulfide) collected and analyzed in wells MW-5B, MW-11, MW-15A/B/C, and MW-16A/B/C.
Samples for carbon dioxide, Microbial species and genes collected and analyzed from wells MW-5B, MW-11A, MW-15A, and MW-16A

FIGURES

Figure 1 – Potential PCE Degradation Pathways





LEGEND

- SHALLOW RESIDUUM MONITORING WELL
- DEEP RESIDUUM MONITORING WELL
- BEDROCK MONITORING WELL
- STREAM GAUGE LOCATION
- QUALIFYING PROPERTY BOUNDARY (VRP PROGRAM)
- LAND LOT IDENTIFICATION
- R/W — RIGHT-OF-WAY
- S — SEWER
- GAS — GAS
- W — WATER
- 13241 F004 — CLAYTON COUNTY TAX PARCEL ID
- RAVINE (APPROXIMATE)

NOTES:

1. MONITORING WELL NETWORK WAS SURVEYED ON JULY 24, 2013 BY TRAVIS PRUITT & ASSOCIATES, INC.
2. MW-2A/B/C MONITORING WELLS WERE ABANDONED IN 2013 IN PREPARATION FOR SOIL REMEDIATION.
3. STREAM LOCATION AND RAVINE ARE BASED ON FIELD RECONNAISSANCE, SURVEY LOCATION OF STAFF GAUGE AND ON-LINE AERIAL MAP (WWW.BING.COM).
4. STORMWATER RETENTION POND LOCATION IS BASED ON FIELD RECONNAISSANCE AND ON-LINE AERIAL MAP (WWW.BING.COM).
5. NEW MONITORING WELLS (MW-19D, MW-21B/C, MW-22A/B) AND EXISTING MONITORING WELLS MW-10A/B/C AND MW-11A/B/C SURVEYED BY TRAVIS PRUITT ON NOVEMBER 12, 2014.
6. NEW MONITORING WELLS MW-15C, MW-24C, AND MW-23A/B SURVEYED BY TRAVIS PRUITT ON JULY 16, 2015.

LAND LOTS 242
13TH DISTRICT
CLAYTON COUNTY
GEORGIA

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Survey fieldwork performed on: March 2, 2007.
Travis Pruitt & Associates, Inc. Survey
Updated July 24, 2013, November 12, 2014 & July 17, 2015.

Grid North (GA West Zone)

0 60 120 240

GRAPHIC SCALE (FEET)

EHS Support consider it done

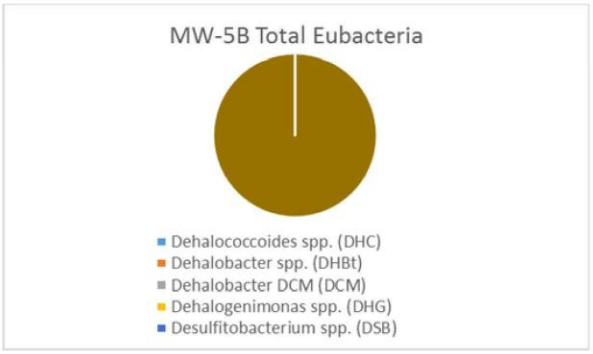
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Rev.		By:	Disc.:	Date:
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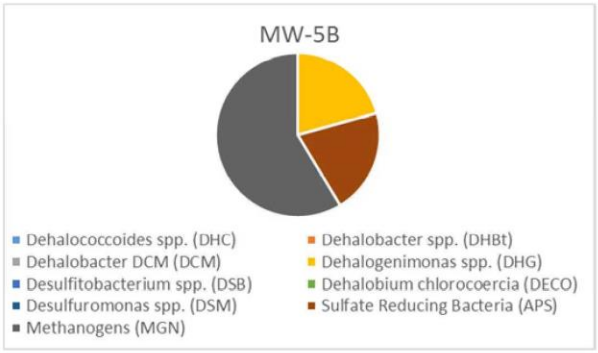
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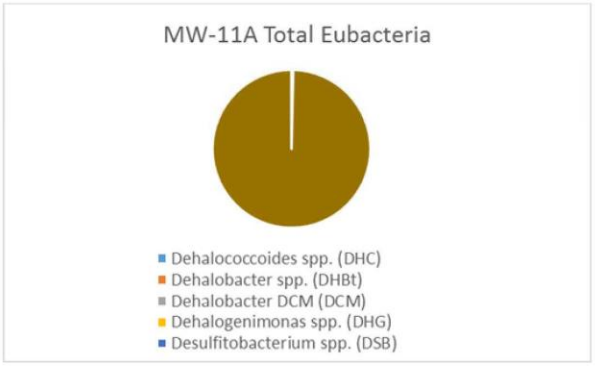
FIGURE 2
MONITORING WELL NETWORK

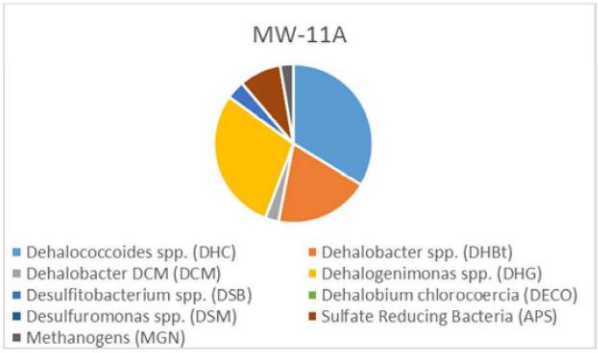
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Reviewed By:	MSS	Date Reviewed:	02/2016
Scale:	1" = 60'	Plot Date:	02/2016
Project No.:	C00342	Figure 14	

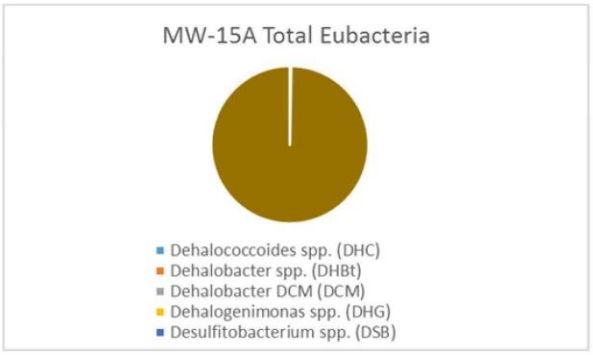
Figure 3 – Comparative Charts between Chlororespiring Species and Other Populations

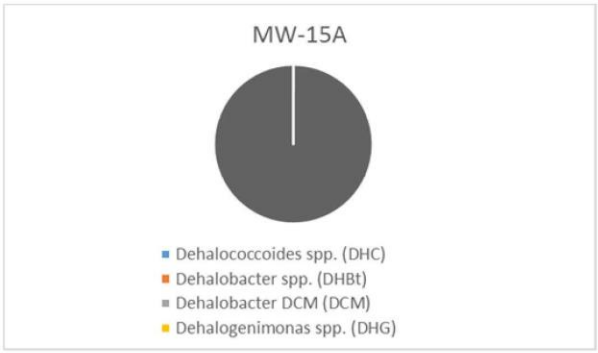


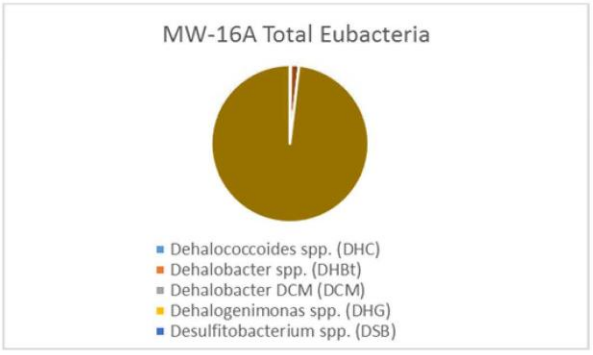












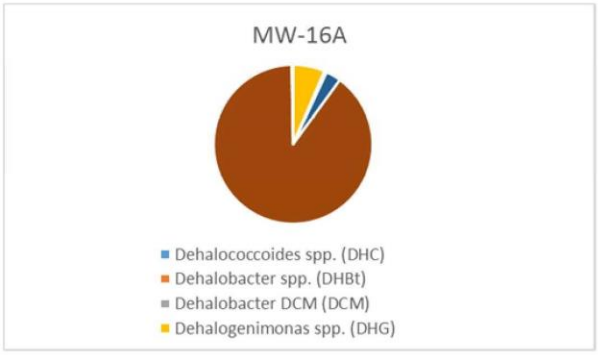


Figure 4 – MW-15 Well Nest – Chlorinated Ethene Micromolar Distribution

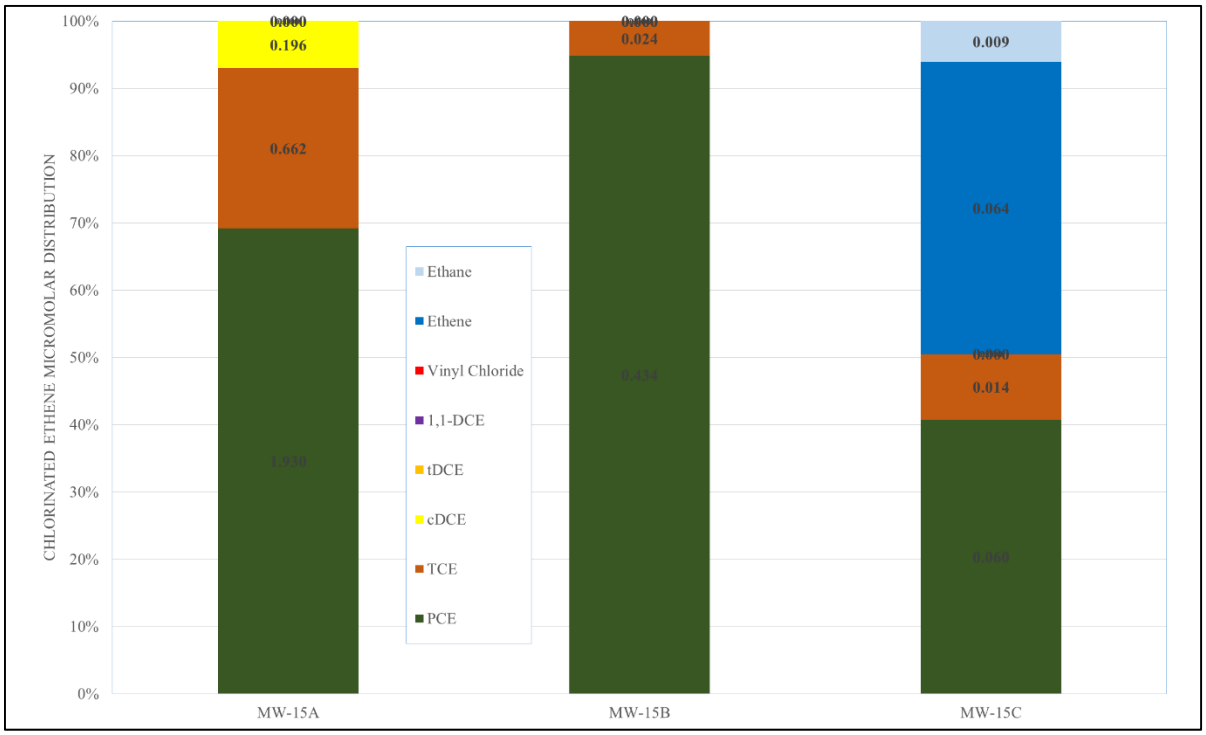


Figure 5 – MW-16 Well Nest – Chlorinated Ethene Micromolar Distribution

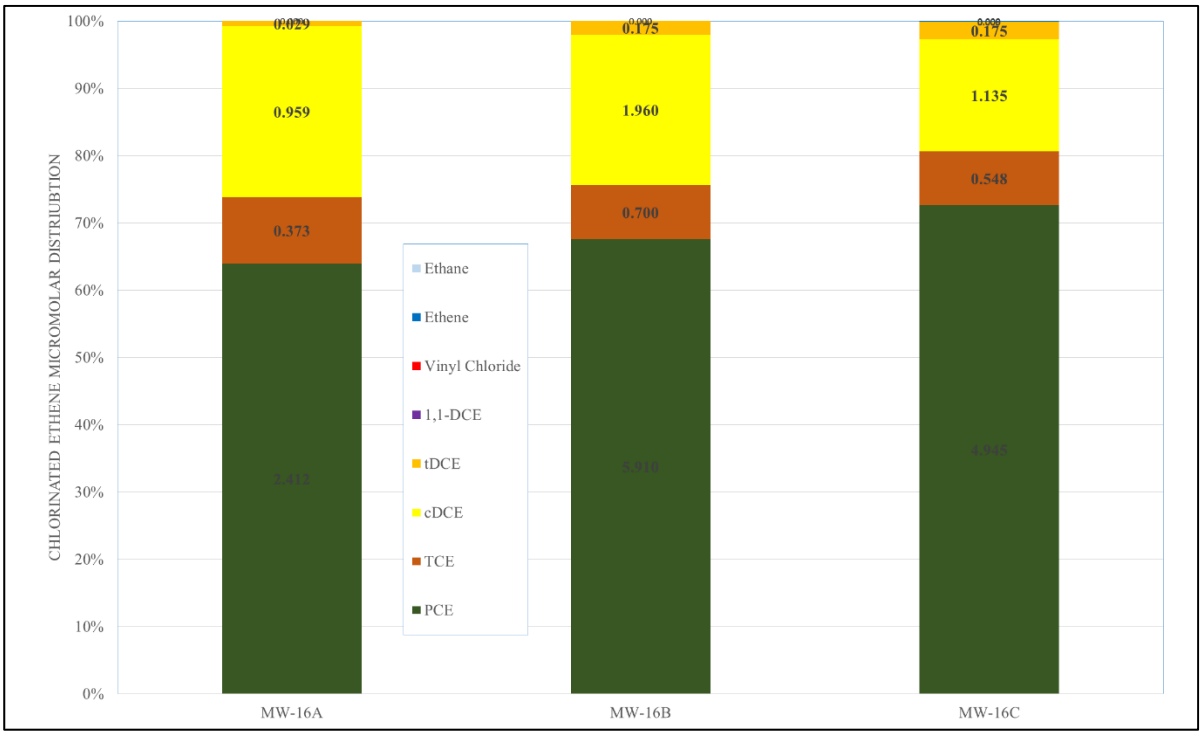
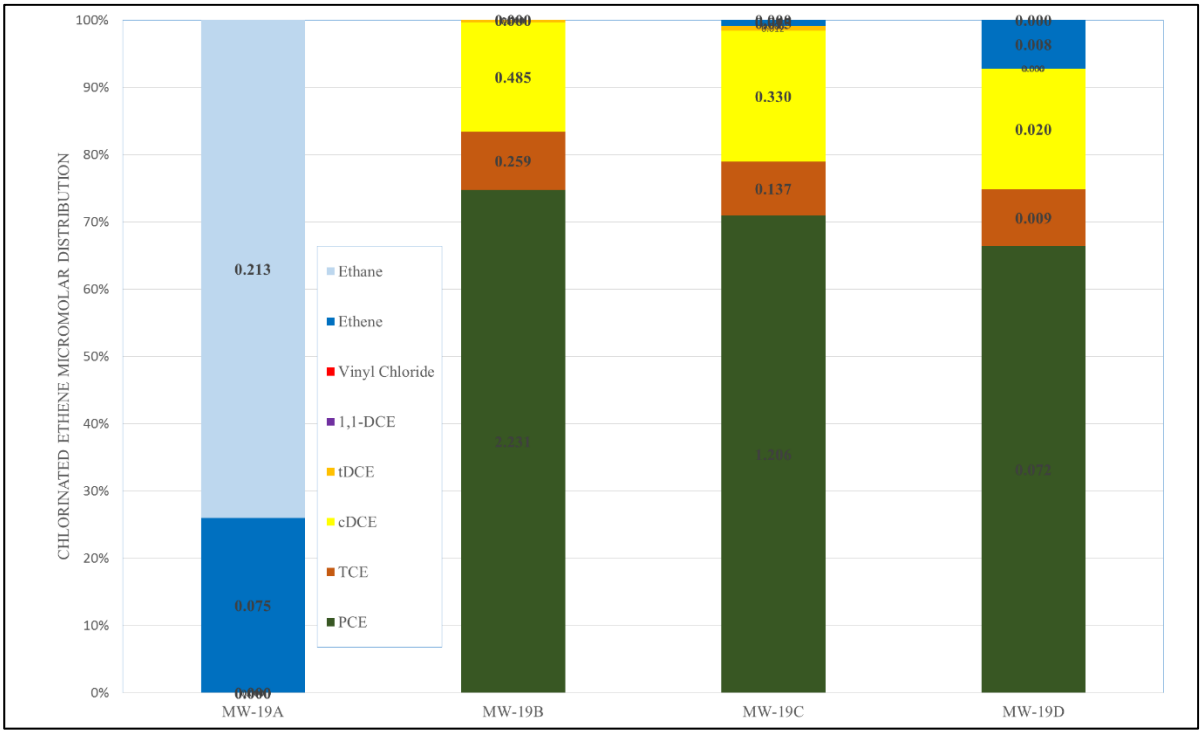
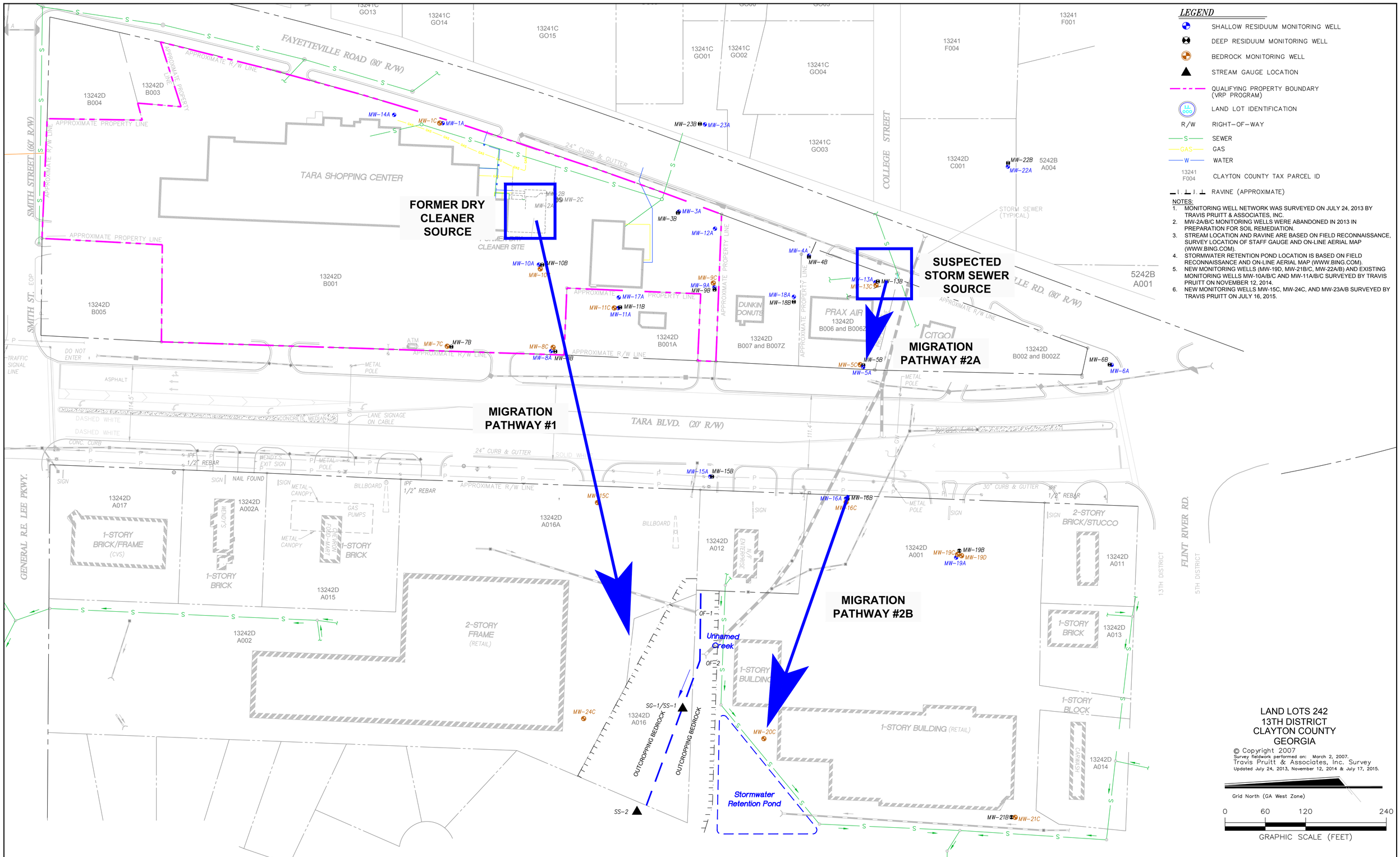


Figure 6 – MW-19 Well Nest – Chlorinated Ethene Micromolar Distribution





LEGEND

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- DEEP RESIDUUM MONITORING WELL
- BEDROCK MONITORING WELL
- STREAM GAUGE LOCATION
- QUALIFYING PROPERTY BOUNDARY (VRP PROGRAM)
- LAND LOT IDENTIFICATION
- R/W — RIGHT-OF-WAY
- S — SEWER
- GAS — GAS
- W — WATER
- 13241 F004 — CLAYTON COUNTY TAX PARCEL ID
- RAVINE (APPROXIMATE)

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6. NEW MONITORING WELLS MW-15C, MW-24C, AND MW-23A/B SURVEYED BY TRAVIS PRUITT ON JULY 16, 2015.

LAND LOTS 242
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Updated July 24, 2013, November 12, 2014 & July 17, 2015.

Grid North (GA West Zone)

0 60 120 240

GRAPHIC SCALE (FEET)

EHS Support consider it done

REVISIONS				
Rev.		By:	Disc.: Map scale updated based on Clayton County GIS Viewer	Date: 02/2016
Rev.		By:	Disc.:	Date:
Rev.		By:	Disc.:	Date:
Rev.		By:	Disc.:	Date:

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JONESBORO, GEORGIA

FIGURE 7
GROUNDWATER MIGRATION PATHWAYS
USED FOR BIOCHLOR MODELING

Drawn By:	MDO	Date Drawn:	02/2016
Reviewed By:	MSS	Date Reviewed:	02/2016
Scale:	1" = 60'	Plot Date:	02/2016
Project No.:	C00342	Figure 7	

ATTACHMENT A – SUMMARY OF MONITORING EVENT FOR BIOGEOCHEMICAL PARAMETERS

Background

The Tara Shopping Center is a 6.9-acre shopping center comprised of two multi-tenant commercial buildings. Dry cleaning operations were conducted for 35 years, from 1970 to 2005. Tetrachloroethene (PCE) was utilized in dry cleaning machinery. Historical spent solvent reclamation and disposal procedures and processes are unknown. However, subsurface investigations indicate that releases of PCE occurred to soil and groundwater at the location of dry cleaning operations (Source 1), including likely releases to the ground surface. Further, potential releases of PCE may have occurred to the Stormwater Conveyance System (Source 2).

In 2013, soil remediation activities were conducted to stabilize the source of PCE underlying and adjacent to the former dry cleaning operations. As described in the Soil Remediation Completion Report dated March 14, 2014, two rounds of semi-annual groundwater monitoring are underway to evaluate responsiveness of groundwater in the immediate vicinity of the treated source area. The first round was conducted in June/July 2015, and the second round is scheduled for December 2015.

Off-site groundwater monitoring wells were installed in multiple hydrogeologic units (see Hydrogeologic Framework in Figure 17 of the 2015 Semi-Annual VRP Progress Report) to delineate groundwater impacts suspected to be from the former dry cleaners. Monitoring wells were installed and sampled in June/July 2015 to support evaluation of the nature and extent of impacts east and west of the Site. PCE impacts in groundwater are delineated to the east (MW-23 A/B), southeast (MW-22 A/B), south (MW-6A/B), and southwest (MW-19A, MW-21 B/C). Impacts have been observed within groundwater and surface water to the west; however, hydraulically, the creek to the west serves as the local groundwater sink, for both the residuum and the fractured rock, and the likely ultimate discharge point for PCE. Further details were provided in the 2015 Semi-Annual VRP Progress Report dated August 28, 2015.

Concurrent with the June/July 2015 semi-annual groundwater monitoring event; samples were collected from select wells to evaluate intrinsic, naturally-occurring biogeochemical processes to support PCE degradation for impacted groundwater underlying the Site (Source 1) and Stormsewer Conveyance System (Source 2), and within the plume to the west within the unconsolidated residuum and fractured bedrock. The scope of work, implemented as described below, was focused on identification and evaluation of naturally-occurring biotic, abiotic, and cometabolic pathways with the potential to degrade PCE, both in the sources and along plume migration pathways.

Methodology

Monitoring was conducted in accordance with a Sampling and Analysis Plan (SAP) prepared by EHS Support LLC (EHS Support) on June 23, 2015 and revised on July 10, 2015. Prior to sampling, synoptic gauging from surrounding on- and off-site wells was conducted to better understand the vertical and hydraulic head distribution within the overburden and bedrock zones. Gauged water levels were presented in the 2015 Semi-Annual VRP Progress Report dated August 28, 2015. Biogeochemical samples were collected in the field by Antea Group using low-flow/low-stress sampling methodology from June 30 to July 11, 2015. A final sample collection matrix for biogeochemcial parameters was included in Table 3 of the 2015 Semi-Annual VRP Progress Report. Also, prior to sample collection, general water quality parameters were monitored to evaluate sample stability (see final values in **Table 1**). Samples were submitted to TestAmerica, Pace Analytical, and Microbial Insights for various analyses. Laboratory analytical reports providing monitoring results were partially included in the 2015 Semi-Annual VRP Progress Report (see Appendix C therein) and the remainder is included in **Attachment D** herein.

In 32 of the 51 wells sampled, samples were collected via the low-flow/low-stress method with the pump positioned within the water column above the screen. Nine wells were sampled for VOCs via a peristaltic pump. General water quality parameters over time were evaluated for three well nests (e.g., MW-8A/B/C, MW-10A/B/C, and MW-11A/B/C), which were characterized by general water quality parameter and PCE data back to 2008. For the intervals where the pump was not emplaced within the screened interval ("B" and "C" intervals for each nest); there was greater variance in general water quality parameters from the average value over time. This was greatest in wells MW-10B and MW-10C, where all parameters were outside of 1 standard deviation of the average. However, there was also some variance for parameters collected in "A" intervals and with the pump within the screen interval. Also, pump placement did not appear to significantly affect PCE concentrations, which were generally similar to or within 1 standard deviation of the average concentration with time. Only concentrations of PCE in wells MW-8A and MW-8B were significantly less, which may alternatively be an effect of source area stabilization. For the purpose of this memorandum, the results of monitoring are assumed to be reflective of the formation and usable for evaluation purposes.

Analytical Results

Groundwater samples were collected from select wells as described in Table 3 of the 2015 Semi-Annual VRP Progress Report. Tabulated summaries of Biogeochemical Parameters are included in **Table 2** and Table 1 of the Microbial Insights report in **Attachment D**. The results from monitoring are discussed in the following subsections.

Groundwater pH

pH values were measured at each well prior to sample collection. A summary of pH results, as shown in **Table 1**, is as follows.

- pH was observed to be optimal for anaerobic reductive dechlorination (6.0 < pH < 8.0 s.u.) within the following wells: shallow well MW-5A, intermediate wells MW-9B and MW-13B, and deep wells MW-7C, MW-9C, MW-11C, MW-16C, MW-19C, MW-19D, MW-20C, and MW-21C. The majority of these wells are located on the south side of the study area, in proximity and downgradient of the Stormsewer Conveyance System (Source 2).
- Elevated pH values were detected in intermediate wells MW-10B and MW-23B, and in deep wells MW-1C, MW-8C, MW-10C, MW-13C, MW-15C. These values may be indicative, in some cases (especially MW-10B), of grout intrusion.
- The remaining wells were characterized by pH values ranging generally from 4- to 6-s.u., to as low as 2.84 s.u. (MW-8A).

Terminal Electron Accepting Processes

A summary of biogeochemical parameters, as broken down per terminal electron accepting process (TEAP), is as follows.

- Oxygen Reduction
    - Dissolved oxygen (DO) and ORP values were measured at each well in the field (see **Table 1**). Oxygen values are also summarized in **Table 2**.
    - Anoxic conditions (DO < 1.0 mg/L) were observed in:
        - Shallow wells MW-5A, MW-6A, and MW-15A, intermediate well MW-19B, and deep wells MW-5C, MW-13C, MW-16C, and MW-19D. Of these, wells MW-5A, MW-5C, MW-6A, and MW-13C are located primarily on the southern

side of the study area near the Stormsewer Conveyance System (Source 2), and along the groundwater migration pathway downgradient towards the creek (i.e., MW-15A, MW-16C, and MW-19D).
        - Intermediate well MW-23B, which is located to the east on the Garcia property.
        - ORP values were positive in all wells, indicating that although anoxic, oxidizing conditions exist.
    - Mildly oxic conditions (1.0 < DO < 3.0 mg/L) were identified in shallow wells MW-4A, MW-12A, MW-13A, MW-16A, and MW-18A, intermediate well MW-5B, and deep wells MW-7C, MW-9C, MW-11C, MW-15C, and MW-19C. A few of these wells (i.e., MW-7C and MW-11C) are located slightly downgradient of the Site (Source 1) in bedrock. However, the majority of the wells are located along and/or downgradient of the Stormsewer Conveyance System (Source 2).
        - ORP values were positive in all wells
        - Greatest ORP (606.9 mV) identified in MW-11C in former area of permanganate injection
        - Shallow wells characterized by ORPs ranging from 170- to 253-mV
    - Over-saturated Oxic conditions (DO > 10.0 mg/L) were observed in shallow well MW-11A and MW-17A, intermediate wells MW-3B, MW-7B and MW-16B, and in deep wells MW-1C and MW-20C
        - ORP values were positive, and ranged from 118- to 935-mV
    - Oxic conditions between 3.0- to 10.0-mg/L were observed in the remaining wells.
- Nitrate Reduction
    - Eight (8) groundwater samples were collected from wells MW-5B, MW-11A, MW-15A/B/C, and MW-16A/B/C for analysis of nitrate and nitrite. Analyses were conducted by TestAmerica and included in Appendix C of the 2015 Semi-Annual VRP Progress Report.
    - The most oxidized form of nitrogen, nitrate, was detected in six (6) of the samples analyzed (see **Table 2**). Specifically, detections were observed in MW-5B (0.087 mg/), MW-15A (1.9 mg/L), MW-15B (6.9 mg/L), MW-16A (0.83 mg/L), MW-16B (3.1 mg/L), and MW-16C (2.8 mg/L). Excluding MW-15A and MW-16C, which are characterized by DO concentrations less than 1.0 mg/L, these nitrate detections are consistent with dissolved oxygen concentrations indicative of mildly to oxic conditions.
    - No nitrite was detected, indicating that this intermediate form was not being produced and nitrate reduction may be limited in the subsurface.
- Iron Reduction
    - Eight (8) groundwater samples were collected from wells MW-5B, MW-11A, MW-15A/B/C, and MW-16A/B/C for analysis of iron species. Analyses were conducted by TestAmerica and included in Appendix C of the 2015 Semi-Annual VRP Progress Report.
    - Iron species were detected in MW-15B and MW-16A (see **Table 2**).
        - In MW-15B, 3600 mg/L of total iron and 520 mg/L of dissolved iron were detected. Given the oxic conditions in well MW-15B and non-detect ferrous iron; the dissolved iron may exist within a ferric form (e.g., Fe^{3+}(aq) or $Fe(OH)_3$(aq)).

        - In well MW-16A, only total iron was detected at 230 mg/L. This indicates that, given the mildly oxic conditions, total iron is mostly indicative of undissolved ferric iron, and dissolved and reduced iron species are not present.
        - Oxidized iron may be incorporated into reactive magnetite minerals, which have been demonstrated to abioitically degrade PCE, TCE, and cis 1,2-DCE.
    - Iron species were non-detect in wells MW-5B, MW-11A, MW-15A/C, and MW-16B/C, indicating that iron reduction does not occur significantly in these wells.
- Manganese Reduction
    - Eight (8) groundwater samples were collected from well MW-5B, MW-11A, MW-15A/B/, and MW-16A/BC for analysis of total and dissolved manganese. Results are included in Appendix C of the 2015 Semi-Annual VRP Progress Report.
    - Select wells exhibited nearly equal concentrations of total and dissolved manganese, indicating reduction from a Mn^{4+} to a Mn^{2+} species. Note that Mn^{2+} species may be more stable within oxygenated water in comparison to Fe^{2+} species (Hem, 1989). Specifically, this was observed in the following wells (see **Table 2**):
        - MW-5B with total manganese at 81 ug/L and dissolved manganese at 79 ug/L
        - MW-11A with total and dissolved manganese at 11,000 ug/L
        - MW-15A with total and dissolved manganese at 190 ug/L
        - MW-16B with total manganese at 7 ug/L and dissolved manganese at 10 ug/L
    - Similarly, dissolved manganese was detected to a lesser extent in wells MW-15B (58 ug/L) and MW-16A (14 ug/L), relative to total manganese concentrations.
    - Manganese species were non-detect in MW-15C and only in total form in MW-16C (6.2 ug/L)
- Sulfate Reduction
    - Eight (8) groundwater samples were collected from wells MW-5B, MW-11A, MW-15A/B/C, and MW-16A/B/C for analysis of sulfur species. Analyses were conducted by TestAmerica and included in Appendix C of the 2015 Semi-Annual VRP Progress Report.
    - Sulfate was only detected in deep wells MW-15C (20 mg/L) and MW-16C (2.1 mg/L), as shown in **Table 2**. No sulfide was detected. These results indicate that sulfur species are present in the most oxidized form.
    - No sulfate or sulfide was detected in wells MW-5B, MW-11A, MW-15A/B, and MW-16A/B.
- Methanogenesis
    - Thirty-seven (37) samples were collected for analysis of methane. Laboratory reports from Pace Analytical are included in **Attachment D**.
    - Methane was detected in twenty-four (24) wells at concentrations ranging between 0.57 to 660 µg/L (see **Table 2**), with the greatest detections observed in wells MW-5A (250 µg/L), MW-5B (µg/L), MW-9A (150 µg/L), MW-13A (210 µg/L), and MW-19A (660 µg/L), which are located in the east portion of the study area near the Stormsewer Conveyance System (Source 2).
- Carbon dioxide formation
    - Four (4) samples were collected in wells MW-5B, MW-11A, MW-15A, and MW-16A for analysis of carbon dioxide by Pace Analytical. The laboratory report from Pace Analytical is included in **Attachment D**.

- Carbon dioxide was detected in each of the wells at 110 mg/L (MW-5B), 210 mg/L (MW-11A), 160 mg/L (MW-15A), and 56 mg/L (MW-16A) (see **Table 2**).
- Carbon dioxide may be formed by methanogenesis, as methane is detected in each well. However, carbon dioxide may also be formed as part of oxygen respiration and/or anaerobic cometabolism of PCE.

Terminal End Products of Chlorinated Ethenes

Terminal end products of chlorinated ethene degradation via chlororespiration include ethene and ethane, as depicted in **Figure 1**. As discussed below and shown in **Table 2**, both ethene and ethane were detected as follows. Laboratory reports from Pace Analytical are included in **Attachment D**.

- Ethene was detected:
  - In wells MW-5C (2 ug/L) and MW-13A (2.2 ug/L) near the Stormsewer Conveyance System (Source 2)
  - In wells MW-10C (0.56 ug/L) downgradient of the stabilized Source 1
  - In downgradient wells MW-15C (1.8 ug/L), MW-16C (0.26 ug/L), MW-19A (2.1 ug/L), MW-19C (0.42 ug/L), MW-19D (0.22 ug/L), and MW-24C (0.46 ug/L)
- Ethane was detected:
  - In wells MW-5B (39 ug/L), MW-13A (8.1 ug/L), and MW-13C (1.2 ug/) near the Stormsewer Conveyance System (Source 2)
  - In downgradient wells MW-15C (0.27 ug/L), MW-19A (6.4 ug/L), MW-20C (0.22 ug/L), and MW-24C (0.41 ug/L)

Ethene (6.7 ug/L) and ethane (5.2 ug/L) were also detected in well MW-23B on the Garcia property.

Upon evaluation of nested wells; the distribution of ethene and ethane production is vertically heterogeneous, but potential for ethene and ethane production exists in both the residuum and underlying fractured bedrock. As shown in **Figure 4** through **6**, the greatest percentage of ethene and ethane produced (on a Micromolar basis) was detected in bedrock wells MW-15C and MW-19D, and shallow overburden well MW-19A. Comparatively, the MW-16 well nest was characterized by limited biodegradation ultimately to cis 1,2-DCE.

Under abiotic degradation, by reactive pyrite minerals for example, chloroacetylene and acetylene may be observed as terminal end products (see **Figure 1**). However, reduced iron and sulfur species (i.e., ferrous iron and sulfide), and acetylene was non-detect in all wells sampled (see **Table 2**).

Molecular-Based Analyses

Four (4) groundwater samples were collected from wells MW-5B, MW-11A, MW-15A, and MW-16A for analysis of QuantArray Chlor via Microbial Insights. QuantArray Chlor provides quantitative values (via quantitative polymerase chain reaction (qPCR)) of chlororespiring microorganisms (e.g., *Dehalococcoides*, *Dehalobacter*, *Dehalogenimonas*, *Desulfitobacterium*, etc.), functional genes involved in chlororespiration (e.g., *tce*A, *vcr*A, and *bvc*A reductive dehalogenase genes) and aerobic cometabolism (e.g., soluble and particulate methane monooxygenase, toluene monooxygenases, etc.), and other competing biological processes. Results are included within Microbial Insights Table 1 within **Attachment D**. A summary of results is as follows.

- The potential for anaerobic reductive dechlorination exists; however, the extent at which it is occurring intrinsically is limited. Specifically:
    - *Dehalococcoides* (*Dhc*.) species, which are capable of reductive dechlorination of PCE to ethene, were detected in low concentrations at well MW-11A (39.4 cells/mL), directly downgradient of the stabilized source area, and in wells MW-15A (0.8 cells/mL) and MW-16A (1 cell/mL). MW-11A displays little concentrations of PCE and daughter products, and pH values are low and DO concentrations are high. Conversely, No *Dhc* species were detected in well MW-5B where complete reductive dechlorination to ethane is observed.
    - Although *Dhc*. species are present in wells MW-15A and MW-16A, the expression of *tce*A, *bvc*A, and *vcr*A reductive dehalogenase genes is negligible (i.e., non-detect) in these wells.
    - In well MW-11A, however, expression of these genes are observed including *tce*A (3.2 gene copies/mL), *bvc*A (0.6 gene copies/mL), and *vcr*A (0.7 gene copies/mL)
    - Various other dechlorinating species were detected, which are capable of PCE reductive dechlorination to cis 1,2-DCE, including:
        - *Dehalobacter* (22.6 cells/mL) and *Desulfitobacterium* (4.4 J cells/mL) in MW-11A
        - *Desulfitobacterium* (25.3 cells/mL) and *Desulfuromonas* (158 cells/mL) in MW-16A.
- Aerobic cometabolism
    - Cometabolism details the co-oxidation (during oxidization of growth-supporting substrate) of TCE, DCE, and/or vinyl chloride by various types of bacteria (e.g., methanotrophs, ammonia-oxidizing bacteria, toluene/phenol-utilizing bacteria) and their enzymes with "relaxed" specificity.
    - Potential exists for cometabolism based on:
        - Detection of soluble methane monooxygenase (SMMO) within all four wells, ranging from 0.5 J (in MW-11A) to 93.1 gene copies/mL (in well MW-16A), which is capable of greater rates of cometabolism
        - Detection of particulate methane monooxygenase (PMMO) at elevated gene copies per mL in well MW-5B (104), MW-15A (532), and MW-16A (56.5), which are characterized by lower rates of cometabolism.
        - Detection of toluene monooxygenase (RDEG) in MW-15A (130 gene copies/mL) and MW-16A (202 gene copies/mL)
- Aerobic cometabolism of vinyl chloride
    - Ethenotrophs can use vinyl chloride as a growth supporting substrate
    - EtnC gene catalyzes ethene and vinyl chloride conversion to epoxyalkanes, while EtnE conjugates and breaks down the epoxide
    - May occur to limited extent in MW-15A (3.8 J gene copies/mL of epoxyalkane transferase (EtnE)) and MW-16A (5.9 gene copies/mL of ethene monooxygenase (EtnC))
- Abiotic degradation
    - Sulfate reducing bacteria (SRBs) were detected in wells MW-16A (4,600 cells/mL) MW-5B (4.9 cells/mL), and MW-11A (10 cells/mL). SRBs have the potential to promote reduction of available sulfate to sulfide, in both dissolved and particulate form. The reduction to sulfides on mineral surfaces (e.g., on iron bearing minerals such as

mackinawite or pyrite) has the potential to promote abiotic degradation (via elimination and beta-elimination, respectively) of PCE.
    - In absence of SRBs and sulfur species, abiotic degradations of PCE and lesser-chlorinated ethenes can still occur via magnetite and green rust.
- Although detected, the following are not anticipated to affect PCE concentrations
    - Detection of toluene dioxygenase (TOD) within MW-15A (108 gene copies/mL) and MW-16A (3.5 J gene copies/mL), which has been shown to co-metabolize chlorinated benzenes
    - Detection of phenol hydroxylase (PHE) in all four wells, ranging from 0.5 J (MW-15A) to 212 gene copies/mL (MW-16A), which help catalyze oxidation of monoaromatic compounds and dichlorobenzene isomers
    - Detection of *Dehalogenimonas* in MW-5B (4.9 cells/mL) in MW-5B, in MW-11A (34.2 cells/mL), and in MW-16A (330 cells/mL), which are associated with chlorinated ethane and chlorinated propane reductive dechlorination

Available Carbon Source / Electron Donor

Eight (8) groundwater samples were collected from wells MW-5B, MW-11A, MW-15A/B/C, and MW-16A/B/C for analysis of total organic carbon (TOC) and volatile fatty acids (VFAs). TOC was analyzed by TestAmerica, and included in Appendix C of the 2015 Semi-Annual VRP Progress Report, while VFAs were analyzed by Pace Analytical (see **Attachment D**). A summary of TOC and VFA results (see **Table 2**) is as follows.

- TOC
    - TOC was detected at 1.1 mg/L in well MW-11A and 1.5 mg/L in well MW-15C. These may be a result of historical permanganate injection within the area.
    - No detections were observed within the remaining wells below a reporting limit of 1 mg/L.
- VFAs
    - Acetic acid (0.08 mg/L) and formic acid (0.13 mg/L) were detected in well MW-11A, located downgradient of Source 1.
    - Acetic acid was detected in select downgradient wells including MW-15B (0.11 mg/L), MW-15C (0.1 mg/L), and MW-16B (7.5 mg/L).
    - No VFAs were detected in wells MW-5B, MW-15A, MW-16A, and MW-16C.

Note that petroleum constituents (e.g., benzene in wells MW-5B and MW-13A) may serve as an alternate carbon source for chlororespiring populations.

Compound Specific Isotope Analysis

Four (4) groundwater samples were collected from wells MW-5B, MW-11A, MW-15A, and MW-16A for compound specific isotope analysis (CSIA) via Pace Analytical (Pace). From these samples, aliquots were also removed by Pace for concurrent analysis of VOCs via US EPA SW846 method 8260B. Laboratory analytical results for CSIA and VOCs are provided in **Attachment D**. A summary of CSIA and VOC analytical data from Pace is included in **Table 3**, along with VOC data for the same wells as analyzed via SW846 method 8260B by TestAmerica. CSIA results for stable carbon isotope ratios (delta) are provided in units of "per mil" (‰), where the dissolved chlorinated ethene was detected via 8260B in groundwater. A summary of CSIA results is as follows.

- PCE displays fractionation within each of the four (4) sample collected. Undegraded chlorinated solvents are generally assumed to be characterized by a delta of approximately -30±5 ‰. Conservatively, assuming a delta value of -25 ‰ for undegraded PCE, degradation is confirmed with increasing delta values in MW-15A (-23.43 ‰), MW-16A (-21.48 ‰), MW-5B (-21.25 ‰), and MW-11C (-19.94 ‰). The majority of these delta values exceed the minimum delta value of 1‰ and the criterion of 2‰, which is "used as a criterion for positive identification of degradation in order to minimize the possibility of an erroneous interpretation" (EPA, 2008).
    - The greatest fractionation is observed in upgradient wells MW-5B and MW-11C, indicating that biodegradation is greatest just downgradient of the Stormwater Conveyance System (Source 2) and Site (Source 1), respectively.
    - In comparison to the assumed undegraded delta of -25 ‰; stable isotope enrichment factors (epsilon) ranges from -1.61 to -5.16 ‰. These results indicate that PCE degradation is occurring at a slower rate similar to that for cometabolic degradation.
- TCE fractionation does not appear to be as extensive (or as fast) as that for PCE. Where TCE was detected, the fractionation was less than parent compound PCE in all cases: -24.01 versus -21.25 ‰ in well MW-5B; -26.86 versus -23.43 ‰ in MW-15A; and -25.02 versus -21.48 ‰ in MW-16A. Assuming -25 ‰ for undegraded PCE, these values are very close to the value for the original undegraded parent product. As TCE can become no heavier than the original undegraded PCE; these results indicate slower rates of TCE degradation.
- Similarly, cis 1,2-DCE fractionation does not appear to be as extensive (or as fast), as fractionation values are less than those for PCE and TCE.
    - The detection of cis 1,2-DCE in MW-16A shows some fractionation along the groundwater plume, in comparison to that detected in upgradient well MW-5B.
    - However, the epsilon value for this fractionation (-1.51 ‰) is very low in comparison to literature values for epsilon observed during cis 1,2-DCE reductive dechlorination (from -14.1- to -21.1 ‰), indicating that biodegradation is slow.
- A delta (1.61 ‰) for Vinyl chloride was obtained in well MW-5B. These results indicate strongly that it is a highly fractionated biodegradation product. In comparison to PCE, TCE, and cis 1,2-DCE; it is significantly heavier.

Conclusions

In summary, the potential exists for PCE degradation to occur by naturally-occurring biotic, cometabolic, and abiotic pathways. Potential lines of evidence, as described above, indicate that these pathways are currently occurring. These lines of evidence include detection of species and genes for chlororespiring populations, detection of final reductive dechlorination products ethene and ethane, detection of enzymes responsible for aerobic cometabolism of PCE and vinyl chloride, and fractionation of PCE (against an assumed undegraded source). Also, potential for abiotic degradation pathways via iron oxides (e.g., magnetite, green rust) exits.

Other subsurface characteristics (e.g., low pH, aerobic and oxidizing conditions, low organic carbon and available electron donor, limited sulfur species) appear to impact the widespread extent and rates of these processes. As such, the processes do not occur ubiquitously across the study area, and in several cases are source dependent. For example, more indicators of chlororespiration of PCE are observed within and downgradient of the Stormsewer Conveyance System (Source 2). A summary of characteristics as a function of area is included as **Table 4**.

Evaluation of PCE concentrations across the study area indicate “stable” to “decreasing” trends, as shown in **Attachment C**. These trends suggest that the PCE plume is not expanding, has reached the maximum spatial and vertical extents, and is in the process of decreasing in several areas. These trends are believed to be a result of naturally-occurring degradative processes. Both the PCE trends and monitoring results support that PCE will continue to be degraded within a 30 year time period.

ATTACHMENT B – BIOCHLOR MODELING RESULTS

Modeling was conducted to determine the magnitude of first-order decay rates for tetrachloroethene (PCE) along two (2) separate groundwater migration pathways. Summaries of modeling methods used and associated results are as follows.

Methodology

The migration pathways for modeling purposes were defined as follows.

- Migration pathway #1
  - From former Dry Cleaner source area westward to creek
  - Includes existing regolith wells MW-8A/B, MW-10A/B, and MW-15A/B
  - Includes existing bedrock wells MW-8C, MW-10C, and MW-15C
  - Includes former well nest MW-2A/B/C located directly adjacent to the Dry Cleaner source area, which was abandonned in 2013
- Migration pathway #2
  - Extends from suspected storm sewer source westward to creek
  - Includes regolith wells MW-5A/B, MW-13A/B, and MW-16A/B
  - Includes bedrock wells MW-5C, MW-13C, MW-16C, and MW-20C

Modeling was conducted using Biochlor (Natural Attentuation Decision Support System) Version 2.2. Biohclor model inputs were based upon both site-specific and regional data. Specifically, model inputs included the following:

- July 2015 analytical data for PCE and daughter products (see **Table 2**) was input for select wells along the groundwater migration pathways.
- Plume widths and lengths were estimated from Supplemetnal DRAFT Isoconcentration Maps, as submitted via letter on September 30, 2015.
- Groundwater contours, as shown in Figures 13 through 15 of the Semi-Annual VRP Progress Report No. 6, were used to determine hydraulic gradients across the migration pathways.
- Average thicknesses of the fractured bedrock aquifer (i.e., including regolith and bedrock units) were based on cross-sections C-C' and D-D' as provided in Figures 9 through 11 of Semi-Annual VRP Progress Report No. 6.
- Effective porosity was based on an average of ranges provided by Freeze and Cherry (1979) and Kruseman and DeRidder (2000) for silt, clay, and fractured crystalline rock.
- A dry bulk density of 1.24 grams per cubic centimeter (g/cm^3) was assumed, based on a measured value by Fleck and White (1989) within a granite gneiss in the Piedmont. This was consistent with a range between 1.23 to 1.41 g/cm^3 for saprolite within North Carolina Piedmont (Amoozegar et al., 1997).
- Hydraulic conductivity was based on an average of 1.26 feet per day ($4.5x10^{-4}$ centimeters per second (cm/s)) as determined by URS (2009) for the residuum.
- Longitudinal and transverse dispersivity values were based on values provided in Singhal and Gupta (1999) for alluvium and crystalline rock.
- The average fraction of organic carbon was estimated as 0.001, based on concentrations of total organic carbon measured in regolith and fractured bedrock wells (see Table 2). This is slightly less than the typically used value of 0.002, as provided in US EPA guidance and similar to average values (0.0019) obtained from a phylite rock body in Northern New England (Rawson and Eschner, 2007).

The Biochlor model was prepared to represent the fractured rock aquifer, including both the regolith and the bedrock. As such, select model parameters (e.g., effective porosity, etc.) were averaged to reflect

groundwater migration within these separate, but hydraulically connected, units. Select input parameters, including hydraulic conductivity and porosity, were compared to values identified within Piedmont area studies. In summary:

- The assumed hydraulic conductivity of ($4.5x10^{-4}$ cm/s) was within ranges identified within literature review, as provided below.
    - Upper range of hydraulic conductivities
        - 12.6 to 227 cm/day ($1.5x10^{-4}$ to $2.6x10^{-3}$ cm/s) in saprolite within North Carolina Piedmont (Amoozegar et al., 1997)
        - 10.4 feet/day ($3.7x10^{-3}$ cm/s) in upper portion of South Carolina Piedmont fractured rock aquifer (Champion, 1989)
        - Median vertical K ranging from 2.64 to 5.18 cm/hr ($7.3x10^{-4}$ to $1.4x10^{-3}$ cm/s), and median horizontal K ranging from 3.27 to 6.66 cm/hr ($9.1x10^{-4}$ to $1.8x10^{-3}$ cm/s) in granite gneiss saprolite in SC Piedmont (Fleck and White, 1989).
    - Lower range of hydraulic conductivities
        - 10-5 cm/sec for saprolite, 10-7 cm/s for bedrock, and 10-4 cm/sec for transition zone between in Georgia Piedmont in Danielsville (Field and Dowd, 2001)
        - $1x10^{-10}$ to $5x10^{-7}$ m/s ($1x10^{-8}$ to $5x10^{-5}$ cm/s) for granite batholith in SC piedmont (Singhal and Gupta, 1999)
        - 0.2 feet per day ($7.1x10^{-5}$ cm/s) in both saprolite and schist bedrock in Maryland piedmont (McFarland, 1989)
- The assumed porosity of 20% was within ranges identified within literature review, as provied below.
    - Range of porosity in saprolite
        - 45% to 49% in saprolite in the North Carolina Piedmont (Harned and Daniel III, 1989)
        - 55% to 65% in granite gneiss saprolite in South Carolina Piedmont (Fleck and White, 1989)
    - Range of porosity in fractured bedrock
        - 7.5% to 35% in fractured bedrock in the North Carolina Piedmont (Harned and Daniel III, 1989)

Migration Pathway #1 includes migration of PCE to the west within the regolith, as represented by wells MW-10A and MW-8A, and into the fractured bedrock as represnted by well MW-15C. The source term along Migration Pathway #1 was assumed based on the most-recent historical data from well MW-2B. From 2010 to 2011, PCE was detected from 0.088- to 1.5-mg/L. As such, the greatest most-recent concentration of 1.5 mg/L was utilized in the model. Historical PCE concentrations from well MW-2A were not used, as this well was screened within the upper 25 feet of soil underlying the source area, which were heavily remediated via soil mixing efforts in 2013. Well MW-2B, which is screened to around 60 feet bls, may have been affected to a lesser extent as mixing was employed to a terminal depth of 45 feet.

Migration Pathway #2, based on the variability of PCE concentrations, is divided into two separate pathways. Migration Pathway #2A extends from well nest MW-13 to well nest MW-5. Migration Pathway #2B extends from well nest MW-16 to MW-20C. Migration is assumed to be within the regolith primarily, as represented by wells MW-13A, MW-5A, and MW-16A, but to extend into fractured bedrock prior to well MW-20C. The source term along Migration Pathway #2A and #2B was assumed based on the historical data from well nests MW-13 and MW-16, respectively.

Results

Decay rates were estimated via Biochlor across the length of the two plumes. Specifically:

- For groundwater migration pathway #1, the overall decay rate for PCE was estimated at 0.198 per day (i.e., half life of 3.5 years). Note that the model for migration pathway #1 predicts a concentration of PCE within the source of around 0.8 mg/L, which is within the range of PCE concentrations historically observed in well MW-2B in 2010 and 2011.
- The decay rates estimated via Biohclor for Migration Pathways #2A and #2B were 0.173 per day (i.e., half life of 4 years) and 0.198 per day (i.e., half life of 3.5 years), respectively.

PCE decay, as described within the memo, may be a combination of several different intrinsic degradation processes. Specifcally, based on supporting lines of evidence, these degradation processes may include anaerobic reductive dechlorination, aerobic cometabolism, and abiotic transpformation. As decay is likely a combination of these processes, modeling was focused on PCE and no specific modeling was conducted for anaerobic reductive dechlorination products detected.

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Appendices

Appendix B-1 – Biochlor Modeling Results for Migration Pathway #1
Appendix B-2 – Biohclor Modeling Results for Migration Pathway #2A
Appendix B-3 – Biochlor Modeling Results for Migration Pathway #2B

BIOCHLOR Natural Attenuation Decision Support System

Version 2.2
Excel 2000

Alterman
Run Name

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

Test if Biotransformation is Occurring → Natural Attenuation Screening Protocol

TYPE OF CHLORINATED SOLVENT: Ethenes ◉ Ethanes ○

1. ADVECTION

Seepage Velocity*	Vs	58.9	(ft/yr)
or			
Hydraulic Conductivity	K	4.5E-04	(cm/sec)
Hydraulic Gradient	i	0.0256	(ft/ft)
Effective Porosity	n	0.2	(-)

2. DISPERSION

Alpha x*	45	(ft)
(Alpha y) / (Alpha x)*	0.1	(-)
(Alpha z) / (Alpha x)*	5.E-02	(-)

Calc.

3. ADSORPTION

Retardation Factor* → R
or

Soil Bulk Density, rho	1.24	(kg/L)		
FractionOrganicCarbon, foc	1.0E-3	(-)		
Partition Coefficient	Koc			
PCE	95	(L/kg)	1.59	(-)
TCE	130	(L/kg)	1.81	(-)
DCE	125	(L/kg)	1.78	(-)
VC	30	(L/kg)	1.18	(-)
ETH	302	(L/kg)	2.87	(-)
Common R (used in model)* =			**1.59**	

4. BIOTRANSFORMATION

-1st Order Decay Coefficient*

Zone 1	λ (1/yr)	half-life (yrs)	Yield
PCE → TCE	0.198	3.50	0.79
TCE → DCE	0.000		0.74
DCE → VC	0.000		0.64
VC → ETH	0.000		0.45

Zone 2	λ (1/yr)	half-life (yrs)
PCE → TCE	0.000	
TCE → DCE	0.000	
DCE → VC	0.000	
VC → ETH	0.000	

λ

5. GENERAL

Simulation Time*	5	(yr)
Modeled Area Width*	400	(ft)
Modeled Area Length*	1000	(ft)
Zone 1 Length*	1000	(ft)
Zone 2 Length*	0	(ft)

L, W

Zone 2=

6. SOURCE DATA

TYPE: Decaying
Single Planar

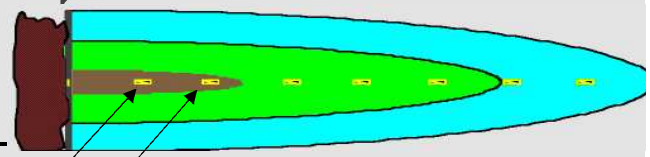
Source Options

Source Thickness in Sat. Zone* 40 (ft)

Width* (ft) Y1: 35

Conc. (mg/L)*	C1	k_s* (1/yr)
PCE	1.5	0.17
TCE		0.17
DCE		0.17
VC		0.17
ETH		0.17

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



View of Plume Looking Down

Observed Centerline Conc. at Monitoring Wells

7. FIELD DATA FOR COMPARISON

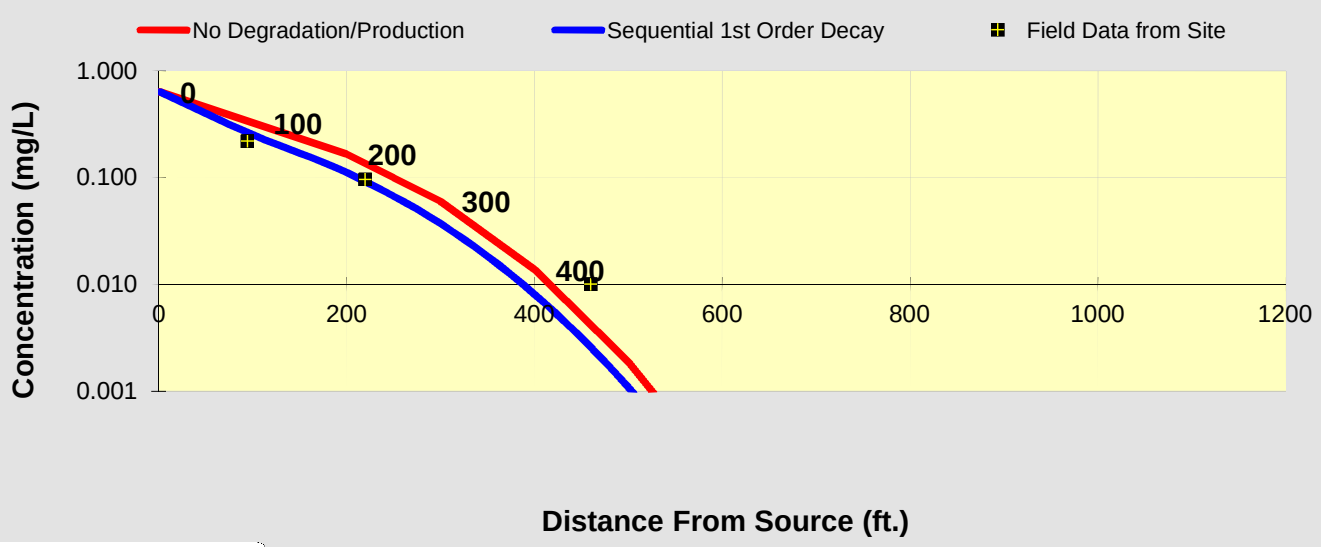
PCE Conc. (mg/L)	.22	.096	.01								
TCE Conc. (mg/L)											
DCE Conc. (mg/L)											
VC Conc. (mg/L)											
ETH Conc. (mg/L)											
Distance from Source (ft)	95	220	460	600	800	1000					
Date Data Collected	2015										

8. CHOOSE TYPE OF OUTPUT TO SEE:

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

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

PCE	Distance from Source (ft)										
	0	100	200	300	400	500	600	700	800	900	1000
No Degradation	0.641	0.327	0.167	0.060	0.014	0.002	0.000	0.000	0.000	0.000	0.000
Biotransformation	0.6411	0.253	0.111	0.037	0.008	0.001	0.000	0.000	0.000	0.000	0.000
	Monitoring Well Locations (ft)										
	95	220	460	600	800	1000					
Field Data from Site	0.220	0.096	0.010								



See PCE

See TCE

See DCE

See VC

See ETH

Prepare Animation

Log ⟺ Linear

Input

To All

To Array

BIOCHLOR Natural Attenuation Decision Support System

Version 2.2
Excel 2000

Alterman
Run Name

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

Test if Biotransformation is Occurring → Natural Attenuation Screening Protocol

TYPE OF CHLORINATED SOLVENT: Ethenes ◉ Ethanes ○

1. ADVECTION

Seepage Velocity*	Vs	58.0	(ft/yr)
or			
Hydraulic Conductivity	K	4.5E-04	(cm/sec)
Hydraulic Gradient	i	0.00789	(ft/ft)
Effective Porosity	n	0.2	(-)

2. DISPERSION

Alpha x*	30	(ft)
(Alpha y) / (Alpha x)*	0.1	(-)
(Alpha z) / (Alpha x)*	5.E-02	(-)

Calc.

3. ADSORPTION

Retardation Factor* → R
or
Soil Bulk Density, rho: 1.24 (kg/L)
FractionOrganicCarbon, foc: 1.0E-3 (-)

Partition Coefficient	Koc		R	
PCE	95	(L/kg)	1.59	(-)
TCE	130	(L/kg)	1.81	(-)
DCE	125	(L/kg)	1.78	(-)
VC	30	(L/kg)	1.18	(-)
ETH	302	(L/kg)	2.87	(-)
Common R (used in model)* =			**1.59**	

4. BIOTRANSFORMATION

-1st Order Decay Coefficient*

Zone 1	λ (1/yr)	half-life (yrs)	Yield
PCE → TCE	0.173	4.00	0.79
TCE → DCE	0.000		0.74
DCE → VC	0.000		0.64
VC → ETH	0.000		0.45

Zone 2	λ (1/yr)	half-life (yrs)
PCE → TCE	0.000	
TCE → DCE	0.000	
DCE → VC	0.000	
VC → ETH	0.000	

λ HELP

5. GENERAL

Simulation Time*	7	(yr)	L →
Modeled Area Width*	400	(ft)	W ↓
Modeled Area Length*	1000	(ft)	
Zone 1 Length*	1000	(ft)	
Zone 2 Length*	0	(ft)	Zone 2=

6. SOURCE DATA

TYPE: Decaying
Single Planar

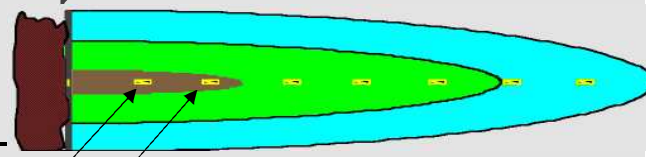
Source Options

Source Thickness in Sat. Zone* 40 (ft)

Width* (ft) Y1: 35

Conc. (mg/L)*	C1	k_s* (1/yr)
PCE	1.2	0.067
TCE		0.067
DCE		0.067
VC		0.067
ETH		0.067

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



View of Plume Looking Down

Observed Centerline Conc. at Monitoring Wells

7. FIELD DATA FOR COMPARISON

PCE Conc. (mg/L)	.75	.34									
TCE Conc. (mg/L)											
DCE Conc. (mg/L)											
VC Conc. (mg/L)											
ETH Conc. (mg/L)											
Distance from Source (ft)	0	100	200	300	400	500	600	700			
Date Data Collected	2015										

8. CHOOSE TYPE OF OUTPUT TO SEE:

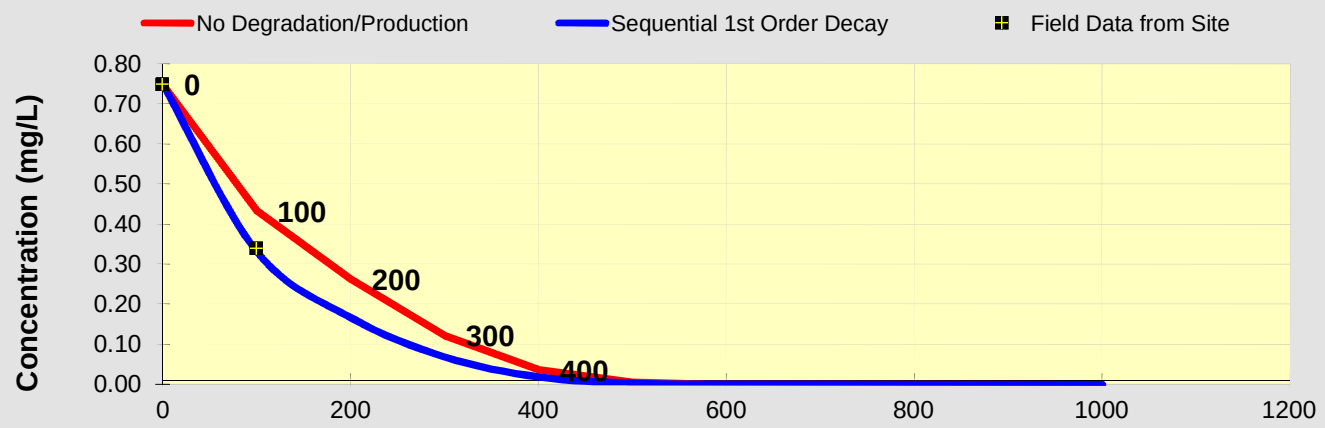
RUN CENTERLINE | **RUN ARRAY**

Help | Restore | RESET
SEE OUTPUT | Paste

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

PCE	Distance from Source (ft)										
	0	100	200	300	400	500	600	700	800	900	1000
No Degradation	0.751	0.434	0.264	0.123	0.037	0.007	0.001	0.000	0.000	0.000	0.000
Biotransformation	0.7508	0.333	0.168	0.069	0.019	0.003	0.000	0.000	0.000	0.000	0.000

	Monitoring Well Locations (ft)										
	0	100	200	300	400	500	600	700			
Field Data from Site	0.750	0.340									



See PCE

See TCE

See DCE

See VC

See ETH

Prepare Animation

Log ⟺ Linear

Input

To All

To Array

BIOCHLOR Natural Attenuation Decision Support System

Version 2.2
Excel 2000

Alterman
Run Name

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

TYPE OF CHLORINATED SOLVENT: Ethenes ◉ Ethanes ○

1. ADVECTION

Seepage Velocity*	Vs	58.0	(ft/yr)
or			
Hydraulic Conductivity	K	4.5E-04	(cm/sec)
Hydraulic Gradient	i	0.025	(ft/ft)
Effective Porosity	n	0.2	(-)

2. DISPERSION

Alpha x*	30	(ft)
(Alpha y) / (Alpha x)*	0.1	(-)
(Alpha z) / (Alpha x)*	5.E-02	(-)

Calc.

3. ADSORPTION

Retardation Factor* → R
or

Soil Bulk Density, rho	1.24	(kg/L)		
FractionOrganicCarbon, foc	1.0E-3	(-)		
Partition Coefficient	Koc			
PCE	95	(L/kg)	1.59	(-)
TCE	130	(L/kg)	1.81	(-)
DCE	125	(L/kg)	1.78	(-)
VC	30	(L/kg)	1.18	(-)
ETH	302	(L/kg)	2.87	(-)
Common R (used in model)* =			**1.59**	

4. BIOTRANSFORMATION -1st Order Decay Coefficient*

Zone 1	λ (1/yr)	half-life (yrs)	Yield
PCE → TCE	0.198	3.50	0.79
TCE → DCE	0.000		0.74
DCE → VC	0.000		0.64
VC → ETH	0.000		0.45

Zone 2	λ (1/yr)	half-life (yrs)
PCE → TCE	0.000	
TCE → DCE	0.000	
DCE → VC	0.000	
VC → ETH	0.000	

λ

5. GENERAL

Simulation Time*	4	(yr)
Modeled Area Width*	400	(ft)
Modeled Area Length*	1000	(ft)
Zone 1 Length*	1000	(ft)
Zone 2 Length*	0	(ft)

L, W

Zone 2=

Test if Biotransformation is Occurring → Natural Attenuation

6. SOURCE DATA TYPE: Decaying, Single Planar

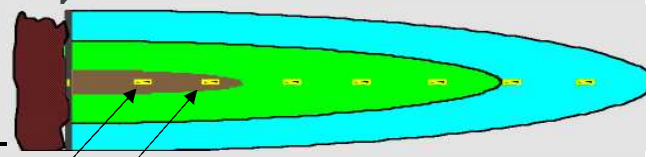
Source Options

Source Thickness in Sat. Zone* 40 (ft)

Width* (ft) Y1: 35

Conc. (mg/L)*	C1	k_s* (1/yr)
PCE	1.2	0.067
TCE		0.067
DCE		0.067
VC		0.067
ETH		0.067

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



View of Plume Looking Down

Observed Centerline Conc. at Monitoring Wells

7. FIELD DATA FOR COMPARISON

PCE Conc. (mg/L)	.98			.053							
TCE Conc. (mg/L)											
DCE Conc. (mg/L)											
VC Conc. (mg/L)											
ETH Conc. (mg/L)											
Distance from Source (ft)	0	100	200	375	400	500	600	700			
Date Data Collected	2015										

8. CHOOSE TYPE OF OUTPUT TO SEE:

RUN CENTERLINE | **RUN ARRAY** | ***Help*** | Restore | RESET | ***SEE OUTPUT*** | Paste

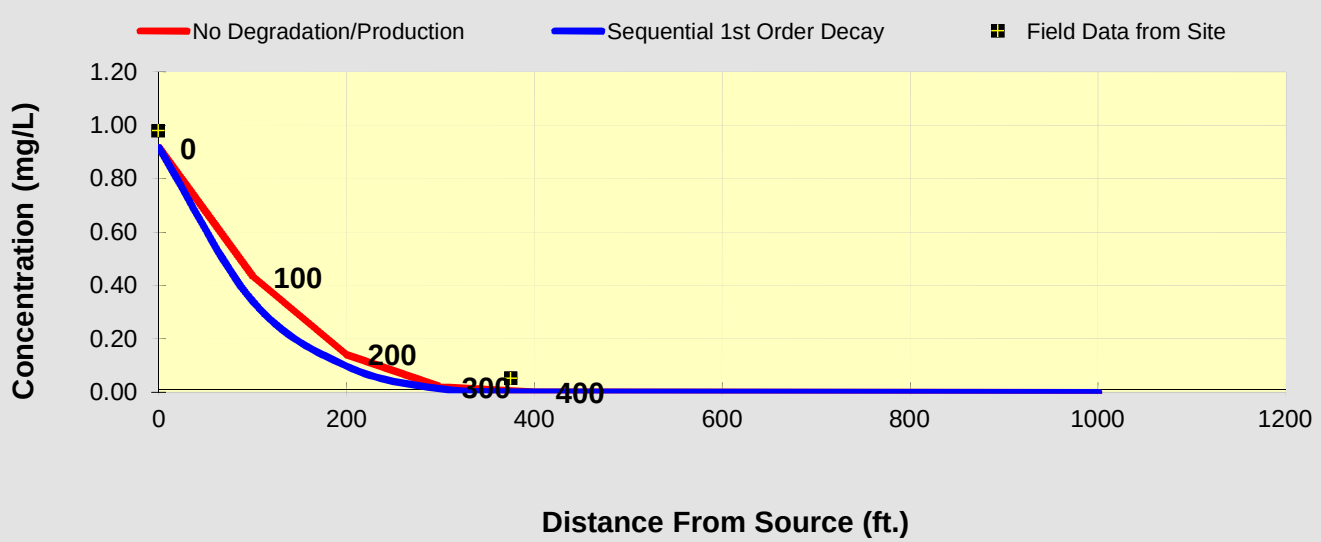
DISSOLVED CHLORINATED SOLVENT CONCENTRATIONS ALONG PLUME CENTERLINE (mg/L) at Z=0

Distance from Source (ft)

PCE	0	100	200	300	400	500	600	700	800	900	1000
No Degradation	0.918	0.435	0.142	0.021	0.001	0.000	0.000	0.000	0.000	0.000	0.000
Biotransformation	0.9179	0.342	0.099	0.014	0.001	0.000	0.000	0.000	0.000	0.000	0.000

Monitoring Well Locations (ft)

	0	100	200	375	400	500	600	700			
Field Data from Site	0.980			0.053							



See PCE

See TCE

See DCE

See VC

See ETH

Prepare Animation

Log ⟺ Linear

Input

To All

To Array

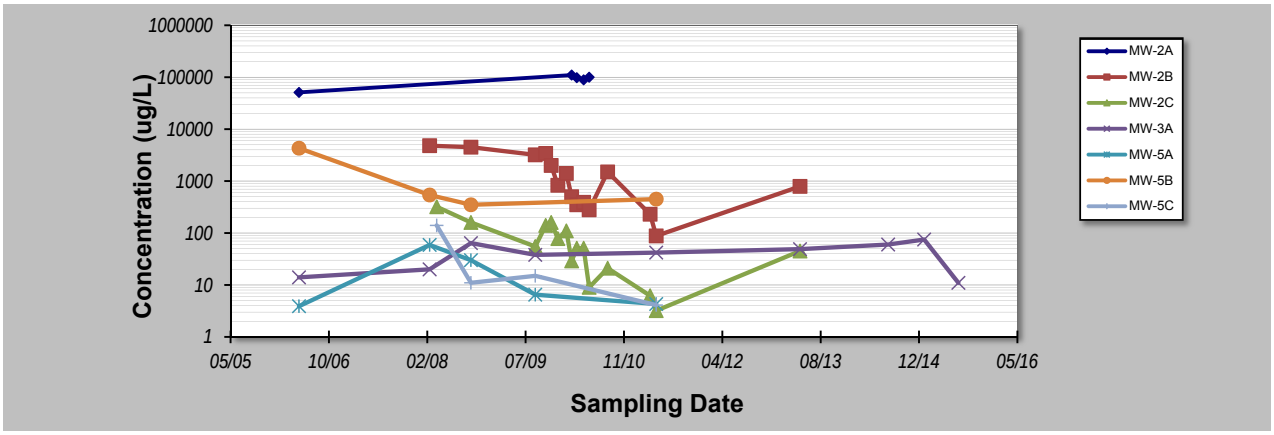
ATTACHMENT C – MANN KENDALL STATISTICAL TREND TESTS

GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date: 17-Sep-15
Facility Name: Alterman - Jonesboro, GA
Conducted By: Jonathan Waddell

Job ID: Various Wells
Constituent: Tetrachloroethene (PCE)
Concentration Units: ug/L

Sampling Point ID:	MW-2A	MW-2B	MW-2C	MW-3A	MW-5A	MW-5B	MW-5C
Sampling Event	Sampling Date	TETRACHLOROETHENE (PCE) CONCENTRATION (ug/L)						
1	May-06	51000			14	3.9	4300	
2	Aug-06							
3	Mar-08		4800		20	59	540	
4	Apr-08			320				140
5	Oct-08		4500	160	64	30	350	11
6	Aug-09		3200	55	38	6.5		15
7	Oct-09		3400	140				
8	Nov-09		2000	160				
9	Dec-09		830	78				
10	Jan-10		1400	110				
11	Feb-10	110000	500	29				
12	Mar-10	98000	350	51				
13	Apr-10	89000	390	51				
14	May-10	100000	280	9				
15	Aug-10		1500	21				
16	Mar-11		230	6.2				
17	May-11		88	3.2	42	4.3	450	4.1
18	May-13		790	45	49			
19	Jul-14				60			
20	Jan-15				75			
21	Jul-15				11			
22								
23								
24								
25								
Coefficient of Variation:		0.25	0.99	1.03	0.55	1.16	1.37	1.53
Mann-Kendall Statistic (S):		2	-75	-75	12	-2	-4	-4
Confidence Factor:		59.2%	>99.9%	>99.9%	87.0%	59.2%	83.3%	83.3%
Concentration Trend:		No Trend	Decreasing	Decreasing	No Trend	No Trend	No Trend	No Trend



Notes:

1. At least four independent sampling events per well are required for calculating the trend. *Methodology is valid for 4 to 40 samples.*
2. Confidence in Trend = Confidence (in percent) that constituent concentration is increasing (S>0) or decreasing (S<0): >95% = Increasing or Decreasing; ≥ 90% = Probably Increasing or Probably Decreasing; < 90% and S>0 = No Trend; < 90%, S≤0, and COV ≥ 1 = No Trend; < 90% and COV < 1 = Stable.
3. Methodology based on "MAROS: A Decision Support System for Optimizing Monitoring Plans", J.J. Aziz, M. Ling, H.S. Rifai, C.J. Newell, and J.R. Gonzales, *Ground Water* , 41(3):355-367, 2003.

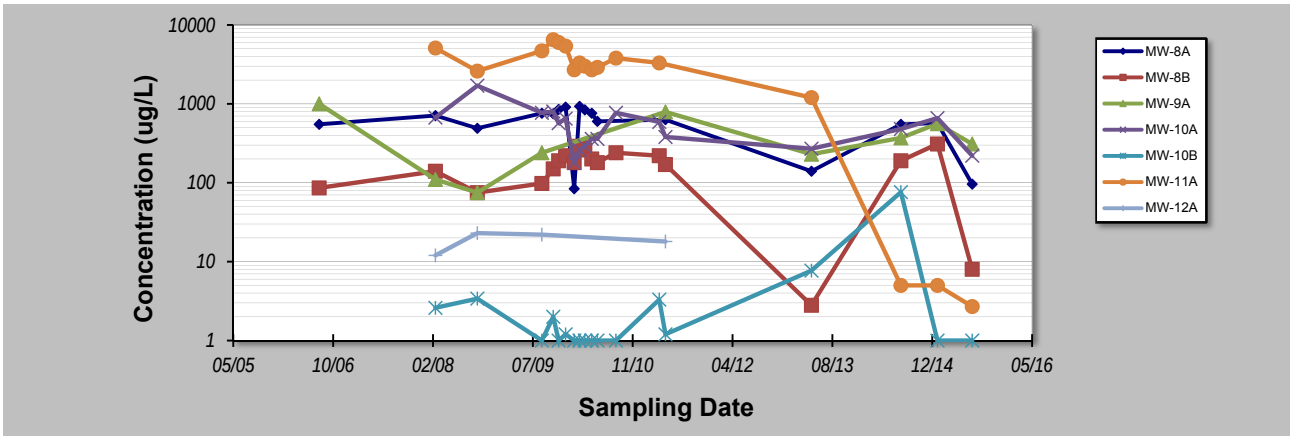
DISCLAIMER: The GSI Mann-Kendall Toolkit is available "as is". Considerable care has been exercised in preparing this software product; however, no party, including without limitation GSI Environmental Inc., makes any representation or warranty regarding the accuracy, correctness, or completeness of the information contained herein, and no such party shall be liable for any direct, indirect, consequential, incidental or other damages resulting from the use of this product or the information contained herein. Information in this publication is subject to change without notice. GSI Environmental Inc., disclaims any responsibility or obligation to update the information contained herein.

GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date: 17-Sep-15
Facility Name: Alterman - Jonesboro, GA
Conducted By: Jonathan Waddell

Job ID: Various Wells
Constituent: Tetrachloroethene (PCE)
Concentration Units: ug/L

Sampling Point ID:	MW-8A	MW-8B	MW-9A	MW-10A	MW-10B	MW-11A	MW-12A
Sampling Event	Sampling Date	TETRACHLOROETHENE (PCE) CONCENTRATION (ug/L)						
1	Aug-06	550	86	1000				
2	Mar-08	710	140	110	670	2.6	5100	12
3	Oct-08	490	75	75	1700	3.4	2600	23
4	Aug-09	760	98	240	770	1	4700	22
5	Oct-09	750	150		800	2	6500	
6	Nov-09	850	190		570	1	6000	
7	Dec-09	910	220		650	1.2	5400	
8	Jan-10	84	180		180	1	2700	
9	Feb-10	930	290		260	1	3300	
10	Mar-10	840	260		290	1	3000	
11	Apr-10	760	200		360	1	2700	
12	May-10	600	180		360	1	2900	
13	Aug-10		240		770	1	3800	
14	Mar-11		220		590	3.3	3300	
15	May-11	630	170	790	380	1.2		18
16	May-13	140	2.8	230	270	7.7	1200	
17	Jul-14	550	190	370	480	76	5	
18	Jan-15	570	310	560	660	1	5	
19	Jul-15	96	8	310	220	1	2.7	
20								
Coefficient of Variation:		0.45	0.50	0.77	0.63	2.94	0.65	0.27
Mann-Kendall Statistic (S):		-26	36	4	-43	-3	-73	0
Confidence Factor:		84.6%	88.8%	61.9%	94.4%	53.0%	99.9%	37.5%
Concentration Trend:		Stable	No Trend	No Trend	Prob. Decreasing	No Trend	Decreasing	Stable



Notes:

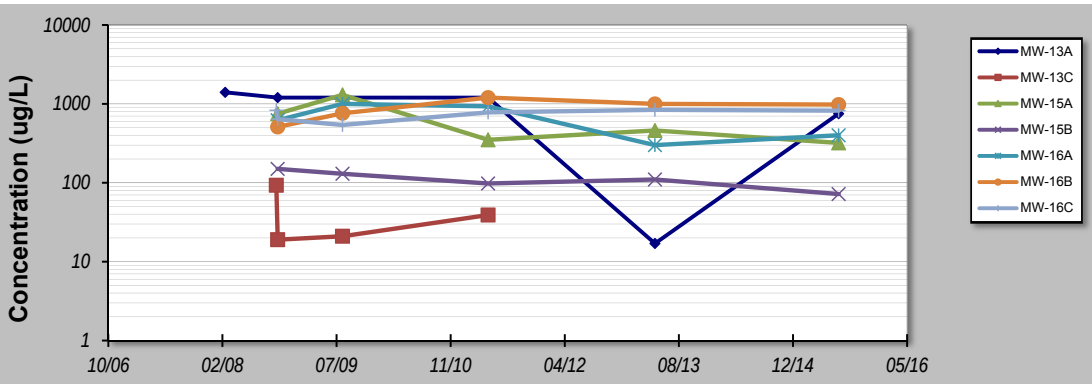
1. At least four independent sampling events per well are required for calculating the trend. *Methodology is valid for 4 to 40 samples.*
2. Confidence in Trend = Confidence (in percent) that constituent concentration is increasing (S>0) or decreasing (S<0): >95% = Increasing or Decreasing; ≥ 90% = Probably Increasing or Probably Decreasing; < 90% and S>0 = No Trend; < 90%, S≤0, and COV ≥ 1 = No Trend; < 90% and COV < 1 = Stable.
3. Methodology based on "MAROS: A Decision Support System for Optimizing Monitoring Plans", J.J. Aziz, M. Ling, H.S. Rifai, C.J. Newell, and J.R. Gonzales, *Ground Water* , 41(3):355-367, 2003.

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GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date:	17-Sep-15	Job ID:	Various Wells
Facility Name:	Alterman - Jonesboro, GA	Constituent:	Tetrachloroethene (PCE)
Conducted By:	Jonathan Waddell	Concentration Units:	ug/L

Sampling Point ID:	MW-13A	MW-13C	MW-15A	MW-15B	MW-16A	MW-16B	MW-16C
Sampling Event	Sampling Date	TETRACHLOROETHENE (PCE) CONCENTRATION (ug/L)						
1	Mar-08	1400						
2	Oct-08		93					830
3	Oct-08	1200	19	750	150	620	510	640
4	Aug-09	1200	21	1300	130	1000	760	540
5	May-11	1200	39	350	98	930	1200	780
6	May-13	17		460	110	300	1000	840
7	Jul-14							
8	Jul-15	750		320	72	400	980	820
9								
10								
11								
12								
13								
14								
15								
16								
17								
18								
19								
20								
Coefficient of Variation:		0.53	0.80	0.64	0.27	0.48	0.30	0.17
Mann-Kendall Statistic (S):		-10	0	-6	-8	-4	4	3
Confidence Factor:		95.2%	37.5%	88.3%	95.8%	75.8%	75.8%	64.0%
Concentration Trend:		Decreasing	Stable	Stable	Decreasing	Stable	No Trend	No Trend



Notes:

1. At least four independent sampling events per well are required for calculating the trend. *Methodology is valid for 4 to 40 samples.*
2. Confidence in Trend = Confidence (in percent) that constituent concentration is increasing (S>0) or decreasing (S<0): >95% = Increasing or Decreasing; ≥ 90% = Probably Increasing or Probably Decreasing; < 90% and S>0 = No Trend; < 90%, S≤0, and COV ≥ 1 = No Trend; < 90% and COV < 1 = Stable.
3. Methodology based on "MAROS: A Decision Support System for Optimizing Monitoring Plans", J.J. Aziz, M. Ling, H.S. Rifai, C.J. Newell, and J.R. Gonzales, *Ground Water* , 41(3):355-367, 2003.

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ATTACHMENT D – LABORATORY ANALYTICAL REPORTS

Pace Analytical Energy Services, LLC
220 William Pitt Way
Pittsburgh, PA 15238
Phone: (412) 826-5245
Fax: (412) 826-3433

July 17, 2015

Michelle Stayrook
EHS Support
4694 Cemetery Rd
PMB 104
Hilliard, OH 43026

RE: **ASHLAND ALTERMAN**
Pace Workorder: *16056*

Dear Michelle Stayrook:

Enclosed are the analytical results for sample(s) received by the laboratory on Tuesday, July 07, 2015. Results reported herein conform to the most current NELAC standards, where applicable, unless otherwise narrated in the body of the report.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Ruth Welsh

Ruth Welsh 07/17/2015
RW 7/17/15

Customer Service Representative

Enclosures

As a valued client we would appreciate your comments on our service.
Please email info@microseeps.com.

Total Number of Pages 21

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Pace Analytical Energy Services, LLC
220 William Pitt Way
Pittsburgh, PA 15238
Phone: (412) 826-5245
Fax: (412) 826-3433

LABORATORY ACCREDITATIONS & CERTIFICATIONS

Accreditor:	Pennsylvania Department of Environmental Protection, Bureau of Laboratories
Accreditation ID:	02-00538
Scope:	NELAP Non-Potable Water and Solid & Hazardous Waste
Accreditor:	South Carolina Department of Health and Environmental Control, Office of Environmental Laboratory Certification
Accreditation ID:	89009003
Scope:	Clean Water Act (CWA); Resource Conservation and Recovery Act (RCRA)
Accreditor:	NELAP: New Jersey, Department of Environmental Protection
Accreditation ID:	PA026
Scope:	Non-Potable Water; Solid and Chemical Materials
Accreditor:	NELAP: New York, Department of Health Wadsworth Center
Accreditation ID:	11815
Scope:	Non-Potable Water; Solid and Hazardous Waste
Accreditor:	State of Connecticut, Department of Public Health, Division of Environmental Health
Accreditation ID:	PH-0263
Scope:	Clean Water Act (CWA) Resource Conservation and Recovery Act (RCRA)
Accreditor:	NELAP: Texas, Commission on Environmental Quality
Accreditation ID:	T104704453-09-TX
Scope:	Non-Potable Water
Accreditor:	State of New Hampshire
Accreditation ID:	299409
Scope:	Non-potable water
Accreditor:	State of Georgia
Accreditation ID:	Chapter 391-3-26
Scope:	As per the Georgia EPD Rules and Regulations for Commercial Laboratories, PAES is accredited by the Pennsylvania Department of Environmental Protection Bureau of Laboratories under the National Environmental Laboratory Approval Program (NELAC).

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Phone: (412) 826-5245
Fax: (412) 826-3433

SAMPLE SUMMARY

Workorder: 16056 ASHLAND ALTERMAN

Lab ID	Sample ID	Matrix	Date Collected	Date Received
160560001	MW-6A	Water	7/1/2015 16:20	7/7/2015 11:15
160560002	MW-6B	Water	7/1/2015 16:15	7/7/2015 11:15
160560003	MW-1A	Water	7/1/2015 11:00	7/7/2015 11:15
160560004	MW-5A	Water	7/1/2015 15:00	7/7/2015 11:15
160560005	MW-7B	Water	7/1/2015 16:05	7/7/2015 11:15
160560006	MW-4A	Water	7/2/2015 10:30	7/7/2015 11:15
160560007	MW-18B	Water	7/2/2015 11:45	7/7/2015 11:15
160560008	MW-18A	Water	7/2/2015 12:50	7/7/2015 11:15
160560009	MW-14A	Water	7/2/2015 13:42	7/7/2015 11:15
160560010	MW-20C	Water	7/2/2015 15:57	7/7/2015 11:15
160560011	MW-12A	Water	7/2/2015 17:07	7/7/2015 11:15
160560012	MW-10C	Water	7/2/2015 17:20	7/7/2015 11:15
160560013	MW-10B	Water	7/2/2015 18:20	7/7/2015 11:15
160560014	MW-3A	Water	7/2/2015 18:08	7/7/2015 11:15

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ANALYTICAL RESULTS

Workorder: 16056 ASHLAND ALTERMAN

Lab ID: **160560001** Date Received: 7/7/2015 11:15 Matrix: Water

Sample ID: **MW-6A** Date Collected: 7/1/2015 16:20

Parameters	Results	Units	PQL	MDL	DF	Analyzed	By	Qualifiers
RISK - MICR								
Analysis Desc: AM20GAX			Analytical Method: AM20GAX					
Methane	**2.7**	ug/l	0.50	0.042	1	7/14/2015 09:21	BW	n
Ethane	**1.0**	ug/l	0.10	0.0020	1	7/14/2015 09:21	BW	n
Ethene	**<0.10**	ug/l	0.10	0.0030	1	7/14/2015 09:21	BW	n
Acetylene	**<0.50**	ug/l	0.50	0.015	1	7/14/2015 09:21	BW	n

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ANALYTICAL RESULTS

Workorder: 16056 ASHLAND ALTERMAN

Lab ID: **160560002** Date Received: 7/7/2015 11:15 Matrix: Water

Sample ID: **MW-6B** Date Collected: 7/1/2015 16:15

Parameters	Results	Units	PQL	MDL	DF	Analyzed	By	Qualifiers
RISK - MICR								
Analysis Desc: AM20GAX		Analytical Method: AM20GAX						
Methane	**<0.50**	ug/l	0.50	0.042	1	7/14/2015 09:36	BW	n
Ethane	**<0.10**	ug/l	0.10	0.0020	1	7/14/2015 09:36	BW	n
Ethene	**<0.10**	ug/l	0.10	0.0030	1	7/14/2015 09:36	BW	n
Acetylene	**<0.50**	ug/l	0.50	0.015	1	7/14/2015 09:36	BW	n

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ANALYTICAL RESULTS

Workorder: 16056 ASHLAND ALTERMAN

Lab ID: **160560003** Date Received: 7/7/2015 11:15 Matrix: Water

Sample ID: **MW-1A** Date Collected: 7/1/2015 11:00

Parameters	Results	Units	PQL	MDL	DF	Analyzed	By	Qualifiers
RISK - MICR								
Analysis Desc: AM20GAX		Analytical Method: AM20GAX						
Methane	**16**	ug/l	0.50	0.042	1	7/14/2015 09:49	BW	n
Ethane	**<0.10**	ug/l	0.10	0.0020	1	7/14/2015 09:49	BW	n
Ethene	**<0.10**	ug/l	0.10	0.0030	1	7/14/2015 09:49	BW	n
Acetylene	**<0.50**	ug/l	0.50	0.015	1	7/14/2015 09:49	BW	n

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ANALYTICAL RESULTS

Workorder: 16056 ASHLAND ALTERMAN

Lab ID: **160560004** Date Received: 7/7/2015 11:15 Matrix: Water

Sample ID: **MW-5A** Date Collected: 7/1/2015 15:00

Parameters	Results	Units	PQL	MDL	DF	Analyzed	By	Qualifiers
RISK - MICR								
Analysis Desc: AM20GAX			Analytical Method: AM20GAX					
Methane	**250**	ug/l	0.50	0.042	1	7/14/2015 10:03	BW	n
Ethane	**<0.10**	ug/l	0.10	0.0020	1	7/14/2015 10:03	BW	n
Ethene	**<0.10**	ug/l	0.10	0.0030	1	7/14/2015 10:03	BW	n
Acetylene	**<0.50**	ug/l	0.50	0.015	1	7/14/2015 10:03	BW	n

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ANALYTICAL RESULTS

Workorder: 16056 ASHLAND ALTERMAN

Lab ID: **160560005** Date Received: 7/7/2015 11:15 Matrix: Water

Sample ID: **MW-7B** Date Collected: 7/1/2015 16:05

Parameters	Results	Units	PQL	MDL	DF	Analyzed	By	Qualifiers
RISK - MICR								
Analysis Desc: AM20GAX			Analytical Method: AM20GAX					
Methane	**<0.50**	ug/l	0.50	0.042	1	7/14/2015 10:17	BW	n
Ethane	**<0.10**	ug/l	0.10	0.0020	1	7/14/2015 10:17	BW	n
Ethene	**<0.10**	ug/l	0.10	0.0030	1	7/14/2015 10:17	BW	n
Acetylene	**<0.50**	ug/l	0.50	0.015	1	7/14/2015 10:17	BW	n

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ANALYTICAL RESULTS

Workorder: 16056 ASHLAND ALTERMAN

Lab ID: **160560006** Date Received: 7/7/2015 11:15 Matrix: Water

Sample ID: **MW-4A** Date Collected: 7/2/2015 10:30

Parameters	Results	Units	PQL	MDL	DF	Analyzed	By	Qualifiers
RISK - MICR								
Analysis Desc: AM20GAX			Analytical Method: AM20GAX					
Methane	**<0.50**	ug/l	0.50	0.042	1	7/14/2015 10:33	BW	n
Ethane	**<0.10**	ug/l	0.10	0.0020	1	7/14/2015 10:33	BW	n
Ethene	**<0.10**	ug/l	0.10	0.0030	1	7/14/2015 10:33	BW	n
Acetylene	**<0.50**	ug/l	0.50	0.015	1	7/14/2015 10:33	BW	n

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ANALYTICAL RESULTS

Workorder: 16056 ASHLAND ALTERMAN

Lab ID: **160560007** Date Received: 7/7/2015 11:15 Matrix: Water
Sample ID: **MW-18B** Date Collected: 7/2/2015 11:45

Parameters	Results	Units	PQL	MDL	DF	Analyzed	By	Qualifiers
RISK - MICR								
Analysis Desc: AM20GAX			Analytical Method: AM20GAX					
Methane	**0.57**	ug/l	0.50	0.042	1	7/14/2015 11:52	BW	n
Ethane	**<0.10**	ug/l	0.10	0.0020	1	7/14/2015 11:52	BW	n
Ethene	**<0.10**	ug/l	0.10	0.0030	1	7/14/2015 11:52	BW	n
Acetylene	**<0.50**	ug/l	0.50	0.015	1	7/14/2015 11:52	BW	n

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ANALYTICAL RESULTS

Workorder: 16056 ASHLAND ALTERMAN

Lab ID: **160560008** Date Received: 7/7/2015 11:15 Matrix: Water

Sample ID: **MW-18A** Date Collected: 7/2/2015 12:50

Parameters	Results	Units	PQL	MDL	DF	Analyzed	By	Qualifiers
RISK - MICR								
Analysis Desc: AM20GAX		Analytical Method: AM20GAX						
Methane	**4.3**	ug/l	0.50	0.042	1	7/14/2015 12:06	BW	n
Ethane	**<0.10**	ug/l	0.10	0.0020	1	7/14/2015 12:06	BW	n
Ethene	**<0.10**	ug/l	0.10	0.0030	1	7/14/2015 12:06	BW	n
Acetylene	**<0.50**	ug/l	0.50	0.015	1	7/14/2015 12:06	BW	n

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ANALYTICAL RESULTS

Workorder: 16056 ASHLAND ALTERMAN

Lab ID: **160560009** Date Received: 7/7/2015 11:15 Matrix: Water

Sample ID: **MW-14A** Date Collected: 7/2/2015 13:42

Parameters	Results	Units	PQL	MDL	DF	Analyzed	By	Qualifiers
RISK - MICR								
Analysis Desc: AM20GAX	Analytical Method: AM20GAX							
Methane	**<0.50**	ug/l	0.50	0.042	1	7/14/2015 12:19	BW	n
Ethane	**<0.10**	ug/l	0.10	0.0020	1	7/14/2015 12:19	BW	n
Ethene	**<0.10**	ug/l	0.10	0.0030	1	7/14/2015 12:19	BW	n
Acetylene	**<0.50**	ug/l	0.50	0.015	1	7/14/2015 12:19	BW	n

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ANALYTICAL RESULTS

Workorder: 16056 ASHLAND ALTERMAN

Lab ID: **160560010** Date Received: 7/7/2015 11:15 Matrix: Water

Sample ID: **MW-20C** Date Collected: 7/2/2015 15:57

Parameters	Results	Units	PQL	MDL	DF	Analyzed	By	Qualifiers
RISK - MICR								
Analysis Desc: AM20GAX			Analytical Method: AM20GAX					
Methane	**0.94**	ug/l	0.50	0.042	1	7/14/2015 12:37	BW	n
Ethane	**0.22**	ug/l	0.10	0.0020	1	7/14/2015 12:37	BW	n
Ethene	**<0.10**	ug/l	0.10	0.0030	1	7/14/2015 12:37	BW	n
Acetylene	**<0.50**	ug/l	0.50	0.015	1	7/14/2015 12:37	BW	n

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ANALYTICAL RESULTS

Workorder: 16056 ASHLAND ALTERMAN

Lab ID: **160560011** Date Received: 7/7/2015 11:15 Matrix: Water

Sample ID: **MW-12A** Date Collected: 7/2/2015 17:07

Parameters	Results	Units	PQL	MDL	DF	Analyzed	By	Qualifiers
RISK - MICR								
Analysis Desc: AM20GAX			Analytical Method: AM20GAX					
Methane	**<0.50**	ug/l	0.50	0.042	1	7/14/2015 12:52	BW	n
Ethane	**<0.10**	ug/l	0.10	0.0020	1	7/14/2015 12:52	BW	n
Ethene	**<0.10**	ug/l	0.10	0.0030	1	7/14/2015 12:52	BW	n
Acetylene	**<0.50**	ug/l	0.50	0.015	1	7/14/2015 12:52	BW	n

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ANALYTICAL RESULTS

Workorder: 16056 ASHLAND ALTERMAN

Lab ID: **160560012** Date Received: 7/7/2015 11:15 Matrix: Water

Sample ID: **MW-10C** Date Collected: 7/2/2015 17:20

Parameters	Results	Units	PQL	MDL	DF	Analyzed	By	Qualifiers
RISK - MICR								
Analysis Desc: AM20GAX		Analytical Method: AM20GAX						
Methane	**3.2**	ug/l	0.50	0.042	1	7/14/2015 13:06	BW	n
Ethane	**<0.10**	ug/l	0.10	0.0020	1	7/14/2015 13:06	BW	n
Ethene	**0.56**	ug/l	0.10	0.0030	1	7/14/2015 13:06	BW	n
Acetylene	**<0.50**	ug/l	0.50	0.015	1	7/14/2015 13:06	BW	n

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ANALYTICAL RESULTS

Workorder: 16056 ASHLAND ALTERMAN

Lab ID: **160560013** Date Received: 7/7/2015 11:15 Matrix: Water

Sample ID: **MW-10B** Date Collected: 7/2/2015 18:20

Parameters	Results	Units	PQL	MDL	DF	Analyzed	By	Qualifiers
RISK - MICR								
Analysis Desc: AM20GAX		Analytical Method: AM20GAX						
Methane	**2.4**	ug/l	0.50	0.042	1	7/14/2015 13:20	BW	n
Ethane	**<0.10**	ug/l	0.10	0.0020	1	7/14/2015 13:20	BW	n
Ethene	**<0.10**	ug/l	0.10	0.0030	1	7/14/2015 13:20	BW	n
Acetylene	**<0.50**	ug/l	0.50	0.015	1	7/14/2015 13:20	BW	n

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ANALYTICAL RESULTS

Workorder: 16056 ASHLAND ALTERMAN

Lab ID: **160560014** Date Received: 7/7/2015 11:15 Matrix: Water

Sample ID: **MW-3A** Date Collected: 7/2/2015 18:08

Parameters	Results	Units	PQL	MDL	DF	Analyzed	By	Qualifiers
RISK - MICR								
Analysis Desc: AM20GAX			Analytical Method: AM20GAX					
Methane	**<0.50**	ug/l	0.50	0.042	1	7/14/2015 13:32	BW	n
Ethane	**<0.10**	ug/l	0.10	0.0020	1	7/14/2015 13:32	BW	n
Ethene	**<0.10**	ug/l	0.10	0.0030	1	7/14/2015 13:32	BW	n
Acetylene	**<0.50**	ug/l	0.50	0.015	1	7/14/2015 13:32	BW	n

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ANALYTICAL RESULTS QUALIFIERS

Workorder: 16056 ASHLAND ALTERMAN

DEFINITIONS/QUALIFIERS

Disclaimer : The Pennsylvania Department of Environmental Protection (PADEP) has decided to no longer recognize analyses that do not produce data for primary compliance, for NELAP accreditation. The methods affected by this decision are AM20GAx, AM21G, SW846 7199 and AM4.02. The laboratory shall continue to administer the NELAP/TNI standard requirements in the performance of these methods.

MDL	Method Detection Limit. Can be used synonymously with LOD; Limit Of Detection.
PQL	Practical Quanitation Limit. Can be used synonymously with LOQ; Limit Of Quantitation.
ND	Not detected at or above reporting limit.
DF	Dilution Factor.
S	Surrogate.
RPD	Relative Percent Difference.
% Rec	Percent Recovery.
U	Indicates the compound was analyzed for, but not detected at or above the noted concentration.
J	Estimated concentration greater than the set method detection limit (MDL) and less than the set reporting limit (PQL).
n	The laboratory does not hold NELAP/TNI accreditation for this method or analyte.

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QUALITY CONTROL DATA

Workorder: 16056 ASHLAND ALTERMAN

QC Batch: DISG/4703 Analysis Method: AM20GAX

QC Batch Method: AM20GAX

Associated Lab Samples: 160560001, 160560002, 160560003, 160560004, 160560005, 160560006, 160560007, 160560008, 160560009, 160560010, 160560011, 160560012, 160560013, 160560014

METHOD BLANK: 36047

Parameter	Units	Blank Result	Reporting Limit	Qualifiers
RISK				
Methane	ug/l	<0.50	0.50	n
Ethane	ug/l	<0.10	0.10	n
Ethene	ug/l	<0.10	0.10	n
Acetylene	ug/l	<0.50	0.50	n

LABORATORY CONTROL SAMPLE & LCSD: 36048 36049

Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limit	RPD	Max RPD	Qualifiers
RISK										
Methane	ug/l	750	700	720	93	96	80-120	3.2	20	n
Ethane	ug/l	38	40	42	105	112	80-120	6.5	20	n
Ethene	ug/l	35	37	39	104	111	80-120	6.5	20	n
Acetylene	ug/l	33	36	38	108	115	80-120	6.3	20	n

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QUALITY CONTROL DATA QUALIFIERS

Workorder: 16056 ASHLAND ALTERMAN

QUALITY CONTROL PARAMETER QUALIFIERS

n	The laboratory does not hold NELAP/TNI accreditation for this method or analyte.

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Workorder: 16056 ASHLAND ALTERMAN

Lab ID	Sample ID	Prep Method	Prep Batch	Analysis Method	Analysis Batch
160560001	MW-6A			AM20GAX	DISG/4703
160560002	MW-6B			AM20GAX	DISG/4703
160560003	MW-1A			AM20GAX	DISG/4703
160560004	MW-5A			AM20GAX	DISG/4703
160560005	MW-7B			AM20GAX	DISG/4703
160560006	MW-4A			AM20GAX	DISG/4703
160560007	MW-18B			AM20GAX	DISG/4703
160560008	MW-18A			AM20GAX	DISG/4703
160560009	MW-14A			AM20GAX	DISG/4703
160560010	MW-20C			AM20GAX	DISG/4703
160560011	MW-12A			AM20GAX	DISG/4703
160560012	MW-10C			AM20GAX	DISG/4703
160560013	MW-10B			AM20GAX	DISG/4703
160560014	MW-3A			AM20GAX	DISG/4703

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Microseeps

16056

CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

Page: of

004720

Section A Required Client Information:

Company:	Antea Group
Address:	4970 Peachtree Industrial Blvd. Suite 350
Email To:	darin.hintz@anteagroup.com
Phone: (678) 346-8809	Fax:
Requested Due Date/TAT:	

Section B Required Project Information:

Report To:	
Copy To:	
Purchase Order No.:	
Project Name:	
Project Number:	Ashland Alternan

Section C Invoice Information:

Attention:	
Company Name:	
Address:	
Pace Quote Reference:	
Pace Project Manager:	
Pace Profile #:-	

REGULATORY AGENCY

☐ NPDES ☐ GROUND WATER ☐ DRINKING WATER
☐ UST ☐ RCRA ☐ OTHER

Site Location STATE: GA

Section D Required Client Information

SAMPLE ID (A-Z, 0-9 / ,-) Sample IDs MUST BE UNIQUE

Matrix Codes (MATRIX / CODE): Drinking Water DW; Water WT; Waste Water WW; Product P; Soil/Solid SL; Oil OL; Wipe WP; Air AR; Tissue TS; Other OT

Requested Analysis Filtered (Y/N)

ITEM #	SAMPLE ID	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED COMPOSITE START DATE	COMPOSITE START TIME	COMPOSITE END/GRAB DATE	COMPOSITE END/GRAB TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives: Unpreserved	H_2SO_4	HNO_3	HCl	TSP	BAK	Zinc Acetate & NaOH	Other	Analysis Test: Dissolved Gases	Residual Chlorine (Y/N)	Pace Project No./ Lab I.D.
	Y/N																	Y		
1	MW-6A	WT	G			7/1/15	1620		3									3		
2	MW-6B	WT	G			7/1/15	1615		3									3		
3	MW-23A (HOLD)	WT	G			7/1/15	1750		3									3		
4	MW-1A	WT	G			7/1/15	1100		3									3		
5	MW-1C (HOLD)	WT	G			7/1/15	1200		3									3		
6	MW-5A.	WT	G			7/1/15	1500		3									3		
7	MW-7C (HOLD)	WT	G			7/1/15	1500		3									3		
8	MW-7B	WT	G			7/1/15	1605		3									3		
9	MW-19A (HOLD)	WT	G			7/1/15	1630		3									3		
10	MW-9C (HOLD)	WT	G			7/1/15	1742		3									3		
11	MW-9B. (HOLD)	WT	G			7/2/15	1010		3									3		
12	MW-4A.	WT	G			7/2/15	1030		3									3		

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS
Received w/ Trip Blank Pace Lot	Chris Bagley/Antea Group	7/3/15	1500	[illegible] PACE	7.7.15	1115	5.8 Y

ORIGINAL

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: Chris Bagley

SIGNATURE of SAMPLER: [signature]

DATE Signed (MM/DD/YY): 07/03/2015

Temp in °C | Received on Ice (Y/N) | Custody Sealed Cooler (Y/N) | Samples Intact (Y/N)

*Important Note: By signing this form you are accepting Pace's NET 30 day payment terms and agreeing to late charges of 1.5% per month for any invoices not paid within 30 days.

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16056

CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

Page: of

004721

Section A Required Client Information:	Section B Required Project Information:	Section C Invoice Information:
Company: Arcadis Group	Report To:	Attention:
Address: 4940 Peachtree Industrial Blvd Suite 350	Copy To:	Company Name:
Email To: daria.hintz@arcadisgroup.com	Purchase Order No.:	Address:
Phone: (678) 346-8009 Fax:	Project Name:	Pace Quote Reference:
Requested Due Date/TAT:	Project Number:	Pace Project Manager:
		Pace Profile #:

REGULATORY AGENCY

☐ NPDES ☐ GROUND WATER ☐ DRINKING WATER
☐ UST ☐ RCRA ☐ OTHER

Site Location STATE: GA

Section D Required Client Information

SAMPLE ID
(A-Z, 0-9 / ,-)
Sample IDs MUST BE UNIQUE

Matrix Codes (MATRIX / CODE)
Drinking Water DW
Water WT
Waste Water WW
Product P
Soil/Solid SL
Oil OL
Wipe WP
Air AR
Tissue TS
Other OT

ITEM #	SAMPLE ID	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED COMPOSITE START DATE	COMPOSITE START TIME	COMPOSITE END/GRAB DATE	COMPOSITE END/GRAB TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives: Unpreserved	H_2SO_4	HNO_3	HCl	TSP	BAK	Zinc Acetate & NaOH	Other	Analysis Test Y/N	Requested Analysis Filtered (Y/N): Dissolved Gases	Residual Chlorine (Y/N)	Pace Project No./ Lab I.D.
1	MW-18B.	WT	G			7/2/15	1145		3										3		
2	MW-18A	WT	G			7/2/15	1250		3										3		
3	MW-11B (HOLD)	WT	G			7/2/15	1440		3										3		
4	MW-11C (HOLD)	WT	G			7/2/15	1600		3										3		
5	MW-8C (HOLD)	WT	G			7/2/15	1145		3										3		
6	MW-14A	WT	G			7/2/15	1342		3										3		
7	MW-24C (HOLD)	WT	G			7/2/15	1450		3										3		
8	MW-20C	WT	G			7/2/15	1557		3										3		
9	MW-12A	WT	G			7/2/15	1707		3										3		
10	MW-10C	WT	G			7/2/15	1720		3										3		
11	MW-10B	WT	G			7/2/15	1820		3										3		
12	MW-3A	WT	G			7/2/15	1808		3										3		

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS			
Preserved w/ Trisodium phosphate	Chris Bagley / Arcadis Group	7/3/15	1500	[signature] PACE	7.7.15	1115	5.8	Y	N	Y

ORIGINAL

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: Chris Bagley

SIGNATURE of SAMPLER: [signature]

DATE Signed (MM/DD/YY): 07/03/15

Temp in °C | Received on Ice (Y/N) | Custody Sealed Cooler (Y/N) | Samples Intact (Y/N)

*Important Note: By signing this form you are accepting Pace's NET 30 day payment terms and agreeing to late charges of 1.5% per month for any invoices not paid within 30 days.

NON-CONFORMANCE FORM

PAES Work Order #: 16056

Date: 7.7.15 Time of Receipt: 1115 Receiver: LG

Client: Antea Group.

REASON FOR NON-CONFORMANCE:

1. MW-23A: COC: 7/1/15 @ 1750
   Vials: 6/30/15 @ 1810
2. MW-5A, MW-4A, MW-8B & MW-9B: one vial broke each.
3. Also received MW-23B collected 6/30/15 @ 17:50 (3 TSP vials)
4. Also received 3 HCL preserved vials requesting 8260B-TCL OLM04.2 (w/ SAV Surrogate) collected 6/25/15, IDed TB for Project 68002361.

ACTION TAKEN: Jerry Lanier | Beth

Client name: ~~Chad Bechtold~~ Daughtry Date: 7/7/15 Time: email

Please see attached email

Customer Service Initials: RW Date: 7-9-15

Ruth Welsh

16056

From: Michelle Stayrook <Michelle.Stayrook@ehs-support.com>
Sent: Wednesday, July 08, 2015 9:08 PM
To: beth.daughtry@testamericainc.com; darin.hintz@anteagroup.com; Pat Peterson
Cc: Eddie Jordan; Mark Robinson; Jonathan Waddell
Subject: RE: TestAmerica sample confirmation files from 680-114235-1 Ashland Alterman

Hello Beth- Please see my responses below in GREEN. Darin is on vacation this week, so I copied Eddie Jordan and Mark Robinson.

Thank you,
Michelle
412-807-1494

From: Daughtry, Beth [mailto:beth.daughtry@testamericainc.com]
Sent: Wednesday, July 8, 2015 2:31 PM
To: darin.hintz@anteagroup.com; Michelle Stayrook; Pat Peterson
Subject: TestAmerica sample confirmation files from 680-114235-1 Ashland Alterman
Importance: High

Hello,

Attached please find the sample confirmation and chain of custody files for job 680-114235-1; Ashland Alterman

The following samples were received at the **subcontract laboratory** with 1 40ml vial broken: MW-5A, MW-4A, MW-18B & MW-9B.

EHS Support will contact the subcontract laboratory directly to inquire if analysis can be run without dilution. Our point of contacts have been Casey Brown and Robert Pirkle.

The following sample was received at the **subcontract laboratory** and was not listed on the COC: MW-23B (Do you want to proceed with analysis).

Yes, MW-23B for dissolved gases (AM20GAX) should be added to the COC. Analysis should be noted as "HOLD" until preliminary VOC data is available.

The following sample was received at the **subcontract laboratory** , but the COC sample date/time (7/1/15 @ 1750) does not match the sample container sample date/time (6/30/15 @ 1810) - Which is correct?

What is the sample ID? Based on groundwater sampling logs, EHS Support identifies the following: Sample MW-23B was collected on 6/30/15 at 17:50. Sample MW-23A was collected on 6/30/15 at 18:10. It appears the information was transposed.

The subcontact laboratory received a "Trip Blank" sample that are HCL vials and reference 8260B analysis. This laboratory does not perform 8260 analysis. - What do you want me to do with this sample?

Please run the tripblanks recorded on the COCs for 8260C. 8260B was upgraded to 8260C, correct?

During our last sampling event in January 2015, the lab ran 8260B.

For method AM20GAX there is a 14day hold time from sample date/time - these samples that are marked as "HOLD" will be put on a separate job. Please let us know as soon as possible if you need this sample ran - we do not want to miss the

16056

hold times.
We are attempting to save our client a little money by avoiding unnecessary analysis. HOLD samples will be run if our constituents of concern (TCE/PCE/CIS-DCE/VC) are detected in the associated VOC samples. Is there a way to receive the preliminary data before the AM20GAX hold expires? If not, we will release the samples and have AM20GAX ran.

Please feel free to contact me or your PM Jerry Lanier if you have any questions.

Please Note: 23 sample locations remain to be collected. Unfortunately, there was an unplanned change in resourcing. Sampling will resume next week for this project.

I need to contact Jerry Lanier re: the condensed reporting format, so I will mention this email as well. Thank you for the detailed summary. Please let me know if there are any lingering questions.

Thank you.

Please let us know if we met your expectations by rating the service you received from TestAmerica on this project by visiting our website at: Project Feedback

BETH A DAUGHTRY
Project Management Assistant II

TestAmerica Savannah
THE LEADER IN ENVIRONMENTAL TESTING

Tel: 912.354,7858
www.testamericainc.com

Reference: [254234]
Attachments: 2

Cooler Receipt Form

Client Name: Antea Group Project: Ashland Lab Work Order: 16056

A. Shipping/Container Information (circle appropriate response)

Courier: (FedEx) UPS USPS Client Other:_____ Air bill Present: (Yes) No

Tracking Number: 780928389007

Custody Seal on Cooler/Box Present: Yes (No) Seals Intact: Yes No

Cooler/Box Packing Material: (Bubble Wrap) Absorbent Foam Other:_____

Type of Ice: (Wet) Blue None Ice Intact: (Yes) Melted

Cooler Temperature: 5.8°C Radiation Screened: Yes (No) Chain of Custody Present: (Yes) No

Comments:_____

B. Laboratory Assignment/Log-in (check appropriate response)

	YES	NO	N/A	Comment Reference non-Conformanc
Chain of Custody properly filled out	✓			
Chain of Custody relinquished	✓			
Sampler Name & Signature on COC	✓			
Containers intact		✓		
Were samples in separate bags	✓			
Sample container labels match COC Sample name/date and time collected		✓		
Sufficient volume provided	✓			
PAES containers used	✓			
Are containers properly preserved for the requested testing? (as labeled)	✓			
If an unknown preservation state, were containers checked? Exception: VOA's coliform			✓	If yes, see pH form.
Was volume for dissolved testing field filtered, as noted on the COC? Was volume received in a preserved container?			✓	

Comments:_____

Cooler contents examined/received by: LG Date: 7.7.15

Project Manager Review: RL Date: 7/9/15

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July 20, 2015

Michelle Stayrook
EHS Support
4694 Cemetery Rd
PMB 104
Hilliard, OH 43026

RE: **ASHLAND ALTERMAN**
Pace Workorder: *16105*

Dear Michelle Stayrook:

Enclosed are the analytical results for sample(s) received by the laboratory on Tuesday, July 07, 2015. Results reported herein conform to the most current NELAC standards, where applicable, unless otherwise narrated in the body of the report.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Ruth Welsh 07/20/15

Ruth Welsh 07/20/2015

Customer Service Representative

Enclosures

As a valued client we would appreciate your comments on our service.
Please email info@microseeps.com.

Total Number of Pages 19

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LABORATORY ACCREDITATIONS & CERTIFICATIONS

Accreditor:	Pennsylvania Department of Environmental Protection, Bureau of Laboratories
Accreditation ID:	02-00538
Scope:	NELAP Non-Potable Water and Solid & Hazardous Waste
Accreditor:	South Carolina Department of Health and Environmental Control, Office of Environmental Laboratory Certification
Accreditation ID:	89009003
Scope:	Clean Water Act (CWA); Resource Conservation and Recovery Act (RCRA)
Accreditor:	NELAP: New Jersey, Department of Environmental Protection
Accreditation ID:	PA026
Scope:	Non-Potable Water; Solid and Chemical Materials
Accreditor:	NELAP: New York, Department of Health Wadsworth Center
Accreditation ID:	11815
Scope:	Non-Potable Water; Solid and Hazardous Waste
Accreditor:	State of Connecticut, Department of Public Health, Division of Environmental Health
Accreditation ID:	PH-0263
Scope:	Clean Water Act (CWA) Resource Conservation and Recovery Act (RCRA)
Accreditor:	NELAP: Texas, Commission on Environmental Quality
Accreditation ID:	T104704453-09-TX
Scope:	Non-Potable Water
Accreditor:	State of New Hampshire
Accreditation ID:	299409
Scope:	Non-potable water
Accreditor:	State of Georgia
Accreditation ID:	Chapter 391-3-26
Scope:	As per the Georgia EPD Rules and Regulations for Commercial Laboratories, PAES is accredited by the Pennsylvania Department of Environmental Protection Bureau of Laboratories under the National Environmental Laboratory Approval Program (NELAC).

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SAMPLE SUMMARY

Workorder: 16105 ASHLAND ALTERMAN

Lab ID	Sample ID	Matrix	Date Collected	Date Received
161050001	MW-19A	Water	7/1/2015 16:30	7/7/2015 11:15
161050002	MW-24C	Water	7/2/2015 14:50	7/7/2015 11:15
161050003	MW-23B	Water	6/30/2015 17:50	7/7/2015 11:15

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PROJECT SUMMARY

Workorder: 16105 ASHLAND ALTERMAN

Workorder Comments

The container pH for samples 16105 (0002) were measured as outside the expected pH range, as assigned to PAES method AM20GAx.

Samples were received 07/07/2015. Request for analysis was made 07/14/2015, 13 days into the analysis holding time period. Samples 16105 (0001, 0003) were analyzed outside the hold time of 14 days from collection for the Light Hydrocarbons, method AM20GAx.

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ANALYTICAL RESULTS

Workorder: 16105 ASHLAND ALTERMAN

Lab ID: **161050001** Date Received: 7/7/2015 11:15 Matrix: Water

Sample ID: **MW-19A** Date Collected: 7/1/2015 16:30

Parameters	Results	Units	PQL	MDL	DF	Analyzed	By	Qualifiers
RISK - MICR								
Analysis Desc: AM20GAX			Analytical Method: AM20GAX					
Methane	**660**	ug/l	0.50	0.042	1	7/16/2015 16:01	BW	H2,n
Ethane	**6.4**	ug/l	0.10	0.0020	1	7/16/2015 16:01	BW	H2,n
Ethene	**2.1**	ug/l	0.10	0.0030	1	7/16/2015 16:01	BW	H2,n
Acetylene	**<0.50**	ug/l	0.50	0.015	1	7/16/2015 16:01	BW	H2,n

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ANALYTICAL RESULTS

Workorder: 16105 ASHLAND ALTERMAN

Lab ID: **161050002** Date Received: 7/7/2015 11:15 Matrix: Water

Sample ID: **MW-24C** Date Collected: 7/2/2015 14:50

Parameters	Results	Units	PQL	MDL	DF	Analyzed	By	Qualifiers
RISK - MICR								
Analysis Desc: AM20GAX			Analytical Method: AM20GAX					
Methane	**1.2**	ug/l	0.50	0.042	1	7/16/2015 16:32	BW	n
Ethane	**0.41**	ug/l	0.10	0.0020	1	7/16/2015 16:32	BW	n
Ethene	**0.46**	ug/l	0.10	0.0030	1	7/16/2015 16:32	BW	n
Acetylene	**<0.50**	ug/l	0.50	0.015	1	7/16/2015 16:32	BW	n

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ANALYTICAL RESULTS

Workorder: 16105 ASHLAND ALTERMAN

Lab ID: **161050003** Date Received: 7/7/2015 11:15 Matrix: Water

Sample ID: **MW-23B** Date Collected: 6/30/2015 17:50

Parameters	Results	Units	PQL	MDL	DF	Analyzed	By	Qualifiers
RISK - MICR								
Analysis Desc: AM20GAX		Analytical Method: AM20GAX						
Methane	**7.7**	ug/l	0.50	0.042	1	7/16/2015 16:44	BW	H2,n
Ethane	**5.2**	ug/l	0.10	0.0020	1	7/16/2015 16:44	BW	H2,n
Ethene	**6.7**	ug/l	0.10	0.0030	1	7/16/2015 16:44	BW	H2,n
Acetylene	**<0.50**	ug/l	0.50	0.015	1	7/16/2015 16:44	BW	H2,n

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ANALYTICAL RESULTS QUALIFIERS

Workorder: 16105 ASHLAND ALTERMAN

DEFINITIONS/QUALIFIERS

Disclaimer :	The Pennsylvania Department of Environmental Protection (PADEP) has decided to no longer recognize analyses that do not produce data for primary compliance, for NELAP accreditation. The methods affected by this decision are AM20GAx, AM21G, SW846 7199 and AM4.02. The laboratory shall continue to administer the NELAP/TNI standard requirements in the performance of these methods.
MDL	Method Detection Limit. Can be used synonymously with LOD; Limit Of Detection.
PQL	Practical Quanitation Limit. Can be used synonymously with LOQ; Limit Of Quantitation.
ND	Not detected at or above reporting limit.
DF	Dilution Factor.
S	Surrogate.
RPD	Relative Percent Difference.
% Rec	Percent Recovery.
U	Indicates the compound was analyzed for, but not detected at or above the noted concentration.
J	Estimated concentration greater than the set method detection limit (MDL) and less than the set reporting limit (PQL).
n	The laboratory does not hold NELAP/TNI accreditation for this method or analyte.
H2	The sample was received or analysis was requested outside the method specific holding time.

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QUALITY CONTROL DATA

Workorder: 16105 ASHLAND ALTERMAN

QC Batch: DISG/4709 Analysis Method: AM20GAX

QC Batch Method: AM20GAX

Associated Lab Samples: 161050001, 161050002, 161050003

METHOD BLANK: 36120

Parameter	Units	Blank Result	Reporting Limit	Qualifiers
RISK				
Methane	ug/l	<0.50	0.50	n
Ethane	ug/l	<0.10	0.10	n
Ethene	ug/l	<0.10	0.10	n
Acetylene	ug/l	<0.50	0.50	n

LABORATORY CONTROL SAMPLE & LCSD: 36121 36122

Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limit	RPD	Max RPD	Qualifiers
RISK										
Methane	ug/l	750	730	740	98	98	80-120	0	20	n
Ethane	ug/l	38	44	44	115	116	80-120	0.87	20	n
Ethene	ug/l	35	40	40	114	115	80-120	0.87	20	n
Acetylene	ug/l	33	38	39	116	118	80-120	1.7	20	n

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QUALITY CONTROL DATA QUALIFIERS

Workorder: 16105 ASHLAND ALTERMAN

QUALITY CONTROL PARAMETER QUALIFIERS

n	The laboratory does not hold NELAP/TNI accreditation for this method or analyte.

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Workorder: 16105 ASHLAND ALTERMAN

Lab ID	Sample ID	Prep Method	Prep Batch	Analysis Method	Analysis Batch
161050001	MW-19A			AM20GAX	DISG/4709
161050002	MW-24C			AM20GAX	DISG/4709
161050003	MW-23B			AM20GAX	DISG/4709

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CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

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Section A Required Client Information:

Company:	Antea Group
Address:	4970 Peachtree Industrial Blvd Suite 350
Email To:	dustin.hintz@anteagroup.com
Phone: (770) 746-8809	Fax:
Requested Due Date/TAT:	

Section B Required Project Information:

Report To:	
Copy To:	
Purchase Order No.:	
Project Name:	
Project Number:	Ashland Alkoman

Section C Invoice Information:

Attention:	
Company Name:	
Address:	
Pace Quote Reference:	
Pace Project Manager:	
Pace Profile #:	

REGULATORY AGENCY

☐ NPDES ☐ GROUND WATER ☐ DRINKING WATER
☐ UST ☐ RCRA ☐ OTHER _____

Site Location STATE: GA

Section D Required Client Information

SAMPLE ID
(A-Z, 0-9 / ,-)
Sample IDs MUST BE UNIQUE

Matrix Codes MATRIX / CODE

Drinking Water	DW
Water	WT
Waste Water	WW
Product	P
Soil/Solid	SL
Oil	OL
Wipe	WP
Air	AR
Tissue	TS
Other	OT

ITEM #	SAMPLE ID	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED COMPOSITE START DATE	COLLECTED COMPOSITE START TIME	COLLECTED COMPOSITE END/GRAB DATE	COLLECTED COMPOSITE END/GRAB TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives: Unpreserved	H_2SO_4	HNO_3	HCl	TSP	BAK	Zinc Acetate & NaOH	Other	Analysis Test Y/N	Analysis Test: Dissolved Gases	Residual Chlorine (Y/N)	Pace Project No./ Lab I.D.
1	MW-6A	WT	G			7/1/15	1620		3									Y	3		
2	MW-6B	WT	G			7/1/15	1615		3										3		
3	MW-23A (HOLD)	WT	G			7/1/15	1750		3										3		
4	MW-1A	WT	G			7/1/15	1100		3										3		
5	MW-1C (HOLD)	WT	G			7/1/15	1200		3										3		
6	MW-5A	WT	G			7/1/15	1500		3										3		
7	MW-7C (HOLD)	WT	G			7/1/15	1500		3										3		
8	MW-7B	WT	G			7/1/15	1605		3										3		
9	MW-19A (HOLD)	WT	G			7/1/15	1630		3										3		
10	MW-9C (HOLD)	WT	G			7/1/15	1742		3										3		
11	MW-9B (HOLD)	WT	G			7/2/15	1010		3										3		
12	MW-4A	WT	G			7/2/15	1030		3										3		

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS			
Preserved w/ Trisodium Phosphate	Chris Bagley / Antea Group	7/3/15	1500	[illegible] PACE	7-7-15	11:15	5C	Y	N	Y

2

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: Chris Bagley

SIGNATURE of SAMPLER: [signature]

DATE Signed (MM/DD/YY): 07/03/2015

Temp in °C | Received on Ice (Y/N) | Custody Sealed Cooler (Y/N) | Samples Intact (Y/N)

*Important Note: By signing this form you are accepting Pace's NET 30 day payment terms and agreeing to late charges of 1.5% per month for any invoices not paid within 30 days.

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CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

16105

Page: of

004721

Section A Required Client Information:

Company:	Arcadis Group
Address:	3940 Peachtree Industrial Blvd
	Suite 300
Email To:	Aaron.Blatz@arcadis-us.com
Phone: (678) 346-8859	Fax:
Requested Due Date/TAT:	

Section B Required Project Information:

Report To:	
Copy To:	
Purchase Order No.:	
Project Name:	
Project Number:	

Section C Invoice Information:

Attention:	
Company Name:	
Address:	
Pace Quote Reference:	
Pace Project Manager:	
Pace Profile #:	

REGULATORY AGENCY

☐ NPDES ☐ GROUND WATER ☐ DRINKING WATER
☐ UST ☐ RCRA ☐ OTHER

Site Location STATE: GA

Section D Required Client Information

SAMPLE ID (A-Z, 0-9 / ,-) Sample IDs MUST BE UNIQUE

Matrix Codes (MATRIX / CODE): Drinking Water DW; Water WT; Waste Water WW; Product P; Soil/Solid SL; Oil OL; Wipe WP; Air AR; Tissue TS; Other OT

ITEM #	SAMPLE ID	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED COMPOSITE START DATE	COMPOSITE START TIME	COMPOSITE END/GRAB DATE	COMPOSITE END/GRAB TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives: Unpreserved	H_2SO_4	HNO_3	HCl	TSP	BAK	Zinc Acetate & NaOH	Other	Analysis Test Y/N	Analysis Test: Dissolved Gases	Residual Chlorine (Y/N)	Pace Project No./ Lab I.D.
1	MW-18B	WT	G			7/2/15	1145		3									Y	3		
2	MW-19A	WT	G			7/2/15	1250		3										3		
3	MW-11B (HOLD)	WT	G			7/2/15	1440		3										3		
4	MW-11C (HOLD)	WT	G			7/2/15	1600		3										3		
5	MW-9C (HOLD)	WT	G			7/2/15	1145		3										3		
6	MW-14A	WT	G			7/2/15	1342		3										3		
7	MW-24C (HOLD)	WT	G			7/2/15	1450		3										3		
8	MW-20C	WT	G			7/2/15	1557		3										3		
9	MW-12A	WT	G			7/2/15	1707		3										3		
10	MW-10C	WT	G			7/2/15	1720		3										3		
11	MW-10B	WT	G			7/2/15	1820		3										3		
12	MW-3A	WT	G			7/2/15	1800		3										3		

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS: Temp In °C	Received on Ice (Y/N)	Custody Sealed Cooler (Y/N)	Samples Intact (Y/N)
Preserved w/ Trisodium phosphate	Chris Bagley / Arcadis Group	7/3/15	1500	[signature] PACE	7.7.15	1115	5.8	Y	N	Y

2

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: Chris Bagley

SIGNATURE of SAMPLER: [signature] DATE Signed (MM/DD/YY): 07/03/15

*Important Note: By signing this form you are accepting Pace's NET 30 day payment terms and agreeing to late charges of 1.5% per month for any invoices not paid within 30 days.

16105

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www.pacelabs.com
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220 William Pitt Way
Pittsburgh, PA 15238
412-826-5245

CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

Page: of

004720

Section A Required Client Information:

Company: Atlas Group

Address: 975 Peachtree Industrial Blvd Suite 350

Email To: Alana.Irwin@CatalentPharma.com

Phone: (770) 246-6605 Fax:

Requested Due Date/TAT:

Project Number: Ashland Alternan

Section B Required Project Information:

Michelle Stayrook
EHS Support LLC
4694 Cemetery Road, PMB 104
Hilliard, Ohio 43026-1124
(412) 807-1494
michelle.stayrook@ehs-support.com

Section C Invoice Information:

Attention:

Company Name:

Address:

Pace Quote Reference:

Pace Project Manager:

Pace Profile #:

REGULATORY AGENCY

☐ NPDES ☐ GROUND WATER ☐ DRINKING WATER
☐ UST ☐ RCRA ☐ OTHER

Site Location STATE: GA

Requested Analysis Filtered (Y/N)

ITEM #	SAMPLE ID (A-Z, 0-9 / ,-) Sample IDs MUST BE UNIQUE	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED COMPOSITE START DATE	COMPOSITE START TIME	COMPOSITE END/GRAB DATE	COMPOSITE END/GRAB TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives: Unpreserved	H_2SO_4	HNO_3	HCl	TSP	BAK	Zinc Acetate & NaOH	Other	Analysis Test Y/N	Chlorinated Phenol	Residual Chlorine (Y/N)	Pace Project No./ Lab I.D.
1	MW-6A	WT	G			7/1/15	1620		3									Y	3		
2	MW-6B	WT	G			7/1/15	1615		3										3		
3	MW-23A CANCEL (HOLD)	WT	G			7/1/15	1750		3										3		
4	MW-1A	WT	G			7/1/15	1100		3										3		
5	MW-1C CANCEL (HOLD)	WT	G			7/1/15	1260		3										3		
6	MW-5A	WT	G			7/1/15	1500		3										3		
7	MW-7C CANCEL (HOLD)	WT	G			7/1/15	1500		3										3		
8	MW-7B	WT	G			7/1/15	1605		3										3		
9	MW-19A RUN (HOLD)	WT	G			7/1/15	1630		3										3		
10	MW-9C CANCEL (HOLD)	WT	G			7/1/15	1742		3										3		
11	MW-9B CANCEL (HOLD)	WT	G			7/2/15	1010		3										3		
12	MW-4A	WT	G			7/2/15	1030		3										3		

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS
Preserved w/ Trisodium Phosphate	Chris Bagley / Atlas Group	7/3/15	1500				

3

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: Chris Bagley

SIGNATURE of SAMPLER: [signature] DATE Signed (MM/DD/YY): 07/03/2015

Temp in °C | Received on Ice (Y/N) | Custody Sealed Cooler (Y/N) | Samples Intact (Y/N)

*Important Note: By signing this form you are accepting Pace's NET 30 day payment terms and agreeing to late charges of 1.5% per month for any invoices not paid within 30 days.

16105

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Pittsburgh, PA 15238
412-826-5245

CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

Page: of 004721

Section A Required Client Information:
Company: Antea Group
Address: 4096 Peachtree Industrial Blvd Suite 350
Email To: Anna.Hintz@anteagroup.com
Phone: (770) 344-8649 Fax:
Requested Due Date/TAT:

Section B Required Project Information:
Report To:
Copy To:
Purchase Order No.:
Project Name:
Project #:

Michelle Stayrook
EHS Support LLC
4694 Cemetery Road, PMB 104
Hilliard, Ohio 43026-1124
(412) 807-1494
michelle.stayrook@ehs-support.com

Section C Invoice Information:
Attention:
Company Name:
Address:
Pace Quote Reference:
Pace Project Manager#:
Pace Profile #:

REGULATORY AGENCY
☐ NPDES ☐ GROUND WATER ☐ DRINKING WATER
☐ UST ☐ RCRA ☐ OTHER
Site Location STATE: GA

Section D Required Client Information

Matrix Codes (MATRIX / CODE): Drinking Water DW; Water WT; Waste Water WW; Product P; Soil/Solid SL; Oil OL; Wipe WP; Air AR; Tissue TS; Other OT

SAMPLE ID (A-Z, 0-9 / ,-) Sample IDs MUST BE UNIQUE

ITEM #	SAMPLE ID	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED COMPOSITE START DATE	COMPOSITE START TIME	COMPOSITE END/GRAB DATE	COMPOSITE END/GRAB TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives: Unpreserved	H_2SO_4	HNO_3	HCl	TSP	BAK	Zinc Acetate & NaOH	Other	Requested Analysis Filtered (Y/N): Y/N	Analysis Test: Dissolved Gases	Residual Chlorine (Y/N)	Pace Project No./ Lab I.D.
1	MW-18B	WT	G			7/2/15	1145		3									3			
2	MW-18A	WT	G			7/2/15	1250		3									3			
3	MW-11B CANCEL (HOLD)	WT	G			7/2/15	1440		3									3			
4	MW-11C CANCEL (HOLD)	WT	G			7/2/15	1600		3									3			
5	MW-9C CANCEL (HOLD)	WT	G			7/2/15	1145		3									3			
6	MW-14A	WT	G			7/2/15	1342		3									3			
7	MW-24C RUN (HOLD)	WT	G			7/2/15	1450		3									3			
8	MW-20C	WT	G			7/2/15	1557		3									3			
9	MW-12A	WT	G			7/2/15	1707		3									3			
10	MW-10C	WT	G			7/2/15	1780		3									3			
11	MW-10B	WT	G			7/2/15	1820		3									3			
12	MW-3A	WT	G			7/2/15	1800		3									3			

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS
Preserved w/ Trisodium phosphate	Chris Bagley / Antea Group	7/3/15	1500				

MW-23B RUN 3

SAMPLER NAME AND SIGNATURE
PRINT Name of SAMPLER: Chris Bagley
SIGNATURE of SAMPLER:
DATE Signed (MM/DD/YY): 07/03/15

Temp in °C | Received on Ice (Y/N) | Custody Sealed Cooler (Y/N) | Samples Intact (Y/N)

*Important Note: By signing this form you are accepting Pace's NET 30 day payment terms and agreeing to late charges of 1.5% per month for any invoices not paid within 30 days.

F-ALL-Q-020rev.07, 15-May-2007

NON-CONFORMANCE FORM

PAES Work Order #: 16105

Date: 7.7.15 Time of Receipt: 1115 Receiver: LG

Client: Antea Group.

REASON FOR NON-CONFORMANCE:

1. MW-23A: COC: 7/1/15 @ 1750
   Vials: 6/30/15 @ 1810
2. MW-5A, MW-4A, MW-8B & MW-9B: one vial broke each.
3. Also received MW-23B collected 6/30/15 @ 17:50 (3 TSP vials)
4. Also received 3 HCL preserved vials requesting 8260B-TCL OLM04.2 (w/ SAV Surrogate). Collected 6/25/15, IDed TB for Project 68002361.

ACTION TAKEN: Jerry Lanier | Beth

Client name: ~~Chad Beckfold~~ Daughtry Date: 7/7/15 Time: email

Please see attached email

Customer Service Initials: RW Date: 7-9-15

16105

Ruth Welsh

From: Michelle Stayrook <Michelle.Stayrook@ehs-support.com>
Sent: Tuesday, July 14, 2015 11:34 AM
To: Ruth Welsh
Cc: Robbin Robl; Jonathan Waddell
Subject: RE: Ashland Alterman samples from Antea Group - Release HOLD samples.
Attachments: PACE COCs - Mark-ups.pdf

Importance: High

Hello Ruth – Please see the attached COCs with mark-ups. Based on the results of VOC analysis completed by Test America, this email authorizes Pace to run dissolved gas analysis on groundwater samples MW-19A, MW-23B, and MW-24C. All remaining HOLD samples will be canceled. As a reminder, MW-23B was inadvertently omitted from the COC during the sample delivery. I added a note at the bottom of page 2.

Also, I updated the contact information. Please let me know if you have any questions or concerns.

Thank you,
Michelle
412-807-1494

From: Ruth Welsh [mailto:ruthw@microseeps.com]
Sent: Thursday, July 9, 2015 12:29 PM
To: Michelle Stayrook
Cc: Robbin Robl
Subject: RE: Ashland Alterman samples from Antea Group

I apologize that we contacted Test America about this, as I mentioned, this was confused with several other projects that Antea/Test America contacted us about. We will forward all information to EHS directly going forward on this.

The sample ID for the VOC analyses is marked as TB, it is still being stored in our coolers and we can ship to Test America. Please just let us know.

The samples with the broken vials can still be analyzed can still be analyzed for the AM20GAX analyses, there are still 2 vials remaining for each sample, we just like to let everyone know.

For the reporting/invoicing should the reports go to your attention? Should Jonathan be copied? Is there a separate payables contact that we should invoice?

Thank you for you help

From: Michelle Stayrook [mailto:Michelle.Stayrook@ehs-support.com]
Sent: Thursday, July 09, 2015 11:43 AM
To: Ruth Welsh; Jonathan Waddell; Info
Cc: beth.daughtry@testamericainc.com
Subject: RE: Ashland Alterman samples from Antea Group

Hi Ruth –Attached is the email response to Test America re: the sample concerns you noted below. So that we are all on the same page, I copied Best Daughtry. EHS Support contracted directly with Pace/Microseeps, so please contact us directly.

16105

In addition to the attached responses, can you confirm the sample ID for the samples marked for VOCs? Is it MW-23B? Is this sample still cooled? Can it be shipped to TestAmerica?

Also, do you mean you can still run the analysis for the wells with broken vials (with the remaining sample vial) or are you stating you will proceed with the other sample locations?

Thank you,
Michelle
412-807-1494

From: Ruth Welsh [mailto:ruthw@microseeps.com]
Sent: Thursday, July 9, 2015 8:38 AM
To: Jonathan Waddell; Info
Cc: Michelle Stayrook
Subject: RE: Ashland Alterman samples from Antea Group

We did receive the samples on the 7th. This project appears to be confused with another project the Antea group was collecting that is being managed by Test America. There were some nonconformances with the shipment that we were attempting to resolve. These issues are addressed below.
Sample MW23A - The COC has a collection date and time of 7-1-15 @1750, while the vials are labeled 6-30-15 @1810
We received a sample labeled as MW-23B collected on 6-30-2015 @1750 but is not listed on the chain of custody
We also received 3 vials preserved with HCl requesting analyses for volatiles using method 8260B-TCLOLM04.2 (w/SAV surrogate) collected on 6/25/2015 IDed TB for project 68002361. We are not sure what to do with these since we don't perform these analyses.
One vial for each of the following samples were MW-5A, MW-4A, MW-8B, MW-9B was received broken but we can proceed with the remaining samples.

I apologize that we misidentified the project as belonging to Test America. If you could help us with the information regarding the problems with the shipment that would be greatly appreciated.

Finally, back to the original question, yes the holding time for these analyses is 14 days from collection.

From: Jonathan Waddell [mailto:jonathan.waddell@ehs-support.com]
Sent: Thursday, July 09, 2015 8:13 AM
To: Info
Cc: Michelle Stayrook
Subject: Re: Ashland Alterman samples from Antea Group

Dear Customer Service,

Can you please let us know if the Ashland-Alterman samples have been received by the lab, as shown on the attached chain-of-custody? Also, please confirm the hold time of 14 days for held samples.

Thank you,

Jonathan

Jonathan P. Waddell, PE
EHS Support LLC
12010 Wallace Woods Lane
Alpharetta, GA 30004
470-955-4972

Cooler Receipt Form

Client Name: Antea Group Project: Ashland Lab Work Order: 16105

A. Shipping/Container Information (circle appropriate response)

Courier: (FedEx) UPS USPS Client Other:_____ Air bill Present: (Yes) No

Tracking Number: 780928389007

Custody Seal on Cooler/Box Present: Yes (No) Seals Intact: Yes No

Cooler/Box Packing Material: (Bubble Wrap) Absorbent Foam Other:_____

Type of Ice: (Wet) Blue None Ice Intact: (Yes) Melted

Cooler Temperature: 5.8°C Radiation Screened: Yes (No) Chain of Custody Present: (Yes) No

Comments:_____

B. Laboratory Assignment/Log-in (check appropriate response)

	YES	NO	N/A	Comment Reference non-Conformance
Chain of Custody properly filled out	✓			
Chain of Custody relinquished	✓			
Sampler Name & Signature on COC	✓			
Containers intact		✓		
Were samples in separate bags	✓			
Sample container labels match COC Sample name/date and time collected		✓		
Sufficient volume provided	✓			
PAES containers used	✓			
Are containers properly preserved for the requested testing? (as labeled)	✓			
If an unknown preservation state, were containers checked? Exception: VOA's coliform			✓	If yes, see pH form.
Was volume for dissolved testing field filtered, as noted on the COC? Was volume received in a preserved container?			✓	

Comments:_____

Cooler contents examined/received by: LY Date: 7.7.15

Project Manager Review: RW Date: 7-15-15

Pace Analytical Energy Services, LLC
220 William Pitt Way
Pittsburgh, PA 15238
Phone: (412) 826-5245
Fax: (412) 826-3433

August 7, 2015

Michelle Stayrook
EHS Support
4694 Cemetery Rd
PMB 104
Hilliard, OH 43026

RE: **ALTERMAN / C00342-2015.301**
Pace Workorder: *16116*

Dear Michelle Stayrook:

Enclosed are the analytical results for sample(s) received by the laboratory on Thursday, July 16, 2015.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Ruth Welsh

Ruth Welsh 08/07/2015
RW

Customer Service Representative

Enclosures

As a valued client we would appreciate your comments on our service.
Please email info@microseeps.com.

Total Number of Pages 27

CERTIFICATE OF ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Energy Services, LLC.

Pace Analytical®

Client:	EHS Support LLC		PACE Analytical CSIA Center
	4694 Cemetery Rd, PMD 104		220 William Pitt Way
	Hilliard, OH 43026-1124		Pittsburgh, PA 15238
Tel:	412.807.1494		Tel: 412.826.5245
Report to	Michelle Stayrook		Report by: Dr. Yi Wang
Project:	Alterman		Director, CSIA Center of Excellence
Project #	C00342-2015.301		Cell: 609.721.2843
Email:	michelle.stayrook @ ehs-support.com		Email: yi.wang @ zymaxusa.com

REPORT OF FORENSICS ISOTOPIC ANALYTICAL RESULTS

Date Received: 7/16/2015
Date Reported: 8/6/2015

Samples from Hargis for $\delta^{13}C$ (‰ PDB), stable carbon isotope ratios of dissolved chlorinated solvents

Pace CSIA Lab ID	Client's Sample ID Description	$\delta^{13}C$ VC	$\delta^{13}C$ cDCE	$\delta^{13}C$ TCE	$\delta^{13}C$ PCE
16116-1	MW-15A	U -	-27.27	-26.86	-23.43
16116-2	MW-5B	J 1.61	-24.71	-24.01	-21.25
16116-3	MW-16A	U -	-23.24	-25.02	-21.48

[J]-Target analyte produced a low peak signal and the result is considered usable, but not the standard ± 0.5‰
[U]-Either not run or there was no peak corresponding to the target analyte & such a peak did not produce a reliable CSIA result

VC: vinyl chloride
cDCE: cis-1,2-dichloroethene
TCE: trichloroethene
PCE: tetrachloroethene

Method: Compound Specific Isotope Analysis for ^{13}C and ^{2}H by GC-IRMS, for ^{37}Cl by GC-qMS

Quality Control STDs	$\delta^{13}C$ VC	$\delta^{13}C$ cDCE	$\delta^{13}C$ TCE	$\delta^{13}C$ PCE
QC-1	-28.55	-11.24	-25.55	-27.99
QC-2	-28.50	-11.23	-25.95	-27.20
Mean	-28.53	-11.24	-25.75	-27.60
Analytical Precision (1σ)	0.04	0.01	0.28	0.56

Pace CSIA Forensic Isotope Services

Product or Dissolved Organics: Chlorinated Solvents, Oil, Extract, Fraction and Kerogen
3D-CSIA of ^{13}C, ^{37}Cl, and ^{2}H for PCE, TCE, DCE, MTBE, BTEX, 1,4-Dioxane, Alkanes, Gasoline and Oil; Bulk ^{13}C, ^{2}H, ^{18}O, ^{34}S, and ^{15}N
Gas Sample
Gas Composition and 2D-CSIA of ^{13}C and ^{2}H of C1 to C5; ^{13}C of CO_2; ^{14}C of C1 and CO_2; ^{34}S of H_2S; ^{15}N and ^{18}O of N_2O gas
Water and Dissolved Inorganics
^{2}H, ^{3}H and ^{18}O; ^{34}S and ^{18}O of dissolved sulfate; ^{34}S of dissolved H_2S
^{15}N and ^{18}O of dissolved Nitrate; ^{15}N of Ammonia; ^{13}C of dissolved CO_2 and Carbonate/Bicarbonate
Soil and Minerals
^{13}C, ^{18}O, ^{15}N, ^{34}S, D/H; ^{14}C of carbonate or organics
Post-Analysis Forensic Isotope Data Interpretation

Pace CSIA Center of Excellence
220 William Pitt Way
Pittsburgh, PA 15238
phone: 412-826-5245

CSIA Report
Carbon

16116
EHS
Client Project Name: Alterman
Client Project #: C00342-2015.301

Vinyl Chloride		Concentration (ug/l)			CSIA (Carbon) Area		Co-elution	Analysis	Date	Delta (‰)
Lab ID	Client ID	Sample	PQL	Date	Sample	PQL				
161160001	MW-15A	NA	1	7/20/15	-	1	No	3128	8/4/15	-
161160002	MW-5B	2	1	7/20/15	2	1	No	3130	8/4/15	1.61
161160003	MW-16A	NA	1	7/20/15	-	1	No	3129	8/4/15	-
Duplicate	MW-15A	NA	1	7/20/15	-	1	No	3139	8/5/15	-
Blank	-	0	-	-	<1 (U)	1	No	3109	8/4/15	-
LCS_Lo	-	10	-	-	5.3	1	No	3126	8/4/15	-28.55
LCS_Hi	-	20	-	-	13	1	No	3127	8/4/15	-28.50
LCS acceptance range								-28.90	<=>	-27.90

Method	8260B	AM-24-AR_C	AM-24-DL_C
Units	ug/l	Vs	‰, VPDB
Analyst	PACE-GBG	CJS	CJS

Pace CSIA Center of Excellence
220 William Pitt Way
Pittsburgh, PA 15238
phone: 412-826-5245

CSIA Report
Carbon

16116
EHS
Client Project Name: Alterman
Client Project #: C00342-2015.301

cis-Dichloroethene		Concentration (ug/l)			CSIA (Carbon) Area		Co-elution	Analysis	Date	Delta (‰)
Lab ID	Client ID	Sample	PQL	Date	Sample	PQL				
161160001	MW-15A	26	1	7/20/15	9	1	No	3128	8/4/15	-27.27
161160002	MW-5B	897	100	7/20/15	30	1	No	3115	8/4/15	-24.71
161160003	MW-16A	137	1	7/20/15	54	1	No	3129	8/4/15	-23.24
Duplicate	MW-15A	26	1	7/20/15	9	1	No	3139	8/5/15	-26.92
Blank	-	0	-	-	<1 (U)	1	No	3109	8/4/15	-
LCS_Lo	-	10	-	-	8.0	1	No	3126	8/4/15	-11.24
LCS_Hi	-	50	-	-	42	1	No	3127	8/4/15	-11.23
LCS acceptance range								-12.22	<=>	-11.22

Method	8260B	AM-24-AR_C	AM-24-DL_C
Units	ug/l	Vs	‰, VPDB
Analyst	PACE-GBG	CJS	CJS

Pace CSIA Center of Excellence
220 William Pitt Way
Pittsburgh, PA 15238
phone: 412-826-5245

CSIA Report
Carbon

16116
EHS
Client Project Name: Alterman
Client Project #: C00342-2015.301

Trichloroethene		Concentration (ug/l)			CSIA (Carbon) Area		Co-elution	Analysis	Date	Delta (‰)
Lab ID	Client ID	Sample	PQL	Date	Sample	PQL				
161160001	MW-15A	109	1	7/20/15	29	1	No	3128	8/4/15	-26.86
161160002	MW-5B	274	1	7/20/15	93	1	No	3130	8/4/15	-24.01
161160003	MW-16A	59	1	7/20/15	18	1	No	3129	8/4/15	-25.02
Duplicate	MW-15A	109	1	7/20/15	29	1	No	3139	8/5/15	-26.24
Blank	-	0	-	-	<1 (U)	1	No	3109	8/4/15	-
LCS_Lo	-	10	-	-	5.0	1	No	3126	8/4/15	-25.55
LCS_Hi	-	50	-	-	23	1	No	3127	8/4/15	-25.95
LCS acceptance range								-26.48	<=>	-25.48

Method	8260B	AM-24-AR_C	AM-24-DL_C
Units	ug/l	Vs	‰, VPDB
Analyst	PACE-GBG	CJS	CJS

Pace CSIA Center of Excellence
220 William Pitt Way
Pittsburgh, PA 15238
phone: 412-826-5245

CSIA Report
Carbon

16116
EHS
Client Project Name: Alterman
Client Project #: C00342-2015.301

Tetrachloroethene		Concentration (ug/l)			CSIA (Carbon) Area		Co-elution	Analysis	Date	Delta (‰)
Lab ID	Client ID	Sample	PQL	Date	Sample	PQL				
161160001	MW-15A	441	100	7/20/15	77	1	No	3128	8/4/15	-23.43
161160002	MW-5B	512	100	7/20/15	104	1	No	3130	8/4/15	-21.25
161160003	MW-16A	459	100	7/20/15	96	1	No	3129	8/4/15	-21.48
Duplicate	MW-15A	441	100	7/20/15	78	1	No	3139	8/5/15	-22.32
Blank	-	0	-	-	<1 (U)	1	No	3109	8/4/15	-
LCS_Lo	-	10	-	-	3.2	1	No	3110	8/4/15	-27.99
LCS_Hi	-	50	-	-	11	1	No	3111	8/4/15	-27.20
LCS acceptance range								-28.07	<=>	-27.07

Method	8260B	AM-24-AR_C	AM-24-DL_C
Units	ug/l	Vs	‰, VPDB
Analyst	PACE-GBG	CJS	CJS

Pace CSIA Center of Excellence
220 William Pitt Way
Pittsburgh, PA 15238
phone: 412-826-5245

CSIA Report
Carbon

16116
EHS
Client Project Name: Alterman
Client Project #: C00342-2015.301

1CP (Surrogate)		Sample Collection	CSIA (Carbon)						
Lab ID	Client ID		Area	Dilution	PQL	Co-elution	Analysis	Date	Delta (‰)
161160001	MW-15A	07/15/15	4.3	1	1	No	3128	08/04/15	-36.06
161160002	MW-5B	07/15/15	4.1	1	1	No	3130	08/04/15	-35.39
161160002	MW-5B	07/15/15	10.5	10	1	No	3115	08/04/15	-36.42
161160003	MW-16A	07/15/15	4.1	1	1	No	3129	08/04/15	-36.67
Duplicate	MW-15A	07/15/15	12.7	1	1	No	3139	08/05/15	-36.13
Blank	-	-	18.9	1	1	No	3109	08/04/15	-36.14
LCS_Lo	-	-	5.0	1	1	No	3126	08/04/15	-36.27
LCS_Hi	-	-	4.9	1	1	No	3127	08/04/15	-36.68
Surrogate acceptance range							-37.49	<=>	-36.49

Method		AM-24-AR_C	AM-24-DL_C
Units		Vs	‰, VPDB
Analyst		CJS	CJS

Case Narrative: The blank, LCS's, duplicate and surrogates were all close to or within the acceptance range and the data is reported as valid and representative of the samples as received.

Pace Analytical Services, Inc.
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Greensburg, PA 15601
(724)850-5600

July 23, 2015

Jianwu Tang
Pace Analytical Energy Services
220 William Pitt Way
Pittsburgh, PA 15238

RE: Project: 16116
Pace Project No.: 30153704

Dear Jianwu Tang:
Enclosed are the analytical results for sample(s) received by the laboratory on July 17, 2015. The results relate only to the samples included in this report. Results reported herein conform to the most current TNI standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,

David A. Pichette
david.pichette@pacelabs.com
Project Manager

Enclosures

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CERTIFICATIONS

Project: 16116
Pace Project No.: 30153704

Pennsylvania Certification IDs
1638 Roseytown Rd Suites 2,3&4, Greensburg, PA 15601
ACLASS DOD-ELAP Accreditation #: ADE-1544
Alabama Certification #: 41590
Arizona Certification #: AZ0734
Arkansas Certification
California/TNI Certification #: 04222CA
Colorado Certification
Connecticut Certification #: PH-0694
Delaware Certification
Florida/TNI Certification #: E87683
Guam/PADEP Certification
Hawaii/PADEP Certification
Idaho Certification
Illinois/PADEP Certification
Indiana/PADEP Certification
Iowa Certification #: 391
Kansas/TNI Certification #: E-10358
Kentucky Certification #: 90133
Louisiana DHH/TNI Certification #: LA140008
Louisiana DEQ/TNI Certification #: 4086
Maine Certification #: PA00091
Maryland Certification #: 308
Massachusetts Certification #: M-PA1457
Michigan/PADEP Certification
Missouri Certification #: 235
Montana Certification #: Cert 0082
Nebraska Certification #: NE-05-29-14
Nevada Certification
New Hampshire/TNI Certification #: 2976
New Jersey/TNI Certification #: PA 051
New Mexico Certification
New York/TNI Certification #: 10888
North Carolina Certification #: 42706
North Dakota Certification #: R-190
Oregon/TNI Certification #: PA200002
Pennsylvania/TNI Certification #: 65-00282
Puerto Rico Certification #: PA01457
South Dakota Certification
Tennessee Certification #: TN2867
Texas/TNI Certification #: T104704188
Utah/TNI Certification #: PA014572014-4
Vermont Dept. of Health: ID# VT-0282
Virgin Island/PADEP Certification
Virginia/VELAP Certification #: 460198
Washington Certification #: C868
West Virginia DEP Certification #: 143
West Virginia DHHR Certification #: 9964C
Wisconsin/PADEP Certification
Wyoming Certification #: 8TMS-Q

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SAMPLE SUMMARY

Project: 16116
Pace Project No.: 30153704

Lab ID	Sample ID	Matrix	Date Collected	Date Received
30153704001	**161160001**	Water	07/15/15 12:13	07/17/15 17:25
30153704002	**161160002**	Water	07/15/15 12:19	07/17/15 17:25
30153704003	**161160003**	Water	07/15/15 10:22	07/17/15 17:25

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SAMPLE ANALYTE COUNT

Project: 16116
Pace Project No.: 30153704

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
30153704001	161160001	EPA 8260B	JAS	51	PASI-PA
30153704002	161160002	EPA 8260B	JAS	51	PASI-PA
30153704003	161160003	EPA 8260B	JAS	51	PASI-PA

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PROJECT NARRATIVE

Project: 16116
Pace Project No.: 30153704

Method: **EPA 8260B**
Description: 8260 MSV
Client: Pace Analytical Energy Services, LLC
Date: July 23, 2015

General Information:
3 samples were analyzed for EPA 8260B. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):
All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:
All criteria were within method requirements with any exceptions noted below.

Internal Standards:
All internal standards were within QC limits with any exceptions noted below.

Surrogates:
All surrogates were within QC limits with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

QC Batch: MSV/24247

A matrix spike/matrix spike duplicate was not performed due to insufficient sample volume.

Additional Comments:

This data package has been reviewed for quality and completeness and is approved for release.

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ANALYTICAL RESULTS

Project: 16116
Pace Project No.: 30153704

Sample: 161160001 **Lab ID: 30153704001** Collected: 07/15/15 12:13 Received: 07/17/15 17:25 Matrix: Water

Comments: • Sample Acceptance Policy Waiver on file from the client.

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV	Analytical Method: EPA 8260B								
Acetone	**10.0 U**	ug/L	10.0	2.3	1		07/20/15 20:43	67-64-1	M5
tert-Amylmethyl ether	**1.0 U**	ug/L	1.0	0.19	1		07/20/15 20:43	994-05-8	M5
Benzene	**1.0 U**	ug/L	1.0	0.16	1		07/20/15 20:43	71-43-2	M5
Bromochloromethane	**1.0 U**	ug/L	1.0	0.42	1		07/20/15 20:43	74-97-5	M5
Bromodichloromethane	**1.0 U**	ug/L	1.0	0.15	1		07/20/15 20:43	75-27-4	M5
Bromoform	**1.0 U**	ug/L	1.0	0.31	1		07/20/15 20:43	75-25-2	M5
Bromomethane	**1.0 U**	ug/L	1.0	0.58	1		07/20/15 20:43	74-83-9	M5
2-Butanone (MEK)	**10.0 U**	ug/L	10.0	2.4	1		07/20/15 20:43	78-93-3	M5
tert-Butyl Alcohol	**5.0 U**	ug/L	5.0	3.8	1		07/20/15 20:43	75-65-0	M5
Carbon disulfide	**1.0 U**	ug/L	1.0	0.32	1		07/20/15 20:43	75-15-0	M5
Carbon tetrachloride	**1.0 U**	ug/L	1.0	0.22	1		07/20/15 20:43	56-23-5	M5
Chlorobenzene	**1.0 U**	ug/L	1.0	0.13	1		07/20/15 20:43	108-90-7	M5
Chloroethane	**1.0 U**	ug/L	1.0	0.69	1		07/20/15 20:43	75-00-3	M5
Chloroform	**1.0 U**	ug/L	1.0	0.19	1		07/20/15 20:43	67-66-3	M5
Chloromethane	**1.0 U**	ug/L	1.0	0.26	1		07/20/15 20:43	74-87-3	M5
Dibromochloromethane	**1.0 U**	ug/L	1.0	0.17	1		07/20/15 20:43	124-48-1	M5
1,2-Dichlorobenzene	**1.0 U**	ug/L	1.0	0.19	1		07/20/15 20:43	95-50-1	M5
1,3-Dichlorobenzene	**1.0 U**	ug/L	1.0	0.13	1		07/20/15 20:43	541-73-1	M5
1,4-Dichlorobenzene	**1.0 U**	ug/L	1.0	0.24	1		07/20/15 20:43	106-46-7	M5
1,1-Dichloroethane	**1.0 U**	ug/L	1.0	0.19	1		07/20/15 20:43	75-34-3	M5
1,2-Dichloroethane	**1.0 U**	ug/L	1.0	0.36	1		07/20/15 20:43	107-06-2	M5
1,2-Dichloroethene (Total)	**28.5**	ug/L	2.0	0.45	1		07/20/15 20:43	540-59-0	M5
1,1-Dichloroethene	**1.0 U**	ug/L	1.0	0.26	1		07/20/15 20:43	75-35-4	M5
cis-1,2-Dichloroethene	**25.9**	ug/L	1.0	0.23	1		07/20/15 20:43	156-59-2	M5
trans-1,2-Dichloroethene	**2.7**	ug/L	1.0	0.22	1		07/20/15 20:43	156-60-5	M5
1,2-Dichloropropane	**1.0 U**	ug/L	1.0	0.23	1		07/20/15 20:43	78-87-5	M5
cis-1,3-Dichloropropene	**1.0 U**	ug/L	1.0	0.27	1		07/20/15 20:43	10061-01-5	M5
trans-1,3-Dichloropropene	**1.0 U**	ug/L	1.0	0.17	1		07/20/15 20:43	10061-02-6	M5
Diisopropyl ether	**1.0 U**	ug/L	1.0	0.17	1		07/20/15 20:43	108-20-3	M5
Ethylbenzene	**1.0 U**	ug/L	1.0	0.23	1		07/20/15 20:43	100-41-4	M5
Ethyl-tert-butyl ether	**1.0 U**	ug/L	1.0	0.14	1		07/20/15 20:43	637-92-3	M5
2-Hexanone	**10.0 U**	ug/L	10.0	0.58	1		07/20/15 20:43	591-78-6	M5
Methylene Chloride	**1.0 U**	ug/L	1.0	0.59	1		07/20/15 20:43	75-09-2	M5
4-Methyl-2-pentanone (MIBK)	**10.0 U**	ug/L	10.0	0.57	1		07/20/15 20:43	108-10-1	M5
Methyl-tert-butyl ether	**1.0 U**	ug/L	1.0	0.17	1		07/20/15 20:43	1634-04-4	M5
Naphthalene	**2.0 U**	ug/L	2.0	0.19	1		07/20/15 20:43	91-20-3	M5
Styrene	**1.0 U**	ug/L	1.0	0.16	1		07/20/15 20:43	100-42-5	M5
1,1,2,2-Tetrachloroethane	**1.0 U**	ug/L	1.0	0.23	1		07/20/15 20:43	79-34-5	M5
Tetrachloroethene	**441**	ug/L	100	28.6	100		07/20/15 21:09	127-18-4	M5
Toluene	**1.0 U**	ug/L	1.0	0.13	1		07/20/15 20:43	108-88-3	M5
1,2,4-Trichlorobenzene	**1.0 U**	ug/L	1.0	0.39	1		07/20/15 20:43	120-82-1	M5
1,1,1-Trichloroethane	**1.0 U**	ug/L	1.0	0.29	1		07/20/15 20:43	71-55-6	M5
1,1,2-Trichloroethane	**1.0 U**	ug/L	1.0	0.32	1		07/20/15 20:43	79-00-5	M5
Trichloroethene	**109**	ug/L	1.0	0.33	1		07/20/15 20:43	79-01-6	M5
Vinyl chloride	**1.0 U**	ug/L	1.0	0.20	1		07/20/15 20:43	75-01-4	M5

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: 16116
Pace Project No.: 30153704

Sample: 161160001 **Lab ID: 30153704001** Collected: 07/15/15 12:13 Received: 07/17/15 17:25 Matrix: Water

Comments: • Sample Acceptance Policy Waiver on file from the client.

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV	Analytical Method: EPA 8260B								
Xylene (Total)	**3.0 U**	ug/L	3.0	0.55	1		07/20/15 20:43	1330-20-7	M5
m&p-Xylene	**2.0 U**	ug/L	2.0	0.32	1		07/20/15 20:43	179601-23-1	M5
o-Xylene	**1.0 U**	ug/L	1.0	0.22	1		07/20/15 20:43	95-47-6	M5
Surrogates									
4-Bromofluorobenzene (S)	101	%	84-113		1		07/20/15 20:43	460-00-4	M5
1,2-Dichloroethane-d4 (S)	95	%	84-124		1		07/20/15 20:43	17060-07-0	M5
Toluene-d8 (S)	101	%	79-118		1		07/20/15 20:43	2037-26-5	M5

Sample: 161160002 **Lab ID: 30153704002** Collected: 07/15/15 12:19 Received: 07/17/15 17:25 Matrix: Water

Comments: • Sample Acceptance Policy Waiver on file from the client.

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV	Analytical Method: EPA 8260B								
Acetone	**10.0 U**	ug/L	10.0	2.3	1		07/20/15 21:34	67-64-1	M5
tert-Amylmethyl ether	**1.0 U**	ug/L	1.0	0.19	1		07/20/15 21:34	994-05-8	M5
Benzene	**1.3**	ug/L	1.0	0.16	1		07/20/15 21:34	71-43-2	M5
Bromochloromethane	**1.0 U**	ug/L	1.0	0.42	1		07/20/15 21:34	74-97-5	M5
Bromodichloromethane	**1.0 U**	ug/L	1.0	0.15	1		07/20/15 21:34	75-27-4	M5
Bromoform	**1.0 U**	ug/L	1.0	0.31	1		07/20/15 21:34	75-25-2	M5
Bromomethane	**1.0 U**	ug/L	1.0	0.58	1		07/20/15 21:34	74-83-9	M5
2-Butanone (MEK)	**10.0 U**	ug/L	10.0	2.4	1		07/20/15 21:34	78-93-3	M5
tert-Butyl Alcohol	**5.0 U**	ug/L	5.0	3.8	1		07/20/15 21:34	75-65-0	M5
Carbon disulfide	**1.0 U**	ug/L	1.0	0.32	1		07/20/15 21:34	75-15-0	M5
Carbon tetrachloride	**1.0 U**	ug/L	1.0	0.22	1		07/20/15 21:34	56-23-5	M5
Chlorobenzene	**1.0 U**	ug/L	1.0	0.13	1		07/20/15 21:34	108-90-7	M5
Chloroethane	**1.0 U**	ug/L	1.0	0.69	1		07/20/15 21:34	75-00-3	M5
Chloroform	**1.0 U**	ug/L	1.0	0.19	1		07/20/15 21:34	67-66-3	M5
Chloromethane	**1.0 U**	ug/L	1.0	0.26	1		07/20/15 21:34	74-87-3	M5
Dibromochloromethane	**1.0 U**	ug/L	1.0	0.17	1		07/20/15 21:34	124-48-1	M5
1,2-Dichlorobenzene	**1.0 U**	ug/L	1.0	0.19	1		07/20/15 21:34	95-50-1	M5
1,3-Dichlorobenzene	**1.0 U**	ug/L	1.0	0.13	1		07/20/15 21:34	541-73-1	M5
1,4-Dichlorobenzene	**1.0 U**	ug/L	1.0	0.24	1		07/20/15 21:34	106-46-7	M5
1,1-Dichloroethane	**1.0 U**	ug/L	1.0	0.19	1		07/20/15 21:34	75-34-3	M5
1,2-Dichloroethane	**1.0 U**	ug/L	1.0	0.36	1		07/20/15 21:34	107-06-2	M5
1,2-Dichloroethene (Total)	**903**	ug/L	200	44.7	100		07/20/15 22:00	540-59-0	M5
1,1-Dichloroethene	**1.1**	ug/L	1.0	0.26	1		07/20/15 21:34	75-35-4	M5
cis-1,2-Dichloroethene	**897**	ug/L	100	23.2	100		07/20/15 22:00	156-59-2	M5
trans-1,2-Dichloroethene	**6.8**	ug/L	1.0	0.22	1		07/20/15 21:34	156-60-5	M5
1,2-Dichloropropane	**1.0 U**	ug/L	1.0	0.23	1		07/20/15 21:34	78-87-5	M5
cis-1,3-Dichloropropene	**1.0 U**	ug/L	1.0	0.27	1		07/20/15 21:34	10061-01-5	M5
trans-1,3-Dichloropropene	**1.0 U**	ug/L	1.0	0.17	1		07/20/15 21:34	10061-02-6	M5
Diisopropyl ether	**1.0 U**	ug/L	1.0	0.17	1		07/20/15 21:34	108-20-3	M5
Ethylbenzene	**1.0 U**	ug/L	1.0	0.23	1		07/20/15 21:34	100-41-4	M5

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ANALYTICAL RESULTS

Project: 16116
Pace Project No.: 30153704

Sample: 161160002 **Lab ID: 30153704002** Collected: 07/15/15 12:19 Received: 07/17/15 17:25 Matrix: Water

Comments: • Sample Acceptance Policy Waiver on file from the client.

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV	Analytical Method: EPA 8260B								
Ethyl-tert-butyl ether	**1.0 U**	ug/L	1.0	0.14	1		07/20/15 21:34	637-92-3	M5
2-Hexanone	**10.0 U**	ug/L	10.0	0.58	1		07/20/15 21:34	591-78-6	M5
Methylene Chloride	**1.0 U**	ug/L	1.0	0.59	1		07/20/15 21:34	75-09-2	M5
4-Methyl-2-pentanone (MIBK)	**10.0 U**	ug/L	10.0	0.57	1		07/20/15 21:34	108-10-1	M5
Methyl-tert-butyl ether	**1.0 U**	ug/L	1.0	0.17	1		07/20/15 21:34	1634-04-4	M5
Naphthalene	**2.0 U**	ug/L	2.0	0.19	1		07/20/15 21:34	91-20-3	M5
Styrene	**1.0 U**	ug/L	1.0	0.16	1		07/20/15 21:34	100-42-5	M5
1,1,2,2-Tetrachloroethane	**1.0 U**	ug/L	1.0	0.23	1		07/20/15 21:34	79-34-5	M5
Tetrachloroethene	**512**	ug/L	100	28.6	100		07/20/15 22:00	127-18-4	M5
Toluene	**1.0 U**	ug/L	1.0	0.13	1		07/20/15 21:34	108-88-3	M5
1,2,4-Trichlorobenzene	**1.0 U**	ug/L	1.0	0.39	1		07/20/15 21:34	120-82-1	M5
1,1,1-Trichloroethane	**1.0 U**	ug/L	1.0	0.29	1		07/20/15 21:34	71-55-6	M5
1,1,2-Trichloroethane	**1.0 U**	ug/L	1.0	0.32	1		07/20/15 21:34	79-00-5	M5
Trichloroethene	**274**	ug/L	1.0	0.33	1		07/20/15 21:34	79-01-6	M5
Vinyl chloride	**2.3**	ug/L	1.0	0.20	1		07/20/15 21:34	75-01-4	M5
Xylene (Total)	**3.0 U**	ug/L	3.0	0.55	1		07/20/15 21:34	1330-20-7	M5
m&p-Xylene	**2.0 U**	ug/L	2.0	0.32	1		07/20/15 21:34	179601-23-1	M5
o-Xylene	**1.0 U**	ug/L	1.0	0.22	1		07/20/15 21:34	95-47-6	M5
Surrogates									
4-Bromofluorobenzene (S)	97	%	84-113		1		07/20/15 21:34	460-00-4	M5
1,2-Dichloroethane-d4 (S)	94	%	84-124		1		07/20/15 21:34	17060-07-0	M5
Toluene-d8 (S)	102	%	79-118		1		07/20/15 21:34	2037-26-5	M5

Sample: 161160003 **Lab ID: 30153704003** Collected: 07/15/15 10:22 Received: 07/17/15 17:25 Matrix: Water

Comments: • Sample Acceptance Policy Waiver on file from the client.

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV	Analytical Method: EPA 8260B								
Acetone	**10.0 U**	ug/L	10.0	2.3	1		07/20/15 22:25	67-64-1	M5
tert-Amylmethyl ether	**1.0 U**	ug/L	1.0	0.19	1		07/20/15 22:25	994-05-8	M5
Benzene	**1.0 U**	ug/L	1.0	0.16	1		07/20/15 22:25	71-43-2	M5
Bromochloromethane	**1.0 U**	ug/L	1.0	0.42	1		07/20/15 22:25	74-97-5	M5
Bromodichloromethane	**1.0 U**	ug/L	1.0	0.15	1		07/20/15 22:25	75-27-4	M5
Bromoform	**1.0 U**	ug/L	1.0	0.31	1		07/20/15 22:25	75-25-2	M5
Bromomethane	**1.0 U**	ug/L	1.0	0.58	1		07/20/15 22:25	74-83-9	M5
2-Butanone (MEK)	**10.0 U**	ug/L	10.0	2.4	1		07/20/15 22:25	78-93-3	M5
tert-Butyl Alcohol	**5.0 U**	ug/L	5.0	3.8	1		07/20/15 22:25	75-65-0	M5
Carbon disulfide	**1.0 U**	ug/L	1.0	0.32	1		07/20/15 22:25	75-15-0	M5
Carbon tetrachloride	**1.0 U**	ug/L	1.0	0.22	1		07/20/15 22:25	56-23-5	M5
Chlorobenzene	**1.0 U**	ug/L	1.0	0.13	1		07/20/15 22:25	108-90-7	M5
Chloroethane	**1.0 U**	ug/L	1.0	0.69	1		07/20/15 22:25	75-00-3	M5
Chloroform	**1.0 U**	ug/L	1.0	0.19	1		07/20/15 22:25	67-66-3	M5
Chloromethane	**1.0 U**	ug/L	1.0	0.26	1		07/20/15 22:25	74-87-3	M5

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(724)850-5600

ANALYTICAL RESULTS

Project: 16116
Pace Project No.: 30153704

Sample: 161160003 **Lab ID: 30153704003** Collected: 07/15/15 10:22 Received: 07/17/15 17:25 Matrix: Water

Comments: • Sample Acceptance Policy Waiver on file from the client.

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV	Analytical Method: EPA 8260B								
Dibromochloromethane	**1.0 U**	ug/L	1.0	0.17	1		07/20/15 22:25	124-48-1	M5
1,2-Dichlorobenzene	**1.0 U**	ug/L	1.0	0.19	1		07/20/15 22:25	95-50-1	M5
1,3-Dichlorobenzene	**1.0 U**	ug/L	1.0	0.13	1		07/20/15 22:25	541-73-1	M5
1,4-Dichlorobenzene	**1.0 U**	ug/L	1.0	0.24	1		07/20/15 22:25	106-46-7	M5
1,1-Dichloroethane	**1.0 U**	ug/L	1.0	0.19	1		07/20/15 22:25	75-34-3	M5
1,2-Dichloroethane	**1.0 U**	ug/L	1.0	0.36	1		07/20/15 22:25	107-06-2	M5
1,2-Dichloroethene (Total)	**139**	ug/L	2.0	0.45	1		07/20/15 22:25	540-59-0	M5
1,1-Dichloroethene	**1.0 U**	ug/L	1.0	0.26	1		07/20/15 22:25	75-35-4	M5
cis-1,2-Dichloroethene	**137**	ug/L	1.0	0.23	1		07/20/15 22:25	156-59-2	M5
trans-1,2-Dichloroethene	**1.4**	ug/L	1.0	0.22	1		07/20/15 22:25	156-60-5	M5
1,2-Dichloropropane	**1.0 U**	ug/L	1.0	0.23	1		07/20/15 22:25	78-87-5	M5
cis-1,3-Dichloropropene	**1.0 U**	ug/L	1.0	0.27	1		07/20/15 22:25	10061-01-5	M5
trans-1,3-Dichloropropene	**1.0 U**	ug/L	1.0	0.17	1		07/20/15 22:25	10061-02-6	M5
Diisopropyl ether	**1.0 U**	ug/L	1.0	0.17	1		07/20/15 22:25	108-20-3	M5
Ethylbenzene	**1.0 U**	ug/L	1.0	0.23	1		07/20/15 22:25	100-41-4	M5
Ethyl-tert-butyl ether	**1.0 U**	ug/L	1.0	0.14	1		07/20/15 22:25	637-92-3	M5
2-Hexanone	**10.0 U**	ug/L	10.0	0.58	1		07/20/15 22:25	591-78-6	M5
Methylene Chloride	**1.0 U**	ug/L	1.0	0.59	1		07/20/15 22:25	75-09-2	M5
4-Methyl-2-pentanone (MIBK)	**10.0 U**	ug/L	10.0	0.57	1		07/20/15 22:25	108-10-1	M5
Methyl-tert-butyl ether	**1.0 U**	ug/L	1.0	0.17	1		07/20/15 22:25	1634-04-4	M5
Naphthalene	**2.0 U**	ug/L	2.0	0.19	1		07/20/15 22:25	91-20-3	M5
Styrene	**1.0 U**	ug/L	1.0	0.16	1		07/20/15 22:25	100-42-5	M5
1,1,2,2-Tetrachloroethane	**1.0 U**	ug/L	1.0	0.23	1		07/20/15 22:25	79-34-5	M5
Tetrachloroethene	**459**	ug/L	100	28.6	100		07/20/15 22:51	127-18-4	M5
Toluene	**1.0 U**	ug/L	1.0	0.13	1		07/20/15 22:25	108-88-3	M5
1,2,4-Trichlorobenzene	**1.0 U**	ug/L	1.0	0.39	1		07/20/15 22:25	120-82-1	M5
1,1,1-Trichloroethane	**1.0 U**	ug/L	1.0	0.29	1		07/20/15 22:25	71-55-6	M5
1,1,2-Trichloroethane	**1.0 U**	ug/L	1.0	0.32	1		07/20/15 22:25	79-00-5	M5
Trichloroethene	**58.6**	ug/L	1.0	0.33	1		07/20/15 22:25	79-01-6	M5
Vinyl chloride	**1.0 U**	ug/L	1.0	0.20	1		07/20/15 22:25	75-01-4	M5
Xylene (Total)	**3.0 U**	ug/L	3.0	0.55	1		07/20/15 22:25	1330-20-7	M5
m&p-Xylene	**2.0 U**	ug/L	2.0	0.32	1		07/20/15 22:25	179601-23-1	M5
o-Xylene	**1.0 U**	ug/L	1.0	0.22	1		07/20/15 22:25	95-47-6	M5
Surrogates									
4-Bromofluorobenzene (S)	99	%	84-113		1		07/20/15 22:25	460-00-4	M5
1,2-Dichloroethane-d4 (S)	100	%	84-124		1		07/20/15 22:25	17060-07-0	M5
Toluene-d8 (S)	100	%	79-118		1		07/20/15 22:25	2037-26-5	M5

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QUALITY CONTROL DATA

Project: 16116
Pace Project No.: 30153704

QC Batch: MSV/24247 Analysis Method: EPA 8260B
QC Batch Method: EPA 8260B Analysis Description: 8260 MSV
Associated Lab Samples: 30153704001, 30153704002, 30153704003

METHOD BLANK: 924936 Matrix: Water
Associated Lab Samples: 30153704001, 30153704002, 30153704003

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,1,1-Trichloroethane	ug/L	1.0 U	1.0	07/20/15 13:53	M5
1,1,2,2-Tetrachloroethane	ug/L	1.0 U	1.0	07/20/15 13:53	M5
1,1,2-Trichloroethane	ug/L	1.0 U	1.0	07/20/15 13:53	M5
1,1-Dichloroethane	ug/L	1.0 U	1.0	07/20/15 13:53	M5
1,1-Dichloroethene	ug/L	1.0 U	1.0	07/20/15 13:53	M5
1,2,4-Trichlorobenzene	ug/L	1.0 U	1.0	07/20/15 13:53	M5
1,2-Dichlorobenzene	ug/L	1.0 U	1.0	07/20/15 13:53	M5
1,2-Dichloroethane	ug/L	1.0 U	1.0	07/20/15 13:53	M5
1,2-Dichloropropane	ug/L	1.0 U	1.0	07/20/15 13:53	M5
1,3-Dichlorobenzene	ug/L	1.0 U	1.0	07/20/15 13:53	M5
1,4-Dichlorobenzene	ug/L	1.0 U	1.0	07/20/15 13:53	M5
2-Butanone (MEK)	ug/L	10.0 U	10.0	07/20/15 13:53	M5
2-Hexanone	ug/L	10.0 U	10.0	07/20/15 13:53	M5
4-Methyl-2-pentanone (MIBK)	ug/L	10.0 U	10.0	07/20/15 13:53	M5
Acetone	ug/L	10.0 U	10.0	07/20/15 13:53	M5
Benzene	ug/L	1.0 U	1.0	07/20/15 13:53	M5
Bromochloromethane	ug/L	1.0 U	1.0	07/20/15 13:53	M5
Bromodichloromethane	ug/L	1.0 U	1.0	07/20/15 13:53	M5
Bromoform	ug/L	1.0 U	1.0	07/20/15 13:53	M5
Bromomethane	ug/L	1.0 U	1.0	07/20/15 13:53	M5
Carbon disulfide	ug/L	1.0 U	1.0	07/20/15 13:53	M5
Carbon tetrachloride	ug/L	1.0 U	1.0	07/20/15 13:53	M5
Chlorobenzene	ug/L	1.0 U	1.0	07/20/15 13:53	M5
Chloroethane	ug/L	1.0 U	1.0	07/20/15 13:53	M5
Chloroform	ug/L	1.0 U	1.0	07/20/15 13:53	M5
Chloromethane	ug/L	1.0 U	1.0	07/20/15 13:53	M5
cis-1,2-Dichloroethene	ug/L	1.0 U	1.0	07/20/15 13:53	M5
cis-1,3-Dichloropropene	ug/L	1.0 U	1.0	07/20/15 13:53	M5
Dibromochloromethane	ug/L	1.0 U	1.0	07/20/15 13:53	M5
Diisopropyl ether	ug/L	1.0 U	1.0	07/20/15 13:53	M5
Ethyl-tert-butyl ether	ug/L	1.0 U	1.0	07/20/15 13:53	M5
Ethylbenzene	ug/L	1.0 U	1.0	07/20/15 13:53	M5
m&p-Xylene	ug/L	2.0 U	2.0	07/20/15 13:53	M5
Methyl-tert-butyl ether	ug/L	1.0 U	1.0	07/20/15 13:53	M5
Methylene Chloride	ug/L	1.0 U	1.0	07/20/15 13:53	M5
Naphthalene	ug/L	2.0 U	2.0	07/20/15 13:53	M5
o-Xylene	ug/L	1.0 U	1.0	07/20/15 13:53	M5
Styrene	ug/L	1.0 U	1.0	07/20/15 13:53	M5
tert-Amylmethyl ether	ug/L	1.0 U	1.0	07/20/15 13:53	M5
tert-Butyl Alcohol	ug/L	5.0 U	5.0	07/20/15 13:53	M5
Tetrachloroethene	ug/L	1.0 U	1.0	07/20/15 13:53	M5

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QUALITY CONTROL DATA

Project: 16116
Pace Project No.: 30153704

METHOD BLANK: 924936 Matrix: Water
Associated Lab Samples: 30153704001, 30153704002, 30153704003

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Toluene	ug/L	1.0 U	1.0	07/20/15 13:53	M5
trans-1,2-Dichloroethene	ug/L	1.0 U	1.0	07/20/15 13:53	M5
trans-1,3-Dichloropropene	ug/L	1.0 U	1.0	07/20/15 13:53	M5
Trichloroethene	ug/L	1.0 U	1.0	07/20/15 13:53	M5
Vinyl chloride	ug/L	1.0 U	1.0	07/20/15 13:53	M5
Xylene (Total)	ug/L	3.0 U	3.0	07/20/15 13:53	M5
1,2-Dichloroethane-d4 (S)	%	93	84-124	07/20/15 13:53	M5
4-Bromofluorobenzene (S)	%	101	84-113	07/20/15 13:53	M5
Toluene-d8 (S)	%	101	79-118	07/20/15 13:53	M5

LABORATORY CONTROL SAMPLE: 924937

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,1,1-Trichloroethane	ug/L	20	22.0	110	62-130	M5
1,1,2,2-Tetrachloroethane	ug/L	20	18.5	93	74-115	M5
1,1,2-Trichloroethane	ug/L	20	19.8	99	73-121	M5
1,1-Dichloroethane	ug/L	20	22.5	112	64-125	M5
1,1-Dichloroethene	ug/L	20	22.0	110	58-126	M5
1,2,4-Trichlorobenzene	ug/L	20	15.5	77	72-136	M5
1,2-Dichlorobenzene	ug/L	20	19.9	99	76-117	M5
1,2-Dichloroethane	ug/L	20	21.0	105	66-124	M5
1,2-Dichloropropane	ug/L	20	19.2	96	66-119	M5
1,3-Dichlorobenzene	ug/L	20	18.0	90	73-116	M5
1,4-Dichlorobenzene	ug/L	20	18.0	90	75-119	M5
2-Butanone (MEK)	ug/L	20	20.8	104	69-126	M5
2-Hexanone	ug/L	20	19.9	100	53-118	M5
4-Methyl-2-pentanone (MIBK)	ug/L	20	19.7	98	68-124	M5
Acetone	ug/L	20	16.8	84	56-142	M5
Benzene	ug/L	20	19.8	99	69-123	M5
Bromochloromethane	ug/L	20	24.4	122	61-133	M5
Bromodichloromethane	ug/L	20	20.2	101	64-120	M5
Bromoform	ug/L	20	20.8	104	56-133	M5
Bromomethane	ug/L	20	17.5	88	19-151	M5
Carbon disulfide	ug/L	20	25.5	127	53-173	M5
Carbon tetrachloride	ug/L	20	22.6	113	52-133	M5
Chlorobenzene	ug/L	20	20.9	104	72-121	M5
Chloroethane	ug/L	20	22.8	114	53-143	M5
Chloroform	ug/L	20	21.3	106	63-123	M5
Chloromethane	ug/L	20	19.9	99	48-139	M5
cis-1,2-Dichloroethene	ug/L	20	21.7	108	63-123	M5
cis-1,3-Dichloropropene	ug/L	20	20.1	100	65-121	M5
Dibromochloromethane	ug/L	20	20.1	100	58-132	M5
Diisopropyl ether	ug/L	20	22.4	112	66-131	M5
Ethyl-tert-butyl ether	ug/L	20	24.2	121	67-124	M5

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QUALITY CONTROL DATA

Project: 16116
Pace Project No.: 30153704

LABORATORY CONTROL SAMPLE: 924937

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Ethylbenzene	ug/L	20	20.8	104	70-123	M5
m&p-Xylene	ug/L	40	42.2	105	71-124	M5
Methyl-tert-butyl ether	ug/L	20	22.8	114	69-133	M5
Methylene Chloride	ug/L	20	22.5	113	55-134	M5
Naphthalene	ug/L	20	18.7	93	65-134	M5
o-Xylene	ug/L	20	20.9	104	69-118	M5
Styrene	ug/L	20	21.1	105	66-126	M5
tert-Amylmethyl ether	ug/L	20	17.7	89	60-120	M5
tert-Butyl Alcohol	ug/L	100	118	118	40-160	M5
Tetrachloroethene	ug/L	20	20.3	101	62-131	M5
Toluene	ug/L	20	19.9	100	73-123	M5
trans-1,2-Dichloroethene	ug/L	20	22.9	114	61-124	M5
trans-1,3-Dichloropropene	ug/L	20	19.6	98	70-111	M5
Trichloroethene	ug/L	20	19.9	99	66-125	M5
Vinyl chloride	ug/L	20	22.8	114	58-131	M5
Xylene (Total)	ug/L	60	63.0	105	70-123	M5
1,2-Dichloroethane-d4 (S)	%			100	84-124	M5
4-Bromofluorobenzene (S)	%			94	84-113	M5
Toluene-d8 (S)	%			99	79-118	M5

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QUALIFIERS

Project: 16116
Pace Project No.: 30153704

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.

ND - Not Detected at or above adjusted reporting limit.

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit.

S - Surrogate

1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

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TNI - The NELAC Institute.

LABORATORIES

PASI-PA Pace Analytical Services - Greensburg

BATCH QUALIFIERS

Batch: MSV/24247

[M5] A matrix spike/matrix spike duplicate was not performed for this batch due to insufficient sample volume.

ANALYTE QUALIFIERS

M5 A matrix spike/matrix spike duplicate was not performed for this batch due to insufficient sample volume.

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: 16116
Pace Project No.: 30153704

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
30153704001	161160001	EPA 8260B	MSV/24247		
30153704002	161160002	EPA 8260B	MSV/24247		
30153704003	161160003	EPA 8260B	MSV/24247		

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Pace Analytical

CHAIN-OF-CUSTODY RECORD

WO#: 30153704

30153704

Phone: (412) 826-5245 Pace Analytical Energy Services, LLC - 220 William Pitt Way - Pittsburgh, PA 15

SEND TO: Pace DUE DATE: 7/23/2015

m.mikeselli@microseeps.com

Lab Proj. # 16116

Invoice to: rrobl@microseeps.com
rwelsh@microseeps.com

Company: Pace Analytical Energy Services, LLC
Co. Address: 220 William Pitt Way, Pittsburgh, PA 15238
Phone #: 412-826-5245
Fax #: 412-826-3433

State of Origin: OH

Parameters Requested

Preservatives
1-Unpreserved 4-HCL
2- H2SO4 5-NaOH+Zn Acc.
3- HNO3

Sample ID	Sample Type: Water	Sample Type: Solid	Date	Time	# Bottles	Preservatives	8260 Volatiles + Oxygenates	56	Remarks:
161160001	X		7/15/15	12:13	2	4	X		001
161160002	X		7/15/15	12:19	2	4	X		002
161160003	X		7/15/15	10:22	2	4	X		003

Relinquished by:	Company:	Date:	Time:	Received by:	Company:	Date:	Time:
R. Welsh	PACE	7/15/15	1200		Pace	7-15-15	1720
Relinquished by:	Company:	Date:	Time:	Received by:	Company:	Date:	Time:
	PACE	7/15/15	5:25		Pace	7/15/15	1725
Relinquished by:	Company:	Date:	Time:	Received by:	Company:	Date:	Time:

Sample Condition Upon Receipt

Pace Analytical

Client Name: MICROSEEPS

Project # 30153704

Courier: ☐ Fed Ex ☐ UPS ☐ USPS ☐ Client ☐ Commercial ☒ Pace Other _____

Tracking #: _____

Custody Seal on Cooler/Box Present: ☐ yes ☒ no Seals Intact: ☐ yes ☐ no Biological Tissue is Frozen: Yes No

Packing Material: Bubble Wrap ____ Bubble Bags ____ (None) ____ Other _____

Thermometer Used 8 Type of Ice: (Wet) Blue None ☑ Samples on Ice, cooling process has begun

Cooler Temp.: Observed Temp.: 2.2 °C Correction Factor: -0.4 °C Final Temp: 1.8 °C

Date and initials of person examining contents: MM 7-17-15

Temp should be above freezing to 6°C

		Comments:
Chain of Custody Present:	☑Yes ☐No ☐N/A	1
Chain of Custody Filled Out:	☑Yes ☐No ☐N/A	2.
Chain of Custody Relinquished:	☑Yes ☐No ☐N/A	3.
Sampler Name & Signature on COC:	☐Yes ☑No ☐N/A	4.
Samples Arrived within Hold Time:	☑Yes ☐No ☐N/A	5.
Short Hold Time Analysis (<72hr):	☐Yes ☑No ☐N/A	6.
Rush Turn Around Time Requested:	☐Yes ☑No ☐N/A	7.
Sufficient Volume:	☑Yes ☐No ☐N/A	8.
Correct Containers Used:	☑Yes ☐No ☐N/A	9.
-Pace Containers Used:	☐Yes ☑No ☐N/A	
Containers Intact:	☑Yes ☐No ☐N/A	10.
Filtered volume received for Dissolved tests	☐Yes ☐No ☑N/A	11.
Sample Labels match COC:	☑Yes ☐No ☐N/A	12.
-Includes date/time/ID/Analysis Matrix: WT		
All containers needing preservation have been checked.	☐Yes ☐No ☑N/A	13.
All containers needing preservation are found to be in compliance with EPA recommendation.	☐Yes ☐No ☑N/A	
exceptions: VOA, coliform, TOC, O&G, Phenols	☐Yes ☐No	Initial when completed MM / Lot # of added preservative
Samples checked for dechlorination:	☐Yes ☐No ☑N/A	14.
Headspace in VOA Vials (>6mm):	☐Yes ☑No ☐N/A	15.
Trip Blank Present:	☐Yes ☑No ☐N/A	16.
Trip Blank Custody Seals Present	☐Yes ☐No ☑N/A	
Pace Trip Blank Lot # (if purchased):		

Client Notification/ Resolution: Field Data Required? Y / N

Person Contacted: _____ Date/Time: _____

Comments/ Resolution: _____

Project Manager Review: _____ Date: 7/20/15

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office (i.e out of hold, incorrect preservative, out of temp, incorrect containers)

Pace Analytical

30153704

Project Number: _____

Client Name: MICROSEEPS

Item No.	Matrix Code	Glass Jar (120 / 250 / 500 / 1L)	Soil kit (2 SB, 1M, soil jar)	Chemistry (250 / 500 / 1L)	Organics (1L)	Nutrient (250 / 500)	Phenolics (250 ml)	TOC (40 ml / 250 ml)	TOX (250 ml)	Total Metals	Dissolved Metals preserved Y N	O & G (1L)	TPH (1L)	VOA (40 ml / 30 ml)	Cyanide (250 ml)	Sulfide (500 ml)	Bacteria (120 ml)	Wipes / swipe/ smear/ filter	Radchem Nalgene (125 / 250 / 500 / 1L)	Radchem Nalgene (1/2 gal. / 1 gal.L)	Cubitainer (500 ml / 4L)	Ziploc	Other	Other
001	WT													2										
003	WT													2										

Pace Analytical
www.pacelabs.com
220 William Pitt Way
Pittsburgh, PA 15238
412-826-5245

Microseeps

16116

CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

Page: 1 of 2

004747

Section A Required Client Information:	Section B Required Project Information:	Section C Invoice Information:
Company: EHS Support LLC	Report To: Michelle Staymock	Attention: Michelle Staymock
Address: 4694 Cemetary Rd PMB104 Hilliard, OH 43026-1124	Copy To:	Company Name: EHS Support LLC
		Address:
Email To: Michelle.staymock@ehs-support.com	Purchase Order No.:	Pace Quote Reference:
Phone: 412 807 1494 Fax: (877) 293-6642	Project Name: Alterman	Pace Project Manager:
Requested Due Date/TAT:	Project Number: 00342-2015-321	Pace Profile #:

REGULATORY AGENCY

☐ NPDES ☐ GROUND WATER ☐ DRINKING WATER

☐ UST ☐ RCRA ☐ OTHER

Site Location STATE: GA

Requested Analysis Filtered (Y/N)

ITEM #	Section D Required Client Information — SAMPLE ID (A-Z, 0-9 / ,-) Sample IDs MUST BE UNIQUE	Matrix Codes: Drinking Water DW, Water WT, Waste Water WW, Product P, Soil/Solid SL, Oil OL, Wipe WP, Air AR, Tissue TS, Other OT	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED: COMPOSITE START DATE	COMPOSITE START TIME	COMPOSITE END/GRAB DATE	COMPOSITE END/GRAB TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives: Unpreserved	H_2SO_4	HNO_3	HCl	TSP	BAK	Zinc Acetate & NaOH	Other	Y/N	Analysis Test ↓	Residual Chlorine (Y/N)	Pace Project No./ Lab I.D.
1	MW-5C		WT	G			7/14/15	0916		3							3		8260-C-CS		
2	MW-8A		WT	G			7/14/15	0916		3							3		AM20GAX		
3	MW-15C		WT	G			7/14/15	1032		3							3				
4	MW-10A		WT	G			7/14/15	1034		3							3				
5	MW-13B		WT	G			7/14/15	1125		3							3				
6	MW-17A		WT	G			7/14/15	1144		3							3				
7	MW-8B		WT	G			7/14/15	1233		3							3				
8	MW-9A		WT	G			7/14/15	1321		3							3				
9	MW-19C		WT	G			7/14/15	1422		3							3				
10	MW-19B		WT	G			7/14/15	1515		3							3				
11	MW-19D		WT	G			7/14/15	1609		3							3				
12	DUPLICATE		WT	G			7/14/15	0000		3							3				

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS
Preservative: Other = Trisodium Phosphate	Chris Bagley / Antea Group	7/15/15	1630	PAFS	7/16/15	1030	

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: Chris Bagley

SIGNATURE of SAMPLER:

DATE Signed (MM/DD/YY): 07/15/15

Temp in °C	Received on Ice (Y/N)	Custody Sealed Cooler (Y/N)	Samples Intact (Y/N)

2

*Important Note: By signing this form you are accepting Pace's NET 30 day payment terms and agreeing to late charges of 1.5% per month for any invoices not paid within 30 days.

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CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

Page: 2 of 2

004749

Section A Required Client Information:	Section B Required Project Information:	Section C Invoice Information:
Company: EHS Support LLC	Report To: Michelle Steymoke	Attention: Michelle Stanaoka
Address: 4694 Centerra Rd. PMB 104 Hilliard, OH 43026-1124	Copy To:	Company Name: EHS Support LLC
		Address:
Email To: michelle.stanaoka@ehs-support.com	Purchase Order No.:	Pace Quote Reference:
Phone: (412)807-1454 Fax: (877)203-6647	Project Name: Alternen	Pace Project Manager:
Requested Due Date/TAT:	Project Number: C00342-2015-301	Pace Profile #:

REGULATORY AGENCY

☐ NPDES ☐ GROUND WATER ☐ DRINKING WATER

☐ UST ☐ RCRA ☐ OTHER

Site Location STATE: GA

Requested Analysis Filtered (Y/N)

ITEM #	Section D Required Client Information — SAMPLE ID (A-Z, 0-9 / ,-) Sample IDs MUST BE UNIQUE	Matrix Codes MATRIX / CODE: Drinking Water DW; Water WT; Waste Water WW; Product P; Soil/Solid SL; Oil OL; Wipe WP; Air AR; Tissue TS; Other OT	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED: COMPOSITE START DATE	COMPOSITE START TIME	COMPOSITE END/GRAB DATE	COMPOSITE END/GRAB TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives: Unpreserved	H_2SO_4	HNO_3	HCl	TSP	BAK	Zinc Acetate & NaOH	Other	Y/N	Analysis Test: AM20GAX	AM23G	AM30GAX	AM24	Residual Chlorine (Y/N)	Pace Project No./ Lab I.D.
1	MW-15A		WT	G			7/15/15	1213		16				9		4		3			3	2	2	9		
2	MW-15B		WT	G			7/15/15	1039		5						2		3			3	2				
3	MW-15C		WT	G			7/15/15	0954		5						2		3			3	2				
4	MW-13A		WT	G			7/15/15	1409		3								3			3					
5	MW-5B		WT	G			7/15/15	1219		16				9		4		3			3	2	2	9		
6	MW-16A		WT	G			7/15/15	1022		16				9		4		3			3	2	0	9		
7	MW-16B		WT	G			7/15/15	0954		5						2		3			3	2				
8	MW-16C		WT	G			7/15/15	1433		5						2		3			3	2				
9																										
10																										
11																										
12																										

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS			
Preservative: Other = Trisodium phosphate	Chris Bagley / Anita Brown	7/15/15	1630	[illegible] PACE	7.16.15	1030	4	Y	✓	Y

2

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: Chris Bagley

SIGNATURE of SAMPLER: [signature]

DATE Signed (MM/DD/YY): 07/15/15

Temp In °C	Received on Ice (Y/N)	Custody Sealed Cooler (Y/N)	Samples Intact (Y/N)

*Important Note: By signing this form you are accepting Pace's NET 30 day payment terms and agreeing to late charges of 1.5% per month for any invoices not paid within 30 days.

Cooler Receipt Form

Client Name: EHS Support Project: Alterman Lab Work Order: 16116

A. Shipping/Container Information (circle appropriate response)

Courier: (FedEx) UPS USPS Client Other:_____ Air bill Present: (Yes) No

Tracking Number: 8045 9350 9960

Custody Seal on Cooler/Box Present: Yes (No) Seals Intact: Yes No

Cooler/Box Packing Material: (Bubble Wrap) Absorbent Foam Other:_____

Type of Ice: (Wet) Blue None Ice Intact: (Yes) Melted

Cooler Temperature: 4°C Radiation Screened: Yes (No) Chain of Custody Present: (Yes) No

Comments:_____

B. Laboratory Assignment/Log-in (check appropriate response)

	YES	NO	N/A	Comment Reference non-Conformance
Chain of Custody properly filled out	✓			
Chain of Custody relinquished	✓			
Sampler Name & Signature on COC	✓			
Containers intact	✓			
Were samples in separate bags	✓			
Sample container labels match COC Sample name/date and time collected	✓			
Sufficient volume provided	✓			
PAES containers used	✓			
Are containers properly preserved for the requested testing? (as labeled)	✓			
If an unknown preservation state, were containers checked? Exception: VOA's coliform			✓	If yes, see pH form.
Was volume for dissolved testing field filtered, as noted on the COC? Was volume received in a preserved container?			✓	

Comments:_____

Cooler contents examined/received by: LY Date: 7.16.15

Project Manager Review: RW Date: 7-16-15

Pace Analytical Energy Services, LLC
220 William Pitt Way
Pittsburgh, PA 15238
Phone: (412) 826-5245
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July 28, 2015

Michelle Stayrook
EHS Support
4694 Cemetery Rd
PMB 104
Hilliard, OH 43026

RE: **ALTERMAN / C00342-2015-301**

Pace Workorder: 16119

Dear Michelle Stayrook:

Enclosed are the analytical results for sample(s) received by the laboratory on Thursday, July 16, 2015. Results reported herein conform to the most current NELAC standards, where applicable, unless otherwise narrated in the body of the report.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Ruth Welsh 7/28/15

Ruth Welsh 07/28/2015

Customer Service Representative

Enclosures

As a valued client we would appreciate your comments on our service.
Please email info@microseeps.com.

Total Number of Pages 34

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LABORATORY ACCREDITATIONS & CERTIFICATIONS

Accreditor:	Pennsylvania Department of Environmental Protection, Bureau of Laboratories
Accreditation ID:	02-00538
Scope:	NELAP Non-Potable Water and Solid & Hazardous Waste
Accreditor:	South Carolina Department of Health and Environmental Control, Office of Environmental Laboratory Certification
Accreditation ID:	89009003
Scope:	Clean Water Act (CWA); Resource Conservation and Recovery Act (RCRA)
Accreditor:	NELAP: New Jersey, Department of Environmental Protection
Accreditation ID:	PA026
Scope:	Non-Potable Water; Solid and Chemical Materials
Accreditor:	NELAP: New York, Department of Health Wadsworth Center
Accreditation ID:	11815
Scope:	Non-Potable Water; Solid and Hazardous Waste
Accreditor:	State of Connecticut, Department of Public Health, Division of Environmental Health
Accreditation ID:	PH-0263
Scope:	Clean Water Act (CWA) Resource Conservation and Recovery Act (RCRA)
Accreditor:	NELAP: Texas, Commission on Environmental Quality
Accreditation ID:	T104704453-09-TX
Scope:	Non-Potable Water
Accreditor:	State of New Hampshire
Accreditation ID:	299409
Scope:	Non-potable water
Accreditor:	State of Georgia
Accreditation ID:	Chapter 391-3-26
Scope:	As per the Georgia EPD Rules and Regulations for Commercial Laboratories, PAES is accredited by the Pennsylvania Department of Environmental Protection Bureau of Laboratories under the National Environmental Laboratory Approval Program (NELAC).

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SAMPLE SUMMARY

Workorder: 16119 ALTERMAN / C00342-2015-301

Lab ID	Sample ID	Matrix	Date Collected	Date Received
161190001	MW-5C	Water	7/14/2015 09:16	7/16/2015 10:30
161190002	MW-8A	Water	7/14/2015 09:16	7/16/2015 10:30
161190003	MW-13C	Water	7/14/2015 10:32	7/16/2015 10:30
161190004	MW-10A	Water	7/14/2015 10:34	7/16/2015 10:30
161190005	MW-13B	Water	7/14/2015 11:25	7/16/2015 10:30
161190006	MW-17A	Water	7/14/2015 11:44	7/16/2015 10:30
161190007	MW-8B	Water	7/14/2015 12:33	7/16/2015 10:30
161190008	MW-9A	Water	7/14/2015 13:21	7/16/2015 10:30
161190009	MW-19C	Water	7/14/2015 14:22	7/16/2015 10:30
161190010	MW-19B	Water	7/14/2015 15:15	7/16/2015 10:30
161190011	MW-19D	Water	7/14/2015 16:09	7/16/2015 10:30
161190012	MW-15A	Water	7/15/2015 12:13	7/16/2015 10:30
161190013	MW-15B	Water	7/15/2015 10:39	7/16/2015 10:30
161190014	MW-15C	Water	7/15/2015 08:54	7/16/2015 10:30
161190015	MW-13A	Water	7/15/2015 14:09	7/16/2015 10:30
161190016	MW-5B	Water	7/15/2015 12:19	7/16/2015 10:30
161190017	MW-16A	Water	7/15/2015 10:22	7/16/2015 10:30
161190018	MW-16B	Water	7/15/2015 08:54	7/16/2015 10:30
161190019	MW-16C	Water	7/15/2015 14:33	7/16/2015 10:30

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PROJECT SUMMARY

Workorder: 16119 ALTERMAN / C00342-2015-301

Workorder Comments

The container pH for samples 16119 (0016) were measured as outside the expected pH range, as assigned to PAES method AM20GAx; for the TSP preserved container.

Batch Comments

Batch: EDON/2583 - Low Level Volatile Fatty Acids

The method blank contain a concentration above the MDL, but below the PQL. Analyte Lactic, Acetic and Formic acid. Results for this analyte in associated samples may be bias high.

Batch: DISG/4727 - AM20GAX Water QC

The matrix spike and/or spike duplicate, recovery or relative percent difference; accuracy influenced by the concentration of the reference sample 161900002. Analyte Methane. Batch acceptance based on laboratory control sample recovery.

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ANALYTICAL RESULTS

Workorder: 16119 ALTERMAN / C00342-2015-301

Lab ID: **161190001** Date Received: 7/16/2015 10:30 Matrix: Water

Sample ID: **MW-5C** Date Collected: 7/14/2015 09:16

Parameters	Results	Units	PQL	MDL	DF	Analyzed	By	Qualifiers
RISK - MICR								
Analysis Desc: AM20GAX			Analytical Method: AM20GAX					
Methane	**5.5**	ug/l	0.50	0.042	1	7/20/2015 08:32	BW	n
Ethane	**<0.10**	ug/l	0.10	0.0020	1	7/20/2015 08:32	BW	n
Ethene	**2.0**	ug/l	0.10	0.0030	1	7/20/2015 08:32	BW	n
Acetylene	**<0.50**	ug/l	0.50	0.015	1	7/20/2015 08:32	BW	n

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ANALYTICAL RESULTS

Workorder: 16119 ALTERMAN / C00342-2015-301

Lab ID: **161190002** Date Received: 7/16/2015 10:30 Matrix: Water

Sample ID: **MW-8A** Date Collected: 7/14/2015 09:16

Parameters	Results	Units	PQL	MDL	DF	Analyzed	By	Qualifiers
RISK - MICR								
Analysis Desc: AM20GAX			Analytical Method: AM20GAX					
Methane	**39**	ug/l	0.50	0.042	1	7/20/2015 08:49	BW	n
Ethane	**<0.10**	ug/l	0.10	0.0020	1	7/20/2015 08:49	BW	n
Ethene	**<0.10**	ug/l	0.10	0.0030	1	7/20/2015 08:49	BW	n
Acetylene	**<0.50**	ug/l	0.50	0.015	1	7/20/2015 08:49	BW	n

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ANALYTICAL RESULTS

Workorder: 16119 ALTERMAN / C00342-2015-301

Lab ID: **161190003** Date Received: 7/16/2015 10:30 Matrix: Water

Sample ID: **MW-13C** Date Collected: 7/14/2015 10:32

Parameters	Results	Units	PQL	MDL	DF	Analyzed	By	Qualifiers
RISK - MICR								
Analysis Desc: AM20GAX			Analytical Method: AM20GAX					
Methane	**<0.50**	ug/l	0.50	0.042	1	7/20/2015 09:02	BW	n
Ethane	**<0.10**	ug/l	0.10	0.0020	1	7/20/2015 09:02	BW	n
Ethene	**<0.10**	ug/l	0.10	0.0030	1	7/20/2015 09:02	BW	n
Acetylene	**<0.50**	ug/l	0.50	0.015	1	7/20/2015 09:02	BW	n

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ANALYTICAL RESULTS

Workorder: 16119 ALTERMAN / C00342-2015-301

Lab ID: **161190004** Date Received: 7/16/2015 10:30 Matrix: Water

Sample ID: **MW-10A** Date Collected: 7/14/2015 10:34

Parameters	Results	Units	PQL	MDL	DF	Analyzed	By	Qualifiers
RISK - MICR								
Analysis Desc: AM20GAX		Analytical Method: AM20GAX						
Methane	**<0.50**	ug/l	0.50	0.042	1	7/20/2015 09:19	BW	n
Ethane	**<0.10**	ug/l	0.10	0.0020	1	7/20/2015 09:19	BW	n
Ethene	**<0.10**	ug/l	0.10	0.0030	1	7/20/2015 09:19	BW	n
Acetylene	**<0.50**	ug/l	0.50	0.015	1	7/20/2015 09:19	BW	n

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ANALYTICAL RESULTS

Workorder: 16119 ALTERMAN / C00342-2015-301

Lab ID: **161190005** Date Received: 7/16/2015 10:30 Matrix: Water

Sample ID: **MW-13B** Date Collected: 7/14/2015 11:25

Parameters	Results	Units	PQL	MDL	DF	Analyzed	By	Qualifiers
RISK - MICR								
Analysis Desc: AM20GAX			Analytical Method: AM20GAX					
Methane	**1.9**	ug/l	0.50	0.042	1	7/20/2015 09:33	BW	n
Ethane	**1.2**	ug/l	0.10	0.0020	1	7/20/2015 09:33	BW	n
Ethene	**<0.10**	ug/l	0.10	0.0030	1	7/20/2015 09:33	BW	n
Acetylene	**<0.50**	ug/l	0.50	0.015	1	7/20/2015 09:33	BW	n

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ANALYTICAL RESULTS

Workorder: 16119 ALTERMAN / C00342-2015-301

Lab ID: **161190006** Date Received: 7/16/2015 10:30 Matrix: Water

Sample ID: **MW-17A** Date Collected: 7/14/2015 11:44

Parameters	Results	Units	PQL	MDL	DF	Analyzed	By	Qualifiers
RISK - MICR								
Analysis Desc: AM20GAX			Analytical Method: AM20GAX					
Methane	**56**	ug/l	0.50	0.042	1	7/20/2015 09:49	BW	n
Ethane	**<0.10**	ug/l	0.10	0.0020	1	7/20/2015 09:49	BW	n
Ethene	**<0.10**	ug/l	0.10	0.0030	1	7/20/2015 09:49	BW	n
Acetylene	**<0.50**	ug/l	0.50	0.015	1	7/20/2015 09:49	BW	n

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ANALYTICAL RESULTS

Workorder: 16119 ALTERMAN / C00342-2015-301

Lab ID: **161190007** Date Received: 7/16/2015 10:30 Matrix: Water

Sample ID: **MW-8B** Date Collected: 7/14/2015 12:33

Parameters	Results	Units	PQL	MDL	DF	Analyzed	By	Qualifiers
RISK - MICR								
Analysis Desc: AM20GAX			Analytical Method: AM20GAX					
Methane	**<0.50**	ug/l	0.50	0.042	1	7/20/2015 10:04	BW	n
Ethane	**<0.10**	ug/l	0.10	0.0020	1	7/20/2015 10:04	BW	n
Ethene	**<0.10**	ug/l	0.10	0.0030	1	7/20/2015 10:04	BW	n
Acetylene	**<0.50**	ug/l	0.50	0.015	1	7/20/2015 10:04	BW	n

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ANALYTICAL RESULTS

Workorder: 16119 ALTERMAN / C00342-2015-301

Lab ID: **161190008** Date Received: 7/16/2015 10:30 Matrix: Water

Sample ID: **MW-9A** Date Collected: 7/14/2015 13:21

Parameters	Results	Units	PQL	MDL	DF	Analyzed	By	Qualifiers
RISK - MICR								
Analysis Desc: AM20GAX			Analytical Method: AM20GAX					
Methane	**150**	ug/l	0.50	0.042	1	7/20/2015 10:20	BW	n
Ethane	**<0.10**	ug/l	0.10	0.0020	1	7/20/2015 10:20	BW	n
Ethene	**<0.10**	ug/l	0.10	0.0030	1	7/20/2015 10:20	BW	n
Acetylene	**<0.50**	ug/l	0.50	0.015	1	7/20/2015 10:20	BW	n

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ANALYTICAL RESULTS

Workorder: 16119 ALTERMAN / C00342-2015-301

Lab ID: **161190009** Date Received: 7/16/2015 10:30 Matrix: Water

Sample ID: **MW-19C** Date Collected: 7/14/2015 14:22

Parameters	Results	Units	PQL	MDL	DF	Analyzed	By	Qualifiers
RISK - MICR								
Analysis Desc: AM20GAX			Analytical Method: AM20GAX					
Methane	**4.5**	ug/l	0.50	0.042	1	7/20/2015 10:36	BW	n
Ethane	**<0.10**	ug/l	0.10	0.0020	1	7/20/2015 10:36	BW	n
Ethene	**0.42**	ug/l	0.10	0.0030	1	7/20/2015 10:36	BW	n
Acetylene	**<0.50**	ug/l	0.50	0.015	1	7/20/2015 10:36	BW	n

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ANALYTICAL RESULTS

Workorder: 16119 ALTERMAN / C00342-2015-301

Lab ID: **161190010** Date Received: 7/16/2015 10:30 Matrix: Water

Sample ID: **MW-19B** Date Collected: 7/14/2015 15:15

Parameters	Results	Units	PQL	MDL	DF	Analyzed	By	Qualifiers
RISK - MICR								
Analysis Desc: AM20GAX			Analytical Method: AM20GAX					
Methane	**<0.50**	ug/l	0.50	0.042	1	7/20/2015 10:55	BW	n
Ethane	**<0.10**	ug/l	0.10	0.0020	1	7/20/2015 10:55	BW	n
Ethene	**<0.10**	ug/l	0.10	0.0030	1	7/20/2015 10:55	BW	n
Acetylene	**<0.50**	ug/l	0.50	0.015	1	7/20/2015 10:55	BW	n

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ANALYTICAL RESULTS

Workorder: 16119 ALTERMAN / C00342-2015-301

Lab ID: **161190011** Date Received: 7/16/2015 10:30 Matrix: Water

Sample ID: **MW-19D** Date Collected: 7/14/2015 16:09

Parameters	Results	Units	PQL	MDL	DF	Analyzed	By	Qualifiers
RISK - MICR								
Analysis Desc: AM20GAX			Analytical Method: AM20GAX					
Methane	**<0.50**	ug/l	0.50	0.042	1	7/20/2015 11:08	BW	n
Ethane	**<0.10**	ug/l	0.10	0.0020	1	7/20/2015 11:08	BW	n
Ethene	**0.22**	ug/l	0.10	0.0030	1	7/20/2015 11:08	BW	n
Acetylene	**<0.50**	ug/l	0.50	0.015	1	7/20/2015 11:08	BW	n

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ANALYTICAL RESULTS

Workorder: 16119 ALTERMAN / C00342-2015-301

Lab ID: **161190012** Date Received: 7/16/2015 10:30 Matrix: Water

Sample ID: **MW-15A** Date Collected: 7/15/2015 12:13

Parameters	Results	Units	PQL	MDL	DF	Analyzed	By	Qualifiers
EDonors - MICR								
Analysis Desc: AM23G		Analytical Method: AM23G						
Lactic Acid	**<0.10**	mg/l	0.10	0.0020	1	7/17/2015 18:45	KB	B
Acetic Acid	**<0.070**	mg/l	0.070	0.0020	1	7/17/2015 18:45	KB	B
Propionic Acid	**<0.050**	mg/l	0.050	0.0010	1	7/17/2015 18:45	KB	
Formic Acid	**<0.10**	mg/l	0.10	0.0020	1	7/17/2015 18:45	KB	B
Butyric Acid	**<0.050**	mg/l	0.050	0.0010	1	7/17/2015 18:45	KB	
Pyruvic Acid	**<0.15**	mg/l	0.15	0.0020	1	7/17/2015 18:45	KB	
i-Pentanoic Acid	**<0.15**	mg/l	0.15	0.0030	1	7/17/2015 18:45	KB	
Pentanoic Acid	**<0.070**	mg/l	0.070	0.0040	1	7/17/2015 18:45	KB	
i-Hexanoic Acid	**<0.20**	mg/l	0.20	0.0080	1	7/17/2015 18:45	KB	
Hexanoic Acid	**<0.50**	mg/l	0.50	0.0080	1	7/17/2015 18:45	KB	
RISK - MICR								
Analysis Desc: AM20GAX		Analytical Method: AM20GAX						
Methane	**33**	ug/l	0.50	0.042	1	7/20/2015 12:10	BW	n
Ethane	**<0.10**	ug/l	0.10	0.0020	1	7/20/2015 12:10	BW	n
Ethene	**<0.10**	ug/l	0.10	0.0030	1	7/20/2015 12:10	BW	n
Carbon Dioxide	**160**	mg/l	5.0	0.36	1	7/25/2015 10:00	BW	n
Acetylene	**<0.50**	ug/l	0.50	0.015	1	7/20/2015 12:10	BW	n

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ANALYTICAL RESULTS

Workorder: 16119 ALTERMAN / C00342-2015-301

Lab ID: **161190013** Date Received: 7/16/2015 10:30 Matrix: Water

Sample ID: **MW-15B** Date Collected: 7/15/2015 10:39

Parameters	Results	Units	PQL	MDL	DF	Analyzed	By	Qualifiers
EDonors - MICR								
Analysis Desc: AM23G		Analytical Method: AM23G						
Lactic Acid	**<0.10**	mg/l	0.10	0.0020	1	7/17/2015 19:33	KB	B
Acetic Acid	**0.11**	mg/l	0.070	0.0020	1	7/17/2015 19:33	KB	B
Propionic Acid	**<0.050**	mg/l	0.050	0.0010	1	7/17/2015 19:33	KB	
Formic Acid	**<0.10**	mg/l	0.10	0.0020	1	7/17/2015 19:33	KB	B
Butyric Acid	**<0.050**	mg/l	0.050	0.0010	1	7/17/2015 19:33	KB	
Pyruvic Acid	**<0.15**	mg/l	0.15	0.0020	1	7/17/2015 19:33	KB	
i-Pentanoic Acid	**<0.15**	mg/l	0.15	0.0030	1	7/17/2015 19:33	KB	
Pentanoic Acid	**<0.070**	mg/l	0.070	0.0040	1	7/17/2015 19:33	KB	
i-Hexanoic Acid	**<0.20**	mg/l	0.20	0.0080	1	7/17/2015 19:33	KB	
Hexanoic Acid	**<0.50**	mg/l	0.50	0.0080	1	7/17/2015 19:33	KB	
RISK - MICR								
Analysis Desc: AM20GAX		Analytical Method: AM20GAX						
Methane	**<0.50**	ug/l	0.50	0.042	1	7/20/2015 12:28	BW	n
Ethane	**<0.10**	ug/l	0.10	0.0020	1	7/20/2015 12:28	BW	n
Ethene	**<0.10**	ug/l	0.10	0.0030	1	7/20/2015 12:28	BW	n
Acetylene	**<0.50**	ug/l	0.50	0.015	1	7/20/2015 12:28	BW	n

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ANALYTICAL RESULTS

Workorder: 16119 ALTERMAN / C00342-2015-301

Lab ID: **161190014** Date Received: 7/16/2015 10:30 Matrix: Water

Sample ID: **MW-15C** Date Collected: 7/15/2015 08:54

Parameters	Results	Units	PQL	MDL	DF	Analyzed	By	Qualifiers
EDonors - MICR								
Analysis Desc: AM23G			Analytical Method: AM23G					
Lactic Acid	**<0.10**	mg/l	0.10	0.0020	1	7/17/2015 20:22	KB	B
Acetic Acid	**0.10**	mg/l	0.070	0.0020	1	7/17/2015 20:22	KB	B
Propionic Acid	**<0.050**	mg/l	0.050	0.0010	1	7/17/2015 20:22	KB	
Formic Acid	**<0.10**	mg/l	0.10	0.0020	1	7/17/2015 20:22	KB	B
Butyric Acid	**<0.050**	mg/l	0.050	0.0010	1	7/17/2015 20:22	KB	
Pyruvic Acid	**<0.15**	mg/l	0.15	0.0020	1	7/17/2015 20:22	KB	
i-Pentanoic Acid	**<0.15**	mg/l	0.15	0.0030	1	7/17/2015 20:22	KB	
Pentanoic Acid	**<0.070**	mg/l	0.070	0.0040	1	7/17/2015 20:22	KB	
i-Hexanoic Acid	**<0.20**	mg/l	0.20	0.0080	1	7/17/2015 20:22	KB	
Hexanoic Acid	**<0.50**	mg/l	0.50	0.0080	1	7/17/2015 20:22	KB	
RISK - MICR								
Analysis Desc: AM20GAX			Analytical Method: AM20GAX					
Methane	**1.0**	ug/l	0.50	0.042	1	7/20/2015 12:47	BW	n
Ethane	**0.27**	ug/l	0.10	0.0020	1	7/20/2015 12:47	BW	n
Ethene	**1.8**	ug/l	0.10	0.0030	1	7/20/2015 12:47	BW	n
Acetylene	**<0.50**	ug/l	0.50	0.015	1	7/20/2015 12:47	BW	n

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ANALYTICAL RESULTS

Workorder: 16119 ALTERMAN / C00342-2015-301

Lab ID: **161190015** Date Received: 7/16/2015 10:30 Matrix: Water

Sample ID: **MW-13A** Date Collected: 7/15/2015 14:09

Parameters	Results	Units	PQL	MDL	DF	Analyzed	By	Qualifiers
RISK - MICR								
Analysis Desc: AM20GAX			Analytical Method: AM20GAX					
Methane	**210**	ug/l	0.50	0.042	1	7/20/2015 13:04	BW	n
Ethane	**8.1**	ug/l	0.10	0.0020	1	7/20/2015 13:04	BW	n
Ethene	**2.2**	ug/l	0.10	0.0030	1	7/20/2015 13:04	BW	n
Acetylene	**<0.50**	ug/l	0.50	0.015	1	7/20/2015 13:04	BW	n

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ANALYTICAL RESULTS

Workorder: 16119 ALTERMAN / C00342-2015-301

Lab ID: **161190016** Date Received: 7/16/2015 10:30 Matrix: Water

Sample ID: **MW-5B** Date Collected: 7/15/2015 12:19

Parameters	Results	Units	PQL	MDL	DF	Analyzed	By	Qualifiers
EDonors - MICR								
Analysis Desc: AM23G		Analytical Method: AM23G						
Lactic Acid	**<0.10**	mg/l	0.10	0.0020	1	7/17/2015 21:11	KB	B
Acetic Acid	**<0.070**	mg/l	0.070	0.0020	1	7/17/2015 21:11	KB	B
Propionic Acid	**<0.050**	mg/l	0.050	0.0010	1	7/17/2015 21:11	KB	
Formic Acid	**<0.10**	mg/l	0.10	0.0020	1	7/17/2015 21:11	KB	B
Butyric Acid	**<0.050**	mg/l	0.050	0.0010	1	7/17/2015 21:11	KB	
Pyruvic Acid	**<0.15**	mg/l	0.15	0.0020	1	7/17/2015 21:11	KB	
i-Pentanoic Acid	**<0.15**	mg/l	0.15	0.0030	1	7/17/2015 21:11	KB	
Pentanoic Acid	**<0.070**	mg/l	0.070	0.0040	1	7/17/2015 21:11	KB	
i-Hexanoic Acid	**<0.20**	mg/l	0.20	0.0080	1	7/17/2015 21:11	KB	
Hexanoic Acid	**<0.50**	mg/l	0.50	0.0080	1	7/17/2015 21:11	KB	
RISK - MICR								
Analysis Desc: AM20GAX		Analytical Method: AM20GAX						
Methane	**250**	ug/l	0.50	0.042	1	7/20/2015 13:19	BW	n
Ethane	**39**	ug/l	0.10	0.0020	1	7/20/2015 13:19	BW	n
Ethene	**<0.10**	ug/l	0.10	0.0030	1	7/20/2015 13:19	BW	n
Carbon Dioxide	**110**	mg/l	5.0	0.36	1	7/25/2015 10:08	BW	n
Acetylene	**<0.50**	ug/l	0.50	0.015	1	7/20/2015 13:19	BW	n

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ANALYTICAL RESULTS

Workorder: 16119 ALTERMAN / C00342-2015-301

Lab ID: **161190017** Date Received: 7/16/2015 10:30 Matrix: Water

Sample ID: **MW-16A** Date Collected: 7/15/2015 10:22

Parameters	Results	Units	PQL	MDL	DF	Analyzed	By	Qualifiers
EDonors - MICR								
Analysis Desc: AM23G		Analytical Method: AM23G						
Lactic Acid	**<0.10**	mg/l	0.10	0.0020	1	7/17/2015 21:59	KB	B
Acetic Acid	**<0.070**	mg/l	0.070	0.0020	1	7/17/2015 21:59	KB	B
Propionic Acid	**<0.050**	mg/l	0.050	0.0010	1	7/17/2015 21:59	KB	
Formic Acid	**<0.10**	mg/l	0.10	0.0020	1	7/17/2015 21:59	KB	B
Butyric Acid	**<0.050**	mg/l	0.050	0.0010	1	7/17/2015 21:59	KB	
Pyruvic Acid	**<0.15**	mg/l	0.15	0.0020	1	7/17/2015 21:59	KB	
i-Pentanoic Acid	**<0.15**	mg/l	0.15	0.0030	1	7/17/2015 21:59	KB	
Pentanoic Acid	**<0.070**	mg/l	0.070	0.0040	1	7/17/2015 21:59	KB	
i-Hexanoic Acid	**<0.20**	mg/l	0.20	0.0080	1	7/17/2015 21:59	KB	
Hexanoic Acid	**<0.50**	mg/l	0.50	0.0080	1	7/17/2015 21:59	KB	
RISK - MICR								
Analysis Desc: AM20GAX		Analytical Method: AM20GAX						
Methane	**8.2**	ug/l	0.50	0.042	1	7/20/2015 13:34	BW	n
Ethane	**<0.10**	ug/l	0.10	0.0020	1	7/20/2015 13:34	BW	n
Ethene	**<0.10**	ug/l	0.10	0.0030	1	7/20/2015 13:34	BW	n
Carbon Dioxide	**56**	mg/l	5.0	0.36	1	7/25/2015 10:34	BW	n
Acetylene	**<0.50**	ug/l	0.50	0.015	1	7/20/2015 13:34	BW	n

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ANALYTICAL RESULTS

Workorder: 16119 ALTERMAN / C00342-2015-301

Lab ID: **161190018** Date Received: 7/16/2015 10:30 Matrix: Water

Sample ID: **MW-16B** Date Collected: 7/15/2015 08:54

Parameters	Results	Units	PQL	MDL	DF	Analyzed	By	Qualifiers
EDonors - MICR								
Analysis Desc: AM23G		Analytical Method: AM23G						
Lactic Acid	**<0.10**	mg/l	0.10	0.0020	1	7/17/2015 22:48	KB	B
Acetic Acid	**7.5**	mg/l	0.070	0.0020	1	7/17/2015 22:48	KB	B
Propionic Acid	**<0.050**	mg/l	0.050	0.0010	1	7/17/2015 22:48	KB	
Formic Acid	**<0.10**	mg/l	0.10	0.0020	1	7/17/2015 22:48	KB	B
Butyric Acid	**<0.050**	mg/l	0.050	0.0010	1	7/17/2015 22:48	KB	
Pyruvic Acid	**<0.15**	mg/l	0.15	0.0020	1	7/17/2015 22:48	KB	
i-Pentanoic Acid	**<0.15**	mg/l	0.15	0.0030	1	7/17/2015 22:48	KB	
Pentanoic Acid	**<0.070**	mg/l	0.070	0.0040	1	7/17/2015 22:48	KB	
i-Hexanoic Acid	**<0.20**	mg/l	0.20	0.0080	1	7/17/2015 22:48	KB	
Hexanoic Acid	**<0.50**	mg/l	0.50	0.0080	1	7/17/2015 22:48	KB	
RISK - MICR								
Analysis Desc: AM20GAX		Analytical Method: AM20GAX						
Methane	**<0.50**	ug/l	0.50	0.042	1	7/20/2015 13:47	BW	n
Ethane	**<0.10**	ug/l	0.10	0.0020	1	7/20/2015 13:47	BW	n
Ethene	**<0.10**	ug/l	0.10	0.0030	1	7/20/2015 13:47	BW	n
Acetylene	**<0.50**	ug/l	0.50	0.015	1	7/20/2015 13:47	BW	n

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ANALYTICAL RESULTS

Workorder: 16119 ALTERMAN / C00342-2015-301

Lab ID: **161190019** Date Received: 7/16/2015 10:30 Matrix: Water

Sample ID: **MW-16C** Date Collected: 7/15/2015 14:33

Parameters	Results	Units	PQL	MDL	DF	Analyzed	By	Qualifiers
EDonors - MICR								
Analysis Desc: AM23G		Analytical Method: AM23G						
Lactic Acid	**<0.10**	mg/l	0.10	0.0020	1	7/17/2015 23:36	KB	B
Acetic Acid	**<0.070**	mg/l	0.070	0.0020	1	7/17/2015 23:36	KB	B
Propionic Acid	**<0.050**	mg/l	0.050	0.0010	1	7/17/2015 23:36	KB	
Formic Acid	**<0.10**	mg/l	0.10	0.0020	1	7/17/2015 23:36	KB	B
Butyric Acid	**<0.050**	mg/l	0.050	0.0010	1	7/17/2015 23:36	KB	
Pyruvic Acid	**<0.15**	mg/l	0.15	0.0020	1	7/17/2015 23:36	KB	
i-Pentanoic Acid	**<0.15**	mg/l	0.15	0.0030	1	7/17/2015 23:36	KB	
Pentanoic Acid	**<0.070**	mg/l	0.070	0.0040	1	7/17/2015 23:36	KB	
i-Hexanoic Acid	**<0.20**	mg/l	0.20	0.0080	1	7/17/2015 23:36	KB	
Hexanoic Acid	**<0.50**	mg/l	0.50	0.0080	1	7/17/2015 23:36	KB	
RISK - MICR								
Analysis Desc: AM20GAX		Analytical Method: AM20GAX						
Methane	**72**	ug/l	0.50	0.042	1	7/20/2015 13:59	BW	n
Ethane	**<0.10**	ug/l	0.10	0.0020	1	7/20/2015 13:59	BW	n
Ethene	**0.26**	ug/l	0.10	0.0030	1	7/20/2015 13:59	BW	n
Acetylene	**<0.50**	ug/l	0.50	0.015	1	7/20/2015 13:59	BW	n

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ANALYTICAL RESULTS QUALIFIERS

Workorder: 16119 ALTERMAN / C00342-2015-301

DEFINITIONS/QUALIFIERS

Disclaimer : The Pennsylvania Department of Environmental Protection (PADEP) has decided to no longer recognize analyses that do not produce data for primary compliance, for NELAP accreditation. The methods affected by this decision are AM20GAx, AM21G, SW846 7199 and AM4.02. The laboratory shall continue to administer the NELAP/TNI standard requirements in the performance of these methods.

MDL	Method Detection Limit. Can be used synonymously with LOD; Limit Of Detection.
PQL	Practical Quanitation Limit. Can be used synonymously with LOQ; Limit Of Quantitation.
ND	Not detected at or above reporting limit.
DF	Dilution Factor.
S	Surrogate.
RPD	Relative Percent Difference.
% Rec	Percent Recovery.
U	Indicates the compound was analyzed for, but not detected at or above the noted concentration.
J	Estimated concentration greater than the set method detection limit (MDL) and less than the set reporting limit (PQL).
n	The laboratory does not hold NELAP/TNI accreditation for this method or analyte.
B	The analyte was detected in the associated blank.

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QUALITY CONTROL DATA

Workorder: 16119 ALTERMAN / C00342-2015-301

QC Batch: DISG/4712 Analysis Method: AM20GAX

QC Batch Method: AM20GAX

Associated Lab Samples: 161190001, 161190002, 161190003, 161190004, 161190005, 161190006, 161190007, 161190008, 161190009, 161190010, 161190011, 161190012, 161190013, 161190014, 161190015, 161190016, 161190017, 161190018, 161190019

METHOD BLANK: 36141

Parameter	Units	Blank Result	Reporting Limit	Qualifiers
RISK				
Methane	ug/l	<0.50	0.50	n
Ethane	ug/l	<0.10	0.10	n
Ethene	ug/l	<0.10	0.10	n
Acetylene	ug/l	<0.50	0.50	n

LABORATORY CONTROL SAMPLE & LCSD: 36143 36145

Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limit	RPD	Max RPD	Qualifiers
RISK										
Methane	ug/l	750	680	660	90	88	80-120	2.2	20	n
Ethane	ug/l	38	41	41	108	108	80-120	0	20	n
Ethene	ug/l	35	38	38	108	108	80-120	0	20	n
Acetylene	ug/l	33	36	36	110	109	80-120	0.91	20	n

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220 William Pitt Way
Pittsburgh, PA 15238
Phone: (412) 826-5245
Fax: (412) 826-3433

QUALITY CONTROL DATA

Workorder: 16119 ALTERMAN / C00342-2015-301

QC Batch: EDON/2583 Analysis Method: AM23G

QC Batch Method: AM23G

Associated Lab Samples: 161190012, 161190013, 161190014, 161190016, 161190017, 161190018, 161190019

METHOD BLANK: 36150

Parameter	Units	Blank Result	Reporting Limit	Qualifiers
EDonors				
Lactic Acid	mg/l	<0.10	0.10	B
Acetic Acid	mg/l	<0.070	0.070	B
Propionic Acid	mg/l	<0.050	0.050	
Formic Acid	mg/l	<0.10	0.10	B
Butyric Acid	mg/l	<0.050	0.050	
Pyruvic Acid	mg/l	<0.15	0.15	
i-Pentanoic Acid	mg/l	<0.15	0.15	
Pentanoic Acid	mg/l	<0.070	0.070	
i-Hexanoic Acid	mg/l	<0.20	0.20	
Hexanoic Acid	mg/l	<0.50	0.50	

LABORATORY CONTROL SAMPLE: 36151

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
EDonors						
Lactic Acid	mg/l	2	2.1	103	70-130	B
Acetic Acid	mg/l	2	1.9	97	70-130	B
Propionic Acid	mg/l	2	2.0	101	70-130	
Formic Acid	mg/l	2	1.8	90	70-130	B
Butyric Acid	mg/l	2	2.0	99	70-130	
Pyruvic Acid	mg/l	2	1.9	97	70-130	
i-Pentanoic Acid	mg/l	2	1.9	94	70-130	
Pentanoic Acid	mg/l	2	1.9	97	70-130	
i-Hexanoic Acid	mg/l	2	2.0	101	70-130	
Hexanoic Acid	mg/l	2	1.9	94	70-130	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 36152 36153 Original: 161130001

Parameter	Units	Original Result	Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limit	RPD	Max RPD	Qualifiers
EDonors											
Lactic Acid	mg/l	2.6	200	200	200	101	99	70-130	2	30	d,B

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QUALITY CONTROL DATA

Workorder: 16119 ALTERMAN / C00342-2015-301

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 36152 36153 Original: 161130001

Parameter	Units	Original Result	Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limit	RPD	Max RPD	Qualifiers
Acetic Acid	mg/l	31	200	230	230	99	99	70-130	0	30	d,B
Propionic Acid	mg/l	3.1	200	210	210	103	102	70-130	0.98	30	d
Formic Acid	mg/l	3.2	200	180	180	88	89	70-130	1.1	30	d,B
Butyric Acid	mg/l	2	200	200	200	99	99	70-130	0	30	d
Pyruvic Acid	mg/l	1.9	200	190	190	94	93	70-130	1.1	30	d
i-Pentanoic Acid	mg/l	0.4	200	190	190	96	96	70-130	0	30	d
Pentanoic Acid	mg/l	4.5	200	210	210	101	102	70-130	0.99	30	d
i-Hexanoic Acid	mg/l	0	200	250	250	124	124	70-130	0	30	d
Hexanoic Acid	mg/l	0	200	220	220	109	111	70-130	1.8	30	d

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QUALITY CONTROL DATA

Workorder: 16119 ALTERMAN / C00342-2015-301

QC Batch: DISG/4727 Analysis Method: AM20GAX

QC Batch Method: AM20GAX

Associated Lab Samples: 161190012, 161190016, 161190017

METHOD BLANK: 36277

Parameter	Units	Blank Result	Reporting Limit	Qualifiers
RISK				
Carbon Dioxide	mg/l	<5.0	5.0	n

LABORATORY CONTROL SAMPLE & LCSD: 36279 36281

Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limit	RPD	Max RPD	Qualifiers
RISK										
Carbon Dioxide	mg/l	120	120	130	106	108	80-120	1.9	20	n

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QUALITY CONTROL DATA QUALIFIERS

Workorder: 16119 ALTERMAN / C00342-2015-301

QUALITY CONTROL PARAMETER QUALIFIERS

B	The analyte was detected in the associated blank.
d	The analyte concentration was determined from a dilution.
n	The laboratory does not hold NELAP/TNI accreditation for this method or analyte.

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Workorder: 16119 ALTERMAN / C00342-2015-301

Lab ID	Sample ID	Prep Method	Prep Batch	Analysis Method	Analysis Batch
161190001	MW-5C			AM20GAX	DISG/4712
161190002	MW-8A			AM20GAX	DISG/4712
161190003	MW-13C			AM20GAX	DISG/4712
161190004	MW-10A			AM20GAX	DISG/4712
161190005	MW-13B			AM20GAX	DISG/4712
161190006	MW-17A			AM20GAX	DISG/4712
161190007	MW-8B			AM20GAX	DISG/4712
161190008	MW-9A			AM20GAX	DISG/4712
161190009	MW-19C			AM20GAX	DISG/4712
161190010	MW-19B			AM20GAX	DISG/4712
161190011	MW-19D			AM20GAX	DISG/4712
161190012	MW-15A			AM20GAX	DISG/4712
161190013	MW-15B			AM20GAX	DISG/4712
161190014	MW-15C			AM20GAX	DISG/4712
161190015	MW-13A			AM20GAX	DISG/4712
161190016	MW-5B			AM20GAX	DISG/4712
161190017	MW-16A			AM20GAX	DISG/4712
161190018	MW-16B			AM20GAX	DISG/4712
161190019	MW-16C			AM20GAX	DISG/4712
161190012	MW-15A			AM23G	EDON/2583
161190013	MW-15B			AM23G	EDON/2583
161190014	MW-15C			AM23G	EDON/2583
161190016	MW-5B			AM23G	EDON/2583
161190017	MW-16A			AM23G	EDON/2583
161190018	MW-16B			AM23G	EDON/2583
161190019	MW-16C			AM23G	EDON/2583
161190012	MW-15A			AM20GAX	DISG/4727
161190016	MW-5B			AM20GAX	DISG/4727
161190017	MW-16A			AM20GAX	DISG/4727

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CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

16118 9 LY 7.16.15

Page: 1 of 2

004747

Section A Required Client Information:

Company:	E+S Support LLC
Address:	4694 Cemetery Rd. PMB104 Hilliard, OH 43026-1124
Email To:	Michelle.Staycook@ehs-support.com
Phone:	(912) 867 1494 Fax: (877) 293-6642
Requested Due Date/TAT:	

Section B Required Project Information:

Report To:	Michelle Staycook
Copy To:	
Purchase Order No.:	
Project Name:	Alternan
Project Number:	C00342-2015-301

Section C Invoice Information:

Attention:	Michelle Staycook
Company Name:	E+S Support LLC
Address:	
Pace Quote Reference:	
Pace Project Manager:	
Pace Profile #:	

REGULATORY AGENCY

☐ NPDES ☐ GROUND WATER ☐ DRINKING WATER
☐ UST ☐ RCRA ☐ OTHER _____

Site Location STATE: GA

Section D Required Client Information

SAMPLE ID
(A-Z, 0-9 / ,-)
Sample IDs MUST BE UNIQUE

Matrix Codes (MATRIX / CODE): Drinking Water DW; Water WT; Waste Water WW; Product P; Soil/Solid SL; Oil OL; Wipe WP; Air AR; Tissue TS; Other OT

ITEM #	SAMPLE ID	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED COMPOSITE START DATE	COMPOSITE START TIME	COMPOSITE END/GRAB DATE	COMPOSITE END/GRAB TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives: Unpreserved	H_2SO_4	HNO_3	HCl	TSP	BAK	Zinc Acetate & NaOH	Other	Requested Analysis Filtered (Y/N) Y/N	Analysis Test: 8260 C-CS	AM20 GAX	Residual Chlorine (Y/N)	Pace Project No./ Lab I.D.
1	MW-5C	WT	G			7/14/15	0916		3								6		3			
2	MW-8A	WT	G			7/14/15	0916		3								6		3			
3	MW-15C	WT	G			7/14/15	1032		3								6		3			
4	MW-10A	WT	G			7/14/15	1034		3								6		3			
5	MW-13B	WT	G			7/14/15	1125		3								6		3			
6	MW-17A	WT	G			7/14/15	1144		3								6		3			
7	MW-8B	WT	G			7/14/15	1253		3								6		3			
8	MW-9A	WT	G			7/14/15	1321		3								6		3			
9	MW-19C	WT	G			7/14/15	1422		3								6		3			
10	MW-19B	WT	G			7/14/15	1515		3								6		3			
11	MW-19D	WT	G			7/14/15	1609		3								6		3			
12	DUP-1	WT	G			7/14/15	0000		3								6		3			

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS: Temp in °C	Received on Ice (Y/N)	Custody Sealed Cooler (Y/N)	Samples Intact (Y/N)
Preservation: Other = Trisodium Phosphate	Chris Bagley / Antea Group	7/15/15	1630	PACE	7.16.15	1030	4	Y	N	Y

ORIGINAL

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: Chris Bagley

SIGNATURE of SAMPLER: [signature]

DATE Signed (MM/DD/YY): 07/15/15

*Important Note: By signing this form you are accepting Pace's NET 30 day payment terms and agreeing to late charges of 1.5% per month for any invoices not paid within 30 days.

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16119

CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

004749

Section A Required Client Information:	Section B Required Project Information:	Section C Invoice Information:
Company: EHS Support LLC	Report To: Michelle Staygosh	Attention: Michelle Staygosh
Address: 4694 Cemetary Rd. PMB 104 Hilliard, OH 43026-1124	Copy To:	Company Name: EHS Support LLC
Email To: michelle.staygosh@ehs-support.com	Purchase Order No.:	Address:
Phone: (412) 807-1494 Fax: (877) 293-6647	Project Name: Alternman	Pace Quote Reference:
Requested Due Date/TAT:	Project Number: C00342-2015-301	Pace Project Manager:
		Pace Profile #:

REGULATORY AGENCY

☐ NPDES ☐ GROUND WATER ☐ DRINKING WATER
☐ UST ☐ RCRA ☐ OTHER

Site Location STATE: GA

Section D Required Client Information

Matrix Codes — MATRIX / CODE: Drinking Water DW; Water WT; Waste Water WW; Product P; Soil/Solid SL; Oil OL; Wipe WP; Air AR; Tissue TS; Other OT

ITEM #	SAMPLE ID (A-Z, 0-9 / ,-) Sample IDs MUST BE UNIQUE	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED: COMPOSITE START DATE	COMPOSITE START TIME	COMPOSITE END/GRAB DATE	COMPOSITE END/GRAB TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives: Unpreserved	H_2SO_4	HNO_3	HCl	TSP	BAK	Zinc Acetate & NaOH	Other	Y/N	Analysis Test: AM20GAX	AM23G	AM20GAX	AM24	Residual Chlorine (Y/N)	Pace Project No./ Lab I.D.
1	MW-15A	WT	G			7/15/15	1213		16				9		4		3		3	2	2	9		
2	MW-15B	WT	G			7/15/15	1039		5						2		3		3	2				
3	MW-15C	WT	G			7/15/15	0854		5						2		3		3	2				
4	MW-13A	WT	G			7/15/15	1409		5								5		3					
5	MW-5B	WT	G			7/15/15	1219		16				9		4		3		3	2	2	9		
6	MW-16A	WT	G			7/15/15	1022		16				9		4		3		3	2	2	9		
7	MW-16B	WT	G			7/15/15	0854		5						2		3		3	2				
8	MW-16C	WT	G			7/15/15	1435		5						2		3		3	2				
9																								
10																								
11																								
12																								

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS: Temp in °C	Received on Ice (Y/N)	Custody Sealed Cooler (Y/N)	Samples Intact (Y/N)
Preservative: Other = Trisodium phosphate	Chris Bagley / Anita Brown	7/15/15	1630	[signature] PACE	7.16.15	1030	4	Y	N	Y

ORIGINAL

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: Chris Bagley

SIGNATURE of SAMPLER: [signature] DATE Signed (MM/DD/YY): 07/15/15

*Important Note: By signing this form you are accepting Pace's NET 30 day payment terms and agreeing to late charges of 1.5% per month for any invoices not paid within 30 days.

NON-CONFORMANCE FORM

PAES Work Order #: 16119

Date: 7.16.15 Time of Receipt: 1030 Receiver: LY

Client: EHS OH

REASON FOR NON-CONFORMANCE:

BAK vials for PG for samples MW-5B and MW-16A were with incorrect clear septa

ACTION TAKEN:

Client name: _____ Date: _____ Time: _____

OK to proceed

Customer Service Initials: RW Date: 7-16-15

Cooler Receipt Form

Client Name: EHS Support Project: Alterman Lab Work Order: 16119

A. Shipping/Container Information (circle appropriate response)

Courier: (FedEx) UPS USPS Client Other:_____ Air bill Present: (Yes) No

Tracking Number: 8045 9350 9960

Custody Seal on Cooler/Box Present: Yes (No) Seals Intact: Yes No

Cooler/Box Packing Material: (Bubble Wrap) Absorbent Foam Other:_____

Type of Ice: (Wet) Blue None Ice Intact: (Yes) Melted

Cooler Temperature: 4°C Radiation Screened: Yes (No) Chain of Custody Present: (Yes) No

Comments:_____

B. Laboratory Assignment/Log-in (check appropriate response)

	YES	NO	N/A	Comment Reference non-Conformance
Chain of Custody properly filled out	✓			
Chain of Custody relinquished	✓			
Sampler Name & Signature on COC	✓			
Containers intact	✓			
Were samples in separate bags	✓			
Sample container labels match COC Sample name/date and time collected	✓			
Sufficient volume provided	✓			
PAES containers used	✓			
Are containers properly preserved for the requested testing? (as labeled)	✓			
If an unknown preservation state, were containers checked? Exception: VOA's coliform			✓	If yes, see pH form.
Was volume for dissolved testing field filtered, as noted on the COC? Was volume received in a preserved container?			✓	

Comments:_____

Cooler contents examined/received by: LY Date: 7.16.15

Project Manager Review: RW Date: 7-16-15

Pace Analytical Energy Services, LLC
220 William Pitt Way
Pittsburgh, PA 15238
Phone: (412) 826-5245
Fax: (412) 826-3433

July 28, 2015

Michelle Stayrook
EHS Support
4694 Cemetery Rd
PMB 104
Hilliard, OH 43026

RE: **ALTERMAN / C00342-2015-301**
Pace Workorder: *16144*

Dear Michelle Stayrook:

Enclosed are the analytical results for sample(s) received by the laboratory on Friday, July 17, 2015. Results reported herein conform to the most current NELAC standards, where applicable, unless otherwise narrated in the body of the report.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Ruth Welsh 7/28/15

Ruth Welsh 07/28/2015

Customer Service Representative

Enclosures

As a valued client we would appreciate your comments on our service.
Please email info@microseeps.com.

Total Number of Pages 13

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LABORATORY ACCREDITATIONS & CERTIFICATIONS

Accreditor:	Pennsylvania Department of Environmental Protection, Bureau of Laboratories
Accreditation ID:	02-00538
Scope:	NELAP Non-Potable Water and Solid & Hazardous Waste
Accreditor:	South Carolina Department of Health and Environmental Control, Office of Environmental Laboratory Certification
Accreditation ID:	89009003
Scope:	Clean Water Act (CWA); Resource Conservation and Recovery Act (RCRA)
Accreditor:	NELAP: New Jersey, Department of Environmental Protection
Accreditation ID:	PA026
Scope:	Non-Potable Water; Solid and Chemical Materials
Accreditor:	NELAP: New York, Department of Health Wadsworth Center
Accreditation ID:	11815
Scope:	Non-Potable Water; Solid and Hazardous Waste
Accreditor:	State of Connecticut, Department of Public Health, Division of Environmental Health
Accreditation ID:	PH-0263
Scope:	Clean Water Act (CWA) Resource Conservation and Recovery Act (RCRA)
Accreditor:	NELAP: Texas, Commission on Environmental Quality
Accreditation ID:	T104704453-09-TX
Scope:	Non-Potable Water
Accreditor:	State of New Hampshire
Accreditation ID:	299409
Scope:	Non-potable water
Accreditor:	State of Georgia
Accreditation ID:	Chapter 391-3-26
Scope:	As per the Georgia EPD Rules and Regulations for Commercial Laboratories, PAES is accredited by the Pennsylvania Department of Environmental Protection Bureau of Laboratories under the National Environmental Laboratory Approval Program (NELAC).

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SAMPLE SUMMARY

Workorder: 16144 ALTERMAN / C00342-2015-301

Lab ID	Sample ID	Matrix	Date Collected	Date Received
161440001	MW-11A	Water	7/16/2015 09:36	7/17/2015 12:00

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PROJECT SUMMARY

Workorder: 16144 ALTERMAN / C00342-2015-301

Batch Comments

Batch: EDON/2587 - Low Level Volatile Fatty Acids

The method blank contain a concentration above the MDL, but below the PQL. Analyte Acetic and Formic acid. Results for this analyte in associated samples may be bias high.

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ANALYTICAL RESULTS

Workorder: 16144 ALTERMAN / C00342-2015-301

Lab ID: **161440001** Date Received: 7/17/2015 12:00 Matrix: Water

Sample ID: **MW-11A** Date Collected: 7/16/2015 09:36

Parameters	Results	Units	PQL	MDL	DF	Analyzed	By	Qualifiers
EDonors - MICR								
Analysis Desc: AM23G		Analytical Method: AM23G						
Lactic Acid	**<0.10**	mg/l	0.10	0.0020	1	7/22/2015 16:13	KB	
Acetic Acid	**0.080**	mg/l	0.070	0.0020	1	7/22/2015 16:13	KB	B
Propionic Acid	**<0.050**	mg/l	0.050	0.0010	1	7/22/2015 16:13	KB	
Formic Acid	**0.13**	mg/l	0.10	0.0020	1	7/22/2015 16:13	KB	B
Butyric Acid	**<0.050**	mg/l	0.050	0.0010	1	7/22/2015 16:13	KB	
Pyruvic Acid	**<0.15**	mg/l	0.15	0.0020	1	7/22/2015 16:13	KB	
i-Pentanoic Acid	**<0.15**	mg/l	0.15	0.0030	1	7/22/2015 16:13	KB	
Pentanoic Acid	**<0.070**	mg/l	0.070	0.0040	1	7/22/2015 16:13	KB	
i-Hexanoic Acid	**<0.20**	mg/l	0.20	0.0080	1	7/22/2015 16:13	KB	
Hexanoic Acid	**<0.50**	mg/l	0.50	0.0080	1	7/22/2015 16:13	KB	
RISK - MICR								
Analysis Desc: AM20GAX		Analytical Method: AM20GAX						
Methane	**0.61**	ug/l	0.50	0.042	1	7/24/2015 17:57	SL	n
Ethane	**<0.10**	ug/l	0.10	0.0020	1	7/24/2015 17:57	SL	n
Ethene	**<0.10**	ug/l	0.10	0.0030	1	7/24/2015 17:57	SL	n
Carbon Dioxide	**210**	mg/l	5.0	0.36	1	7/24/2015 17:57	SL	n
Acetylene	**<0.50**	ug/l	0.50	0.015	1	7/24/2015 17:57	SL	n

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ANALYTICAL RESULTS QUALIFIERS

Workorder: 16144 ALTERMAN / C00342-2015-301

DEFINITIONS/QUALIFIERS

Disclaimer :	The Pennsylvania Department of Environmental Protection (PADEP) has decided to no longer recognize analyses that do not produce data for primary compliance, for NELAP accreditation. The methods affected by this decision are AM20GAx, AM21G, SW846 7199 and AM4.02. The laboratory shall continue to administer the NELAP/TNI standard requirements in the performance of these methods.
MDL	Method Detection Limit. Can be used synonymously with LOD; Limit Of Detection.
PQL	Practical Quanitation Limit. Can be used synonymously with LOQ; Limit Of Quantitation.
ND	Not detected at or above reporting limit.
DF	Dilution Factor.
S	Surrogate.
RPD	Relative Percent Difference.
% Rec	Percent Recovery.
U	Indicates the compound was analyzed for, but not detected at or above the noted concentration.
J	Estimated concentration greater than the set method detection limit (MDL) and less than the set reporting limit (PQL).
n	The laboratory does not hold NELAP/TNI accreditation for this method or analyte.
B	The analyte was detected in the associated blank.

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Pittsburgh, PA 15238
Phone: (412) 826-5245
Fax: (412) 826-3433

QUALITY CONTROL DATA

Workorder: 16144 ALTERMAN / C00342-2015-301

QC Batch: EDON/2587 Analysis Method: AM23G

QC Batch Method: AM23G

Associated Lab Samples: 161440001

METHOD BLANK: 36203

Parameter	Units	Blank Result	Reporting Limit	Qualifiers
EDonors				
Lactic Acid	mg/l	<0.10	0.10	
Acetic Acid	mg/l	<0.070	0.070	B
Propionic Acid	mg/l	<0.050	0.050	
Formic Acid	mg/l	<0.10	0.10	B
Butyric Acid	mg/l	<0.050	0.050	
Pyruvic Acid	mg/l	<0.15	0.15	
i-Pentanoic Acid	mg/l	<0.15	0.15	
Pentanoic Acid	mg/l	<0.070	0.070	
i-Hexanoic Acid	mg/l	<0.20	0.20	
Hexanoic Acid	mg/l	<0.50	0.50	

LABORATORY CONTROL SAMPLE: 36204

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
EDonors						
Lactic Acid	mg/l	2	2.0	100	70-130	
Acetic Acid	mg/l	2	1.9	96	70-130	B
Propionic Acid	mg/l	2	2.0	99	70-130	
Formic Acid	mg/l	2	1.8	91	70-130	B
Butyric Acid	mg/l	2	2.0	98	70-130	
Pyruvic Acid	mg/l	2	1.9	95	70-130	
i-Pentanoic Acid	mg/l	2	1.8	92	70-130	
Pentanoic Acid	mg/l	2	1.9	94	70-130	
i-Hexanoic Acid	mg/l	2	1.8	92	70-130	
Hexanoic Acid	mg/l	2	1.8	90	70-130	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 36205 36206 Original: 161370001

Parameter	Units	Original Result	Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limit	RPD	Max RPD	Qualifiers
EDonors											
Lactic Acid	mg/l	0	2	2.1	2.0	105	98	70-130	6.9	30	

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QUALITY CONTROL DATA

Workorder: 16144 ALTERMAN / C00342-2015-301

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 36205 36206 Original: 161370001

Parameter	Units	Original Result	Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limit	RPD	Max RPD	Qualifiers
Acetic Acid	mg/l	0.071	2	2.1	2.0	102	99	70-130	3	30	B
Propionic Acid	mg/l	0	2	2.1	2.0	104	102	70-130	1.9	30	
Formic Acid	mg/l	0.035	2	1.9	1.8	93	87	70-130	6.7	30	B
Butyric Acid	mg/l	0	2	2.1	2.1	106	103	70-130	2.9	30	
Pyruvic Acid	mg/l	0	2	2.0	1.8	101	88	70-130	14	30	
i-Pentanoic Acid	mg/l	0	2	2.0	2.0	98	98	70-130	0	30	
Pentanoic Acid	mg/l	0	2	2.0	2.1	102	105	70-130	2.9	30	
i-Hexanoic Acid	mg/l	0	2	2.4	2.5	119	125	70-130	4.9	30	
Hexanoic Acid	mg/l	0	2	2.2	2.2	109	113	70-130	3.6	30	

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QUALITY CONTROL DATA

Workorder: 16144 ALTERMAN / C00342-2015-301

QC Batch: DISG/4726 Analysis Method: AM20GAX

QC Batch Method: AM20GAX

Associated Lab Samples: 161440001

METHOD BLANK: 36270

Parameter	Units	Blank Result	Reporting Limit	Qualifiers
RISK				
Methane	ug/l	<0.50	0.50	n
Ethane	ug/l	<0.10	0.10	n
Ethene	ug/l	<0.10	0.10	n
Acetylene	ug/l	<0.50	0.50	n

METHOD BLANK: 36271

Parameter	Units	Blank Result	Reporting Limit	Qualifiers
RISK				
Carbon Dioxide	mg/l	<5.0	5.0	n

LABORATORY CONTROL SAMPLE & LCSD: 36272 36274

Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limit	RPD	Max RPD	Qualifiers
RISK										
Methane	ug/l	750	830	830	111	111	80-120	0	20	n
Ethane	ug/l	38	40	41	106	108	80-120	1.9	20	n
Ethene	ug/l	35	38	38	107	108	80-120	0.93	20	n
Acetylene	ug/l	33	34	34	105	104	80-120	0.96	20	n

LABORATORY CONTROL SAMPLE & LCSD: 36273 36275

Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limit	RPD	Max RPD	Qualifiers
RISK										
Carbon Dioxide	mg/l	120	140	140	119	116	80-120	2.6	20	n

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Fax: (412) 826-3433

QUALITY CONTROL DATA QUALIFIERS

Workorder: 16144 ALTERMAN / C00342-2015-301

QUALITY CONTROL PARAMETER QUALIFIERS

B	The analyte was detected in the associated blank.
n	The laboratory does not hold NELAP/TNI accreditation for this method or analyte.

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Workorder: 16144 ALTERMAN / C00342-2015-301

Lab ID	Sample ID	Prep Method	Prep Batch	Analysis Method	Analysis Batch
161440001	MW-11A			AM23G	EDON/2587
161440001	MW-11A			AM20GAX	DISG/4726

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412-826-5245

16114

CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

Page: of

004748

Section A Required Client Information:	Section B Required Project Information:	Section C Invoice Information:
Company: EHS Support LLC	Report To: Michelle Staygook	Attention: Michelle Staygook
Address: 4694 Cemetery Road PMB104 Hilliard, OH 43026-1124	Copy To:	Company Name: EHS Support LLC
Email To: Michelle.staygook@ehssupport	Purchase Order No.:	Address:
Phone: 4129071494 Fax: 8777536642	Project Name: Alterman	Pace Quote Reference:
Requested Due Date/TAT:	Project Number: C00342-2015-301	Pace Project Manager:
		Pace Profile #:

REGULATORY AGENCY

☐ NPDES ☐ GROUND WATER ☐ DRINKING WATER
☐ UST ☐ RCRA ☐ OTHER _____

Site Location STATE: CA

Section D Required Client Information

Matrix Codes — MATRIX / CODE

Drinking Water	DW
Water	WT
Waste Water	WW
Product	P
Soil/Solid	SL
Oil	OL
Wipe	WP
Air	AR
Tissue	TS
Other	OT

SAMPLE ID
(A-Z, 0-9 / ,-)
Sample IDs MUST BE UNIQUE

Requested Analysis Filtered (Y/N)

ITEM #	SAMPLE ID	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED COMPOSITE START DATE	COMPOSITE START TIME	COMPOSITE END/GRAB DATE	COMPOSITE END/GRAB TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives: Unpreserved	H_2SO_4	HNO_3	HCl	TSP	BAK	Zinc Acetate & NaOH	Other	Y/N	Analysis Test: AM20GAX	AM23G	AM24	AM8GAX	Residual Chlorine (Y/N)	Pace Project No./ Lab I.D.
1	MW-11A	WT	G			7/16/15	0936		16				9		4		3		3	2	9	2		
2																								
3																								
4																								
5																								
6																								
7																								
8																								
9																								
10																								
11																								
12																								

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS			
Preservatives: other = Trisodium Phosphate	Chris Bagley / Antea Group	7/16/15	1606	[illegible] PACE	7.17.15	1200	4	Y	N	

ORIGINAL

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: Chris Bagley

SIGNATURE of SAMPLER: [signature]

DATE Signed (MM/DD/YY): 07/16/15

Temp in °C	Received on Ice (Y/N)	Custody Sealed Cooler (Y/N)	Samples Intact (Y/N)

*Important Note: By signing this form you are accepting Pace's NET 30 day payment terms and agreeing to late charges of 1.5% per month for any invoices not paid within 30 days.

Cooler Receipt Form

Client Name: EHS Support Project: Alterman Lab Work Order: 16114

A. Shipping/Container Information (circle appropriate response)

Courier: (FedEx) UPS USPS Client Other:_____ Air bill Present: (Yes) No

Tracking Number: 7809 9372 0591

Custody Seal on Cooler/Box Present: Yes (No) Seals Intact: Yes No

Cooler/Box Packing Material: (Bubble Wrap) Absorbent Foam Other:_____

Type of Ice: (Wet) Blue None Ice Intact: (Yes) Melted

Cooler Temperature: 4°C Radiation Screened: Yes (No) Chain of Custody Present: (Yes) No

Comments:_____

B. Laboratory Assignment/Log-in (check appropriate response)

	YES	NO	N/A	Comment Reference non-Conformanc
Chain of Custody properly filled out	✓			
Chain of Custody relinquished	✓			
Sampler Name & Signature on COC	✓			
Containers intact	✓			
Were samples in separate bags	✓			
Sample container labels match COC Sample name/date and time collected	✓			
Sufficient volume provided	✓			
PAES containers used	✓			
Are containers properly preserved for the requested testing? (as labeled)	✓			
If an unknown preservation state, were containers checked? Exception: VOA's coliform			✓	If yes, see pH form.
Was volume for dissolved testing field filtered, as noted on the COC? Was volume received in a preserved container?			✓	

Comments:_____

Cooler contents examined/received by: CG Date: 7.17.15

Project Manager Review: RW Date: 7-20-15

Pace Analytical Energy Services, LLC
220 William Pitt Way
Pittsburgh, PA 15238
Phone: (412) 826-5245
Fax: (412) 826-3433

August 7, 2015

Michelle Stayrook
EHS Support
4694 Cemetery Rd
PMB 104
Hilliard, OH 43026

RE: **ALTERMAN / CO0342-2015-301**
Pace Workorder: *16145*

Dear Michelle Stayrook:

Enclosed are the analytical results for sample(s) received by the laboratory on Saturday, July 18, 2015.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Ruth Welsh

Ruth Welsh 08/07/2015
RW

Customer Service Representative

Enclosures

As a valued client we would appreciate your comments on our service.
Please email info@microseeps.com.

Total Number of Pages 24

CERTIFICATE OF ANALYSIS

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Client:	EHS Support LLC		PACE Analytical CSIA Center
	4694 Cemetery Rd, PMD 104		220 William Pitt Way
	Hilliard, OH 43026-1124		Pittsburgh, PA 15238
Tel:	412.807.1494		Tel: 412.826.5245
Report to	Michelle Stayrook		Report by: Dr. Yi Wang
Project:	Alterman		Director, CSIA Center of Excellence
Project #	C00342-2015.301		Cell: 609.721.2843
Email:	michelle.stayrook @ ehs-support.com		Email: yi.wang @ zymaxusa.com

REPORT OF FORENSICS ISOTOPIC ANALYTICAL RESULTS

Date Received: 7/17/2015
Date Reported: 8/6/2015

Samples from Hargis for $\delta^{13}C$ (‰ PDB), stable carbon isotope ratios of dissolved chlorinated solvents

Pace CSIA Lab ID	Client's Sample ID Description	$\delta^{13}C$ VC	$\delta^{13}C$ cDCE	$\delta^{13}C$ TCE	$\delta^{13}C$ PCE
16145-1	MW-11A	U -	U -	U -	J -19.94

J-Target analyte produced a low peak signal and the result is considered usable, but not the standard ± 0.5‰
U-Either not run or there was no peak corresponding to the target analyte & such a peak did not produce a reliable CSIA result

VC: vinyl chloride
cDCE: cis-1,2-dichloroethene
TCE: trichloroethene
PCE: tetrachloroethene

Method: Compound Specific Isotope Analysis for ^{13}C and ^{2}H by GC-IRMS, for ^{37}Cl by GC-qMS

Quality Control STDs	$\delta^{13}C$ VC	$\delta^{13}C$ cDCE	$\delta^{13}C$ TCE	$\delta^{13}C$ PCE
QC-1	-28.55	-11.24	-25.55	-27.99
QC-2	-28.50	-11.23	-25.95	-27.20
Mean	-28.53	-11.24	-25.75	-27.60
Analytical Precision (1σ)	0.04	0.01	0.28	0.56

Pace CSIA Forensic Isotope Services

Product or Dissolved Organics: Chlorinated Solvents, Oil, Extract, Fraction and Kerogen
3D-CSIA of ^{13}C, ^{37}Cl, and ^{2}H for PCE, TCE, DCE, MTBE, BTEX, 1,4-Dioxane, Alkanes, Gasoline and Oil; Bulk ^{13}C, ^{2}H, ^{18}O, ^{34}S, and ^{15}N
Gas Sample
Gas Composition and 2D-CSIA of ^{13}C and ^{2}H of C1 to C5; ^{13}C of CO_2; ^{14}C of C1 and CO_2; ^{34}S of H_2S; ^{15}N and ^{18}O of N_2O gas
Water and Dissolved Inorganics
^{2}H, ^{3}H and ^{18}O; ^{34}S and ^{18}O of dissolved sulfate; ^{34}S of dissolved H_2S
^{15}N and ^{18}O of dissolved Nitrate; ^{15}N of Ammonia; ^{13}C of dissolved CO_2 and Carbonate/Bicarbonate
Soil and Minerals
^{13}C, ^{18}O, ^{15}N, ^{34}S, D/H; ^{14}C of carbonate or organics
Post-Analysis Forensic Isotope Data Interpretation

Pace CSIA Center of Excellence
220 William Pitt Way
Pittsburgh, PA 15238
phone: 412-826-5245

CSIA Report
Carbon

16145
EHS
Client Project Name: Alterman
Client Project #: C00342-2015.301

Vinyl Chloride		Concentration (ug/l)			Area		Co-elution	CSIA (Carbon) Analysis	Date	Delta (‰)
Lab ID	Client ID	Sample	PQL	Date	Sample	PQL				
161450001	MW-11A	NA	1	7/22/15	-	1	No	3112	8/4/15	-
Duplicate	MW-11A	NA	1	7/22/15	-	1	No	3113	8/4/15	-
Blank	-	0	-	-	<1 (U)	1	No	3109	8/4/15	-
LCS_Lo	-	10	-	-	5.3	1	No	3126	8/4/15	-28.55
LCS_Hi	-	20	-	-	13	1	No	3127	8/4/15	-28.50
LCS acceptance range								-28.90	<=>	-27.90

Method	8260B	AM-24-AR_C	AM-24-DL_C
Units	ug/l	Vs	‰, VPDB
Analyst	PACE-GBG	CJS	CJS

Pace CSIA Center of Excellence
220 William Pitt Way
Pittsburgh, PA 15238
phone: 412-826-5245

CSIA Report
Carbon

16145
EHS
Client Project Name: Alterman
Client Project #: C00342-2015.301

cis-Dichloroethene		Concentration (ug/l)			CSIA (Carbon) Area		Co-elution	Analysis	Date	Delta (‰)
Lab ID	Client ID	Sample	PQL	Date	Sample	PQL				
161450001	MW-11A	NA	1	7/22/15	-	1	No	3112	8/4/15	-
Duplicate	MW-11A	NA	1	7/22/15	-	1	No	3113	8/4/15	-
Blank	-	0	-	-	<1 (U)	1	No	3109	8/4/15	-
LCS_Lo	-	10	-	-	8.0	1	No	3126	8/4/15	-11.24
LCS_Hi	-	50	-	-	42	1	No	3127	8/4/15	-11.23
LCS acceptance range								-12.22	<=>	-11.22

Method	8260B	AM-24-AR_C	AM-24-DL_C
Units	ug/l	Vs	‰, VPDB
Analyst	PACE-GBG	CJS	CJS

Pace CSIA Center of Excellence
220 William Pitt Way
Pittsburgh, PA 15238
phone: 412-826-5245

CSIA Report
Carbon

16145
EHS
Client Project Name: Alterman
Client Project #: C00342-2015.301

Trichloroethene		Concentration (ug/l)			CSIA (Carbon) Area		Co-elution	Analysis	Date	Delta (‰)
Lab ID	Client ID	Sample	PQL	Date	Sample	PQL				
161450001	MW-11A	NA	1	7/22/15	-	1	No	3112	8/4/15	-
Duplicate	MW-11A	NA	1	7/22/15	-	1	No	3113	8/4/15	-
Blank	-	0	-	-	<1 (U)	1	No	3109	8/4/15	-
LCS_Lo	-	10	-	-	5.0	1	No	3126	8/4/15	-25.55
LCS_Hi	-	50	-	-	23	1	No	3127	8/4/15	-25.95
LCS acceptance range								-26.48	<=>	-25.48

Method	8260B	AM-24-AR_C	AM-24-DL_C
Units	ug/l	Vs	‰, VPDB
Analyst	PACE-GBG	CJS	CJS

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Pittsburgh, PA 15238
phone: 412-826-5245

CSIA Report
Carbon

16145
EHS
Client Project Name: Alterman
Client Project #: C00342-2015.301

Tetrachloroethene		Concentration (ug/l)			CSIA (Carbon) Area		Co-elution	Analysis	Date	Delta (‰)
Lab ID	Client ID	Sample	PQL	Date	Sample	PQL				
161450001	MW-11A	4	1	7/22/15	2	1	No	3112	08/04/15	-19.94
Duplicate	MW-11A	4	1	7/22/15	1	1	No	3113	8/4/15	-20.37
Blank	-	0	-	-	<1 (U)	1	No	3109	8/4/15	-
LCS_Lo	-	10	-	-	3.2	1	No	3110	8/4/15	-27.99
LCS_Hi	-	50	-	-	11	1	No	3111	8/4/15	-27.20
LCS acceptance range								-28.07	<=>	-27.07

Method	8260B	AM-24-AR_C	AM-24-DL_C
Units	ug/l	Vs	‰, VPDB
Analyst	PACE-GBG	CJS	CJS

Pace CSIA Center of Excellence
220 William Pitt Way
Pittsburgh, PA 15238
phone: 412-826-5245

CSIA Report
Carbon

16145
EHS
Client Project Name: Alterman
Client Project #: C00342-2015.301

1CP (Surrogate)		Sample Collection	CSIA (Carbon)						
Lab ID	Client ID		Area	Dilution	PQL	Co-elution	Analysis	Date	Delta (‰)
161450001	MW-11A	07/16/15	10.2	1	1	No	3112	08/04/15	-35.52
Duplicate	MW-11A	07/16/15	12.5	1	1	No	3113	08/04/15	-36.37
Blank	-	-	18.9	1	1	No	3109	08/04/15	-36.14
LCS_Lo	-	-	5.0	1	1	No	3126	08/04/15	-36.27
LCS_Hi	-	-	4.9	1	1	No	3127	08/04/15	-36.68
Surrogate acceptance range							-37.49	<=>	-36.49

Method		AM-24-AR_C	AM-24-DL_C
Units		Vs	‰, VPDB
Analyst		CJS	CJS

Case Narrative: The blank, LCS's, duplicate and surrogates were all close to or within the acceptance range and the data is reported as valid and representative of the samples as received.

Pace Analytical Services, Inc.
1638 Roseytown Road - Suites 2,3,4
Greensburg, PA 15601
(724)850-5600

July 28, 2015

Jianwu Tang
Pace Analytical Energy Services
220 William Pitt Way
Pittsburgh, PA 15238

RE: Project: 16145
Pace Project No.: 30153959

Dear Jianwu Tang:
Enclosed are the analytical results for sample(s) received by the laboratory on July 21, 2015. The results relate only to the samples included in this report. Results reported herein conform to the most current TNI standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,

David A. Pichette
david.pichette@pacelabs.com
Project Manager

Enclosures

Pace Analytical®
www.pacelabs.com

Pace Analytical Services, Inc.
1638 Roseytown Road - Suites 2,3,4
Greensburg, PA 15601
(724)850-5600

CERTIFICATIONS

Project: 16145
Pace Project No.: 30153959

Pennsylvania Certification IDs
1638 Roseytown Rd Suites 2,3&4, Greensburg, PA 15601
ACLASS DOD-ELAP Accreditation #: ADE-1544
Alabama Certification #: 41590
Arizona Certification #: AZ0734
Arkansas Certification
California/TNI Certification #: 04222CA
Colorado Certification
Connecticut Certification #: PH-0694
Delaware Certification
Florida/TNI Certification #: E87683
Guam/PADEP Certification
Hawaii/PADEP Certification
Idaho Certification
Illinois/PADEP Certification
Indiana/PADEP Certification
Iowa Certification #: 391
Kansas/TNI Certification #: E-10358
Kentucky Certification #: 90133
Louisiana DHH/TNI Certification #: LA140008
Louisiana DEQ/TNI Certification #: 4086
Maine Certification #: PA00091
Maryland Certification #: 308
Massachusetts Certification #: M-PA1457
Michigan/PADEP Certification
Missouri Certification #: 235
Montana Certification #: Cert 0082
Nebraska Certification #: NE-05-29-14
Nevada Certification
New Hampshire/TNI Certification #: 2976
New Jersey/TNI Certification #: PA 051
New Mexico Certification
New York/TNI Certification #: 10888
North Carolina Certification #: 42706
North Dakota Certification #: R-190
Oregon/TNI Certification #: PA200002
Pennsylvania/TNI Certification #: 65-00282
Puerto Rico Certification #: PA01457
South Dakota Certification
Tennessee Certification #: TN2867
Texas/TNI Certification #: T104704188
Utah/TNI Certification #: PA014572014-4
Vermont Dept. of Health: ID# VT-0282
Virgin Island/PADEP Certification
Virginia/VELAP Certification #: 460198
Washington Certification #: C868
West Virginia DEP Certification #: 143
West Virginia DHHR Certification #: 9964C
Wisconsin/PADEP Certification
Wyoming Certification #: 8TMS-Q

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1638 Roseytown Road - Suites 2,3,4
Greensburg, PA 15601
(724)850-5600

SAMPLE SUMMARY

Project: 16145
Pace Project No.: 30153959

Lab ID	Sample ID	Matrix	Date Collected	Date Received
30153959001	**161450001**	Water	07/16/15 09:36	07/21/15 13:30

REPORT OF LABORATORY ANALYSIS

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1638 Roseytown Road - Suites 2,3,4
Greensburg, PA 15601
(724)850-5600

SAMPLE ANALYTE COUNT

Project: 16145
Pace Project No.: 30153959

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
30153959001	**161450001**	EPA 8260B	JAS	51	PASI-PA

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PROJECT NARRATIVE

Project: 16145
Pace Project No.: 30153959

Method: **EPA 8260B**
Description: 8260 MSV
Client: Pace Analytical Energy Services, LLC
Date: July 28, 2015

General Information:
1 sample was analyzed for EPA 8260B. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):
All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:
All criteria were within method requirements with any exceptions noted below.

Internal Standards:
All internal standards were within QC limits with any exceptions noted below.

Surrogates:
All surrogates were within QC limits with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

QC Batch: MSV/24280

L0: Analyte recovery in the laboratory control sample (LCS) was outside QC limits.

- LCS (Lab ID: 925850)
  - 1,2,4-Trichlorobenzene
  - 1,2-Dichlorobenzene
  - 1,3-Dichlorobenzene
  - Ethyl-tert-butyl ether
  - trans-1,3-Dichloropropene

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

This data package has been reviewed for quality and completeness and is approved for release.

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ANALYTICAL RESULTS

Project: 16145
Pace Project No.: 30153959

Sample: 161450001 **Lab ID: 30153959001** Collected: 07/16/15 09:36 Received: 07/21/15 13:30 Matrix: Water

Comments: • Sample Acceptance Policy Waiver on file from the client.

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV	Analytical Method: EPA 8260B								
Acetone	**13.4**	ug/L	10.0	2.3	1		07/22/15 17:33	67-64-1	
tert-Amylmethyl ether	**1.0 U**	ug/L	1.0	0.19	1		07/22/15 17:33	994-05-8	
Benzene	**1.0 U**	ug/L	1.0	0.16	1		07/22/15 17:33	71-43-2	
Bromochloromethane	**1.0 U**	ug/L	1.0	0.42	1		07/22/15 17:33	74-97-5	
Bromodichloromethane	**1.0 U**	ug/L	1.0	0.15	1		07/22/15 17:33	75-27-4	
Bromoform	**1.0**	ug/L	1.0	0.31	1		07/22/15 17:33	75-25-2	
Bromomethane	**1.0 U**	ug/L	1.0	0.58	1		07/22/15 17:33	74-83-9	
2-Butanone (MEK)	**10.0 U**	ug/L	10.0	2.4	1		07/22/15 17:33	78-93-3	
tert-Butyl Alcohol	**5.0 U**	ug/L	5.0	3.8	1		07/22/15 17:33	75-65-0	
Carbon disulfide	**1.0 U**	ug/L	1.0	0.32	1		07/22/15 17:33	75-15-0	
Carbon tetrachloride	**1.0 U**	ug/L	1.0	0.22	1		07/22/15 17:33	56-23-5	
Chlorobenzene	**1.0 U**	ug/L	1.0	0.13	1		07/22/15 17:33	108-90-7	
Chloroethane	**1.0 U**	ug/L	1.0	0.69	1		07/22/15 17:33	75-00-3	
Chloroform	**1.0 U**	ug/L	1.0	0.19	1		07/22/15 17:33	67-66-3	
Chloromethane	**1.0 U**	ug/L	1.0	0.26	1		07/22/15 17:33	74-87-3	
Dibromochloromethane	**1.0 U**	ug/L	1.0	0.17	1		07/22/15 17:33	124-48-1	
1,2-Dichlorobenzene	**1.0 U**	ug/L	1.0	0.19	1		07/22/15 17:33	95-50-1	L3
1,3-Dichlorobenzene	**1.0 U**	ug/L	1.0	0.13	1		07/22/15 17:33	541-73-1	L3
1,4-Dichlorobenzene	**1.0 U**	ug/L	1.0	0.24	1		07/22/15 17:33	106-46-7	
1,1-Dichloroethane	**1.0 U**	ug/L	1.0	0.19	1		07/22/15 17:33	75-34-3	
1,2-Dichloroethane	**1.0 U**	ug/L	1.0	0.36	1		07/22/15 17:33	107-06-2	
1,2-Dichloroethene (Total)	**2.0 U**	ug/L	2.0	0.45	1		07/22/15 17:33	540-59-0	
1,1-Dichloroethene	**1.0 U**	ug/L	1.0	0.26	1		07/22/15 17:33	75-35-4	
cis-1,2-Dichloroethene	**1.0 U**	ug/L	1.0	0.23	1		07/22/15 17:33	156-59-2	
trans-1,2-Dichloroethene	**1.0 U**	ug/L	1.0	0.22	1		07/22/15 17:33	156-60-5	
1,2-Dichloropropane	**1.0 U**	ug/L	1.0	0.23	1		07/22/15 17:33	78-87-5	
cis-1,3-Dichloropropene	**1.0 U**	ug/L	1.0	0.27	1		07/22/15 17:33	10061-01-5	
trans-1,3-Dichloropropene	**1.0 U**	ug/L	1.0	0.17	1		07/22/15 17:33	10061-02-6	L3
Diisopropyl ether	**1.0 U**	ug/L	1.0	0.17	1		07/22/15 17:33	108-20-3	
Ethylbenzene	**1.0 U**	ug/L	1.0	0.23	1		07/22/15 17:33	100-41-4	
Ethyl-tert-butyl ether	**1.0 U**	ug/L	1.0	0.14	1		07/22/15 17:33	637-92-3	L3
2-Hexanone	**10.0 U**	ug/L	10.0	0.58	1		07/22/15 17:33	591-78-6	
Methylene Chloride	**1.0 U**	ug/L	1.0	0.59	1		07/22/15 17:33	75-09-2	
4-Methyl-2-pentanone (MIBK)	**10.0 U**	ug/L	10.0	0.57	1		07/22/15 17:33	108-10-1	
Methyl-tert-butyl ether	**1.0 U**	ug/L	1.0	0.17	1		07/22/15 17:33	1634-04-4	
Naphthalene	**2.0 U**	ug/L	2.0	0.19	1		07/22/15 17:33	91-20-3	
Styrene	**1.0 U**	ug/L	1.0	0.16	1		07/22/15 17:33	100-42-5	
1,1,2,2-Tetrachloroethane	**1.0 U**	ug/L	1.0	0.23	1		07/22/15 17:33	79-34-5	
Tetrachloroethene	**3.9**	ug/L	1.0	0.29	1		07/22/15 17:33	127-18-4	
Toluene	**1.0 U**	ug/L	1.0	0.13	1		07/22/15 17:33	108-88-3	
1,2,4-Trichlorobenzene	**1.0 U**	ug/L	1.0	0.39	1		07/22/15 17:33	120-82-1	L3
1,1,1-Trichloroethane	**1.0 U**	ug/L	1.0	0.29	1		07/22/15 17:33	71-55-6	
1,1,2-Trichloroethane	**1.0 U**	ug/L	1.0	0.32	1		07/22/15 17:33	79-00-5	
Trichloroethene	**1.0 U**	ug/L	1.0	0.33	1		07/22/15 17:33	79-01-6	
Vinyl chloride	**1.0 U**	ug/L	1.0	0.20	1		07/22/15 17:33	75-01-4	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: 16145
Pace Project No.: 30153959

Sample: 161450001 **Lab ID: 30153959001** Collected: 07/16/15 09:36 Received: 07/21/15 13:30 Matrix: Water

Comments: • Sample Acceptance Policy Waiver on file from the client.

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV	Analytical Method: EPA 8260B								
Xylene (Total)	**3.0 U**	ug/L	3.0	0.55	1		07/22/15 17:33	1330-20-7	
m&p-Xylene	**2.0 U**	ug/L	2.0	0.32	1		07/22/15 17:33	179601-23-1	
o-Xylene	**1.0 U**	ug/L	1.0	0.22	1		07/22/15 17:33	95-47-6	
Surrogates									
4-Bromofluorobenzene (S)	100	%	84-113		1		07/22/15 17:33	460-00-4	
1,2-Dichloroethane-d4 (S)	88	%	84-124		1		07/22/15 17:33	17060-07-0	
Toluene-d8 (S)	109	%	79-118		1		07/22/15 17:33	2037-26-5	

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QUALITY CONTROL DATA

Project: 16145
Pace Project No.: 30153959

QC Batch: MSV/24280
QC Batch Method: EPA 8260B
Analysis Method: EPA 8260B
Analysis Description: 8260 MSV
Associated Lab Samples: 30153959001

METHOD BLANK: 925849
Matrix: Water
Associated Lab Samples: 30153959001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,1,1-Trichloroethane	ug/L	1.0 U	1.0	07/22/15 12:00	
1,1,2,2-Tetrachloroethane	ug/L	1.0 U	1.0	07/22/15 12:00	
1,1,2-Trichloroethane	ug/L	1.0 U	1.0	07/22/15 12:00	
1,1-Dichloroethane	ug/L	1.0 U	1.0	07/22/15 12:00	
1,1-Dichloroethene	ug/L	1.0 U	1.0	07/22/15 12:00	
1,2,4-Trichlorobenzene	ug/L	1.0 U	1.0	07/22/15 12:00	
1,2-Dichlorobenzene	ug/L	1.0 U	1.0	07/22/15 12:00	
1,2-Dichloroethane	ug/L	1.0 U	1.0	07/22/15 12:00	
1,2-Dichloropropane	ug/L	1.0 U	1.0	07/22/15 12:00	
1,3-Dichlorobenzene	ug/L	1.0 U	1.0	07/22/15 12:00	
1,4-Dichlorobenzene	ug/L	1.0 U	1.0	07/22/15 12:00	
2-Butanone (MEK)	ug/L	10.0 U	10.0	07/22/15 12:00	
2-Hexanone	ug/L	10.0 U	10.0	07/22/15 12:00	
4-Methyl-2-pentanone (MIBK)	ug/L	10.0 U	10.0	07/22/15 12:00	
Acetone	ug/L	10.0 U	10.0	07/22/15 12:00	
Benzene	ug/L	1.0 U	1.0	07/22/15 12:00	
Bromochloromethane	ug/L	1.0 U	1.0	07/22/15 12:00	
Bromodichloromethane	ug/L	1.0 U	1.0	07/22/15 12:00	
Bromoform	ug/L	1.0 U	1.0	07/22/15 12:00	
Bromomethane	ug/L	1.0 U	1.0	07/22/15 12:00	
Carbon disulfide	ug/L	1.0 U	1.0	07/22/15 12:00	
Carbon tetrachloride	ug/L	1.0 U	1.0	07/22/15 12:00	
Chlorobenzene	ug/L	1.0 U	1.0	07/22/15 12:00	
Chloroethane	ug/L	1.0 U	1.0	07/22/15 12:00	
Chloroform	ug/L	1.0 U	1.0	07/22/15 12:00	
Chloromethane	ug/L	1.0 U	1.0	07/22/15 12:00	
cis-1,2-Dichloroethene	ug/L	1.0 U	1.0	07/22/15 12:00	
cis-1,3-Dichloropropene	ug/L	1.0 U	1.0	07/22/15 12:00	
Dibromochloromethane	ug/L	1.0 U	1.0	07/22/15 12:00	
Diisopropyl ether	ug/L	1.0 U	1.0	07/22/15 12:00	
Ethyl-tert-butyl ether	ug/L	1.0 U	1.0	07/22/15 12:00	
Ethylbenzene	ug/L	1.0 U	1.0	07/22/15 12:00	
m&p-Xylene	ug/L	2.0 U	2.0	07/22/15 12:00	
Methyl-tert-butyl ether	ug/L	1.0 U	1.0	07/22/15 12:00	
Methylene Chloride	ug/L	1.0 U	1.0	07/22/15 12:00	
Naphthalene	ug/L	2.0 U	2.0	07/22/15 12:00	
o-Xylene	ug/L	1.0 U	1.0	07/22/15 12:00	
Styrene	ug/L	1.0 U	1.0	07/22/15 12:00	
tert-Amylmethyl ether	ug/L	1.0 U	1.0	07/22/15 12:00	
tert-Butyl Alcohol	ug/L	5.0 U	5.0	07/22/15 12:00	
Tetrachloroethene	ug/L	1.0 U	1.0	07/22/15 12:00	

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QUALITY CONTROL DATA

Project: 16145
Pace Project No.: 30153959

METHOD BLANK: 925849 Matrix: Water
Associated Lab Samples: 30153959001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Toluene	ug/L	1.0 U	1.0	07/22/15 12:00	
trans-1,2-Dichloroethene	ug/L	1.0 U	1.0	07/22/15 12:00	
trans-1,3-Dichloropropene	ug/L	1.0 U	1.0	07/22/15 12:00	
Trichloroethene	ug/L	1.0 U	1.0	07/22/15 12:00	
Vinyl chloride	ug/L	1.0 U	1.0	07/22/15 12:00	
Xylene (Total)	ug/L	3.0 U	3.0	07/22/15 12:00	
1,2-Dichloroethane-d4 (S)	%	92	84-124	07/22/15 12:00	
4-Bromofluorobenzene (S)	%	106	84-113	07/22/15 12:00	
Toluene-d8 (S)	%	113	79-118	07/22/15 12:00	

LABORATORY CONTROL SAMPLE: 925850

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,1,1-Trichloroethane	ug/L	20	20.6	103	62-130	
1,1,2,2-Tetrachloroethane	ug/L	20	20.7	103	74-115	
1,1,2-Trichloroethane	ug/L	20	22.9	115	73-121	
1,1-Dichloroethane	ug/L	20	20.6	103	64-125	
1,1-Dichloroethene	ug/L	20	20.2	101	58-126	
1,2,4-Trichlorobenzene	ug/L	20	29.4	147	72-136	L0
1,2-Dichlorobenzene	ug/L	20	24.1	120	76-117	L0
1,2-Dichloroethane	ug/L	20	19.2	96	66-124	
1,2-Dichloropropane	ug/L	20	23.1	115	66-119	
1,3-Dichlorobenzene	ug/L	20	23.9	119	73-116	L0
1,4-Dichlorobenzene	ug/L	20	21.8	109	75-119	
2-Butanone (MEK)	ug/L	20	18.9	95	69-126	
2-Hexanone	ug/L	20	22.0	110	53-118	
4-Methyl-2-pentanone (MIBK)	ug/L	20	18.7	94	68-124	
Acetone	ug/L	20	17.0	85	56-142	
Benzene	ug/L	20	22.5	113	69-123	
Bromochloromethane	ug/L	20	21.9	110	61-133	
Bromodichloromethane	ug/L	20	23.1	115	64-120	
Bromoform	ug/L	20	26.1	131	56-133	
Bromomethane	ug/L	20	17.4	87	19-151	
Carbon disulfide	ug/L	20	25.4	127	53-173	
Carbon tetrachloride	ug/L	20	22.1	111	52-133	
Chlorobenzene	ug/L	20	22.5	112	72-121	
Chloroethane	ug/L	20	17.6	88	53-143	
Chloroform	ug/L	20	20.2	101	63-123	
Chloromethane	ug/L	20	22.4	112	48-139	
cis-1,2-Dichloroethene	ug/L	20	20.7	104	63-123	
cis-1,3-Dichloropropene	ug/L	20	23.0	115	65-121	
Dibromochloromethane	ug/L	20	25.1	125	58-132	
Diisopropyl ether	ug/L	20	22.2	111	66-131	
Ethyl-tert-butyl ether	ug/L	20	24.9	125	67-124	L0

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QUALITY CONTROL DATA

Project: 16145
Pace Project No.: 30153959

LABORATORY CONTROL SAMPLE: 925850

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Ethylbenzene	ug/L	20	22.9	114	70-123	
m&p-Xylene	ug/L	40	46.4	116	71-124	
Methyl-tert-butyl ether	ug/L	20	23.3	116	69-133	
Methylene Chloride	ug/L	20	20.1	100	55-134	
Naphthalene	ug/L	20	26.4	132	65-134	
o-Xylene	ug/L	20	23.5	117	69-118	
Styrene	ug/L	20	24.5	123	66-126	
tert-Amylmethyl ether	ug/L	20	19.8	99	60-120	
tert-Butyl Alcohol	ug/L	100	107	107	40-160	
Tetrachloroethene	ug/L	20	22.7	113	62-131	
Toluene	ug/L	20	22.3	112	73-123	
trans-1,2-Dichloroethene	ug/L	20	21.5	108	61-124	
trans-1,3-Dichloropropene	ug/L	20	22.4	112	70-111	L0
Trichloroethene	ug/L	20	23.1	116	66-125	
Vinyl chloride	ug/L	20	20.6	103	58-131	
Xylene (Total)	ug/L	60	69.9	117	70-123	
1,2-Dichloroethane-d4 (S)	%			86	84-124	
4-Bromofluorobenzene (S)	%			97	84-113	
Toluene-d8 (S)	%			101	79-118	

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QUALIFIERS

Project: 16145
Pace Project No.: 30153959

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.

ND - Not Detected at or above adjusted reporting limit.

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit.

S - Surrogate

1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

LABORATORIES

PASI-PA Pace Analytical Services - Greensburg

ANALYTE QUALIFIERS

L0	Analyte recovery in the laboratory control sample (LCS) was outside QC limits.
L3	Analyte recovery in the laboratory control sample (LCS) exceeded QC limits. Analyte presence below reporting limits in associated samples. Results unaffected by high bias.

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: 16145
Pace Project No.: 30153959

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
30153959001	**161450001**	EPA 8260B	MSV/24280		

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CHAIN-OF-CUSTODY RECORD

Pace Analytical

Phone: (412) 826-5245 Pace Analytical Energy Services, LLC - 220 William Pitt Way - Pittsburgh, PA 15238 Fax: (412) 826-3433

SEND TO: Pace DUE DATE: 7/27/2015

Results to: rrobl@microseeps.com
m.mikesell@microseeps.com

Invoice to: rrobl@microseeps.com
rwelsh@microseeps.com

Lab Proj. # 16145

30153959

Company: Pace Analytical Energy Services, LLC
Co. Address: 220 William Pitt Way, Pittsburgh, PA 15238
Phone #: 412-826-5245
Fax #: 412-826-3433

State of Origin: CA

Preservatives
1 -Unpreserved 4-HCL
2- H2SO4 5-NaOH+Zn Ace.
3- HNO3

Sample ID	Sample Type: Water	Sample Type: Solid	Date	Time	# Bottles	Preservatives	Parameters Requested: 8260 + Oxygenates	Parameters Requested: 56	Remarks:
161450001	X		7/16/15	9:36	2	4	X		001

Relinquished by:	Company:	Date:	Time:	Received by:	Company:	Date:	Time:
Ellwelsh	PAES	7/21/15	1300		Pace	7-21-15	12:45
Relinquished by:	Company:	Date:	Time:	Received by:	Company:	Date:	Time:
					Pace	7-21-15	1330
Relinquished by:	Company:	Date:	Time:	Received by:	Company:	Date:	Time:

Sample Condition Upon Receipt

Pace Analytical

Client Name: MTC no Seeps

Project # 30153959

Courier: ☐ Fed Ex ☐ UPS ☐ USPS ☐ Client ☐ Commercial ☑ Pace Other _____

Tracking #: _____ MRB

Custody Seal on Cooler/Box Present: ☐ yes ☑ no Seals Intact: ☐ yes ☐ no Biological Tissue is Frozen: Yes No

Packing Material: Bubble Wrap ✓ Bubble Bags ___ None ___ Other _____

Thermometer Used 8 Type of Ice: (Wet) Blue None ☑ Samples on ice, cooling process has begun

Cooler Temp.: Observed Temp.: 0.7 °C Correction Factor: -0.4 °C Final Temp: 0.3 °C

Date and initials of person examining contents: MRB 7-21-15

Temp should be above freezing to 6°C

		Comments:
Chain of Custody Present:	☑Yes ☐No ☐N/A	1.
Chain of Custody Filled Out:	☑Yes ☐No ☐N/A	2.
Chain of Custody Relinquished:	☑Yes ☐No ☐N/A	3.
Sampler Name & Signature on COC:	☐Yes ☑No ☐N/A	4.
Samples Arrived within Hold Time:	☑Yes ☐No ☐N/A	5.
Short Hold Time Analysis (<72hr):	☐Yes ☑No ☐N/A	6.
Rush Turn Around Time Requested:	☑Yes ☐No ☐N/A	7.
Sufficient Volume:	☑Yes ☐No ☐N/A	8.
Correct Containers Used:	☑Yes ☐No ☐N/A	9.
-Pace Containers Used:	☑Yes ☐No ☐N/A	
Containers Intact:	☑Yes ☐No ☐N/A	10.
Filtered volume received for Dissolved tests	☐Yes ☐No ☑N/A	11.
Sample Labels match COC:	☑Yes ☐No ☐N/A	12.
-Includes date/time/ID/Analysis Matrix: WT		
All containers needing preservation have been checked.	☐Yes ☐No ☑N/A	13.
All containers needing preservation are found to be in compliance with EPA recommendation.	☐Yes ☐No ☑N/A	
exceptions: VOA, coliform, TOC, O&G, Phenols	☑Yes ☐No	Initial when completed MRB / Lot # of added preservative
Samples checked for dechlorination:	☐Yes ☐No ☑N/A	14.
Headspace in VOA Vials (>6mm):	☐Yes ☑No ☐N/A	15.
Trip Blank Present:	☐Yes ☐No ☑N/A	16.
Trip Blank Custody Seals Present	☐Yes ☐No ☑N/A	
Pace Trip Blank Lot # (if purchased): _____		

Client Notification/ Resolution: Field Data Required? Y / N

Person Contacted: _____ Date/Time: _____

Comments/ Resolution: _____

Project Manager Review: _____ **Date:** 7/22/15

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office (i.e out of hold, incorrect preservative, out of temp, incorrect containers)

Pace Analytical

Project Number: 30153959

Client Name: Michael

Item No.	Matrix Code	Glass Jar (120 / 250 / 500 / 1L)	Soil kit (2 SB, 1M, soil jar)	Chemistry (250 / 500 / 1L)	Organics (1L)	Nutrient (250 / 500)	Phenolics (250 ml)	TOC (40 ml / 250 ml)	TOX (250 ml)	Total Metals	Dissolved Metals preserved Y N	O & G (1L)	TPH (1L)	VOA (40 ml) 30 ml	Cyanide (250 ml)	Sulfide (500 ml)	Bacteria (120 ml)	Wipes / swipe/ smear/ filter	Radchem Nalgene (125 / 250 / 500 / 1L)	Radchem Nalgene (1/2 gal. / 1 gal.L)	Cubitainer (500 ml / 4L)	Ziploc	Other	Other
001	WA													2										

SCURF Back (C016-4 15May2012).xls

Pace Analytical
www.pacelabs.com
Microseeps

220 William Pitt Way
Pittsburgh, PA 15238
412-826-5245

16145

CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

Page: of

004748

Section A Required Client Information:	Section B Required Project Information:	Section C Invoice Information:
Company: EHS Support LLC	Report To: Michelle Staywook	Attention: Michelle Staywook
Address: 4694 Cemetery Road PMB104 Hilliard OH 43026-1124	Copy To:	Company Name: EHS Support LLC
		Address:
Email To: michelle.staywook@ehssupport.com	Purchase Order No.:	Pace Quote Reference:
Phone: 412 607 1994 Fax: 877 536 6672	Project Name: Alkerman	Pace Project Manager:
Requested Due Date/TAT:	Project Number: C00342-2015-30.1	Pace Profile #:

REGULATORY AGENCY

NPDES GROUND WATER DRINKING WATER
UST RCRA OTHER

Site Location STATE: CA

Requested Analysis Filtered (Y/N)

ITEM #	Section D Required Client Information — SAMPLE ID (A-Z, 0-9 / -) Sample IDs MUST BE UNIQUE	Matrix Codes MATRIX / CODE: Drinking Water DW, Water WT, Waste Water WW, Product P, Soil/Solid SL, Oil OL, Wipe WP, Air AR, Tissue TS, Other OT	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED: COMPOSITE START DATE	COMPOSITE START TIME	COMPOSITE END/GRAB DATE	COMPOSITE END/GRAB TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives: Unpreserved	H_2SO_4	HNO_3	HCl	TSP	BAK	Zinc Acetate & NaOH	Other	Analysis Test Y/N	AM20GAX	AM23G	AM24	AM20GAX	Residual Chlorine (Y/N)	Pace Project No./ Lab I.D.
1	MW-11A		WT	G			7/16/15	09:36		16			9		E		3		3	2	9	2		
2																								
3																								
4																								
5																								
6																								
7																								
8																								
9																								
10																								
11																								
12																								

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS
Preservatives: other = Trisodium Phosphate	Chris Bagley / Antea Group	7/16/15	1606	[illegible]	7.17.15	1200	4 Y N

2

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: Chris Bagley

SIGNATURE of SAMPLER: [signature] DATE Signed (MM/DD/YY): 07/16/15

Temp in °C	Received on Ice (Y/N)	Custody Sealed Cooler (Y/N)	Samples Intact (Y/N)

*Important Note: By signing this form you are accepting Pace's NET 30 day payment terms and agreeing to late charges of 1.5% per month for any invoices not paid within 30 days.

Cooler Receipt Form

Client Name: EHS Support Project: Altecman Lab Work Order: 16145

A. Shipping/Container Information (circle appropriate response)

Courier: (FedEx) UPS USPS Client Other:_____ Air bill Present: (Yes) No

Tracking Number: 780993720591

Custody Seal on Cooler/Box Present: Yes (No) Seals Intact: Yes No

Cooler/Box Packing Material: (Bubble Wrap) Absorbent Foam Other:_____

Type of Ice: (Wet) Blue None Ice Intact: (Yes) Melted

Cooler Temperature: 4°C Radiation Screened: Yes (No) Chain of Custody Present: (Yes) No

Comments:_____

B. Laboratory Assignment/Log-in (check appropriate response)

	YES	NO	N/A	Comment Reference non-Conformance
Chain of Custody properly filled out	✓			
Chain of Custody relinquished	✓			
Sampler Name & Signature on COC	✓			
Containers intact	✓			
Were samples in separate bags	✓			
Sample container labels match COC Sample name/date and time collected	✓			
Sufficient volume provided	✓			
PAES containers used	✓			
Are containers properly preserved for the requested testing? (as labeled)	✓			
If an unknown preservation state, were containers checked? Exception: VOA's coliform			✓	If yes, see pH form.
Was volume for dissolved testing field filtered, as noted on the COC? Was volume received in a preserved container?			✓	

Comments:_____

Cooler contents examined/received by: CG Date: 7.17.15

Project Manager Review: RW Date: 7-20-15

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SITE LOGIC Report

QuantArray® (Chlor) Study

Contact: Michelle Stayrook
Phone: (412) 807-1494
Address: EHS Support, Inc.
4694 Cemetery Road, PMB 104
Hilliard, OH 43026
Email: Michelle.Strayrook@ehs-support.com

MI Identifier: 042MG
Report Date: August 4, 2015

Project: Alterman, C00342-2015-301
Comments:

NOTICE: This report is intended only for the addressee shown above and may contain confidential or privileged information. If the recipient of this material is not the intended recipient or if you have received this in error, please notify Microbial Insights, Inc. immediately. The data and other information in this report represent only the sample(s) analyzed and are rendered upon condition that it is not to be reproduced without approval from Microbial Insights, Inc. Thank you for your cooperation.

The QuantArray® Approach

Quantification of *Dehalococcoides* spp., the only known bacterial group capable of complete reductive dechlorination of PCE and TCE to ethene, has become an indispensable component of assessment, remedy selection, and performance monitoring at sites impacted by chlorinated solvents. While undeniably a key group of halorespiring bacteria, *Dehalococcoides* spp. are not the only bacteria of interest in the subsurface because reductive dechlorination is not the only potential biodegradation pathway operative at contaminated sites, and chlorinated ethenes are not always the primary contaminants of concern. The Chlorinated QuantArray® not only includes a variety of halorespiring bacteria (*Dehalococcoides*, *Dehalobacter*, *Dehalogenimonas*, etc.) to assess the potential for reductive dechlorination of chloroethenes, chloroethanes, chlorobenzenes, chlorophenols, and chloroform, but also provides quantification of functional genes involved in aerobic (co)metabolic pathways for biodegradation of chlorinated solvents and even competing biological processes. Thus, the QuantArray® will give site managers the ability to simultaneously yet economically evaluate the potential for biodegradation of a spectrum of common chlorinated contaminants through a multitude of anaerobic and aerobic (co)metabolic pathways to give a much more clear and comprehensive view of contaminant biodegradation.

The Chlorinated QuantArray® is used to quantify specific microorganisms and functional genes to evaluate the following:

Anaerobic Reductive Dechlorination	•Quantification of important halorespiring bacteria (e.g. *Dehalococcoides*, *Dehalobacter*, *Dehalogenimonas*, *Desulfitobacterium* spp.) and key functional genes (e.g vinyl chloride reductases, TCE reductase, 1,2-DCP reductase) responsible for reductive dechlorination of a broad spectrum of chlorinated solvents.
Aerobic Cometabolism	•Several different types of bacteria including methanotrophs and some toluene/phenol utilizing bacteria can co-oxidize TCE, DCE, and vinyl chloride. The Chlorinated QuantArray® quantifies functional genes like soluble methane monooxygenase encoding enzymes capable of co-oxidation of chlorinated ethenes.
Aerobic (Co)metabolism of Vinyl chloride	•Ethene oxidizing bacteria are capable of cometabolism of vinyl chloride. In some cases, ethenotrophs can also utilize vinyl chloride as a growth supporting substrate. The QuantArray® targets key functional genes in ethene metabolism.

How do QuantArrays® work?

The QuantArray® in many respects is a hybrid technology combining the highly parallel detection of microarrays with the accurate and precise quantification provided by qPCR into a single platform. The key to highly parallel qPCR reactions is the nanoliter fluidics platform for low volume, solution phase qPCR reactions.

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How are QuantArray® results reported?

One of the primary advantages of the Chlorinated QuantArray® is the simultaneous quantification of a broad spectrum of different microorganisms and key functional genes involved in a variety of pathways for chlorinated hydrocarbon biodegradation. However, highly parallel quantification combined with the various metabolic and cometabolic capabilities of different target organisms can complicate data presentation. Therefore, in addition to Summary Tables, QuantArray® results will be presented as Microbial Population Summary and Comparison Figures to aid in data interpretation and subsequent evaluation of site management activities.

Types of Tables and Figures:

Microbial Population Summary	•Figure presenting the concentrations of QuantArray® target populations (e.g. *Dehalococcoides* spp.) and functional genes (e.g. vinyl chloride reductase) relative to typically observed values.
Summary Tables	• Tables of target population concentrations grouped by biodegradation pathway and contaminant type.
Comparison Figures	•Depending on the project, sample results can be presented to compare changes over time or examine differences in microbial populations for along a transect of the dissolved plume.

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Results

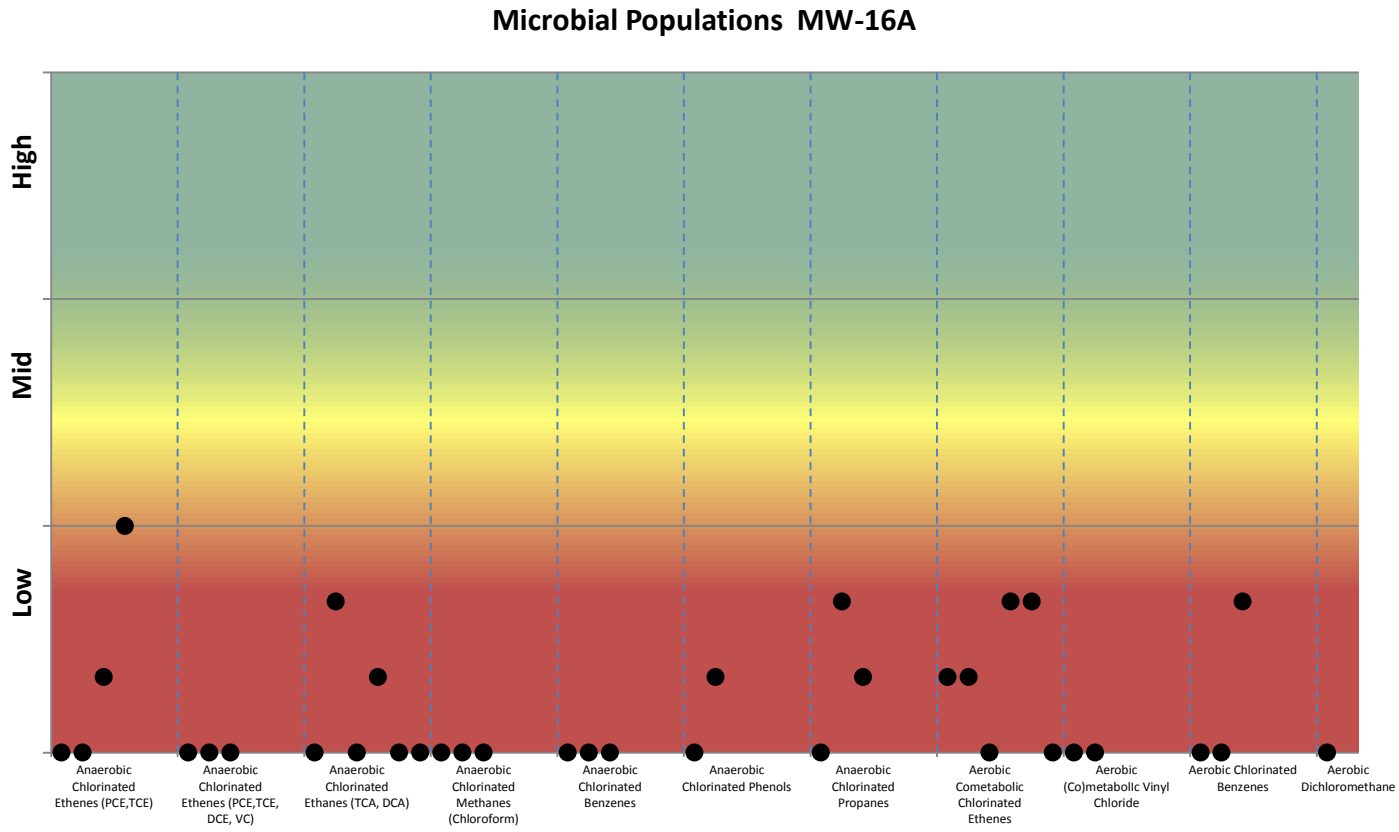
Table 1. Summary of the QuantArray® results obtained for monitoring wells.

Sample Name	MW-16A	MW-5B	MW-15A	MW-11A
Reductive Dechlorination	(cells/mL)	(cells/mL)	(cells/mL)	(cells/mL)
Dehalococcoides spp. (DHC)	**1.00E+00**	<5.00E-01	**8.00E-01**	**3.94E+01**
tceA Reductase (TCE)	<5.00E-01	<5.00E-01	<5.00E-01	**3.20E+00**
BAV1 Vinyl Chloride Reductase (BVC)	<5.00E-01	<5.00E-01	<5.00E-01	**6.00E-01**
Vinyl Chloride Reductase (VCR)	<5.00E-01	<5.00E-01	<5.00E-01	**7.00E-01**
Dehalobacter spp. (DHBt)	<4.80E+00	<4.80E+00	<4.80E+00	**2.26E+01**
Dehalobacter DCM (DCM)	<4.80E+00	<4.80E+00	<4.80E+00	**3.20E+00 (J)**
Dehalogenimonas spp. (DHG)	**3.30E+02**	**4.90E+00**	<4.80E+00	**3.42E+01**
Desulfitobacterium spp. (DSB)	**2.53E+01**	<4.80E+00	<4.80E+00	**4.40E+00 (J)**
Dehalobium chlorocoercia (DECO)	<4.80E+00	<4.80E+00	<4.80E+00	<4.70E+00
Desulfuromonas spp. (DSM)	**1.58E+02**	<4.80E+00	<4.80E+00	<4.70E+00
Chloroform reductase (CFR)	<4.80E+00	<4.80E+00	<4.80E+00	<4.70E+00
1,1 DCA Reductase (DCA)	<4.80E+00	<4.80E+00	<4.80E+00	<4.70E+00
1,2 DCA Reductase (DCAR)	<4.80E+00	<4.80E+00	<4.80E+00	<4.70E+00
Aerobic (Co)Metabolic				
Soluble Methane Monooxygenase (SMMO)	**9.31E+01**	**8.00E-01 (J)**	**5.68E+01**	**5.00E-01 (J)**
Particulate Methane Monooxygenase (PMMO)	**5.65E+01**	**1.04E+02**	**5.32E+02**	<4.70E+00
Toluene Dioxygenase (TOD)	**3.50E+00 (J)**	<4.80E+00	**2.08E+02**	<4.70E+00
Phenol Hydroxylase (PHE)	**2.12E+02**	**9.33E+01**	**5.00E-01 (J)**	**2.52E+01**
Trichlorobenzene Dioxygenase (TCBO)	<4.80E+00	<4.80E+00	<4.80E+00	<4.70E+00
Toluene Monooxygenase 2 (RDEG)	**2.02E+02**	<4.80E+00	**1.30E+02**	<4.70E+00
Toluene Monooyxgenase (RMO)	<4.80E+00	<4.80E+00	<4.80E+00	<4.70E+00
Ethene Monooxygenase (EtnC)	**5.90E+00**	<4.80E+00	<4.80E+00	<4.70E+00
Epoxyalkane transferase (EtnE)	<4.80E+00	<4.80E+00	**3.80E+00 (J)**	<4.70E+00
Dichloromethane dehalogenase (DCMA)	<4.80E+00	<4.80E+00	<4.80E+00	<4.70E+00
Other				
Total Eubacteria (EBAC)	**2.74E+05**	**1.18E+05**	**7.61E+05**	**3.36E+04**
Sulfate Reducing Bacteria (APS)	**4.60E+03**	**4.90E+00**	<4.80E+00	**1.00E+01**
Methanogens (MGN)	**1.36E+01**	**1.39E+01**	**2.05E+03**	**3.13E+01**

Legend: NA = Not Analyzed NS = Not Sampled J = Estimated gene copies below PQL but above LQL I = Inhibited
< = Result not detected

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Figure 1. Microbial population summary to aid in evaluating potential pathways and biodegradation of specific contaminants.

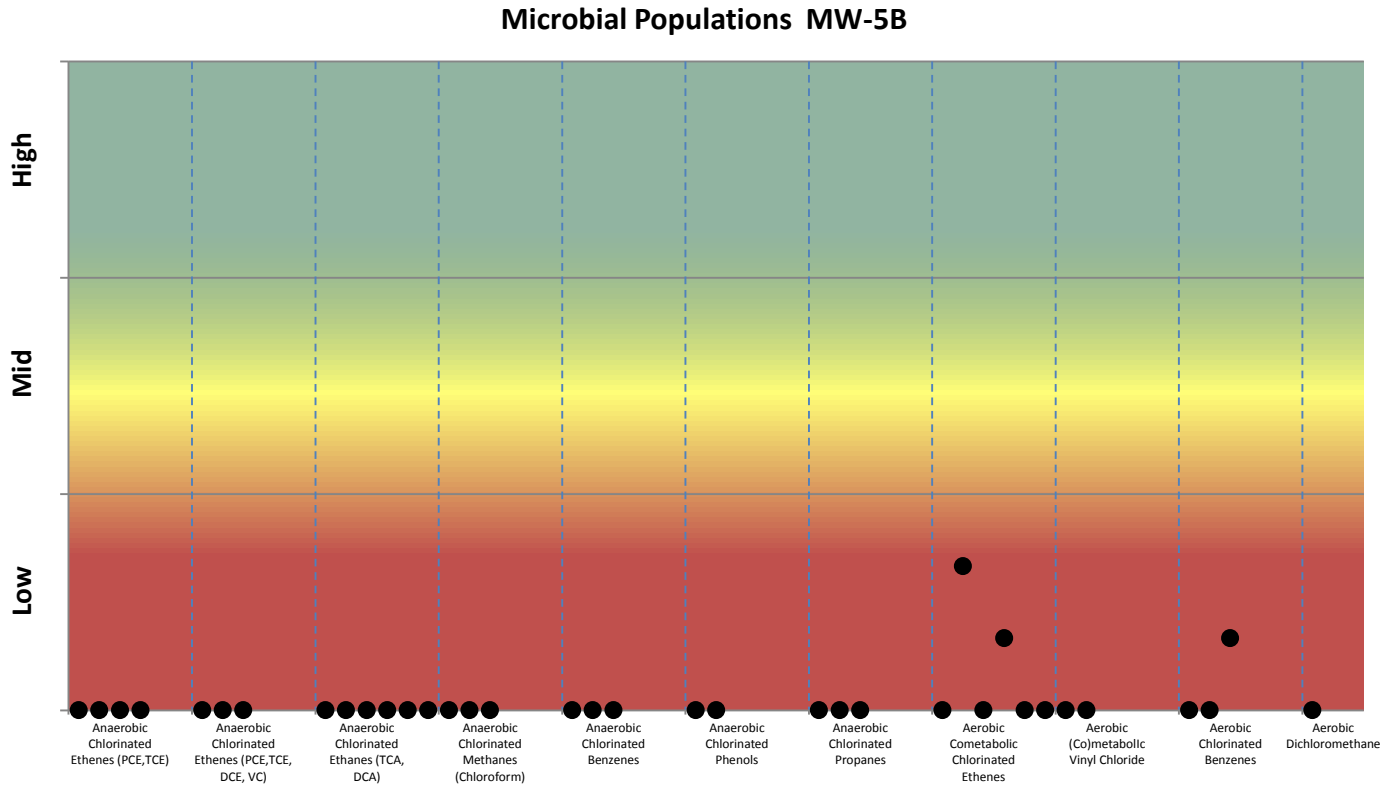


Anaerobic – Reductive Dechlorination or Dichloroelimination		Aerobic – (Co)metabolism	
Chlorinated Ethenes (PCE, TCE)	DHC, DHBt, DSB, DSM	Chlorinated ethenes (TCE, DCE, VC)	sMMO, pMMO, TOD, PHE, RDEG, RMO
Chlorinated Ethenes (PCE, TCE, DCE, VC)	DHC, BVC, VCR	(Co)metabolic vinyl chloride	etnC, etnE
Chlorinated Ethanes (TCA and 1,2-DCA)	DHBt, DHG, DHC, DSB[1], DCA, DCAR	Chlorinated Benzenes	TOD, TCBO, PHE
Chlorinated Methanes (Chloroform)	DHBt, DCM, CFR	Dichloromethane	DCMA
Chlorinated Benzenes	DHC, DHBt[2], DECO		
Chlorinated Phenols	DHC, DSB		
Chlorinated Propanes	DHC, DHG, DSB[1]		

[1] *Desulfitobacterium dichloroeliminans* DCA1. [2] Implicated in reductive dechlorination of dichlorobenzene and potentially chlorobenzene

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Figure 2. Microbial population summary to aid in evaluating potential pathways and biodegradation of specific contaminants.

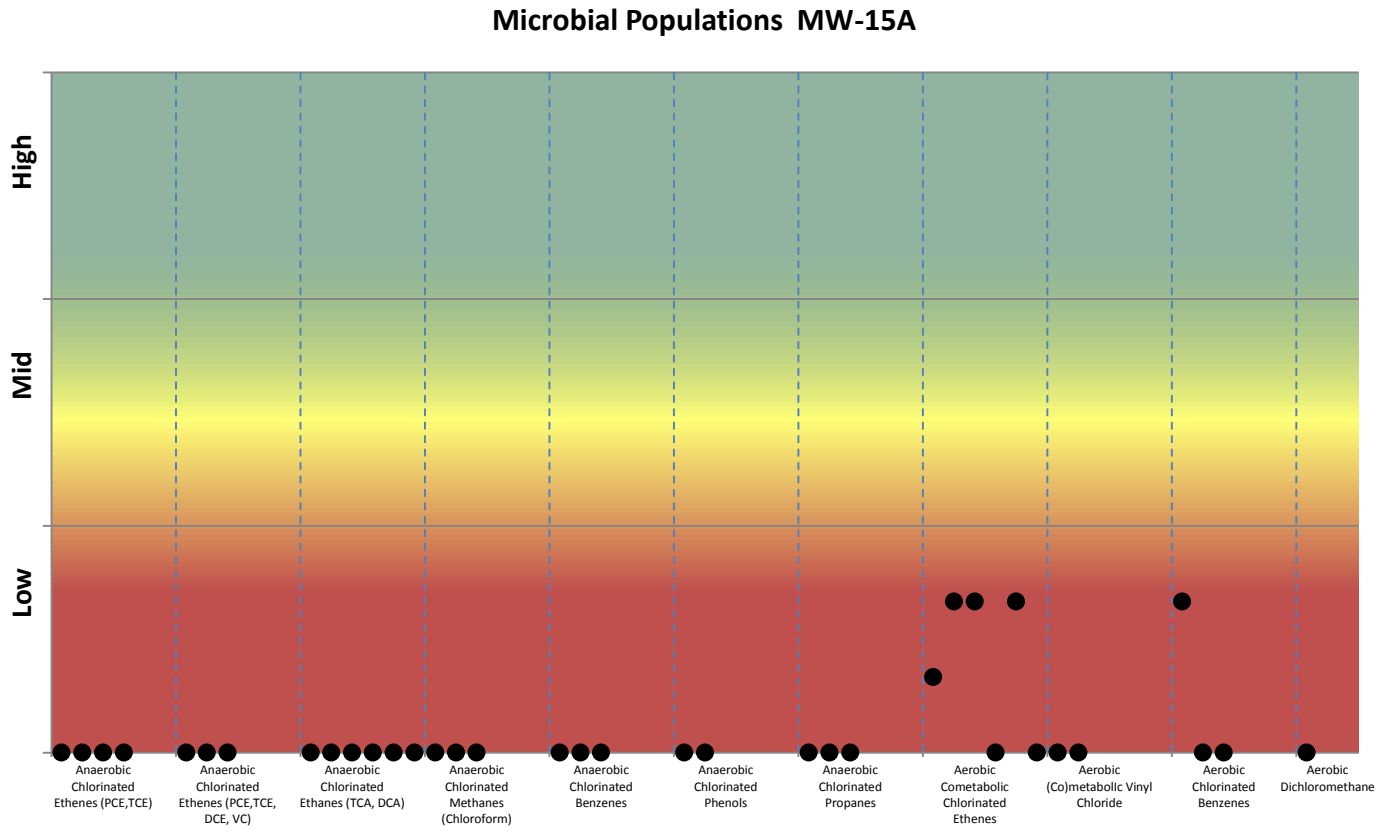


Anaerobic – Reductive Dechlorination or Dichloroelimination		Aerobic – (Co)metabolism	
Chlorinated Ethenes (PCE, TCE)	DHC, DHBt, DSB, DSM	Chlorinated ethenes (TCE, DCE, VC)	sMMO, pMMO, TOD, PHE, RDEG, RMO
Chlorinated Ethenes (PCE, TCE, DCE, VC)	DHC, BVC, VCR	(Co)metabolic vinyl chloride	etnC, etnE
Chlorinated Ethanes (TCA and 1,2-DCA)	DHBt, DHG, DHC, DSB[1], DCA, DCAR	Chlorinated Benzenes	TOD, TCBO, PHE
Chlorinated Methanes (Chloroform)	DHBt, DCM, CFR	Dichloromethane	DCMA
Chlorinated Benzenes	DHC, DHBt[2], DECO		
Chlorinated Phenols	DHC, DSB		
Chlorinated Propanes	DHC, DHG, DSB[1]		

[1] *Desulfitobacterium dichloroeliminans* DCA1. [2] Implicated in reductive dechlorination of dichlorobenzene and potentially chlorobenzene

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Figure 3. Microbial population summary to aid in evaluating potential pathways and biodegradation of specific contaminants.

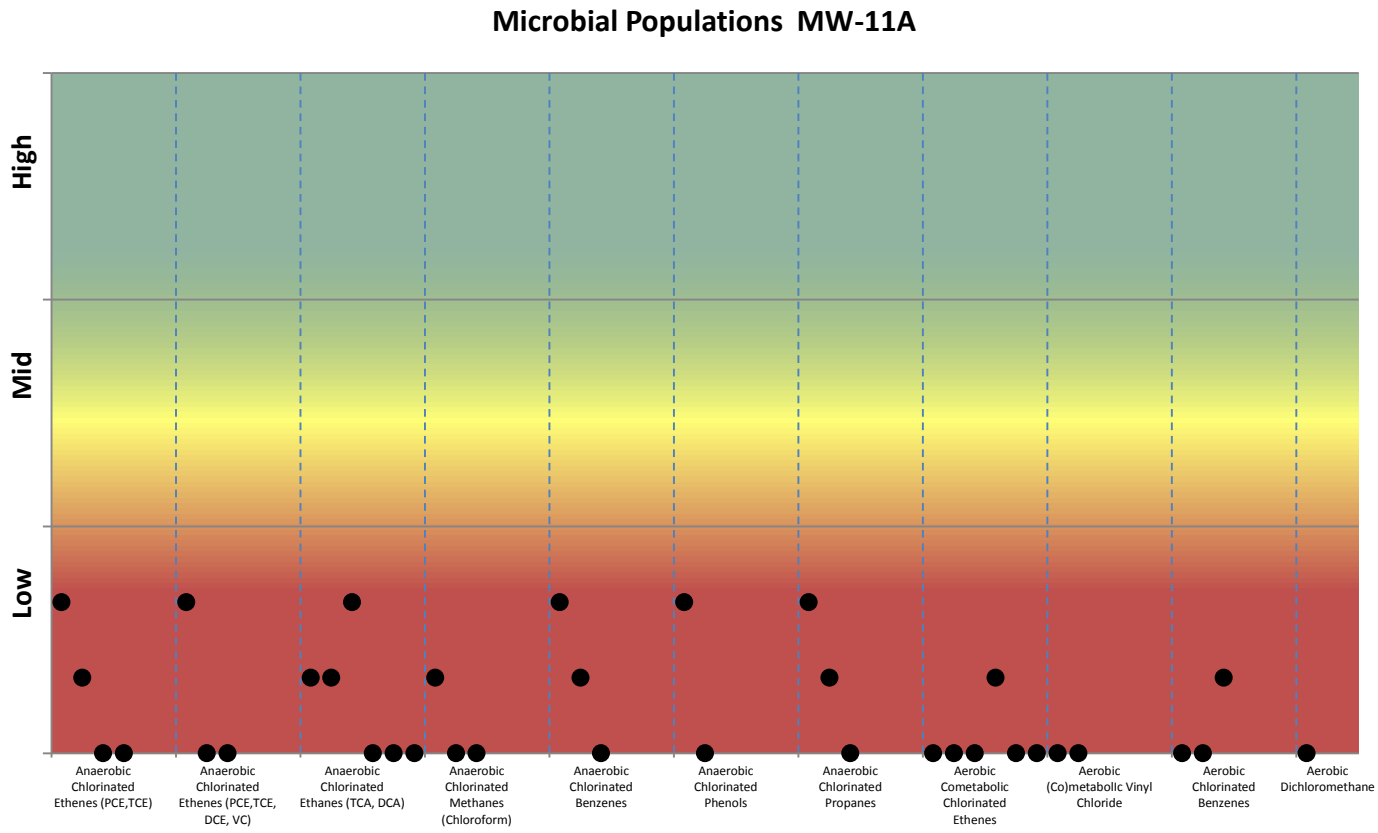


Anaerobic – Reductive Dechlorination or Dichloroelimination		Aerobic – (Co)metabolism	
Chlorinated Ethenes (PCE, TCE)	DHC, DHBt, DSB, DSM	Chlorinated ethenes (TCE, DCE, VC)	sMMO, pMMO, TOD, PHE, RDEG, RMO
Chlorinated Ethenes (PCE, TCE, DCE, VC)	DHC, BVC, VCR	(Co)metabolic vinyl chloride	etnC, etnE
Chlorinated Ethanes (TCA and 1,2-DCA)	DHBt, DHG, DHC, DSB[1], DCA, DCAR	Chlorinated Benzenes	TOD, TCBO, PHE
Chlorinated Methanes (Chloroform)	DHBt, DCM, CFR	Dichloromethane	DCMA
Chlorinated Benzenes	DHC, DHBt[2], DECO		
Chlorinated Phenols	DHC, DSB		
Chlorinated Propanes	DHC, DHG, DSB[1]		

[1] *Desulfitobacterium dichloroeliminans* DCA1. [2] Implicated in reductive dechlorination of dichlorobenzene and potentially chlorobenzene

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Figure 4. Microbial population summary to aid in evaluating potential pathways and biodegradation of specific contaminants.



Anaerobic – Reductive Dechlorination or Dichloroelimination		Aerobic – (Co)metabolism	
Chlorinated Ethenes (PCE, TCE)	DHC, DHBt, DSB, DSM	Chlorinated ethenes (TCE, DCE, VC)	sMMO, pMMO, TOD, PHE, RDEG, RMO
Chlorinated Ethenes (PCE, TCE, DCE, VC)	DHC, BVC, VCR	(Co)metabolic vinyl chloride	etnC, etnE
Chlorinated Ethanes (TCA and 1,2-DCA)	DHBt, DHG, DHC, DSB[1], DCA, DCAR	Chlorinated Benzenes	TOD, TCBO, PHE
Chlorinated Methanes (Chloroform)	DHBt, DCM, CFR	Dichloromethane	DCMA
Chlorinated Benzenes	DHC, DHBt[2], DECO		
Chlorinated Phenols	DHC, DSB		
Chlorinated Propanes	DHC, DHG, DSB[1]		

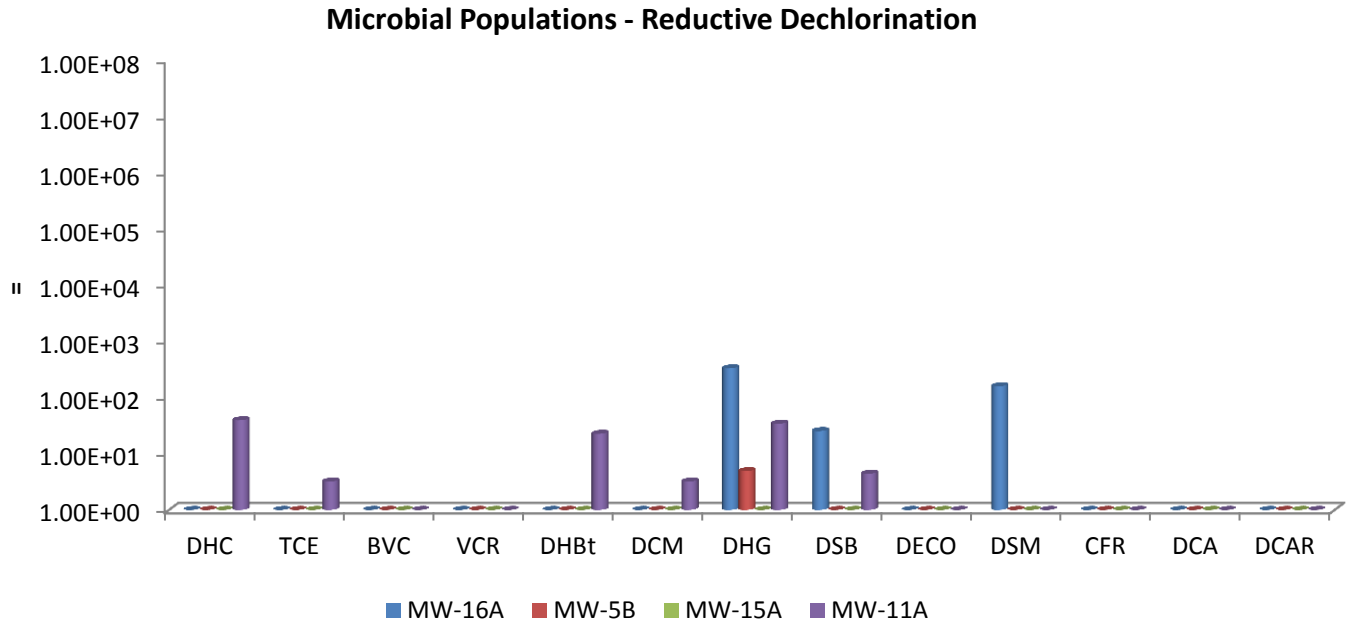
[1] *Desulfitobacterium dichloroeliminans* DCA1. [2] Implicated in reductive dechlorination of dichlorobenzene and potentially chlorobenzene

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Table 2. Summary of the QuantArray® results for microorganisms responsible for reductive dechlorination.

Sample Name	MW-16A	MW-5B	MW-15A	MW-11A
Reductive Dechlorination	**(cells/mL)**	**(cells/mL)**	**(cells/mL)**	**(cells/mL)**
Dehalococcoides spp. (DHC)	**1.00E+00**	<5.00E-01	**8.00E-01**	**3.94E+01**
tceA Reductase (TCE)	<5.00E-01	<5.00E-01	<5.00E-01	**3.20E+00**
BAV1 Vinyl Chloride Reductase (BVC)	<5.00E-01	<5.00E-01	<5.00E-01	**6.00E-01**
Vinyl Chloride Reductase (VCR)	<5.00E-01	<5.00E-01	<5.00E-01	**7.00E-01**
Dehalobacter spp. (DHBt)	<4.80E+00	<4.80E+00	<4.80E+00	**2.26E+01**
Dehalobacter DCM (DCM)	<4.80E+00	<4.80E+00	<4.80E+00	**3.20E+00 (J)**
Dehalogenimonas spp. (DHG)	**3.30E+02**	**4.90E+00**	<4.80E+00	**3.42E+01**
Desulfitobacterium spp. (DSB)	**2.53E+01**	<4.80E+00	<4.80E+00	**4.40E+00 (J)**
Dehalobium chlorocoercia (DECO)	<4.80E+00	<4.80E+00	<4.80E+00	<4.70E+00
Desulfuromonas spp. (DSM)	**1.58E+02**	<4.80E+00	<4.80E+00	<4.70E+00
Chloroform reductase (CFR)	<4.80E+00	<4.80E+00	<4.80E+00	<4.70E+00
1,1 DCA Reductase (DCA)	<4.80E+00	<4.80E+00	<4.80E+00	<4.70E+00
1,2 DCA Reductase (DCAR)	<4.80E+00	<4.80E+00	<4.80E+00	<4.70E+00

Figure 5. Comparison - Microbial populations involved in reductive dechlorination

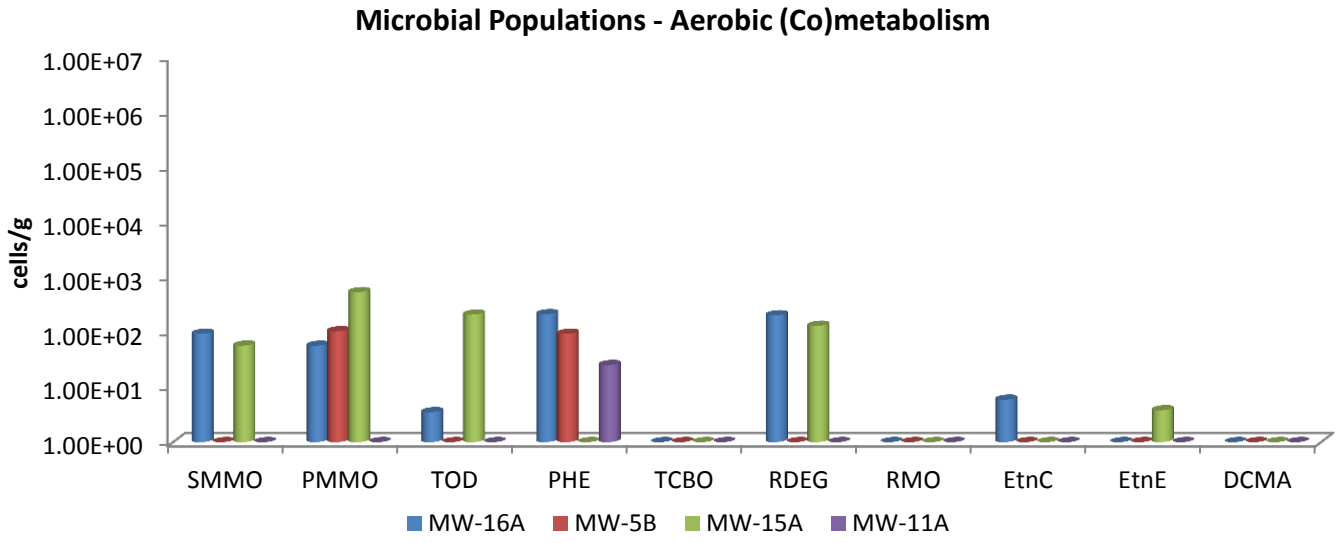


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Table 3. Summary of the QuantArray® results for microorganisms responsible for aerobic (Co)metabolism.

Sample Name	MW-16A	MW-5B	MW-15A	MW-11A
Aerobic (Co)Metabolic	**(cells/mL)**	**(cells/mL)**	**(cells/mL)**	**(cells/mL)**
Soluble Methane Monooxygenase (SMMO)	**9.31E+01**	**8.00E-01 (J)**	**5.68E+01**	**5.00E-01 (J)**
Particulate Methane Monooxygenase (PMMO)	**5.65E+01**	**1.04E+02**	**5.32E+02**	<4.70E+00
Toluene Dioxygenase (TOD)	**3.50E+00 (J)**	<4.80E+00	**2.08E+02**	<4.70E+00
Phenol Hydroxylase (PHE)	**2.12E+02**	**9.33E+01**	**5.00E-01 (J)**	**2.52E+01**
Trichlorobenzene Dioxygenase (TCBO)	<4.80E+00	<4.80E+00	<4.80E+00	<4.70E+00
Toluene Monooxygenase 2 (RDEG)	**2.02E+02**	<4.80E+00	**1.30E+02**	<4.70E+00
Toluene Monooyxgenase (RMO)	<4.80E+00	<4.80E+00	<4.80E+00	<4.70E+00
Ethene Monooxygenase (EtnC)	**5.90E+00**	<4.80E+00	<4.80E+00	<4.70E+00
Epoxyalkane transferase (EtnE)	<4.80E+00	<4.80E+00	**3.80E+00 (J)**	<4.70E+00
Dichloromethane dehalogenase (DCMA)	<4.80E+00	<4.80E+00	<4.80E+00	<4.70E+00

Figure 6. Comparison - Microbial populations involved in aerobic (Co)metabolism.

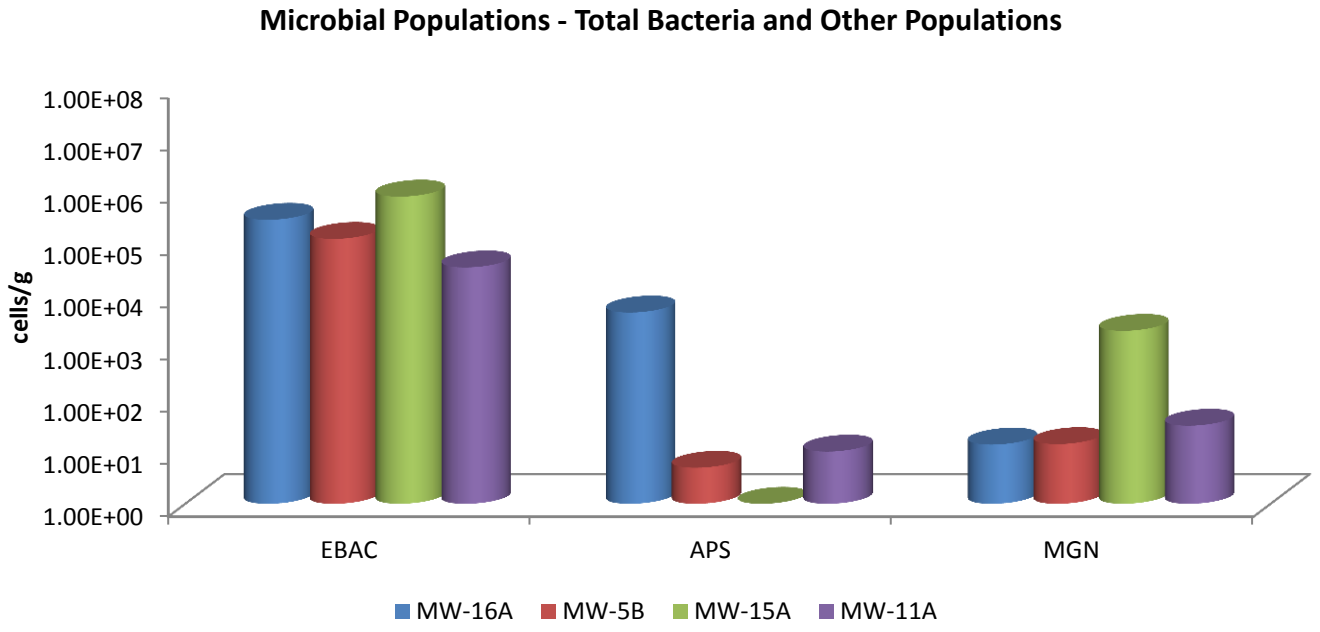


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Table 4. Summary of the QuantArray® results for total bacteria and other populations.

Sample Name	MW-16A	MW-5B	MW-15A	MW-11A
Other	(cells/mL)	(cells/mL)	(cells/mL)	(cells/mL)
Total Eubacteria (EBAC)	**2.74E+05**	**1.18E+05**	**7.61E+05**	**3.36E+04**
Sulfate Reducing Bacteria (APS)	**4.60E+03**	**4.90E+00**	<4.80E+00	**1.00E+01**
Methanogens (MGN)	**1.36E+01**	**1.39E+01**	**2.05E+03**	**3.13E+01**

Figure 7. Comparison - Microbial populations



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Interpretation

The overall purpose of the Chlorinated QuantArray® is to give site managers the ability to simultaneously yet economically evaluate the potential for biodegradation of a spectrum of common chlorinated contaminants through a multitude of anaerobic and aerobic (co)metabolic pathways in order to provide a clearer and more comprehensive view of contaminant biodegradation. The following discussion describes interpretation of results in general terms and is meant to serve as a guide.

Reductive Dechlorination – Chlorinated Ethenes: While a number of bacterial cultures including *Dehalococcoides*, *Dehalobacter*, *Desulfitobacterium*, and *Desulfuromonas* spp. capable of utilizing PCE and TCE as growth-supporting electron acceptors have been isolated [1-5], *Dehalococcoides* spp. may be the most important because they are the only bacterial group that has been isolated to date which is capable of complete reductive dechlorination of PCE to ethene [6]. In fact, the presence of *Dehalococcoides* spp. has been associated with complete reductive dechlorination to ethene at sites across North America and Europe [7]. More recently, Lu et al. [8] have proposed using a *Dehalococcoides* concentration of 1 x 10^4 cells/mL as a screening criterion to identify sites where biological reductive dechlorination is predicted to proceed at "generally useful" rates.

A "stall" (i.e., where daughter products *cis*-DCE and vinyl chloride accumulate) can occur at PCE- and TCE-impacted sites especially under MNA conditions. The accumulation of vinyl chloride, generally considered more carcinogenic than the parent compounds, is particularly problematic. Although elevated *Dehalococcoides* concentrations correspond to ethene production in numerous studies, the range of chlorinated ethenes metabolized and cometabolized varies by species and strains within the *Dehalococcoides* genus. For example, *Dehalococcoides ethenogenes* str. 195 metabolizes PCE, TCE, and *cis*-DCE and cometabolizes vinyl chloride [6] to produce ethene. Conversely, *Dehalococcoides* sp. CBDB1 utilizes PCE and TCE, but does not cometabolize additional chloroethenes [9]. Quantification of reductive dehalogenase genes is used to more definitively confirm the potential for reductive dechlorination of TCE, *cis*-DCE, and vinyl chloride [10-13].

Reductive Dechlorination – Chlorinated Ethanes: Under anaerobic conditions, chlorinated ethanes are susceptible to reductive dechlorination by several groups of halorespiring bacteria including *Dehalobacter*, *Dehalogenimonas*, and *Dehalococcoides* spp. While the reported range of chlorinated ethanes utilized varies by genus, species, and sometimes at the strain level, several general observations can be made regarding biodegradation pathways and daughter product formation. *Dehalobacter* spp. have been isolated that are capable of sequential reductive dechlorination of 1,1,1-TCA through 1,1-DCA to chloroethane. Biodegradation of 1,1,2-TCA by several halorespiring bacteria including *Dehalobacter* and *Dehalogenimonas* spp. proceeds via dichloroelimination producing vinyl chloride. Similarly, 1,2-DCA biodegradation by *Dehalobacter*, *Dehalogenimonas*, and *Dehalococcoides* spp. occurs via dichloroelimination producing ethene. While not utilized by many *Desulfitobacterium* isolates, at least one strain, *Desulfitobacterium dichloroeliminans* strain DCA1, is also capable of dichloroelimination of 1,2-DCA [14].

Reductive Dechlorination – Chlorinated Methanes: Chloroform is a common co-contaminant at chlorinated solvent sites and can inhibit reductive dechlorination of chlorinated ethenes. Grostern et al. demonstrated that a *Dehalobacter* population was capable of reductive dechlorination of chloroform to produce dichloromethane [15]. The *cfrA* gene encodes the reductase which catalyzes this initial step in chloroform biodegradation [16]. Justicia-Leon et al. have since shown that dichloromethane can support growth of a distinct group of *Dehalobacter* strains via fermentation [17]. The *Dehalobacter* DCM assay targets the 16S rRNA gene of these strains.

Reductive Dechlorination – Chlorinated Benzenes: Chlorinated benzenes are an important class of industrial solvents and chemical intermediates in the production of drugs, dyes, herbicides, and insecticides. The physical-chemical properties of chlorinated benzenes as well as susceptibility to biodegradation are functions of their degree of chlorination and the positions of

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chlorine substituents. Under anaerobic conditions, reductive dechlorination of higher chlorinated benzenes including hexachlorobenzene (HCB), pentachlorobenzene (PeCB), tetrachlorobenzene (TeCB) isomers, and trichlorobenzene (TCB) isomers by halorespiring bacteria has been well documented [18]. For example, although biodegradation of individual compounds and specific isomers does vary somewhat between isolates, *Dehalococcoides* spp. such as strain CBDB1 have been identified which reductively dechlorinate HCB, PeCB, all three TeCB isomers, 1,2,3-TCB, and 1,2,4-TCB [9, 19]. *Dehalobium chlorocoercia* DF-1 has been shown to be capable of reductive dechlorination of HCB, PeCB, and 1,2,3,5-TeCB [20]. The dichlorobenzene (DCB) isomers and chlorobenzene (CB) were considered relatively recalcitrant under anaerobic conditions. However, new evidence has demonstrated reductive dechlorination of DCBs to CB and CB to benzene [21] with corresponding increases in concentrations of *Dehalobacter* spp. [22].

Reductive Dechlorination – Chlorinated Phenols: Pentachlorophenol (PCP) was one of the most widely used biocides in the U.S. and despite residential use restrictions, is still extensively used industrially as a wood preservative. Along with PCP, the tetrachlorophenol and trichlorophenol isomers were also used as fungicides in wood preserving formulations. 2,4-dichlorophenol and 2,4,5-TCP were used as chemical intermediates in herbicide production (e.g. 2,4-D) and chlorophenols are known byproducts of chlorine bleaching in the pulp and paper industry. While the range of compounds utilized varies by strain, some *Dehalococcoides* isolates are capable of reductive dechlorination of PCP and other chlorinated phenols. For example, *Dehalococcoides* strain CBDB1 is capable of utilizing pentachlorophenol (PCP), all three tetrachlorophenol (TeCP) congeners, all six trichlorophenol (TCP) congeners, and 2,3-dichlorophenol (2,3-DCP). PCP dechlorination by strain CBDB1 produces a mixture of 3,5-DCP, 3,4-DCP, 2,4-DCP, 3-CP, and 4-CP [23]. In the same study, however, *Dehalococcoides ethenogenes* strain 195 dechlorinated a more narrow spectrum of chlorophenols which included 2,3-DCP, 2,3,4-TCP, and 2,3,6-TCP, but no other TCPs or PCP. Similar to *Dehalococcoides*, some species and strains of *Desulfitobacterium* are capable of utilizing PCP and other chlorinated phenols. *Desulfitobacterium hagniense* PCP-1 is capable of reductive dechlorination of PCP to 3-CP [24]. However, the ability to biodegrade PCP is not universal among *Desulfitobacterium* isolates. *Desulfitobacterium* sp. strain PCE1 and *D. chlororespirans* strain Co23, for example, can utilize some TCP and DCP isomers, but not PCP for growth [2, 25].

Reductive Dechlorination – Chlorinated Propanes: *Dehalogenimonas* is a recently described bacterial genus of the phylum *Chloroflexi* which also includes the well-known chloroethene-respiring *Dehalococcoides* spp [26]. The *Dehalogenimonas* isolates characterized to date are also halorespiring bacteria, but utilize a rather unique range of chlorinated compounds as electron acceptors including chlorinated propanes (1,2,3-TCP and 1,2-DCP) and a variety of other vicinally chlorinated alkanes including 1,1,2,2-tetrachloroethane, 1,1,2-trichloroethane, and 1,2-dichloroethane [26].

Aerobic – Chlorinated Ethene Cometabolism: Under aerobic conditions, several different types of bacteria including methane-oxidizing bacteria (methanotrophs), ammonia-oxidizing bacteria, and some toluene/phenol-utilizing bacteria can cometabolize or co-oxidize trichloroethene (TCE), dichloroethene (DCE), and vinyl chloride (VC). In general, cometabolism of chlorinated ethenes is mediated by monooxygenase enzymes with "relaxed" specificity that oxidize a primary (growth supporting) substrate and co-oxidize the chlorinated compound. Most methanotrophs are only capable of producing particulate methane monooxygenase (pMMO) which is capable of aerobic cometabolism but often at lower rates. Other methanotrophs are capable of producing both pMMO and soluble methane monooxygenase (sMMO) enzymes, which in general are believed to be capable of greater rates of aerobic cometabolism.

Aerobic – Vinyl Chloride Cometabolism: Beginning in the early 1990s, numerous microcosm studies demonstrated aerobic oxidation of vinyl chloride under MNA conditions without the addition of exogenous primary substrates. Since then, strains of *Mycobacterium*, *Nocardioides*, *Pseudomonas*, *Ochrobactrum*, and *Ralstonia* species have been isolated which are capable of aerobic growth on both ethene and vinyl chloride (see Mattes et al. [27] for a review). The initial steps in the pathway are the monooxygenase (*etn*ABCD) catalyzed conversion of ethene and vinyl chloride to their respective epoxyalkanes (epoxyethane and chlorooxirane), followed by epoxyalkane:CoM transferase (*etn*E) mediated conjugation and breaking of the epoxide [28].

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Aerobic – Chlorinated Benzenes: In general, chlorobenzenes with four or less chlorine groups are susceptible to aerobic biodegradation and can serve as growth-supporting substrates. Toluene dioxygenase (TOD) has a relatively relaxed substrate specificity and mediates the incorporation of both atoms of oxygen into the aromatic ring of benzene and substituted benzenes (toluene and chlorobenzene). Comparison of TOD levels in background and source zone samples from a CB-impacted site suggested that CBs promoted growth of TOD-containing bacteria [29]. In addition, aerobic biodegradation of some trichlorobenzene and even tetrachlorobenzene isomers is initiated by a group of related trichlorobenzene dioxygenase genes (TCBO). Finally, phenol hydroxylases catalyze the continued oxidation and in some cases, the initial oxidation of a variety of monoaromatic compounds. In an independent study, significant increases in numbers of bacteria containing PHE genes corresponded to increases in biodegradation of DCB isomers [29].

1,2 Dichloroethane Reductive Dehalogenase: Targets the 1,2 dichloroethane reductive dehalogenase gene from members of Desulfitobacterium and Dehalobacter which dechlorinate 1,2 DCA to ethene.

1,1 Dichloroethane Reductive Dehalogenase: Targets the 1,1 dichloroethane reductive dehalogenase gene found in some strains of Dehalobacter..

Dichloromethane Dehalogenase: Targets the dcmA gene responsible for aerobic biodegradation of dichloromethane by methylotrophs..

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APPENDIX F

UEC and Monitor and Maintenance Plan

KING & SPALDING

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August 31, 2015

VIA EMAIL and U.S. MAIL

Mr. Judson H. Turner, Director
Environmental Protection Division
Georgia Department of Natural Resources
2 Martin Luther King, Jr. Drive
Suite 1456, East Tower
Atlanta, Georgia 30334-9000

Ms. Robin Futch, Case Manager
Response and Remediation Program
Environmental Protection Division
Georgia Department of Natural Resources
2 Martin Luther King, Jr. Drive
Suite 1054, East Tower
Atlanta, Georgia 30334-9000

Re: Notification of File-Stamped Copy of Environmental Covenant
Tara Shopping Center – HSI Site No. 10798
8564 Tara Boulevard, Jonesboro, Clayton County, Georgia
Tax Parcel ID 13242D B001

Dear Mr. Turner and Ms. Futch:

In accordance Georgia's Uniform Environmental Covenants Act, O.C.G.A § 44-16-1 et. seq., I enclose a copy of the file-stamped environmental covenant for the above-referenced property.

Under separate cover, I will provide certification that this covenant has been sent to those parties described in paragraph 12 of the covenant.

Sincerely,

Amelia S. Magee

Enclosures
cc: Michael Dever, Ashland Inc.
Rich Williams, Ashland Inc.
Eric Nathan, Tara Retail Holdings, Inc.
Michele Stayrook, EHS Support
Kristin VanLandingham, EHS Support

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Response and Remediation Program

After Recording, Please Return to:
King & Spalding LLP
1180 Peachtree Street, N.E.
Atlanta, Georgia 30309-3521
Attention: Amelia S. Magee, Esq.

Cross Reference: Deed Book 09320, Page 00519, Clayton County, Georgia Records

BK 10748PG382

Environmental Covenant

This instrument is an Environmental Covenant executed pursuant to the Georgia Uniform Environmental Covenants Act, OCGA § 44-16-1, *et seq.* This Environmental Covenant subjects the Property identified below to the activity and/or use limitations specified in this document. The effective date of this Environmental Covenant shall be the date upon which the fully executed Environmental Covenant has been recorded in accordance with OCGA § 44-16-8(a).

Fee Owner of Property/Grantor:
Tara Retail Holdings LLC
c/o Eric J. Nathan, Manager
Weener & Nathan LLP
5887 Glenridge Drive, NE
Suite 275
Atlanta, GA 30328

Grantee/Holder:
Ashland Inc.
c/o Richmond L. Williams
Chief Counsel, Environmental Litigation
Ashland Inc.
500 Hercules Road
Wilmington, DE 19808

Grantee/Entity with express power to enforce:
State of Georgia
Department of Natural Resources
Environmental Protection Division
2 Martin Luther King Jr. Drive, SE
Suite 1456 East Tower
Atlanta, GA 30334

Property:

The property subject to this Environmental Covenant is the Tara Shopping Center, located on 8600 Tara Boulevard in Jonesboro, Clayton County, Georgia (hereinafter "Property"). This tract of land was conveyed on December 11, 2007 from Alterman Enterprises, LLC to Tara Retail Holdings LLC as recorded in Deed Book 09320, Page 00519, Clayton County Records. The area is located in Land Lot 111 of the 4th District of Clayton County, Georgia, consisting of 6.940 acres of commercial retail. A complete legal description of the Property is attached as Exhibit A and a map of the Property is attached as Exhibit B. The location of corrective action for soil at the Property is designated as the "Type 5 area" with land use and activity restrictions subject to this Environmental Covenant. A complete legal description of the Type 5 area is attached as Exhibit C and a map of the Type 5 Soil Restricted Use Area, inclusive of a twenty foot buffer, is attached as Exhibit D.

Tax Parcel Number(s):

Tax Parcel: 13242D B001 of Clayton County, Georgia

Name and Location of Administrative Records:

The corrective action at the Property that is the subject of this Environmental Covenant is described in the following documents (as some may be amended from time to time with written approval from EPD):

- Voluntary Investigation and Remediation Plan and Application, dated January 2012
- Soil Remediation Completion Report, dated March 14, 2014
- Monitoring and Maintenance Plan, December 2014

These documents are available at the following location[s] in the file for HSI 10798:

Georgia Environmental Protection Division
Response and Remediation Program
2 Martin Luther King Jr. Drive, SE, Suite 1054 East Tower
Atlanta, GA 30334
M-F 8:00 AM to 4:30 PM excluding state holidays

Description of Contamination and Corrective Action:

This Property has been listed on the state's hazardous site inventory and has been designated as needing corrective action due to the presence of hazardous wastes, hazardous constituents, or hazardous substances regulated under state law. Contact the property owner or the Georgia Environmental Protection Division for further information concerning this Property. This notice is provided in compliance with the Georgia Hazardous Site Response Act.

This Declaration of Covenant is made pursuant to the Georgia Uniform Environmental Covenants Act, O.C.G.A. § 44-16-1 *et seq.* by Tara Retail Holdings LLC, its successors and assigns, Ashland Inc., and the State of Georgia, Department of Natural Resources, Environmental Protection Division, (hereafter "EPD"), its successors and assigns. This Environmental Covenant is required because of a release of perchloroethene (PCE) (a drycleaner solvent) on the Property (also commonly referred to as Tetrachloroethene). Trichloroethene (TCE), cis-1,2-dichloroethene (cDCE), and vinyl chloride, are degradation compounds of PCE and are also present on the Property. Perchloroethene, TCE, cDCE, and vinyl chloride are "regulated substances" as defined under the Georgia Hazardous Site Response Act, O.C.G.A. § 12-8-90 *et seq.*, and the rules promulgated thereunder (hereinafter "HSRA" and "Rules", respectively). The Corrective Action to protect human health and the environment at the Property consists

BK 10748PG383

of the installation and maintenance of engineering controls in the Type 5 area (i.e., monolith and asphalt cap) and establishment of institutional controls to limit land use to non-residential and restrict groundwater use beneath the entire Property.

Grantor, Tara Retail Holdings LLC (hereinafter "Tara Retail"), hereby binds Grantor, its successors and assigns to the activity and use restriction(s) for the Property identified herein and grants such other rights under this Environmental Covenant in favor of Ashland Inc. and EPD. EPD shall have full right of enforcement of the rights conveyed under this Environmental Covenant pursuant to HSRA, O.C.G.A. § 12-8-90 *et seq*., and the rules promulgated thereunder. Failure to timely enforce compliance with this Environmental Covenant or the use or activity limitations contained herein by any person shall not bar subsequent enforcement by such person and shall not be deemed a waiver of the person's right to take action to enforce any non-compliance. Nothing in this Environmental Covenant shall restrict EPD from exercising any authority under applicable law.

Tara Retail makes the following declarations as to limitations, restrictions, and uses to which the Property may be put and specifies that such declarations shall constitute covenants to run with the land, pursuant to O.C.G.A. § 44-16-5(a); are perpetual, unless modified or terminated pursuant to the terms of this Environmental Covenant pursuant to O.C.G.A. § 44-16-9 and 10; and shall be binding on all parties and all persons claiming under them, including all current and future owners of any portion of or interest in the Property (hereinafter "Owner"). Should a transfer or sale of the Property occur before such time as this Environmental Covenant has been amended or revoked then said Environmental Covenant shall be binding on the transferee(s) or purchaser(s).

The Environmental Covenant shall inure to the benefit of Ashland Inc., EPD, Tara Retail and their respective successors and assigns and shall be enforceable by the Director of EPD or his agents or assigns, Ashland Inc. or its successors and assigns, Tara Retail or its successors and assigns, and other party(ies) as provided for in O.C.G.A. § 44-16-11 in a court of competent jurisdiction.

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Activity and/or Use Limitation(s)

1. Registry. Pursuant to O.C.G.A. §§ 44-16-12, this Environmental Covenant and any amendment or termination thereof, may be contained in EPD's registry for environmental covenants.

2. Notice. The Owner of the Property must give thirty (30) day advance written notice to EPD of the Owner's intent to convey any interest in the Property. No conveyance of title, easement, lease, or other interest in the Property shall be consummated by the Owner without adequate and complete provision for continued monitoring, operation, and maintenance of the Corrective Action. The Owner of the Property must also give thirty (30) day advance written notice to EPD of the Owner's intent to change the use of the Property, apply for building permit(s), or propose any site work that would affect the Type 5 area.

3. Notice of Limitation in Future Conveyances. Each instrument hereafter conveying an interest in the Property subject to this Environmental Covenant shall contain a notice of the activity and use limitations set forth in this Environmental Covenant and shall provide the recorded location of the Environmental Covenant.

4. Monitoring. Routine inspection and maintenance activities are detailed in the Monitoring and Maintenance Plan dated May 2015 and must be implemented to ensure the integrity of the engineering controls established to protect human health and the environment. The groundwater monitoring

program detailed in the Monitoring and Maintenance Plan will be implemented to monitor the effectiveness of Corrective Action at the Property.

5. Periodic Reporting. Annually, by no later than June 15th following the effective date of this Environmental Covenant, the Owner shall submit to EPD an Annual Report as specified in the Maintenance and Monitoring Plan including, but not limited to maintenance and inspection activities, certification of non-residential use of the Property, and documentation stating whether or not the activity and use limitations at the Property comply with this Environmental Covenant.

6. Activity and Use Limitation(s). The Property shall be used only for non-residential uses, as defined in Section 391-3-19-.02 of the Rules and defined in and allowed under the Clayton County's zoning regulations as of the date of this Environmental Covenant. Any residential use on the Property shall be prohibited. Any activity on the Property that may result in the release or exposure to the regulated substances that were contained as part of the Corrective Action, or create a new exposure pathway, is prohibited. With the exception of work necessary for the maintenance, repair, or replacement of engineering controls, or as otherwise approved by EPD, activities that are prohibited in the Type 5 Soil Restricted Use Area shown in Exhibit D include but are not limited to the following: drilling, digging, placement of any objects or use of any equipment which deforms or stresses the surface beyond its load bearing capability, piercing the surface with a rod, spike or similar item, bulldozing or earthwork, without prior express written approval from both Ashland Inc. and EPD.

7. Groundwater Limitation. The use or extraction of groundwater from all underlying groundwater systems beneath the Property for drinking water or for any other non-remedial purposes shall be prohibited until HSRA regulated substances are treated to below the applicable RRS for groundwater. Any extracted groundwater from construction or utility work dewatering activities should be managed and disposed of in accordance with applicable rules and regulations. Should any dewatering of groundwater for construction or utility work purposes be necessary-extracted groundwater should not be discharged into the storm water system or surface waters.

8. Management of Impacted Material. All management of impacted groundwater should be done in accordance with all applicable local, state and federal rules and regulations governing the management of such material. Prior to conducting construction or subsurface utility work that may result in exposure to soil within the Type 5 Soil Restrictive Use Area or to groundwater, a worker must have appropriate HAZWOPER training per OSHA's Hazardous Waste Operations and Emergency Response Standard 29 CFR 1910.120, and perform the work in accordance with a Health and Safety Plan prepared by a qualified safety professional. All management of impacted soil or groundwater performed in the execution of work should be done in accordance with this section.

9. Building Modification/New Construction: The Property shall be used only for non-residential uses, as defined in Section 391-3-19-.02 of the Rules and defined in and permitted under the Clayton County's zoning regulations as of the date of this Environmental Covenant. New building construction, or modifications to existing building structures that result in the potential for vapor intrusion, must include mechanisms which eliminate the potential for vapor intrusion of constituents identified in this Environmental Covenant (e.g., sub-slab membrane, passive and/or active ventilation systems).

10. Permanent Markers. Permanent marker adjacent to the Type 5 area shall be installed and maintained that delineate the restricted area as specified in Section 391-3-19-.07(10) of the Rules. Disturbance or removal of such markers is prohibited.

11. Right of Access. In addition to any rights already possessed by EPD and/or Ashland Inc., the Owner shall allow authorized representatives of EPD and/or Ashland Inc. the right to enter the Property at reasonable times for the purpose of evaluating the Corrective Action; to take samples, to inspect the

BK 10748PG385

Corrective Action conducted at the Property, to determine compliance with this Environmental Covenant, and to inspect records that are related to the Corrective Action.

12. Recording of Environmental Covenant and Proof of Notification. Within thirty (30) days after the date of the Director's signature, the Owner shall file this Environmental Covenant with the Recorders of Deeds for each County in which the Property is located, and send a file stamped copy of this Environmental Covenant to EPD within thirty (30) days of recording. Within that time period, the Owner shall also send a file-stamped copy to each of the following: (1) Ashland Inc., (2) each person holding a recorded interest in the Property subject to the covenant, (3) each person in possession of the real property subject to the covenant, (4) each municipality, county, consolidated government, or other unit of local government in which real property subject to the covenant is located, and (5) each owner in fee simple whose property abuts the property subject to the Environmental Covenant.

13. Termination or Modification. The Environmental Covenant shall remain in full force and effect in accordance with O.C.G.A. § 44-5-60, unless and until the Director determines that the Property is in compliance with the Type 1, 2, 3, or 4 Risk Reduction Standards, as defined in Section 391-3-19-.07, whereupon the Environmental Covenant may be amended or revoked in accordance with Section 391-3-19-08(7) of the Rules and O.C.G.A. § 44-16-1 *et seq.*

14. Severability. If any provision of this Environmental Covenant is found to be unenforceable in any respect, the validity, legality, and enforceability of the remaining provisions shall not in any way be affected or impaired.

15. No EPD Interest in Property Created. This Environmental Covenant does not in any way create any interest by EPD in the Property that is subject to the Environmental Covenant. Furthermore, the act of approving this Environmental Covenant does not in any way create any interest by EPD in the Property in accordance with O.C.G.A. § 44-16-3(b).

Representations and Warranties.

Grantor hereby represents and warrants to the other signatories hereto:

a) That the Grantor has the power and authority to enter into this Environmental Covenant, to grant the rights and interests herein provided and to carry out all obligations hereunder;
b) That the Grantor is the sole owner of the Property and holds fee simple title which is free, clear and unencumbered;
c) That the Grantor has identified all other parties that hold any interest (e.g., encumbrance) in the Property and notified such parties of the Grantor's intention to enter into this Environmental Covenant;
d) That this Environmental Covenant will not materially violate, contravene, or constitute a material default under any other agreement, document or instrument to which Grantor is a party, by which Grantor may be bound or affected;
e) That the Grantor has served each of the people or entities referenced in Activity 10 above with an identical copy of this Environmental Covenant in accordance with O.C.G.A. § 44-16-4(d).
f) That this Environmental Covenant will not materially violate or contravene any zoning law or other law regulating use of the Property; and
g) That this Environmental Covenant does not authorize a use of the Property that is otherwise prohibited by a recorded instrument that has priority over the Environmental Covenant.

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Notices.

Any document or communication required to be sent pursuant to the terms of this Environmental Covenant shall be sent to the following persons:

Georgia Environmental Protection Division
Branch Chief
Land Protection Branch
2 Martin Luther King Jr. Drive SE
Suite 1054 East Tower
Atlanta, GA 30334

Tara Retail Holdings LLC
c/o Eric J. Nathan, Manager
Weener & Nathan LLP
5887 Glenridge Drive, NE
Suite 275
Atlanta, GA 30328

Ashland Inc.
c/o Richmond L. Williams
Chief Counsel, Environmental Litigation
Ashland Inc.
500 Hercules Road
Wilmington, DE 19894

Grantor has caused this Environmental Covenant to be executed pursuant to The Georgia Uniform Environmental Covenants Act, on the 14th day of July, 2015.

Signed, sealed, and delivered in the presence of:

Unofficial Witness (*Signature*)

Amber E. Jones
Unofficial Witness Name (*Print*)

5887 Glenridge Drive NE
Ste. 275, Atlanta, GA 30328
Unofficial Witness Address (*Print*)

Notary Public (*Signature*)

My Commission Expires: 9-16-18

SHANNON D. ZIMMERMAN NOTARY PUBLIC FULTON COUNTY, GEORGIA My Commission EXPIRES 09-16-2018

For the Grantor: Tara Retail Holdings LLC
Name of Grantor (*Print*)

(Seal)
Grantor's Authorized Representative (*Signature*)

Eric J. Nathan
Authorized Representative Name (*Print*)

Manager
Title of Authorized Representative (*Print*)

Dated: July 14, 2015
(NOTARY SEAL)

BK10748PG387

Signed, sealed, and delivered in the presence of:

Doralyn S. Kirkland
Unofficial Witness *(Signature)*

Doralyn S. Kirkland
Unofficial Witness Name *(Print)*

2 MLK Jr Drive; Ste 1456E
Atlanta GA 30334
Unofficial Witness Address *(Print)*

Cristal Sailors
Notary Public *(Signature)*

My Commission Expires: 1/22/17

For the State of Georgia
Environmental Protection Division:

Judson H Turner (Seal)
(Signature)

Judson H. Turner
Director

Dated: August 6, 2015

(NOTARY SEAL)

CRISTAL SAILORS
NOTARY PUBLIC
SPALDING COUNTY, GA
Exp. Jan. 22, 2017

Signed, sealed, and delivered in the presence of:

Mary A. Dunahue
Unofficial Witness *(Signature)*

Mary A. Dunahue
Unofficial Witness Name *(Print)*

Ashland Inc.
5200 Blazer Parkway
Dublin OH 43017
Unofficial Witness Address *(Print)*

Stacy Kavy - Stacy Kavy
Notary Public *(Signature)*

Stacy Kavy
Notary Public, State of Ohio
My Commission Expires 04-22-2017

My Commission Expires:

For the Holder : Ashland Inc.
Name of Holder *(Print)*

Gary K. Allen (Seal)
Holder's Authorized Representative *(Signature)*

Gary K. Allen
Authorized Representative Name *(Print)*

Director - EHS
Title of Authorized Representative *(Print)*

Dated: July 6, 2015
(NOTARY SEAL)

BK10748PG388

Exhibit A

Legal Description of Property

BK 10718PG389

Exhibit A
Legal Description

TARA

MAIN TRACT

All that tract or parcel of land lying and being in Land Lots 241-242 of the 13th District of Clayton County, Georgia, as per plat of W. R. Franks, Land Surveyor, dated February 28, 1966, revised February 21, 1967, being more particularly described as follows:

BEGINNING at the intersection formed by the southerly side of the right of way of Smith Street with the easterly side of the right of way of the South Expressway; running thence south along the easterly side of the right of way of the South Expressway 1243.5 feet to an iron pin and the property now or formerly leased to Pure Oil Company; running thence southeasterly along said property line 145.8 feet to an iron pin located on the westerly side of the right of way of Georgia State Highway #54; running thence northeasterly along the westerly side of the right of way of Georgia State Highway #54, 1166.9 feet to an iron pin; running thence west at an interior angle of 77 degrees 38 minutes with the last mentioned call 100 feet to an iron pin; running thence north 181.8 feet to an iron pin located on the southerly side of the right of way of Smith Street; running thence west along the southerly side of the right of way of Smith Street 338.7 feet to the point where the southerly side of the right of way of Smith Street intersects the easterly side of the right of way of the South Expressway and the POINT OF BEGINNING. Said tract containing an aggregate of 9.29 acres according to the above plat.

TARA
WILLIS TRACT

All that tract or parcel of land lying and being in Land Lot 241, of the 13th District, of Clayton County, Georgia, and being more particularly described as follows:

BEGIN at an iron pin on the westerly side of Fayetteville Road (Georgia State Highway #54) 187.9 feet south of the intersection of the westerly side of Fayetteville Road and the southerly side of Smith Street, as measured along the westerly side of Fayetteville Road; run thence south along the westerly side of Fayetteville Road a distance of 65.00 feet to an iron pin; run thence southwest a distance of 95.00 feet to an iron pin; run thence north 01 degrees 15 minutes west forming an interior angle of 64 degrees 51 minutes with the preceding course a distance of 85.00 feet to an iron pin; run thence northeast a distance of 105.00 feet to an iron pin on the westerly side of Fayetteville Road and the Point of Beginning; being more fully shown on survey prepared by Eaton Pendley & Associates, Inc., dated December 19, 1984.

This deed is given subject to all easements and restrictive covenants of record.

[LEGAL CONTINUES ON FOLLOWING PAGE]

BK 10748PG390

[CONTINUATION OF TARA LEGAL DESCRIPTION]

TOGETHER WITH:

TARA
COOGLER TRACT

All that tract or parcel of land lying and being in Land Lot 241, of the 13th District, of Clayton County, Georgia, and being more particularly described as follows:

BEGIN at an iron pin at the intersection of the southerly side of Smith Street and the westerly side of Fayetteville Road (Georgia State Highway #54); run thence South along the westerly side of Fayetteville Road a distance of 107.90 feet to an iron pin; run thence South 69 degrees 24 minutes West a distance of 131.58 feet to an iron pin; run thence north along the westerly line of Land Lot 241 forming an interior angle of 74 degrees 18 minutes with the preceding course a distance of 140.80 feet to an iron pin on the southerly side of Smith Street; run thence east along the southerly side of Smith Street a distance of 131.98 feet to an iron pin and the Point of Beginning; being more fully shown on survey prepared by Yates Pendley & Assoc., Inc., dated December 18, 1984.

This deed is given subject to all easements and restrictive covenants of record.

LESS AND EXCEPT any portion(s) of the above-described property that was conveyed to third parties by Grantor or Grantor's predecessor(s) in title.

This is the same property described in that certain Limited Warranty Deed from Alterman Enterprises, LLC to Tara Retail Holdings LLC and recorded at Book 9320, Page 519, Clayton County, Georgia records.

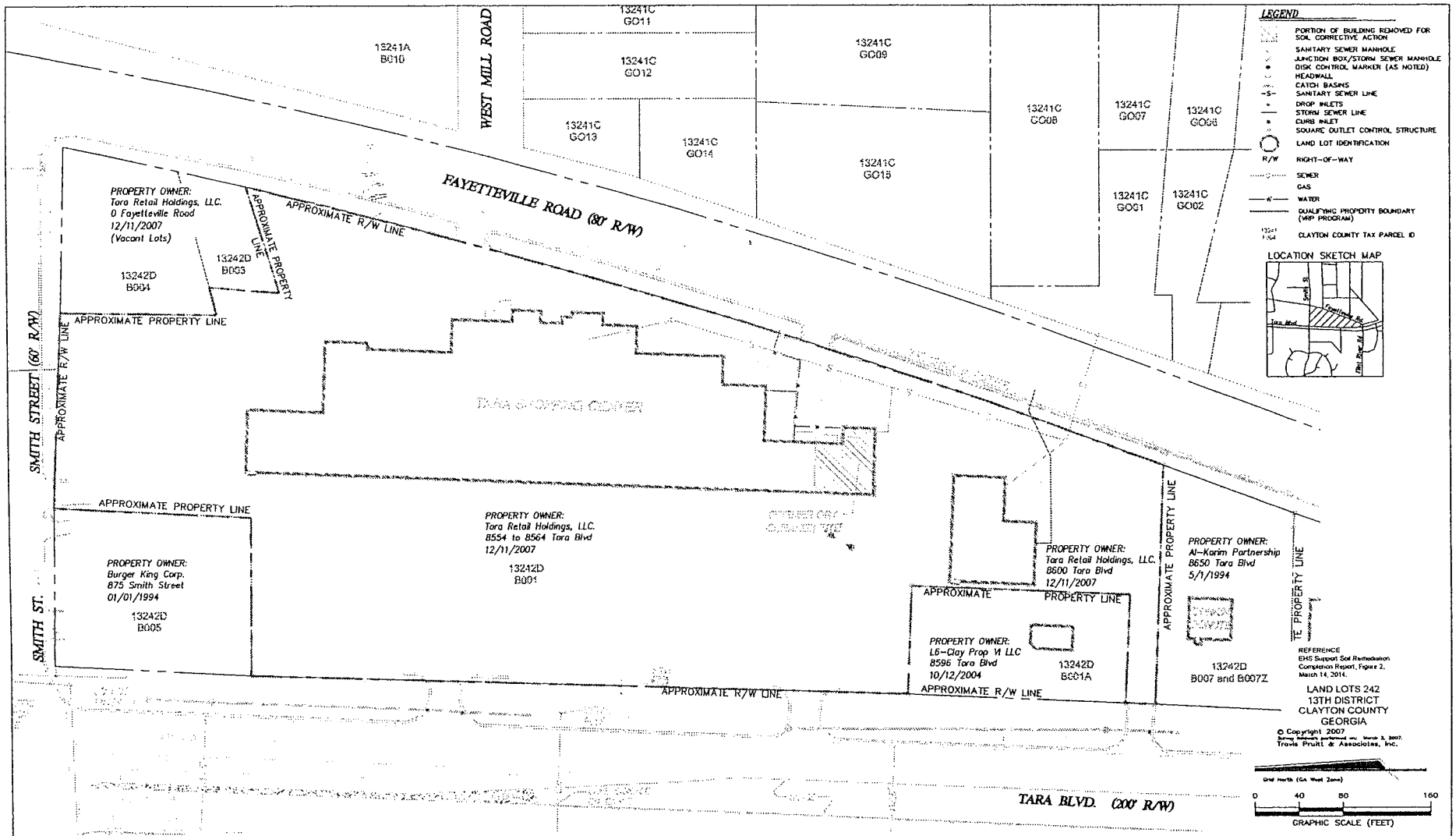
[END OF LEGAL DESCRIPTION]

BK 10748PG391

Exhibit B

Property Map

BK 1074 8PG 392



EHS Support consider it done

REVISIONS				
Rev.	By:	Disc.:	Date:	
Rev.	By:	Disc.:	Date:	
Rev.	By:	Disc.:	Date:	
Rev.	By:	Disc.:	Date:	

TARA SHOPPING CENTER
8600 TARA BOULEVARD
JONESBORO, GEORGIA
HSI # 10796

EXHIBIT B-1
SITE PLAN

Drawn By:	MDO	Date Drawn:	07/2014
Reviewed By:	MSS	Date Reviewed:	07/2014
Scale:	1" = 80'	Plot Date:	07/2014
Project Number:	C00342-2014		

BK 10748PG393

Exhibit C

Legal Description of Type 5 Soil Restrictive Use Area

BK 10748PG394

DESCRIPTION OF

Type 5 Soil Restricted Use Area

All that tract or parcel of land lying and being in Land Lot 242 of the 13rd District, City of Jonesboro, Clayton County, Georgia and being more particularly described as follows:

COMMENCING at an iron pin set at the intersection of the southerly Right of Way of Smith Street (60' R/W) and the westerly Right of Way of Fayetteville Road aka State Route 54 (80' R/W); THENCE running along Fayetteville Road aka State Route 54 (80' R/W) a curve to the right with a radius of 5,689.62 feet and an arc length of 761.22 feet, said curve having a chord bearing of South 14 degrees 41 minutes 02 seconds West and a chord distance of 760.65 feet to a point, said point being the **TRUE POINT OF BEGINNING.**

THENCE from said **TRUE POINT OF BEGINNING** and continuing along said Right of Way a curve to the right with a radius of 5,689.62 feet and an arc length of 141.81 feet, said curve having a chord bearing of South 19 degrees 13 minutes 51 seconds West and a chord distance of 141.80 feet to a point; THENCE leaving said Right of Way North 44 degrees 09 minutes 46 seconds West a distance of 94.04 feet to a point; THENCE North 38 degrees 58 minutes 39 seconds West a distance of 58.30 feet to a point; THENCE North 20 degrees 28 minutes 06 seconds East a distance of 65.77 feet to a point; THENCE South 76 degrees 51 minutes 10 seconds East a distance of 93.47 feet to a point; THENCE South 61 degrees 05 minutes 57 seconds East a distance of 39.84 feet to a point on the westerly Right of Way of Fayetteville Road aka State Route 54 (80' R/W), said point being the **TRUE POINT OF BEGINNING.** Said tract contains 14,614 square feet or 0.34 acres.

Together with a 20 foot wide buffer surrounding said property and being more particularly described as follows:

COMMENCING at an iron pin set at the intersection of the southerly Right of Way of Smith Street (60' R/W) and the westerly Right of Way of Fayetteville Road aka State Route 54 (80' R/W); THENCE running along Fayetteville Road aka State Route 54 (80' R/W) a curve to the right with a radius of 5,689.62 feet and an arc length of 740.88 feet, said curve having a chord bearing of South 14 degrees 34 minutes 53 seconds West and a chord distance of 740.36 feet to a point, said point being the **TRUE POINT OF BEGINNING.**

THENCE from said **TRUE POINT OF BEGINNING** and continuing along said Right of Way a curve to the right with a radius of 5689.62 feet and an arc length of 20.34 feet, said curve having a chord bearing of South 18 degrees 24 minutes 52 seconds West and a chord distance of 20.34 feet to a point; THENCE leaving said Right of Way North 61 degrees 05 minutes 57

BK 10748PG395

seconds West a distance of 39.84 feet to a point; THENCE North 76 degrees 51 minutes 10 seconds West a distance of 93.47 feet to a point; THENCE South 20 degrees 28 minutes 06 seconds West a distance of 65.77 feet to a point; THENCE South 38 degrees 58 minutes 39 seconds East a distance of 58.30 feet to a point; THENCE South 44 degrees 09 minutes 46 seconds East a distance of 94.04 feet to a point on the westerly Right of Way of Fayetteville Road aka State Route 54 (80' R/W); THENCE running along said Right of Way a curve to the right with a radius of 5689.62 feet and an arc length of 22.21 feet, said curve having a chord bearing of South 20 degrees 03 minutes 24 seconds West and a chord distance of 22.21 feet to a point; THENCE leaving said Right of Way and running North 44 degrees 09 minutes 46 seconds West a distance of 104.61 feet to a point; THENCE North 38 degrees 58 minutes 39 seconds West a distance of 70.62 feet to a point; THENCE North 20 degrees 28 minutes 06 seconds East a distance of 94.79 feet to a point; THENCE South 76 degrees 51 minutes 10 seconds East a distance of 113.83 feet to a point; THENCE South 61 degrees 05 minutes 57 seconds East a distance of 38.90 feet to a point on the westerly Right of Way of Fayetteville Road aka State Route 54 (80' R/W), said point being the **TRUE POINT OF BEGINNING.** Said buffer contains 7,742 square feet or 0.18 acre.

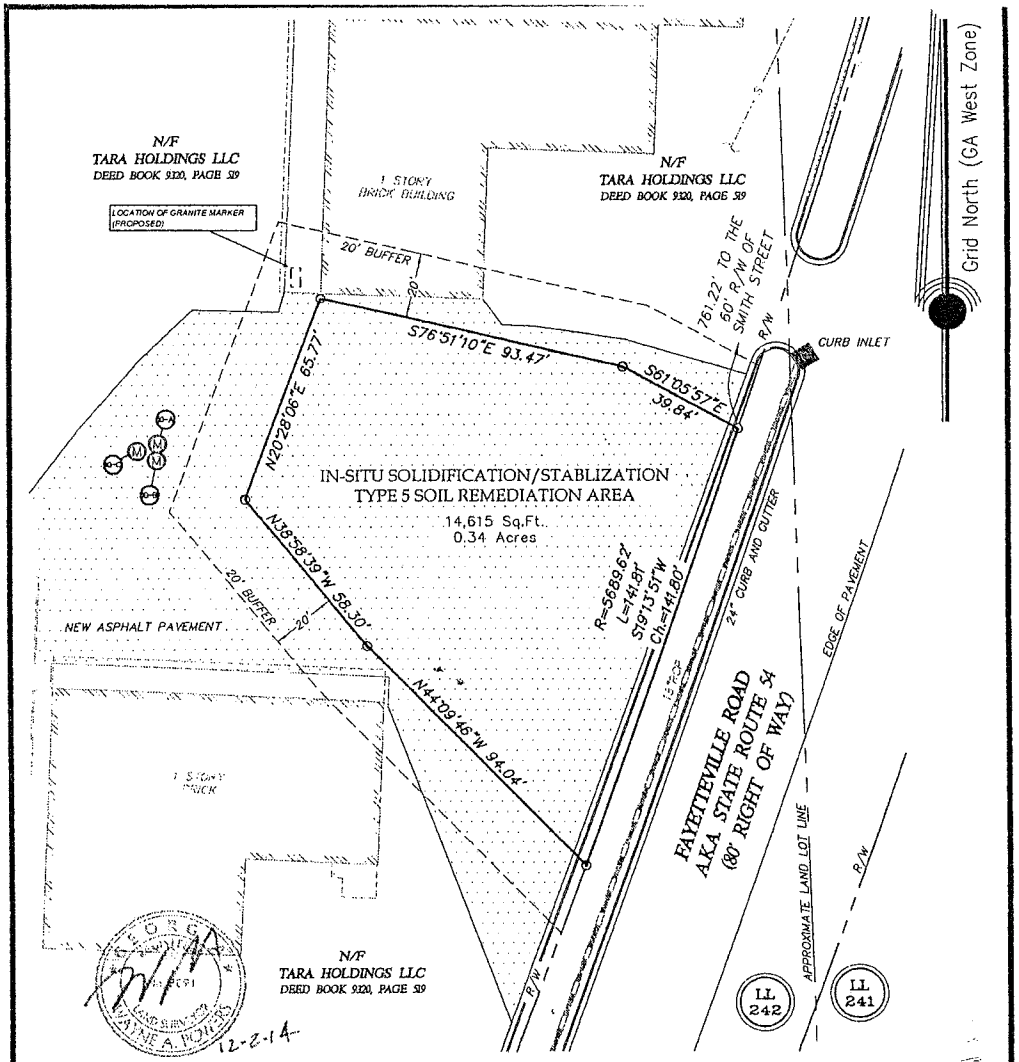
BK 1074 PG 396

Exhibit D

Type 5 Soil Restricted Use Area Map

BK10748PG397

BK I 0748PG398



LEGEND

- LL 242 — LAND LOT IDENTIFICATION
- 7-B — MONITORING WELL IDENTIFICATION
- (M) — MONITORING WELL (MW)
- SANITARY SEWER MANHOLE
- CLEAN OUT
- DROP INLET
- HEADWALL
- A.K.A. — ALSO KNOWN AS
- SANITARY SEWER LINE
- STORM SEWER LINE
- NEW ASPHALT PAVING

TYPE 5 SOIL RESTRICTED USE AREA

- TYPE 5 BOUNDARY LIMITS
- 20' BUFFER

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Travis Pruitt & Associates, Inc.

This plat was prepared for the exclusive use of the person, persons, or entity named in the title block. Said use does not extend to any unnamed person without express permission by the surveyor naming said person.

The survey shown hereon was prepared without benefit of any abstract of title; therefore, Wayne A. Powers and Travis Pruitt & Associates, Inc. make no guarantees or representations regarding information shown hereon pertaining to easements, rights of way, setback lines, agreements, reservations, and other similar matters.

Survey References:
1. ALTA/ACSM Land Title Survey for Yukon Properties, LLC, and Chicago Title Insurance Company prepared by Travis Pruitt & Associates, Inc., dated March 7, 2007. (FN: 206-E-046)

Certification:
This is to certify that this survey was made under my supervision and is a true representation of the land surveyed. The field data upon which this survey is based has a closure precision of one foot in 10,000± feet, and an angular error of 1" per angle point, and was adjusted using the least squares method. Angular and linear measurements were made using a Trimble 5603 Robotic Total Station.

12-2-14
Wayne A. Powers — Date
Georgia Reg. Land Surveyor No. 2891
For the Firm Travis Pruitt & Associates, Inc.

This map or plat has been calculated for closure and is found to be accurate within one foot in 149,463 feet.

Pursuant to Rule 180-6.09 of the Georgia State Board of Registration for Professional Engineers and Land Surveyors, the term "certify" or "certification" relating to land surveying services shall mean a signed statement based on facts and knowledge known to the land surveyor and is not a guarantee or warranty, either expressed or implied.

REVISIONS		
6		
5		
4		
3		
2		
1		
0	12/2/2014	REVISE PER CLIENT COMMENTS BS

BOUNDARY SURVEY
SOIL RESTRICTED USE AREA
8564 TARA BOULEVARD
AUTHORIZED BY EHS SUPPORT INC
LAND LOT 242 — 13TH DISTRICT
CITY OF JONESBORO, CLAYTON COUNTY, GEORGIA

15 0 30 60 90
GRAPHIC SCALE — IN FEET

Travis Pruitt & Associates, Inc.
4317 Park Drive, Suite 400
Norcross, Georgia 30093
Phone: (770)416-7511
Fax: (770)416-6759
www.travispruitt.com
Certificate of Authorization Number 613

PLAT DATE:	11/25/2014
FIELD DATE:	11/12/2014
SCALE:	1"=30'
JN:	140402.604MS
FN:	101-8-078
DRAWN BY:	BS
Sheet No.	1 of 1

MONITORING AND MAINTENANCE PLAN

Tara Shopping Center
8600 Tara Boulevard
Jonesboro, Clayton County, Georgia
Tax Parcel 13242D B001

Former Dry Cleaner Site
HSI# 10798

Prepared For:

Weener & Nathan LLP
5887 Glenridge Drive, NE, Suite 275
Atlanta, Georgia 30328
Tara Retail Holdings LLC

Ashland Inc.
5200 Blazer Parkway
Dublin, Ohio 43017

Prepared By:

EHS Support
consider it done

May 2015

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FIGURES

Figure 1 Site Plan
Figure 2 Type 5 Soil Restricted Use Area

APPENDICES

Appendix A Environmental Covenant
Appendix B Permanent Marker Monument
Appendix C Forms

1.0 INTRODUCTION

This Monitoring and Maintenance (M&M) plan is prepared for the Tara Shopping Center identified at 8600 Tara Boulevard, Jonesboro, Clayton County, Georgia (the Property). The Property was included on the Georgia Environmental Protection Division's (EPD) Hazardous Site Inventory (HSI) as #10798 in 2004 for suspected releases on the Property from former on-site dry cleaning operations. A Site Plan, identifying the location of former dry cleaners, is provided as **Figure 1.**

In 2013, remediation activities were completed to immobilize sources of volatile organic compounds (VOCs) in soil at concentrations above the State of Georgia Type 1 Risk Reduction Standards (RRSs) as a result of releases from former dry cleaner operations. Soil remediation was completed to meet Type 5 RRSs. Engineering controls in the form of an asphalt cap and concrete cover are designed to maintain the integrity of existing monolith (i.e., Treatment Area) as well as address peripheral soil exceeding Type 1 RRS that was not accessible during remediation work due to restrictions associated with building structure set-backs and sub-surface utilities (i.e., Buffer Area). The engineering controls associated with the Type 5 soil restricted use area are depicted on **Figure 2**.

Groundwater monitoring wells at the Property were initially installed to identify the nature and extent of groundwater impacts from dry cleaners operations. Analytical data collected from monitoring wells will be used to assess the effectiveness of the soil remediation activities by monitoring changes in concentrations overtime. This performance monitoring is considered an engineering control for the Property. Monitoring well locations are depicted on **Figure 2**.

The Property is subject to an environmental covenant included in **Appendix A**. The Property owner (Owner) shall implement this M&M Plan consistent with that environmental covenant.

1.1 Property Description

The Tara Shopping Center is comprised of two multi-tenant commercial buildings and surrounding asphalt parking areas to the west. Dry cleaning operations were conducted between 1970 and 2005 (35 years) by a tenant in the southernmost, west facing unit (8564 Tara Boulevard). The primary constituents of concern (COCs) associated with the former dry cleaning operations and releases at the Property are tetrachlorothene (PCE), trichloroethene (TCE), cis-1,2-dichloroethene (cis-1,2-DCE), and vinyl chloride. Tetracholorethene, TCE, cis-1,2-DCE and vinyl chloride were identified in soil and groundwater above their respective Type 1 RRSs.

1.2 Remedy Selection

In-Situ Solidification/Stabilization was implemented in July 2013 to immobilize VOCs present in unsaturated and saturated soil at the Property. Solidification/Stabilization includes processes that mix inorganic cementitious reagents into affected material to transform the material into a durable, solid, low–hydraulic conductivity material that reduces the rate of contaminant migration through leaching. The resulting area of solid material is known as a monolith.

1.3 Treatment and Buffer Areas

The total volume of soil treated in place was approximately 13,215 cubic yards. The area of treatment is located immediately south of the west facing building structure (beneath the former dry cleaner and nail salon which were removed during treatment) extending, south toward the north facing outbuilding, east to the curb line, and west toward monitoring well MW-10 cluster. The Treatment Area is depicted on **Figure 2.**

Due to limitations with access, areas east and north were not fully treated; however these areas are protected under an existing asphalt and/or concrete engineering cover. Therefore, the Type 5 soil restricted use area includes a 20-foot buffer around the Treatment area. This Buffer Area is depicted on **Figure 2**.

1.4 Site Restoration

Following completion of Solidification/Stabilization activities, the Treatment Area was graded to match the pre-existing sub-grade. A six-inch gravel sub-base and a two-inch thick asphalt cover was then placed over the Treatment Area similar to the existing surrounding parking lot structure (original estimated area 17,082 square feet). To ensure the integrity of the Treatment Area, the new asphalt cover was extended beyond the limits of the Treatment Area. In total, 22,869 square feet of the Property was repaved at the completion of the remediation work.

2.0 ENGINEERING CONTROLS

2.1 Asphalt Cap

The engineering control consists of an asphalt cap in the vicinity of the Treatment Area. Areas surrounding the Treatment Area include asphalt and/or concrete surfaces consisting of existing parking lots and concrete slab foundations. The asphalt cap will be inspected as part of on-going maintenance and monitoring activities to ensure the integrity of the cap. Monitoring and maintenance activities are discussed in Section 3.0.

2.2 Permanent Markers

The Environmental Covenant mandates that the Property be fitted with marker(s) identifying the Property as a "restricted area". A granite marker will be placed in the location shown on **Figure 2**. An example of the permanent marker is provided in **Appendix B**.

2.3 Performance Monitoring

There are 21 monitoring wells on the Property (MW-1A/C, MW-3A/B, MW-7B/C, MW-8A/B/C, MW-9A/B/C, MW-10A/B/C, MW-11A/B/C, MW-12A, MW-14A, and MW-17A). Consistent with on-going groundwater investigations, supplemental groundwater monitoring will be completed down gradient of the Type 5 soil restricted use area to assess any changes in groundwater conditions in response to soil remediation. The monitoring wells included in this evaluation are presented in the table below.

Monitoring Well ID	**Water Zone***
MW-3A, MW-8A, MW-9A, MW-10A, MW-11A	Upper Residuum
MW-3B, MW-8B, MW-9B, MW-10B, MW-11B	Lower Residuum
MW-8C, MW-9C, MW-10C, MW-11C	Bedrock

*Upper Residuum is generally screened between 20 to 40 feet below grade

*Lower Residuum is generally screened between 40 to 60 feet below grade

*Bedrock is generally screened between 70 to 90 feet below grade

The proposed schedule for groundwater monitoring in the vicinity of soil remediation includes a minimum of semi-annual monitoring for a period of two years. Groundwater sampling will be performed using low-flow sampling procedures in accordance with the Georgia EPD and USEPA Region 4 guidance documents. Groundwater samples will be analyzed for VOCs using USEPA Method 8260 at TestAmerica in Savannah, Georgia.

Property monitoring wells will be inspected as part of on-going maintenance and monitoring activities. Monitoring and maintenance activities are discussed in Section 3.0.

3.0 MAINTENANCE AND INSPECTION PLANS

This section of the M&M plan describes the methods, procedures, and processes that must be used to inspect and maintain the engineering controls at the Property. Use of the Property must not damage the integrity of the asphalt and/or concrete cap, or interfere with other engineering controls.

When intrusive activities are required in the Type 5 area, any extracted, impacted soil should be managed in accordance with all applicable local, state and federal rules and regulations governing the management of such material. Intrusive activities must be performed by personnel with appropriate HAZWOPER training per OSHA's Hazardous Waste Operations and Emergency Response Standard 29 CFR 1910.120, and the work must be performed in accordance with a Health and Safety Plan prepared by a qualified safety professional. Contaminated excavated soil in this area should not be placed back into the excavation, but be properly characterized for disposal and transported and disposed of at an appropriate disposal facility. The excavation should be backfilled with clean surficial soil or fill material and recapped with an impervious surface.

Maintenance and inspection of the Property must be performed by person(s) experienced in the maintenance and inspection of the engineering controls at the Property through both professional training and educational experience sufficient to evaluate the condition of the Property as it relates to the requirements set forth below. Minimum experience requires the inspector be a Georgia certified Professional Engineer or Professional Geologist.

Maintenance and inspection activity documentation includes the Property Inspection Log Form and Property Maintenance Record Form. Inspection logs include the date of the inspection, name of the inspector(s), component inspected, weather conditions, condition of the item inspected, notation of any damages requiring attention and indicate if the noted damage would be classified as Major Damage. Maintenance records include the dates repairs were initiated and completed, and the name of the person recording the information. Comments describing the severity of the damage (i.e., major) must also be noted on the maintenance record along with a description of the repairs. A copy of the inspection and maintenance forms are in **Appendix C**.

3.1 Asphalt and/or Concrete Cap

It is necessary to maintain the integrity and effectiveness of the asphalt and/or concrete cap to avoid cracks extending through the depth of the asphalt and/or concrete cap; and/or failure of coal tar emulsion asphalt seal such that surface water comes in contact with contaminated soil ("Major Damage"), including making repairs as necessary. The asphalt and/or concrete cap must be inspected every year. The inspection must evaluate the asphalt and/or concrete cap to ensure adequate quantity and quality of the asphalt and/or concrete cap to correct excessive settling and other events and to minimize the likelihood of run on and run off causing material surface water infiltration. Positive drainage must be maintained across the asphalt and/or concrete cap to prevent ponding. The results of the inspection must be recorded on the Property Inspection Log Form in **Appendix C**. All maintenance of the cap must be documented in a logbook and on Property Maintenance Record Form in **Appendix C**. If Major Damage is noted, repairs must be completed within sixty (60) days of discovery. All other items requiring repair must be completed within ninety (90) days of discovery. Repairs must be made in accordance with the good engineering practices and must be conducted by qualified personnel.

3.2 Permanent Markers

The structural integrity of the granite marker must be maintained to avoid crushed, broken, or defaced markers making markers unreadable; markers removed from the Property; and/or damage to asphalt or concrete, such that the marker can be removed ("Major Damage"). The granite marker must be inspected

every calendar year. The results of the inspection must be recorded on the Property Inspection Log Form in **Appendix C**. All maintenance must be documented in a logbook and on Property Maintenance Record Form in **Appendix C**. If Major Damage is noted, repairs must be completed within sixty (60) days of discovery. All other items requiring repair must be completed within ninety (90) days of discovery. Repairs must be made in accordance with good engineering practices and must be conducted by qualified personnel.

3.3 Groundwater Monitoring Wells

The groundwater monitoring wells at the Property must be maintained and inspected annually. The wells must be visually inspected for signs of grout or concrete stress or failure, and the watertight locking caps must be inspected for cracked or torn rubber seals. The results of the inspection must be recorded on the Property Inspection Log Form in **Appendix C**. Damage to the locks, wells, and well labels could result from vandalism or weathering. Any damage of the groundwater-monitoring network must be repaired. If locks have rusted and do not function properly, they must be replaced. All wells must remain securely locked. The following conditions are considered Major Damage:

- Damaged well vault or vault cover
- Damaged well cap
- Damaged well casing inside well
- Erosion undermining concrete pad around well
- Damage or cracking of concrete pad around well

If Major Damage is noted, repairs must be completed within sixty (60) days of discovery. All other items requiring repair must be completed within ninety (90) days of discovery. Repairs must be made in accordance with good engineering practices and must be conducted by qualified personnel. All maintenance must be documented in a logbook and on Property Maintenance Record Form in **Appendix C**.

4.0 PLANNED USES OF THE PROPERTY

The Property Owner (Owner) will ensure that any use of the Property preserves the integrity and effectiveness of the cap, and remain protective of human health and the environment. These requirements are imposed through the Environmental Covenant filing that provides, among other things, that the Property shall only be used for non-residential purposes. The Owner will inspect/monitor the Property annually to ensure the use of the Property remains in compliance with the Environmental Covenant restrictions. Use of the Property will remain non-residential unless a change in use is approved by the Director of EPD. The inspection will verify the following:

- Groundwater is not being used for drinking water or any other non-remedial purposes.
- The Property is being used by owners, tenants, and other occupants for non-residential purposes only.
- All lease agreements, and other agreements concerning the use of the Property, including contracts and informal agreements, must be reviewed to ensure they restrict occupants to non-residential use of the Property.

The Owner will summarize the results of the inspection in a Property use statement that will be maintained in its M&M plan records and submitted to EPD on an annual basis. The Owner will ensure that any future changes in use of the Property that impact the engineering controls will be submitted for approval to the EPD and will not commence until approved by EPD in accordance with Paragraph 2 of the Environmental Covenant (i.e., Notice). The Owner will cause the M&M Plan to be reviewed and revised as appropriate. If it is determined the M&M Plan must be revised, the Owner will submit the revised M&M Plan to EPD for review and approval at least sixty (60) days prior to the proposed change in use, but will not permit that change of use until receipt of EPD's approval.

The asphalt and/or concrete cap is designed and will be maintained to have a minimum of two (2) inches of asphalt and/or concrete cover to minimize the infiltration of surface water into the contaminated soils that remain on the Property. The Owner may permit the cap be penetrated in order to perform work necessary to implement corrective action; perform additional remediation; install, maintain, repair or replace utilities, structures and engineering controls; or for any other reason approved by EPD. All such activities will be performed in a manner to minimize the release or exposure to the regulated substances under the cap, in accordance with this M&M Plan.

5.0 REPORTING

Pursuant to the Environmental Covenant, Section 5 (Periodic Reporting), the Owner shall submit to EPD an Annual Report including, but not limited to, maintenance and inspection activities, certification of non-residential use of the Property, and documentation stating whether or not the activity and use limitations at the Property comply with the Environmental Covenant established for the Property. A copy of the Annual Report must be submitted to the following:

State of Georgia
Department of Natural Resources
Environmental Protection Division
2 Martin Luther King Jr. Drive, SE
Suite 1456 East Tower
Atlanta, GA 30334

5.1 Maintenance and Inspection Reports

The Owner must submit maintenance and inspection reports along with a cover letter to EPD annually by June 15th. The cover letter shall state the name, mailing address, telephone number, facsimile number, and e-mail of the person EPD should contact regarding the requirements associated with the Property must be provided to EPD.

The maintenance and inspection reports must include the following signed certifications:

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate that information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fines and imprisonment for knowing violations.

_____
Authorized Signature

I certify that I am a qualified engineer or geologist who has received a baccalaureate or post-graduate degree in engineering, geology, or similar discipline, and have sufficient training and experience in designing and/or evaluating caps and installing and evaluating monitoring wells, as demonstrated by State registration and completion of accredited university courses, that enable me to make sound professional judgment regarding the effectiveness of engineering controls at this site. I also certify that this report meets the requirements set forth in the Monitoring and Maintenance Plan for the site. I further certify that this report was prepared by myself or by a subordinate working under my direction.

_____
PE/PG Signature and Seal

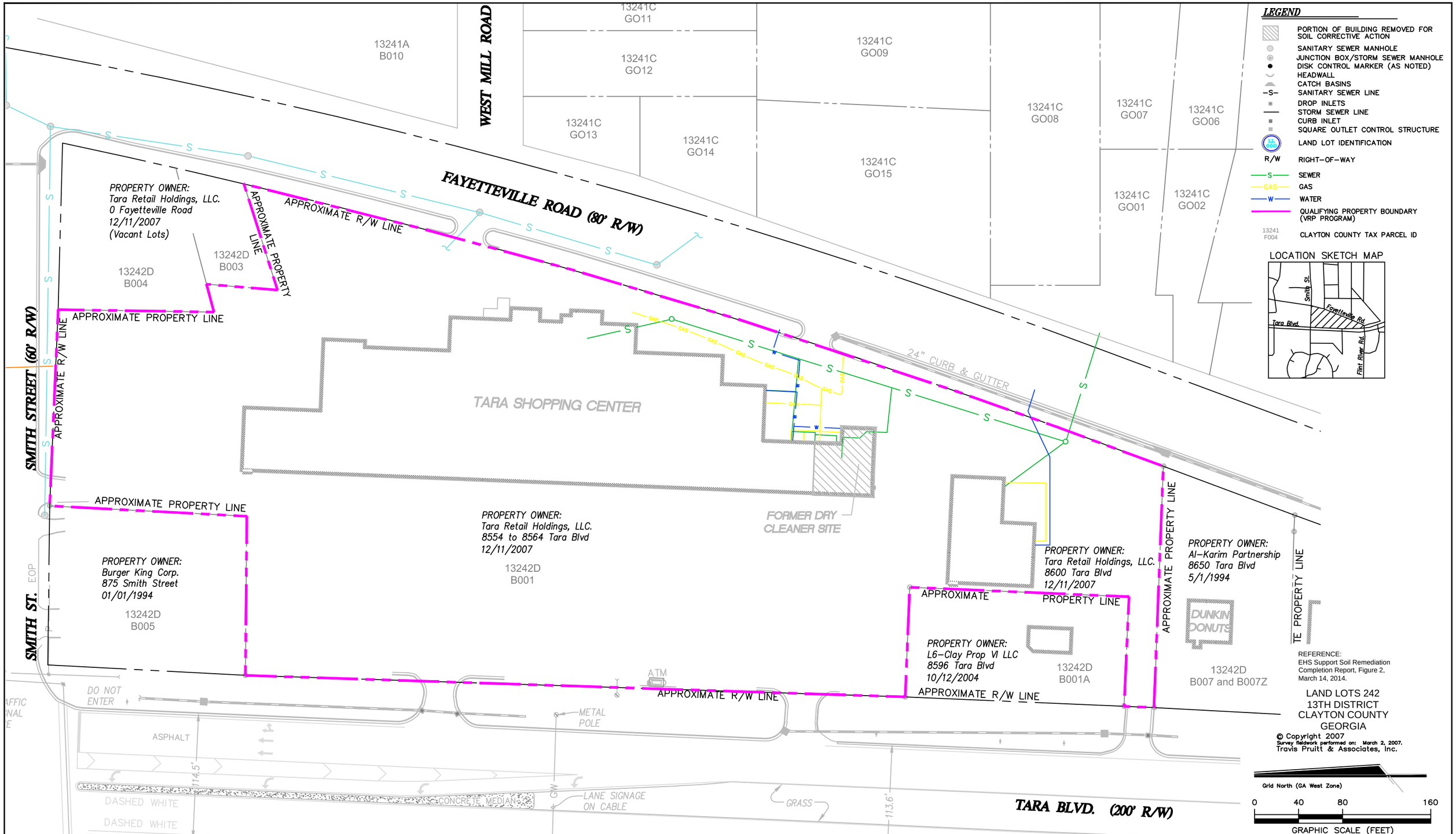
5.2 Site Use, Activity, and Monitoring Property Evaluation Form

The Owner shall submit a Site Use, Activity, and Monitoring Property Evaluation Form along with a property use statement regarding compliance with the non-residential use requirements to EPD annually by June 15th together with the Annual Report. A copy of the Site Use, Activity, and Monitoring Property Evaluation Form is provided as **Appendix A**.

The property use statement must include the following signed certification:

> *I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate that information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fines and imprisonment for knowing violations,*
>
> _____
> *Authorized Signature*

FIGURES



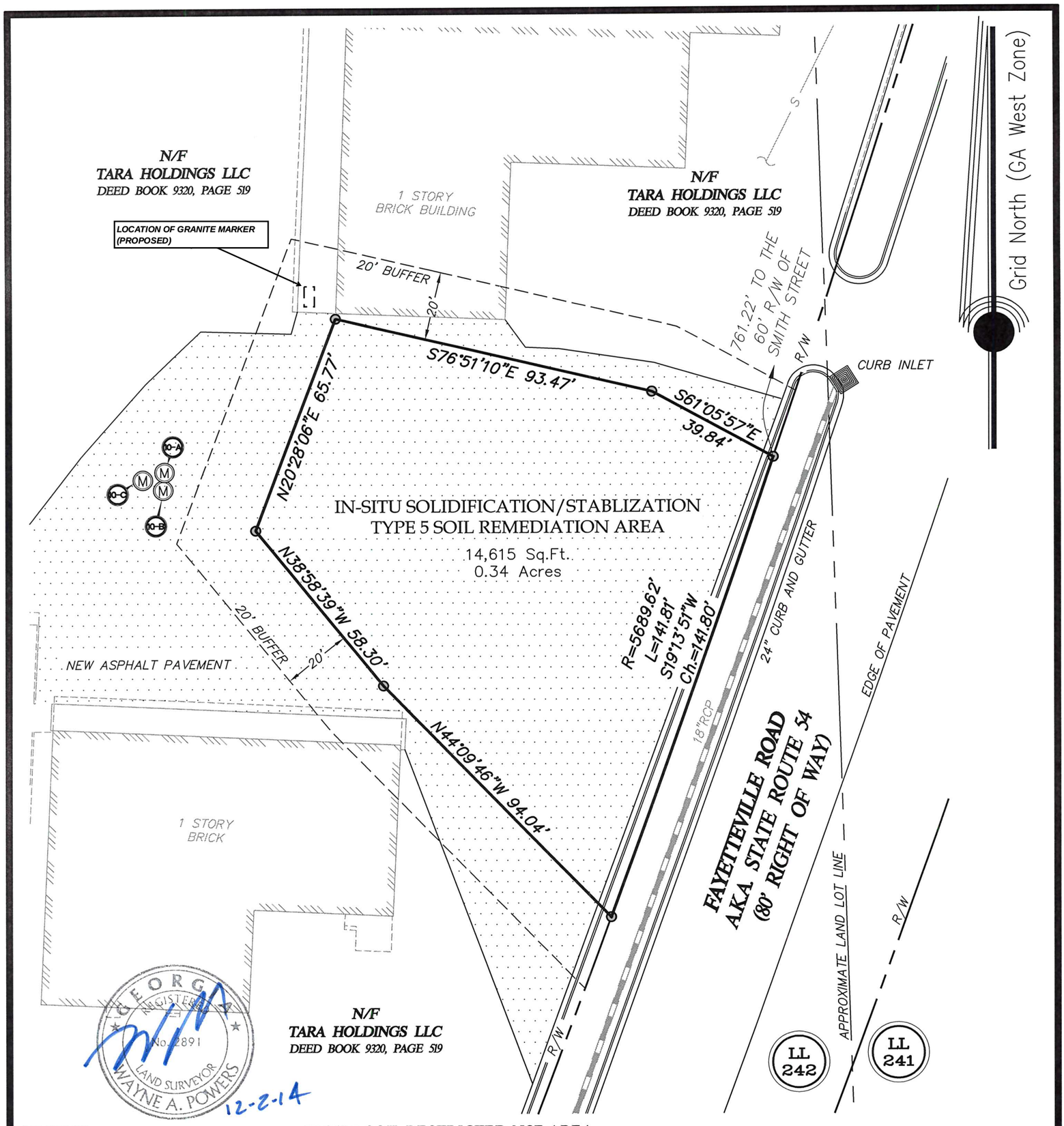
EHS Support *consider it done*

REVISIONS				
Rev.		By:	Disc.:	Date:
Rev.		By:	Disc.:	Date:
Rev.		By:	Disc.:	Date:
Rev.		By:	Disc.:	Date:

TARA SHOPPING CENTER
8600 TARA BOULEVARD
JONESBORO, GEORGIA
HSI # 10796

FIGURE 1
SITE PLAN

Drawn By:	MDO	Date Drawn:	07/2014
Reviewed By:	MSS	Date Reviewed:	07/2014
Scale:	1" = 80'	Plot Date:	07/2014
Project Number:	C00342-2014		



LEGEND

- LL 242 — LAND LOT IDENTIFICATION
- 7-B — MONITORING WELL IDENTIFICATION
- M — MONITORING WELL (MW)
- SANITARY SEWER MANHOLE
- CLEAN OUT
- DROP INLET
- HEADWALL
- A.K.A. — ALSO KNOWN AS
- ---S--- SANITARY SEWER LINE
- STORM SEWER LINE
- NEW ASPHALT PAVING

TYPE 5 SOIL RESTRICTED USE AREA

- TYPE 5 BOUNDARY LIMITS
- 20' BUFFER

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Travis Pruitt & Associates, Inc.

This plat was prepared for the exclusive use of the person, persons, or entity named in the title block. Said use does not extend to any unnamed person without express permission by the surveyor naming said person.

The survey shown hereon was prepared without benefit of any abstract of title; therefore, Wayne A. Powers and Travis Pruitt & Associates, Inc. make no guarantees or representations regarding information shown hereon pertaining to easements, rights of way, setback lines, agreements, reservations, and other similar matters.

Survey References:

1. ALTA/ACSM Land Title Survey for Yukon Properties, LLC, and Chicago Title Insurance Company prepared by Travis Pruitt & Associates, Inc., dated March 7, 2007. (FN: 206-E-046)

Certification:

This is to certify that this survey was made under my supervision and is a true representation of the land surveyed. The field data upon which this survey is based has a closure precision of one foot in 10,000± feet, and an angular error of 1" per angle point, and was adjusted using the least squares method. Angular and linear measurements were made using a Trimble 5603 Robotic Total Station.

12-2-14

Wayne A. Powers — Date
Georgia Reg. Land Surveyor No. 2891
For the Firm Travis Pruitt & Associates, Inc.

This map or plat has been calculated for closure and is found to be accurate within one foot in 149,463 feet.

Pursuant to Rule 180-6.09 of the Georgia State Board of Registration for Professional Engineers and Land Surveyors, the term "certify" or "certification" relating to land surveying services shall mean a signed statement based on facts and knowledge known to the land surveyor and is not a guarantee or warranty, either expressed or implied.

REVISIONS			
6			
5			
4			
3			
2			
1			
0	12/2/2014	REVISE PER CLIENT COMMENTS	BS

BOUNDARY SURVEY

SOIL RESTRICTED USE AREA
8564 TARA BOULEVARD

AUTHORIZED BY EHS SUPPORT INC

LAND LOT 242 ~ 13TH DISTRICT
CITY OF JONESBORO, CLAYTON COUNTY, GEORGIA

15 0 30 60 90
GRAPHIC SCALE – IN FEET

Travis Pruitt & Associates, Inc.
ENGINEERS · SURVEYORS · LANDSCAPE ARCHITECTS · ENVIRONMENTAL SCIENTISTS
4317 Park Drive, Suite 400
Norcross, Georgia 30093
Phone: (770)416-7511
Fax: (770)416-6759
www.travispruitt.com
Certificate of Authorizaton Number 613

PLAT DATE:	11/25/2014
FIELD DATE:	11/12/2014
SCALE:	1"=30'
JN:	140402.604MS
FN:	101-B-976
DRAWN BY:	BS
Sheet No.	1 of 1

D:\Civil 3D Projects\140402.604\Survey\Dwg\140402.604MS.dwg , 11x17, BSpraggins, Dec. 2, 14-9:43:37 AM, 1:2.5849

APPENDIX A

Environmental Covenant

APPENDIX B

Permanent Marker Monument

Monument will be inscribed with the following text:

RESTRICTED AREA
SUBJECT TO ENVIRONMENTAL COVENANT
CALL THE PROPERTY OWNERS OR THE GEORGIA ENVIRONMENTAL PROTECTION DIVISION PRIOR TO DIGGING OR COMMENCING ANY LAND DISTURBANCE ACTIVITY



APPENDIX C

FORMS

SITE USE, ACTIVITY, AND MONITORING PROPERTY EVALUATION FORM

Tara Shopping Center 8600 Tara Blvd, Jonesboro, Georgia
(Former Dry Cleaners 8564 Tara Boulevard)
Parcel: 13242D B001 HSI No. 10798

Type	No.	Criteria Response	Yes	No
Property Use	1	Has the Property use changed, has construction work been implemented on the Property, or have building permits been applied for?		
	1a	If yes to 1, was EPD notified at least 30 days in advance?		
	1b	If no to 1a, attach a written explanation.		
Exposure	2	Has subsurface site work been conducted in the areas of the Property where soil and/or groundwater concentrations exceed site-specific risk reduction standards?		
	2a	If yes to 2, was EPD notified with 3 business days following the site work?		
	2b	Has groundwater extraction or use for non-remedial purposes occurred?		
	2c	If no to 2a or yes to 2b, attach a written explanation, including a description regarding whether the requirements of the Environmental Covenant were adhered to.		
Engineering Controls	3	Is the concrete/asphalt cover intact and of sufficient quality to prevent exposure to soil in the area of property designated for restricted use?.		
	3a	If no to 3, are corrective measures being taken? Notify EPD with 60 days of identification of damaged concrete/asphalt with a plan and schedule to repair. Please attached a written explanation.		
	3b	Have enclosed structures been installed on the Property or existing structures modified in such a way as to change potential vapor intrusion assumptions?		
Permanent Markers	4	Are the permanent marker(s) that delineate the restricted areas in place and legible?		
Groundwater Monitoring Wells	5	Have monitoring wells been inspected and is the integrity of monitoring wells intact?		
	5a	If no to 5, are corrective measures being taken? Notify EPD with 60 days of identification of damaged wells with a plan and schedule to repair. Please attached a written explanation.		
Property Instruments	6	Do all leases or other property instruments for the Property have the applicable Environmental Covenant language inserted into them?		
	6a	If no to 5, attach a written explanation.		
Inspection	7	Date of inspection:		
	7a	Name of inspector:		
	7b	Photographs showing current land use, engineering controls, and permanent markers (attached)		

Certification:

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

_____ _____

NAME (Please type or print) TITLE

_____ _____

SIGNATURE DATE

PROPERTY INSPECTION LOG FORM Tara Shopping Center 8600 Tara Blvd, Jonesboro, Georgia (Former Dry Cleaners 8564 Tara Boulevard) Parcel: 13242D B001 HSI No. 10798		
Component Inspected	**Condition of Component**	**Check if Major Damage**
Asphalt and/or concrete cap		
Permanent Granite Marker(s)		
Groundwater Monitoring Wells		
MW-1A/C		
MW-3A/B		
MW-7B/C		
MW-8A/B/C		
MW-9A/B/C		
MW-10A/B/C		
MW-11A/B/C		
MW-12A		
MW-14A		
MW-17A		
Overall Property Condition		
Date of inspection:		
Name of inspector:		
Weather Conditions		
Photographs showing current land use, engineering controls, and permanent markers (attached)		

Certification:

I certify that I am a qualified engineer or geologist who has received a baccalaureate or post-graduate degree in engineering, geology, or similar discipline, and have sufficient training and experience in designing and/or evaluating caps and installing and evaluating monitoring wells, as demonstrated by State registration and completion of accredited university courses, that enable me to make sound professional judgment regarding the effectiveness of engineering controls at this site. I also certify that this report meets the requirements set forth in the Monitoring and Maintenance Plan for the site. I further certify that this report was prepared by myself or by a subordinate working under my direction.

_____

PE/PG Signature and Seal

PROPERTY MAINTENANCE RECORD FORM Tara Shopping Center 8600 Tara Blvd, Jonesboro, Georgia (Former Dry Cleaners 8564 Tara Boulevard) Parcel: 13242D B001 HSI No. 10798					
Component Inspected	**Repair Date**		**Description of Repair**	**Inspector**	**Check if Major Damage**
	Start	**Completed**			
Asphalt and/or concrete cap					
Permanent Granite Marker(s)					
Groundwater Monitoring Wells					
MW-1A/C					
MW-3A/B					
MW-7B/C					
MW-8A/B/C					
MW-9A/B/C					
MW-10A/B/C					
MW-11A/B/C					
MW-12A					
MW-14A					
MW-17A					
Overall Property Condition					
Photographs showing repairs					
Date of inspection:					
Name of inspector:					
Weather Conditions					
Comments:					

Certification:

I certify that I am a qualified engineer or geologist who has received a baccalaureate or post-graduate degree in engineering, geology, or similar discipline, and have sufficient training and experience in designing and/or evaluating caps and installing and evaluating monitoring wells, as demonstrated by State registration and completion of accredited university courses, that enable me to make sound professional judgment regarding the effectiveness of engineering controls at this site. I also certify that this report meets the requirements set forth in the Monitoring and Maintenance Plan for the site. I further certify that this report was prepared by myself or by a subordinate working under my direction.

_____

PE/PG Signature and Seal

APPENDIX G

EDR Radius Report (CD)

8660 TARA BOULEVARD
8660 TARA BOULEVARD
JONESBORO, GA 30236

Inquiry Number: 3910446.2s
April 14, 2014

The EDR Radius Map™ Report with GeoCheck®

EDR® Environmental Data Resources Inc

6 Armstrong Road, 4th floor
Shelton, CT 06484
Toll Free: 800.352.0050
www.edrnet.com

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Overview Map	2
Detail Map	3
Map Findings Summary	4
Map Findings	7
Orphan Summary	41
Government Records Searched/Data Currency Tracking	GR-1

GEOCHECK ADDENDUM

Physical Setting Source Addendum	A-1
Physical Setting Source Summary	A-2
Physical Setting SSURGO Soil Map	A-5
Physical Setting Source Map	A-15
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Physical Setting Source Records Searched	A-13

Thank you for your business.
Please contact EDR at 1-800-352-0050
with any questions or comments.

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This Report contains certain information obtained from a variety of public and other sources reasonably available to Environmental Data Resources, Inc. It cannot be concluded from this Report that coverage information for the target and surrounding properties does not exist from other sources. **NO WARRANTY EXPRESSED OR IMPLIED, IS MADE WHATSOEVER IN CONNECTION WITH THIS REPORT. ENVIRONMENTAL DATA RESOURCES, INC. SPECIFICALLY DISCLAIMS THE MAKING OF ANY SUCH WARRANTIES, INCLUDING WITHOUT LIMITATION, MERCHANTABILITY OR FITNESS FOR A PARTICULAR USE OR PURPOSE. ALL RISK IS ASSUMED BY THE USER. IN NO EVENT SHALL ENVIRONMENTAL DATA RESOURCES, INC. BE LIABLE TO ANYONE, WHETHER ARISING OUT OF ERRORS OR OMISSIONS, NEGLIGENCE, ACCIDENT OR ANY OTHER CAUSE, FOR ANY LOSS OF DAMAGE, INCLUDING, WITHOUT LIMITATION, SPECIAL, INCIDENTAL, CONSEQUENTIAL, OR EXEMPLARY DAMAGES. ANY LIABILITY ON THE PART OF ENVIRONMENTAL DATA RESOURCES, INC. IS STRICTLY LIMITED TO A REFUND OF THE AMOUNT PAID FOR THIS REPORT.** Purchaser accepts this Report "AS IS". Any analyses, estimates, ratings, environmental risk levels or risk codes provided in this Report are provided for illustrative purposes only, and are not intended to provide, nor should they be interpreted as providing any facts regarding, or prediction or forecast of, any environmental risk for any property. Only a Phase I Environmental Site Assessment performed by an environmental professional can provide information regarding the environmental risk for any property. Additionally, the information provided in this Report is not to be construed as legal advice.

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EXECUTIVE SUMMARY

A search of available environmental records was conducted by Environmental Data Resources, Inc (EDR). The report was designed to assist parties seeking to meet the search requirements of EPA's Standards and Practices for All Appropriate Inquiries (40 CFR Part 312), the ASTM Standard Practice for Environmental Site Assessments (E 1527-13) or custom requirements developed for the evaluation of environmental risk associated with a parcel of real estate.

TARGET PROPERTY INFORMATION

ADDRESS

8660 TARA BOULEVARD
JONESBORO, GA 30236

COORDINATES

Latitude (North):	33.5191000 - 33° 31' 8.76''
Longitude (West):	84.3630000 - 84° 21' 46.80''
Universal Tranverse Mercator:	Zone 16
UTM X (Meters):	744924.4
UTM Y (Meters):	3711757.8
Elevation:	882 ft. above sea level

USGS TOPOGRAPHIC MAP ASSOCIATED WITH TARGET PROPERTY

Target Property Map:	33084-E3 JONESBORO, GA
Most Recent Revision:	1995
West Map:	33084-E4 RIVERDALE, GA
Most Recent Revision:	1995

AERIAL PHOTOGRAPHY IN THIS REPORT

Photo Year:	2010
Source:	USDA

TARGET PROPERTY SEARCH RESULTS

The target property was identified in the following records. For more information on this property see page 7 of the attached EDR Radius Map report:

Site	Database(s)	EPA ID
PYE BARKER WELDING SUPPLY (CLOSED 8660 TARA BOULEVARD JONESBORO, GA 30236	AST	N/A

EXECUTIVE SUMMARY

DATABASES WITH NO MAPPED SITES

No mapped sites were found in EDR's search of available ("reasonably ascertainable ") government records either on the target property or within the search radius around the target property for the following databases:

STANDARD ENVIRONMENTAL RECORDS

Federal NPL site list

NPL ---------- National Priority List
Proposed NPL ---------- Proposed National Priority List Sites
NPL LIENS ---------- Federal Superfund Liens

Federal Delisted NPL site list

Delisted NPL ---------- National Priority List Deletions

Federal CERCLIS list

CERCLIS ---------- Comprehensive Environmental Response, Compensation, and Liability Information System
FEDERAL FACILITY ---------- Federal Facility Site Information listing

Federal RCRA CORRACTS facilities list

CORRACTS ---------- Corrective Action Report

Federal RCRA non-CORRACTS TSD facilities list

RCRA-TSDF ---------- RCRA - Treatment, Storage and Disposal

Federal RCRA generators list

RCRA-LQG ---------- RCRA - Large Quantity Generators

Federal institutional controls / engineering controls registries

US ENG CONTROLS ---------- Engineering Controls Sites List
US INST CONTROL ---------- Sites with Institutional Controls
LUCIS ---------- Land Use Control Information System

Federal ERNS list

ERNS ---------- Emergency Response Notification System

State and tribal landfill and/or solid waste disposal site lists

SWF/LF ---------- Solid Waste Disposal Facilities

State and tribal leaking storage tank lists

INDIAN LUST ---------- Leaking Underground Storage Tanks on Indian Land

State and tribal registered storage tank lists

INDIAN UST ---------- Underground Storage Tanks on Indian Land

FEMA UST ---- Underground Storage Tank Listing

State and tribal institutional control / engineering control registries

AUL ---- Uniform Environmental Covenants

State and tribal voluntary cleanup sites

INDIAN VCP ---- Voluntary Cleanup Priority Listing

ADDITIONAL ENVIRONMENTAL RECORDS

Local Brownfield lists

US BROWNFIELDS ---- A Listing of Brownfields Sites

Local Lists of Landfill / Solid Waste Disposal Sites

ODI ---- Open Dump Inventory
DEBRIS REGION 9 ---- Torres Martinez Reservation Illegal Dump Site Locations
SWRCY ---- Recycling Center Listing
HIST LF ---- Historical Landfills
INDIAN ODI ---- Report on the Status of Open Dumps on Indian Lands

Local Lists of Hazardous waste / Contaminated Sites

US CDL ---- Clandestine Drug Labs
DEL SHWS ---- Delisted Hazardous Site Inventory Listing
US HIST CDL ---- National Clandestine Laboratory Register

Local Land Records

LIENS 2 ---- CERCLA Lien Information

Records of Emergency Release Reports

HMIRS ---- Hazardous Materials Information Reporting System
SPILLS ---- Spills Information
SPILLS 90 ---- SPILLS 90 data from FirstSearch

Other Ascertainable Records

DOT OPS ---- Incident and Accident Data
DOD ---- Department of Defense Sites
FUDS ---- Formerly Used Defense Sites
CONSENT ---- Superfund (CERCLA) Consent Decrees
ROD ---- Records Of Decision
UMTRA ---- Uranium Mill Tailings Sites
US MINES ---- Mines Master Index File
TRIS ---- Toxic Chemical Release Inventory System
TSCA ---- Toxic Substances Control Act
FTTS ---- FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fungicide, & Rodenticide Act)/TSCA (Toxic Substances Control Act)
HIST FTTS ---- FIFRA/TSCA Tracking System Administrative Case Listing

SSTS Section 7 Tracking Systems
ICIS Integrated Compliance Information System
PADS PCB Activity Database System
MLTS Material Licensing Tracking System
RADINFO Radiation Information Database
FINDS Facility Index System/Facility Registry System
RAATS RCRA Administrative Action Tracking System
RMP Risk Management Plans
NPDES NPDES Wastewater Permit List
DRYCLEANERS Drycleaner Database
AIRS Permitted Facility and Emissions Listing
TIER 2 Tier 2 Data Listing
INDIAN RESERV Indian Reservations
SCRD DRYCLEANERS State Coalition for Remediation of Drycleaners Listing
LEAD SMELTERS Lead Smelter Sites
2020 COR ACTION 2020 Corrective Action Program List
US AIRS Aerometric Information Retrieval System Facility Subsystem
PRP Potentially Responsible Parties
US FIN ASSUR Financial Assurance Information
Financial Assurance Financial Assurance Information Listing
PCB TRANSFORMER PCB Transformer Registration Database
COAL ASH EPA Coal Combustion Residues Surface Impoundments List
COAL ASH Coal Ash Disposal Site Listing
COAL ASH DOE Steam-Electric Plant Operation Data
EPA WATCH LIST EPA WATCH LIST

EDR HIGH RISK HISTORICAL RECORDS

EDR Exclusive Records

EDR MGP EDR Proprietary Manufactured Gas Plants
EDR US Hist Cleaners EDR Exclusive Historic Dry Cleaners

EDR RECOVERED GOVERNMENT ARCHIVES

Exclusive Recovered Govt. Archives

RGA HWS Recovered Government Archive State Hazardous Waste Facilities List
RGA LUST Recovered Government Archive Leaking Underground Storage Tank
RGA LF Recovered Government Archive Solid Waste Facilities List

SURROUNDING SITES: SEARCH RESULTS

Surrounding sites were identified in the following databases.

Elevations have been determined from the USGS Digital Elevation Model and should be evaluated on a relative (not an absolute) basis. Relative elevation information between sites of close proximity should be field verified. Sites with an elevation equal to or higher than the target property have been differentiated below from sites with an elevation lower than the target property.
Page numbers and map identification numbers refer to the EDR Radius Map report where detailed data on individual sites can be reviewed.

Sites listed in ***bold italics*** are in multiple databases.

Unmappable (orphan) sites are not considered in the foregoing analysis.

EXECUTIVE SUMMARY

STANDARD ENVIRONMENTAL RECORDS

Federal CERCLIS NFRAP site List

CERC-NFRAP: Archived sites are sites that have been removed and archived from the inventory of CERCLIS sites. Archived status indicates that, to the best of EPA's knowledge, assessment at a site has been completed and that EPA has determined no further steps will be taken to list this site on the National Priorities List (NPL), unless information indicates this decision was not appropriate or other considerations require a recommendation for listing at a later time. This decision does not necessarily mean that there is no hazard associated with a given site; it only means that, based upon available information, the location is not judged to be a potential NPL site.

A review of the CERC-NFRAP list, as provided by EDR, and dated 10/25/2013 has revealed that there is 1 CERC-NFRAP site within approximately 0.5 miles of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
FLINT RIVER ROAD DUMP	871 FLINT RIVER RD	SW 0 - 1/8 (0.119 mi.)	B6	11

Federal RCRA generators list

RCRA-SQG: RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Small quantity generators (SQGs) generate between 100 kg and 1,000 kg of hazardous waste per month.

A review of the RCRA-SQG list, as provided by EDR, and dated 03/11/2014 has revealed that there is 1 RCRA-SQG site within approximately 0.25 miles of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
ASHLAND INC DRY CLEANER REMEDI	***8564 TARA BLVD***	***N 1/8 - 1/4 (0.135 mi.)***	***C7***	***12***

RCRA-CESQG: RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Conditionally exempt small quantity generators (CESQGs) generate less than 100 kg of hazardous waste, or less than 1 kg of acutely hazardous waste per month.

A review of the RCRA-CESQG list, as provided by EDR, and dated 03/11/2014 has revealed that there is 1 RCRA-CESQG site within approximately 0.25 miles of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
CVS PHARMACY #4549	8525 TARA BLVD	N 1/8 - 1/4 (0.197 mi.)	14	21

State- and tribal - equivalent CERCLIS

SHWS: The State Hazardous Waste Sites records are the states' equivalent to CERCLIS. These sites may or may not already be listed on the federal CERCLIS list. Priority sites planned for cleanup using state funds (state equivalent of Superfund) are identified along with sites where cleanup will be paid for by potentially responsible parties. The data come from the Department of Natural Resources' Hazardous Site Inventory.

A review of the SHWS list, as provided by EDR, and dated 07/01/2013 has revealed that there is 1 SHWS site within approximately 1 mile of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
TARA SHOPPING CENTER	***8564 TARA BOULEVARD***	***N 1/8 - 1/4 (0.135 mi.)***	***C8***	***14***

GA NON-HSI: Georgia Non Hazardous Site Inventory Sites.

A review of the GA NON-HSI list, as provided by EDR, and dated 12/31/2013 has revealed that there is 1 GA NON-HSI site within approximately 1 mile of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
CLAYTON COUNTY JUSTICE COMPLEX	9101 TARA BLVD.	SSE 1/2 - 1 (0.942 mi.)	23	40

State and tribal leaking storage tank lists

LUST: The Leaking Underground Storage Tank Incident Reports contain an inventory of reported leaking underground storage tank incidents. The data come from the Department of Natural Resources' Confirmed Release List.

A review of the LUST list, as provided by EDR, and dated 11/30/2013 has revealed that there are 8 LUST sites within approximately 0.5 miles of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
HAPPY STORE #502	***8545 TARA BLVD***	***NNW 1/8 - 1/4 (0.157 mi.)***	***C11***	***19***
HOWELL OIL CORP/SUPER SAVE (FO	***8781 TARA BLVD***	***S 1/8 - 1/4 (0.233 mi.)***	***D16***	***25***
QUIKTRIP #756	***8805 TARA BLVD***	***S 1/4 - 1/2 (0.255 mi.)***	***D17***	***27***
OLD PUBLIC WORKS LOT	***157 WEST MILL ST***	***ENE 1/4 - 1/2 (0.343 mi.)***	***18***	***30***
BST/JONESBORO CO/F1406	***109 SMITH ST***	***ENE 1/4 - 1/2 (0.484 mi.)***	***E20***	***35***
BELLSOUTH TELECOMM/F1489 - WOR	***107 SMITH ST***	***ENE 1/4 - 1/2 (0.493 mi.)***	***E21***	***35***
S&A FOOD & GAS INC	***155 S MCDONOUGH ST***	***E 1/4 - 1/2 (0.496 mi.)***	***22***	***37***

Lower Elevation	Address	Direction / Distance	Map ID	Page
FLINT RIVER CHEVRON	***526 FLINT RIVER RD***	***W 1/4 - 1/2 (0.450 mi.)***	***19***	***31***

State and tribal registered storage tank lists

UST: The Underground Storage Tank database contains registered USTs. USTs are regulated under Subtitle I of the Resource Conservation and Recovery Act (RCRA). The data come from the Department of Natural Resources' Underground Storage Tank Database.

A review of the UST list, as provided by EDR, and dated 07/01/2013 has revealed that there are 3 UST sites within approximately 0.25 miles of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
PIT STOP #14	***8664 TARA BLVD***	***SW 0 - 1/8 (0.032 mi.)***	***A4***	***9***
HAPPY STORE #502	***8545 TARA BLVD***	***NNW 1/8 - 1/4 (0.157 mi.)***	***C10***	***16***
HOWELL OIL CORP/SUPER SAVE (FO	***8781 TARA BLVD***	***S 1/8 - 1/4 (0.233 mi.)***	***D16***	***25***

AST: A listing of LP gas tank site locations.

A review of the AST list, as provided by EDR, and dated 06/04/2012 has revealed that there is 1 AST site within approximately 0.25 miles of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
PIT STOP	8664 TARA BOULEVARD	SW 0 - 1/8 (0.032 mi.)	A3	8

State and tribal institutional control / engineering control registries

INST CONTROL: Sites on the Public Record Listing that have institutional controls or limitations on use are sites with Risk Reduction Standards of 3, 4, and 5.

A review of the INST CONTROL list, as provided by EDR, and dated 02/04/2014 has revealed that there is 1 INST CONTROL site within approximately 0.5 miles of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
TARA SHOPPING CENTER	***8564 TARA BOULEVARD***	***N 1/8 - 1/4 (0.135 mi.)***	***C8***	***14***

State and tribal voluntary cleanup sites

VCP: Georgia's Voluntary Remediation Program Act was created to encourage voluntary investigation and remediation of contaminated properties.

A review of the VCP list, as provided by EDR, and dated 02/07/2014 has revealed that there is 1 VCP site within approximately 0.5 miles of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
Not reported	8554-8600 TARA BOULEVAR	N 1/8 - 1/4 (0.152 mi.)	C9	15

State and tribal Brownfields sites

BROWNFIELDS: The Brownfields Public Record lists properties where response actions under the Georgia Hazardous Site Reuse and Redevelopment Act are planned, ongoing or completed.

A review of the BROWNFIELDS list, as provided by EDR, and dated 02/04/2014 has revealed that there is 1 BROWNFIELDS site within approximately 0.5 miles of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
TARA SHOPPING CENTER	***8564 TARA BOULEVARD***	***N 1/8 - 1/4 (0.135 mi.)***	***C8***	***14***

ADDITIONAL ENVIRONMENTAL RECORDS

Other Ascertainable Records

RCRA NonGen / NLR: RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Non-Generators do not presently generate hazardous waste.

A review of the RCRA NonGen / NLR list, as provided by EDR, and dated 03/11/2014 has revealed that there are 2 RCRA NonGen / NLR sites within approximately 0.25 miles of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
DUNKIN DONUTS	8650 TARA BLVD	SW 0 - 1/8 (0.016 mi.)	A2	7
HOWELL OIL #18	***8781 TARA BLVD***	***S 1/8 - 1/4 (0.233 mi.)***	***D15***	***23***

EDR HIGH RISK HISTORICAL RECORDS

EDR Exclusive Records

EDR US Hist Auto Stat: EDR has searched selected national collections of business directories and has collected listings of potential gas station/filling station/service station sites that were available to EDR researchers. EDR's review was limited to those categories of sources that might, in EDR's opinion, include gas station/filling station/service station establishments. The categories reviewed included, but were not limited to gas, gas station, gasoline station, filling station, auto, automobile repair, auto service station, service station, etc. This database falls within a category of information EDR classifies as "High Risk Historical Records", or HRHR. EDR's HRHR effort presents unique and sometimes proprietary data about past sites and operations that typically create environmental concerns, but may not show up in current government records searches.

A review of the EDR US Hist Auto Stat list, as provided by EDR, has revealed that there are 3 EDR US Hist Auto Stat sites within approximately 0.25 miles of the target property.

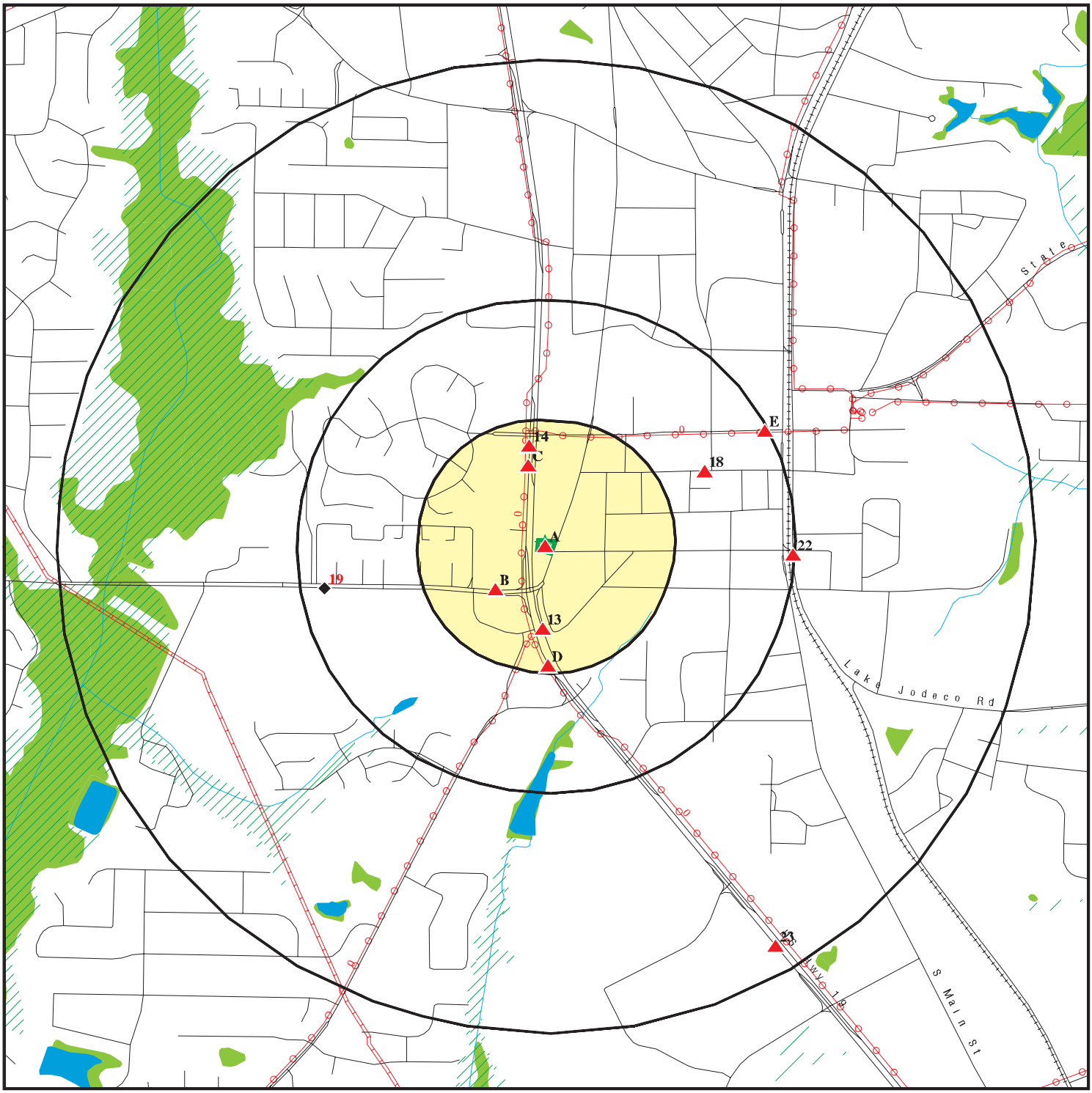
Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
Not reported	809 FLINT RIVER RD	SW 0 - 1/8 (0.115 mi.)	B5	11
Not reported	8545 TARA BLVD	NNW 1/8 - 1/4 (0.157 mi.)	C12	20
Not reported	8700 TARA BLVD	S 1/8 - 1/4 (0.157 mi.)	13	21

EXECUTIVE SUMMARY

Due to poor or inadequate address information, the following sites were not mapped. Count: 20 records.

Site Name	Database(s)
AUTO BODY SOLUTIONS	RCRA NonGen / NLR, FINDS, US AIRS
GEORGIA DEPARTMENT OF TRANSPORTA	LUST, UST, Financial Assurance
JOHN L MADDOCK INC	FINDS, LUST, UST, Financial Assurance
SHELL FOOD MART	UST, Financial Assurance
DOT ROW/BP OIL-GULF STATION FORM	LUST, UST, Financial Assurance
ARTHUR WILLIAMS INERT LANDFILL	SWF/LF
JOHN WIELAND HOMES INERT LANDFILL	SWF/LF
JOHN WIELAND HOMES INERT LANDFILL	SWF/LF
JOHN WIELAND HOMES INERT LANDFILL	SWF/LF
JOHN WIELAND HOMES INERT LANDFILL	SWF/LF
JOHN WIELAND HOMES INERT LANDFILL	SWF/LF
JOHN WIELAND HOMES INERT LANDFILL	SWF/LF
JOHN WIELAND HOMES INERT LANDFILL	SWF/LF
JOHN WIELAND HOMES INERT LANDFILL	SWF/LF
JOHN WIELAND HOMES INERT LANDFILL	SWF/LF
CORESLAB STRUCTURES(ATLANTA)INC. I	SWF/LF
CLAYTON COUNTY BOARD OF COMMISSION	SWF/LF
SPEEDWAY	AST
POWESZ INC DBA PATS CLEANERS	RCRA NonGen / NLR, FINDS
BODY MOTION COLLISION CENTER	RCRA NonGen / NLR, FINDS

OVERVIEW MAP - 3910446.2s



Target Property

Sites at elevations higher than or equal to the target property

Sites at elevations lower than the target property

Manufactured Gas Plants

National Priority List Sites

Dept. Defense Sites

0 1/4 1/2 1 Miles

Indian Reservations BIA

Power transmission lines

Oil & Gas pipelines from USGS

100-year flood zone

500-year flood zone

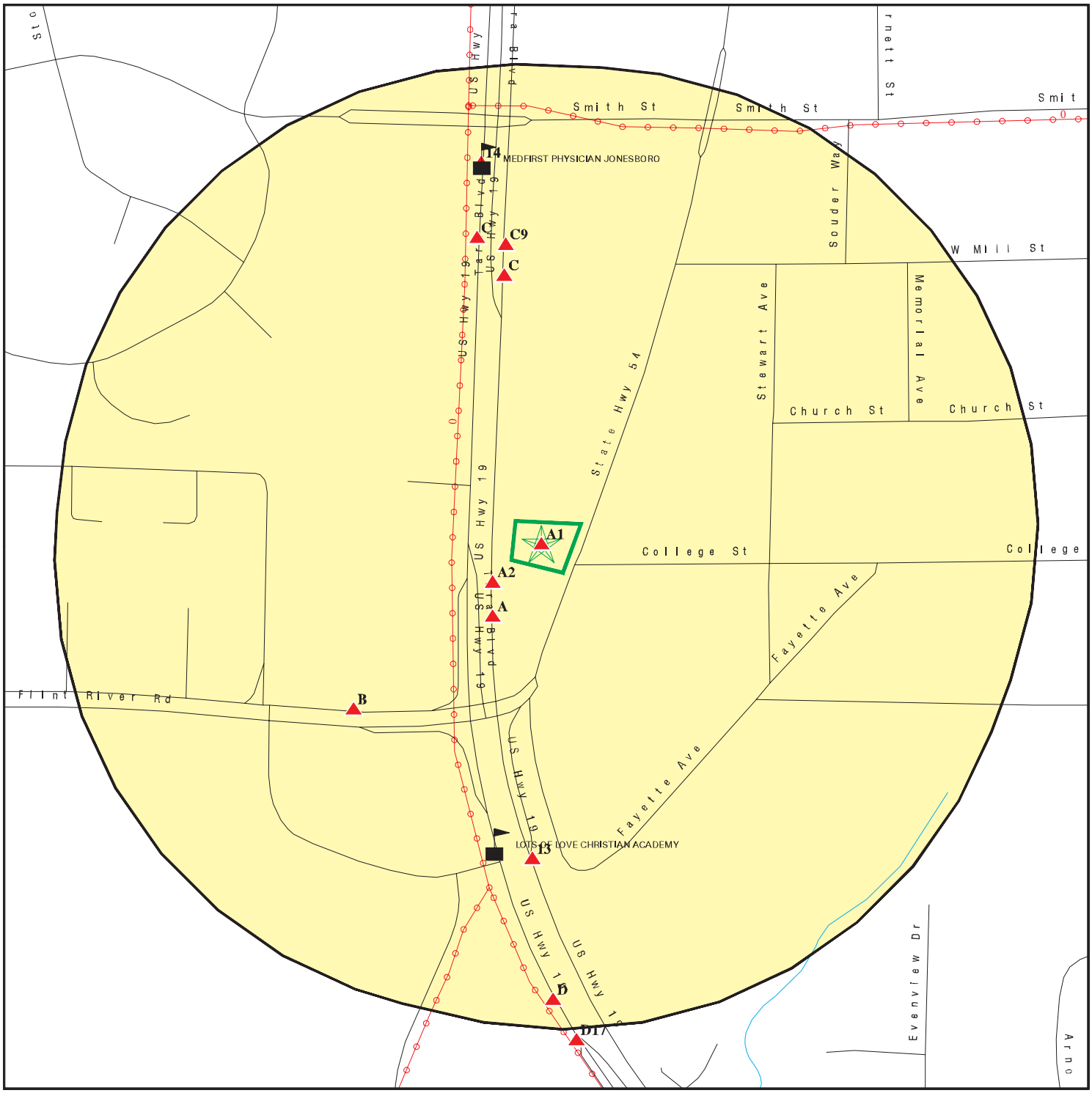
National Wetland Inventory

This report includes Interactive Map Layers to display and/or hide map information. The legend includes only those icons for the default map view.

SITE NAME: 8660 TARA BOULEVARD ADDRESS: 8660 TARA BOULEVARD JONESBORO GA 30236 LAT/LONG: 33.5191 / 84.363	CLIENT: EHS Support CONTACT: Michelle Stayrook INQUIRY #: 3910446.2s DATE: April 14, 2014 1:04 pm

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DETAIL MAP - 3910446.2s



0 1/16 1/8 1/4 Miles

- Target Property
- Sites at elevations higher than or equal to the target property
- Sites at elevations lower than the target property
- Manufactured Gas Plants
- Sensitive Receptors
- National Priority List Sites
- Dept. Defense Sites
- Indian Reservations BIA
- Power transmission lines
- Oil & Gas pipelines from USGS
- 100-year flood zone
- 500-year flood zone

This report includes Interactive Map Layers to display and/or hide map information. The legend includes only those icons for the default map view.

SITE NAME: 8660 TARA BOULEVARD	CLIENT: EHS Support
ADDRESS: 8660 TARA BOULEVARD JONESBORO GA 30236	CONTACT: Michelle Stayrook INQUIRY #: 3910446.2s
LAT/LONG: 33.5191 / 84.363	DATE: April 14, 2014 1:07 pm

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MAP FINDINGS SUMMARY

Database	Search Distance (Miles)	Target Property	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
STANDARD ENVIRONMENTAL RECORDS								
Federal NPL site list								
NPL	1.000		0	0	0	0	NR	0
Proposed NPL	1.000		0	0	0	0	NR	0
NPL LIENS	TP		NR	NR	NR	NR	NR	0
Federal Delisted NPL site list								
Delisted NPL	1.000		0	0	0	0	NR	0
Federal CERCLIS list								
CERCLIS	0.500		0	0	0	NR	NR	0
FEDERAL FACILITY	0.500		0	0	0	NR	NR	0
Federal CERCLIS NFRAP site List								
CERC-NFRAP	0.500		1	0	0	NR	NR	1
Federal RCRA CORRACTS facilities list								
CORRACTS	1.000		0	0	0	0	NR	0
Federal RCRA non-CORRACTS TSD facilities list								
RCRA-TSDF	0.500		0	0	0	NR	NR	0
Federal RCRA generators list								
RCRA-LQG	0.250		0	0	NR	NR	NR	0
RCRA-SQG	0.250		0	1	NR	NR	NR	1
RCRA-CESQG	0.250		0	1	NR	NR	NR	1
Federal institutional controls / engineering controls registries								
US ENG CONTROLS	0.500		0	0	0	NR	NR	0
US INST CONTROL	0.500		0	0	0	NR	NR	0
LUCIS	0.500		0	0	0	NR	NR	0
Federal ERNS list								
ERNS	TP		NR	NR	NR	NR	NR	0
State- and tribal - equivalent CERCLIS								
SHWS	1.000		0	1	0	0	NR	1
GA NON-HSI	1.000		0	0	0	1	NR	1
State and tribal landfill and/or solid waste disposal site lists								
SWF/LF	0.500		0	0	0	NR	NR	0
State and tribal leaking storage tank lists								
LUST	0.500		0	2	6	NR	NR	8
INDIAN LUST	0.500		0	0	0	NR	NR	0
State and tribal registered storage tank lists								
UST	0.250		1	2	NR	NR	NR	3

MAP FINDINGS SUMMARY

Database	Search Distance (Miles)	Target Property	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
AST	0.250	1	1	0	NR	NR	NR	2
INDIAN UST	0.250		0	0	NR	NR	NR	0
FEMA UST	0.250		0	0	NR	NR	NR	0
State and tribal institutional control / engineering control registries								
INST CONTROL	0.500		0	1	0	NR	NR	1
AUL	0.500		0	0	0	NR	NR	0
State and tribal voluntary cleanup sites								
VCP	0.500		0	1	0	NR	NR	1
INDIAN VCP	0.500		0	0	0	NR	NR	0
State and tribal Brownfields sites								
BROWNFIELDS	0.500		0	1	0	NR	NR	1
ADDITIONAL ENVIRONMENTAL RECORDS								
Local Brownfield lists								
US BROWNFIELDS	0.500		0	0	0	NR	NR	0
Local Lists of Landfill / Solid Waste Disposal Sites								
ODI	0.500		0	0	0	NR	NR	0
DEBRIS REGION 9	0.500		0	0	0	NR	NR	0
SWRCY	0.500		0	0	0	NR	NR	0
HIST LF	0.500		0	0	0	NR	NR	0
INDIAN ODI	0.500		0	0	0	NR	NR	0
Local Lists of Hazardous waste / Contaminated Sites								
US CDL	TP		NR	NR	NR	NR	NR	0
DEL SHWS	1.000		0	0	0	0	NR	0
US HIST CDL	TP		NR	NR	NR	NR	NR	0
Local Land Records								
LIENS 2	TP		NR	NR	NR	NR	NR	0
Records of Emergency Release Reports								
HMIRS	TP		NR	NR	NR	NR	NR	0
SPILLS	TP		NR	NR	NR	NR	NR	0
SPILLS 90	TP		NR	NR	NR	NR	NR	0
Other Ascertainable Records								
RCRA NonGen / NLR	0.250		1	1	NR	NR	NR	2
DOT OPS	TP		NR	NR	NR	NR	NR	0
DOD	1.000		0	0	0	0	NR	0
FUDS	1.000		0	0	0	0	NR	0
CONSENT	1.000		0	0	0	0	NR	0
ROD	1.000		0	0	0	0	NR	0

MAP FINDINGS SUMMARY

Database	Search Distance (Miles)	Target Property	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
UMTRA	0.500		0	0	0	NR	NR	0
US MINES	0.250		0	0	NR	NR	NR	0
TRIS	TP		NR	NR	NR	NR	NR	0
TSCA	TP		NR	NR	NR	NR	NR	0
FTTS	TP		NR	NR	NR	NR	NR	0
HIST FTTS	TP		NR	NR	NR	NR	NR	0
SSTS	TP		NR	NR	NR	NR	NR	0
ICIS	TP		NR	NR	NR	NR	NR	0
PADS	TP		NR	NR	NR	NR	NR	0
MLTS	TP		NR	NR	NR	NR	NR	0
RADINFO	TP		NR	NR	NR	NR	NR	0
FINDS	TP		NR	NR	NR	NR	NR	0
RAATS	TP		NR	NR	NR	NR	NR	0
RMP	TP		NR	NR	NR	NR	NR	0
NPDES	TP		NR	NR	NR	NR	NR	0
DRYCLEANERS	0.250		0	0	NR	NR	NR	0
AIRS	TP		NR	NR	NR	NR	NR	0
TIER 2	TP		NR	NR	NR	NR	NR	0
INDIAN RESERV	1.000		0	0	0	0	NR	0
SCRD DRYCLEANERS	0.500		0	0	0	NR	NR	0
LEAD SMELTERS	TP		NR	NR	NR	NR	NR	0
2020 COR ACTION	0.250		0	0	NR	NR	NR	0
US AIRS	TP		NR	NR	NR	NR	NR	0
PRP	TP		NR	NR	NR	NR	NR	0
US FIN ASSUR	TP		NR	NR	NR	NR	NR	0
Financial Assurance	TP		NR	NR	NR	NR	NR	0
PCB TRANSFORMER	TP		NR	NR	NR	NR	NR	0
COAL ASH EPA	0.500		0	0	0	NR	NR	0
COAL ASH	0.500		0	0	0	NR	NR	0
COAL ASH DOE	TP		NR	NR	NR	NR	NR	0
EPA WATCH LIST	TP		NR	NR	NR	NR	NR	0
EDR HIGH RISK HISTORICAL RECORDS								
EDR Exclusive Records								
EDR MGP	1.000		0	0	0	0	NR	0
EDR US Hist Auto Stat	0.250		1	2	NR	NR	NR	3
EDR US Hist Cleaners	0.250		0	0	NR	NR	NR	0
EDR RECOVERED GOVERNMENT ARCHIVES								
Exclusive Recovered Govt. Archives								
RGA HWS	TP		NR	NR	NR	NR	NR	0
RGA LUST	TP		NR	NR	NR	NR	NR	0
RGA LF	TP		NR	NR	NR	NR	NR	0

NOTES:

TP = Target Property

NR = Not Requested at this Search Distance

Sites may be listed in more than one database

A1
Target
Property
Actual:
882 ft.

PYE BARKER WELDING SUPPLY (CLOSED)
8660 TARA BOULEVARD
JONESBORO, GA 30236

AST **A100329037**
N/A

Site 1 of 4 in cluster A

AST:

Owner Name:	Petrolane Gas Service LP
Owner Address:	3000 Woodwin Road
Owner City/State/Zip:	Doraville GA 30340
Number Of Tanks:	1
Tank Capacity:	500

A2
SW
< 1/8
0.016 mi.
82 ft.

DUNKIN DONUTS
8650 TARA BLVD
JONESBORO, GA 30236

RCRA NonGen / NLR **1008194946**
GAR000040584

Site 2 of 4 in cluster A

Relative:
Higher

Actual:
882 ft.

RCRA NonGen / NLR:

Date form received by agency:	05/16/2005
Facility name:	DUNKIN DONUTS
Facility address:	8650 TARA BLVD JONESBORO, GA 30236
EPA ID:	GAR000040584
Mailing address:	TARA BLVD JONESBORO, GA 30236
Contact:	ALI HOODA
Contact address:	TARA BLVD JONESBORO, GA 30236
Contact country:	US
Contact telephone:	(404) 636-9333
Contact email:	Not reported
EPA Region:	04
Classification:	Non-Generator
Description:	Handler: Non-Generators do not presently generate hazardous waste

Owner/Operator Summary:

Owner/operator name:	ALI-KARIM PARTNERSHIP
Owner/operator address:	Not reported Not reported
Owner/operator country:	US
Owner/operator telephone:	Not reported
Legal status:	Private
Owner/Operator Type:	Operator
Owner/Op start date:	07/01/1988
Owner/Op end date:	Not reported

Owner/operator name:	ALI-KARIM PARTNERSHIP
Owner/operator address:	Not reported Not reported
Owner/operator country:	US
Owner/operator telephone:	Not reported
Legal status:	Private
Owner/Operator Type:	Owner
Owner/Op start date:	07/01/1988
Owner/Op end date:	Not reported

DUNKIN DONUTS (Continued) **1008194946**

Handler Activities Summary:
- U.S. importer of hazardous waste: No
- Mixed waste (haz. and radioactive): No
- Recycler of hazardous waste: No
- Transporter of hazardous waste: No
- Treater, storer or disposer of HW: No
- Underground injection activity: No
- On-site burner exemption: No
- Furnace exemption: No
- Used oil fuel burner: No
- Used oil processor: No
- User oil refiner: No
- Used oil fuel marketer to burner: No
- Used oil Specification marketer: No
- Used oil transfer facility: No
- Used oil transporter: No

Historical Generators:
- Date form received by agency: 03/28/2005
- Facility name: DUNKIN DONUTS
- Classification: Small Quantity Generator

Hazardous Waste Summary:
- Waste code: D039
- Waste name: TETRACHLOROETHYLENE

- Waste code: F002
- Waste name: THE FOLLOWING SPENT HALOGENATED SOLVENTS: TETRACHLOROETHYLENE, METHYLENE CHLORIDE, TRICHLOROETHYLENE, 1,1,1-TRICHLOROETHANE, CHLOROBENZENE, 1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE, ORTHO-DICHLOROBENZENE, TRICHLOROFLUOROMETHANE, AND 1,1,2-TRICHLOROETHANE; ALL SPENT SOLVENT MIXTURES/BLENDS CONTAINING, BEFORE USE, A TOTAL OF TEN PERCENT OR MORE (BY VOLUME) OF ONE OR MORE OF THE ABOVE HALOGENATED SOLVENTS OR THOSE LISTED IN F001, F004, OR F005, AND STILL BOTTOMS FROM THE RECOVERY OF THESE SPENT SOLVENTS AND SPENT SOLVENT MIXTURES.

- Violation Status: No violations found

A3 **PIT STOP** **AST** **A100329085**
SW **8664 TARA BOULEVARD** **N/A**
< 1/8 **JONESBORO, GA 30236**
0.032 mi.
169 ft. **Site 3 of 4 in cluster A**

Relative: **Higher**

Actual: **883 ft.**

AST:
- Owner Name: Georgia Gas Distributor
- Owner Address: 3715 Northside Parkway, Suite 625
- Owner City/State/Zip: Atlanta Ga. 30327
- Number Of Tanks: 20
- Tank Capacity: 92

A4
SW
< 1/8
0.032 mi.
169 ft.

PIT STOP #14
8664 TARA BLVD
JONESBORO, GA 30236

Site 4 of 4 in cluster A

UST **U003005862**
Financial Assurance **N/A**

Relative:
Higher

Actual:
883 ft.

Facility:

Facility Id:	9056042
Facility Status:	Active
Facility Type:	Gas Station
District:	PIRT 6
Contact Id:	5910
Owner Name:	THE PIT STOP
Owner Address:	8664 TARA BLVD
Owner City:	JONESBORO
Owner State:	GA
Owner Zip:	30236
Owner City,St,Zip:	JONESBORO, GA 30236
Owner Telephone:	770-478-5680

Tanks:

Tank ID:	1
Status:	**Cathodically Prot**
Status Date:	07/15/1998
Tank ID:	1
Status:	**Installed**
Status Date:	01/01/1984
Tank ID:	1
Status:	**Currently In Use**
Status Date:	01/01/1984
Tank ID:	1
Product1:	Gas
Material:	Steel-Impressed Current
Capacity:	10000
Pipe Material:	Cathodically Protected
Pipe Type:	Pressure
Overfill Protection:	Not reported
Overfill Installed:	04/01/1998
Tank Exempt From Spill:	Not reported
Date Spill Device Installed:	04/01/1998
Tank ID:	2
Status:	**Temporarily Out Of Use**
Status Date:	06/18/2013
Tank ID:	2
Status:	**Cathodically Prot**
Status Date:	07/15/1998
Tank ID:	2
Status:	**Currently In Use**
Status Date:	01/01/1984
Tank ID:	2
Status:	**Installed**
Status Date:	01/01/1984

PIT STOP #14 (Continued) **U003005862**

Tank ID: 2
Product1: Gas
Material: Steel-Impressed Current
Capacity: 10000
Pipe Material: Cathodically Protected
Pipe Type: Pressure
Overfill Protection: Not reported
Overfill Installed: 04/01/1998
Tank Exempt From Spill: Not reported
Date Spill Device Installed: 04/01/1998

Tank ID: 3
Status: **Cathodically Prot**
Status Date: 07/15/1998

Tank ID: 3
Status: **Currently In Use**
Status Date: 01/01/1984

Tank ID: 3
Status: **Installed**
Status Date: 01/01/1984

Tank ID: 3
Product1: Gas
Material: Steel-Impressed Current
Capacity: 10000
Pipe Material: Cathodically Protected
Pipe Type: Pressure
Overfill Protection: Not reported
Overfill Installed: 04/01/1998
Tank Exempt From Spill: Not reported
Date Spill Device Installed: 04/01/1998

Tank ID: 4
Status: **Temporarily Out Of Use**
Status Date: 06/18/2013

Tank ID: 4
Status: **Cathodically Prot**
Status Date: 07/15/1998

Tank ID: 4
Status: **Currently In Use**
Status Date: 01/01/1984

Tank ID: 4
Status: **Installed**
Status Date: 01/01/1984

Tank ID: 4
Product1: Diesel
Material: Steel-Impressed Current
Capacity: 6000
Pipe Material: Cathodically Protected
Pipe Type: Pressure
Overfill Protection: Not reported

PIT STOP #14 (Continued) **U003005862**

Overfill Installed:	04/01/1998
Tank Exempt From Spill:	Not reported
Date Spill Device Installed:	04/01/1998
Tank ID:	5
Status:	**Cathodically Prot**
Status Date:	07/15/1998
Tank ID:	5
Status:	**Currently In Use**
Status Date:	01/01/1984
Tank ID:	5
Status:	**Installed**
Status Date:	01/01/1984
Tank ID:	5
Product1:	Kerosene
Material:	Steel-Impressed Current
Capacity:	2000
Pipe Material:	Cathodically Protected
Pipe Type:	Pressure
Overfill Protection:	Not reported
Overfill Installed:	04/01/1998
Tank Exempt From Spill:	Not reported
Date Spill Device Installed:	04/01/1998

GA Financial Assurance 1:

Region:	1
Facility ID:	9056042
Financial Responsiblity:	G.U.S.T. Trust Fund

B5 **EDR US Hist Auto Stat** **1015642492**
SW **809 FLINT RIVER RD** **N/A**
< 1/8 **JONESBORO, GA 30238**
0.115 mi.
607 ft. **Site 1 of 2 in cluster B**

Relative:
Higher

Actual:
887 ft.

EDR Historical Auto Stations:

Name:	MOBIL MEDICS
Year:	2002
Address:	809 FLINT RIVER RD

B6 **FLINT RIVER ROAD DUMP** **CERC-NFRAP** **1003867950**
SW **871 FLINT RIVER RD** **GAD980842140**
< 1/8 **JONESBORO, GA 30236**
0.119 mi.
626 ft. **Site 2 of 2 in cluster B**

Relative:
Higher

Actual:
886 ft.

CERC-NFRAP:

Site ID:	0401756
Federal Facility:	Not a Federal Facility
NPL Status:	Not on the NPL
Non NPL Status:	NFRAP-Site does not qualify for the NPL based on existing information

FLINT RIVER ROAD DUMP (Continued) **1003867950**

CERCLIS-NFRAP Site Contact Details:
Contact Sequence ID: 4753717.00000
Person ID: 4000275.00000

Contact Sequence ID: 4778574.00000
Person ID: 13002428.00000

Contact Sequence ID: 4822734.00000
Person ID: 4272610.00000

CERCLIS-NFRAP Site Alias Name(s):
Alias Name: FLINT RIVER ROAD DUMP
Alias Address: Not reported
CLAYTON, GA

CERCLIS-NFRAP Assessment History:
Action: DISCOVERY
Date Started: / /
Date Completed: 08/01/84
Priority Level: Not reported

Action: PRELIMINARY ASSESSMENT
Date Started: / /
Date Completed: 12/01/84
Priority Level: Low priority for further assessment

Action: SITE INSPECTION
Date Started: / /
Date Completed: 02/08/90
Priority Level: NFRAP-Site does not qualify for the NPL based on existing information

Action: ARCHIVE SITE
Date Started: / /
Date Completed: 02/08/90
Priority Level: Not reported

C7 **ASHLAND INC DRY CLEANER REMEDIATION** **RCRA-SQG** **1000177169**
North **8564 TARA BLVD** **FINDS** **GAD981217391**
1/8-1/4 **JONESBORO, GA 30236**
0.135 mi.
712 ft. **Site 1 of 6 in cluster C**

Relative:
Higher

Actual:
913 ft.

RCRA-SQG:
Date form received by agency: 05/11/2006
Facility name: ASHLAND INC DRY CLEANER REMEDIATION
Facility address: 8564 TARA BLVD
JONESBORO, GA 30236
EPA ID: GAD981217391
Mailing address: PO BOX 2219, EH&S, DS-4
COLUMBUS, OH 43216
Contact: KARA B LONG
Contact address: PO BOX 2219, EH&S, DS-4
COLUMBUS, OH 43216
Contact country: US
Contact telephone: (614) 790-4641
Contact email: KLONG@ASHLAND.COM

ASHLAND INC DRY CLEANER REMEDIATION (Continued) **1000177169**

EPA Region: 04
Classification: Small Small Quantity Generator
Description: Handler: generates more than 100 and less than 1000 kg of hazardous waste during any calendar month and accumulates less than 6000 kg of hazardous waste at any time; or generates 100 kg or less of hazardous waste during any calendar month, and accumulates more than 1000 kg of hazardous waste at any time

Owner/Operator Summary:
Owner/operator name: ASHLAND INC
Owner/operator address: Not reported
Not reported
Owner/operator country: US
Owner/operator telephone: Not reported
Legal status: Private
Owner/Operator Type: Operator
Owner/Op start date: 01/01/2006
Owner/Op end date: Not reported

Owner/operator name: ALTERMAN ENTERPRISES LTD
Owner/operator address: POWERS FERRY RD SUITE 120
ATLANTA, GA 30339
Owner/operator country: US
Owner/operator telephone: Not reported
Legal status: Private
Owner/Operator Type: Owner
Owner/Op start date: 01/01/1986
Owner/Op end date: Not reported

Owner/operator name: BABCO CORP
Owner/operator address: 3247 BAY VIEW DR
JONESBORO, GA 30236
Owner/operator country: Not reported
Owner/operator telephone: (770) 477-9710
Legal status: Private
Owner/Operator Type: Owner
Owner/Op start date: 01/01/0001
Owner/Op end date: Not reported

Handler Activities Summary:
U.S. importer of hazardous waste: No
Mixed waste (haz. and radioactive): No
Recycler of hazardous waste: No
Transporter of hazardous waste: No
Treater, storer or disposer of HW: No
Underground injection activity: No
On-site burner exemption: No
Furnace exemption: No
Used oil fuel burner: No
Used oil processor: No
User oil refiner: No
Used oil fuel marketer to burner: No
Used oil Specification marketer: No
Used oil transfer facility: No
Used oil transporter: No

ASHLAND INC DRY CLEANER REMEDIATION (Continued) **1000177169**

Historical Generators:
Date form received by agency: 01/02/2002
Facility name: ASHLAND INC DRY CLEANER REMEDIATION
Site name: BABCO ONE HOUR MARTINIZING
Classification: Conditionally Exempt Small Quantity Generator

Date form received by agency: 07/25/1986
Facility name: ASHLAND INC DRY CLEANER REMEDIATION
Site name: BABCO ONE HOUR MARTINIZING
Classification: Small Quantity Generator

Hazardous Waste Summary:
Waste code: D039
Waste name: TETRACHLOROETHYLENE

Violation Status: No violations found

FINDS:

Registry ID: 110005672753

Environmental Interest/Information System
RCRAInfo is a national information system that supports the Resource Conservation and Recovery Act (RCRA) program through the tracking of events and activities related to facilities that generate, transport, and treat, store, or dispose of hazardous waste. RCRAInfo allows RCRA program staff to track the notification, permit, compliance, and corrective action activities required under RCRA.

C8 **TARA SHOPPING CENTER** **SHWS** **S107133893**
North **8564 TARA BOULEVARD** **INST CONTROL** **N/A**
1/8-1/4 **JONESBORO, GA 30236** **BROWNFIELDS**
0.135 mi.
712 ft. **Site 2 of 6 in cluster C**

Relative: Higher

Actual: 913 ft.

SHWS:
Facility Id: 10798
Regulated Substances(RS): Cis-1,2-Dichloroethene-GW/Soil,Tetrachloroethene-GW/Soil, Trichloroethene-GW/Soil
RS Released/Threats to Health Env: This site has a known release of Tetrachloroethene in groundwater at levels exceeding the reportable quantity. No human exposure via drinking water is suspected from this release. The nearest drinking water well is less than 0.5 miles from the area affected by the release.
Status of Cleanup Activities: Cleanup activities are being conducted for source materials, soil, and groundwater.
GA EPD Dir Determination Re Correction Action: The Director has determined that this site requires corrective action.
Owner Name: Tara Retail Holdings, LLC
Owner Address: 5887 Glenridge Dr., Suite 275
Owner City,St,Zip: Atlanta, GA 30238
Last Known Property Owner NAME B: Not reported
Last Known Property Owner ADDRESS B: Not reported
Last Known Property Owner CITY B: Not reported
Last Known Property Owner STATE B: Not reported
Last Known Property Owner ZIP B: Not reported
Last Known Property Owner NAME C: Not reported

TARA SHOPPING CENTER (Continued) **S107133893**

Last Known Property Owner ADDRESS C: Not reported
Last Known Property Owner CITY C: Not reported
Last Known Property Owner STATE C: Not reported
Last Known Property Owner ZIP C: Not reported
Latitude: 33 31' 12 " N
Longitude: 84 21 ' 46 " W

INST CONTROL:
Risk: Non Residential
Restricted: Restricted

BROWNFIELD:
Type: Withdrawn HSI
Type 2: Response Actions (NonHSI and HSI Properties)
Cleanup Plan Date: 11/29/2007
Cleanup Completed: Not reported
Acreage: 6.9000000000000
Risk: Non Residential
Restricted: Restricted

C9 **VCP** **S111680991**
North **8554-8600 TARA BOULEVARD** **N/A**
1/8-1/4 **JONESBORO, GA**
0.152 mi.
802 ft. **Site 3 of 6 in cluster C**

Relative:
Higher

Actual:
913 ft.

VCP:
Tax Parcel Id#: 13242D B001
Associated with HSI #: 10798
Date Of Application: 01/09/2012
Applicant: Ashland Inc
VRP Application #: VRP1114548880
Latest Progress Report: 12/27/2012
Compliance Status Report: 6/19/2012
Application Status: 2012-06-28 00:00:00
VRP Application Date: 01/09/2012
Check List Date: 6/28/2012

Click here for DBF VRP:

Click here for DBF Checklist:

Click here for DBF Comments:

Click here for DBF Approval:

Click here for DBF Progress Report:

Click here for Compliance Status Report:

C10
NNW
1/8-1/4
0.157 mi.
829 ft.

HAPPY STORE #502
8545 TARA BLVD
JONESBORO, GA 30236

Site 4 of 6 in cluster C

UST **U001475117**
Financial Assurance **N/A**

Relative:
Higher

Actual:
905 ft.

Facility:

Facility Id:	310003
Facility Status:	Active
Facility Type:	Gas Station
District:	PIRT 6
Contact Id:	486
Owner Name:	AMS ENTERPRISES INC
Owner Address:	8545 TARA BLVD
Owner City:	JONESBORO
Owner State:	GA
Owner Zip:	30236
Owner City,St,Zip:	JONESBORO, GA 30236
Owner Telephone:	770-471-6350

Tanks:

Tank ID:	1
Status:	**Upgrade Repair Not Marked**
Status Date:	Not reported
Tank ID:	1
Status:	**Removed From Ground**
Status Date:	01/01/1991
Tank ID:	1
Status:	**Installed**
Status Date:	05/14/1981
Tank ID:	1
Product1:	Gas
Material:	Bare Steel
Capacity:	10000
Pipe Material:	Galvanized Steel
Pipe Type:	Not Marked
Overfill Protection:	Not reported
Overfill Installed:	Not reported
Tank Exempt From Spill:	Not reported
Date Spill Device Installed:	Not reported
Tank ID:	2
Status:	**Upgrade Repair Not Marked**
Status Date:	Not reported
Tank ID:	2
Status:	**Removed From Ground**
Status Date:	01/01/1991
Tank ID:	2
Status:	**Installed**
Status Date:	05/14/1981
Tank ID:	2
Product1:	Gas
Material:	Bare Steel
Capacity:	10000

HAPPY STORE #502 (Continued) **U001475117**

Pipe Material:	Galvanized Steel
Pipe Type:	Not Marked
Overfill Protection:	Not reported
Overfill Installed:	Not reported
Tank Exempt From Spill:	Not reported
Date Spill Device Installed:	Not reported
Tank ID:	3
Status:	**Upgrade Repair Not Marked**
Status Date:	Not reported
Tank ID:	3
Status:	**Removed From Ground**
Status Date:	01/01/1991
Tank ID:	3
Status:	**Installed**
Status Date:	05/14/1981
Tank ID:	3
Product1:	Gas
Material:	Bare Steel
Capacity:	10000
Pipe Material:	Galvanized Steel
Pipe Type:	Not Marked
Overfill Protection:	Not reported
Overfill Installed:	Not reported
Tank Exempt From Spill:	Not reported
Date Spill Device Installed:	Not reported
Tank ID:	4
Status:	**Upgrade Repair Not Marked**
Status Date:	Not reported
Tank ID:	4
Status:	**Removed From Ground**
Status Date:	01/01/1991
Tank ID:	4
Status:	**Installed**
Status Date:	05/14/1981
Tank ID:	4
Product1:	Gas
Material:	Bare Steel
Capacity:	10000
Pipe Material:	Galvanized Steel
Pipe Type:	Not Marked
Overfill Protection:	Not reported
Overfill Installed:	Not reported
Tank Exempt From Spill:	Not reported
Date Spill Device Installed:	Not reported
Tank ID:	5
Status:	**Currently In Use**
Status Date:	11/05/1990

HAPPY STORE #502 (Continued) **U001475117**

Tank ID:	5
Status:	**Installed**
Status Date:	11/05/1990

Tank ID:	5
Product1:	Gas
Material:	Fiberglass
Capacity:	10000
Pipe Material:	Fiberglass Reinforced Plastic
Pipe Type:	Pressure
Overfill Protection:	Not reported
Overfill Installed:	11/05/1990
Tank Exempt From Spill:	Not reported
Date Spill Device Installed:	11/05/1990

Tank ID:	6
Status:	**Currently In Use**
Status Date:	11/05/1990

Tank ID:	6
Status:	**Installed**
Status Date:	11/05/1990

Tank ID:	6
Product1:	Gas
Material:	Composite
Capacity:	10000
Pipe Material:	Fiberglass Reinforced Plastic
Pipe Type:	Pressure
Overfill Protection:	Not reported
Overfill Installed:	11/05/1990
Tank Exempt From Spill:	Not reported
Date Spill Device Installed:	11/05/1990

Tank ID:	7
Status:	**Currently In Use**
Status Date:	11/05/1990

Tank ID:	7
Status:	**Installed**
Status Date:	11/05/1990

Tank ID:	7
Product1:	Gas
Material:	Composite
Capacity:	10000
Pipe Material:	Fiberglass Reinforced Plastic
Pipe Type:	Pressure
Overfill Protection:	Not reported
Overfill Installed:	11/05/1990
Tank Exempt From Spill:	Not reported
Date Spill Device Installed:	11/05/1990

Tank ID:	8
Status:	**Currently In Use**
Status Date:	01/01/1991

HAPPY STORE #502 (Continued) **U001475117**

Tank ID:	8
Status:	**Installed**
Status Date:	01/01/1991

Tank ID:	8
Product1:	Diesel
Material:	Composite
Capacity:	6000
Pipe Material:	Fiberglass Reinforced Plastic
Pipe Type:	Pressure
Overfill Protection:	Not reported
Overfill Installed:	11/05/1990
Tank Exempt From Spill:	Not reported
Date Spill Device Installed:	11/05/1990

Tank ID:	9
Status:	**Temporarily Out Of Use**
Status Date:	01/28/2011

Tank ID:	9
Status:	**Currently In Use**
Status Date:	01/01/1991

Tank ID:	9
Status:	**Installed**
Status Date:	01/01/1991

Tank ID:	9
Product1:	Kerosene
Material:	Composite
Capacity:	4000
Pipe Material:	Fiberglass Reinforced Plastic
Pipe Type:	Pressure
Overfill Protection:	Not reported
Overfill Installed:	11/05/1990
Tank Exempt From Spill:	Not reported
Date Spill Device Installed:	11/05/1990

GA Financial Assurance 1:

Region:	1
Facility ID:	310003
Financial Responsiblity:	G.U.S.T. Trust Fund

C11 **HAPPY STORE #502** **FINDS** **1006790001**
NNW **8545 TARA BLVD** **LUST** **N/A**
1/8-1/4 **JONESBORO, GA**
0.157 mi.
829 ft. **Site 5 of 6 in cluster C**

Relative:
Higher

Actual:
905 ft.

FINDS:

Registry ID: 110013594253

Environmental Interest/Information System
GEIMS (Geographic Environmental Information Management System) provides the EPA and Public a single point of access to core data for

HAPPY STORE #502 (Continued) **1006790001**

all facilities and sites regulated or monitored by the EPA and a single system for the reporting of all environmental data.

LUST:

Facility ID:	310003
Leak ID:	1
Description:	Confirmed Release
Cleanup Status:	NFA - Remediation
Date Received:	12/14/1990
Project Officer:	Coughlan,Michael F

Facility ID:	310003
Leak ID:	1
Description:	Suspected Release
Cleanup Status:	NFA - Remediation
Date Received:	09/07/1990
Project Officer:	Coughlan,Michael F

Facility ID:	310003
Leak ID:	1
Description:	Suspected Release
Cleanup Status:	NFA - Remediation
Date Received:	11/20/1990
Project Officer:	Coughlan,Michael F

C12 **EDR US Hist Auto Stat** **1015656824**
NNW **8545 TARA BLVD** **N/A**
1/8-1/4 **JONESBORO, GA 30236**
0.157 mi.
829 ft. **Site 6 of 6 in cluster C**

Relative:
Higher

Actual:
905 ft.

EDR Historical Auto Stations:

Name:	CHEVRON HAPPY STORE
Year:	2005
Address:	8545 TARA BLVD

Name:	CHEVRON HAPPY STORE
Year:	2006
Address:	8545 TARA BLVD

Name:	CHEVRON HAPPY STORE
Year:	2007
Address:	8545 TARA BLVD

Name:	CHEVRON HAPPY STORE
Year:	2008
Address:	8545 TARA BLVD

Name:	CHEVRON HAPPY STORE
Year:	2011
Address:	8545 TARA BLVD

Name:	CHEVRON
Year:	2012
Address:	8545 TARA BLVD

13
South
1/8-1/4
0.157 mi.
829 ft.

8700 TARA BLVD
JONESBORO, GA 30236

EDR US Hist Auto Stat **1015660026**
N/A

Relative:
Higher

Actual:
889 ft.

EDR Historical Auto Stations:

Name:	G & G TRANSMISSIONS
Year:	1999
Address:	8700 TARA BLVD
Name:	G & G TRANSMISSIONS
Year:	2000
Address:	8700 TARA BLVD

14
North
1/8-1/4
0.197 mi.
1042 ft.

CVS PHARMACY #4549
8525 TARA BLVD
JONESBORO, GA 30236

RCRA-CESQG **1014952324**
GAR000066118

Relative:
Higher

Actual:
888 ft.

RCRA-CESQG:

Date form received by agency:	03/23/2012
Facility name:	CVS PHARMACY #4549
Facility address:	8525 TARA BLVD JONESBORO, GA 30236
EPA ID:	GAR000066118
Mailing address:	CVS DR WOONSOCKET, RI 02895
Contact:	WENDY L BRANT
Contact address:	CVS DR WOONSOCKET, RI 02895
Contact country:	US
Contact telephone:	(401) 765-1500
Contact email:	WENDY.BRANT@CVSCAREMARK.COM
EPA Region:	04
Classification:	Conditionally Exempt Small Quantity Generator
Description:	Handler: generates 100 kg or less of hazardous waste per calendar month, and accumulates 1000 kg or less of hazardous waste at any time; or generates 1 kg or less of acutely hazardous waste per calendar month, and accumulates at any time: 1 kg or less of acutely hazardous waste; or 100 kg or less of any residue or contaminated soil, waste or other debris resulting from the cleanup of a spill, into or on any land or water, of acutely hazardous waste; or generates 100 kg or less of any residue or contaminated soil, waste or other debris resulting from the cleanup of a spill, into or on any land or water, of acutely hazardous waste during any calendar month, and accumulates at any time: 1 kg or less of acutely hazardous waste; or 100 kg or less of any residue or contaminated soil, waste or other debris resulting from the cleanup of a spill, into or on any land or water, of acutely hazardous waste

Owner/Operator Summary:

Owner/operator name:	BYRN-MAWR ESTATES PARTNERSHIP LLC
Owner/operator address:	BELLEVUE AVE APT A-3 SYRACUSE, NY 13219
Owner/operator country:	US
Owner/operator telephone:	(315) 487-0861
Legal status:	Private

CVS PHARMACY #4549 (Continued) **1014952324**

Owner/Operator Type: Owner
Owner/Op start date: 01/20/1997
Owner/Op end date: Not reported

Owner/operator name: GEORGIA CVS PHARMACY, LLC
Owner/operator address: Not reported
Not reported
Owner/operator country: US
Owner/operator telephone: Not reported
Legal status: Private
Owner/Operator Type: Operator
Owner/Op start date: 12/28/1997
Owner/Op end date: Not reported

Owner/operator name: T & R GOLF INC
Owner/operator address: STONERIDGE LN
DUBLIN, OH 43017
Owner/operator country: US
Owner/operator telephone: (614) 923-4000
Legal status: Private
Owner/Operator Type: Owner
Owner/Op start date: 01/01/1998
Owner/Op end date: Not reported

Handler Activities Summary:
U.S. importer of hazardous waste: No
Mixed waste (haz. and radioactive): No
Recycler of hazardous waste: No
Transporter of hazardous waste: No
Treater, storer or disposer of HW: No
Underground injection activity: No
On-site burner exemption: No
Furnace exemption: No
Used oil fuel burner: No
Used oil processor: No
User oil refiner: No
Used oil fuel marketer to burner: No
Used oil Specification marketer: No
Used oil transfer facility: No
Used oil transporter: No

Hazardous Waste Summary:
Waste code: D001
Waste name: IGNITABLE HAZARDOUS WASTES ARE THOSE WASTES WHICH HAVE A FLASHPOINT OF LESS THAN 140 DEGREES FAHRENHEIT AS DETERMINED BY A PENSKY-MARTENS CLOSED CUP FLASH POINT TESTER. ANOTHER METHOD OF DETERMINING THE FLASH POINT OF A WASTE IS TO REVIEW THE MATERIAL SAFETY DATA SHEET, WHICH CAN BE OBTAINED FROM THE MANUFACTURER OR DISTRIBUTOR OF THE MATERIAL. LACQUER THINNER IS AN EXAMPLE OF A COMMONLY USED SOLVENT WHICH WOULD BE CONSIDERED AS IGNITABLE HAZARDOUS WASTE.

Waste code: D002
Waste name: A WASTE WHICH HAS A PH OF LESS THAN 2 OR GREATER THAN 12.5 IS CONSIDERED TO BE A CORROSIVE HAZARDOUS WASTE. SODIUM HYDROXIDE, A CAUSTIC SOLUTION WITH A HIGH PH, IS OFTEN USED BY INDUSTRIES TO CLEAN OR DEGREASE PARTS. HYDROCHLORIC ACID, A SOLUTION WITH A LOW PH, IS

CVS PHARMACY #4549 (Continued) **1014952324**

USED BY MANY INDUSTRIES TO CLEAN METAL PARTS PRIOR TO PAINTING. WHEN THESE CAUSTIC OR ACID SOLUTIONS BECOME CONTAMINATED AND MUST BE DISPOSED, THE WASTE WOULD BE A CORROSIVE HAZARDOUS WASTE.

Waste code: P001
Waste name: 2H-1-BENZOPYRAN-2-ONE, 4-HYDROXY-3-(3-OXO-1-PHENYLBUTYL)-, & SALTS, WHEN PRESENT AT CONCENTRATIONS GREATER THAN 0.3%

Waste code: P042
Waste name: 1,2-BENZENEDIOL, 4-[1-HYDROXY-2-(METHYLAMINO)ETHYL]-, (R)-

Waste code: P075
Waste name: NICOTINE, & SALTS

Waste code: P081
Waste name: NITROGLYCERINE (R)

Violation Status: No violations found

D15 South 1/8-1/4 0.233 mi. 1232 ft. **HOWELL OIL #18** **RCRA NonGen / NLR** **1000507182**
8781 TARA BLVD **FINDS** **GAD984300376**
JONESBORO, GA

Site 1 of 3 in cluster D

Relative: Higher

Actual: 888 ft.

RCRA NonGen / NLR:
Date form received by agency: 03/22/2000
Facility name: HOWELL OIL #18
Facility address: 8781 TARA BLVD
JONESBORO, GA 30236
EPA ID: GAD984300376
Mailing address: N HENRY BLVD
STOCKBRIDGE, GA 30282
Contact: RAY STRICKLAND
Contact address: 4957 N HENRY BLVD
STOCKBRIDGE, GA 30282
Contact country: US
Contact telephone: (404) 389-1200
Contact email: Not reported
EPA Region: 04
Classification: Non-Generator
Description: Handler: Non-Generators do not presently generate hazardous waste

Owner/Operator Summary:
Owner/operator name: SAVE SUPER SERVE
Owner/operator address: PO BOX 18086
ATLANTA, GA 30315
Owner/operator country: Not reported
Owner/operator telephone: (404) 321-0376
Legal status: Private
Owner/Operator Type: Owner
Owner/Op start date: Not reported
Owner/Op end date: Not reported

Handler Activities Summary:
U.S. importer of hazardous waste: No
Mixed waste (haz. and radioactive): No
Recycler of hazardous waste: No

HOWELL OIL #18 (Continued) **1000507182**

Transporter of hazardous waste:	No
Treater, storer or disposer of HW:	No
Underground injection activity:	No
On-site burner exemption:	No
Furnace exemption:	No
Used oil fuel burner:	No
Used oil processor:	No
User oil refiner:	No
Used oil fuel marketer to burner:	No
Used oil Specification marketer:	No
Used oil transfer facility:	No
Used oil transporter:	No

Hazardous Waste Summary:

Waste code: D001
Waste name: IGNITABLE HAZARDOUS WASTES ARE THOSE WASTES WHICH HAVE A FLASHPOINT OF LESS THAN 140 DEGREES FAHRENHEIT AS DETERMINED BY A PENSKY-MARTENS CLOSED CUP FLASH POINT TESTER. ANOTHER METHOD OF DETERMINING THE FLASH POINT OF A WASTE IS TO REVIEW THE MATERIAL SAFETY DATA SHEET, WHICH CAN BE OBTAINED FROM THE MANUFACTURER OR DISTRIBUTOR OF THE MATERIAL. LACQUER THINNER IS AN EXAMPLE OF A COMMONLY USED SOLVENT WHICH WOULD BE CONSIDERED AS IGNITABLE HAZARDOUS WASTE.

Waste code: D002
Waste name: A WASTE WHICH HAS A PH OF LESS THAN 2 OR GREATER THAN 12.5 IS CONSIDERED TO BE A CORROSIVE HAZARDOUS WASTE. SODIUM HYDROXIDE, A CAUSTIC SOLUTION WITH A HIGH PH, IS OFTEN USED BY INDUSTRIES TO CLEAN OR DEGREASE PARTS. HYDROCHLORIC ACID, A SOLUTION WITH A LOW PH, IS USED BY MANY INDUSTRIES TO CLEAN METAL PARTS PRIOR TO PAINTING. WHEN THESE CAUSTIC OR ACID SOLUTIONS BECOME CONTAMINATED AND MUST BE DISPOSED, THE WASTE WOULD BE A CORROSIVE HAZARDOUS WASTE.

Waste code: D018
Waste name: BENZENE

Violation Status: No violations found

FINDS:

Registry ID: 110005698049

Environmental Interest/Information System

RCRAInfo is a national information system that supports the Resource Conservation and Recovery Act (RCRA) program through the tracking of events and activities related to facilities that generate, transport, and treat, store, or dispose of hazardous waste. RCRAInfo allows RCRA program staff to track the notification, permit, compliance, and corrective action activities required under RCRA.

D16 **HOWELL OIL CORP/SUPER SAVE (FORM** **LUST** **U001475140**
South **8781 TARA BLVD** **UST** **N/A**
1/8-1/4 **JONESBORO, GA 30231** **Financial Assurance**
0.233 mi.
1232 ft. **Site 2 of 3 in cluster D**

Relative:
Higher

Actual:
888 ft.

LUST:

Facility ID:	310032
Leak ID:	1
Description:	Confirmed Release
Cleanup Status:	NFA - No Further Action
Date Received:	08/14/1992
Project Officer:	Taiwo,Michael

Facility ID:	310032
Leak ID:	2
Description:	Confirmed Release
Cleanup Status:	NFA - No Further Action
Date Received:	01/11/1995
Project Officer:	Taiwo,Michael

Facility:

Facility Id:	310032
Facility Status:	Closed
Facility Type:	Gas Station
District:	PIRT 6
Contact Id:	543
Owner Name:	SAVE SUPER STATION/ATTORNEY
Owner Address:	PO BOX 13449
Owner City:	ATLANTA
Owner State:	GA
Owner Zip:	30324
Owner City,St,Zip:	ATLANTA, GA 30324
Owner Telephone:	404-634-6166

Tanks:

Tank ID:	1
Status:	**Upgrade Repair Not Marked**
Status Date:	Not reported

Tank ID:	1
Status:	**Removed From Ground**
Status Date:	08/07/1992

Tank ID:	1
Status:	**Installed**
Status Date:	01/01/1974

Tank ID:	1
Product1:	Gas
Material:	Bare Steel
Capacity:	8127
Pipe Material:	Galvanized Steel
Pipe Type:	Pressure
Overfill Protection:	Not reported
Overfill Installed:	Not reported
Tank Exempt From Spill:	Not reported
Date Spill Device Installed:	Not reported

HOWELL OIL CORP/SUPER SAVE (FORM (Continued) **U001475140**

Tank ID:	2
Status:	**Upgrade Repair Not Marked**
Status Date:	Not reported

Tank ID:	2
Status:	**Removed From Ground**
Status Date:	08/07/1992

Tank ID:	2
Status:	**Installed**
Status Date:	01/01/1974

Tank ID:	2
Product1:	Gas
Material:	Bare Steel
Capacity:	8127
Pipe Material:	Galvanized Steel
Pipe Type:	Pressure
Overfill Protection:	Not reported
Overfill Installed:	Not reported
Tank Exempt From Spill:	Not reported
Date Spill Device Installed:	Not reported

Tank ID:	3
Status:	**Upgrade Repair Not Marked**
Status Date:	Not reported

Tank ID:	3
Status:	**Removed From Ground**
Status Date:	08/07/1992

Tank ID:	3
Status:	**Installed**
Status Date:	01/01/1974

Tank ID:	3
Product1:	Gas
Material:	Bare Steel
Capacity:	8127
Pipe Material:	Galvanized Steel
Pipe Type:	Pressure
Overfill Protection:	Not reported
Overfill Installed:	Not reported
Tank Exempt From Spill:	Not reported
Date Spill Device Installed:	Not reported

Tank ID:	4
Status:	**Upgrade Repair Not Marked**
Status Date:	Not reported

Tank ID:	4
Status:	**Removed From Ground**
Status Date:	08/07/1992

Tank ID:	4
Status:	**Installed**
Status Date:	01/01/1974

HOWELL OIL CORP/SUPER SAVE (FORM (Continued) **U001475140**

Tank ID:	4
Product1:	Gas
Material:	Bare Steel
Capacity:	8127
Pipe Material:	Galvanized Steel
Pipe Type:	Pressure
Overfill Protection:	Not reported
Overfill Installed:	Not reported
Tank Exempt From Spill:	Not reported
Date Spill Device Installed:	Not reported

Tank ID:	5
Status:	**Installed**
Status Date:	Not reported

Tank ID:	5
Status:	**Upgrade Repair Not Marked**
Status Date:	Not reported

Tank ID:	5
Status:	**Removed From Ground**
Status Date:	08/14/1992

Tank ID:	5
Product1:	Other
Material:	Marked Unknown
Capacity:	8000
Pipe Material:	Unknown
Pipe Type:	Not Marked
Overfill Protection:	Not reported
Overfill Installed:	Not reported
Tank Exempt From Spill:	Not reported
Date Spill Device Installed:	Not reported

GA Financial Assurance 1:

Region:	1
Facility ID:	310032
Financial Responsiblity:	G.U.S.T. Trust Fund

D17 **QUIKTRIP #756** **RCRA-CESQG 1004688028**
South **8805 TARA BLVD** **FINDS GAR000018523**
1/4-1/2 **JONESBORO, GA 30236** **LUST**
0.255 mi.
1349 ft. **Site 3 of 3 in cluster D**

Relative:
Higher

Actual:
888 ft.

RCRA-CESQG:

Date form received by agency:	05/14/2007
Facility name:	QUIKTRIP #756
Facility address:	8805 TARA BLVD JONESBORO, GA 30236
EPA ID:	GAR000018523
Mailing address:	P O BOX 3475 TULSA, OK 741013475
Contact:	KELLI OSTMEYER
Contact address:	P O BOX 3475 TULSA, OK 741013475

QUIKTRIP #756 (Continued) **1004688028**

Contact country: US
Contact telephone: (918) 615-7883
Contact email: Not reported
EPA Region: 04
Classification: Conditionally Exempt Small Quantity Generator
Description: Handler: generates 100 kg or less of hazardous waste per calendar month, and accumulates 1000 kg or less of hazardous waste at any time; or generates 1 kg or less of acutely hazardous waste per calendar month, and accumulates at any time: 1 kg or less of acutely hazardous waste; or 100 kg or less of any residue or contaminated soil, waste or other debris resulting from the cleanup of a spill, into or on any land or water, of acutely hazardous waste; or generates 100 kg or less of any residue or contaminated soil, waste or other debris resulting from the cleanup of a spill, into or on any land or water, of acutely hazardous waste during any calendar month, and accumulates at any time: 1 kg or less of acutely hazardous waste; or 100 kg or less of any residue or contaminated soil, waste or other debris resulting from the cleanup of a spill, into or on any land or water, of acutely hazardous waste

Owner/Operator Summary:

Owner/operator name: QUIKTRIP#756
Owner/operator address: P O BOX 3475
TULSA, OK 74101
Owner/operator country: Not reported
Owner/operator telephone: (314) 916-5729
Legal status: Private
Owner/Operator Type: Owner
Owner/Op start date: 01/01/0001
Owner/Op end date: Not reported

Owner/operator name: QUIKTRIP#756
Owner/operator address: P O BOX 3475
TULSA, OK 74101
Owner/operator country: US
Owner/operator telephone: (314) 916-5729
Legal status: Private
Owner/Operator Type: Operator
Owner/Op start date: 01/01/0001
Owner/Op end date: Not reported

Handler Activities Summary:

U.S. importer of hazardous waste: No
Mixed waste (haz. and radioactive): No
Recycler of hazardous waste: No
Transporter of hazardous waste: No
Treater, storer or disposer of HW: No
Underground injection activity: No
On-site burner exemption: No
Furnace exemption: No
Used oil fuel burner: No
Used oil processor: No
User oil refiner: No
Used oil fuel marketer to burner: No
Used oil Specification marketer: No
Used oil transfer facility: No

QUIKTRIP #756 (Continued) **1004688028**

Used oil transporter: No

Historical Generators:
Date form received by agency: 06/06/2005
Facility name: QUIKTRIP #756
Classification: Conditionally Exempt Small Quantity Generator

Date form received by agency: 08/26/2002
Facility name: QUIKTRIP #756
Classification: Conditionally Exempt Small Quantity Generator

Date form received by agency: 06/16/1999
Facility name: QUIKTRIP #756
Classification: Conditionally Exempt Small Quantity Generator

Hazardous Waste Summary:
Waste code: U019
Waste name: BENZENE (I,T)

Waste code: U220
Waste name: BENZENE, METHYL-

Violation Status: No violations found

FINDS:

Registry ID: 110005717581

Environmental Interest/Information System
GEIMS (Geographic Environmental Information Management System) provides the EPA and Public a single point of access to core data for all facilities and sites regulated or monitored by the EPA and a single system for the reporting of all environmental data.

RCRAInfo is a national information system that supports the Resource Conservation and Recovery Act (RCRA) program through the tracking of events and activities related to facilities that generate, transport, and treat, store, or dispose of hazardous waste. RCRAInfo allows RCRA program staff to track the notification, permit, compliance, and corrective action activities required under RCRA.

LUST:
Facility ID: 9031153
Leak ID: 1
Description: Suspected Release
Cleanup Status: NFA - Suspected Release
Date Received: 08/21/2000
Project Officer: Muhanna,Shaheer L

Facility ID: 9031153
Leak ID: 2
Description: Suspected Release
Cleanup Status: NFA - Suspected Release
Date Received: 01/24/2001
Project Officer: Brown,James W

QUIKTRIP #756 (Continued) **1004688028**

Facility ID: 9031153
Leak ID: 3
Description: Suspected Release
Cleanup Status: NFA - Suspected Release
Date Received: 11/09/2011
Project Officer: Knowles,Gilda A

18
ENE
1/4-1/2
0.343 mi.
1812 ft.

OLD PUBLIC WORKS LOT **LUST U003936277**
157 WEST MILL ST **UST N/A**
JONESBORO, GA 30236 **Financial Assurance**

Relative:
Higher

Actual:
885 ft.

LUST:
Facility ID: 10000530
Leak ID: 1
Description: Confirmed Release
Cleanup Status: NFA - No Further Action
Date Received: 12/29/2003
Project Officer: Burris,Stephen B

Facility:
Facility Id: 10000530
Facility Status: Closed
Facility Type: County
District: PIRT 6
Contact Id: 52567
Owner Name: CITY OF JONESBORO
Owner Address: 124 NORTH AVENUE
Owner City: JONESBORO
Owner State: GA
Owner Zip: 30236
Owner City,St,Zip: JONESBORO, GA 30236
Owner Telephone: 770-478-3800

Tanks:
Tank ID: 1
Status: **Installed Date Unknown**
Status Date: Not reported

Tank ID: 1
Status: **Removed From Ground**
Status Date: 12/01/2003

Tank ID: 1
Product1: Diesel
Material: Bare Steel
Capacity: 1000
Pipe Material: Bare Steel
Pipe Type: Suction: No Valve At The Tank
Overfill Protection: No
Overfill Installed: Not reported
Tank Exempt From Spill: No
Date Spill Device Installed: Not reported

GA Financial Assurance 1:

OLD PUBLIC WORKS LOT (Continued) **U003936277**

Region: 1
Facility ID: 10000530
Financial Responsiblity: G.U.S.T. Trust Fund

19
West
1/4-1/2
0.450 mi.
2374 ft.

FLINT RIVER CHEVRON **LUST** **U003763270**
526 FLINT RIVER RD **UST** **N/A**
JONESBORO, GA 30238 **Financial Assurance**

Relative:
Lower

Actual:
862 ft.

LUST:

Facility ID: 9000284
Leak ID: 1
Description: Confirmed Release
Cleanup Status: NFA - No Further Action
Date Received: 04/25/1989
Project Officer: Muntz,David

Facility ID: 9000284
Leak ID: 2
Description: Suspected Release
Cleanup Status: NFA - Suspected Release
Date Received: 11/12/1996
Project Officer: Hart,Cindy P

Facility ID: 9000284
Leak ID: 3
Description: Suspected Release
Cleanup Status: NFA - Suspected Release
Date Received: 03/18/1998
Project Officer: Revell-Robinson,Isabelle

Facility ID: 9000284
Leak ID: 4
Description: Suspected Release
Cleanup Status: NFA - Suspected Release
Date Received: 02/19/1999
Project Officer: White,Kenneth

Facility ID: 9000284
Leak ID: 5
Description: Confirmed Release
Cleanup Status: NFA - No Further Action
Date Received: 02/25/2004
Project Officer: Li,Yonghong June

Facility ID: 9000284
Leak ID: 6
Description: Suspected Release
Cleanup Status: NFA - Suspected Release
Date Received: 07/11/2008
Project Officer: Knowles,Gilda A

Facility ID: 9000284
Leak ID: 7
Description: Confirmed Release
Cleanup Status: NFA - No Further Action
Date Received: 07/29/2009

FLINT RIVER CHEVRON (Continued) **U003763270**

Project Officer: Wallace,Ronald J

Facility ID: 9000284
Leak ID: 7
Description: Suspected Release
Cleanup Status: NFA - No Further Action
Date Received: 07/17/2009
Project Officer: Wallace,Ronald J

Facility:
Facility Id: 9000284
Facility Status: Active
Facility Type: Gas Station
District: PIRT 6
Contact Id: 58306
Owner Name: MAA KRUPA REAL ESTATE LLC
Owner Address: 524 FLINT RIVER RD
Owner City: JONESBORO
Owner State: GA
Owner Zip: 30238
Owner City,St,Zip: JONESBORO, GA 30238
Owner Telephone: 978-809-0100

Tanks:
Tank ID: 1
Status: **Currently In Use**
Status Date: 01/31/1999

Tank ID: 1
Status: **Installed**
Status Date: 01/31/1999

Tank ID: 1
Status: **Installed**
Status Date: 01/01/1987

Tank ID: 1
Status: **Currently In Use**
Status Date: 01/01/1987

Tank ID: 1
Product1: Gas
Material: Composite
Capacity: 10000
Pipe Material: Fiberglass Reinforced Plastic
Pipe Type: Pressure
Overfill Protection: Not reported
Overfill Installed: 10/09/1993
Tank Exempt From Spill: Not reported
Date Spill Device Installed: 01/09/1993

Tank ID: 2
Status: **Currently In Use**
Status Date: 01/31/1999

Tank ID: 2
Status: **Installed**

FLINT RIVER CHEVRON (Continued) **U003763270**

Status Date: 01/31/1999

Tank ID: 2
Status: **Currently In Use**
Status Date: 01/01/1987

Tank ID: 2
Status: **Installed**
Status Date: 01/01/1987

Tank ID: 2
Product1: Gas
Material: Composite
Capacity: 10000
Pipe Material: Fiberglass Reinforced Plastic
Pipe Type: Pressure
Overfill Protection: Not reported
Overfill Installed: 10/09/1993
Tank Exempt From Spill: Not reported
Date Spill Device Installed: 10/09/1993

Tank ID: 3
Status: **Installed**
Status Date: 01/01/1987

Tank ID: 3
Status: **Currently In Use**
Status Date: 01/01/1987

Tank ID: 3
Product1: Gas
Material: Composite
Capacity: 10000
Pipe Material: Fiberglass Reinforced Plastic
Pipe Type: Pressure
Overfill Protection: Not reported
Overfill Installed: 10/09/1993
Tank Exempt From Spill: Not reported
Date Spill Device Installed: 10/09/1993

Tanks:

Tank ID: 1
Status: **Currently In Use**
Status Date: 01/31/1999

Tank ID: 1
Status: **Installed**
Status Date: 01/31/1999

Tank ID: 1
Status: **Installed**
Status Date: 01/01/1987

Tank ID: 1
Status: **Currently In Use**
Status Date: 01/01/1987

FLINT RIVER CHEVRON (Continued) **U003763270**

Tank ID:	1
Product1:	Gas
Material:	Composite
Capacity:	10000
Pipe Material:	Fiberglass Reinforced Plastic
Pipe Type:	Pressure
Overfill Protection:	Not reported
Overfill Installed:	10/09/1993
Tank Exempt From Spill:	Not reported
Date Spill Device Installed:	01/09/1993

Tank ID:	2
Status:	**Currently In Use**
Status Date:	01/31/1999

Tank ID:	2
Status:	**Installed**
Status Date:	01/31/1999

Tank ID:	2
Status:	**Currently In Use**
Status Date:	01/01/1987

Tank ID:	2
Status:	**Installed**
Status Date:	01/01/1987

Tank ID:	2
Product1:	Gas
Material:	Composite
Capacity:	10000
Pipe Material:	Fiberglass Reinforced Plastic
Pipe Type:	Pressure
Overfill Protection:	Not reported
Overfill Installed:	10/09/1993
Tank Exempt From Spill:	Not reported
Date Spill Device Installed:	10/09/1993

Tank ID:	3
Status:	**Installed**
Status Date:	01/01/1987

Tank ID:	3
Status:	**Currently In Use**
Status Date:	01/01/1987

Tank ID:	3
Product1:	Gas
Material:	Composite
Capacity:	10000
Pipe Material:	Fiberglass Reinforced Plastic
Pipe Type:	Pressure
Overfill Protection:	Not reported
Overfill Installed:	10/09/1993
Tank Exempt From Spill:	Not reported
Date Spill Device Installed:	10/09/1993

FLINT RIVER CHEVRON (Continued) **U003763270**

GA Financial Assurance 1:
Region: 1
Facility ID: 9031237
Financial Responsiblity: G.U.S.T. Trust Fund

Region: 1
Facility ID: 9000284
Financial Responsiblity: G.U.S.T. Trust Fund

E20 **BST/JONESBORO CO/F1406** **FINDS** **1006780473**
ENE **109 SMITH ST** **LUST** **N/A**
1/4-1/2 **JONESBORO, GA**
0.484 mi.
2553 ft. **Site 1 of 2 in cluster E**

Relative: Higher

Actual: 900 ft.

FINDS:

Registry ID: 110013498330

Environmental Interest/Information System
GEIMS (Geographic Environmental Information Management System) provides the EPA and Public a single point of access to core data for all facilities and sites regulated or monitored by the EPA and a single system for the reporting of all environmental data.

LUST:
Facility ID: 310263
Leak ID: 1
Description: Confirmed Release
Cleanup Status: NFA - No Further Action
Date Received: 10/27/1993
Project Officer: Coughlan,Michael F

E21 **BELLSOUTH TELECOMM/F1489 - WORK** **LUST** **U001475300**
ENE **107 SMITH ST** **UST** **N/A**
1/4-1/2 **JONESBORO, GA 30236** **Financial Assurance**
0.493 mi.
2604 ft. **Site 2 of 2 in cluster E**

Relative: Higher

Actual: 904 ft.

LUST:
Facility ID: 310265
Leak ID: 1
Description: Confirmed Release
Cleanup Status: NFA - No Further Action
Date Received: 11/02/1993
Project Officer: Li,Yonghong June

Facility:
Facility Id: 310265
Facility Status: Closed
Facility Type: Utilities
District: PIRT 6
Contact Id: 115
Owner Name: BELLSOUTH TELECOMMUNICATIONS

BELLSOUTH TELECOMM/F1489 - WORK (Continued) **U001475300**

Owner Address: 440 WALKER ST
Owner City: AUGUSTA
Owner State: GA
Owner Zip: 30910
Owner City,St,Zip: AUGUSTA, GA 30910
Owner Telephone: 706-869-0666

Tanks:

Tank ID: 1
Status: **Upgrade Repair Not Marked**
Status Date: Not reported

Tank ID: 1
Status: **Removed From Ground**
Status Date: 05/01/1989

Tank ID: 1
Status: **Installed**
Status Date: 01/02/1982

Tank ID: 1
Product1: Gas
Material: Bare Steel
Capacity: 12000
Pipe Material: Bare Steel
Pipe Type: Pressure
Overfill Protection: Not reported
Overfill Installed: Not reported
Tank Exempt From Spill: Not reported
Date Spill Device Installed: Not reported

Tank ID: 2
Status: **Upgrade Repair Not Marked**
Status Date: Not reported

Tank ID: 2
Status: **Removed From Ground**
Status Date: 10/15/1989

Tank ID: 2
Status: **Installed**
Status Date: 01/07/1964

Tank ID: 2
Product1: Gas
Material: Bare Steel
Capacity: 1000
Pipe Material: Copper
Pipe Type: Pressure
Overfill Protection: Not reported
Overfill Installed: Not reported
Tank Exempt From Spill: Not reported
Date Spill Device Installed: Not reported

GA Financial Assurance 1:
Region: 1

BELLSOUTH TELECOMM/F1489 - WORK (Continued) **U001475300**

Facility ID: 310265
Financial Responsiblity: G.U.S.T. Trust Fund

22
East
1/4-1/2
0.496 mi.
2619 ft.

S&A FOOD & GAS INC
155 S MCDONOUGH ST
JONESBORO, GA

FINDS **1006787422**
LUST **N/A**
UST
Financial Assurance

Relative:
Higher

Actual:
920 ft.

FINDS:

Registry ID: 110013568273

Environmental Interest/Information System
GEIMS (Geographic Environmental Information Management System) provides the EPA and Public a single point of access to core data for all facilities and sites regulated or monitored by the EPA and a single system for the reporting of all environmental data.

LUST:
Facility ID: 9031116
Leak ID: 1
Description: Confirmed Release
Cleanup Status: NFA - No Further Action
Date Received: 12/02/1999
Project Officer: Wyatt,Erica E.

Facility ID: 9031116
Leak ID: 2
Description: Confirmed Release
Cleanup Status: NFA - No Further Action
Date Received: 04/20/2010
Project Officer: Wallace,Ronald J

Facility:
Facility Id: 9031116
Facility Status: Active
Facility Type: Gas Station
District: PIRT 6
Contact Id: 58576
Owner Name: AMYSAM INC
Owner Address: 155 S MCDONOUGH ST
Owner City: JONESBORO
Owner State: GA
Owner Zip: 30236
Owner City,St,Zip: JONESBORO, GA 30236
Owner Telephone: 404-428-8396

Tanks:
Tank ID: 1
Status: **Currently In Use**
Status Date: 10/15/2000

Tank ID: 1
Status: **Installed**
Status Date: 10/15/2000

S&A FOOD & GAS INC (Continued) **1006787422**

Tank ID:	1
Product1:	Gas
Material:	Fiberglass
Capacity:	10000
Pipe Material:	Fiberglass Reinforced Plastic
Pipe Type:	Pressure
Overfill Protection:	Not reported
Overfill Installed:	10/15/2001
Tank Exempt From Spill:	Not reported
Date Spill Device Installed:	10/15/2001

Tank ID:	112096
Status:	**Cathodically Prot**
Status Date:	01/07/2000

Tank ID:	112096
Status:	**Removed From Ground**
Status Date:	10/21/1999

Tank ID:	112096
Status:	**Installed**
Status Date:	10/17/1988

Tank ID:	112096
Product1:	Gas
Material:	STIP-3
Capacity:	10000
Pipe Material:	Fiberglass Reinforced Plastic
Pipe Type:	Pressure
Overfill Protection:	Not reported
Overfill Installed:	10/17/1988
Tank Exempt From Spill:	Not reported
Date Spill Device Installed:	10/17/1988

Tank ID:	112099
Status:	**Cathodically Prot**
Status Date:	01/07/2000

Tank ID:	112099
Status:	**Removed From Ground**
Status Date:	10/21/1999

Tank ID:	112099
Status:	**Installed**
Status Date:	10/17/1988

Tank ID:	112099
Product1:	Gas
Material:	STIP-3
Capacity:	10000
Pipe Material:	Fiberglass Reinforced Plastic
Pipe Type:	Pressure
Overfill Protection:	Not reported
Overfill Installed:	10/17/1988
Tank Exempt From Spill:	Not reported
Date Spill Device Installed:	10/17/1988

S&A FOOD & GAS INC (Continued) **1006787422**

Tank ID:	112103
Status:	**Cathodically Prot**
Status Date:	01/07/2000
Tank ID:	112103
Status:	**Removed From Ground**
Status Date:	10/21/1999
Tank ID:	112103
Status:	**Installed**
Status Date:	10/17/1988
Tank ID:	112103
Product1:	Gas
Material:	STIP-3
Capacity:	10000
Pipe Material:	Fiberglass Reinforced Plastic
Pipe Type:	Pressure
Overfill Protection:	Not reported
Overfill Installed:	10/17/1988
Tank Exempt From Spill:	Not reported
Date Spill Device Installed:	10/17/1988
Tank ID:	2
Status:	**Currently In Use**
Status Date:	10/15/2000
Tank ID:	2
Status:	**Installed**
Status Date:	10/15/2000
Tank ID:	2
Product1:	Gas
Material:	Fiberglass
Capacity:	12000
Pipe Material:	Fiberglass Reinforced Plastic
Pipe Type:	Pressure
Overfill Protection:	Not reported
Overfill Installed:	10/15/2001
Tank Exempt From Spill:	Not reported
Date Spill Device Installed:	10/15/2001

GA Financial Assurance 1:

Region:	1
Facility ID:	9031116
Financial Responsiblity:	G.U.S.T. Trust Fund

23
SSE
1/2-1
0.942 mi.
4972 ft.

CLAYTON COUNTY JUSTICE COMPLEX
9101 TARA BLVD.
JONESBORO, GA 30236

GA NON-HSI **S103908760**
N/A

Relative:
Higher

Actual:
904 ft.

NON HSI:

Latitude:	33.50522
Longitude:	84.355917
Ground Water Pathway Score:	9.76
On-Site Pathway Score:	0.00
Report Date:	05/01/1999
Additional Info:	Not reported
Contamination:	jet fuel; mineral spirits

Count: 20 records. ORPHAN SUMMARY

City	EDR ID	Site Name	Site Address	Zip	Database(s)
JONESBORO	1004686666	POWESZ INC DBA PATS CLEANERS	8476 HWY 85	30236	RCRA NonGen / NLR, FINDS
JONESBORO	S107665676	ARTHUR WILLIAMS INERT LANDFILL	DECK COURT - LOT 5G	30236	SWF/LF
JONESBORO	S107666720	JOHN WIELAND HOMES INERT LANDFILL	FAIRFIELD S/D LOT 76	*	SWF/LF
JONESBORO	S107666719	JOHN WIELAND HOMES INERT LANDFILL	FAIRFIELD S/D LOT 73	*	SWF/LF
JONESBORO	S107666718	JOHN WIELAND HOMES INERT LANDFILL	FAIRFIELD S/D LOT 72	*	SWF/LF
JONESBORO	S107666717	JOHN WIELAND HOMES INERT LANDFILL	FAIRFIELD S/D LOT 58	*	SWF/LF
JONESBORO	S107666716	JOHN WIELAND HOMES INERT LANDFILL	FAIRFIELD S/D LOT 55	*	SWF/LF
JONESBORO	S107666715	JOHN WIELAND HOMES INERT LANDFILL	FAIRFIELD S/D LOT 23A	*	SWF/LF
JONESBORO	S107666714	JOHN WIELAND HOMES INERT LANDFILL	FAIRFIELD S/D LOT 19	*	SWF/LF
JONESBORO	S107666713	JOHN WIELAND HOMES INERT LANDFILL	FAIRFIELD S/D LOT 110	*	SWF/LF
JONESBORO	S107666710	JOHN WIELAND HOMES INERT LANDFILL	FAIRFIELD S/D LOT 104	*	SWF/LF
JONESBORO	1006787113	GEORGIA DEPARTMENT OF TRANSPORTA	7898 GA HWY 138	30236	LUST, UST, Financial Assurance
JONESBORO	1006780317	JOHN L MADDOCK INC	8720 GA HWY 85		FINDS, LUST, UST, Financial Assurance
JONESBORO	1005443233	AUTO BODY SOLUTIONS	1933 N. HWY 85	30238	RCRA NonGen / NLR, FINDS, US AIRS
JONESBORO	1004687211	BODY MOTION COLLISION CENTER	8887 GA HWY 85	30236	RCRA NonGen / NLR, FINDS
JONESBORO	A100329135	SPEEDWAY	2915 JONESBORO RD	30236	AST
JONESBORO	S107666070	CORESLAB STRUCTURES(ATLANTA)INC. I	1655 NOAK'S ARK ROAD	30236	SWF/LF
JONESBORO	S107666034	CLAYTON COUNTY BOARD OF COMMISSION	SLR BOULEVARD-SR3	30236	SWF/LF
JONESBORO	U004197968	SHELL FOOD MART	6980 TARA BLVD/US HWY 19 & 41	30236	UST, Financial Assurance
JONESBORO	1006775974	DOT ROW/BP OIL-GULF STATION FORM	TARA BLVD & I-75	30236	LUST, UST, Financial Assurance

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

To maintain currency of the following federal and state databases, EDR contacts the appropriate governmental agency on a monthly or quarterly basis, as required.

Number of Days to Update: Provides confirmation that EDR is reporting records that have been updated within 90 days from the date the government agency made the information available to the public.

STANDARD ENVIRONMENTAL RECORDS

Federal NPL site list

NPL: National Priority List

National Priorities List (Superfund). The NPL is a subset of CERCLIS and identifies over 1,200 sites for priority cleanup under the Superfund Program. NPL sites may encompass relatively large areas. As such, EDR provides polygon coverage for over 1,000 NPL site boundaries produced by EPA's Environmental Photographic Interpretation Center (EPIC) and regional EPA offices.

Date of Government Version: 10/25/2013
Date Data Arrived at EDR: 11/11/2013
Date Made Active in Reports: 01/28/2014
Number of Days to Update: 78

Source: EPA
Telephone: N/A
Last EDR Contact: 04/08/2014
Next Scheduled EDR Contact: 07/21/2014
Data Release Frequency: Quarterly

NPL Site Boundaries

Sources:

EPA's Environmental Photographic Interpretation Center (EPIC)
Telephone: 202-564-7333

EPA Region 1
Telephone 617-918-1143

EPA Region 6
Telephone: 214-655-6659

EPA Region 3
Telephone 215-814-5418

EPA Region 7
Telephone: 913-551-7247

EPA Region 4
Telephone 404-562-8033

EPA Region 8
Telephone: 303-312-6774

EPA Region 5
Telephone 312-886-6686

EPA Region 9
Telephone: 415-947-4246

EPA Region 10
Telephone 206-553-8665

Proposed NPL: Proposed National Priority List Sites

A site that has been proposed for listing on the National Priorities List through the issuance of a proposed rule in the Federal Register. EPA then accepts public comments on the site, responds to the comments, and places on the NPL those sites that continue to meet the requirements for listing.

Date of Government Version: 10/25/2013
Date Data Arrived at EDR: 11/11/2013
Date Made Active in Reports: 01/28/2014
Number of Days to Update: 78

Source: EPA
Telephone: N/A
Last EDR Contact: 04/08/2014
Next Scheduled EDR Contact: 07/21/2014
Data Release Frequency: Quarterly

NPL LIENS: Federal Superfund Liens

Federal Superfund Liens. Under the authority granted the USEPA by CERCLA of 1980, the USEPA has the authority to file liens against real property in order to recover remedial action expenditures or when the property owner received notification of potential liability. USEPA compiles a listing of filed notices of Superfund Liens.

Date of Government Version: 10/15/1991
Date Data Arrived at EDR: 02/02/1994
Date Made Active in Reports: 03/30/1994
Number of Days to Update: 56

Source: EPA
Telephone: 202-564-4267
Last EDR Contact: 08/15/2011
Next Scheduled EDR Contact: 11/28/2011
Data Release Frequency: No Update Planned

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Federal Delisted NPL site list

DELISTED NPL: National Priority List Deletions

The National Oil and Hazardous Substances Pollution Contingency Plan (NCP) establishes the criteria that the EPA uses to delete sites from the NPL. In accordance with 40 CFR 300.425.(e), sites may be deleted from the NPL where no further response is appropriate.

Date of Government Version: 10/25/2013
Date Data Arrived at EDR: 11/11/2013
Date Made Active in Reports: 01/28/2014
Number of Days to Update: 78

Source: EPA
Telephone: N/A
Last EDR Contact: 04/08/2014
Next Scheduled EDR Contact: 07/21/2014
Data Release Frequency: Quarterly

Federal CERCLIS list

CERCLIS: Comprehensive Environmental Response, Compensation, and Liability Information System

CERCLIS contains data on potentially hazardous waste sites that have been reported to the USEPA by states, municipalities, private companies and private persons, pursuant to Section 103 of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). CERCLIS contains sites which are either proposed to or on the National Priorities List (NPL) and sites which are in the screening and assessment phase for possible inclusion on the NPL.

Date of Government Version: 10/25/2013
Date Data Arrived at EDR: 11/11/2013
Date Made Active in Reports: 02/13/2014
Number of Days to Update: 94

Source: EPA
Telephone: 703-412-9810
Last EDR Contact: 02/28/2014
Next Scheduled EDR Contact: 06/09/2014
Data Release Frequency: Quarterly

FEDERAL FACILITY: Federal Facility Site Information listing

A listing of National Priority List (NPL) and Base Realignment and Closure (BRAC) sites found in the Comprehensive Environmental Response, Compensation and Liability Information System (CERCLIS) Database where EPA Federal Facilities Restoration and Reuse Office is involved in cleanup activities.

Date of Government Version: 05/31/2013
Date Data Arrived at EDR: 07/08/2013
Date Made Active in Reports: 12/06/2013
Number of Days to Update: 151

Source: Environmental Protection Agency
Telephone: 703-603-8704
Last EDR Contact: 04/11/2014
Next Scheduled EDR Contact: 07/21/2014
Data Release Frequency: Varies

Federal CERCLIS NFRAP site List

CERCLIS-NFRAP: CERCLIS No Further Remedial Action Planned

Archived sites are sites that have been removed and archived from the inventory of CERCLIS sites. Archived status indicates that, to the best of EPA's knowledge, assessment at a site has been completed and that EPA has determined no further steps will be taken to list this site on the National Priorities List (NPL), unless information indicates this decision was not appropriate or other considerations require a recommendation for listing at a later time. This decision does not necessarily mean that there is no hazard associated with a given site; it only means that, based upon available information, the location is not judged to be a potential NPL site.

Date of Government Version: 10/25/2013
Date Data Arrived at EDR: 11/11/2013
Date Made Active in Reports: 02/13/2014
Number of Days to Update: 94

Source: EPA
Telephone: 703-412-9810
Last EDR Contact: 02/28/2014
Next Scheduled EDR Contact: 06/09/2014
Data Release Frequency: Quarterly

Federal RCRA CORRACTS facilities list

CORRACTS: Corrective Action Report

CORRACTS identifies hazardous waste handlers with RCRA corrective action activity.

Date of Government Version: 03/11/2014
Date Data Arrived at EDR: 03/13/2014
Date Made Active in Reports: 04/09/2014
Number of Days to Update: 27

Source: EPA
Telephone: 800-424-9346
Last EDR Contact: 03/13/2014
Next Scheduled EDR Contact: 07/14/2014
Data Release Frequency: Quarterly

Federal RCRA non-CORRACTS TSD facilities list

RCRA-TSDF: RCRA - Treatment, Storage and Disposal

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Transporters are individuals or entities that move hazardous waste from the generator offsite to a facility that can recycle, treat, store, or dispose of the waste. TSDFs treat, store, or dispose of the waste.

Date of Government Version: 03/11/2014
Date Data Arrived at EDR: 03/13/2014
Date Made Active in Reports: 04/09/2014
Number of Days to Update: 27

Source: Environmental Protection Agency
Telephone: (404) 562-8651
Last EDR Contact: 03/13/2014
Next Scheduled EDR Contact: 07/14/2014
Data Release Frequency: Quarterly

Federal RCRA generators list

RCRA-LQG: RCRA - Large Quantity Generators

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Large quantity generators (LQGs) generate over 1,000 kilograms (kg) of hazardous waste, or over 1 kg of acutely hazardous waste per month.

Date of Government Version: 03/11/2014
Date Data Arrived at EDR: 03/13/2014
Date Made Active in Reports: 04/09/2014
Number of Days to Update: 27

Source: Environmental Protection Agency
Telephone: (404) 562-8651
Last EDR Contact: 03/13/2014
Next Scheduled EDR Contact: 07/14/2014
Data Release Frequency: Quarterly

RCRA-SQG: RCRA - Small Quantity Generators

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Small quantity generators (SQGs) generate between 100 kg and 1,000 kg of hazardous waste per month.

Date of Government Version: 03/11/2014
Date Data Arrived at EDR: 03/13/2014
Date Made Active in Reports: 04/09/2014
Number of Days to Update: 27

Source: Environmental Protection Agency
Telephone: (404) 562-8651
Last EDR Contact: 03/13/2014
Next Scheduled EDR Contact: 07/14/2014
Data Release Frequency: Quarterly

RCRA-CESQG: RCRA - Conditionally Exempt Small Quantity Generators

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Conditionally exempt small quantity generators (CESQGs) generate less than 100 kg of hazardous waste, or less than 1 kg of acutely hazardous waste per month.

Date of Government Version: 03/11/2014
Date Data Arrived at EDR: 03/13/2014
Date Made Active in Reports: 04/09/2014
Number of Days to Update: 27

Source: Environmental Protection Agency
Telephone: (404) 562-8651
Last EDR Contact: 03/13/2014
Next Scheduled EDR Contact: 07/14/2014
Data Release Frequency: Varies

Federal institutional controls / engineering controls registries

US ENG CONTROLS: Engineering Controls Sites List

A listing of sites with engineering controls in place. Engineering controls include various forms of caps, building foundations, liners, and treatment methods to create pathway elimination for regulated substances to enter environmental media or effect human health.

Date of Government Version: 12/17/2013
Date Data Arrived at EDR: 01/14/2014
Date Made Active in Reports: 01/28/2014
Number of Days to Update: 14

Source: Environmental Protection Agency
Telephone: 703-603-0695
Last EDR Contact: 03/10/2014
Next Scheduled EDR Contact: 06/23/2014
Data Release Frequency: Varies

US INST CONTROL: Sites with Institutional Controls

A listing of sites with institutional controls in place. Institutional controls include administrative measures, such as groundwater use restrictions, construction restrictions, property use restrictions, and post remediation care requirements intended to prevent exposure to contaminants remaining on site. Deed restrictions are generally required as part of the institutional controls.

Date of Government Version: 12/17/2013
Date Data Arrived at EDR: 01/14/2014
Date Made Active in Reports: 01/28/2014
Number of Days to Update: 14

Source: Environmental Protection Agency
Telephone: 703-603-0695
Last EDR Contact: 03/10/2014
Next Scheduled EDR Contact: 06/23/2014
Data Release Frequency: Varies

LUCIS: Land Use Control Information System

LUCIS contains records of land use control information pertaining to the former Navy Base Realignment and Closure properties.

Date of Government Version: 11/20/2013
Date Data Arrived at EDR: 11/21/2013
Date Made Active in Reports: 02/24/2014
Number of Days to Update: 95

Source: Department of the Navy
Telephone: 843-820-7326
Last EDR Contact: 02/14/2014
Next Scheduled EDR Contact: 06/02/2014
Data Release Frequency: Varies

Federal ERNS list

ERNS: Emergency Response Notification System

Emergency Response Notification System. ERNS records and stores information on reported releases of oil and hazardous substances.

Date of Government Version: 09/30/2013
Date Data Arrived at EDR: 10/01/2013
Date Made Active in Reports: 12/06/2013
Number of Days to Update: 66

Source: National Response Center, United States Coast Guard
Telephone: 202-267-2180
Last EDR Contact: 04/04/2014
Next Scheduled EDR Contact: 07/14/2014
Data Release Frequency: Annually

State- and tribal - equivalent CERCLIS

SHWS: Hazardous Site Inventory

State Hazardous Waste Sites. State hazardous waste site records are the states' equivalent to CERCLIS. These sites may or may not already be listed on the federal CERCLIS list. Priority sites planned for cleanup using state funds (state equivalent of Superfund) are identified along with sites where cleanup will be paid for by potentially responsible parties. Available information varies by state.

Date of Government Version: 07/01/2013
Date Data Arrived at EDR: 07/01/2013
Date Made Active in Reports: 08/19/2013
Number of Days to Update: 49

Source: Department of Environmental Protection
Telephone: 404-657-8600
Last EDR Contact: 03/31/2014
Next Scheduled EDR Contact: 07/14/2014
Data Release Frequency: Annually

NON HSI: Non-Hazardous Site Inventory

This list was obtained by EDR in 1998 and contains property listings that have reported contamination of soil or groundwater under the Georgia Hazardous Site Response Act (HSRA). These sites were not placed on the Georgia Priority list (Hazardous Site Inventory or HSI) because their hazard evaluation scores did not exceed the threshold levels established for sites posing an imminent threat to health or the environment. Disclaimer provided by Rindt-McDuff Associates - the database information has been obtained from publicly available sources produced by other entities. While reasonable steps have been taken to insure the accuracy of the data, RMA does not guarantee the accuracy of the data. No claim is made for the actual existence of pollution at any site. This data does not constitute a legal opinion.

Date of Government Version: 12/31/2013
Date Data Arrived at EDR: 01/14/2014
Date Made Active in Reports: 02/24/2014
Number of Days to Update: 41

Source: Rindt-McDuff Associates, Inc.
Telephone: N/A
Last EDR Contact: 09/30/2013
Next Scheduled EDR Contact: 01/13/2014
Data Release Frequency: Annually

State and tribal landfill and/or solid waste disposal site lists

SWF/LF: Solid Waste Disposal Facilities

Solid Waste Facilities/Landfill Sites. SWF/LF type records typically contain an inventory of solid waste disposal facilities or landfills in a particular state. Depending on the state, these may be active or inactive facilities or open dumps that failed to meet RCRA Subtitle D Section 4004 criteria for solid waste landfills or disposal sites.

Date of Government Version: 01/28/2014
Date Data Arrived at EDR: 04/03/2014
Date Made Active in Reports: 04/08/2014
Number of Days to Update: 5

Source: Department of Natural Resources
Telephone: 404-362-2696
Source: Center for GIS, Georgia Institute of Technology
Telephone: 404-385-0900
Last EDR Contact: 02/07/2014
Next Scheduled EDR Contact: 05/19/2014
Data Release Frequency: Semi-Annually

State and tribal leaking storage tank lists

LUST: List of Leaking Underground Storage Tanks

Leaking Underground Storage Tank Incident Reports. LUST records contain an inventory of reported leaking underground storage tank incidents. Not all states maintain these records, and the information stored varies by state.

Date of Government Version: 11/30/2013
Date Data Arrived at EDR: 12/17/2013
Date Made Active in Reports: 01/15/2014
Number of Days to Update: 29

Source: Environmental Protection Division
Telephone: 404-362-2687
Last EDR Contact: 03/19/2014
Next Scheduled EDR Contact: 06/30/2014
Data Release Frequency: Quarterly

INDIAN LUST R5: Leaking Underground Storage Tanks on Indian Land

Leaking underground storage tanks located on Indian Land in Michigan, Minnesota and Wisconsin.

Date of Government Version: 02/13/2014
Date Data Arrived at EDR: 02/14/2014
Date Made Active in Reports: 02/24/2014
Number of Days to Update: 10

Source: EPA, Region 5
Telephone: 312-886-7439
Last EDR Contact: 01/27/2014
Next Scheduled EDR Contact: 05/12/2014
Data Release Frequency: Varies

INDIAN LUST R10: Leaking Underground Storage Tanks on Indian Land

LUSTs on Indian land in Alaska, Idaho, Oregon and Washington.

Date of Government Version: 11/06/2013
Date Data Arrived at EDR: 11/07/2013
Date Made Active in Reports: 12/06/2013
Number of Days to Update: 29

Source: EPA Region 10
Telephone: 206-553-2857
Last EDR Contact: 01/27/2014
Next Scheduled EDR Contact: 05/12/2014
Data Release Frequency: Quarterly

INDIAN LUST R9: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Arizona, California, New Mexico and Nevada

Date of Government Version: 03/01/2013
Date Data Arrived at EDR: 03/01/2013
Date Made Active in Reports: 04/12/2013
Number of Days to Update: 42

Source: Environmental Protection Agency
Telephone: 415-972-3372
Last EDR Contact: 01/27/2014
Next Scheduled EDR Contact: 05/12/2014
Data Release Frequency: Quarterly

INDIAN LUST R8: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Colorado, Montana, North Dakota, South Dakota, Utah and Wyoming.

Date of Government Version: 08/27/2012
Date Data Arrived at EDR: 08/28/2012
Date Made Active in Reports: 10/16/2012
Number of Days to Update: 49

Source: EPA Region 8
Telephone: 303-312-6271
Last EDR Contact: 01/27/2014
Next Scheduled EDR Contact: 05/12/2014
Data Release Frequency: Quarterly

INDIAN LUST R7: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Iowa, Kansas, and Nebraska

Date of Government Version: 08/27/2013
Date Data Arrived at EDR: 08/27/2013
Date Made Active in Reports: 11/01/2013
Number of Days to Update: 66

Source: EPA Region 7
Telephone: 913-551-7003
Last EDR Contact: 01/27/2014
Next Scheduled EDR Contact: 05/12/2014
Data Release Frequency: Varies

INDIAN LUST R6: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in New Mexico and Oklahoma.

Date of Government Version: 09/12/2011
Date Data Arrived at EDR: 09/13/2011
Date Made Active in Reports: 11/11/2011
Number of Days to Update: 59

Source: EPA Region 6
Telephone: 214-665-6597
Last EDR Contact: 02/21/2014
Next Scheduled EDR Contact: 05/12/2014
Data Release Frequency: Varies

INDIAN LUST R4: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Florida, Mississippi and North Carolina.

Date of Government Version: 11/21/2013
Date Data Arrived at EDR: 11/26/2013
Date Made Active in Reports: 02/24/2014
Number of Days to Update: 90

Source: EPA Region 4
Telephone: 404-562-8677
Last EDR Contact: 01/27/2014
Next Scheduled EDR Contact: 05/12/2014
Data Release Frequency: Semi-Annually

INDIAN LUST R1: Leaking Underground Storage Tanks on Indian Land
A listing of leaking underground storage tank locations on Indian Land.

Date of Government Version: 02/01/2013
Date Data Arrived at EDR: 05/01/2013
Date Made Active in Reports: 11/01/2013
Number of Days to Update: 184

Source: EPA Region 1
Telephone: 617-918-1313
Last EDR Contact: 01/30/2014
Next Scheduled EDR Contact: 05/12/2014
Data Release Frequency: Varies

State and tribal registered storage tank lists

UST: Underground Storage Tank Database
Registered Underground Storage Tanks. UST's are regulated under Subtitle I of the Resource Conservation and Recovery Act (RCRA) and must be registered with the state department responsible for administering the UST program. Available information varies by state program.

Date of Government Version: 07/01/2013
Date Data Arrived at EDR: 09/13/2013
Date Made Active in Reports: 10/03/2013
Number of Days to Update: 20

Source: Environmental Protection Division
Telephone: 404-362-2687
Last EDR Contact: 03/21/2014
Next Scheduled EDR Contact: 06/30/2014
Data Release Frequency: Annually

AST: Above Ground Storage Tanks
A listing of LP gas tank site locations.

Date of Government Version: 06/04/2012
Date Data Arrived at EDR: 06/05/2012
Date Made Active in Reports: 06/14/2012
Number of Days to Update: 9

Source: Office of Insurance & Safety Fire Commissioner
Telephone: 404-656-5875
Last EDR Contact: 02/24/2014
Next Scheduled EDR Contact: 06/09/2014
Data Release Frequency: Varies

INDIAN UST R7: Underground Storage Tanks on Indian Land
The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 7 (Iowa, Kansas, Missouri, Nebraska, and 9 Tribal Nations).

Date of Government Version: 12/31/2012
Date Data Arrived at EDR: 02/28/2013
Date Made Active in Reports: 04/12/2013
Number of Days to Update: 43

Source: EPA Region 7
Telephone: 913-551-7003
Last EDR Contact: 01/27/2014
Next Scheduled EDR Contact: 05/12/2014
Data Release Frequency: Varies

INDIAN UST R8: Underground Storage Tanks on Indian Land
The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 8 (Colorado, Montana, North Dakota, South Dakota, Utah, Wyoming and 27 Tribal Nations).

Date of Government Version: 07/29/2013
Date Data Arrived at EDR: 08/01/2013
Date Made Active in Reports: 11/01/2013
Number of Days to Update: 92

Source: EPA Region 8
Telephone: 303-312-6137
Last EDR Contact: 01/27/2014
Next Scheduled EDR Contact: 05/12/2014
Data Release Frequency: Quarterly

INDIAN UST R6: Underground Storage Tanks on Indian Land
The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 6 (Louisiana, Arkansas, Oklahoma, New Mexico, Texas and 65 Tribes).

Date of Government Version: 01/29/2014
Date Data Arrived at EDR: 01/29/2014
Date Made Active in Reports: 03/12/2014
Number of Days to Update: 42

Source: EPA Region 6
Telephone: 214-665-7591
Last EDR Contact: 01/27/2014
Next Scheduled EDR Contact: 05/12/2014
Data Release Frequency: Semi-Annually

INDIAN UST R5: Underground Storage Tanks on Indian Land
The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 5 (Michigan, Minnesota and Wisconsin and Tribal Nations).

Date of Government Version: 02/13/2014
Date Data Arrived at EDR: 02/14/2014
Date Made Active in Reports: 02/24/2014
Number of Days to Update: 10

Source: EPA Region 5
Telephone: 312-886-6136
Last EDR Contact: 01/27/2014
Next Scheduled EDR Contact: 05/12/2014
Data Release Frequency: Varies

INDIAN UST R4: Underground Storage Tanks on Indian Land
The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 4 (Alabama, Florida, Georgia, Kentucky, Mississippi, North Carolina, South Carolina, Tennessee and Tribal Nations)

Date of Government Version: 11/21/2013
Date Data Arrived at EDR: 11/26/2013
Date Made Active in Reports: 02/24/2014
Number of Days to Update: 90

Source: EPA Region 4
Telephone: 404-562-9424
Last EDR Contact: 01/27/2014
Next Scheduled EDR Contact: 05/12/2014
Data Release Frequency: Semi-Annually

INDIAN UST R1: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 1 (Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island, Vermont and ten Tribal Nations).

Date of Government Version: 02/01/2013
Date Data Arrived at EDR: 05/01/2013
Date Made Active in Reports: 01/27/2014
Number of Days to Update: 271

Source: EPA, Region 1
Telephone: 617-918-1313
Last EDR Contact: 01/30/2014
Next Scheduled EDR Contact: 05/12/2014
Data Release Frequency: Varies

INDIAN UST R10: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 10 (Alaska, Idaho, Oregon, Washington, and Tribal Nations).

Date of Government Version: 02/05/2013
Date Data Arrived at EDR: 02/06/2013
Date Made Active in Reports: 04/12/2013
Number of Days to Update: 65

Source: EPA Region 10
Telephone: 206-553-2857
Last EDR Contact: 01/27/2014
Next Scheduled EDR Contact: 05/12/2014
Data Release Frequency: Quarterly

INDIAN UST R9: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 9 (Arizona, California, Hawaii, Nevada, the Pacific Islands, and Tribal Nations).

Date of Government Version: 07/29/2013
Date Data Arrived at EDR: 07/30/2013
Date Made Active in Reports: 12/06/2013
Number of Days to Update: 129

Source: EPA Region 9
Telephone: 415-972-3368
Last EDR Contact: 01/27/2014
Next Scheduled EDR Contact: 05/12/2014
Data Release Frequency: Quarterly

FEMA UST: Underground Storage Tank Listing

A listing of all FEMA owned underground storage tanks.

Date of Government Version: 01/01/2010
Date Data Arrived at EDR: 02/16/2010
Date Made Active in Reports: 04/12/2010
Number of Days to Update: 55

Source: FEMA
Telephone: 202-646-5797
Last EDR Contact: 01/13/2014
Next Scheduled EDR Contact: 04/28/2014
Data Release Frequency: Varies

State and tribal institutional control / engineering control registries

AUL: Uniform Environmental Covenants

A list of environmental covenants

Date of Government Version: 02/07/2014
Date Data Arrived at EDR: 02/11/2014
Date Made Active in Reports: 02/17/2014
Number of Days to Update: 6

Source: Department of Natural Resources
Telephone: 404-657-8600
Last EDR Contact: 02/11/2014
Next Scheduled EDR Contact: 05/26/2014
Data Release Frequency: Varies

INST CONTROL: Public Record List

Sites on the Public Record Listing that have institutional controls or limitations on use are sites with Risk Reduction Standards of 3, 4, and 5.

Date of Government Version: 02/04/2014
Date Data Arrived at EDR: 02/11/2014
Date Made Active in Reports: 02/17/2014
Number of Days to Update: 6

Source: Department of Natural Resources
Telephone: 404-657-8600
Last EDR Contact: 02/11/2014
Next Scheduled EDR Contact: 05/26/2014
Data Release Frequency: Varies

State and tribal voluntary cleanup sites

VCP: Voluntary Cleanup Program site

Georgia's Voluntary Remediation Program Act was created to encourage voluntary investigation and remediation of contaminated properties.

Date of Government Version: 02/07/2014
Date Data Arrived at EDR: 03/04/2014
Date Made Active in Reports: 03/26/2014
Number of Days to Update: 22

Source: DNR
Telephone: 404-657-8600
Last EDR Contact: 03/04/2014
Next Scheduled EDR Contact: 06/16/2014
Data Release Frequency: Varies

INDIAN VCP R7: Voluntary Cleanup Priority Lisitng

A listing of voluntary cleanup priority sites located on Indian Land located in Region 7.

Date of Government Version: 03/20/2008
Date Data Arrived at EDR: 04/22/2008
Date Made Active in Reports: 05/19/2008
Number of Days to Update: 27

Source: EPA, Region 7
Telephone: 913-551-7365
Last EDR Contact: 04/20/2009
Next Scheduled EDR Contact: 07/20/2009
Data Release Frequency: Varies

INDIAN VCP R1: Voluntary Cleanup Priority Listing

A listing of voluntary cleanup priority sites located on Indian Land located in Region 1.

Date of Government Version: 09/17/2013
Date Data Arrived at EDR: 10/01/2013
Date Made Active in Reports: 12/06/2013
Number of Days to Update: 66

Source: EPA, Region 1
Telephone: 617-918-1102
Last EDR Contact: 04/01/2014
Next Scheduled EDR Contact: 07/14/2014
Data Release Frequency: Varies

State and tribal Brownfields sites

BROWNFIELDS: Brownfields Public Record List

The Brownfields Public Record lists properties where response actions under the Georgia Hazardous Site Reuse and Redevelopment Act are planned, ongoing or completed.

Date of Government Version: 02/04/2014
Date Data Arrived at EDR: 02/11/2014
Date Made Active in Reports: 02/17/2014
Number of Days to Update: 6

Source: Department of Natural Resources
Telephone: 404-657-8600
Last EDR Contact: 02/11/2014
Next Scheduled EDR Contact: 05/26/2014
Data Release Frequency: Varies

ADDITIONAL ENVIRONMENTAL RECORDS

Local Brownfield lists

US BROWNFIELDS: A Listing of Brownfields Sites

Brownfields are real property, the expansion, redevelopment, or reuse of which may be complicated by the presence or potential presence of a hazardous substance, pollutant, or contaminant. Cleaning up and reinvesting in these properties takes development pressures off of undeveloped, open land, and both improves and protects the environment. Assessment, Cleanup and Redevelopment Exchange System (ACRES) stores information reported by EPA Brownfields grant recipients on brownfields properties assessed or cleaned up with grant funding as well as information on Targeted Brownfields Assessments performed by EPA Regions. A listing of ACRES Brownfield sites is obtained from Cleanups in My Community. Cleanups in My Community provides information on Brownfields properties for which information is reported back to EPA, as well as areas served by Brownfields grant programs.

Date of Government Version: 03/20/2014
Date Data Arrived at EDR: 03/20/2014
Date Made Active in Reports: 04/09/2014
Number of Days to Update: 20

Source: Environmental Protection Agency
Telephone: 202-566-2777
Last EDR Contact: 03/20/2014
Next Scheduled EDR Contact: 07/07/2014
Data Release Frequency: Semi-Annually

Local Lists of Landfill / Solid Waste Disposal Sites

ODI: Open Dump Inventory
An open dump is defined as a disposal facility that does not comply with one or more of the Part 257 or Part 258 Subtitle D Criteria.

Date of Government Version: 06/30/1985
Date Data Arrived at EDR: 08/09/2004
Date Made Active in Reports: 09/17/2004
Number of Days to Update: 39

Source: Environmental Protection Agency
Telephone: 800-424-9346
Last EDR Contact: 06/09/2004
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

DEBRIS REGION 9: Torres Martinez Reservation Illegal Dump Site Locations
A listing of illegal dump sites location on the Torres Martinez Indian Reservation located in eastern Riverside County and northern Imperial County, California.

Date of Government Version: 01/12/2009
Date Data Arrived at EDR: 05/07/2009
Date Made Active in Reports: 09/21/2009
Number of Days to Update: 137

Source: EPA, Region 9
Telephone: 415-947-4219
Last EDR Contact: 01/27/2014
Next Scheduled EDR Contact: 05/12/2014
Data Release Frequency: No Update Planned

HIST LF: Historical Landfills
Landfills that were closed many years ago.

Date of Government Version: 01/15/2003
Date Data Arrived at EDR: 01/20/2004
Date Made Active in Reports: 02/06/2004
Number of Days to Update: 17

Source: Department of Natural Resources
Telephone: 404-362-2696
Last EDR Contact: 01/20/2004
Next Scheduled EDR Contact: N/A
Data Release Frequency: Varies

SWRCY: Recycling Center Listing
A listing of recycling facility locations.

Date of Government Version: 01/18/2014
Date Data Arrived at EDR: 01/21/2014
Date Made Active in Reports: 02/24/2014
Number of Days to Update: 34

Source: Department of Community Affairs
Telephone: 404-679-1598
Last EDR Contact: 01/13/2014
Next Scheduled EDR Contact: 04/28/2014
Data Release Frequency: Varies

INDIAN ODI: Report on the Status of Open Dumps on Indian Lands
Location of open dumps on Indian land.

Date of Government Version: 12/31/1998
Date Data Arrived at EDR: 12/03/2007
Date Made Active in Reports: 01/24/2008
Number of Days to Update: 52

Source: Environmental Protection Agency
Telephone: 703-308-8245
Last EDR Contact: 11/04/2013
Next Scheduled EDR Contact: 02/17/2014
Data Release Frequency: Varies

Local Lists of Hazardous waste / Contaminated Sites

US CDL: Clandestine Drug Labs
A listing of clandestine drug lab locations. The U.S. Department of Justice ("the Department") provides this web site as a public service. It contains addresses of some locations where law enforcement agencies reported they found chemicals or other items that indicated the presence of either clandestine drug laboratories or dumpsites. In most cases, the source of the entries is not the Department, and the Department has not verified the entry and does not guarantee its accuracy. Members of the public must verify the accuracy of all entries by, for example, contacting local law enforcement and local health departments.

Date of Government Version: 12/04/2013
Date Data Arrived at EDR: 12/10/2013
Date Made Active in Reports: 02/13/2014
Number of Days to Update: 65

Source: Drug Enforcement Administration
Telephone: 202-307-1000
Last EDR Contact: 03/04/2014
Next Scheduled EDR Contact: 06/16/2014
Data Release Frequency: Quarterly

DEL SHWS: Delisted Hazardous Site Inventory Listing
A listing of sites delisted from the Hazardous Site Inventory.

Date of Government Version: 07/01/2013
Date Data Arrived at EDR: 07/01/2013
Date Made Active in Reports: 08/19/2013
Number of Days to Update: 49

Source: Department of Natural Resources
Telephone: 404-657-8636
Last EDR Contact: 03/31/2014
Next Scheduled EDR Contact: 07/14/2014
Data Release Frequency: Annually

US HIST CDL: National Clandestine Laboratory Register
A listing of clandestine drug lab locations. The U.S. Department of Justice ("the Department") provides this web site as a public service. It contains addresses of some locations where law enforcement agencies reported they found chemicals or other items that indicated the presence of either clandestine drug laboratories or dumpsites. In most cases, the source of the entries is not the Department, and the Department has not verified the entry and does not guarantee its accuracy. Members of the public must verify the accuracy of all entries by, for example, contacting local law enforcement and local health departments.

Date of Government Version: 09/01/2007
Date Data Arrived at EDR: 11/19/2008
Date Made Active in Reports: 03/30/2009
Number of Days to Update: 131

Source: Drug Enforcement Administration
Telephone: 202-307-1000
Last EDR Contact: 03/04/2014
Next Scheduled EDR Contact: 06/16/2014
Data Release Frequency: No Update Planned

Local Land Records

LIENS 2: CERCLA Lien Information
A Federal CERCLA ('Superfund') lien can exist by operation of law at any site or property at which EPA has spent Superfund monies. These monies are spent to investigate and address releases and threatened releases of contamination. CERCLIS provides information as to the identity of these sites and properties.

Date of Government Version: 02/06/2013
Date Data Arrived at EDR: 04/25/2013
Date Made Active in Reports: 05/10/2013
Number of Days to Update: 15

Source: Environmental Protection Agency
Telephone: 202-564-6023
Last EDR Contact: 01/27/2014
Next Scheduled EDR Contact: 05/12/2014
Data Release Frequency: Varies

Records of Emergency Release Reports

HMIRS: Hazardous Materials Information Reporting System
Hazardous Materials Incident Report System. HMIRS contains hazardous material spill incidents reported to DOT.

Date of Government Version: 12/31/2013
Date Data Arrived at EDR: 01/03/2014
Date Made Active in Reports: 02/24/2014
Number of Days to Update: 52

Source: U.S. Department of Transportation
Telephone: 202-366-4555
Last EDR Contact: 04/01/2014
Next Scheduled EDR Contact: 07/14/2014
Data Release Frequency: Annually

SPILLS: Spills Information
Oil or Hazardous Material Spills or Releases.

Date of Government Version: 12/31/2013
Date Data Arrived at EDR: 01/06/2014
Date Made Active in Reports: 01/15/2014
Number of Days to Update: 9

Source: Department of Natural Resources
Telephone: 706-792-7744
Last EDR Contact: 03/31/2014
Next Scheduled EDR Contact: 07/14/2014
Data Release Frequency: Quarterly

SPILLS 90: SPILLS90 data from FirstSearch

Spills 90 includes those spill and release records available exclusively from FirstSearch databases. Typically, they may include chemical, oil and/or hazardous substance spills recorded after 1990. Duplicate records that are already included in EDR incident and release records are not included in Spills 90.

Date of Government Version: 10/04/2012
Date Data Arrived at EDR: 01/03/2013
Date Made Active in Reports: 02/11/2013
Number of Days to Update: 39

Source: FirstSearch
Telephone: N/A
Last EDR Contact: 01/03/2013
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

Other Ascertainable Records

RCRA NonGen / NLR: RCRA - Non Generators

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Non-Generators do not presently generate hazardous waste.

Date of Government Version: 03/11/2014
Date Data Arrived at EDR: 03/13/2014
Date Made Active in Reports: 04/09/2014
Number of Days to Update: 27

Source: Environmental Protection Agency
Telephone: (404) 562-8651
Last EDR Contact: 03/13/2014
Next Scheduled EDR Contact: 07/14/2014
Data Release Frequency: Varies

DOT OPS: Incident and Accident Data

Department of Transporation, Office of Pipeline Safety Incident and Accident data.

Date of Government Version: 07/31/2012
Date Data Arrived at EDR: 08/07/2012
Date Made Active in Reports: 09/18/2012
Number of Days to Update: 42

Source: Department of Transporation, Office of Pipeline Safety
Telephone: 202-366-4595
Last EDR Contact: 02/06/2014
Next Scheduled EDR Contact: 05/19/2014
Data Release Frequency: Varies

DOD: Department of Defense Sites

This data set consists of federally owned or administered lands, administered by the Department of Defense, that have any area equal to or greater than 640 acres of the United States, Puerto Rico, and the U.S. Virgin Islands.

Date of Government Version: 12/31/2005
Date Data Arrived at EDR: 11/10/2006
Date Made Active in Reports: 01/11/2007
Number of Days to Update: 62

Source: USGS
Telephone: 888-275-8747
Last EDR Contact: 01/15/2014
Next Scheduled EDR Contact: 04/28/2014
Data Release Frequency: Semi-Annually

FUDS: Formerly Used Defense Sites

The listing includes locations of Formerly Used Defense Sites properties where the US Army Corps of Engineers is actively working or will take necessary cleanup actions.

Date of Government Version: 12/31/2011
Date Data Arrived at EDR: 02/26/2013
Date Made Active in Reports: 03/13/2013
Number of Days to Update: 15

Source: U.S. Army Corps of Engineers
Telephone: 202-528-4285
Last EDR Contact: 03/10/2014
Next Scheduled EDR Contact: 06/23/2014
Data Release Frequency: Varies

CONSENT: Superfund (CERCLA) Consent Decrees

Major legal settlements that establish responsibility and standards for cleanup at NPL (Superfund) sites. Released periodically by United States District Courts after settlement by parties to litigation matters.

Date of Government Version: 12/31/2013
Date Data Arrived at EDR: 01/24/2014
Date Made Active in Reports: 02/24/2014
Number of Days to Update: 31

Source: Department of Justice, Consent Decree Library
Telephone: Varies
Last EDR Contact: 03/27/2014
Next Scheduled EDR Contact: 07/14/2014
Data Release Frequency: Varies

ROD: Records Of Decision

Record of Decision. ROD documents mandate a permanent remedy at an NPL (Superfund) site containing technical and health information to aid in the cleanup.

Date of Government Version: 11/25/2013
Date Data Arrived at EDR: 12/12/2013
Date Made Active in Reports: 02/24/2014
Number of Days to Update: 74

Source: EPA
Telephone: 703-416-0223
Last EDR Contact: 03/11/2014
Next Scheduled EDR Contact: 06/23/2014
Data Release Frequency: Annually

UMTRA: Uranium Mill Tailings Sites

Uranium ore was mined by private companies for federal government use in national defense programs. When the mills shut down, large piles of the sand-like material (mill tailings) remain after uranium has been extracted from the ore. Levels of human exposure to radioactive materials from the piles are low; however, in some cases tailings were used as construction materials before the potential health hazards of the tailings were recognized.

Date of Government Version: 09/14/2010
Date Data Arrived at EDR: 10/07/2011
Date Made Active in Reports: 03/01/2012
Number of Days to Update: 146

Source: Department of Energy
Telephone: 505-845-0011
Last EDR Contact: 02/25/2014
Next Scheduled EDR Contact: 06/09/2014
Data Release Frequency: Varies

US MINES: Mines Master Index File

Contains all mine identification numbers issued for mines active or opened since 1971. The data also includes violation information.

Date of Government Version: 08/01/2013
Date Data Arrived at EDR: 09/05/2013
Date Made Active in Reports: 10/03/2013
Number of Days to Update: 28

Source: Department of Labor, Mine Safety and Health Administration
Telephone: 303-231-5959
Last EDR Contact: 03/05/2014
Next Scheduled EDR Contact: 06/16/2014
Data Release Frequency: Semi-Annually

TRIS: Toxic Chemical Release Inventory System

Toxic Release Inventory System. TRIS identifies facilities which release toxic chemicals to the air, water and land in reportable quantities under SARA Title III Section 313.

Date of Government Version: 12/31/2011
Date Data Arrived at EDR: 07/31/2013
Date Made Active in Reports: 09/13/2013
Number of Days to Update: 44

Source: EPA
Telephone: 202-566-0250
Last EDR Contact: 02/26/2014
Next Scheduled EDR Contact: 06/09/2014
Data Release Frequency: Annually

TSCA: Toxic Substances Control Act

Toxic Substances Control Act. TSCA identifies manufacturers and importers of chemical substances included on the TSCA Chemical Substance Inventory list. It includes data on the production volume of these substances by plant site.

Date of Government Version: 12/31/2006
Date Data Arrived at EDR: 09/29/2010
Date Made Active in Reports: 12/02/2010
Number of Days to Update: 64

Source: EPA
Telephone: 202-260-5521
Last EDR Contact: 03/28/2014
Next Scheduled EDR Contact: 07/07/2014
Data Release Frequency: Every 4 Years

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

FTTS: FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fungicide, & Rodenticide Act)/TSCA (Toxic Substances Control Act)
FTTS tracks administrative cases and pesticide enforcement actions and compliance activities related to FIFRA, TSCA and EPCRA (Emergency Planning and Community Right-to-Know Act). To maintain currency, EDR contacts the Agency on a quarterly basis.

Date of Government Version: 04/09/2009
Date Data Arrived at EDR: 04/16/2009
Date Made Active in Reports: 05/11/2009
Number of Days to Update: 25
Source: EPA/Office of Prevention, Pesticides and Toxic Substances
Telephone: 202-566-1667
Last EDR Contact: 02/24/2014
Next Scheduled EDR Contact: 06/09/2014
Data Release Frequency: Quarterly

FTTS INSP: FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fungicide, & Rodenticide Act)/TSCA (Toxic Substances Control Act)
A listing of FIFRA/TSCA Tracking System (FTTS) inspections and enforcements.

Date of Government Version: 04/09/2009
Date Data Arrived at EDR: 04/16/2009
Date Made Active in Reports: 05/11/2009
Number of Days to Update: 25
Source: EPA
Telephone: 202-566-1667
Last EDR Contact: 02/24/2014
Next Scheduled EDR Contact: 06/09/2014
Data Release Frequency: Quarterly

HIST FTTS: FIFRA/TSCA Tracking System Administrative Case Listing
A complete administrative case listing from the FIFRA/TSCA Tracking System (FTTS) for all ten EPA regions. The information was obtained from the National Compliance Database (NCDB). NCDB supports the implementation of FIFRA (Federal Insecticide, Fungicide, and Rodenticide Act) and TSCA (Toxic Substances Control Act). Some EPA regions are now closing out records. Because of that, and the fact that some EPA regions are not providing EPA Headquarters with updated records, it was decided to create a HIST FTTS database. It included records that may not be included in the newer FTTS database updates. This database is no longer updated.

Date of Government Version: 10/19/2006
Date Data Arrived at EDR: 03/01/2007
Date Made Active in Reports: 04/10/2007
Number of Days to Update: 40
Source: Environmental Protection Agency
Telephone: 202-564-2501
Last EDR Contact: 12/17/2007
Next Scheduled EDR Contact: 03/17/2008
Data Release Frequency: No Update Planned

HIST FTTS INSP: FIFRA/TSCA Tracking System Inspection & Enforcement Case Listing
A complete inspection and enforcement case listing from the FIFRA/TSCA Tracking System (FTTS) for all ten EPA regions. The information was obtained from the National Compliance Database (NCDB). NCDB supports the implementation of FIFRA (Federal Insecticide, Fungicide, and Rodenticide Act) and TSCA (Toxic Substances Control Act). Some EPA regions are now closing out records. Because of that, and the fact that some EPA regions are not providing EPA Headquarters with updated records, it was decided to create a HIST FTTS database. It included records that may not be included in the newer FTTS database updates. This database is no longer updated.

Date of Government Version: 10/19/2006
Date Data Arrived at EDR: 03/01/2007
Date Made Active in Reports: 04/10/2007
Number of Days to Update: 40
Source: Environmental Protection Agency
Telephone: 202-564-2501
Last EDR Contact: 12/17/2008
Next Scheduled EDR Contact: 03/17/2008
Data Release Frequency: No Update Planned

SSTS: Section 7 Tracking Systems
Section 7 of the Federal Insecticide, Fungicide and Rodenticide Act, as amended (92 Stat. 829) requires all registered pesticide-producing establishments to submit a report to the Environmental Protection Agency by March 1st each year. Each establishment must report the types and amounts of pesticides, active ingredients and devices being produced, and those having been produced and sold or distributed in the past year.

Date of Government Version: 12/31/2009
Date Data Arrived at EDR: 12/10/2010
Date Made Active in Reports: 02/25/2011
Number of Days to Update: 77
Source: EPA
Telephone: 202-564-4203
Last EDR Contact: 01/28/2014
Next Scheduled EDR Contact: 05/12/2014
Data Release Frequency: Annually

ICIS: Integrated Compliance Information System

The Integrated Compliance Information System (ICIS) supports the information needs of the national enforcement and compliance program as well as the unique needs of the National Pollutant Discharge Elimination System (NPDES) program.

Date of Government Version: 07/20/2011
Date Data Arrived at EDR: 11/10/2011
Date Made Active in Reports: 01/10/2012
Number of Days to Update: 61

Source: Environmental Protection Agency
Telephone: 202-564-5088
Last EDR Contact: 10/09/2014
Next Scheduled EDR Contact: 07/21/2014
Data Release Frequency: Quarterly

PADS: PCB Activity Database System

PCB Activity Database. PADS Identifies generators, transporters, commercial storers and/or brokers and disposers of PCB's who are required to notify the EPA of such activities.

Date of Government Version: 06/01/2013
Date Data Arrived at EDR: 07/17/2013
Date Made Active in Reports: 11/01/2013
Number of Days to Update: 107

Source: EPA
Telephone: 202-566-0500
Last EDR Contact: 01/28/2014
Next Scheduled EDR Contact: 04/28/2014
Data Release Frequency: Annually

MLTS: Material Licensing Tracking System

MLTS is maintained by the Nuclear Regulatory Commission and contains a list of approximately 8,100 sites which possess or use radioactive materials and which are subject to NRC licensing requirements. To maintain currency, EDR contacts the Agency on a quarterly basis.

Date of Government Version: 07/22/2013
Date Data Arrived at EDR: 08/02/2013
Date Made Active in Reports: 11/01/2013
Number of Days to Update: 91

Source: Nuclear Regulatory Commission
Telephone: 301-415-7169
Last EDR Contact: 03/10/2014
Next Scheduled EDR Contact: 06/23/2014
Data Release Frequency: Quarterly

RADINFO: Radiation Information Database

The Radiation Information Database (RADINFO) contains information about facilities that are regulated by U.S. Environmental Protection Agency (EPA) regulations for radiation and radioactivity.

Date of Government Version: 01/09/2014
Date Data Arrived at EDR: 01/10/2014
Date Made Active in Reports: 03/12/2014
Number of Days to Update: 61

Source: Environmental Protection Agency
Telephone: 202-343-9775
Last EDR Contact: 04/09/2014
Next Scheduled EDR Contact: 07/21/2014
Data Release Frequency: Quarterly

FINDS: Facility Index System/Facility Registry System

Facility Index System. FINDS contains both facility information and 'pointers' to other sources that contain more detail. EDR includes the following FINDS databases in this report: PCS (Permit Compliance System), AIRS (Aerometric Information Retrieval System), DOCKET (Enforcement Docket used to manage and track information on civil judicial enforcement cases for all environmental statutes), FURS (Federal Underground Injection Control), C-DOCKET (Criminal Docket System used to track criminal enforcement actions for all environmental statutes), FFIS (Federal Facilities Information System), STATE (State Environmental Laws and Statutes), and PADS (PCB Activity Data System).

Date of Government Version: 11/18/2013
Date Data Arrived at EDR: 02/27/2014
Date Made Active in Reports: 03/12/2014
Number of Days to Update: 13

Source: EPA
Telephone: (404) 562-9900
Last EDR Contact: 03/14/2014
Next Scheduled EDR Contact: 06/23/2014
Data Release Frequency: Quarterly

RAATS: RCRA Administrative Action Tracking System

RCRA Administration Action Tracking System. RAATS contains records based on enforcement actions issued under RCRA pertaining to major violators and includes administrative and civil actions brought by the EPA. For administration actions after September 30, 1995, data entry in the RAATS database was discontinued. EPA will retain a copy of the database for historical records. It was necessary to terminate RAATS because a decrease in agency resources made it impossible to continue to update the information contained in the database.

Date of Government Version: 04/17/1995
Date Data Arrived at EDR: 07/03/1995
Date Made Active in Reports: 08/07/1995
Number of Days to Update: 35

Source: EPA
Telephone: 202-564-4104
Last EDR Contact: 06/02/2008
Next Scheduled EDR Contact: 09/01/2008
Data Release Frequency: No Update Planned

RMP: Risk Management Plans

When Congress passed the Clean Air Act Amendments of 1990, it required EPA to publish regulations and guidance for chemical accident prevention at facilities using extremely hazardous substances. The Risk Management Program Rule (RMP Rule) was written to implement Section 112(r) of these amendments. The rule, which built upon existing industry codes and standards, requires companies of all sizes that use certain flammable and toxic substances to develop a Risk Management Program, which includes a(n): Hazard assessment that details the potential effects of an accidental release, an accident history of the last five years, and an evaluation of worst-case and alternative accidental releases; Prevention program that includes safety precautions and maintenance, monitoring, and employee training measures; and Emergency response program that spells out emergency health care, employee training measures and procedures for informing the public and response agencies (e.g the fire department) should an accident occur.

Date of Government Version: 11/01/2013
Date Data Arrived at EDR: 12/12/2013
Date Made Active in Reports: 02/13/2014
Number of Days to Update: 63

Source: Environmental Protection Agency
Telephone: 202-564-8600
Last EDR Contact: 01/27/2014
Next Scheduled EDR Contact: 05/12/2014
Data Release Frequency: Varies

BRS: Biennial Reporting System

The Biennial Reporting System is a national system administered by the EPA that collects data on the generation and management of hazardous waste. BRS captures detailed data from two groups: Large Quantity Generators (LQG) and Treatment, Storage, and Disposal Facilities.

Date of Government Version: 12/31/2011
Date Data Arrived at EDR: 02/26/2013
Date Made Active in Reports: 04/19/2013
Number of Days to Update: 52

Source: EPA/NTIS
Telephone: 800-424-9346
Last EDR Contact: 02/28/2014
Next Scheduled EDR Contact: 06/09/2014
Data Release Frequency: Biennially

NPDES: NPDES Wastewater Permit List

A listing of NPDES wastewater permits issued by the Watershed Protection Branch.

Date of Government Version: 01/27/2011
Date Data Arrived at EDR: 02/15/2011
Date Made Active in Reports: 02/23/2011
Number of Days to Update: 8

Source: Department of Natural Resoruces
Telephone: 404-362-2680
Last EDR Contact: 02/14/2014
Next Scheduled EDR Contact: 05/26/2014
Data Release Frequency: Varies

DRYCLEANERS: Drycleaner Database

A list of drycleaners in the state. The listing includes drycleaner facilities, that use perchloroethylene, that responded to the Notification of Compliance Status forms. It also includes those businesses that are pick-up stores only and do not conduct dry cleaning on site.

Date of Government Version: 09/18/2009
Date Data Arrived at EDR: 09/18/2009
Date Made Active in Reports: 10/09/2009
Number of Days to Update: 21

Source: Department of Natural Resources
Telephone: 404-363-7000
Last EDR Contact: 02/10/2014
Next Scheduled EDR Contact: 05/26/2014
Data Release Frequency: Varies

AIRS: Permitted Facility & Emissions Lising

A listing of permitted Air facilities and emissions data.

Date of Government Version: 12/31/2011
Date Data Arrived at EDR: 11/26/2013
Date Made Active in Reports: 01/22/2014
Number of Days to Update: 57

Source: Department of Natural Resources
Telephone: 404-363-7000
Last EDR Contact: 02/24/2014
Next Scheduled EDR Contact: 06/09/2014
Data Release Frequency: Varies

TIER 2: Tier 2 Data Listing
A listing of facilities which store or manufacture hazardous materials and submit a chemical inventory report.

Date of Government Version: 12/31/2012
Date Data Arrived at EDR: 10/03/2013
Date Made Active in Reports: 11/06/2013
Number of Days to Update: 34
Source: Department of Natural Resources
Telephone: 404-656-4852
Last EDR Contact: 03/03/2014
Next Scheduled EDR Contact: 06/16/2014
Data Release Frequency: Varies

INDIAN RESERV: Indian Reservations
This map layer portrays Indian administered lands of the United States that have any area equal to or greater than 640 acres.

Date of Government Version: 12/31/2005
Date Data Arrived at EDR: 12/08/2006
Date Made Active in Reports: 01/11/2007
Number of Days to Update: 34
Source: USGS
Telephone: 202-208-3710
Last EDR Contact: 01/15/2014
Next Scheduled EDR Contact: 04/28/2014
Data Release Frequency: Semi-Annually

SCRD DRYCLEANERS: State Coalition for Remediation of Drycleaners Listing
The State Coalition for Remediation of Drycleaners was established in 1998, with support from the U.S. EPA Office of Superfund Remediation and Technology Innovation. It is comprised of representatives of states with established drycleaner remediation programs. Currently the member states are Alabama, Connecticut, Florida, Illinois, Kansas, Minnesota, Missouri, North Carolina, Oregon, South Carolina, Tennessee, Texas, and Wisconsin.

Date of Government Version: 03/07/2011
Date Data Arrived at EDR: 03/09/2011
Date Made Active in Reports: 05/02/2011
Number of Days to Update: 54
Source: Environmental Protection Agency
Telephone: 615-532-8599
Last EDR Contact: 01/20/2014
Next Scheduled EDR Contact: 05/05/2014
Data Release Frequency: Varies

LEAD SMELTER 1: Lead Smelter Sites
A listing of former lead smelter site locations.

Date of Government Version: 01/29/2013
Date Data Arrived at EDR: 02/14/2013
Date Made Active in Reports: 02/27/2013
Number of Days to Update: 13
Source: Environmental Protection Agency
Telephone: 703-603-8787
Last EDR Contact: 04/04/2014
Next Scheduled EDR Contact: 07/21/2014
Data Release Frequency: Varies

LEAD SMELTER 2: Lead Smelter Sites
A list of several hundred sites in the U.S. where secondary lead smelting was done from 1931and 1964. These sites may pose a threat to public health through ingestion or inhalation of contaminated soil or dust

Date of Government Version: 04/05/2001
Date Data Arrived at EDR: 10/27/2010
Date Made Active in Reports: 12/02/2010
Number of Days to Update: 36
Source: American Journal of Public Health
Telephone: 703-305-6451
Last EDR Contact: 12/02/2009
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

2020 COR ACTION: 2020 Corrective Action Program List
The EPA has set ambitious goals for the RCRA Corrective Action program by creating the 2020 Corrective Action Universe. This RCRA cleanup baseline includes facilities expected to need corrective action. The 2020 universe contains a wide variety of sites. Some properties are heavily contaminated while others were contaminated but have since been cleaned up. Still others have not been fully investigated yet, and may require little or no remediation. Inclusion in the 2020 Universe does not necessarily imply failure on the part of a facility to meet its RCRA obligations.

Date of Government Version: 11/11/2011
Date Data Arrived at EDR: 05/18/2012
Date Made Active in Reports: 05/25/2012
Number of Days to Update: 7
Source: Environmental Protection Agency
Telephone: 703-308-4044
Last EDR Contact: 02/14/2014
Next Scheduled EDR Contact: 05/26/2014
Data Release Frequency: Varies

Financial Assurance 2: Financial Assurance Information Listing
Financial assurance information listing for solid waste facilities.

Date of Government Version: 01/10/2014
Date Data Arrived at EDR: 01/10/2014
Date Made Active in Reports: 02/24/2014
Number of Days to Update: 45
Source: Department of Natural Resources
Telephone: 404-362-2537
Last EDR Contact: 02/24/2014
Next Scheduled EDR Contact: 06/09/2014
Data Release Frequency: Varies

PRP: Potentially Responsible Parties
A listing of verified Potentially Responsible Parties

Date of Government Version: 04/15/2013
Date Data Arrived at EDR: 07/03/2013
Date Made Active in Reports: 09/13/2013
Number of Days to Update: 72
Source: EPA
Telephone: 202-564-6023
Last EDR Contact: 04/04/2014
Next Scheduled EDR Contact: 07/14/2014
Data Release Frequency: Quarterly

FEDLAND: Federal and Indian Lands
Federally and Indian administrated lands of the United States. Lands included are administrated by: Army Corps of Engineers, Bureau of Reclamation, National Wild and Scenic River, National Wildlife Refuge, Public Domain Land, Wilderness, Wilderness Study Area, Wildlife Management Area, Bureau of Indian Affairs, Bureau of Land Management, Department of Justice, Forest Service, Fish and Wildlife Service, National Park Service.

Date of Government Version: 12/31/2005
Date Data Arrived at EDR: 02/06/2006
Date Made Active in Reports: 01/11/2007
Number of Days to Update: 339
Source: U.S. Geological Survey
Telephone: 888-275-8747
Last EDR Contact: 01/15/2014
Next Scheduled EDR Contact: 04/28/2014
Data Release Frequency: N/A

US AIRS (AFS): Aerometric Information Retrieval System Facility Subsystem (AFS)
The database is a sub-system of Aerometric Information Retrieval System (AIRS). AFS contains compliance data on air pollution point sources regulated by the U.S. EPA and/or state and local air regulatory agencies. This information comes from source reports by various stationary sources of air pollution, such as electric power plants, steel mills, factories, and universities, and provides information about the air pollutants they produce. Action, air program, air program pollutant, and general level plant data. It is used to track emissions and compliance data from industrial plants.

Date of Government Version: 10/23/2013
Date Data Arrived at EDR: 11/06/2013
Date Made Active in Reports: 12/06/2013
Number of Days to Update: 30
Source: EPA
Telephone: 202-564-5962
Last EDR Contact: 03/31/2014
Next Scheduled EDR Contact: 07/14/2014
Data Release Frequency: Annually

US AIRS MINOR: Air Facility System Data
A listing of minor source facilities.

Date of Government Version: 10/23/2013
Date Data Arrived at EDR: 11/06/2013
Date Made Active in Reports: 12/06/2013
Number of Days to Update: 30
Source: EPA
Telephone: 202-564-5962
Last EDR Contact: 03/31/2014
Next Scheduled EDR Contact: 07/14/2014
Data Release Frequency: Annually

US FIN ASSUR: Financial Assurance Information
All owners and operators of facilities that treat, store, or dispose of hazardous waste are required to provide proof that they will have sufficient funds to pay for the clean up, closure, and post-closure care of their facilities.

Date of Government Version: 02/25/2014
Date Data Arrived at EDR: 02/27/2014
Date Made Active in Reports: 04/09/2014
Number of Days to Update: 41
Source: Environmental Protection Agency
Telephone: 202-566-1917
Last EDR Contact: 02/14/2014
Next Scheduled EDR Contact: 06/02/2014
Data Release Frequency: Quarterly

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Financial Assurance 1: Financial Assurance Information Listing
A listing of financial assurance information for underground storage tank facilities.

Date of Government Version: 07/01/2013
Date Data Arrived at EDR: 09/13/2013
Date Made Active in Reports: 10/03/2013
Number of Days to Update: 20

Source: Department of Natural Resources
Telephone: 404-362-4892
Last EDR Contact: 03/21/2014
Next Scheduled EDR Contact: 06/30/2014
Data Release Frequency: Annually

PCB TRANSFORMER: PCB Transformer Registration Database
The database of PCB transformer registrations that includes all PCB registration submittals.

Date of Government Version: 02/01/2011
Date Data Arrived at EDR: 10/19/2011
Date Made Active in Reports: 01/10/2012
Number of Days to Update: 83

Source: Environmental Protection Agency
Telephone: 202-566-0517
Last EDR Contact: 01/30/2014
Next Scheduled EDR Contact: 05/12/2014
Data Release Frequency: Varies

COAL ASH EPA: Coal Combustion Residues Surface Impoundments List
A listing of coal combustion residues surface impoundments with high hazard potential ratings.

Date of Government Version: 08/17/2010
Date Data Arrived at EDR: 01/03/2011
Date Made Active in Reports: 03/21/2011
Number of Days to Update: 77

Source: Environmental Protection Agency
Telephone: N/A
Last EDR Contact: 03/11/2014
Next Scheduled EDR Contact: 06/23/2014
Data Release Frequency: Varies

COAL ASH: Coal Ash Disposal Site Listing
A listing of coal ash landfills.

Date of Government Version: 11/06/2012
Date Data Arrived at EDR: 11/08/2012
Date Made Active in Reports: 12/07/2012
Number of Days to Update: 29

Source: Department of Natural Resources
Telephone: 404-362-2537
Last EDR Contact: 12/16/2013
Next Scheduled EDR Contact: 02/17/2014
Data Release Frequency: Varies

COAL ASH DOE: Sleam-Electric Plan Operation Data
A listing of power plants that store ash in surface ponds.

Date of Government Version: 12/31/2005
Date Data Arrived at EDR: 08/07/2009
Date Made Active in Reports: 10/22/2009
Number of Days to Update: 76

Source: Department of Energy
Telephone: 202-586-8719
Last EDR Contact: 01/13/2014
Next Scheduled EDR Contact: 04/28/2014
Data Release Frequency: Varies

EPA WATCH LIST: EPA WATCH LIST
EPA maintains a "Watch List" to facilitate dialogue between EPA, state and local environmental agencies on enforcement matters relating to facilities with alleged violations identified as either significant or high priority. Being on the Watch List does not mean that the facility has actually violated the law only that an investigation by EPA or a state or local environmental agency has led those organizations to allege that an unproven violation has in fact occurred. Being on the Watch List does not represent a higher level of concern regarding the alleged violations that were detected, but instead indicates cases requiring additional dialogue between EPA, state and local agencies - primarily because of the length of time the alleged violation has gone unaddressed or unresolved.

Date of Government Version: 06/30/2013
Date Data Arrived at EDR: 08/13/2013
Date Made Active in Reports: 09/13/2013
Number of Days to Update: 31

Source: Environmental Protection Agency
Telephone: 617-520-3000
Last EDR Contact: 02/10/2014
Next Scheduled EDR Contact: 05/26/2014
Data Release Frequency: Quarterly

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

EDR HIGH RISK HISTORICAL RECORDS

EDR Exclusive Records

EDR MGP: EDR Proprietary Manufactured Gas Plants

The EDR Proprietary Manufactured Gas Plant Database includes records of coal gas plants (manufactured gas plants) compiled by EDR's researchers. Manufactured gas sites were used in the United States from the 1800's to 1950's to produce a gas that could be distributed and used as fuel. These plants used whale oil, rosin, coal, or a mixture of coal, oil, and water that also produced a significant amount of waste. Many of the byproducts of the gas production, such as coal tar (oily waste containing volatile and non-volatile chemicals), sludges, oils and other compounds are potentially hazardous to human health and the environment. The byproduct from this process was frequently disposed of directly at the plant site and can remain or spread slowly, serving as a continuous source of soil and groundwater contamination.

Date of Government Version: N/A
Date Data Arrived at EDR: N/A
Date Made Active in Reports: N/A
Number of Days to Update: N/A

Source: EDR, Inc.
Telephone: N/A
Last EDR Contact: N/A
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

EDR US Hist Auto Stat: EDR Exclusive Historic Gas Stations

EDR has searched selected national collections of business directories and has collected listings of potential gas station/filling station/service station sites that were available to EDR researchers. EDR's review was limited to those categories of sources that might, in EDR's opinion, include gas station/filling station/service station establishments. The categories reviewed included, but were not limited to gas, gas station, gasoline station, filling station, auto, automobile repair, auto service station, service station, etc. This database falls within a category of information EDR classifies as "High Risk Historical Records", or HRHR. EDR's HRHR effort presents unique and sometimes proprietary data about past sites and operations that typically create environmental concerns, but may not show up in current government records searches.

Date of Government Version: N/A
Date Data Arrived at EDR: N/A
Date Made Active in Reports: N/A
Number of Days to Update: N/A

Source: EDR, Inc.
Telephone: N/A
Last EDR Contact: N/A
Next Scheduled EDR Contact: N/A
Data Release Frequency: Varies

EDR US Hist Cleaners: EDR Exclusive Historic Dry Cleaners

EDR has searched selected national collections of business directories and has collected listings of potential dry cleaner sites that were available to EDR researchers. EDR's review was limited to those categories of sources that might, in EDR's opinion, include dry cleaning establishments. The categories reviewed included, but were not limited to dry cleaners, cleaners, laundry, laundromat, cleaning/laundry, wash & dry etc. This database falls within a category of information EDR classifies as "High Risk Historical Records", or HRHR. EDR's HRHR effort presents unique and sometimes proprietary data about past sites and operations that typically create environmental concerns, but may not show up in current government records searches.

Date of Government Version: N/A
Date Data Arrived at EDR: N/A
Date Made Active in Reports: N/A
Number of Days to Update: N/A

Source: EDR, Inc.
Telephone: N/A
Last EDR Contact: N/A
Next Scheduled EDR Contact: N/A
Data Release Frequency: Varies

EDR US Hist Auto Stat: EDR Proprietary Historic Gas Stations - Cole

Date of Government Version: N/A
Date Data Arrived at EDR: N/A
Date Made Active in Reports: N/A
Number of Days to Update: N/A

Source: N/A
Telephone: N/A
Last EDR Contact: N/A
Next Scheduled EDR Contact: N/A
Data Release Frequency: Varies

EDR US Hist Cleaners: EDR Proprietary Historic Dry Cleaners - Cole

Date of Government Version: N/A
Date Data Arrived at EDR: N/A
Date Made Active in Reports: N/A
Number of Days to Update: N/A

Source: N/A
Telephone: N/A
Last EDR Contact: N/A
Next Scheduled EDR Contact: N/A
Data Release Frequency: Varies

EDR RECOVERED GOVERNMENT ARCHIVES

Exclusive Recovered Govt. Archives

RGA HWS: Recovered Government Archive State Hazardous Waste Facilities List

The EDR Recovered Government Archive State Hazardous Waste database provides a list of SHWS incidents derived from historical databases and includes many records that no longer appear in current government lists. Compiled from Records formerly available from the Department of Environmental Protection in Georgia.

Date of Government Version: N/A
Date Data Arrived at EDR: 07/01/2013
Date Made Active in Reports: 12/24/2013
Number of Days to Update: 176

Source: Department of Environmental Protection
Telephone: N/A
Last EDR Contact: 06/01/2012
Next Scheduled EDR Contact: N/A
Data Release Frequency: Varies

RGA LUST: Recovered Government Archive Leaking Underground Storage Tank

The EDR Recovered Government Archive Leaking Underground Storage Tank database provides a list of LUST incidents derived from historical databases and includes many records that no longer appear in current government lists. Compiled from Records formerly available from the Environmental Protection Division in Georgia.

Date of Government Version: N/A
Date Data Arrived at EDR: 07/01/2013
Date Made Active in Reports: 12/24/2013
Number of Days to Update: 176

Source: Environmental Protection Division
Telephone: N/A
Last EDR Contact: 06/01/2012
Next Scheduled EDR Contact: N/A
Data Release Frequency: Varies

RGA LF: Recovered Government Archive Solid Waste Facilities List

The EDR Recovered Government Archive Landfill database provides a list of landfills derived from historical databases and includes many records that no longer appear in current government lists. Compiled from Records formerly available from the Department of Natural Resources in Georgia.

Date of Government Version: N/A
Date Data Arrived at EDR: 07/01/2013
Date Made Active in Reports: 01/13/2014
Number of Days to Update: 196

Source: Department of Natural Resources
Telephone: N/A
Last EDR Contact: 06/01/2012
Next Scheduled EDR Contact: N/A
Data Release Frequency: Varies

OTHER DATABASE(S)

Depending on the geographic area covered by this report, the data provided in these specialty databases may or may not be complete. For example, the existence of wetlands information data in a specific report does not mean that all wetlands in the area covered by the report are included. Moreover, the absence of any reported wetlands information does not necessarily mean that wetlands do not exist in the area covered by the report.

CT MANIFEST: Hazardous Waste Manifest Data

Facility and manifest data. Manifest is a document that lists and tracks hazardous waste from the generator through transporters to a tsd facility.

Date of Government Version: 07/30/2013
Date Data Arrived at EDR: 08/19/2013
Date Made Active in Reports: 10/03/2013
Number of Days to Update: 45

Source: Department of Energy & Environmental Protection
Telephone: 860-424-3375
Last EDR Contact: 02/21/2014
Next Scheduled EDR Contact: 06/02/2014
Data Release Frequency: Annually

NJ MANIFEST: Manifest Information
Hazardous waste manifest information.

Date of Government Version: 12/31/2011
Date Data Arrived at EDR: 07/19/2012
Date Made Active in Reports: 08/28/2012
Number of Days to Update: 40

Source: Department of Environmental Protection
Telephone: N/A
Last EDR Contact: 01/17/2014
Next Scheduled EDR Contact: 04/28/2014
Data Release Frequency: Annually

NY MANIFEST: Facility and Manifest Data
Manifest is a document that lists and tracks hazardous waste from the generator through transporters to a TSD facility.

Date of Government Version: 12/31/2013
Date Data Arrived at EDR: 02/07/2014
Date Made Active in Reports: 03/31/2014
Number of Days to Update: 52

Source: Department of Environmental Conservation
Telephone: 518-402-8651
Last EDR Contact: 03/12/2014
Next Scheduled EDR Contact: 05/19/2014
Data Release Frequency: Annually

PA MANIFEST: Manifest Information
Hazardous waste manifest information.

Date of Government Version: 12/31/2012
Date Data Arrived at EDR: 07/24/2013
Date Made Active in Reports: 08/19/2013
Number of Days to Update: 26

Source: Department of Environmental Protection
Telephone: 717-783-8990
Last EDR Contact: 01/20/2014
Next Scheduled EDR Contact: 05/05/2014
Data Release Frequency: Annually

RI MANIFEST: Manifest information
Hazardous waste manifest information

Date of Government Version: 12/31/2012
Date Data Arrived at EDR: 06/21/2013
Date Made Active in Reports: 08/05/2013
Number of Days to Update: 45

Source: Department of Environmental Management
Telephone: 401-222-2797
Last EDR Contact: 02/24/2014
Next Scheduled EDR Contact: 06/09/2014
Data Release Frequency: Annually

WI MANIFEST: Manifest Information
Hazardous waste manifest information.

Date of Government Version: 12/31/2012
Date Data Arrived at EDR: 08/09/2013
Date Made Active in Reports: 09/27/2013
Number of Days to Update: 49

Source: Department of Natural Resources
Telephone: N/A
Last EDR Contact: 03/17/2014
Next Scheduled EDR Contact: 06/30/2014
Data Release Frequency: Annually

Oil/Gas Pipelines: This data was obtained by EDR from the USGS in 1994. It is referred to by USGS as GeoData Digital Line Graphs from 1:100,000-Scale Maps. It was extracted from the transportation category including some oil, but primarily gas pipelines.

Electric Power Transmission Line Data
Source: Rextag Strategies Corp.
Telephone: (281) 769-2247
U.S. Electric Transmission and Power Plants Systems Digital GIS Data

Sensitive Receptors: There are individuals deemed sensitive receptors due to their fragile immune systems and special sensitivity to environmental discharges. These sensitive receptors typically include the elderly, the sick, and children. While the location of all sensitive receptors cannot be determined, EDR indicates those buildings and facilities - schools, daycares, hospitals, medical centers, and nursing homes - where individuals who are sensitive receptors are likely to be located.

AHA Hospitals:
Source: American Hospital Association, Inc.
Telephone: 312-280-5991
The database includes a listing of hospitals based on the American Hospital Association's annual survey of hospitals.

Medical Centers: Provider of Services Listing
Source: Centers for Medicare & Medicaid Services
Telephone: 410-786-3000
A listing of hospitals with Medicare provider number, produced by Centers of Medicare & Medicaid Services, a federal agency within the U.S. Department of Health and Human Services.

Nursing Homes
Source: National Institutes of Health
Telephone: 301-594-6248
Information on Medicare and Medicaid certified nursing homes in the United States.

Public Schools
Source: National Center for Education Statistics
Telephone: 202-502-7300
The National Center for Education Statistics' primary database on elementary and secondary public education in the United States. It is a comprehensive, annual, national statistical database of all public elementary and secondary schools and school districts, which contains data that are comparable across all states.

Private Schools
Source: National Center for Education Statistics
Telephone: 202-502-7300
The National Center for Education Statistics' primary database on private school locations in the United States.

Daycare Centers: Child Care Centers
Source: Department of Human Resources
Telephone: 404-651-5562

Flood Zone Data: This data, available in select counties across the country, was obtained by EDR in 2003 & 2011 from the Federal Emergency Management Agency (FEMA). Data depicts 100-year and 500-year flood zones as defined by FEMA.

NWI: National Wetlands Inventory. This data, available in select counties across the country, was obtained by EDR in 2002, 2005 and 2010 from the U.S. Fish and Wildlife Service.

Scanned Digital USGS 7.5' Topographic Map (DRG)
Source: United States Geologic Survey
A digital raster graphic (DRG) is a scanned image of a U.S. Geological Survey topographic map. The map images are made by scanning published paper maps on high-resolution scanners. The raster image is georeferenced and fit to the Universal Transverse Mercator (UTM) projection.

STREET AND ADDRESS INFORMATION

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GEOCHECK ®- PHYSICAL SETTING SOURCE ADDENDUM

TARGET PROPERTY ADDRESS

8660 TARA BOULEVARD
8660 TARA BOULEVARD
JONESBORO, GA 30236

TARGET PROPERTY COORDINATES

Latitude (North):	33.5191 - 33° 31' 8.76''
Longitude (West):	84.363 - 84° 21' 46.80''
Universal Tranverse Mercator:	Zone 16
UTM X (Meters):	744924.4
UTM Y (Meters):	3711757.8
Elevation:	882 ft. above sea level

USGS TOPOGRAPHIC MAP

Target Property Map:	33084-E3 JONESBORO, GA
Most Recent Revision:	1995
West Map:	33084-E4 RIVERDALE, GA
Most Recent Revision:	1995

EDR's GeoCheck Physical Setting Source Addendum is provided to assist the environmental professional in forming an opinion about the impact of potential contaminant migration.

Assessment of the impact of contaminant migration generally has two principal investigative components:

1. Groundwater flow direction, and
2. Groundwater flow velocity.

Groundwater flow direction may be impacted by surface topography, hydrology, hydrogeology, characteristics of the soil, and nearby wells. Groundwater flow velocity is generally impacted by the nature of the geologic strata.

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

GROUNDWATER FLOW DIRECTION INFORMATION

Groundwater flow direction for a particular site is best determined by a qualified environmental professional using site-specific well data. If such data is not reasonably ascertainable, it may be necessary to rely on other sources of information, such as surface topographic information, hydrologic information, hydrogeologic data collected on nearby properties, and regional groundwater flow information (from deep aquifers).

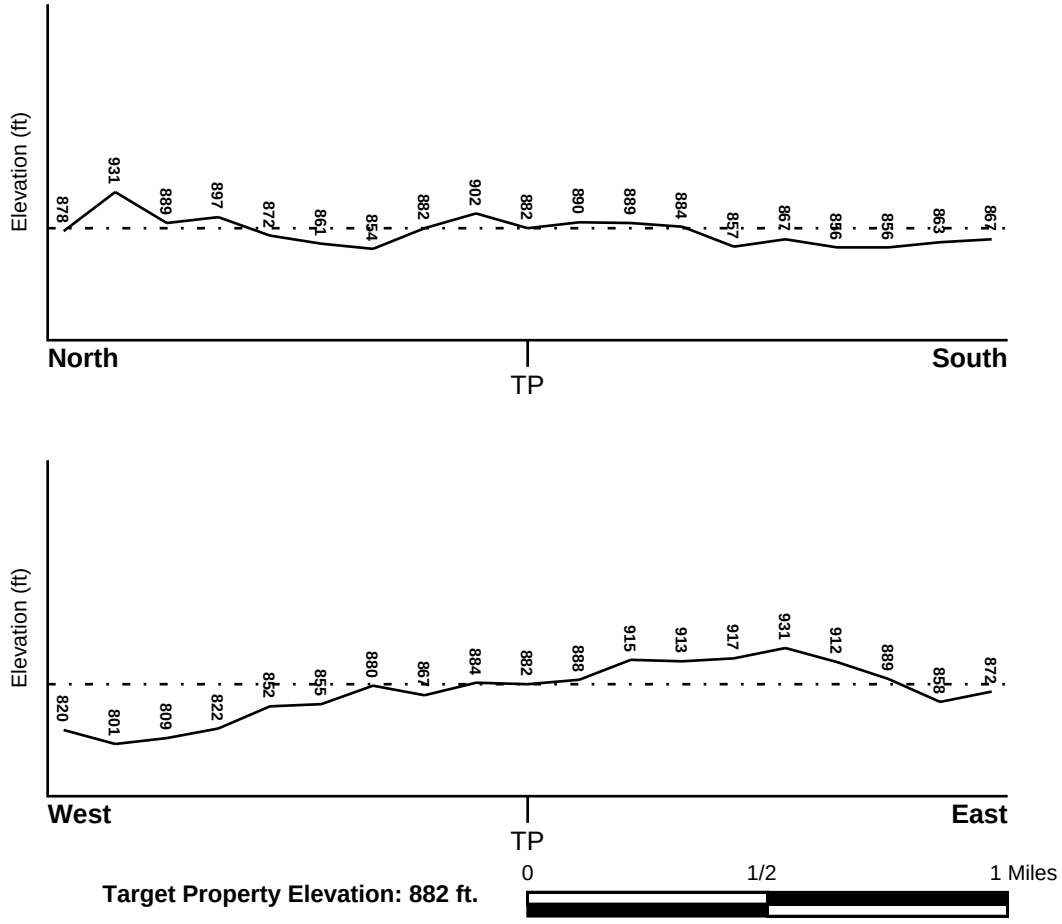
TOPOGRAPHIC INFORMATION

Surface topography may be indicative of the direction of surficial groundwater flow. This information can be used to assist the environmental professional in forming an opinion about the impact of nearby contaminated properties or, should contamination exist on the target property, what downgradient sites might be impacted.

TARGET PROPERTY TOPOGRAPHY

General Topographic Gradient: General West

SURROUNDING TOPOGRAPHY: ELEVATION PROFILES



Source: Topography has been determined from the USGS 7.5' Digital Elevation Model and should be evaluated on a relative (not an absolute) basis. Relative elevation information between sites of close proximity should be field verified.

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

HYDROLOGIC INFORMATION

Surface water can act as a hydrologic barrier to groundwater flow. Such hydrologic information can be used to assist the environmental professional in forming an opinion about the impact of nearby contaminated properties or, should contamination exist on the target property, what downgradient sites might be impacted.

Refer to the Physical Setting Source Map following this summary for hydrologic information (major waterways and bodies of water).

FEMA FLOOD ZONE

Target Property County	FEMA Flood Electronic Data
CLAYTON, GA	YES - refer to the Overview Map and Detail Map

Flood Plain Panel at Target Property: 13063C - FEMA DFIRM Flood data

Additional Panels in search area: Not Reported

NATIONAL WETLAND INVENTORY

NWI Quad at Target Property	NWI Electronic Data Coverage
JONESBORO	YES - refer to the Overview Map and Detail Map

HYDROGEOLOGIC INFORMATION

Hydrogeologic information obtained by installation of wells on a specific site can often be an indicator of groundwater flow direction in the immediate area. Such hydrogeologic information can be used to assist the environmental professional in forming an opinion about the impact of nearby contaminated properties or, should contamination exist on the target property, what downgradient sites might be impacted.

AQUIFLOW®

Search Radius: 1.000 Mile.

EDR has developed the AQUIFLOW Information System to provide data on the general direction of groundwater flow at specific points. EDR has reviewed reports submitted by environmental professionals to regulatory authorities at select sites and has extracted the date of the report, groundwater flow direction as determined hydrogeologically, and the depth to water table.

MAP ID	LOCATION FROM TP	GENERAL DIRECTION GROUNDWATER FLOW
Not Reported		

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

GROUNDWATER FLOW VELOCITY INFORMATION

Groundwater flow velocity information for a particular site is best determined by a qualified environmental professional using site specific geologic and soil strata data. If such data are not reasonably ascertainable, it may be necessary to rely on other sources of information, including geologic age identification, rock stratigraphic unit and soil characteristics data collected on nearby properties and regional soil information. In general, contaminant plumes move more quickly through sandy-gravelly types of soils than silty-clayey types of soils.

GEOLOGIC INFORMATION IN GENERAL AREA OF TARGET PROPERTY

Geologic information can be used by the environmental professional in forming an opinion about the relative speed at which contaminant migration may be occurring.

ROCK STRATIGRAPHIC UNIT

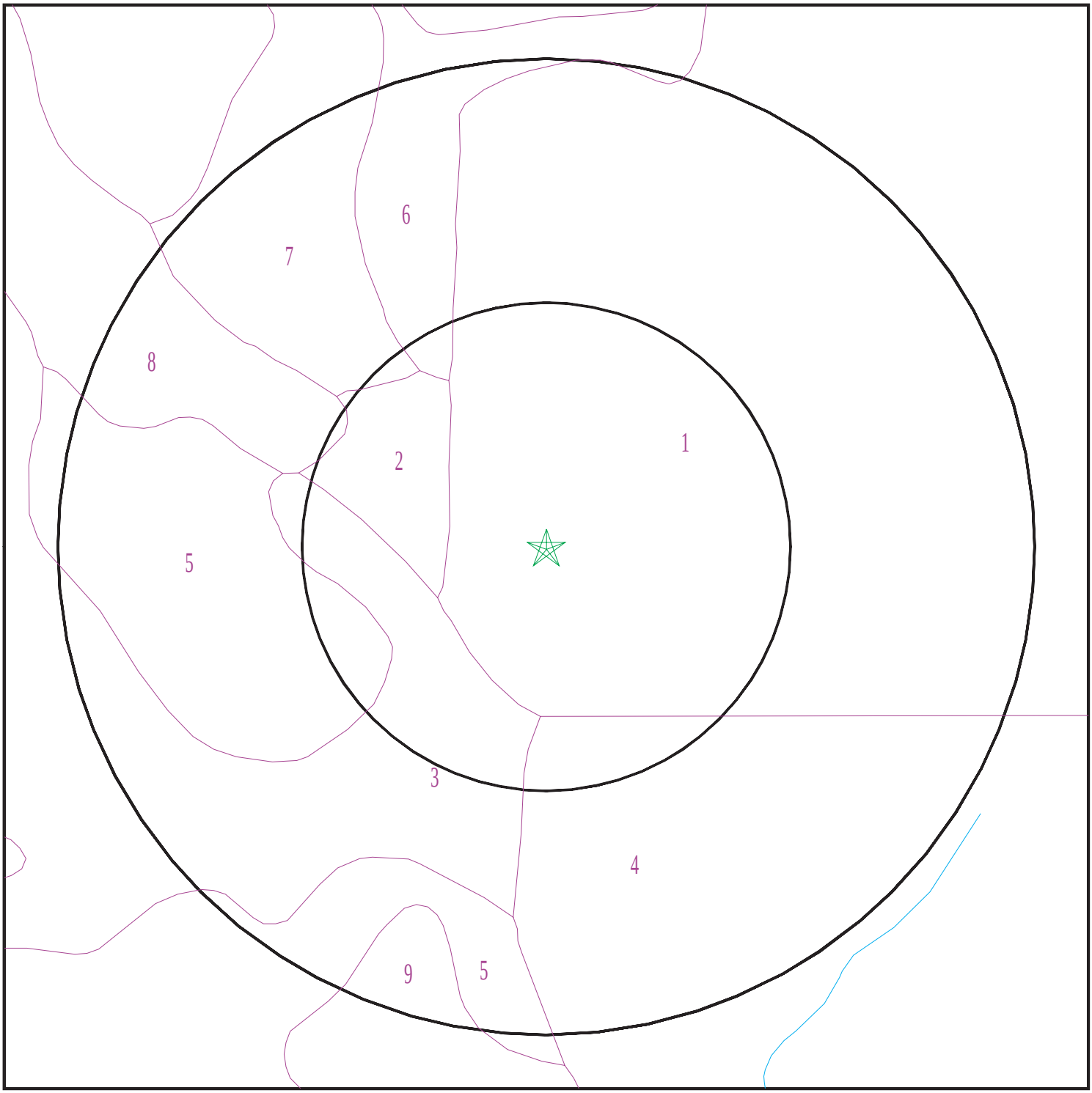
Era:	Paleozoic
System:	Mississippian
Series:	migmatite
Code:	mm3 *(decoded above as Era, System & Series)*

GEOLOGIC AGE IDENTIFICATION

Category: Metamorphic Rocks

Geologic Age and Rock Stratigraphic Unit Source: P.G. Schruben, R.E. Arndt and W.J. Bawiec, Geology of the Conterminous U.S. at 1:2,500,000 Scale - a digital representation of the 1974 P.B. King and H.M. Beikman Map, USGS Digital Data Series DDS - 11 (1994).

SSURGO SOIL MAP - 3910446.2s



Target Property
SSURGO Soil
Water

0 1/16 1/8 1/4 Miles

N

SITE NAME:	8660 TARA BOULEVARD	CLIENT:	EHS Support
ADDRESS:	8660 TARA BOULEVARD JONESBORO GA 30236	CONTACT:	Michelle Stayrook
LAT/LONG:	33.5191 / 84.363	INQUIRY #:	3910446.2s
		DATE:	April 14, 2014 1:07 pm

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GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

DOMINANT SOIL COMPOSITION IN GENERAL AREA OF TARGET PROPERTY

The U.S. Department of Agriculture's (USDA) Soil Conservation Service (SCS) leads the National Cooperative Soil Survey (NCSS) and is responsible for collecting, storing, maintaining and distributing soil survey information for privately owned lands in the United States. A soil map in a soil survey is a representation of soil patterns in a landscape. The following information is based on Soil Conservation Service SSURGO data.

Soil Map ID: 1

Soil Component Name: Urban land

Soil Surface Texture:
Hydrologic Group: Not reported

Soil Drainage Class:
Hydric Status: Unknown

Corrosion Potential - Uncoated Steel: Not Reported

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 0 inches

No Layer Information available.

Soil Map ID: 2

Soil Component Name: Pacolet

Soil Surface Texture: sandy clay loam

Hydrologic Group: Class B - Moderate infiltration rates. Deep and moderately deep, moderately well and well drained soils with moderately coarse textures.

Soil Drainage Class: Well drained

Hydric Status: Not hydric

Corrosion Potential - Uncoated Steel: High

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 0 inches

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

Soil Layer Information							
	Boundary			Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil		
1	0 inches	5 inches	sandy clay loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Clayey Soils.	COARSE-GRAINED SOILS, Sands, Sands with fines, Clayey sand.	Max: 14 Min: 4	Max: 6.5 Min: 4.5
2	5 inches	38 inches	sandy clay loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	COARSE-GRAINED SOILS, Sands, Sands with fines, Clayey sand.	Max: 14 Min: 4	Max: 6 Min: 4.5
3	38 inches	53 inches	sandy loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 14 Min: 4	Max: 6 Min: 4.5

Soil Map ID: 3

Soil Component Name: Cecil

Soil Surface Texture: sandy loam

Hydrologic Group: Class B - Moderate infiltration rates. Deep and moderately deep, moderately well and well drained soils with moderately coarse textures.

Soil Drainage Class: Well drained

Hydric Status: Not hydric

Corrosion Potential - Uncoated Steel: High

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 0 inches

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

Soil Layer Information							
	Boundary			Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil		
1	57 inches	64 inches	sandy loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 14 Min: 4	Max: 5.5 Min: 4.5
2	0 inches	5 inches	sandy loam	Granular materials (35 pct. or less passing No. 200), Silty, or Clayey Gravel and Sand.	COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 42 Min: 14	Max: 6.5 Min: 4.5
3	5 inches	57 inches	clay	Silt-Clay Materials (more than 35 pct. passing No. 200), Clayey Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit 50% or more), Elastic silt.	Max: 14 Min: 4	Max: 5.5 Min: 4.5

Soil Map ID: 4

Soil Component Name: Cecil

Soil Surface Texture: sandy loam

Hydrologic Group: Class B - Moderate infiltration rates. Deep and moderately deep, moderately well and well drained soils with moderately coarse textures.

Soil Drainage Class: Well drained

Hydric Status: Unknown

Corrosion Potential - Uncoated Steel: High

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 0 inches

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

Soil Layer Information							
	Boundary			Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil		
1	57 inches	64 inches	sandy loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 14 Min: 4	Max: 5.5 Min: 4.5
2	0 inches	5 inches	sandy loam	Granular materials (35 pct. or less passing No. 200), Silty, or Clayey Gravel and Sand.	COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 42 Min: 14	Max: 6.5 Min: 4.5
3	5 inches	57 inches	clay	Silt-Clay Materials (more than 35 pct. passing No. 200), Clayey Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit 50% or more), Elastic silt.	Max: 14 Min: 4	Max: 5.5 Min: 4.5

Soil Map ID: 5

Soil Component Name: Cecil

Soil Surface Texture: sandy loam

Hydrologic Group: Class B - Moderate infiltration rates. Deep and moderately deep, moderately well and well drained soils with moderately coarse textures.

Soil Drainage Class: Well drained

Hydric Status: Not hydric

Corrosion Potential - Uncoated Steel: High

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 0 inches

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

Soil Layer Information							
	Boundary			Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil		
1	57 inches	64 inches	sandy loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 14 Min: 4	Max: 5.5 Min: 4.5
2	0 inches	5 inches	sandy loam	Granular materials (35 pct. or less passing No. 200), Silty, or Clayey Gravel and Sand.	COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 42 Min: 14	Max: 6.5 Min: 4.5
3	5 inches	57 inches	clay	Silt-Clay Materials (more than 35 pct. passing No. 200), Clayey Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit 50% or more), Elastic silt.	Max: 14 Min: 4	Max: 5.5 Min: 4.5

Soil Map ID: 6

Soil Component Name: Gwinnett

Soil Surface Texture: sandy loam

Hydrologic Group: Class B - Moderate infiltration rates. Deep and moderately deep, moderately well and well drained soils with moderately coarse textures.

Soil Drainage Class: Well drained

Hydric Status: Not hydric

Corrosion Potential - Uncoated Steel: High

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 0 inches

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

Soil Layer Information							
	Boundary			Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil		
1	0 inches	5 inches	sandy loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	COARSE-GRAINED SOILS, Sands, Sands with fines, Clayey sand. COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 14 Min: 4	Max: 6.5 Min: 5.1
2	5 inches	35 inches	clay	Silt-Clay Materials (more than 35 pct. passing No. 200), Clayey Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit 50% or more), Fat Clay.	Max: 14 Min: 4	Max: 6.5 Min: 5.1
3	35 inches	64 inches	clay loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Clayey Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), Lean Clay	Max: 14 Min: 4	Max: 6.5 Min: 5.1

Soil Map ID: 7

Soil Component Name: Pacolet

Soil Surface Texture: sandy loam

Hydrologic Group: Class B - Moderate infiltration rates. Deep and moderately deep, moderately well and well drained soils with moderately coarse textures.

Soil Drainage Class: Well drained

Hydric Status: Not hydric

Corrosion Potential - Uncoated Steel: High

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 0 inches

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

Soil Layer Information							
	Boundary			Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil		
1	0 inches	3 inches	sandy loam	Granular materials (35 pct. or less passing No. 200), Silty, or Clayey Gravel and Sand.	COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 42 Min: 14	Max: 6.5 Min: 4.5
2	3 inches	33 inches	sandy clay loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	COARSE-GRAINED SOILS, Sands, Sands with fines, Clayey sand.	Max: 14 Min: 4	Max: 6 Min: 4.5
3	33 inches	55 inches	sandy loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 14 Min: 4	Max: 6 Min: 4.5

Soil Map ID: 8

Soil Component Name: Pacolet

Soil Surface Texture: sandy loam

Hydrologic Group: Class B - Moderate infiltration rates. Deep and moderately deep, moderately well and well drained soils with moderately coarse textures.

Soil Drainage Class: Well drained

Hydric Status: Not hydric

Corrosion Potential - Uncoated Steel: High

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 0 inches

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

Soil Layer Information							
	Boundary			Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil		
1	0 inches	3 inches	sandy loam	Granular materials (35 pct. or less passing No. 200), Silty, or Clayey Gravel and Sand.	COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 42 Min: 14	Max: 6.5 Min: 4.5
2	3 inches	33 inches	sandy clay loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	COARSE-GRAINED SOILS, Sands, Sands with fines, Clayey sand.	Max: 14 Min: 4	Max: 6 Min: 4.5
3	33 inches	55 inches	sandy loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 14 Min: 4	Max: 6 Min: 4.5

Soil Map ID: 9

Soil Component Name: Appling

Soil Surface Texture: sandy clay loam

Hydrologic Group: Class B - Moderate infiltration rates. Deep and moderately deep, moderately well and well drained soils with moderately coarse textures.

Soil Drainage Class: Well drained

Hydric Status: Not hydric

Corrosion Potential - Uncoated Steel: Moderate

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 0 inches

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

Soil Layer Information							
	Boundary			Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil		
1	44 inches	59 inches	sandy clay loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	COARSE-GRAINED SOILS, Sands, Sands with fines, Clayey sand.	Max: 14 Min: 4	Max: 5.5 Min: 4.5
2	0 inches	9 inches	sandy loam	Granular materials (35 pct. or less passing No. 200), Silty, or Clayey Gravel and Sand.	COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 42 Min: 14	Max: 6.5 Min: 4.5
3	9 inches	44 inches	clay	Silt-Clay Materials (more than 35 pct. passing No. 200), Clayey Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit 50% or more), Elastic silt.	Max: 14 Min: 4	Max: 5.5 Min: 4.5

LOCAL / REGIONAL WATER AGENCY RECORDS

EDR Local/Regional Water Agency records provide water well information to assist the environmental professional in assessing sources that may impact ground water flow direction, and in forming an opinion about the impact of contaminant migration on nearby drinking water wells.

WELL SEARCH DISTANCE INFORMATION

DATABASE	SEARCH DISTANCE (miles)
Federal USGS	1.000
Federal FRDS PWS	Nearest PWS within 1 mile
State Database	1.000

FEDERAL USGS WELL INFORMATION

MAP ID	WELL ID	LOCATION FROM TP
A2	USGS40000263501	1/4 - 1/2 Mile SSW
B4	USGS40000263532	1/4 - 1/2 Mile ENE
C6	USGS40000263518	1/4 - 1/2 Mile WSW
D10	USGS40000263500	1/2 - 1 Mile SE

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

FEDERAL USGS WELL INFORMATION

MAP ID	WELL ID	LOCATION FROM TP
E12	USGS40000263526	1/2 - 1 Mile East
F15	USGS40000263551	1/2 - 1 Mile NNE
G17	USGS40000262758	1/2 - 1 Mile ENE

FEDERAL FRDS PUBLIC WATER SUPPLY SYSTEM INFORMATION

MAP ID	WELL ID	LOCATION FROM TP

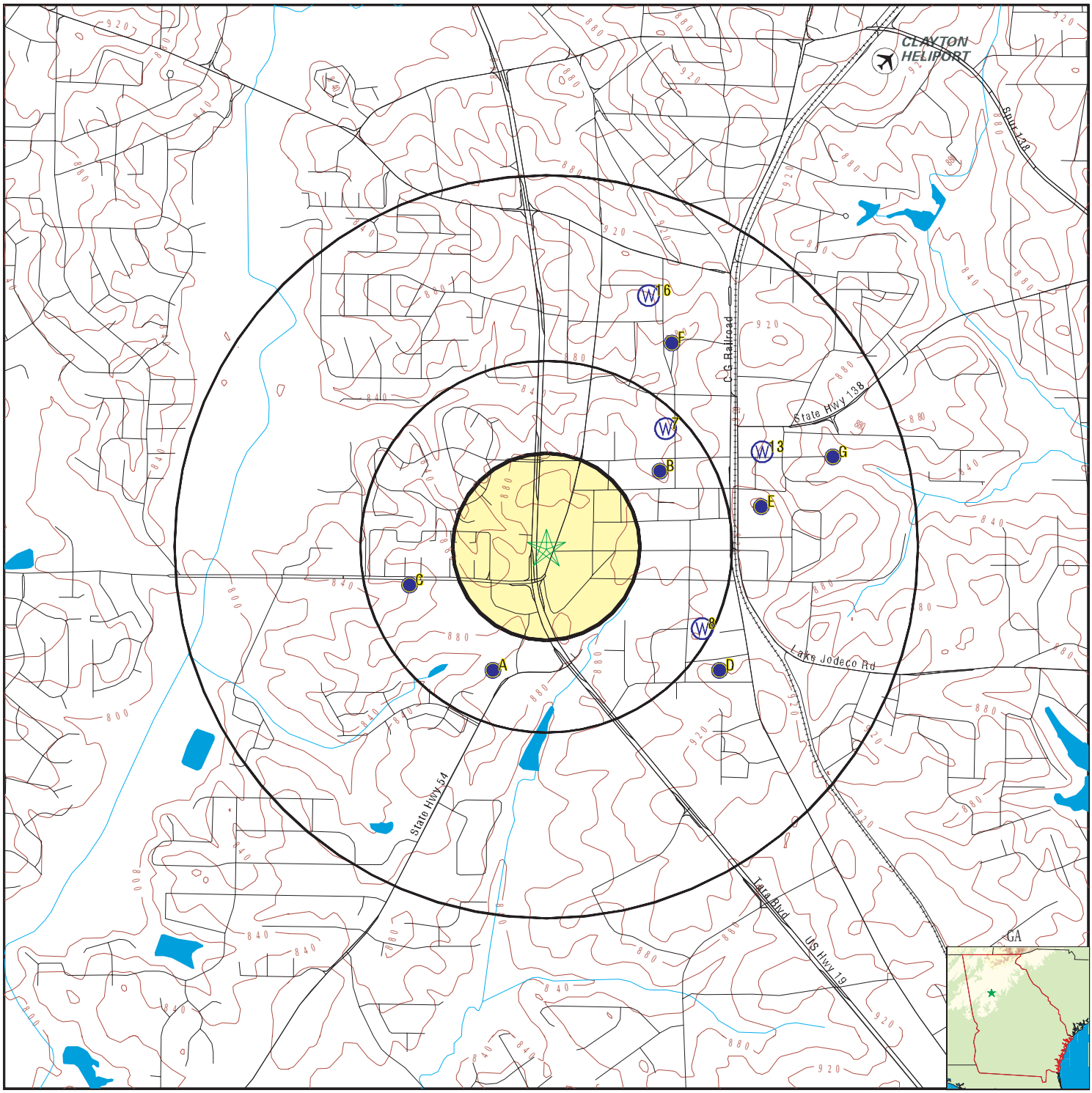
No PWS System Found

Note: PWS System location is not always the same as well location.

STATE DATABASE WELL INFORMATION

MAP ID	WELL ID	LOCATION FROM TP
A1	0000002190	1/4 - 1/2 Mile SSW
B3	0000002193	1/4 - 1/2 Mile ENE
C5	0000002191	1/4 - 1/2 Mile WSW
7	300	1/4 - 1/2 Mile NE
8	302	1/4 - 1/2 Mile ESE
D9	0000002189	1/2 - 1 Mile SE
E11	0000002192	1/2 - 1 Mile East
13	301	1/2 - 1 Mile ENE
F14	0000002194	1/2 - 1 Mile NNE
16	299	1/2 - 1 Mile NNE
G18	0000002176	1/2 - 1 Mile ENE

PHYSICAL SETTING SOURCE MAP - 3910446.2s



- County Boundary
- Major Roads
- Contour Lines
- Airports
- Earthquake epicenter, Richter 5 or greater
- Water Wells
- Public Water Supply Wells
- Cluster of Multiple Icons
- Groundwater Flow Direction
- GI Indeterminate Groundwater Flow at Location
- GV Groundwater Flow Varies at Location
- Wildlife Areas

SITE NAME: 8660 TARA BOULEVARD	CLIENT: EHS Support
ADDRESS: 8660 TARA BOULEVARD	CONTACT: Michelle Stayrook
JONESBORO GA 30236	INQUIRY #: 3910446.2s
LAT/LONG: 33.5191 / 84.363	DATE: April 14, 2014 1:07 pm

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GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID
Direction
Distance
Elevation | Database | EDR ID Number

A1
SSW
1/4 - 1/2 Mile
Higher

GA WELLS **0000002190**

Well #:	11CC22	County FIPS:	063
Remarks:	WILLIAM CAMP		
Latitude:	333051	Longitude:	0842156
Altitude:	885	Depth:	125
Depth to bottom of Casing:	27	Diameter of Casing:	6
Casing Material:	Steel	Discharge:	12
Type of Openings:	Open hole	Date Built:	1958
Depth to top of this open interval:		27	
Depth to bottom of this open interval:		125	
Primary Use:	Domestic		
Aquifer:	PENNSYLVANIAN - CRYSTALLINE ROCK AQUIFER		

A2
SSW
1/4 - 1/2 Mile
Higher

FED USGS **USGS40000263501**

Org. Identifier:	USGS-GA		
Formal name:	USGS Georgia Water Science Center		
Monloc Identifier:	USGS-333051084215601		
Monloc name:	11CC22		
Monloc type:	Well		
Monloc desc:	WILLIAM CAMP		
Huc code:	03130005	Drainagearea value:	Not Reported
Drainagearea Units:	Not Reported	Contrib drainagearea:	Not Reported
Contrib drainagearea units:	Not Reported	Latitude:	33.5142793
Longitude:	-84.3654797	Sourcemap scale:	24000
Horiz Acc measure:	5	Horiz Acc measure units:	seconds
Horiz Collection method:	Interpolated from map		
Horiz coord refsys:	NAD83	Vert measure val:	885
Vert measure units:	feet	Vertacc measure val:	5
Vert accmeasure units:	feet		
Vertcollection method:	Interpolated from topographic map		
Vert coord refsys:	NGVD29	Countrycode:	US
Aquifername:	Piedmont and Blue Ridge crystalline-rock aquifers		
Formation type:	Crystalline Rocks		
Aquifer type:	Not Reported		
Construction date:	1958	Welldepth:	125
Welldepth units:	ft	Wellholedepth:	125
Wellholedepth units:	ft		

Ground-water levels, Number of Measurements: 1

Date	Feet below Surface	Feet to Sealevel
1992-06-22	17.75	

B3
ENE
1/4 - 1/2 Mile
Lower

GA WELLS **0000002193**

Well #:	11CC19	County FIPS:	063
Remarks:	JONESBORO, GA 4		
Latitude:	333119	Longitude:	0842128
Altitude:	880	Depth:	350
Depth to bottom of Casing:	200	Diameter of Casing:	6
Casing Material:	Steel	Discharge:	Not Reported
Type of Openings:	Open hole	Date Built:	1951
Depth to top of this open interval:		200	
Depth to bottom of this open interval:		350	
Primary Use:	Public supply		
Aquifer:	PENNSYLVANIAN - CRYSTALLINE ROCK AQUIFER		

B4
ENE **FED USGS** **USGS40000263532**
1/4 - 1/2 Mile
Lower

Org. Identifier:	USGS-GA		
Formal name:	USGS Georgia Water Science Center		
Monloc Identifier:	USGS-333119084212801		
Monloc name:	11CC19		
Monloc type:	Well		
Monloc desc:	JONESBORO, GA 4		
Huc code:	03130005	Drainagearea value:	Not Reported
Drainagearea Units:	Not Reported	Contrib drainagearea:	Not Reported
Contrib drainagearea units:	Not Reported	Latitude:	33.5220568
Longitude:	-84.3577018	Sourcemap scale:	24000
Horiz Acc measure:	10	Horiz Acc measure units:	seconds
Horiz Collection method:	Interpolated from map		
Horiz coord refsys:	NAD83	Vert measure val:	880
Vert measure units:	feet	Vertacc measure val:	05
Vert accmeasure units:	feet		
Vertcollection method:	Interpolated from topographic map		
Vert coord refsys:	NGVD29	Countrycode:	US
Aquifername:	Piedmont and Blue Ridge crystalline-rock aquifers		
Formation type:	Crystalline Rocks		
Aquifer type:	Not Reported		
Construction date:	1951	Welldepth:	350
Welldepth units:	ft	Wellholedepth:	Not Reported
Wellholedepth units:	Not Reported		

Ground-water levels, Number of Measurements: 0

C5
WSW **GA WELLS** **0000002191**
1/4 - 1/2 Mile
Lower

Well #:	11CC17	County FIPS:	063
Remarks:	H W BARRENTON		
Latitude:	333103	Longitude:	0842210
Altitude:	860.00	Depth:	200
Depth to bottom of Casing:	74.00	Diameter of Casing:	6.00
Casing Material:	Steel	Discharge:	40.00
Type of Openings:	Open hole	Date Built:	195705
Depth to top of this open interval:		74.00	
Depth to bottom of this open interval:		200.00	
Primary Use:	Unused		
Aquifer:	Not Reported		

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID
Direction
Distance
Elevation | Database | EDR ID Number

C6
WSW **FED USGS** **USGS40000263518**
1/4 - 1/2 Mile
Lower

Org. Identifier:	USGS-GA		
Formal name:	USGS Georgia Water Science Center		
Monloc Identifier:	USGS-333103084220901		
Monloc name:	11CC17		
Monloc type:	Well		
Monloc desc:	H W BARRENTON		
Huc code:	03130005	Drainagearea value:	Not Reported
Drainagearea Units:	Not Reported	Contrib drainagearea:	Not Reported
Contrib drainagearea units:	Not Reported	Latitude:	33.5176126
Longitude:	-84.3693688	Sourcemap scale:	24000
Horiz Acc measure:	5	Horiz Acc measure units:	seconds
Horiz Collection method:	Interpolated from map		
Horiz coord refsys:	NAD83	Vert measure val:	860.00
Vert measure units:	feet	Vertacc measure val:	10
Vert accmeasure units:	feet		
Vertcollection method:	Interpolated from topographic map		
Vert coord refsys:	NGVD29	Countrycode:	US
Aquifername:	Not Reported		
Formation type:	Not Reported		
Aquifer type:	Not Reported		
Construction date:	19570501	Welldepth:	200
Welldepth units:	ft	Wellholedepth:	200
Wellholedepth units:	ft		

Ground-water levels, Number of Measurements: 0

7
NE **GA WELLS** **300**
1/4 - 1/2 Mile
Lower

Source ID:	31M0204	Name:	CITY OF JONESBORO
Population Served:	4,132		
Latitude:	33.5236	Longitude:	84.3575
Source:	Ground	Status:	Unconfined
GWSI ID:	Not Reported	GA Geological Survey:	Unconfined
County:	CLAYTON	County FIPS:	63
Grnd Water (Mil Gal/Day):	0.10	Surface Water (Mil Gal/Day):	0.00

8
ESE **GA WELLS** **302**
1/4 - 1/2 Mile
Higher

Source ID:	31M0203	Name:	CITY OF JONESBORO
Population Served:	4,132		
Latitude:	33.5158	Longitude:	84.3558
Source:	Ground	Status:	Unconfined
GWSI ID:	Not Reported	GA Geological Survey:	Unconfined
County:	CLAYTON	County FIPS:	63
Grnd Water (Mil Gal/Day):	0.10	Surface Water (Mil Gal/Day):	0.00

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID
Direction
Distance
Elevation | Database | EDR ID Number

D9
SE
1/2 - 1 Mile
Higher

GA WELLS **0000002189**

Well #:	11CC21	County FIPS:	063
Remarks:	JONESBORO, GA 3		
Latitude:	333051	Longitude:	0842118
Altitude:	920	Depth:	400
Depth to bottom of Casing:	200	Diameter of Casing:	6
Casing Material:	Steel	Discharge:	Not Reported
Type of Openings:	Open hole	Date Built:	1946
Depth to top of this open interval:		200	
Depth to bottom of this open interval:		400	
Primary Use:	Public supply		
Aquifer:	PENNSYLVANIAN - CRYSTALLINE ROCK AQUIFER		

D10
SE
1/2 - 1 Mile
Higher

FED USGS **USGS40000263500**

Org. Identifier:	USGS-GA		
Formal name:	USGS Georgia Water Science Center		
Monloc Identifier:	USGS-333051084211801		
Monloc name:	11CC21		
Monloc type:	Well		
Monloc desc:	JONESBORO, GA 3		
Huc code:	03130005	Drainagearea value:	Not Reported
Drainagearea Units:	Not Reported	Contrib drainagearea:	Not Reported
Contrib drainagearea units:	Not Reported	Latitude:	33.5142792
Longitude:	-84.3549239	Sourcemap scale:	24000
Horiz Acc measure:	10	Horiz Acc measure units:	seconds
Horiz Collection method:	Interpolated from map		
Horiz coord refsys:	NAD83	Vert measure val:	920
Vert measure units:	feet	Vertacc measure val:	05
Vert accmeasure units:	feet		
Vertcollection method:	Interpolated from topographic map		
Vert coord refsys:	NGVD29	Countrycode:	US
Aquifername:	Piedmont and Blue Ridge crystalline-rock aquifers		
Formation type:	Crystalline Rocks		
Aquifer type:	Not Reported		
Construction date:	1946	Welldepth:	400
Welldepth units:	ft	Wellholedepth:	Not Reported
Wellholedepth units:	Not Reported		

Ground-water levels, Number of Measurements: 0

E11
East
1/2 - 1 Mile
Higher

GA WELLS **0000002192**

Well #:	11CC20	County FIPS:	063
Remarks:	JONESBORO, GA 1		
Latitude:	333114	Longitude:	0842111
Altitude:	940	Depth:	500
Depth to bottom of Casing:	300	Diameter of Casing:	6
Casing Material:	Steel	Discharge:	Not Reported
Type of Openings:	Open hole	Date Built:	1923
Depth to top of this open interval:		300	
Depth to bottom of this open interval:		500	
Primary Use:	Public supply		
Aquifer:	PENNSYLVANIAN - CRYSTALLINE ROCK AQUIFER		

E12
East **FED USGS** **USGS40000263526**
1/2 - 1 Mile
Higher

Org. Identifier:	USGS-GA		
Formal name:	USGS Georgia Water Science Center		
Monloc Identifier:	USGS-333114084211101		
Monloc name:	11CC20		
Monloc type:	Well		
Monloc desc:	JONESBORO, GA 1		
Huc code:	03070103	Drainagearea value:	Not Reported
Drainagearea Units:	Not Reported	Contrib drainagearea:	Not Reported
Contrib drainagearea units:	Not Reported	Latitude:	33.520668
Longitude:	-84.3529794	Sourcemap scale:	24000
Horiz Acc measure:	10	Horiz Acc measure units:	seconds
Horiz Collection method:	Interpolated from map		
Horiz coord refsys:	NAD83	Vert measure val:	940
Vert measure units:	feet	Vertacc measure val:	05
Vert accmeasure units:	feet		
Vertcollection method:	Interpolated from topographic map		
Vert coord refsys:	NGVD29	Countrycode:	US
Aquifername:	Piedmont and Blue Ridge crystalline-rock aquifers		
Formation type:	Crystalline Rocks		
Aquifer type:	Not Reported		
Construction date:	1923	Welldepth:	500
Welldepth units:	ft	Wellholedepth:	Not Reported
Wellholedepth units:	Not Reported		

Ground-water levels, Number of Measurements: 0

13
ENE **GA WELLS** **301**
1/2 - 1 Mile
Higher

Source ID:	31M0201	Name:	CITY OF JONESBORO
Population Served:	4,132		
Latitude:	33.5227	Longitude:	84.3530
Source:	Ground	Status:	Unconfined
GWSI ID:	Not Reported	GA Geological Survey:	Unconfined
County:	CLAYTON	County FIPS:	63
Grnd Water (Mil Gal/Day):	0.10	Surface Water (Mil Gal/Day):	0.00

Map ID
Direction
Distance
Elevation | Database | EDR ID Number

F14
NNE
1/2 - 1 Mile
Lower

GA WELLS **0000002194**

Well #:	11CC03	County FIPS:	063
Remarks:	CITY OF JONESBORO		
Latitude:	333137	Longitude:	0842126
Altitude:	870.00	Depth:	300
Depth to bottom of Casing:	200.00	Diameter of Casing:	6.00
Casing Material:	Steel	Discharge:	52.00
Type of Openings:	Open hole	Date Built:	1927
Depth to top of this open interval:		200.00	
Depth to bottom of this open interval:		300.00	
Primary Use:	Unused		
Aquifer:	Not Reported		

F15
NNE
1/2 - 1 Mile
Lower

FED USGS **USGS40000263551**

Org. Identifier:	USGS-GA		
Formal name:	USGS Georgia Water Science Center		
Monloc Identifier:	USGS-333137084212601		
Monloc name:	11CC03		
Monloc type:	Well		
Monloc desc:	CITY OF JONESBORO		
Huc code:	03130005	Drainagearea value:	Not Reported
Drainagearea Units:	Not Reported	Contrib drainagearea:	Not Reported
Contrib drainagearea units:	Not Reported	Latitude:	33.5270567
Longitude:	-84.3571463	Sourcemap scale:	24000
Horiz Acc measure:	5	Horiz Acc measure units:	seconds
Horiz Collection method:	Interpolated from map		
Horiz coord refsys:	NAD83	Vert measure val:	870.00
Vert measure units:	feet	Vertacc measure val:	10
Vert accmeasure units:	feet		
Vertcollection method:	Interpolated from topographic map		
Vert coord refsys:	NGVD29	Countrycode:	US
Aquifername:	Not Reported		
Formation type:	Not Reported		
Aquifer type:	Not Reported		
Construction date:	19270101	Welldepth:	300
Welldepth units:	ft	Wellholedepth:	300
Wellholedepth units:	ft		

Ground-water levels, Number of Measurements: 0

16
NNE
1/2 - 1 Mile
Higher

GA WELLS **299**

Source ID:	31M0202	Name:	CITY OF JONESBORO
Population Served:	4,132		
Latitude:	33.5288	Longitude:	84.3583
Source:	Ground	Status:	Unconfined
GWSI ID:	Not Reported	GA Geological Survey:	Unconfined
County:	CLAYTON	County FIPS:	63
Grnd Water (Mil Gal/Day):	0.10	Surface Water (Mil Gal/Day):	0.00

G17
ENE **FED USGS** **USGS40000262758**
1/2 - 1 Mile
Lower

Org. Identifier:	USGS-GA		
Formal name:	USGS Georgia Water Science Center		
Monloc Identifier:	USGS-332121084205901		
Monloc name:	11CC06		
Monloc type:	Well		
Monloc desc:	CITY OF JONESBORO		
Huc code:	03070103	Drainagearea value:	Not Reported
Drainagearea Units:	Not Reported	Contrib drainagearea:	Not Reported
Contrib drainagearea units:	Not Reported	Latitude:	33.5226123
Longitude:	-84.349646	Sourcemap scale:	24000
Horiz Acc measure:	5	Horiz Acc measure units:	seconds
Horiz Collection method:	Interpolated from map		
Horiz coord refsys:	NAD83	Vert measure val:	850.00
Vert measure units:	feet	Vertacc measure val:	10
Vert accmeasure units:	feet		
Vertcollection method:	Interpolated from topographic map		
Vert coord refsys:	NGVD29	Countrycode:	US
Aquifername:	Not Reported		
Formation type:	Not Reported		
Aquifer type:	Not Reported		
Construction date:	19490101	Welldepth:	306
Welldepth units:	ft	Wellholedepth:	306
Wellholedepth units:	ft		

Ground-water levels, Number of Measurements: 0

G18
ENE **GA WELLS** **0000002176**
1/2 - 1 Mile
Lower

Well #:	11CC06	County FIPS:	063
Remarks:	CITY OF JONESBORO		
Latitude:	333121	Longitude:	0842059
Altitude:	850.00	Depth:	306
Depth to bottom of Casing:	Not Reported	Diameter of Casing:	Not Reported
Casing Material:	Not Reported	Discharge:	21.00
Type of Openings:	Not Reported	Date Built:	1949
Depth to top of this open interval:		Not Reported	
Depth to bottom of this open interval:		Not Reported	
Primary Use:	Public supply		
Aquifer:	Not Reported		

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS
RADON

AREA RADON INFORMATION

Federal EPA Radon Zone for CLAYTON County: 2

Note: Zone 1 indoor average level > 4 pCi/L.
: Zone 2 indoor average level >= 2 pCi/L and <= 4 pCi/L.
: Zone 3 indoor average level < 2 pCi/L.

Federal Area Radon Information for Zip Code: 30236

Number of sites tested: 9

Area	Average Activity	% <4 pCi/L	% 4-20 pCi/L	% >20 pCi/L
Living Area - 1st Floor	2.533 pCi/L	78%	22%	0%
Living Area - 2nd Floor	Not Reported	Not Reported	Not Reported	Not Reported
Basement	1.700 pCi/L	100%	0%	0%

PHYSICAL SETTING SOURCE RECORDS SEARCHED

TOPOGRAPHIC INFORMATION

USGS 7.5' Digital Elevation Model (DEM)
Source: United States Geologic Survey
EDR acquired the USGS 7.5' Digital Elevation Model in 2002 and updated it in 2006. The 7.5 minute DEM corresponds to the USGS 1:24,000- and 1:25,000-scale topographic quadrangle maps. The DEM provides elevation data with consistent elevation units and projection.

Scanned Digital USGS 7.5' Topographic Map (DRG)
Source: United States Geologic Survey
A digital raster graphic (DRG) is a scanned image of a U.S. Geological Survey topographic map. The map images are made by scanning published paper maps on high-resolution scanners. The raster image is georeferenced and fit to the Universal Transverse Mercator (UTM) projection.

HYDROLOGIC INFORMATION

Flood Zone Data: This data, available in select counties across the country, was obtained by EDR in 2003 & 2011 from the Federal Emergency Management Agency (FEMA). Data depicts 100-year and 500-year flood zones as defined by FEMA.

NWI: National Wetlands Inventory. This data, available in select counties across the country, was obtained by EDR in 2002, 2005 and 2010 from the U.S. Fish and Wildlife Service.

HYDROGEOLOGIC INFORMATION

AQUIFLOW^{R} Information System
Source: EDR proprietary database of groundwater flow information
EDR has developed the AQUIFLOW Information System (AIS) to provide data on the general direction of groundwater flow at specific points. EDR has reviewed reports submitted to regulatory authorities at select sites and has extracted the date of the report, hydrogeologically determined groundwater flow direction and depth to water table information.

GEOLOGIC INFORMATION

Geologic Age and Rock Stratigraphic Unit
Source: P.G. Schruben, R.E. Arndt and W.J. Bawiec, Geology of the Conterminous U.S. at 1:2,500,000 Scale - A digital representation of the 1974 P.B. King and H.M. Beikman Map, USGS Digital Data Series DDS - 11 (1994).

STATSGO: State Soil Geographic Database
Source: Department of Agriculture, Natural Resources Conservation Services
The U.S. Department of Agriculture's (USDA) Natural Resources Conservation Service (NRCS) leads the national Conservation Soil Survey (NCSS) and is responsible for collecting, storing, maintaining and distributing soil survey information for privately owned lands in the United States. A soil map in a soil survey is a representation of soil patterns in a landscape. Soil maps for STATSGO are compiled by generalizing more detailed (SSURGO) soil survey maps.

SSURGO: Soil Survey Geographic Database
Source: Department of Agriculture, Natural Resources Conservation Services (NRCS)
Telephone: 800-672-5559
SSURGO is the most detailed level of mapping done by the Natural Resources Conservation Services, mapping scales generally range from 1:12,000 to 1:63,360. Field mapping methods using national standards are used to construct the soil maps in the Soil Survey Geographic (SSURGO) database. SSURGO digitizing duplicates the original soil survey maps. This level of mapping is designed for use by landowners, townships and county natural resource planning and management.

PHYSICAL SETTING SOURCE RECORDS SEARCHED

LOCAL / REGIONAL WATER AGENCY RECORDS

FEDERAL WATER WELLS

PWS: Public Water Systems
Source: EPA/Office of Drinking Water
Telephone: 202-564-3750
Public Water System data from the Federal Reporting Data System. A PWS is any water system which provides water to at least 25 people for at least 60 days annually. PWSs provide water from wells, rivers and other sources.

PWS ENF: Public Water Systems Violation and Enforcement Data
Source: EPA/Office of Drinking Water
Telephone: 202-564-3750
Violation and Enforcement data for Public Water Systems from the Safe Drinking Water Information System (SDWIS) after August 1995. Prior to August 1995, the data came from the Federal Reporting Data System (FRDS).

USGS Water Wells: USGS National Water Inventory System (NWIS)
This database contains descriptive information on sites where the USGS collects or has collected data on surface water and/or groundwater. The groundwater data includes information on wells, springs, and other sources of groundwater.

STATE RECORDS

Georgia Public Supply Wells
Source: Georgia Department of Community Affairs
Telephone: 404-894-0127

USGS Georgia Water Wells
Source: USGS, Georgia District Office
Telephone: 770-903-9100

DNR Managed Lands
Source: Department of Natural Resources
Telephone: 706-557-3032
This dataset provides 1:24,000-scale data depicting boundaries of land parcels making up the public lands managed by the Georgia Department of Natural Resources (GDNR). It includes polygon representations of State Parks, State Historic Parks, State Conservation Parks, State Historic Sites, Wildlife Management Areas, Public Fishing Areas, Fish Hatcheries, Natural Areas and other specially-designated areas. The data were collected and located by the Georgia Department of Natural Resources. Boundaries were digitized from survey plats or other information.

OTHER STATE DATABASE INFORMATION

RADON

Area Radon Information
Source: USGS
Telephone: 703-356-4020
The National Radon Database has been developed by the U.S. Environmental Protection Agency (USEPA) and is a compilation of the EPA/State Residential Radon Survey and the National Residential Radon Survey. The study covers the years 1986 - 1992. Where necessary data has been supplemented by information collected at private sources such as universities and research institutions.

EPA Radon Zones
Source: EPA
Telephone: 703-356-4020
Sections 307 & 309 of IRAA directed EPA to list and identify areas of U.S. with the potential for elevated indoor radon levels.

OTHER

Airport Landing Facilities: Private and public use landing facilities
Source: Federal Aviation Administration, 800-457-6656

Epicenters: World earthquake epicenters, Richter 5 or greater
Source: Department of Commerce, National Oceanic and Atmospheric Administration

Earthquake Fault Lines: The fault lines displayed on EDR's Topographic map are digitized quaternary faultlines, prepared in 1975 by the United State Geological Survey

PHYSICAL SETTING SOURCE RECORDS SEARCHED

STREET AND ADDRESS INFORMATION

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APPENDIX H

Historical Aerial Photographs and Topographic Maps


1 4- '55
Estimated Location of Barrenton Well
SITE
Estimated Location of Camp Well
INQUIRY #: 3910446.9
YEAR: 1955
= 500'
N
EDR


Estimated Location of Barrenton Well
SITE
Estimated Location of Camp Well
INQUIRY #: 3910446.9
YEAR: 1964
= 500'
N
EDR

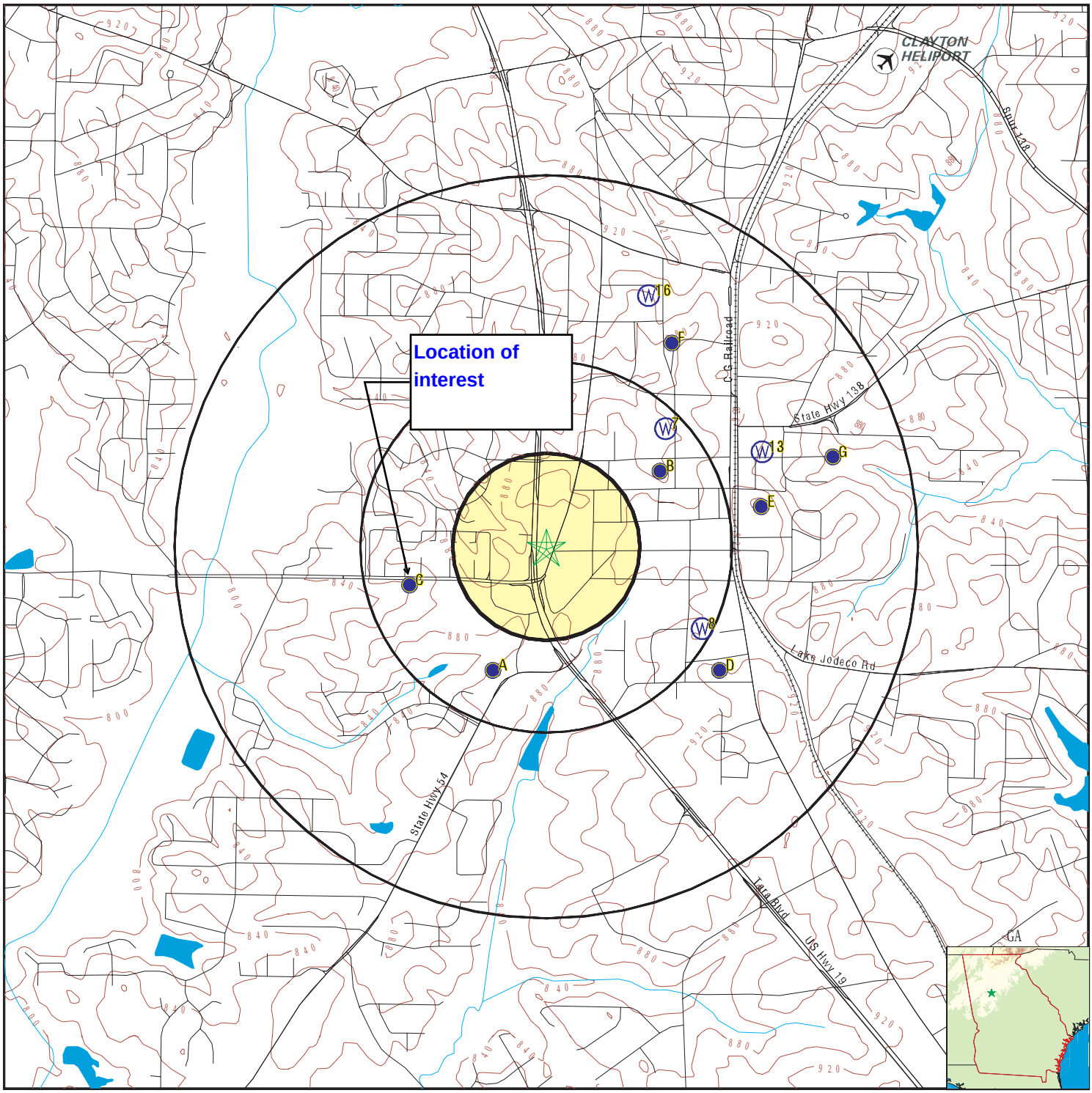

SITE
Estimated Location of Barrenton Well
Estimated Location of Camp Well
INQUIRY #: 3910446.9
YEAR: 1968
= 500'
N
EDR


Estimated Location
of Barrenton Well
INQUIRY #: 3910446.9
YEAR: 1978
= 500'
N
EDR


SITE
Estimated Location of Barrenton Well
Estimated Location of Camp Well
INQUIRY #: 3910446.9
YEAR: 1993
= 500'
N
EDR


SITE
Estimated Location of Barrenton Well
Estimated Location of Camp Well
INQUIRY #: 3910446.9
YEAR: 2005
= 500'
N
EDR

PHYSICAL SETTING SOURCE MAP - 3910446.2s



- County Boundary
- Major Roads
- Contour Lines
- Airports
- Earthquake epicenter, Richter 5 or greater
- Water Wells
- Public Water Supply Wells
- Cluster of Multiple Icons
- Groundwater Flow Direction
- GI Indeterminate Groundwater Flow at Location
- GV Groundwater Flow Varies at Location
- Wildlife Areas

SITE NAME: 8660 TARA BOULEVARD	CLIENT: EHS Support
ADDRESS: 8660 TARA BOULEVARD	CONTACT: Michelle Stayrook
JONESBORO GA 30236	INQUIRY #: 3910446.2s
LAT/LONG: 33.5191 / 84.363	DATE: April 14, 2014 1:07 pm

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Well #:	11CC19	County FIPS:	063
Remarks:	JONESBORO, GA 4		
Latitude:	333119	Longitude:	0842128
Altitude:	880	Depth:	350
Depth to bottom of Casing:	200	Diameter of Casing:	6
Casing Material:	Steel	Discharge:	Not Reported
Type of Openings:	Open hole	Date Built:	1951
Depth to top of this open interval:		200	
Depth to bottom of this open interval:		350	
Primary Use:	Public supply		
Aquifer:	PENNSYLVANIAN - CRYSTALLINE ROCK AQUIFER		

B4
ENE
1/4 - 1/2 Mile
Lower

FED USGS **USGS40000263532**

Org. Identifier:	USGS-GA		
Formal name:	USGS Georgia Water Science Center		
Monloc Identifier:	USGS-333119084212801		
Monloc name:	11CC19		
Monloc type:	Well		
Monloc desc:	JONESBORO, GA 4		
Huc code:	03130005	Drainagearea value:	Not Reported
Drainagearea Units:	Not Reported	Contrib drainagearea:	Not Reported
Contrib drainagearea units:	Not Reported	Latitude:	33.5220568
Longitude:	-84.3577018	Sourcemap scale:	24000
Horiz Acc measure:	10	Horiz Acc measure units:	seconds
Horiz Collection method:	Interpolated from map		
Horiz coord refsys:	NAD83	Vert measure val:	880
Vert measure units:	feet	Vertacc measure val:	05
Vert accmeasure units:	feet		
Vertcollection method:	Interpolated from topographic map		
Vert coord refsys:	NGVD29	Countrycode:	US
Aquifername:	Piedmont and Blue Ridge crystalline-rock aquifers		
Formation type:	Crystalline Rocks		
Aquifer type:	Not Reported		
Construction date:	1951	Welldepth:	350
Welldepth units:	ft	Wellholedepth:	Not Reported
Wellholedepth units:	Not Reported		

Ground-water levels, Number of Measurements: 0

C5
WSW
1/4 - 1/2 Mile
Lower

GA WELLS **0000002191**

Well #:	11CC17	County FIPS:	063
Remarks:	H W BARRENTON		
Latitude:	333103	Longitude:	0842210
Altitude:	860.00	Depth:	200
Depth to bottom of Casing:	74.00	Diameter of Casing:	6.00
Casing Material:	Steel	Discharge:	40.00
Type of Openings:	Open hole	Date Built:	195705
Depth to top of this open interval:		74.00	
Depth to bottom of this open interval:		200.00	
Primary Use:	Unused		
Aquifer:	Not Reported		

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID
Direction
Distance
Elevation

Database | EDR ID Number

C6
WSW
1/4 - 1/2 Mile
Lower

FED USGS **USGS40000263518**

Org. Identifier:	USGS-GA		
Formal name:	USGS Georgia Water Science Center		
Monloc Identifier:	USGS-333103084220901		
Monloc name:	11CC17		
Monloc type:	Well		
Monloc desc:	H W BARRENTON		
Huc code:	03130005	Drainagearea value:	Not Reported
Drainagearea Units:	Not Reported	Contrib drainagearea:	Not Reported
Contrib drainagearea units:	Not Reported	Latitude:	33.5176126
Longitude:	-84.3693688	Sourcemap scale:	24000
Horiz Acc measure:	5	Horiz Acc measure units:	seconds
Horiz Collection method:	Interpolated from map		
Horiz coord refsys:	NAD83	Vert measure val:	860.00
Vert measure units:	feet	Vertacc measure val:	10
Vert accmeasure units:	feet		
Vertcollection method:	Interpolated from topographic map		
Vert coord refsys:	NGVD29	Countrycode:	US
Aquifername:	Not Reported		
Formation type:	Not Reported		
Aquifer type:	Not Reported		
Construction date:	19570501	Welldepth:	200
Welldepth units:	ft	Wellholedepth:	200
Wellholedepth units:	ft		

Ground-water levels, Number of Measurements: 0

7
NE
1/4 - 1/2 Mile
Lower

GA WELLS **300**

Source ID:	31M0204	Name:	CITY OF JONESBORO
Population Served:	4,132		
Latitude:	33.5236	Longitude:	84.3575
Source:	Ground	Status:	Unconfined
GWSI ID:	Not Reported	GA Geological Survey:	Unconfined
County:	CLAYTON	County FIPS:	63
Grnd Water (Mil Gal/Day):	0.10	Surface Water (Mil Gal/Day):	0.00

8
ESE
1/4 - 1/2 Mile
Higher

GA WELLS **302**

Source ID:	31M0203	Name:	CITY OF JONESBORO
Population Served:	4,132		
Latitude:	33.5158	Longitude:	84.3558
Source:	Ground	Status:	Unconfined
GWSI ID:	Not Reported	GA Geological Survey:	Unconfined
County:	CLAYTON	County FIPS:	63
Grnd Water (Mil Gal/Day):	0.10	Surface Water (Mil Gal/Day):	0.00

8660 TARA BOULEVARD
8660 TARA BOULEVARD
JONESBORO, GA 30236

Inquiry Number: 3910446.4
April 14, 2014

EDR Historical Topographic Map Report

6 Armstrong Road, 4th Floor
Shelton, Connecticut 06484
Toll Free: 800.352.0050
www.edrnet.com

EDR Historical Topographic Map Report

Environmental Data Resources, Inc.s (EDR) Historical Topographic Map Report is designed to assist professionals in evaluating potential liability on a target property resulting from past activities. EDRs Historical Topographic Map Report includes a search of a collection of public and private color historical topographic maps, dating back to the early 1900s.

Thank you for your business.
Please contact EDR at 1-800-352-0050
with any questions or comments.

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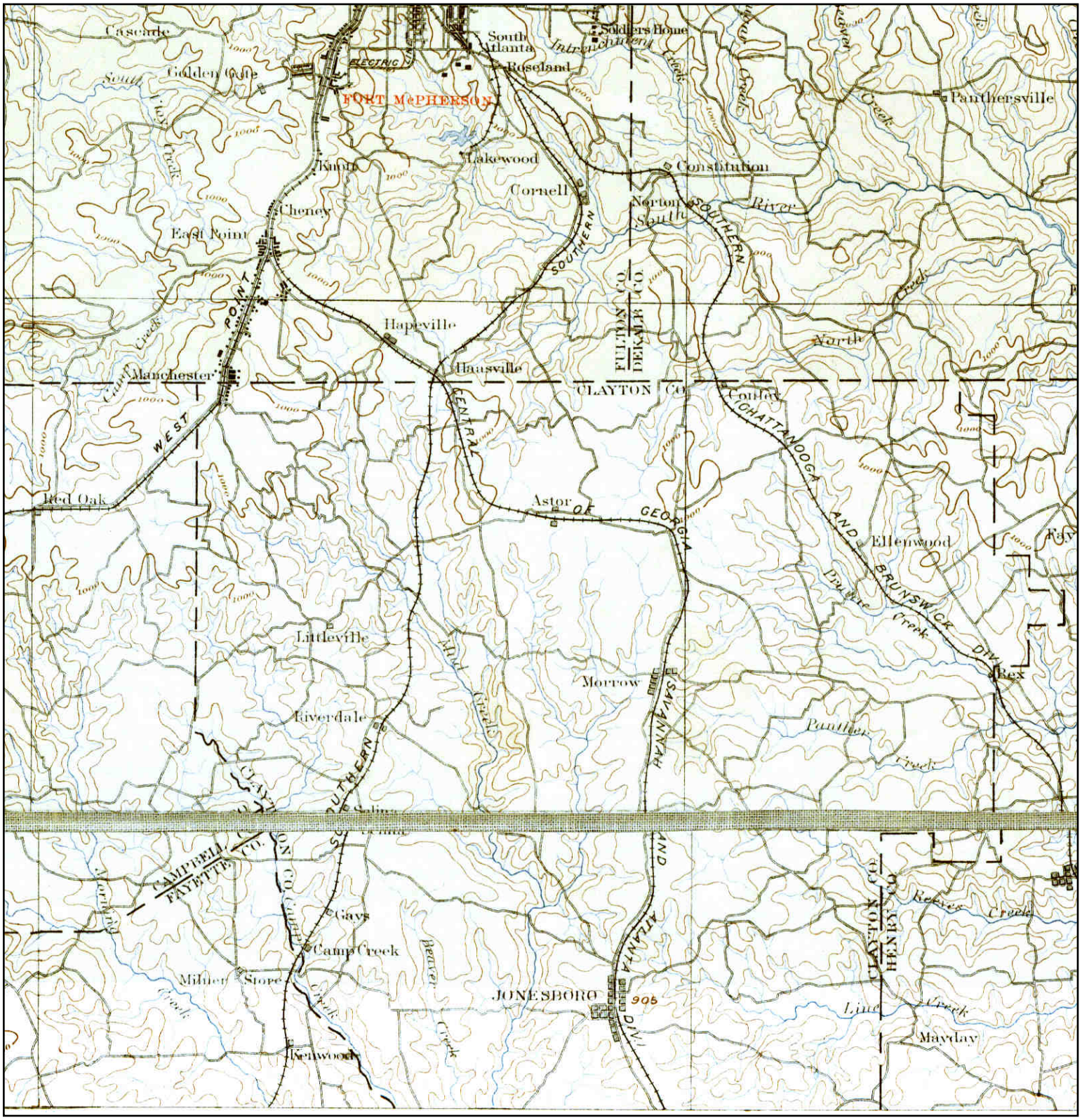
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Historical Topographic Map



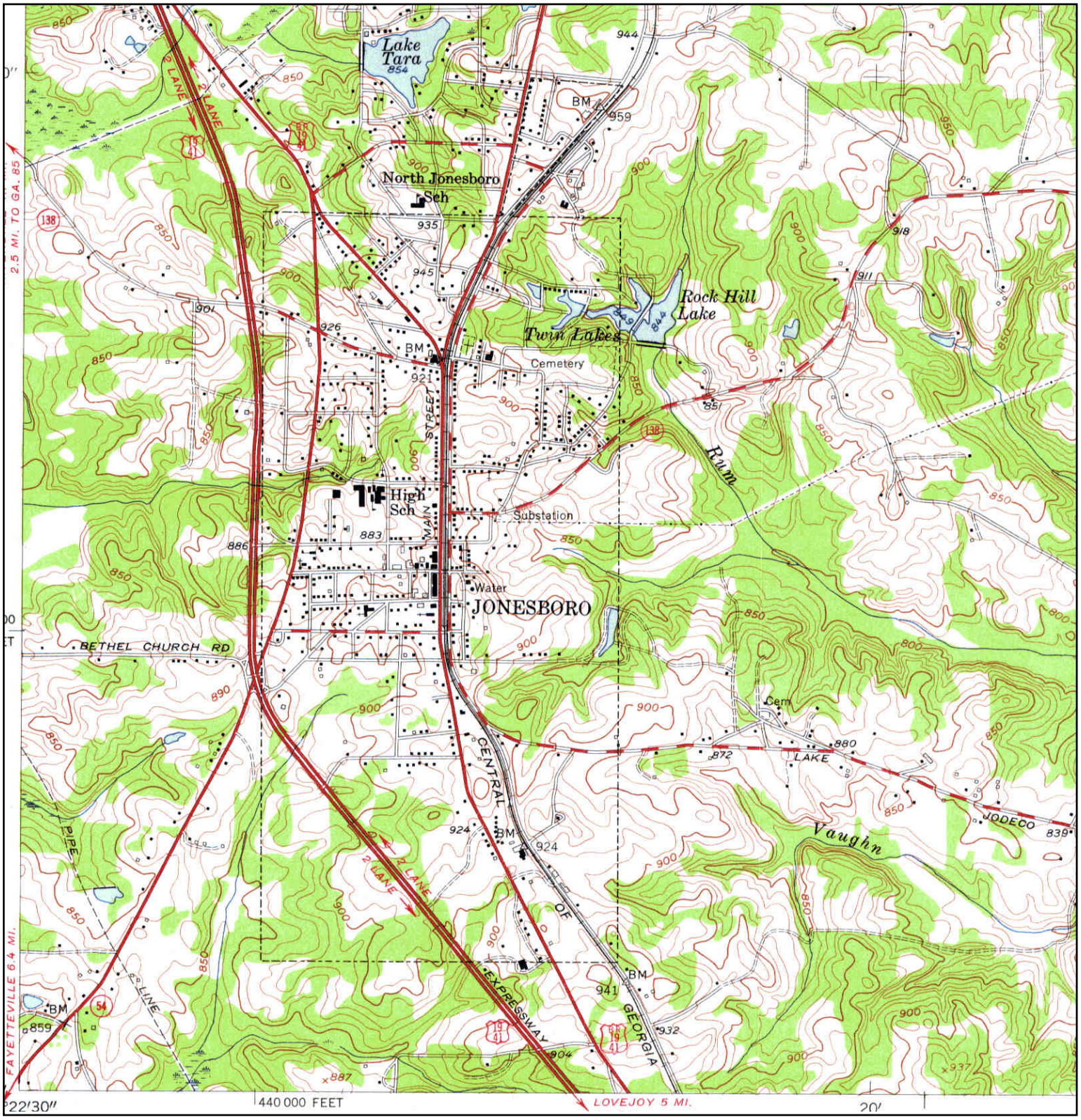
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Historical Topographic Map



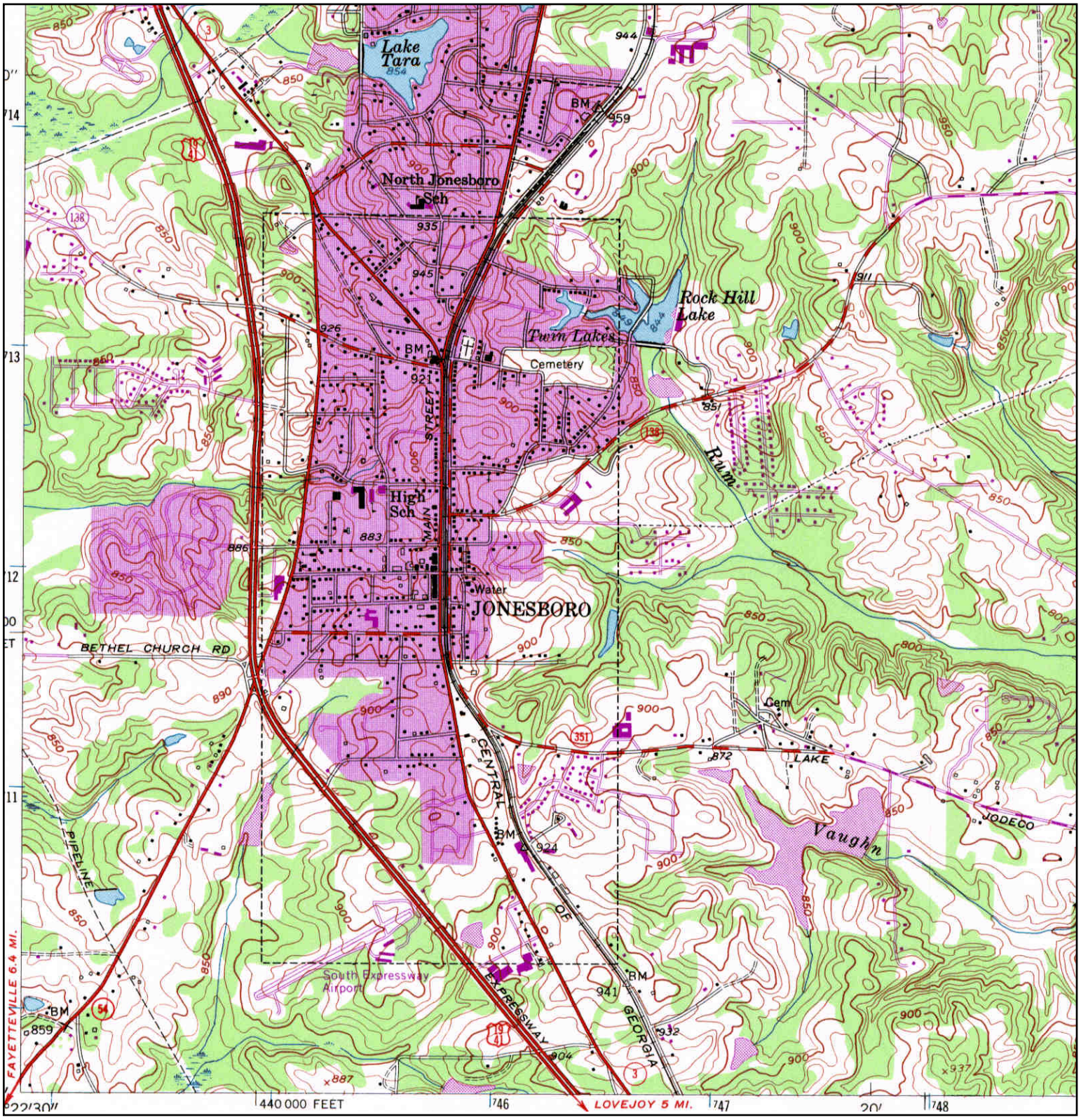
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Historical Topographic Map



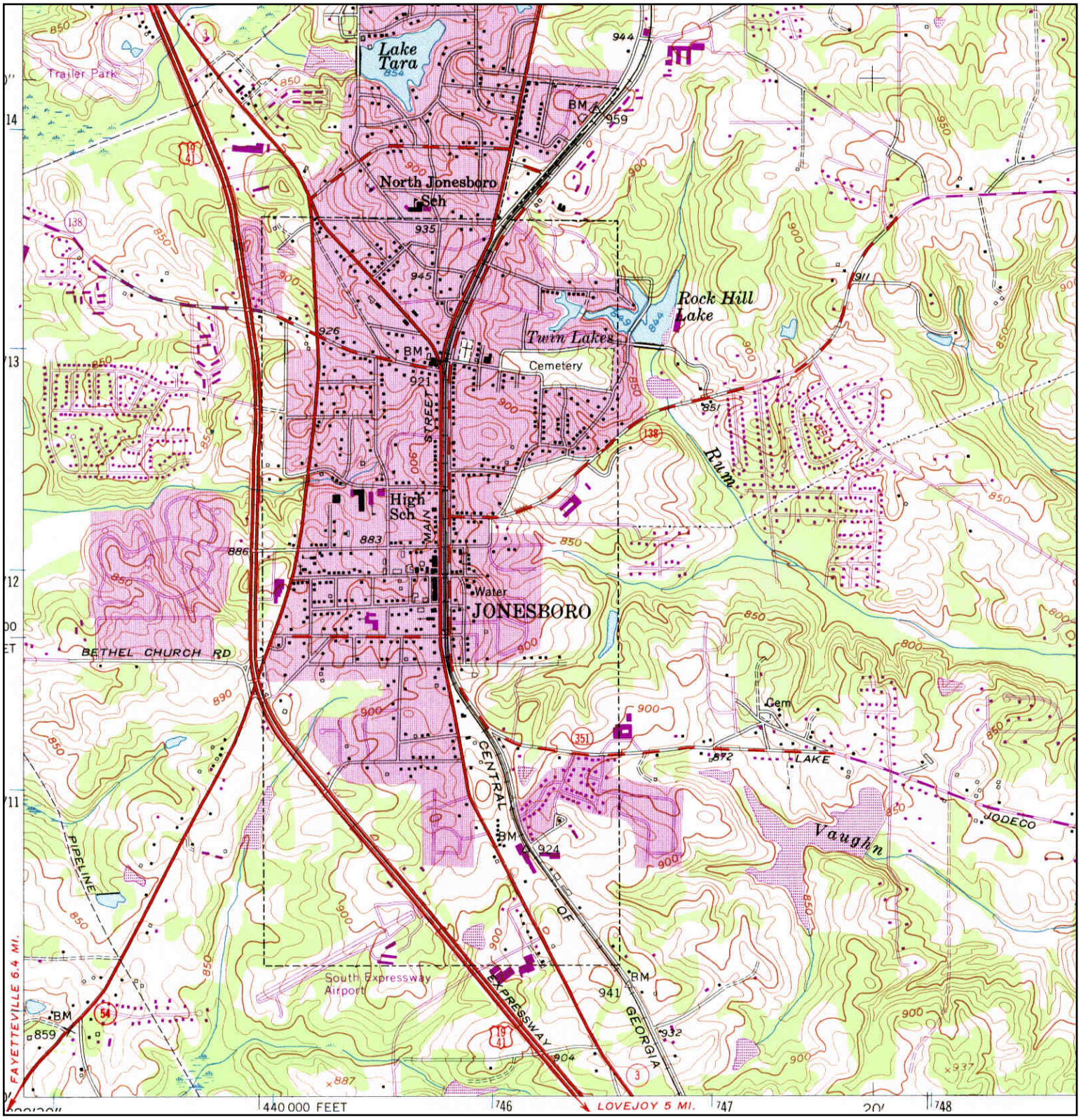
N	TARGET QUAD NAME: JONESBORO MAP YEAR: 1954 SERIES: 7.5 SCALE: 1:24000	SITE NAME: 8660 TARA BOULEVARD ADDRESS: 8660 TARA BOULEVARD JONESBORO, GA 30236 LAT/LONG: 33.5191 / -84.363	CLIENT: EHS Support CONTACT: Michelle Stayrook INQUIRY#: 3910446.4 RESEARCH DATE: 04/14/2014

Historical Topographic Map



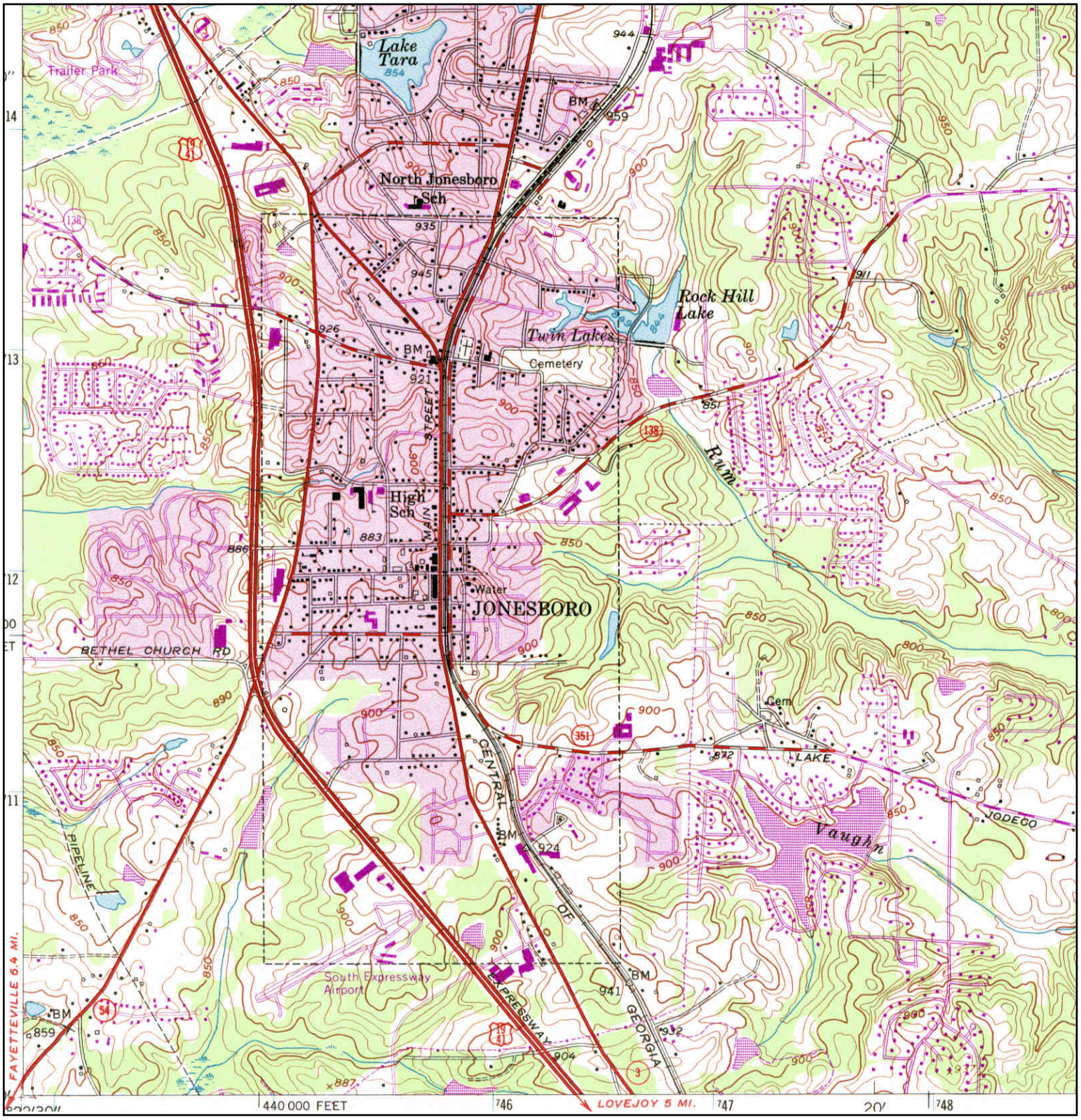
N	TARGET QUAD NAME: JONESBORO MAP YEAR: 1968 PHOTOREVISED FROM :1954 SERIES: 7.5 SCALE: 1:24000	SITE NAME: 8660 TARA BOULEVARD ADDRESS: 8660 TARA BOULEVARD JONESBORO, GA 30236 LAT/LONG: 33.5191 / -84.363	CLIENT: EHS Support CONTACT: Michelle Stayrook INQUIRY#: 3910446.4 RESEARCH DATE: 04/14/2014

Historical Topographic Map



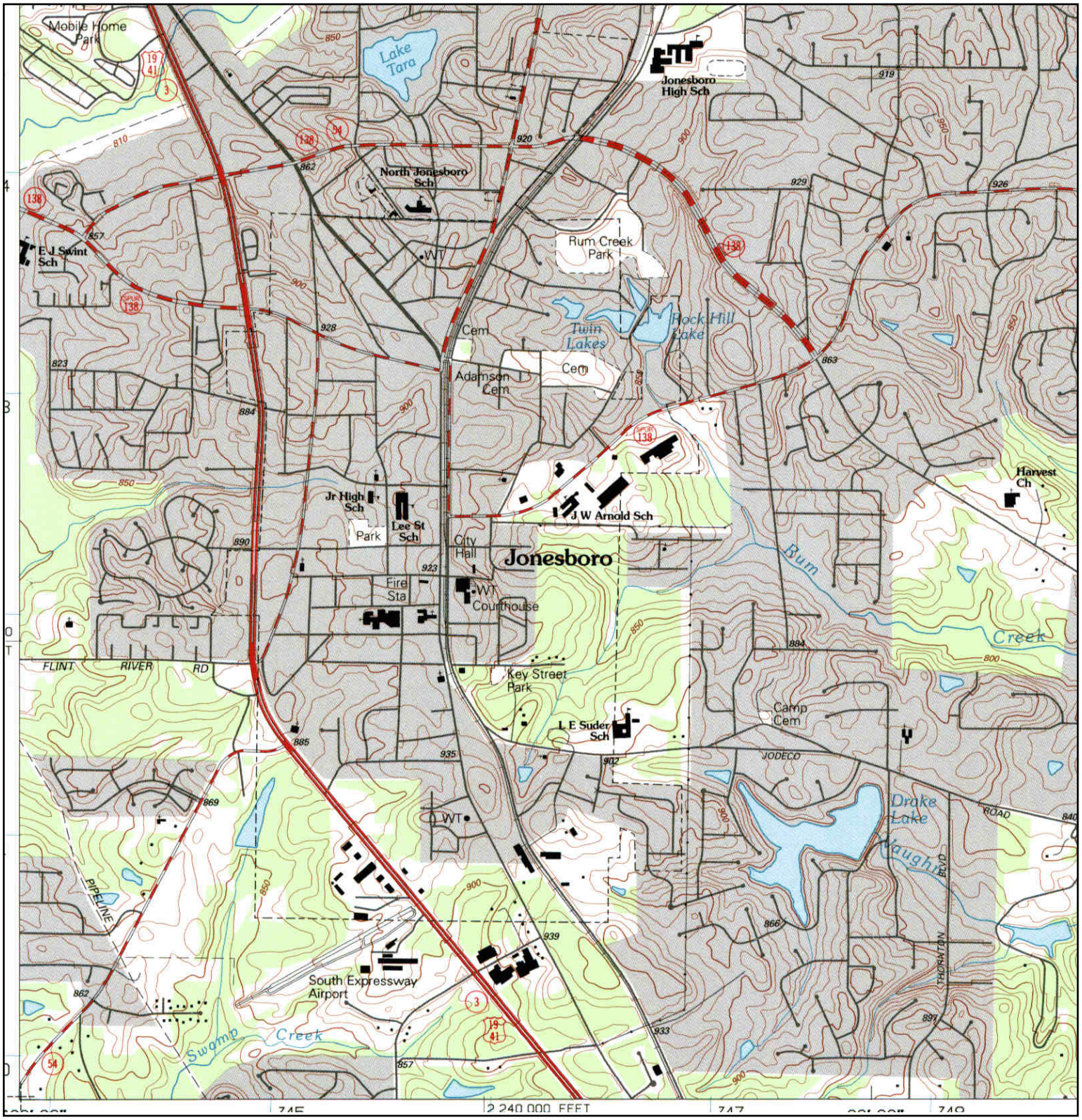
N	TARGET QUAD NAME: JONESBORO MAP YEAR: 1973 PHOTOREVISED FROM :1954 SERIES: 7.5 SCALE: 1:24000	SITE NAME: 8660 TARA BOULEVARD ADDRESS: 8660 TARA BOULEVARD JONESBORO, GA 30236 LAT/LONG: 33.5191 / -84.363	CLIENT: EHS Support CONTACT: Michelle Stayrook INQUIRY#: 3910446.4 RESEARCH DATE: 04/14/2014

Historical Topographic Map



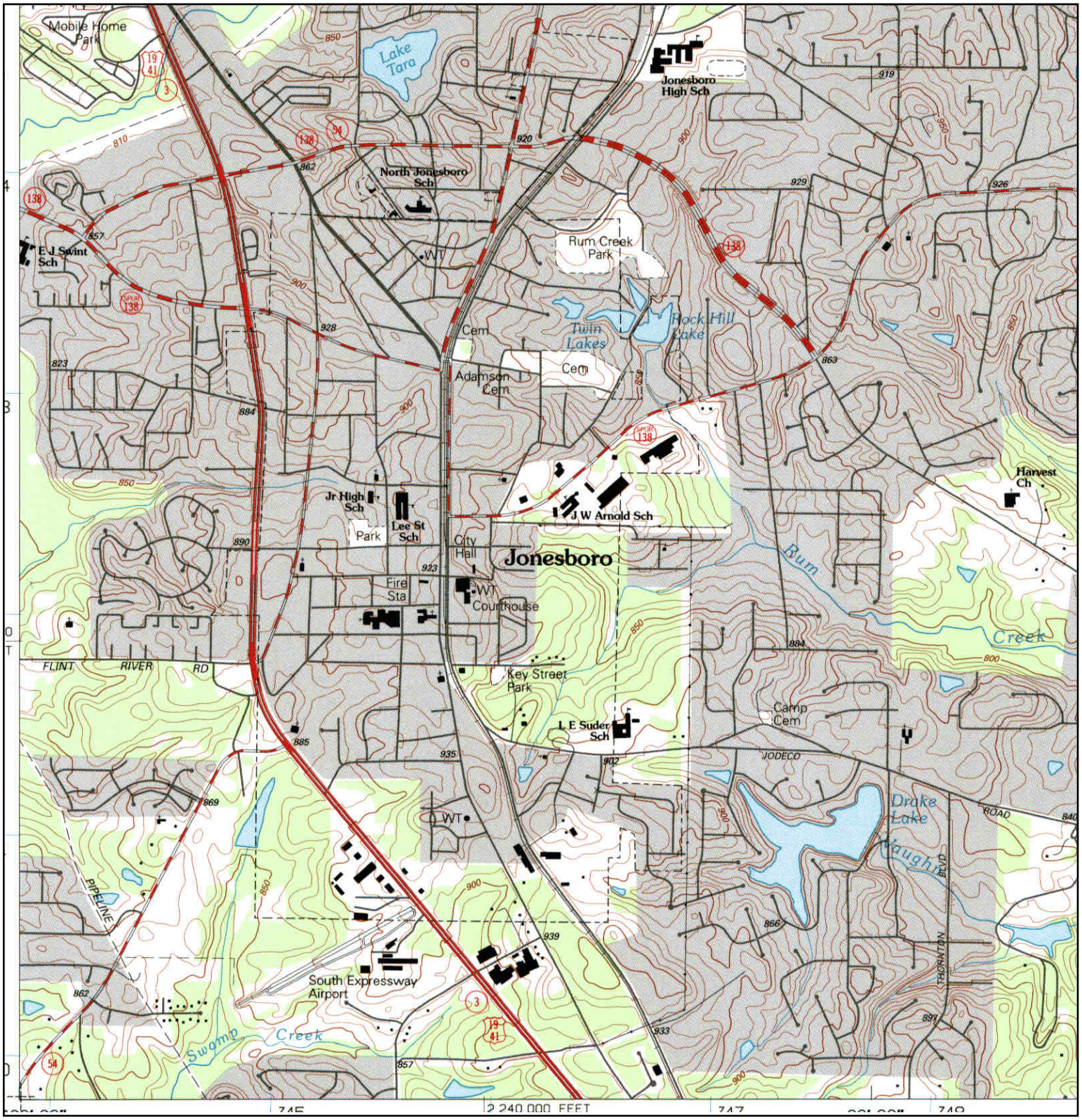
N	TARGET QUAD NAME: JONESBORO MAP YEAR: 1983 PHOTOREVISED FROM :1954 SERIES: 7.5 SCALE: 1:24000	SITE NAME: 8660 TARA BOULEVARD ADDRESS: 8660 TARA BOULEVARD JONESBORO, GA 30236 LAT/LONG: 33.5191 / -84.363	CLIENT: EHS Support CONTACT: Michelle Stayrook INQUIRY#: 3910446.4 RESEARCH DATE: 04/14/2014

Historical Topographic Map



N	TARGET QUAD NAME: JONESBORO MAP YEAR: 1993 SERIES: 7.5 SCALE: 1:24000	SITE NAME: 8660 TARA BOULEVARD ADDRESS: 8660 TARA BOULEVARD JONESBORO, GA 30236 LAT/LONG: 33.5191 / -84.363	CLIENT: EHS Support CONTACT: Michelle Stayrook INQUIRY#: 3910446.4 RESEARCH DATE: 04/14/2014

Historical Topographic Map



N	TARGET QUAD NAME: JONESBORO MAP YEAR: 1993 SERIES: 7.5 SCALE: 1:24000	SITE NAME: 8660 TARA BOULEVARD ADDRESS: 8660 TARA BOULEVARD JONESBORO, GA 30236 LAT/LONG: 33.5191 / -84.363	CLIENT: EHS Support CONTACT: Michelle Stayrook INQUIRY#: 3910446.4 RESEARCH DATE: 04/14/2014

APPENDIX I

Screening Level Ecological Risk Assessment

MEMO

To: Michael Dever, Ashland Inc.

Cc: Michelle Stayrook

From: Tom Biksey

Date: March 11, 2016

Re: **Alterman – Screening Level Ecological Risk Assessment Memorandum**

Introduction

The purpose of this memorandum (memo) is to present the assessment of potential ecological risks from exposure to surface water in the unnamed creek. The Screening Level Ecological Risk Assessment (SLERA) for the ecological receptors exposed to chemicals of potential concern (COPCs) concentrations in the unnamed creek downgradient of the Site determined that there were no significant potential risks to the selected assessment endpoints (benthic invertebrates and fishes). This conclusion was based on the quality of the unnamed creek (urbanized), the marginal potential estimated risk (HQ = 1.4) that was localized to the outfall pool, and a potential risk estimate based on both maximum exposure and conservative toxicological criteria.

Corrective action activities were completed at the former dry cleaner property (Site) located in the Tara Shopping Center in 2013 to address source area soil affects at the Site. Groundwater investigation activities were completed between 2006 and 2015 to determine the nature and extent of groundwater impacts, primarily tetrachloroethene (PCE) and degradation products migrating off-site. In a letter dated December 17, 2015, the Georgia Environmental Protection Division (EPD) approved investigation activities completed to identify the nature and extent of groundwater impacts.

The surface water concentrations of COPCs collected in 2011 did not trigger an initial ecological risk screening assessment because instream concentrations were below the U.S. Environmental Protection Agency (USEPA) Region 4 Freshwater Surface Water Chronic Screening Value (2001) of 84 micrograms per liter (μg/L) for PCE; and alternative standards established for trichloroethene (TCE), cis-1,2-dichloroethene (cis-1,2-DCE), and vinyl chloride (VC). Analytical data collected in July 2015 was compared to the most current USEPA Region 4 Freshwater Surface Water Chronic Screening Value published in 2015. The PCE screening value was reduced from 84 μg/L to 53 μg/L, and standards were published for TCE (200 μg/L), cis-1,2-DCE (620 μg/L), and VC (930 μg/L). As a result, detected concentrations of PCE in outfall sample OF-2 (76 μg/) were above the 2015 screening value, and pursuant to the Guidance for Selecting Media Remediation Levels at RCRA Solid Waste Management Units (Guidance; EPD, 1996), further evaluation for potential ecological risk impacts via the SLERA process was conducted. As noted previously, the SLERA for the ecological receptors exposed to COPC concentrations in the unnamed creek downgradient of the Site determined that there were no significant potential risks.

Screening Level Ecological Risk Assessment

The objectives of the SLERA are to conduct a preliminary problem formulation that describes the environmental setting at the site with an emphasis on ecological receptors, discusses exposure pathways,

and identifies preliminary assessment and measurement endpoints. The relevant toxicological criteria and exposure assumptions are then presented, and the potential risks to the ecological receptors are conservatively assess. Based on the outcome of the SLERA, the problem formulation is refined and the baseline ecological risk assessment (BERA) is conducted with additional data and analysis to refine estimates of risk to ecological receptors at the Site.

Problem Formulation

The Site is situated within the watershed to the headwaters of the Flint River. Within this watershed, down-gradient discharge boundaries for groundwater are the surface drainage features including the unnamed creek located immediately west of Tara Boulevard and the Site, an unnamed tributary to the headwater of Cleburne's Creek (southwest), and ultimately to the Flint River (west). The unnamed creek is the discharge boundary for groundwater leaving the Site mostly because of its proximity, it is deeply incised into the bedrock, and it intercepts the water-table. There are two primary contributions to the creek. First, hydrogeological data has concluded groundwater from the Site and off-site affected properties within the residuum and bedrock units discharge into this bedrock incised creek. Second, surface water run-off from properties surrounding the creek to the north, east, and south discharge to the creek through a series of storm water out-falls.

The unnamed creek can be characterized as a highly urbanized, low quality creek. In the upper reaches of the system (immediately west of the Site), the surface water is contained within culverts and pipes discharging to an open channel upgradient of SS-1. Evidence of high sediment loadings, waste, and debris are evident in the creek bed consistent with the highly urbanized nature of the area. On the basis of the creek characteristics, this ecological setting can be considered low quality.

Because of its highly urbanized location, the unnamed creek will provide habitat for a limited community of aquatic invertebrates and fish. These receptors could be exposed to site-related COPCs via several exposure routes. Lower-trophic-level species, such as benthic macroinvertebrates, would have their greatest exposure through direct contact with COPCs pore water. Fish and other water column-dwelling aquatic life could be exposed to chemicals from direct exposure in surface water, and from the ingestion of food items.

The selection of assessment and measurement endpoints for evaluation include endpoints that define ecological attributes that are to be protected (assessment endpoints) and measurable characteristics of those attributes (measurement endpoints) that are used to assess the potential risks that has or could occur. Assessment endpoints relate to attributes of biological populations or communities and are intended to focus the risk assessment on particular components of the ecosystem that could be adversely affected by contaminants from the site. Assessment endpoints contain an entity, which is often represented by a guild in the site ecosystem (e.g., fish omnivores), and ecologically relevant attributes of that entity (e.g., survival rate and reproduction).

Based on information available about the habitat and ecological species and COPCs present in the unnamed creek, the following assessment point and receptor combinations were selected for evaluation in the SLERA:

- Survival and reproduction of benthic macroinvertebrate communities. Benthic macroinvertebrates serve as a forage base for many aquatic and semiaquatic species. Benthic macroinvertebrates also play an important role in the processing and breakdown of organic matter in aquatic systems. A

population of benthic macroinvertebrates that is limited by COPC concentrations at the Site would support lower populations of fish that forage on these invertebrates.

- Survival and reproduction of water-column-dwelling aquatic life communities. Water-column-dwelling aquatic life that includes fishes both within the unnamed creek, and that may be present in downstream reaches of the watershed, would be exposed to COPCs in surface water by direct contact, respiration, and ingestion of surface water.

The following measurement endpoints were identified based on the assessment endpoints selected for evaluation:

- Survival and reproduction of benthic macroinvertebrate communities was assessed by comparing surface water COPC concentrations in the unnamed creek to surface water benchmarks (SWBs).
- Survival and reproduction of water-column-dwelling aquatic life communities was assessed by comparing surface water COPC concentrations to SWBs.

Toxicity and Exposure Assessment

Pursuant to the Risk Reduction Standards 391-3-19-.07, SWBs are based on the Georgia In-Stream Water Quality Criteria (391-3-6-.03(5)) at http://rules.sos.ga.gov/GAC/391-3-6-.03, and, if there are no water quality criteria, the SWBs are selected from the Surface Water Screening Values for Hazardous Waste Sites in the Region 4 Ecological Risk Assessment Supplemental Guidance Interim Draft dated 2015 at http://www.epa.gov/sites/production/files/2015-09/documents/r4_era_guidance_document_draft_final_8-25-2015.pdf. There are no ecological SWBs in the Georgia water quality criteria database for the COPCs assessed in the SLERA. Therefore, the USEPA Region 4 surface water screening values were selected as the SWB measurement endpoints for the assessment endpoints.

Three surface water samples were collected from the unnamed creek on July 16, 2015 (SS-1, SS-2, and OF-2), and analyzed for volatile organic compounds (VOCs) using USEPA Method 8260B. Due to overgrowth and rugged terrain, the location of OF-1 was not identified or sampled. Surface water sample SS-1 was collected approximately 85 feet west and downgradient of storm water outfall OF-2. Surface water sample SS-2 was collected approximately 170 feet west of SS-1 (or 255 feet downgradient of OF-2). Based on the terrain, a physical distance between these locations could not be measured in the field; therefore, the location of SS-1 and SS-2 (and the distance between) are based on survey data.

The location of SS-1, SS-2, and OF-2 are depicted on **Attachment 1** (Figure 14 of the Corrective Action Work Plan). **Table 1** (Source: Table 6 - Summary of Surface Water Analytical Results - July 2015, from August 2015 Semi-Annual VRP Progress Report) presents the results of the surface water sampling for identified sampling locations. In addition, the USEPA Region 4 Surface Water Screening Values from 2001 and 2015 are included on **Table 1**.

In accordance with the Risk Reduction Standards 391-3-19-.07, the surface water exposure point concentrations (EPCs) for the SLERA were based on the maximum COPC concentration detected in the July 2015 sample locations. The maximum COPC concentrations used as the EPCs included concentrations of PCE, TCE, and cis-1,2 -DCE from sampling location OF-2 (**Table 1**).

Risk Characterization

The purpose of the risk characterization is to provide a conservative estimate of the potential risk resulting from exposure to COPCs identified in the surface water of the unnamed creek downgradient of the Site. This section includes a quantitative estimate of potential aquatic ecological risks for the two assessment endpoints.

Risk Estimate

The potential risks to the aquatic ecological receptors in the unnamed creek, as defined by the assessment endpoints, are estimated using the hazard quotient (HQ) approach:

HQ = EPC / SWB

The HQ is not a measure of potential risk, but rather a measure of the level of concern of the potential for risk. If the HQ is less than one, then there is unlikely to be adverse ecological effects to the assessment endpoints. If the HQ is greater than one, there is the potential for an adverse ecological effect. However, the exceedance does not mean that there is an unacceptable potential risk; it does indicate that further ecological analysis is warranted.

The following table provides the HQs for the maximum COPC concentrations at OF-2 versus the USEPA Region 4 2001 and 2015 SWBs:

	Hazard Quotient (HQ)	
COPC	**OF-2 and USEPA Region 4 2001 SWBs**	**OF-2 and USEPA Region 4 2015 SWBs**
Tetrachloroethylene	9.0E-01	1.4E+00
Trichloroethylene	2.6E-01	6.0E-02
Dichloroethylene, 1,2-cis-	4.4E-03	9.5E-03

The only COPC with a HQ greater than one is PCE, and this occurs only when compared to the USEPA Region 4 2015 SWB at sampling location OF-2. The exceedance is only slightly greater than one. In addition, as shown in **Table 1**, the other sampling locations (SS-1 and SS-2) did not have any COPC concentrations that were greater than either the USEPA Region 4 2001 or 2015 SWBs. Based on the magnitude of the exceedance of the single COPC concentration for PCE (HQ = 1.4), the potential risk to the assessment endpoints is not considered significant. This conclusion is based on the following:

- Evidence of high sediment loadings, waste, and debris are evident in the creek bed consistent with the highly urbanized nature of the area. On the basis of the creek characteristics, this ecological setting can be considered low quality, and would provide non-Site related stresses to the assessment endpoints.
- The exceedance of the SWB for PCE only occurs in the outfall pool, which likely is an ecological habitat not representative (lower quality) of the downstream reaches of the unnamed creek. In addition, the concentration of PCE spatially decreases rapidly, and is below the SWB for PCE at the next sampling location.

- The Region 4 2015 screening value for PCE is based on the Great Lakes Initiative (GLI) Access (v3.14 2015) database (http://www.epa.gov/gliclearinghouse/). The draft Region 4 PCE value of 53 µg/L was taken from the Ohio Environmental Protection Agency's studies, and was the lowest of the three State agencies included in the GLI database. The other two State agencies' PCE SWB values included Michigan Department of Environmental Quality's studies value of 190 µg/L, and Indiana Department of Environmental Management's studies value of 60 µg/L. Therefore, there is a range of acceptable PCE SWBs that are used by States in the Great Lakes region. The selection of the lowest concentration reflects the conservative nature of the Region 4 2015 screening value.
- The Oak Ridge National Laboratory (ORNL) Risk Assessment Information System (RAIS) at https://rais.ornl.gov/tools/eco_search.php compiles ecological benchmarks from various USEPA and international sources. It is noted that RAIS does not have the Region 4 2015 in their current ecological benchmark database. The RAIS staff (personal communication) noted that they have not incorporated the 2015 screening values because Region 4 considers them draft and subject to change when they become final. They may be used for screening assessments, but additional analyses is appropriate if there are exceedances.
- The Risk Reduction Standards 391-3-19-.07 provide for alternative screening values (ASVs) when there is an exceedance of the EPC by the SWB (Step 3A of the BERA). The USEPA Region 3 freshwater chronic ecological screening criteria (http://www.epa.gov/sites/production/files/2015-09/documents/r3_btag_fw_benchmarks_07-6.pdf), which is a recommended ASV for PCE, is 111 µg/L. This SWB would result in an HQ less than one when compared to the highest concentration of PCE at OF-2.

Conclusion

The focused risk assessment for the ecological receptors exposed to COPC concentrations in the unnamed creek downgradient of the Site determined that there were no significant potential risks to the selected assessment endpoints (benthic invertebrates and fishes).

TABLE

Table 1 - Summary of Surface Water Analytical Results - July 2015
Tara Shopping Center, 8564 Tara Boulevard, Jonesboro, GA

Sample ID	USEPA Region 4 Surface Water Screening Values for Hazardous Waste Sites (Freshwater Screening Value/ Chronic Screening Value) µg/L		OF-2		SS-1		SS-2	
Lab Sample Number			**680-114593-2**		**680-114593-3**		**680-114593-4**	
Sampling Date			7/16/2015		7/16/2015		7/16/2015	
Matrix			Water		Water		Water	
Dilution Factor			1		1		1	
Units			ug/L		ug/L		ug/L	
GC/MS VOA - 8260B			Low		Low		Low	
Constituents of Concern	**2001**	**2015**						
Tetrachloroethene	84	53	**76**		**36**		**17**	
Trichloroethene	47	200	**12**		**2.7**		1	U
cis-1,2-Dichloroethene	1,350	620	**5.9**		**2.3**		1	U
Vinyl chloride	930	930	1	U	1	U	1	U
Other VOC Compounds								
1,1,1-Trichloroethane		76	1	U	1	U	1	U
1,1,2,2-Tetrachloroethane		200	1	U	1	U	1	U
1,1,2-Trichloroethane		730	1	U	1	U	1	U
1,1-Dichloroethane		410	1	U	1	U	1	U
1,1-Dichloroethene		130	1	U	1	U	1	U
1,2-Dichloroethane		2,000	1	U	1	U	1	U
1,2-Dichloropropane		520	1	U	1	U	1	U
2-Butanone (MEK)		22,000	10	U	10	U	10	U
2-Hexanone		99	10	U	10	U	10	U
4-Methyl-2-pentanone (MIBK)		170	10	U	10	U	10	U
Acetone		1,700	10	U	10	U	10	U
Benzene		160	1	U	1	U	1	U
Bromoform		230	1	U	1	U	1	U
Bromomethane		16	5	U	5	U	5	U
Carbon disulfide		15	2	U	2	U	2	U
Carbon tetrachloride		77	1	U	1	U	1	U
Chlorobenzene		25	1	U	1	U	1	U
Chlorodibromomethane		320	1	U	1	U	1	U
Chloroethane		NA	5	U	5	U	5	U
Chloroform		140	1	U	1	U	1	U
Chloromethane		NA	1	U	1	U	1	U
cis-1,3-Dichloropropene		1.7	1	U	1	U	1	U
Dichlorobromomethane		340	1	U	1	U	1	U
Ethylbenzene		61	1	U	1	U	1	U
Methylene Chloride		1,500	5	U	5	U	5	U
Styrene		32	1	U	1	U	1	U
Toluene		62	1	U	1	U	1	U
trans-1,2-Dichloroethene		558	1	U	1	U	1	U
trans-1,3-Dichloropropene		1.7	1	U	1	U	1	U
Xylenes, Total		27	1	U	1	U	1	U
Total VOCs			93.9		41		17	

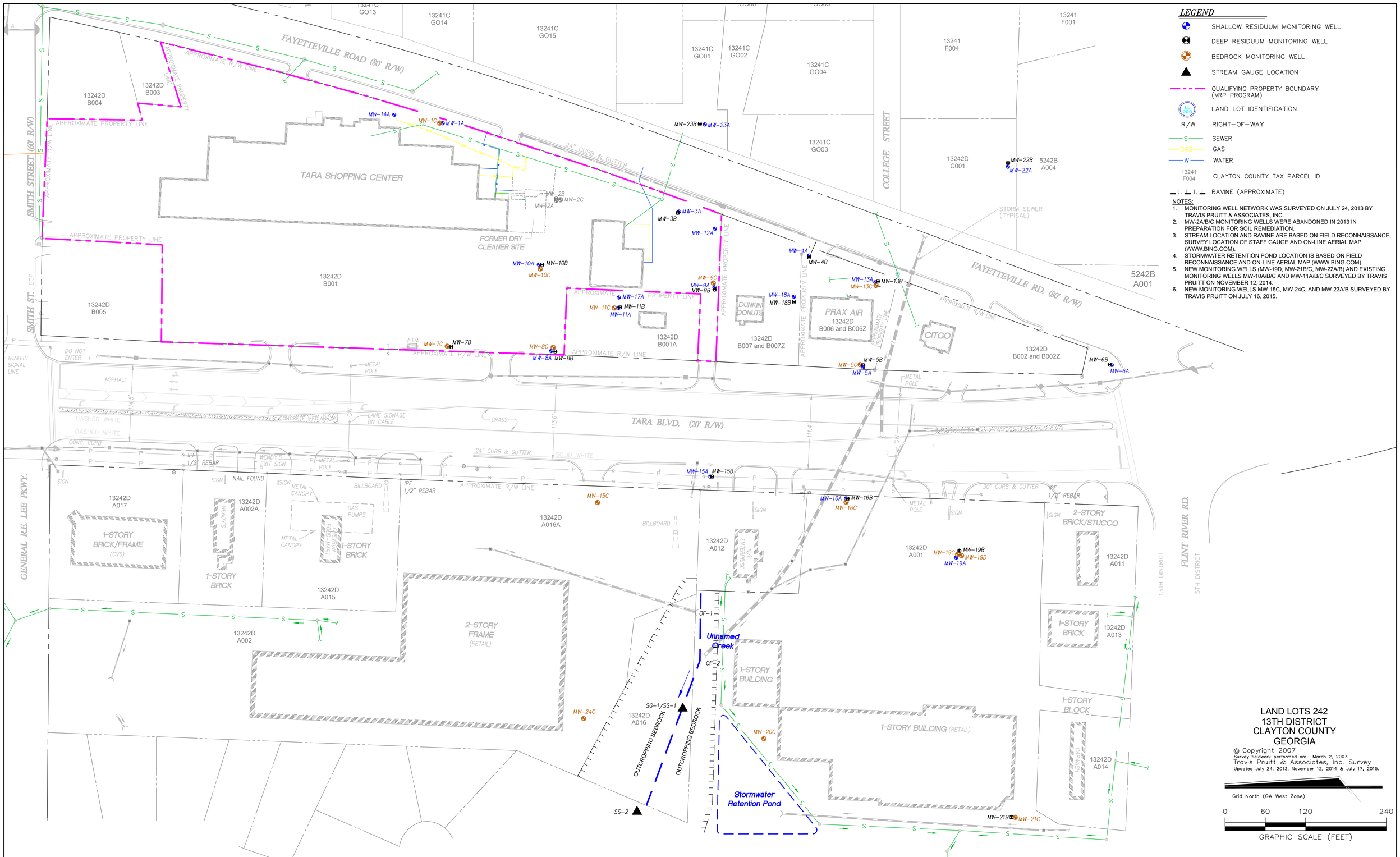
QUALIFIERS

µg/L - micrograms per liter

U - value not detected above the laboratory reporting limit.

Yellow - exceeds USEPA Region 4 Surface Water Screening Values for Hazardous Waste Sites (Freshwater Screening Value/ Chronic Screening Value) 2015 Interim Draft

ATTACHMENT 1 – FIGURE



LEGEND

- SHALLOW RESIDUUM MONITORING WELL
- DEEP RESIDUUM MONITORING WELL
- BEDROCK MONITORING WELL
- STREAM GAUGE LOCATION
- QUALIFYING PROPERTY BOUNDARY (VRP PROGRAM)
- LAND LOT IDENTIFICATION
- R/W — RIGHT-OF-WAY
- S — SEWER
- GAS — GAS
- W — WATER
- 13241 F004 — CLAYTON COUNTY TAX PARCEL ID
- RAVINE (APPROXIMATE)

NOTES:

1. MONITORING WELL NETWORK WAS SURVEYED ON JULY 24, 2013 BY TRAVIS PRUITT & ASSOCIATES, INC.
2. MW-2A/B/C MONITORING WELLS WERE ABANDONED IN 2013 IN PREPARATION FOR SOIL REMEDIATION.
3. STREAM LOCATION AND RAVINE ARE BASED ON FIELD RECONNAISSANCE, SURVEY LOCATION OF STAFF GAUGE AND ON-LINE AERIAL MAP (WWW.BING.COM).
4. STORMWATER RETENTION POND LOCATION IS BASED ON FIELD RECONNAISSANCE AND ON-LINE AERIAL MAP (WWW.BING.COM).
5. NEW MONITORING WELLS (MW-19D, MW-21B/C, MW-22A/B) AND EXISTING MONITORING WELLS MW-10A/B/C AND MW-11A/B/C SURVEYED BY TRAVIS PRUITT ON NOVEMBER 12, 2014.
6. NEW MONITORING WELLS MW-15C, MW-24C, AND MW-23A/B SURVEYED BY TRAVIS PRUITT ON JULY 16, 2015.

LAND LOTS 242
13TH DISTRICT
CLAYTON COUNTY
GEORGIA

© Copyright 2007
Survey fieldwork performed on: March 2, 2007.
Travis Pruitt & Associates, Inc. Survey
Updated July 24, 2013, November 12, 2014 & July 17, 2015.

Grid North (GA West Zone)

0 60 120 240

GRAPHIC SCALE (FEET)

EHS Support consider it done

REVISIONS				
Rev.		By:	Disc.: Map scale updated based on Clayton County GIS Viewer	Date: 02/2016
Rev.		By:	Disc.:	Date:
Rev.		By:	Disc.:	Date:
Rev.		By:	Disc.:	Date:

TARA HOLDINGS
8564 TARA BOULEVARD
JONESBORO, GEORGIA

FIGURE 14
MONITORING WELL NETWORK

Drawn By:	MDO	Date Drawn:	02/2016
Reviewed By:	MSS	Date Reviewed:	02/2016
Scale:	1" = 60'	Plot Date:	02/2016
Project No.:	C00342	Figure 14	

APPENDIX J

Surface Water Exposure Risk Assessment Memo

MEMO

To: Michael Dever, Ashland Inc.

Cc: Michelle Stayrook

From: Tom Biksey

Date: March 11, 2016

Re: **Alterman – Surface Water Risk Assessment Memorandum**

Introduction

The purpose of this memorandum (memo) is to present the findings of a focused surface water risk assessment conducted pursuant to the potential for residential child receptors to be exposed to constituents of potential concern (COPCs) in the unnamed creek. In addition, site-specific target levels were calculated for the surface water point of exposure from groundwater discharge to the unnamed creek. The purpose of the target levels was to evaluate future surface water sampling events to assess the potential for risk to the residential child receptors.

Corrective action activities were completed at the former dry cleaner property (Site) located in the Tara Shopping Center in 2013 to address source area soil affects at the Site. Groundwater investigation activities were completed between 2006 and 2015 to determine the nature and extent of groundwater impacts, primarily tetrachloroethene (PCE) and degradation products migrating off-site. In a letter dated December 17, 2015, the Georgia Environmental Protection Division (EPD) approved investigation activities completed to identify the nature and extent of groundwater impacts. Proposed corrective action activities for affected off-site commercial/industrial properties will include Streamlined Uniform Environmental Covenants restricting groundwater use at each property.

Because the creek flows northwest through a residential area, an assessment of potential risks to human receptors from exposure to surface water was completed. The COPCs were identified based on previous investigations that determined the nature and extent of affected groundwater that may discharge into the unnamed creek, and the detection of COPCs related to the Site up gradient of the unnamed creek. The focused risk assessment for the residential child receptor determined that there were no unacceptable risks from exposure to COPCs in surface water in the unnamed creek. In addition, surface water sampling results to date were well below the site-specific target levels were calculated for the surface water point of exposure from groundwater discharge to the unnamed creek.

Preliminary Conceptual Exposure Model

The Site is situated within the watershed to the headwaters of the Flint River. Within this watershed, down-gradient discharge boundaries for groundwater are the surface drainage features including the unnamed creek located immediately west of Tara Boulevard and the Site, an unnamed tributary to the headwater of Cleburne's Creek (south of the Site), and ultimately to the Flint River. The unnamed creek is the discharge boundary for groundwater leaving the Site mostly because of its proximity, it is deeply incised into the bedrock, and it intercepts the water-table.

The unnamed creek can be characterized as a highly urbanized, low quality creek. In the upper reaches of the system (immediately west of the Site), the surface water is contained within culverts and pipes discharging to an open channel up gradient of SS-1. Evidence of high sediment loadings, waste, and debris are evident in the creek bed consistent with the highly urbanized nature of the area. On the basis of the creek characteristics, this ecological setting can be considered low quality.

Three surface water samples were collected from the unnamed creek on July 16, 2015 (SS-1, SS-2, and OF-2), and analyzed for volatile organic compounds (VOCs) using U.S. Environmental Protection Agency (USEPA) Method 8260B. Surface water sample SS-1 was collected at the surveyed creek gauge location (SG-1). Surface water sample SS-2 was collected approximately 50 feet downstream of SS-1. The location of SS-2 was surveyed on July 17, 2015. A surface water sample (OF2) was collected immediately downstream of the storm water culvert (outfall) entering the creek from the Flint River Shopping Center south of the creek. A surface water sample was proposed from the storm water outfall entering the creek from north and up gradient of OF-2. Based on the overgrowth and the terrain, the location of the culvert was not identified; therefore, no sample was collected. The location of SS-1, SS-2, and OF-2 are depicted on **Attachment 1** (Figure 14 of Groundwater Corrective Active Work Plan). **Table 1** (Source: Table 6 - Summary of Surface Water Analytical Results - July 2015, from Aug 2015 Annual Progress Report) presents the results of the surface water sampling for identified sampling locations.

Based on the residential area downstream of affected surface water, the potential current and future receptor identified includes a residential child exposed to surface water within the unnamed creek via incidental ingestion and dermal contact.

Hazard Identification

The purpose of the hazard identification process is to summarize the environmental media data, and to screen the data to determine the constituents of concern (COCs) that will be evaluated further in the risk assessment process. The COCs are selected based on a number of criteria such as toxicity, frequency of detection, and the concentration in the ambient water. The purpose of the selection of COCs is to focus the risk assessment on the potential constituents that are the risk-drivers with regard to the exposure of the child receptor to the surface waters in the unnamed creek.

Selection of Constituents of Concern

Tis section identifies the COCs for evaluation in the risk assessment. The selection of COCs is based on comparing the maximum measured concentration of each COPC with toxicity-based screening concentrations. Currently, there are no State Risk Reduction Standards (RRS), State water quality standards (WQS), or USEPA's Regional Screening Levels (RSL) to conduct a risk-based screening of the COPCs identified in the surface water samples that are applicable to the exposure to a residential child playing in the unnamed creek. Therefore, for purposes of this focused surface water risk assessment, all detected COPCs in the surface water of the unnamed creek were selected as COCs for further evaluation in the exposure assessment.

Exposure and Toxicity Assessment

The purpose of the exposure assessment is to predict the magnitude and frequency of potential human exposure to residual COCs in the unnamed creek downstream of the Site. The preliminary conceptual site

model identified the current and future land use adjacent to the unnamed creek, the sampling investigation that was conducted, and the potential receptors for the exposure assessment.

Exposure Point Concentrations

Surface water exposure point concentrations (EPCs) were based on reasonable maximum exposure (RME) scenario. The EPC for surface water exposure scenarios was the 95 percent upper confidence level (UCL) of the mean, calculated using ProUCL, and was dependent on the distribution of the data. If the 95 percent UCL exceeds the maximum detected concentration of a COC, then the corresponding maximum concentration is used as the EPC. This typically occurs when less than 6 samples are used in the UCL calculation. All COCs detected at least once within the surface water sample locations were included in the calculation of the EPC. Because there were only three surface water samples, the maximum COC concentration was used as the EPC. For the detected COCs including PCE, trichloroethene (TCE), and cis-1,2 dichloroethene (DCE), concentrations from sampling location OF-2 (Table 1) were used as the EPC for the exposure assessment.

Exposure Assumptions

The exposure assumptions used were based on site-specific conditions or default exposure assumptions presented in the RRS guidance and applicable USEPA guidance. For the surface water exposure pathway, default exposure assumptions were not available or not applicable to current or future Site conditions. In these instances, best professional judgment was used to select appropriate exposure assumptions for the exposure pathway.

The residential child exposure scenario was based on recreational activities in the unnamed creek. The residential child receptor site-specific exposure assumptions included a child-teenage exposure duration of 2 to 16 years, with sub-exposure durations of 2 to 6 years, and 6 to 16 years. For other exposure parameters, as indicated in the USEPA RSL User's Guide, default recreational exposure parameters are not provided for exposure frequency, exposure time, and events per day because recreational activities vary greatly and should be derived on a site-specific basis. Therefore, based on the potential for the residential child to frequent the site (e.g., location, ease of access, and relative proximity), an exposure frequency of 60 and 120 days per year was selected for the 2 to 6 and 6 to 16 sub-exposure duration for an average or central tendency of exposure frequency, and 120 and 160 days per year for the RME exposure frequency. This provided an inherent sensitivity analysis based on the potential for exposure during the spring, summer, and fall months, and also takes into account the potential for exposure is greater in southern states versus northern states. The exposure time is one hour per event, and there was one event per day.

Tables 2 and **3** present the applicable exposure assumptions for the potential current and future residential child receptor for the two exposure frequencies for the residential child receptor. **Tables 4** and **5** present the calculated intermediate exposure assumptions.

Toxicological Assessment

The toxicity assessment determines the relationship between the dose of a COC taken into the body, and the probability that an adverse effect will result from that dose. The primary sources of toxicity values used in the RSL calculator include:

- EPA's Integrated Risk Information System (IRIS)
- Provisional Peer Reviewed Toxicity Values (PPRTVs) derived by EPA's Superfund Health Risk Technical Support Center (STSC) for the EPA Superfund program
- Agency for Toxic Substances and Disease Registry (ATSDR) minimal risk levels (MRLs)

- California Environmental Protection Agency (OEHHA) Office of Environmental Health Hazard Assessment's Chronic Reference Exposure Levels (RELS) from June 2014 and the Cancer Potency Values(PDF) from July 21, 2009 with updates in 2011

Tables 4 and **5** present the toxicity criteria used in the risk assessment.

Risk Characterization

The purpose of the risk characterization is to provide a conservative estimate of the potential risk resulting from exposure to COCs identified in the surface water of the unnamed creek downgradient of the Site. This section includes a quantitative estimate of potential carcinogenic and non-carcinogenic risks for the two residential child surface water exposure scenarios using the USEPA RSL calculator.

Risk Estimate

The RSL calculator used both default and site-specific exposure assumptions (discussed above) that were appropriate for the potential current and future residential child receptor participating in recreational activities in surface water that are not generic exposure assumptions and pathways on the RSL website (or RRS guidance). Cancer risk is expressed as a lifetime probability of experiencing cancer from exposure to COCs. Carcinogenic risks were estimated in the focused risk assessment by summing the excess lifetime cancer risk over both exposure pathways and comparing the cumulative risk to USEPA's and EPDs target risk range of 1×10^{-4} to 1×10^{-6}. Concentrations of COCs that generate potential risks that occur within this target risk range for known or suspected carcinogens are considered acceptable exposure levels per the National Oil and Hazardous Substances Pollution Contingency Plan (40 CFR Part 300). The EPD's acceptable limit for cumulative cancer risk is 1×10^{-5} for risk management purposed, as presented in their RRS guidance. For non-carcinogens, the individual hazard quotients (HQs) were summed for an overall hazard index (HI). If the HI is less than 1.0, then no adverse health effects are likely associated with exposures at the Site.

Risk Results

In accordance with the EPD RRS and USEPA guidance, risks were summed across pathways for the surface water for each residential child surface water exposure scenarios. **Tables 6** and **7** present the carcinogenic risks and noncancerous health hazards estimated for two residential child surface water exposure scenarios. The following discusses each receptor in the context of the current and future land use exposure scenarios.

Scenario 1: Child - 60 and 120 days per year

The current and future residential child receptor that is exposed for 60 days (2 to 6 years) and 120 days (6 to 16 years) to surface water COCs via incidental ingestion and dermal contact direct contact had a HI of 0.14 (child) and 0.16 (adult), and was below the acceptable limit (i.e., 1.0); the cumulative cancer risk (5.9×10^{-7}) was below the acceptable target cancer risk.

Scenario 2: Child - 120 and 160 days per year

The current and future residential child receptor that is exposed for 120 days (2 to 6 years) and 160 days (6 to 16 years) to surface water COCs via incidental ingestion and dermal contact direct contact had a HI of 0.29 (child) and 0.21 (adult), and was below the acceptable limit (i.e., 1.0); the cumulative cancer risk (8.9×10^{-7}) was below the acceptable target cancer risk.

Site-specific Target Level

Site-specific target levels were calculated for the point of exposure in surface water from groundwater discharge to the unnamed creek. The purpose of the target levels was to evaluate future surface water sampling events to assess the potential for risk to the residential child receptor. The target levels were calculated using the same exposure assumptions and toxicological criteria presented above for the risk characterization, and EPD's acceptable limit for cancer risk of 1×10^{-5} and non-carcinogenic risk of a HQ of 1.

Tables 8 and **9** present the site-specific individual carcinogenic and non-carcinogenic target levels for surface water exposure via incidental ingestion and dermal contact for the two residential child surface water exposure scenarios. The following provides the final target levels for each exposure scenario based on the non-carcinogenic acceptable risk:

Child Residential Receptor - Target Levels (µg/L)		
COC	**60 days (2-6) and 120 days (6-16)**	**120 days (2-6) and 160 days (6-16)**
Tetrachloroethylene	780	452
Trichloroethylene	218	111
Cis-1,2-Dichloroethylene	1,070	534

Conclusion

The focused risk assessment for the residential child receptor determined that there were no unacceptable risks from exposure to COPCs in the surface water in the unnamed creek. In addition, surface water sampling results to date were well below the site-specific target levels calculated for the surface water point of exposure from groundwater discharge to the unnamed creek. The target levels will be used to assess the potential for risk to the residential child receptor from COPCs detected in future surface water sampling events.

TABLES

Table 1 - Summary of Surface Water Analytical Results - July 2015
Tara Shopping Center, 8564 Tara Boulevard, Jonesboro, GA

Sample ID	Georgia In Stream Water Quality Standards (ISWQSs) May 2015	OF-2	SS-1	SS-2
Lab Sample Number		**680-114593-2**	**680-114593-3**	**680-114593-4**
Sampling Date		07/16/2015 10:30:00	7/16/2015	7/16/2015
Matrix		Water	Water	Water
Dilution Factor		1	1	1
Units		ug/L	ug/L	ug/L
GC/MS VOA - 8260B		Low	Low	Low
Constituents of Concern				
Tetrachloroethene	3.3	**76**	**36**	**17**
Trichloroethene	30	**12**	**2.7**	1 U
cis-1,2-Dichloroethene	NA	**5.9**	**2.3**	1 U
Vinyl chloride	2.4	1 U	1 U	1 U
Other VOC Compounds				
1,1,1-Trichloroethane		1 U	1 U	1 U
1,1,2,2-Tetrachloroethane		1 U	1 U	1 U
1,1,2-Trichloroethane		1 U	1 U	1 U
1,1-Dichloroethane		1 U	1 U	1 U
1,1-Dichloroethene		1 U	1 U	1 U
1,2-Dichloroethane		1 U	1 U	1 U
1,2-Dichloropropane		1 U	1 U	1 U
2-Butanone (MEK)		10 U	10 U	10 U
2-Hexanone		10 U	10 U	10 U
4-Methyl-2-pentanone (MIBK)		10 U	10 U	10 U
Acetone		10 U	10 U	10 U
Benzene		1 U	1 U	1 U
Bromoform		1 U	1 U	1 U
Bromomethane		5 U	5 U	5 U
Carbon disulfide		2 U	2 U	2 U
Carbon tetrachloride		1 U	1 U	1 U
Chlorobenzene		1 U	1 U	1 U
Chlorodibromomethane		1 U	1 U	1 U
Chloroethane		5 U	5 U	5 U
Chloroform		1 U	1 U	1 U
Chloromethane		1 U	1 U	1 U
cis-1,3-Dichloropropene		1 U	1 U	1 U
Dichlorobromomethane		1 U	1 U	1 U
Ethylbenzene		1 U	1 U	1 U
Methylene Chloride		5 U	5 U	5 U
Styrene		1 U	1 U	1 U
Toluene		1 U	1 U	1 U
trans-1,2-Dichloroethene		1 U	1 U	1 U
trans-1,3-Dichloropropene		1 U	1 U	1 U
Xylenes, Total		1 U	1 U	1 U
Total VOCs		93.9	41	17

QUALIFIERS

µg/L - micrograms per liter

U - value not detected above the laboratory reporting limit.

Yellow - exceeds Georgia In Stream Water Quality Standards (ISWQSs) May 2015 (391-3-6-.03)

Table 2 Exposure Assumptions - 60 days (2-6) and 120 days (6-16)
Child Residential Receptor Equation Inputs for Surface Water

Variable	Value
TR (target cancer risk) unitless	0.000001
THQ (target hazard quotient) unitless	1
ED_{rec} (exposure duration - recreator) year	14
$ED_{rec\text{-}a}$ (exposure duration - adult) year	10
$ED_{rec\text{-}c}$ (exposure duration - child) year	4
$ED_{0\text{-}2}$ (mutagenic exposure duration) year	0
$ED_{2\text{-}6}$ (mutagenic exposure duration) year	4
$ED_{6\text{-}16}$ (mutagenic exposure duration) year	10
$ED_{16\text{-}30}$ (mutagenic exposure duration) year	0
THQ (target hazard quotient) unitless	1
LT (lifetime - recreator) year	70
EF (exposure frequency) day/year	102.857
$EF_{rec\text{-}a}$ (adult exposure frequency) day/year	120
$EF_{rec\text{-}c}$ (child exposure frequency) day/year	60
$EF_{0\text{-}2}$ (mutagenic exposure frequency) day/year	0
$EF_{2\text{-}6}$ (mutagenic exposure frequency) day/year	60
$EF_{6\text{-}16}$ (mutagenic exposure frequency) day/year	120
$EF_{16\text{-}30}$ (mutagenic exposure frequency) day/year	0
$ET_{rec\text{-}adj}$ (age-adjusted exposure time) hour/event	1
$ET_{rec\text{-}madj}$ (mutagenic age-adjusted exposure time) hour/event	1
$ET_{rec\text{-}a}$ (adult exposure time) hour/event	1
$ET_{rec\text{-}c}$ (child exposure time) hour/event	1
$ET_{0\text{-}2}$ (mutagenic exposure time) hour/event	0
$ET_{2\text{-}6}$ (mutagenic exposure time) hour/event	1
$ET_{6\text{-}16}$ (mutagenic exposure time) hour/event	1
$ET_{16\text{-}30}$ (mutagenic exposure time) hour/event	0
$EV_{rec\text{-}a}$ (adult) events/day	1
$EV_{rec\text{-}c}$ (child) events/day	1
$EV_{0\text{-}2}$ (mutagenic) events/day	0
$EV_{2\text{-}6}$ (mutagenic) events/day	1
$EV_{6\text{-}16}$ (mutagenic) events/day	1
$EV_{16\text{-}30}$ (mutagenic) events/day	0
$BW_{rec\text{-}c}$ (body weight - child) kg	15
$BW_{rec\text{-}a}$ (body weight - adult) kg	80
$BW_{0\text{-}2}$ (mutagenic body weight) kg	0
$BW_{2\text{-}6}$ (mutagenic body weight) kg	15
$BW_{6\text{-}16}$ (mutagenic body weight) kg	80
$BW_{16\text{-}30}$ (mutagenic body weight) kg	0
$SA_{rec\text{-}c}$ (skin surface area - child) cm^2	6378
$SA_{rec\text{-}a}$ (skin surface area - adult) cm^2	20900
$SA_{0\text{-}2}$ (skin surface area - mutagenic) cm^2	0
$SA_{2\text{-}6}$ (skin surface area - mutagenic) cm^2	6378
$SA_{6\text{-}16}$ (skin surface area - mutagenic) cm^2	20900
$SA_{16\text{-}30}$ (skin surface area - mutagenic) cm^2	0
$SA_{0\text{-}2}$ (mutagenic skin surface area) cm^2	0

Table 2 Exposure Assumptions - 60 days (2-6) and 120 days (6-16)
Child Residential Receptor Equation Inputs for Surface Water

Variable	Value
$SA_{2\text{-}6}$ (mutagenic skin surface area) cm^2	6378
$SA_{6\text{-}16}$ (mutagenic skin surface area) cm^2	20900
$SA_{16\text{-}30}$ (mutagenic skin surface area) cm^2	0
$IFW_{rec\text{-}adj}$ (age-adjusted water intake rate) L/kg	1.55
$IFWM_{rec\text{-}adj}$ (mutagenic age-adjusted water intake rate) L/kg	4.65
$DFW_{rec\text{-}adj}$ (age-adjusted dermal factor) cm^2-event/kg	415548
$DFWM_{rec\text{-}adj}$ (mutagenic age-adjusted dermal factor) cm^2-event/kg	1246644
$IRW_{rec\text{-}a}$ (water intake rate - adult) L/day	0.05
$IRW_{rec\text{-}c}$ (water intake rate - child) L/day	0.05
$IRW_{0\text{-}2}$ (mutagenic water intake rate) L/day	0
$IRW_{2\text{-}6}$ (mutagenic water intake rate) L/day	0.05
$IRW_{6\text{-}16}$ (mutagenic water intake rate) L/day	0.05
$IRW_{16\text{-}30}$ (mutagenic water intake rate) L/day	0
l_{sc} (apparent thickness of stratum corneum) cm	0.001

Table 3 Exposure Assumptions - 120 days (2-6) and 160 days (6-16)
Child Residential Receptor Equation Inputs for Surface Water

Variable	Value
TR (target cancer risk) unitless	0.000001
THQ (target hazard quotient) unitless	1
ED_{rec} (exposure duration - recreator) year	14
$ED_{rec\text{-}a}$ (exposure duration - adult) year	10
$ED_{rec\text{-}c}$ (exposure duration - child) year	4
$ED_{0\text{-}2}$ (mutagenic exposure duration) year	0
$ED_{2\text{-}6}$ (mutagenic exposure duration) year	4
$ED_{6\text{-}16}$ (mutagenic exposure duration) year	10
$ED_{16\text{-}30}$ (mutagenic exposure duration) year	0
THQ (target hazard quotient) unitless	1
LT (lifetime - recreator) year	70
EF (exposure frequency) day/year	148.571
$EF_{rec\text{-}a}$ (adult exposure frequency) day/year	160
$EF_{rec\text{-}c}$ (child exposure frequency) day/year	120
$EF_{0\text{-}2}$ (mutagenic exposure frequency) day/year	0
$EF_{2\text{-}6}$ (mutagenic exposure frequency) day/year	120
$EF_{6\text{-}16}$ (mutagenic exposure frequency) day/year	160
$EF_{16\text{-}30}$ (mutagenic exposure frequency) day/year	0
$ET_{rec\text{-}adj}$ (age-adjusted exposure time) hour/event	1
$ET_{rec\text{-}madj}$ (mutagenic age-adjusted exposure time) hour/event	1
$ET_{rec\text{-}a}$ (adult exposure time) hour/event	1
$ET_{rec\text{-}c}$ (child exposure time) hour/event	1
$ET_{0\text{-}2}$ (mutagenic exposure time) hour/event	0
$ET_{2\text{-}6}$ (mutagenic exposure time) hour/event	1
$ET_{6\text{-}16}$ (mutagenic exposure time) hour/event	1
$ET_{16\text{-}30}$ (mutagenic exposure time) hour/event	0
$EV_{rec\text{-}a}$ (adult) events/day	1
$EV_{rec\text{-}c}$ (child) events/day	1
$EV_{0\text{-}2}$ (mutagenic) events/day	0
$EV_{2\text{-}6}$ (mutagenic) events/day	1
$EV_{6\text{-}16}$ (mutagenic) events/day	1
$EV_{16\text{-}30}$ (mutagenic) events/day	0
$BW_{rec\text{-}c}$ (body weight - child) kg	15
$BW_{rec\text{-}a}$ (body weight - adult) kg	80
$BW_{0\text{-}2}$ (mutagenic body weight) kg	0
$BW_{2\text{-}6}$ (mutagenic body weight) kg	15
$BW_{6\text{-}16}$ (mutagenic body weight) kg	80
$BW_{16\text{-}30}$ (mutagenic body weight) kg	0
$SA_{rec\text{-}c}$ (skin surface area - child) cm^2	6378
$SA_{rec\text{-}a}$ (skin surface area - adult) cm^2	20900
$SA_{0\text{-}2}$ (skin surface area - mutagenic) cm^2	0
$SA_{2\text{-}6}$ (skin surface area - mutagenic) cm^2	6378
$SA_{6\text{-}16}$ (skin surface area - mutagenic) cm^2	20900
$SA_{16\text{-}30}$ (skin surface area - mutagenic) cm^2	0
$SA_{0\text{-}2}$ (mutagenic skin surface area) cm^2	0

Table 3 Exposure Assumptions - 120 days (2-6) and 160 days (6-16)
Child Residential Receptor Equation Inputs for Surface Water

Variable	Value
$SA_{2\text{-}6}$ (mutagenic skin surface area) cm^2	6378
$SA_{6\text{-}16}$ (mutagenic skin surface area) cm^2	20900
$SA_{16\text{-}30}$ (mutagenic skin surface area) cm^2	0
$IFW_{rec\text{-}adj}$ (age-adjusted water intake rate) L/kg	2.6
$IFWM_{rec\text{-}adj}$ (mutagenic age-adjusted water intake rate) L/kg	7.8
$DFW_{rec\text{-}adj}$ (age-adjusted dermal factor) cm^2-event/kg	622096
$DFWM_{rec\text{-}adj}$ (mutagenic age-adjusted dermal factor) cm^2-event/kg	1866288
$IRW_{rec\text{-}a}$ (water intake rate - adult) L/day	0.05
$IRW_{rec\text{-}c}$ (water intake rate - child) L/day	0.05
$IRW_{0\text{-}2}$ (mutagenic water intake rate) L/day	0
$IRW_{2\text{-}6}$ (mutagenic water intake rate) L/day	0.05
$IRW_{6\text{-}16}$ (mutagenic water intake rate) L/day	0.05
$IRW_{16\text{-}30}$ (mutagenic water intake rate) L/day	0
l_{sc} (apparent thickness of stratum corneum) cm	0.001

Table 4 Toxicity and Exposure Calculations

Child Residential Receptor - 60 days (2-6) and 120 days (6-16)

Chemical	Ingestion SF (mg/kg-day)$^{-1}$	SFO Ref	Chronic RfD (mg/kg-day)	Chronic RfD Ref	Chronic RfC (mg/m^3)	Chronic RfC Ref	RAGS GIABS (unitless)	K_p (cm/hr)	MW	pi	logds	dsclc	dsc	littleb	B	tstar	tau_event	FA	DAeventc	DAeventnc	DAeventna
Dichloroethylene, 1,2-cis-	-		0.002	I	-		1	0.011	96.944	3.1415927	-3.342886	0.0004541	4.5406E-07	0.3291034	0.0416562	0.8809401	0.3670584	1	-	0.028614	0.0232855
Tetrachloroethylene	0.0021	I	0.006	I	0.04	I	1	0.0334	165.83	3.1415927	-3.728648	0.0001868	1.8679E-07	0.4132241	0.1654263	2.1414503	0.8922709	1	0.0292786	0.085842	0.0698565
Trichloroethylene	0.046	I	0.0005	I	0.002	I	1	0.0116	131.39	3.1415927	-3.535784	0.0002912	2.9122E-07	0.3351426	0.0511406	1.3735485	0.5723119	1	0.000948	0.0071535	0.0058214
*Total Risk/HI	-		-		-		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Table 5 Toxicity and Exposure Calculations

Child Residential Receptor - 120 days (2-6) and 160 days (6-16)

Chemical	Ingestion SF (mg/kg-day)$^{-1}$	Chronic RfD (mg/kg-day)	Chronic RfC (mg/m^3)	RAGS GIABS (unitless)	K_p (cm/hr)	MW	pi	logds	dsclc	dsc	littleb	B	tstar	tau_event	FA	DAeventc	DAeventnc	DAeventna
Dichloroethylene, 1,2-cis-	-	0.002	-	1	0.011	96.944	3.1415927	-3.342886	0.0004541	4.5406E-07	0.3291034	0.0416562	0.8809401	0.3670584	1	-	0.014307	0.0174641
Tetrachloroethylene	0.0021	0.006	0.04	1	0.0334	165.83	3.1415927	-3.728648	0.0001868	1.8679E-07	0.4132241	0.1654263	2.1414503	0.8922709	1	0.0195575	0.042921	0.0523923
Trichloroethylene	0.046	0.0005	0.002	1	0.0116	131.39	3.1415927	-3.535784	0.0002912	2.9122E-07	0.3351426	0.0511406	1.3735485	0.5723119	1	0.0006332	0.0035767	0.004366
*Total Risk/HI	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Table 6 Risk Characterization

Child Residential Receptor - 60 days (2-6) and 120 days (6-16)

Chemical	Ingestion Risk	Dermal Risk	Carcinogenic Risk	Ingestion Child HQ	Dermal Child HQ	Noncarcinogenic Child HQ	Ingestion Adult HQ	Dermal Adult HQ	Noncarcinogenic Adult HQ
Dichloroethylene, 1,2-cis-	-	-	-	1.6E-03	3.9E-03	5.5E-03	6.1E-04	4.8E-03	5.4E-03
Tetrachloroethylene	9.7E-09	2.3E-07	2.4E-07	6.9E-03	7.7E-02	8.4E-02	2.6E-03	9.5E-02	9.8E-02
Trichloroethylene	4.7E-08	3.1E-07	3.5E-07	1.3E-02	4.1E-02	5.4E-02	4.9E-03	5.0E-02	5.5E-02
*Total Risk/HI	5.7E-08	5.3E-07	5.9E-07	2.2E-02	1.2E-01	1.4E-01	8.1E-03	1.5E-01	1.6E-01

Table 7 Risk Characterization

Child Residential Receptor - 120 days (2-6) and 160 days (6-16)

Chemical	Ingestion Risk	Dermal Risk	Carcinogenic Risk	Ingestion Child HQ	Dermal Child HQ	Noncarcinogenic Child HQ	Ingestion Adult HQ	Dermal Adult HQ	Noncarcinogenic Adult HQ
Dichloroethylene, 1,2-cis-	-	-	-	3.2E-03	7.8E-03	1.1E-02	8.1E-04	6.4E-03	7.2E-03
Tetrachloroethylene	1.6E-08	3.4E-07	3.6E-07	1.4E-02	1.5E-01	1.7E-01	3.5E-03	1.3E-01	1.3E-01
Trichloroethylene	7.9E-08	4.6E-07	5.4E-07	2.6E-02	8.1E-02	1.1E-01	6.6E-03	6.7E-02	7.3E-02
**Total Risk/HI*	*9.5E-08*	*8.0E-07*	*8.9E-07*	*4.3E-02*	*2.4E-01*	*2.9E-01*	*1.1E-02*	*2.0E-01*	*2.1E-01*

Table 8 Target Levels

Child Residential Receptor - 60 days (2-6) and 120 days (6-16)

Chemical	CAS Number	Ingestion SL TR=1.0E-5 (µg/L)	Dermal SL TR=1.0E-5 (µg/L)	Carcinogenic SL TR=1.0E-5 (µg/L)	Ingestion SL (Child) THQ=1 (µg/L)	Dermal SL (Child) THQ=1 (µg/L)	Noncarcinogenic SL (Child) THQ=1 µ(g/L)	Ingestion SL (Adult) THQ=1 (µg/L)	Dermal SL (Adult) THQ=1 (µg/L)	Noncarcinogenic SL (Adult) THQ=1 (µg/L)	Screening Level (µg/L)
Dichloroethylene, 1,2-cis-	156-59-2	-	-	-	3.65E+03	1.51E+03	1.07E+03	9.73E+03	1.23E+03	1.09E+03	1.07E+03 nc
Tetrachloroethylene	127-18-4	7.85E+04	3.36E+03	3.22E+03	1.10E+04	9.84E+02	9.03E+02	2.92E+04	8.01E+02	7.80E+02	7.80E+02 nc
Trichloroethylene	79-01-6	2.54E+03	3.91E+02	3.39E+02	9.13E+02	2.95E+02	2.23E+02	2.43E+03	2.40E+02	2.18E+02	2.18E+02 nc

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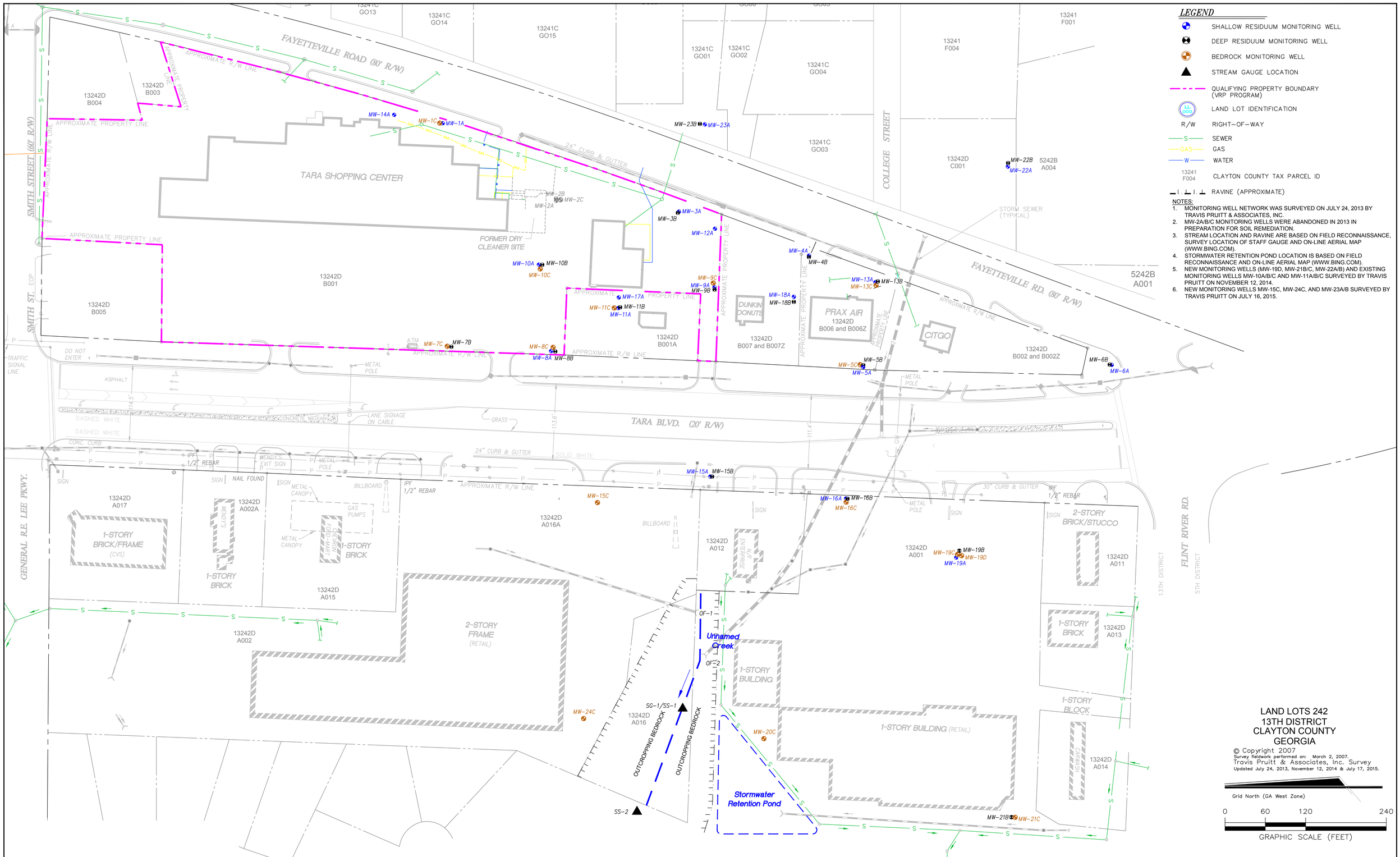
Table 9 Target Levels

Child Residential Receptor - 120 days (2-6) and 160 days (6-16)

Chemical	CAS Number	Ingestion SL TR=1.0E-5 (µg/L)	Dermal SL TR=1.0E-5 (µg/L)	Carcinogenic SL TR=1.0E-5 (µg/L)	Ingestion SL (Child) THQ=1 (µg/L)	Dermal SL (Child) THQ=1 (µg/L)	Noncarcinogenic SL (Child) THQ=1 µ(g/L)	Ingestion SL (Adult) THQ=1 (µg/L)	Dermal SL (Adult) THQ=1 (µg/L)	Noncarcinogenic SL (Adult) THQ=1 (µg/L)	Screening Level (µg/L)
Dichloroethylene, 1,2-cis-	156-59-2	-	-	-	1.83E+03	7.54E+02	5.34E+02	7.30E+03	9.21E+02	8.17E+02	5.34E+02 nc
Tetrachloroethylene	127-18-4	4.68E+04	2.24E+03	2.14E+03	5.48E+03	4.92E+02	4.52E+02	2.19E+04	6.01E+02	5.85E+02	4.52E+02 nc
Trichloroethylene	79-01-6	1.52E+03	2.61E+02	2.23E+02	4.56E+02	1.47E+02	1.11E+02	1.83E+03	1.80E+02	1.64E+02	1.11E+02 nc

Output generated 11FEB2016:11:05:51

ATTACHMENT 1 – FIGURE



LEGEND

- SHALLOW RESIDUUM MONITORING WELL
- DEEP RESIDUUM MONITORING WELL
- BEDROCK MONITORING WELL
- STREAM GAUGE LOCATION
- QUALIFYING PROPERTY BOUNDARY (VRP PROGRAM)
- LAND LOT IDENTIFICATION
- R/W — RIGHT-OF-WAY
- S — SEWER
- GAS — GAS
- W — WATER
- 13241 F004 — CLAYTON COUNTY TAX PARCEL ID
- RAVINE (APPROXIMATE)

NOTES:

1. MONITORING WELL NETWORK WAS SURVEYED ON JULY 24, 2013 BY TRAVIS PRUITT & ASSOCIATES, INC.
2. MW-2A/B/C MONITORING WELLS WERE ABANDONED IN 2013 IN PREPARATION FOR SOIL REMEDIATION.
3. STREAM LOCATION AND RAVINE ARE BASED ON FIELD RECONNAISSANCE, SURVEY LOCATION OF STAFF GAUGE AND ON-LINE AERIAL MAP (WWW.BING.COM).
4. STORMWATER RETENTION POND LOCATION IS BASED ON FIELD RECONNAISSANCE AND ON-LINE AERIAL MAP (WWW.BING.COM).
5. NEW MONITORING WELLS (MW-19D, MW-21B/C, MW-22A/B) AND EXISTING MONITORING WELLS MW-10A/B/C AND MW-11A/B/C SURVEYED BY TRAVIS PRUITT ON NOVEMBER 12, 2014.
6. NEW MONITORING WELLS MW-15C, MW-24C, AND MW-23A/B SURVEYED BY TRAVIS PRUITT ON JULY 16, 2015.

LAND LOTS 242
13TH DISTRICT
CLAYTON COUNTY
GEORGIA

© Copyright 2007
Survey fieldwork performed on: March 2, 2007.
Travis Pruitt & Associates, Inc. Survey
Updated July 24, 2013, November 12, 2014 & July 17, 2015.

Grid North (GA West Zone)

0 60 120 240

GRAPHIC SCALE (FEET)

EHS Support consider it done

REVISIONS				
Rev.		By:	Disc.: Map scale updated based on Clayton County GIS Viewer	Date: 02/2016
Rev.		By:	Disc.:	Date:
Rev.		By:	Disc.:	Date:
Rev.		By:	Disc.:	Date:

TARA HOLDINGS
8564 TARA BOULEVARD
JONESBORO, GEORGIA

FIGURE 14
MONITORING WELL NETWORK

Drawn By:	MDO	Date Drawn:	02/2016
Reviewed By:	MSS	Date Reviewed:	02/2016
Scale:	1" = 60'	Plot Date:	02/2016
Project No.:	C00342	Figure 14	

APPENDIX K

Streamlined Uniform Environmental Covenant

After Recording Return to:

<Grantor or Holder Point Of Contact>

CROSS-REFERENCE: Deed Book:
Page:

Environmental Covenant

This instrument is an Environmental Covenant executed for the property identified below (hereinafter "the Property") as part of an environmental response project to address regulated substances released into the environment that have migrated onto the Property in the groundwater. This Environmental Covenant restricts the use of groundwater on the Property to prevent humans from coming into contact with regulated substances.

Fee Owner of Property/Grantor: <Company Name or individual(s)> (hereinafter "Grantor")
<Mailing address>

Grantee/Holder: <Company Name or individual(s) representing source property> (hereinafter "Grantee/Holder")
<Mailing address>

Grantee/Entity with express power to enforce:
State of Georgia
Department of Natural Resources
Environmental Protection Division (hereinafter "EPD")
2 Martin Luther King Jr. Drive, SE
Suite 1456 East Tower
Atlanta, GA 30334

Property Information:

The property subject to this Environmental Covenant is located at <street address> in <city>, <county name> County, Georgia (hereinafter "Property"). This tract of land was conveyed on _____ from ____ to ____ recorded in Deed Book ___, Page ___, <county name> County Records. The Property is located in Land Lot _____ of the ___th District of <county name> County, Georgia. A complete legal description of the Property is attached as Exhibit A.

Tax Parcel Number(s) <Tax ID parcel number> of <insert name> County, Georgia

Name and Location of Administrative Record:

The administrative record for the environmental response project is identified as file <insert file identification number and file name>. This record is available for review at the following location:

Georgia Environmental Protection Division
Response and Remediation Program
2 MLK Jr. Drive, SE, Suite 1054 East Tower
Atlanta, GA 30334
M-F 8:00 AM to 4:30 PM excluding state holidays

Declaration of Covenant:

This Declaration of Covenant is made pursuant to the Georgia Uniform Environmental Covenants Act, O.C.G.A. § 44-16-1 *et seq*. by Grantor, Grantee/Holder, EPD, and their respective successors and assigns.

Grantor makes the following declaration as to restrictions to which the Property may be put and specifies that such declarations shall constitute covenants to run with the land, pursuant to O.C.G.A. § 44-16-5(a); is perpetual, unless modified or terminated pursuant to the terms of this Covenant pursuant to O.C.G.A. § 44-16-9; and shall be binding on all parties and all persons claiming under them, including all current and future owners of any portion of or interest in the Property. Should a transfer or sale of the Property occur before such time as this Environmental Covenant has been amended or revoked then said Environmental Covenant shall be binding on the transferee(s) or purchaser(s).

Grantor hereby binds Grantor, its successors and assigns to the following activity and use limitation for the Property identified herein and grants such other rights under this Environmental Covenant in favor of the Grantee/Holder and EPD.

Activity and/or Use Limitation

Groundwater Use Limitation. The use or extraction of groundwater beneath the Property for drinking water or other potable uses shall be prohibited. The use or extraction of groundwater for any other purpose besides site characterization is prohibited unless conducted under a plan approved in writing by EPD.

General Provisions

Notice of Limitation in Future Conveyances. Each instrument hereafter conveying an interest in the Property subject to this Environmental Covenant shall contain a notice of the activity and use limitation set forth in this Environmental Covenant and shall provide the recorded location of the Environmental Covenant.

Access. Grantor shall provide reasonable access to Grantee/Holder or its assigns to verify compliance for annual reporting to EPD.

Effective Date. The effective date of this Environmental Covenant shall be the date upon which the fully executed Environmental Covenant has been recorded in accordance with OCGA § 44-16-8(a).

Benefit. This Environmental Covenant shall inure to the benefit of Grantee/Holder, EPD, and their respective successors and assigns and shall be enforceable by the Director or his agents or assigns, Grantee/Holder or its successors and assigns, and other party(ies) as provided for in O.C.G.A. § 44-16-11 in a court of competent jurisdiction.

Termination or Modification. This Environmental Covenant shall remain in full force and effect in accordance with O.C.G.A. § 44-16-5, unless and until the Director determines that the Property is in compliance with the Type 1 or 2 Risk Reduction Standards, as defined in Section 391-3-19-.07 of the Georgia Rules of Hazardous Site Response, whereupon the Environmental Covenant may be amended or terminated, as appropriate, in accordance with O.C.G.A. § 44-16-1 *et seq*.

Severability. If any provision of this Environmental Covenant is found to be unenforceable in any respect, the validity, legality, and enforceability of the remaining provisions shall not in any way be affected or impaired.

Warranty. Grantor hereby represents and warrants to the other signatories hereto that the Grantor has the power and authority to enter into this Environmental Covenant, to grant the rights and interests herein provided, and to carry out all obligations hereunder and in accordance with O.C.G.A. § 44-16-1 *et seq*.

Grantor has caused this Environmental Covenant to be executed pursuant to The Georgia Uniform Environmental Covenants Act, on the _____day of _____, 20__.

Signed, sealed, and delivered in the presence of:

_____
Unofficial Witness (*Signature*)

_____
Unofficial Witness Name (*Print*)

_____

_____
Unofficial Witness Address (*Print*)

_____
Notary Public (*Signature*)

My Commission Expires:_____

For Grantor:

_____
Name of Grantor (*Print*)

_____ (Seal)
Authorized Representative (*Signature*)

_____
Authorized Representative Name (*Print*)

_____
Title of Authorized Representative (*Print*)

Dated:_____
(NOTARY SEAL)

Signed, sealed, and delivered in the presence of:

_____
Unofficial Witness (*Signature*)

_____
Unofficial Witness Name (*Print*)

_____

_____
Unofficial Witness Address (*Print*)

_____
Notary Public (*Signature*)

For Grantee/Holder:

_____
Name of Grantee/Holder (*Print*)

_____ (Seal)
Authorized Representative (*Signature*)

_____
Authorized Representative Name (*Print*)

_____
Title of Authorized Representative (*Print*)

Dated:_____

(NOTARY SEAL)

My Commission Expires:_____

Signed, sealed, and delivered in the presence of:

For the State of Georgia
Environmental Protection Division:

_____
Unofficial Witness (*Signature*)

_____ (Seal)
(*Signature*)

_____
Unofficial Witness Name (*Print*)

Judson H. Turner
Director

_____
Unofficial Witness Address (*Print*)

_____
Notary Public (*Signature*)

Dated:_____
(NOTARY SEAL)

My Commission Expires:_____

Exhibit A
Legal Description

APPENDIX L

Tabulated Summary of Professional Engineer and Geologist Time

APPENDIX L
Tabulated Summary of Professional Engineer and Geologist Time (Period August 1, 2015 through February 29, 2016)
Tara Shopping Center, 8564 Tara Boulevard, Jonesboro, GA
Voluntary Remediation Program (HSI 10798)

Professional Service	Date	Hours	Description
Professional Engineer			
Kristin VanLandingham, PE	8/27/2015	4	Reviewed and signed the semi-annual progress report.
Jonathan Waddell, PE	8/3/2015	2	Assessment of natural attenuation parameters, project team call, waste pickup coordination.
	8/5/2015	7.5	Review of natural attenuation data, commute to Jonesboro, GA, collection of creek photos and GPS readings, inspection of drums and investigative derived waste pick-up.
	8/6/2015	0.5	Reviewed bedrock map.
	8/7/2015	2.5	Evaluation of QuantArray Chlor data, evaluation of data.
	8/10/2015	2.5	Evaluation of CSIA results.
	8/11/2015	1.5	Evaluation of CSIZ and TEAPs
	8/14/2015	1	Alterman team meeting
	8/17/2015	3.5	Write up of natural attenuation results, evaluation of Piedmont characteristics relative to site, prep of lines of evaluation.
	8/18/2015	1	Correspondence regarding natural attenuation.
	8/20/2015	0.5	Comments to emails and Mann Kendal explanation.
	8/21/2015	1	Contributions to team emails.
	8/24/2015	1.5	Response to emails, review of CSIA lit, discussions with Peterson regarding CSIA results.
	8/25/2015	1.5	Edits to borehole logs, response to email.
	8/26/2015	0.5	Email uploads and photo/email to Roaza.
	8/27/2015	0.5	Evaluation of SS-2 location.
	9/15/2015	1	Preparation of natural attenuation positional memo.
	9/16/2015	4.5	Preparation of natural attenuation positional memo, attachments and figures.
	9/17/2015	4.5	Discussions with Gugliemotto regarding tables, update of Mann Kendalls to reflect all PCE data, memo text edits, table prep.
	9/18/2015	6	Preparation of natural attenuation positional memo, evaluation of QuantArray Chlor data, evaluation of general water quality parameters over time, discussion with Stayrook.
	9/21/2015	2	Final edits to draft natural attenuation positional memo.
	9/22/2005	3	Commute to Alterman site, meeting with Atlanta Environmental, commute to office, follow-up task.
	10/1/2015	5	Commute to Alterman site, monument installation, commute to office, follow up activities.
	10/29/2015	0.5	Discussions with Stayrook regarding Scope of Work development.
	10/30/2015	1.5	Discussion with Cook regarding Biochlor scope, prep of scope of work and submittal to Stayrook.
	11/3/2015	0.5	Identification of regional hydraulic properties, discussions with Cook regarding modeling.
	11/4/2015	5	Identification of Piedmont-specific values, identification of foc values in fractured rock, modeling discussion and re-runs with Cook, prep for Alterman call, team call and follow-up, modeling coordination.
	11/12/2015	2.5	Coordination, call with Microseeps, edits to natural attenuation positional memo to reflect Biochlor modeling.
	11/17/2015	0.5	Discussion with Cook regarding Biochlor modeling.

APPENDIX L
Tabulated Summary of Professional Engineer and Geologist Time (Period August 1, 2015 through February 29, 2016)
Tara Shopping Center, 8564 Tara Boulevard, Jonesboro, GA
Voluntary Remediation Program (HSI 10798)

Professional Service	Date	Hours	Description
Jonathan Waddell, PE	11/18/2015	3.5	Review of Model 1-3 for Alterman, edits to Positional Memo, review and edits to Biochlor model for Migration of Pathway #2, Biochlor discussion with Cook, edits to Positional Memo regarding source terms.
	11/19/2015	2	Edits to natural attenuation positional memo and Biochlor models, discussions with Stayrook.
	11/20/2015	2	Preparation of natural attenuation positional memo.
	12/8/2015	3	Mob to Alterman, on-site for drum pick up, mob to office, follow-up tasks.
	12/18/2015	2.5	Discussions with Stayrook, finalization of natural attenuation positional memo.
	1/4/2016	2	Alterman meeting with Stayrook and Peterson.
	1/5/2016	2	Development of Vapor Intrusion Screening Levels and J&E summary table.
	1/6/2016	2.5	Development of Vapor Intrusion Screening Levels and J&E summary tables, discussion of tables and vapor intrusion path forward with Peterson, submittal of draft tables.
	1/7/2016	0.5	Vapor Intrusion Screening Levels results write up.
	1/8/2016	4	Vapor Intrusion Screening Levels calculator write up, review of GA EPD vapor intrusion Guidance, evaluation of geotechnical results, updates to J&E tables and discussion with Biksey.
	1/11/2016	5	Discussion with Biksey regarding J&E summary tables, edits to tables, discussion with Peterson, building measurements, discussion with Stayrook, Vapor Intrusion Screening Levels write up edits.
	1/14/2016	3	Edits to Vapor Intrusion Screening Levels write up, discussion with Peterson regarding Vapor Intrusion Screening Levels results, Vapor Intrusion Screening Levels runs and evaluation of cumulative risks, discussion with Peterson.
	1/15/2016	3.5	Discussion with Biksey, edits to Vapor Intrusion Screening Levels summary table, prep of vapor intrusion memo with
	1/18/2016	3.5	Review of natural attenuation memo, prep for call. Update of monitoring memo for submittal to Antea Group.
	1/19/2016	0.5	Monitoring Work Plan edits, coordination of changes to memo.
	1/20/2016	2.5	Alterman task, edits to vapor intrusion work plan.
	1/21/2016	3.5	Development of vapor intrusion work plan. Communications with Antea Group and sample coordination, groundwater monitoring correspondence, evaluation of monitoring budget.
	1/26/2016	0.5	Discussion with Stayrook, review of Corrective Action Plan requirements under GA EPD.
	1/27/2016	3	Coordination of well MW-10B redevelopment, evaluation of MW-10B data, review of MW-11B well vault replacement notes, Corrective Action Plan email submittal to Stayrook.
	2/8/2016	1.5	Discussions with Stayrook and Peterson, follow-up.
	2/10/2016	1.5	Review of draft RPD Outline, response to Biksey regarding SW Risk Evaluation, POD clarification.
	2/11/2016	3	Review of emails from Biksey, evaluation of SW risks via Steps 1 through 3A, conversation with Stayrook and Biksey regarding evaluation of Tables 5 and 7 and email.
	2/19/2016	0.5	Waste pickup scheduling.
	2/22/2016	1	Review of draft Corrective Action Plan.
	2/23/2016	3.5	PE review of Corrective Action Plan, review of Biochlor model distances and email to Stayrook.
	2/24/2016	2.5	Response to comments, communication with Stayrook and follow-up.
	2/25/2016	3	Worked on natural attenuation positional memo, call with Stayrook regarding work plan, development of remediation schedule
	2/26/2016	1	Natural attenuation positional memo edits, discussions with Stayrook review of memo-extension request.

APPENDIX L
Tabulated Summary of Professional Engineer and Geologist Time (Period August 1, 2015 through February 29, 2016)
Tara Shopping Center, 8564 Tara Boulevard, Jonesboro, GA
Voluntary Remediation Program (HSI 10798)

Professional Service	Date	Hours	Description
Professional Geologist			
Jim Breza, PG	8/14/2015	1	Attended team meeting to discuss conceptual site model.
	8/19/2015	0.5	Communications with Roaza regarding conceptual site model, reviewed maps.
	8/24/2015	2.5	Peer reviewed Roaza's draft conceptual site model write up.
	8/25/2015	0.5	Communications with Roaza, sent core photographs to Roaza, discussed rock types with Roaza.
Pat Peterson PG	8/3/2015	7	Participated in company meeting to discuss groundwater data and project management roles, prepared isocontour figures for PCE, TCE, cis-DEC, and VC, reviewed Vapor Intrusion Screening Levels calculator to evaluate vapor intrusion at site.
	8/4/2015	4	Prepared draft isocontour figures, conference call with Stayrook regarding vapor intrusion strategy for site, reviewed J&E model to determine input parameters.
	8/6/2015	3	Finalized 11 isocontour maps, prepared new bedrock surface contour map.
	8/7/2015	4	Prepared chemical isocontour maps and forwarded to CAD, prepared vapor intrusion summary for progress report.
	8/13/2015	2	Reviewed natural attenuation results and groundwater data for progress report, prepared natural attenuation summary for internal meeting.
	8/14/2015	2	Internal project management team meeting with Roaza to discuss the presentation of recently collected data in the upcoming progress report.
	8/18/2015	0.5	Internal discussion with EHS team regarding geologic cross section and bedrock contour figures for semi-annual progress report.
	8/19/2015	0.5	Internal discussion with EHS team regarding geologic cross section and bedrock contour figures for semi-annual progress report.
	8/21/2015	0.5	Internal discussion with EHS team regarding geologic cross section and bedrock contour figures for semi-annual progress report.
	8/24/2015	0.5	Internal discussion with Waddell regarding geologic cross section and bedrock contour figures for semi-annual progress report.
	8/27/156	0.5	Assisted with semi-annual report.
	8/31/2015	2	Reviewed guidance and regulations regarding vapor intrusion phase of work at site.
	8/31/2015	1.5	Discussion with Antea groundwater monitoring team and Stayrook regarding performance sampling procedures during recent sampling event.
	9/2/2015	1.5	Reviewed regulations and plan vapor intrusion sampling strategy for offsite properties.
	9/10/2015	3.5	Prepared a vapor intrusion evaluation strategy based on 2015 OSWER guidance for an internal meeting with the project team to discuss the vapor intrusion budget and path forward. Discussions with Biksey regarding vapor intrusion risk assessment and data needed for modeling indoor air intrusion pathway.
	9/11/2015	2.5	Internal meeting with project team to discuss strategies for implementing natural attenuation and addressing vapor intrusion and surface water impacts.
	9/18/2015	2	Meeting with Stayrook to discuss isocontour maps and upcoming task for vapor intrusion.
	10/15/2015	1.5	Review language for offsite covenants, meeting with EHS and Ashland team regarding covenants.
	11/4/2015	1.5	Project team meeting to discuss vapor intrusion and surface water strategies for addressing COCs.
	1/4/2016	1.5	Review natural attenuation tech memo, team meeting to discuss natural attenuation tech memo and Corrective Action Plan.
	1/5/2016	5	Evaluate vapor intrusion at nine properties at site using the EPA Vapor Intrusion Screening Levels calculator.

APPENDIX L
Tabulated Summary of Professional Engineer and Geologist Time (Period August 1, 2015 through February 29, 2016)
Tara Shopping Center, 8564 Tara Boulevard, Jonesboro, GA
Voluntary Remediation Program (HSI 10798)

Professional Service	Date	Hours	Description
Pat Peterson PG	1/6/2016	5	Discussion with Waddell regarding vapor intrusion. Created a summary table that reflects the target cancer risks and noncancer hazard quotients for each property to determine the effects of groundwater temperatures to the risk goals. This may be used during the J&E modeling effort.
	1/8/2016	1	Review of J&E model parameters, discussions with Biksey regarding vapor intrusion strategy.
	1/11/2016	1	Discussion of vapor intrusion strategy with project team.
	1/12/2016	1	Discussion with Biksey regarding the use of the J&E model to further evaluate vapor intrusion at the site based on EPA's new guidance.
	1/14/2016	0.5	Discussion with Waddell to prepare vapor intrusion summary of Vapor Intrusion Screening Levels and strategy forward.
	1/15/2016	3	Prepared a draft scope of work to implement a groundwater monitoring plan as part of the corrective action plan.
	1/22/2016	1	Worked on groundwater Corrective Action Plan outline, reviewed long term insitu groundwater monitoring equipment.
	2/4/2016	3	Reviewed regulations for preparing Corrective Action Plan.
	2/5/2016	0.5	Reviewed regulations for preparing Corrective Action Plan.
	2/8/2016	6	Prepared scope of work for long-term monitoring as part of groundwater Corrective Action Plan.
	2/10/2016	1	Reviewed the surface water memo, discussed with Biksey surface water trigger concentrations for long-term surface water sampling for Corrective Action Plan.
	2/11/2016	1	Internal meeting to discuss Corrective Action Plan and vapor intrusion.
	2/12/2016	2	Finalized surface water memorandum for client review.
	2/17/2016	0.5	Internal meeting with Stayrook to discuss Corrective Action Plan
	2/18/2016	4	Assisted with reviewing and preparing the groundwater Corrective Action Plan.
	2/19/2015	3.5	Prepared text for Section 6 of the Corrective Action Plan, discussions with Stayrook, created schedule to implement Corrective Action Plan and vapor intrusion assessment.
Ernie Roaza, PG	8/14/2016	2	Review of draft report, team technical meeting regarding field data interpretation and CSM.
	8/18/2015	1	Review and edits to the groundwater potentiometric surface contours.
	8/20/2015	1.5	Review and edits to the groundwater potentiometric surface contours.
	8/21/2015	2	Bedrock - cross section, groundwater contour edits, Section 5 report development.
	8/22/2015	7	Conceptual site model data analysis, historical data review from URS 2009 and Section 4 write-up, review of Sections 1 - 3 of the text.
	8/23/2015	7	Conceptual site model data analysis, historical data review from URS 2009 and Section 4 write-up.
	8/24/2015	8	Completion of draft Conceptual site model, review of draft maps.
	8/25/2015	1	Team meeting of draft report, development of hydrogeological framework figures.
	8/26/2015	1	Review of cross-sections, hydrogeological framework, final review of report.
	9/11/2015	1	Plume contour development, conversion of analytical data to GIS, conversion of CAD to GIS, review of historical isoconcentration interpretations for consistency and continuity of groundwater plume evolution, review of consistency between groundwater potentiometric surface contours with COC migrations over time, development of latest PCE and applicable daughter product isoconcentration contours in the Upper and Lower Residuum and Bedrock water bearing zones. Conversion of GIS to CAD formats for figure production, review of draft figures.

APPENDIX L
Tabulated Summary of Professional Engineer and Geologist Time (Period August 1, 2015 through February 29, 2016)
Tara Shopping Center, 8564 Tara Boulevard, Jonesboro, GA
Voluntary Remediation Program (HSI 10798)

Professional Service	Date	Hours	Description
Ernie Roaza, PG	9/12-28/2015	20.5	Plume contour development, conversion of analytical data to GIS, conversion of CAD to GIS, review of historical isoconcentration interpretations for consistency and continuity of groundwater plume evolution, review of consistency between groundwater potentiometric surface contours with COC migrations over time, development of latest PCE and applicable daughter product isoconcentration contours in the Upper and Lower Residuum and Bedrock water bearing zones. Conversion of GIS to CAD formats for figure production, review of draft figures.
	10/7/2015	1	Meeting with EPD and Ashland on delineation of groundwater impacts.
	10/22/2015	2	Meeting preparation and meeting with Georgia EPD on groundwater impacts in the aquifer system - trends and life cycle, mass flux calculations and implications, and maximum down-gradient extents. Debrief of GA-EPD meeting results with project team.
	11/4/2015	1.25	Team meeting on receptor risks, focused study needs at the creek, groundwater impact life cycle, mitigation strategies, and path forward tasks.
	2/23/2016	2	Recalculations and revisions to groundwater characterization, flux gradients, conceptualization and flow domain.