

Compliance Status Report

Apollo Industries

1850 South Cobb Industrial Boulevard
Smyrna, Cobb County, Georgia 30082
HSI # 10333

Prepared for:

AMC Cobb Holdings, LLC

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Responsive partner.
Exceptional outcomes.

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Certification of Compliance

"I certify under penalty of law that this report and all attachments were prepared under my direct 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. Based on my review of the findings of this report with respect to the risk reduction standards of the Rules for Hazardous Site Response, Rule 391-3-19-.07, I have determined that this site is in compliance with Type 5 Risk Reduction Standards for soil. I have also determined that groundwater at this site complies with the provisions, purposes, standards, and policies of the Georgia Voluntary Remediation Program Act (VRPA) and applicable voluntary remediation cleanup standards as referenced in OCGA 12-8-108(7).

CHRIS CALLAS
Printed Name

Owner
Title

AMC Cobb Holdings, LLC
1141 Crest Valley Drive
Atlanta, Georgia 30327


Signature

12-4-17
Date

Qualified Groundwater Scientist 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.

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."



Katie T. Ross, P.G.
Project Manager

December 04, 2017



Registration No. 1776
State of Georgia

1.0 Introduction

The Apollo Smyrna Facility ("the Site") consists of the following five (5) parcels: 1834, 1840, 1850, and 1860 South Cobb Industrial Boulevard, and 4830 Martin Court. The approximate location and general layout of the site are depicted on **Figure 1** and **Figure 2**, respectively. The Site is currently owned by AMC Cobb Holdings, Inc. ("AMC").

The property has been used to formulate and package aerosol products since the late 1970s. As a result of former operation of the production facility on the Site, incidental drips and spills of raw materials have resulted in a release of volatile organic compounds ("VOCs") to soil and groundwater. The Site was listed on the Georgia Environmental Protection Division ("EPD") Hazardous Site Inventory ("HSI") in 1994 (HSI Number 10333). Investigations and corrective action have been performed since the release was identified in 1992.

A Voluntary Investigation and Remediation Plan ("VIRP") and Application for the Site was submitted to the EPD on March 4, 2014. The VIRP and Application were approved by EPD in a letter dated July 28, 2014. Following the approval into the VRP, the EPD issued a Consent Order, EPD-VRP-008, to Apollo Industries Inc. requiring the implementation of the VIRP Application and Plan in accordance with the schedule and specifications within the Order and their June 4, 2015 comment letter. In this Compliance Status Report ("CSR"), AMC is documenting the results of the VIRP and certifying compliance with a Type 5 Risk Reduction Standard ("RRS").

2.0 Conceptual Site Model

2.1 GENERAL

A Conceptual Site Model ("CSM") was previously developed which provides the basis for identifying and evaluating potential contaminant sources and transport mechanisms for contaminant migration through the environment, as well as evaluation of potential risk to receptors. The CSM defines Site characteristics, release sources, extent of the plume(s), likely fate and transport mechanisms, potential exposure pathways, and potential sensitive receptors that could be impacted. The following sections summarize the latest understanding of the CSM discussed in the Fourth VIRP Progress Report (EarthCon, November 18, 2016), which is included as **Appendix A**.

2.2 CONSTITUENTS OF CONCERN

The VIRP (O'Brien & Gere, 2014) indicated that environmental assessment activities have been ongoing at the Site since 1992 and outlined constituents of concern ("COCs") that have been identified in soil and groundwater. This information identified a total of nineteen (19) regulated substances that were detected in soil at the Site. Nine (9) of these compounds were detected at concentrations greater than non-residential RRS including the following:

- 1,1,1-trichloroethane ("1,1,1-TCA");
- 1,1-dichloroethane ("1,1-DCA");
- 1,2-dichloroethane (total) ("1,2-DCA");
- Acetone;
- Ethylbenzene;
- Methylene Chloride ("dichloromethane");
- Tetrachloroethene ("PCE");
- Toluene; and
- Trichloroethene ("TCE").

The VIRP identified thirty-six (36) regulatory substances that were detected in groundwater at the Site. Thirteen (13) of these compounds were detected at concentrations greater than non-residential RRS including the following:

- 1,1,1-TCA;
- 1,1-DCA;
- 1,1-DCE;
- 1,2-DCA;
- Acetone;
- Chloroethane;
- Cis-1,2-dichloroethene ("cis-DCE");
- Cyclohexane;
- Dichloromethane;
- PCE;
- Trans-1,2-dichloroethene ("trans-DCE");
- TCE; and
- VC.

2.3 SITE PHYSICAL SETTING

2.3.1 Topography

The topography of the Site has been significantly modified by previous development. The northern portion of the property which has been graded and developed with buildings and paved areas generally slopes to the south and east. A steep east-west trending slope bisects the central portion of the property sloping down toward the southern portion of the Site. The ground surface on the southern portion of the property has been developed with buildings and paved area and generally slopes to the east and southeast.

A storm water channel runs along the western and southern Site boundaries. The channel is approximately 3 feet wide and varies in depth from approximately 1 inch to as much as 1 foot. The channel originates from a buried pipe flowing from the north (upgradient of the Site) to the south near the western Site boundary. The channel bends to the east, near the southwestern Site boundary, flowing into a buried pipe located in a wooded area along the southern Site boundary. Runoff from the southern portion of the Site flows toward an on-Site storm water detention pond which discharges to the municipal system along Martin Court.

2.3.2 Geology

The Site is located within the Southern Piedmont Geologic Region. Soils in the area were created by the chemical and physical breakdown of the underlying parent rock. The parent rock in the area consist of the Lithonia Gneiss. This unit consists of biotite-quartz-feldspar gneiss with quartz-rich garnitiferous layers, migmatitic biotite-muscovite and microcline-quartz gneiss. Based on past investigation the Site soils consist of clayey, sandy silts transitioning vertically to a silty sand. The unconsolidated unit typically becomes harder with depth to the top of bedrock. Based on numerous borings conducted on Site the unconsolidated unit appears to be approximately 30-45 feet in thickness. Geologic cross-sections are provided on **Figures 4, 5 and 6**.

2.3.3 Hydrogeology

In general, groundwater at the Site occurs under water table conditions. This water is typically stored in the pore spaces in the unconsolidated material and within fractures and joints in the underlying bedrock. Groundwater monitoring wells at the Site are screened in the overburden soil, with one well being screened in bedrock (**Table 1**). This unit is typically recharged through the infiltration of precipitation. Based on extensive investigation performed at the Site to date, it appears the predominant water table aquifer flow direction is to the south-southeast (**Figure 3**). Depth to groundwater varies at the Site from approximately 3 feet to more than 28 feet below grade (**Table 2**).

2.4 RELEASE HISTORY/SOURCE AREAS

2.4.1 On-Site Releases

The primary Site activity identified since the 1970s has been the formulation and packaging of aerosols. A tank farm used for the storage of bulk chemicals is located adjacent to the production facility. Bulk liquids have historically been delivered to the Site over the years and transloaded into the large aboveground storage tanks as well as smaller containers including drums and totes. Due to incidental drips and spills from flex hoses connects/disconnects, a release of solvents has occurred at the site.

The current tenant occupying the property, Apollo Aerosol Industrial, LLC ("AAI"), had a release of approximately 2,500 gallons carburetor cleaner at the Site in 2016. In a letter dated November 16, 2016, Apollo presented information regarding the soil investigation

performed by AAI following the spill. Sampling and testing performed by AAI's consultant RPS Gaia Tech on September 22 and 23, 2016, included installation of seventeen (17) soil borings and collection of sixty (60) soil samples and five (5) groundwater samples. The samples were analyzed to determine concentrations of VOCs by the United States Environmental Protection Agency ("EPA") Method 8206B; semi-volatile organic compounds ("SVOCs") by EPA Method 8270D; total petroleum hydrocarbons ("TPH"), and oil and grease by EPA Method SW 9071B; 2-Butoxyethanol by EPA Method 8015 DAI; and ammonia by EPA Method 350.1.

The sampling identified seventeen (17) constituents which were detected in soil samples at concentrations above laboratory reporting limits. Of those constituents, only three (xylenes, isopropyl benzene, and naphthalene) were present at concentrations above the EPD Hazardous Site Response Act ("HSRA") Notification Concentrations ("NCs"). Three (3) constituents were detected in groundwater samples at concentrations above laboratory reporting limits. Of those constituents, only one (cyclohexane) was present at concentrations above the EPD media target concentrations. The results of the soil and groundwater sampling and testing identified no constituents that required remediation under the Georgia Voluntary Remediation Program. In addition, the sampling results provided no evidence that the carburetor cleaner release was contributing to the Apollo plume which is the subject of the VIRP.

2.4.2 Off-Site Releases

Off-Site source areas include industrial and chemical facilities upgradient and north/northwest of the Site. Information provided in the Second VIRP Progress Report (EarthCon, December 16, 2015) previously documented that the contaminant concentrations detected in wells MW-7 and MW-8 are attributed to these upgradient, off-Site source area(s). EPD concurred with this determination in a letter dated June 14, 2016. Other off-Site releases have occurred on the downgradient industrial property.

2.5 EXTENT OF CONTAMINATION

Investigation activities have been completed to evaluate the extent of soil and groundwater impacts at the Site. The following provides a summary of the delineation activities.

2.5.1 Soil Delineation

Soil investigation activities since 2011 have included analysis of one hundred thirty-nine (139) soil samples collected from sixty-one (61) soil borings at the Site. The results of this sampling and testing has demonstrated that the extent of soil impacts have been delineated within the Site boundaries. The soil delineation efforts were presented in the VIRP (O'Brien & Gere, 2014), the First VRP Progress Report (Earthcon, 2015a) and the Second VRP Progress Report (Earthcon, 2015b). Soil delineation figures from the VIRP, First and Second Progress Reports are presented in **Appendix B** along with a historical soil analytical data table.

Based on the soil data presented in **Appendix B**, soil delineation is complete at the Site and the area of soil greater than applicable RRS are located below the existing building. Delineation of soil and source material at the Site has been achieved to the extent technically practicable. The area of soil exceeding the RRS is located beneath the slab of the manufacturing building and protected from transport mechanisms, such as infiltration, that would cause leaching of VOCs to groundwater in this portion of the Site. The manufacturing building overlying the source area prevents infiltration of rainwater and storm water through the vadose zone. Source material is currently considered immobilized at the Site.

A Uniform Environmental Covenant ("UEC") will be executed for the Site which will require that notification be made to EPD in advance of any plans to apply for building permits or propose any Site work that would affect the property. Additional details regarding the UEC are outlined in Section 5.2. In the event that plans for the Site involve removal of the building, EPD will be notified as required and the planned demolition/redevelopment activities will include measures to address any remaining source material beneath the building.

2.5.2 Groundwater Delineation

Nineteen (19) groundwater monitoring wells have been installed as part of the VIRP to delineate the horizontal and vertical extent of groundwater impacts across the Site (**Figures**

4 through 6). A summary of recent groundwater results for VOCs, field parameters and natural attenuation parameters are presented on **Tables 3 through 5**.

The Site data has consistently demonstrated that there are two distinct groundwater plumes on the Site which have been identified as the "Apollo Plume" and the "MW-8 Plume." In a letter dated June 14, 2016, EPD concurred with this finding acknowledging that two plumes are located on the Site, one of which is from an upgradient off-Site source.

Apollo Plume

The Apollo Plume is associated with the on-Site release in the vicinity of MW-1/MW-3 which was previously described in Section 2.4.1. The Apollo plume has been characterized by seven primary VOCs: 1,1,1-TCA, 1,1-DCE, PCE, TCE, Cis-DCE, VC and acetone (**Table 4**). With the exception of acetone, iso-concentration maps for these VOCs in the Apollo Plume are presented on **Figures 7 through 12**. Because acetone currently meets RRS across the Site, an iso-concentration map was not prepared.

We note that groundwater extraction and treatment activities in this area appear to have mechanically influenced the distribution of contaminants within the Apollo Plume. This influence is especially notable with the most recent groundwater sampling data which demonstrated the highest remaining concentrations at MW-4. MW-4 is located downgradient from the primary zone and had been used as an extraction well. The horizontal and vertical extent of the Apollo Plume has been fully determined, except where it was technically impracticable as set forth in more detail herein. A summary of the extent of the Apollo Plume is provided below with a demonstration that the extent of delineation achieved meets the remedial action objectives and is compliance with the Act. A summary of historical groundwater analytical results is presented in **Appendix C**. The most recent two sets of analytical data are summarized on **Table 4**.

In consideration of the southeastern groundwater flow depicted on **Figure 3**, the Apollo plume is delineated to the Type 1 RRS the north by MW-10 and MW-2, and to the eastern and southern boundaries of Site by monitoring wells MW-5, MW-9 and MW-15, and to the west by MW-10, MW-11 and MW-12 (**Figure 7 through 12**).

Along the southern property boundary, all COCs associated with the Apollo plume meet the Type 1 RRS delineation criteria at monitoring well MW-15. With the exception of 1,1-DCE and PCE, COCs meet the Type 1 RRS delineation criteria in the off-Site, downgradient well MW-6R. 1,1-DCE and PCE are delineated to the Type 2 RRS on the off-Site, downgradient property by monitoring well MW-6R. The proposed Type 2 RRS for these COCs were presented to EPD in a letter dated October 23, 2017. Calculations of the RRS are presented in **Appendix D**. Along the western property boundary, all COCs associated with the release meet the delineation criteria at MW-10, MW-11 and MW-12. EPD has concurred that detections of COCs at MW-8 in the western portion of the property are attributed to an off-site, upgradient source (June 14, 2016 EPD letter). Delineation of COCs beyond MW-8 is technically impracticable given the industrial setting and the presence of up-gradient off-site sources. Three wells along the western property boundary meet the delineation criteria (MW-10, MW-11 and MW-12); therefore, delineation of Site COCs to the west of the site has been achieved to the extent practical.

Monitoring well MW-18, which is located at the southern property boundary, and off-Site monitoring well MW-6R provide information for the deeper aquifer south of the source area (**Figures 4 and 5**). Although a few VOCs are slightly above the Type 4 RRS reported at MW-18, groundwater concentration data from the March 2017 sampling event clearly demonstrates declining trends for all COCs between these wells. More specifically, 1,1-dichloroethene, cis-DCE, PCE and TCE demonstrate declining concentrations that range from 62 percent to 99 percent.

MW-6R is screened at a similar elevation as MW-18 and is located on the south adjoining property (4860 Martin Court) (**Figure 5**). The most recent sampling data indicate that concentrations of all COCs at MW-6R were less than Type 1 RRS with the exception of 1,1-DCE and PCE. However, 1,1-DCE and PCE concentrations detected at MW-6R meet the Type 2 RRS using default input parameters (**Appendix D**). Therefore, delineation to the south has been achieved and no additional delineation efforts are necessary south and downgradient from MW-6R.

The detected concentrations of 1,1-DCE and PCE at MW-6R are well below the applicable Type 4 RRS. Groundwater fate and transport modeling has also demonstrated that the plume is stable and this CSR demonstrates compliance at the point of exposure ("POE")

Fate and transport modeling and monitored natural attenuation (“MNA”) support the results are presented in Section 4.

Vertical delineation of the Apollo plume has been achieved to the extent necessary to meet the requirements of the Act and the remedial goals. Bedrock monitoring well DW-1 was installed to provide vertical delineation information for the Site. This monitoring well was incorporated into the groundwater extraction system in 2005. The sampling results from this well have therefore been influenced by historical groundwater pumping efforts (**Appendix C**). Section 4.8 presents an evaluation of the natural attenuation processes in place at DW-1 and supports that concentrations in this well will continue to decline over time. Groundwater concentration information and delineation results are depicted on cross section **Figures 5 and 6**.

MW-8 Plume

Up-gradient, off-Site source areas are present northwest of the Site. A specific point-source has not been identified, but industrial and chemical facilities upgradient and north/northwest of the Site exist and are suspected to be the source of the MW-8 plume. The MW-8 plume is primarily characterized by the presence of PCE and PCE daughter products, including TCE, cis-DCE and VC. Isoconcentration maps present the MW-8 plume on **Figures 7 through 12**. The contaminant concentrations detected in wells MW-7 and MW-8 are attributed to these upgradient, off-Site source area(s). As described in Section 2.5.3, the molar signatures of the constituents detected in MW-8 are very different than the molar signatures of the constituents detected in the wells located within the historic on-Site source area, indicating a separate plume from an upgradient, off-Site source area.

2.5.3 Plume Stability

Progress Report #1 included presentation of a plume analytics evaluation completed using the Ricker Method® Plume Stability Analysis. The plume analytics evaluation was performed using historical groundwater analytical data from eighteen (18) separate sampling events conducted between January 2005 through April 2015. The evaluation noted the following:

- The Apollo plume area is characterized by the prevalence of 1,1-DCE throughout the plume and by varying percentages of 1,1,1-TCA, cis-1,2-DCE, and vinyl chloride. The Apollo plume area has higher molar concentrations than the other plume areas.
- The western MW-8 plume area shows a classic degradation pathway showing mostly PCE and TCE at MW-8, cis-1,2-DCE and vinyl chloride downgradient at MW-7 and finally almost all vinyl chloride at MW-15 which is downgradient from MW-7. The absence of 1,1-DCE and the fact that the MW-8 plume area is located side-gradient to the Apollo plume area with a classic degradation pathway in a downgradient direction were noted as strong lines of evidence that the MW-8 plume area and the Apollo plume area are two distinct plumes.

Additional plume stability information was presented in Progress Report #2. This information indicated that the Apollo plume has remained stable with no evidence of new sourcing. More specifically, the plume stability results for individual COCs are summarized below:

Constituent	Area	Average Concentration	Mass Indicator
1,1,1-TCA	Decreasing	Decreasing	Decreasing
PCE	Decreasing	Decreasing	Decreasing
TCE	Decreasing	Decreasing	Decreasing
1,1-DCE	Decreasing	Decreasing	Decreasing
cis-1,2-DCE	Decreasing	Decreasing	Decreasing
VC	Stable	Decreasing	Decreasing
Acetone	Decreasing	Decreasing	Decreasing
Total CVOCs	Decreasing	Decreasing	Decreasing

2.6 FATE AND TRANSPORT

2.6.1 Migration Pathways

Potential receptors are the most important drivers in establishing risk-based cleanup goals for the Site. The receptors include human, ecological, natural resources, present and future land use, and down-gradient receptors.

2.7 POTENTIAL RECEPTORS

2.7.1 Human Health Receptor

The VIRP identified two (2) potentially complete human health exposure pathways including the following:

- Inhalation of chemicals volatilized into soil gas; and
- Ingestion and adsorption of subsurface soil by utility or construction workers.

2.7.1.1 Vapor Intrusion

Industrial activities at the on-Site facility utilize a variety of chemicals including the COCs subject to this VRP evaluation. These activities are performed in accordance with the United States Occupational Safety and Health Administration ("OSHA") Hazard Communication Standard ("HCS") outlined in 29 C.F.R. § 1910.1200. The HCS outlines Permissible Exposure Limits ("PEL") for individual chemicals necessary to ensure worker safety. Because the chemicals currently used at the Site are also the same as those detected in soil and groundwater beneath the buildings at the Site, the OSHA PELs should apply.

Soil and groundwater impacts at the Site create the potential for vapor intrusion of hazardous substances. EPA *Technical Guide for Assessing and Mitigating the Vapor Intrusion Pathway from Subsurface Vapor Sources to Indoor Air* (June 2015) recognizes that PELs differ from and are higher than acceptable risk-based indoor air target concentrations. Therefore, evaluation of soil gas or indoor air at the Site using the EPA's Vapor Intrusion Screening Level ("VISL") calculator will only demonstrate that any potential indoor air concentrations related to soil or groundwater would be negligible in comparison to the PELs. Table 6 shows a comparison of the on-Site groundwater concentrations, calculated indoor air concentrations, and OSHA PELs. A copy of the EPA VISL spreadsheet with site-specific groundwater concentrations and calculated indoor air concentrations is included in Appendix E.

As previously discussed, a UEC will be executed for the Site which requires that notification be made to EPD in advance of any plans to apply for building permits or propose any site work that would affect the property. The UEC includes requirements to maintain a HCS for the facility in accordance with OSHA requirements.

2.7.1.2 Soil Ingestion and Adsorption

Potential exposure could occur from the direct contact of contaminants if exposed during invasive subsurface excavation or trenching in or near the source area. Ingestion/Dermal Contact is considered a minor exposure pathway with minor risk to human health as engineering controls could be implemented during invasive activities to eliminate or significantly reduce exposure.

As previously discussed, a UEC will be executed for the Site which will require that notification be made to EPD in advance of any plans to apply for building permits or propose any site work that would affect the property. Additional details regarding the UEC are outlined in Section 5.2. In the event that future plans for the Site involve activities that could result in exposure to construction workers, EPD will be notified as required and the planned demolition/redevelopment activities will include measures to address remaining soil impacts.

2.7.2 Ecological Receptors

The VIRP indicated that ecological receptors were not considered for the Site because the Site is developed and industrial in nature. In a letter received March 4, 2014 (which was dated June 4, 2014), EPD noted that surface water at the Site does potentially provide a viable habitat which must be considered.

Potential exposure to ecological receptors was addressed in VIRP Progress Report #1 dated May 29, 2015. The Progress Report noted that concentrations of regulated substances in surface water samples collected from sampling stations SW-1 and SW-2 had decreased. The Progress Report also noted that analytical results of the sediment sample collected at surface water location SW-2 indicated regulated substances were not detected.

VIRP Progress Report #2 dated December 2015 discussed the results of surface water (SW-1 and SW-2) and sediment (SED-3) sampling performed on October 8, 2015. These samples were analyzed for VOCs using EPA Method 8260B and VOCs were not detected in surface water sample SW-2 or sediment sample SED-3 at concentrations above the laboratory reporting limits.

1,1-DCA was detected in the surface water sample collected from location SW-1 at a concentration of 0.006 milligrams per liter ("mg/L"). No other VOCs were detected in this sample.

Surface water sample location SW-1 is directly downstream of the corrugated pipe that transports stormwater onto the Site and therefore the detection of 1,1-DCA in surface water at this location is attributed to an off-Site source. In addition, there are currently no

Georgia instream water quality standards ("ISWQS") for 1,1-DCA. The results of this sampling and testing demonstrated that the on-Site sources were not creating potential ecological risk. The data also indicates that off-Site sources were not resulting in concentrations greater than ISWQS. Based on these findings, Apollo concluded that no further ecological evaluation was warranted.

2.8 POINT OF EXPOSURE

The VRP allows demonstration of compliance with site-specific cleanup standards based on fate and transport modeling as long as concentrations of site-specific constituents of concern in groundwater are shown to be protective of any established downgradient POE. The POE is defined as the nearest of the following:

- 1) closest existing downgradient drinking water supply well;
- 2) likely nearest future location of a downgradient drinking water supply well; or
- 3) hypothetical point of drinking water exposure located at a distance of 1,000 feet downgradient from the delineated Site contamination.

There are no identified downgradient exposure points and future land use is not anticipated to create any changes. Therefore, a hypothetical point of drinking water located 1,000 feet from the Site has been established as the POE.

2.8.1 Present and Future Land Use

The Site is located in an area zoned heavy industrial ("HI") which includes properties established for uses such as intensive automobile repair, heavy manufacturing, chemical manufacturing and storage, petroleum or petrochemical storage, warehousing and storage. The 2016 Cobb County Future Land Use Map designates the Site and surrounding properties extending to approximately 2,500 feet downgradient from the Site as industrial compatible ("IC") which can support light industrial, heavy industrial, and warehouse type development.

2.8.2 Downgradient Receptors

There are no documented water supply wells within a one-mile radius of the Site and the surrounding area is serviced by the Cobb County Water System. Section 122-221 of the

Cobb County Private Well Ordinance requires that buildings connect to the public water system when the system is located within 200 feet of the premises. Based on the existing well-survey and County ordinance, no private wells can be installed in the vicinity downgradient from the Site. A copy of the Cobb County Private Well Ordinance is provided in **Appendix F**.

3.0 Remediation and VRP Activities

A summary of previous investigation activities performed prior to entry into the VRP was presented in the VIRP (O'Brien & Gere, 2014). Additionally, the VIRP presented RRS being used for delineation criteria (Type 1 RRS). In this CSR, the delineation criteria for the Site will remain as the Type 1 RRS, with the exception of MW-6R, which is located on an adjacent off-Site property. Groundwater conditions at MW-6R are to be compared updated Type 2 RRS for 1,1-DCE and PCE for demonstrating delineation. The Type 2 RRS have been calculated using the updated standard Default Exposure Factors as outlined in the EPA's Office of Solid Waste and Emergency Response ("OSWER") Directive 9200.1-120 dated February 6, 2014. The Type 2 groundwater RRS for 1,1-DCE and PCE provided in this CSR are intended to supersede and replace the groundwater RRS values presented in VIRP (O'Brien & Gere, 2014) on the adjacent off-Site property (MW-6R). The Type 2 groundwater RRS values were calculated using EPA's web-based Regional Screening Level ("RSL") calculator. A table summarizing the Type 2 RRS and the supporting "output" data files generated by the RSL calculator are provided in **Appendix D**.

As part of the VIRP, soil and groundwater delineation activities have been completed and updated testing was performed to evaluate present-day aquifer characteristics. The information was utilized to develop an updated CSM and to perform fate and transport modeling to demonstrate compliance with Type 5 RRS. The following provides a summary of VIRP activities.

3.1 PRIOR REMEDIAL ACTION

A summary of prior investigations and remediation at the Site was presented in the VIRP (O'Brien & Gere, 2014). A groundwater recovery system was installed and operated between 1995 and 2014. The groundwater recovery system originally included three (3) extraction wells (RW-1, RW-2, and MW-3). The recovery system expanded in 2005 and 2010 to include DW-1 and MW-4, respectively. RW-1 and RW-2 were abandoned in October 2015. The groundwater recovery system was turned off prior to the Site entering the VRP. Additionally, a soil vapor extraction ("SVE") system operated between 1998 and 2016 in the tank farm area.

3.2 VIRP IMPLEMENTATION

Upon EPD's approval of the VIRP, the groundwater recovery and SVE systems were turned off, groundwater monitoring was performed, as well as additional surface water, sediment and soil sampling for delineation purposes. Well installation was also performed to complete delineation of VOCs in groundwater at the Site. The following tasks were performed:

- Evaluation and shut-down of the SVE system;
- Shut-down of the groundwater recovery system;
- Well installation and groundwater sampling to complete delineation;
- Groundwater sampling and testing to document site conditions and obtain data to evaluate the plume and demonstrate plume stability;
- Molar mass ratio analysis to demonstrate on-site and off-site sources of VOCs in groundwater;
- Hydraulic conductivity testing and analysis (described in Section 3.4); and
- Fate and transport modelling to demonstrate compliance with Type 5 RRS.

3.3 GROUNDWATER MONITORING ACTIVITIES

Six (6) groundwater sampling events have been performed since the VIRP was approved for the Site (October 2014, January 2015, October 2015, March 2016, and September 2016). The monitoring events included collection of samples from fifteen (15) monitoring wells. Groundwater samples were analyzed to determine concentrations of VOCs using EPA Method 8260B. In addition, samples were analyzed to evaluate MNA parameters including total organic carbon ("TOC") by Method 9060A; sulfide by Method 9030B; chloride, nitrate, and sulfate by Method 9056A; ethane, ethylene, and methane by Method RSK-175; and total alkalinity by Method 2320B. A summary of historical groundwater analytical results is presented in **Appendix C**. A summary of recent groundwater analytical VOC natural attenuation parameter results is presented on **Tables 4 and 5**.

3.4 SLUG TESTING AND HYDRAULIC CONDUCTIVITY ANALYSIS

Aquifer testing at the Site was previously performed prior to installation and operation of the groundwater recovery and SVE systems. The previous testing was also performed

before the present-day monitoring network was completed and therefore did not fully evaluate aquifer conditions across the Site.

On August 17, 2017, Wenck performed single well response tests (slug tests) on four (4) monitoring wells to obtain hydraulic conductivity estimates and to estimate aquifer heterogeneity. The slug tests involved displacing a volume of water within the monitoring well by inserting a slug and measuring the rate at which the water level recovered to static conditions. Inserting the slug causes the water level inside the well to quickly rise, and then subsequently fall back to static water level over time, thus giving a "falling head test." Tests were also conducted when removing the slug and monitoring the static water level as it rises over the time of recovery.

Data obtained during testing of monitoring wells were recorded on a pressure transducer and a laptop computer. The slug test data were analyzed using the method of Bouwer and Rice (1976 and 1986), appropriate in unconfined water table formations. The calculations were made using the following assumptions:

1. Aquifer properties are consistent from the top of the shallow water table to the base of the well screened interval (i.e., homogeneous aquifer);
2. Correction for effective casing radius applied appropriate for the Bouwer and Rice (1976) Method;
3. Effective porosity of the gravel pack was estimated to be 20%; and
4. Anisotropy ratio (K_v/K_h) estimated to be 0.1.

The slug test data was evaluated using AQTESOLV Aquifer Test Analysis Software. A copy of the AQTESOLV slug test results are included in **Appendix GF**. The following table summarizes results for each of the wells:

Well ID	Test Type	Calculated Hydraulic Conductivity (ft/day)	Calculated Hydraulic Conductivity (cm/sec)	Well Type
MW-4	Falling Head (Slug in)	0.24	8.7×10^{-5}	Overburden
MW-17	Falling Head (Slug in)	2.2	7.2×10^{-4}	Overburden

DW-1	Falling Head (Slug in)	1.9	6.9×10^{-4}	Bedrock
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The geometric mean k value used in the BIOCHLOR model was calculated using the K values from MW-4 and DW-1.

3.5 GROUNDWATER MODELING

Groundwater modeling was conducted using the maximum concentrations of the ethene compounds documented since 1995, which was the first groundwater sampling event at Site. Model runs using Site data were conducted using the BIOCHLOR Natural Attenuation Decision Support System model developed by the EPA. Due to the geographical layout of wells and small footprint of the groundwater plume, the analytical model BIOCHLOR appeared to be the most representative model to simulate subsurface transport and determine the length of time required for the ethene compounds to reach the downgradient POE which, as described in Section 2.8, is a hypothetical drinking water point 1,000 feet from the Site. The BIOCHLOR modeling results are presented in Section 4.

4.0 Fate and Transport Model

4.1 GENERAL

The BIOCHLOR software is a screening model that simulates remediation by natural attenuation of dissolved chlorinated solvents. The BIOCHLOR model was programmed in a spreadsheet environment and based on the Domenico (1987) analytical solute transported model. For a differential equation that describes behavior over time (e.g., groundwater flow and solute transport equations), the numerical method starts with the initial values of the variables, and then uses the equations to approximate the changes in these variables over a very brief time period. This approximation is the calibration process (i.e., subtle changes in initial values until an adequate solution is achieved).

BIOCHLOR is a conservative screening model. It is typically used with unlikely high starting values (highest historical values) to determine the potential, using conservative assumptions, of the observed concentrations resulting in a "plume" that would reach a defined location (e.g., receptor). Analysis using a numerical model would be necessary only if the screening model showed potential for exceeding concentrations at the defined receptor location. In BIOCHLOR, the Domenico solution has been adapted to provide three different model types representing: i) transport with no decay; ii) transport with first-order decay; and iii) transport with "instantaneous" biodegradation. The second model type is applicable to chlorinated solvents. For this Site, transport with first-order decay was evaluated because it provides the most conservative results. The inputs for the BIOCHLOR model are provided in **Appendix H**.

4.2 HYDROGEOLOGY

As described in Section 3.4, the calculated geometric mean for overburden hydraulic conductivity ("K") is 2.5×10^{-4} centimeters per second ("cm/s"). The estimated effective porosity of the site soils is 20%. The hydraulic gradient was calculated based on depth to groundwater and was calculated using the September 2016 groundwater elevation data from monitoring wells MW-1 and MW-17. The hydraulic gradient for September 2016 was 0.040 ft/ft. The seepage velocity, calculated by multiplying hydraulic conductivity by hydraulic gradient and dividing by effective porosity, is 51.7 feet/year.

4.3 DISPERSION

Longitudinal, transverse, and vertical dispersivity are calculated as a relationship to plume length. For the purpose of this modeling effort the plume was defined as beginning at MW-1 and ending at MW-4. The longitudinal dispersivity of 27.5 was determined by calculating 10% of the plume length (275 feet). As provided in the August 1996 BIOCHLOR User's Manual, the default values of 2.75 (10% of the longitudinal dispersivity) and 1.0×10^{-99} were used for transverse dispersivity and vertical dispersivity, respectively.

4.4 ADSORPTION

The soil retardation factor is calculated from the soil bulk density, partition coefficients ("Koc"), and fraction organic carbon ("foc"). Default values were used for each input parameter (BIOCHLOR 1996). A value of 1.7 is frequently used as a default for soil bulk density. Default Koc values of 426 l/kg, 130 l/kg, 125 l/kg, 30 l/kg and 302 l/kg were used for PCE, TCE, DCE, VC and ethylene, respectively. A default value of 0.0018 was used for the foc.

4.5 BIODEGRADATION

The first order decay coefficient is related to the solvent's half-life. For this Site, the first-order decay degradation model was evaluated. First order decay constants for PCE => TCE, TCE => DCE, and VC => ethylene were manipulated during model calibration to achieve the best fit to the observed field data. Solute half-lives of 0.96, 0.42, 0.37 and 0.025 were determined to best fit the field data and is within the range of published values for the parameters modeled. It is worth noting that the half-life for VC was found to be considerably lower than what would be considered a normal range. This translated into a first-order decay coefficient that was higher than what would be considered normal. This may be a result of the plume being affected by past remedial groundwater pumping that manipulated the plume mechanically and possibly changed the natural reductive dichlorination process.

4.6 PLUME CONFIGURATION

As mentioned above, the total length of the chlorinated solvent plume used in this modeling effort was approximated to be 275 feet which is the distance from monitoring well MW-1 and MW-4. Area width was entered as an approximate width of the plume, which was estimated to be approximately 120 feet. The simulation time for calibrating the model was 22 years based on the date of first available groundwater data (1995) to the most recent groundwater sampling event (March 2017). The source area is estimated to be 120 feet wide and 50 feet thick. Note that the source thickness has no bearing for this model situation because the Domenico (1987) model assumes a vertical plane source of constant concentration (single layer). The source width is the extent of the source area perpendicular to the groundwater plume. In this case, the source area width is equal to the plume width which was chosen to be most conservative.

4.7 SOURCE DATA

The BIOCHLOR model was based on a groundwater plume impacted with PCE, TCE, DCE and VC with the source area represented by well MW-1, migrating downgradient to well MW-4. The model was set up using historical analytical data dating back to 1995. The model was setup using a source concentration equaling the groundwater concentrations revealed in MW-1 on July 13, 1995 and the March 7, 2017 groundwater concentrations found in downgradient monitoring well MW-4. This represents approximately 22 years of groundwater quality data. The model inputs were set up using a combination of site-specific data as well as default model data. The model was calibrated by adjusting the first-order decay coefficients until the predictions matched the existing groundwater quality data at existing monitoring well MW-4.

4.8 MODEL INPUTS AND RESULTS

Based on the degradation rate, the BIOCHLOR model predicts that PCE, TCE, DCE and VC would not reach the hypothetical POE at concentrations exceeding their applicable delineation criteria over the next 100 years. The BIOCHLOR model, using conservative assumptions and simulation times of 22, 30, 50 and 100 years, predicts that the chlorinated solvent plume reaches steady state prior to reaching the hypothetical POE. A list of BIOCHLOR model input parameters are provided in **Appendix H**. Model run outputs with various simulation times is included in **Appendix H**.

An evaluation using the Natural Attenuation Screening Protocol was conducted for deep monitoring well DW-1 to demonstrate the environment is conducive for reductive dichlorination in the deeper bedrock aquifer. Using the September 2016 analytical data collected from monitoring wells DW-1 and MW-11 (upgradient background well) a score of **26** was achieved. The following presents a summary of the inputs and the resulting points awarded for each item:

Analysis	Criteria	Conc. In DW-1	Interpretation	Yes	No	Points Awarded
Oxygen	<5.0 mg/l	0.26	Tolerated, suppresses the reductive pathway at higher concentrations	X	X	3
Oxygen	>5 mg/l	0.26*	Not tolerated; however, VC may be oxidized aerobically		X	
Nitrate	<1 mg/l	0.37 mg/l	At higher concentrations may compete with reductive pathway		X	0
Iron II	>1 mg/l	1.62 mg/l	Reductive pathway possible; VC may be oxidized under Fe(III)-reducing conditions	X		3
Sulfate	<20 mg/l	0.82 mg/l	At higher concentrations may compete with reductive pathway	X		2
Sulfide	>1 mg/l	2.4 mg/l	Reductive pathway possible	X		3
Methane	>5.0 mg/l	0.66 mg/l	Ultimate reductive daughter product, VC accumulates		X	0
ORP	<50 mV	1.1 mV	Reductive pathway possible	X		1
	<-100 mV	1.1 mV	Reductive pathway likely		X	0
pH	5<pH<9	6.14	Optimal range for reductive pathway	X		0
TOC	>20 mg/l	0.450 mg/l	Carbon and energy source, drives dichlorination: can be natural or anthropogenic		X	0
Temperature	>20 degrees C	20.53	At T>20 degrees C biochemical process is accelerated	X		1
Alkalinity	>2x background	60 mg/l in DW-1 30 mg/l in MW-11	Results from interaction of carbon dioxide with aquifer minerals	X		1
Chloride	>2x background	19 mg/l in DW-1 8.8 mg/l in MW-11	Daughter product of organic chlorine	X		2
PCE		0.36 mg/l	Material released	X		0
TCE		0.047 mg/l	Daughter product of PCE	X		2
DCE		0.283 mg/l**	Daughter product of TCE	X		2
VC		0.047 mg/l	Daughter product of DCE			
1,1,1-TCA		0.034 mg/l	Material Released	X		0
DCA		0.098 mg/l	Daughter product of TCA under reducing conditions	X		2
Chloroethane		0.068 mg/l	Daughter product of DCA or VC under reducing conditions	X		2
Ethene/Ethane	>0.01 mg/l	0.092 mg/l	Daughter product of VC/ethene	X		2
Ethene/Ethane	>0.1 mg/l	0.092 mg/l	Daughter product of VC/ethene		X	0
TOTAL SCORE						26

*March 2016 DO reading. The September 2016 was erroneous.

**Includes cis-1,2-DCE, trans-1,2-DCE and 1,1-DCE

Interpretation of the results:

- Score of 0 to 5 = Inadequate evidence for anaerobic biodegradation of chlorinated organics;
- Score of 6 to 14 = Limited evidence for anaerobic biodegradation of chlorinated organics;
- Score of 15 to 20 = Adequate evidence for anaerobic biodegradation of chlorinated organics; and
- **Score of >20 = Strong evidence for anaerobic biodegradation* of chlorinated organics.**

Based on current data and the score generated using the Natural Attenuation Screening Protocol, it appears the conditions with deeper bedrock aquifer are conducive to reductive dichlorination and support that although vertical delineation has not been achieved at DW-1, the contaminants present will continue to reduce over time via reductive dichlorination.

4.9 SENSITIVITY ANALYSIS

A sensitivity analysis was conducted to evaluate how changes to one parameter would affect the detectable level of PCE at the hypothetical POE. The compound PCE was used for the sensitivity model. The sensitivity tests were run using the 100-year predictive model. This model was chosen as it appears the plume reaches a steady state by this point in the future. A summary of the sensitivity analysis is provided below.

Sensitivity Parameter	Original Parameter Value	New Parameter Value	Comment	PCE Conc. at 1,000 ft	Predicted Dist. from source
Predictive Model = 100 yrs				0.001	
Hydraulic Conductivity	0.00025	0.00031	25% higher	0.004 mg/l	+ 400%
Hydraulic Conductivity	0.00025	0.0001875	25% lower	0.000 mg/l	- 100%
Hydraulic Gradient	0.040	0.050	25% higher	0.001 mg/l	0%
Hydraulic Gradient	0.040	0.030	25% lower	0.000 mg/l	- 100%
Partition Coefficient	426 l/kg	639 l/kg	25% higher	0.001 mg/l	0%
Partition Coefficient	426 l/kg	320 l/kg	25% lower	0.001 mg/l	0%
Foc	0.0018	0.00225	50% higher	0.000 mg/l	- 100%
Foc	0.0018	0.00135	50% lower	0.001 mg/l	0%
Source Zone Width	120	180	50% higher	0.001 mg/l	0%
Source Zone Width	120	60	50% lower	0.000 mg/l	- 100%

As previously stated, based on the degradation rate, the BIOCHLOR model predicts that the ethene compounds PCE, TCE, DCE and VC would not reach the hypothetical POE at concentrations exceeding their applicable delineation criteria over the next 100 years. The sensitivity analysis demonstrated that the parameter with the greatest impact on the model is the conductivity value. PCE degradation is occurring, as evidenced by the presence of daughter products TCE, cis-1,2-DCE and trans-1,2-DCE.

5.0 Remedial Compliance

5.1 TYPE 5 RRS

As described in Section 5.2, the extent of constituents in groundwater has been defined and the COC plume is contained and analytical results from the most recent annual sampling event demonstrate that contaminant concentrations have continued to decline, and that natural attenuation is occurring. Results of the BIOCHLOR groundwater model using conservative assumptions demonstrate that travel times for the detected constituents are extremely slow due to the flat hydraulic gradient in the plume area. Therefore, the existing groundwater concentrations are protective and will not adversely impact the downgradient POE.

As discussed in the Site conceptual model, the only remaining risk would be potential incidental contact of contaminated soil or groundwater by construction workers. These types of exposure are only expected to occur during activities which would require EPD notification as outlined in a UEC. Institutional and engineering controls will be implemented to prevent potential exposure to construction workers. As such, AMC has elected to pursue Type 5 RRS option as a contingency measure in accordance with the terms of the VIRP.

5.2 UEC

A UEC will be executed for the Site pursuant to the Georgia Uniform Environmental Covenants Act, O.C.G.A. § 44-16-1, et seq. The UEC provides a definition of the site which is located within Land Lots 618, 619, and 679 of the 17th District, 2nd Section, Cobb County, Georgia (**Appendix I**).

The UEC provides for completion of additional groundwater monitoring as required by the VRP and also requires implementation of institutional controls to protect human health and the environment. The UEC outlines reporting requirements, terms and provisions for severability as well as activity and use limitations. More specifically, the UEC outlines the following activity and/or use limitations for the property:

- The Site will be included on the EPD registry for environmental covenants pursuant to O.C.G.A. § 44-16-12;
- The owner of the property must give EPD thirty (30) days advance written notice of owner's intent to convey any interest in the property, change the use of the property, apply for building permits or propose any Site work that would affect the property;
- Future conveyances of the property shall include a notice of the environmental covenant and provide the recorded location of the document;
- Annual reporting shall be submitted to EPD to provide certification of non-residential use of the property and documentation that activity and use limitations are being met;
- The property shall be used only for non-residential uses as defined in Section 391-3-19-.02;
- The use or extraction of groundwater from the surficial aquifer for drinking water or any other non-remedial purposes is prohibited; and
- The use or extraction of groundwater from the lower aquifers shall be limited to non-potable uses.

Additionally, as part of our annual certification for the UEC, a review the Cobb County Ordinance will be performed in order to confirm that the ordinance still exists and is valid.

5.3 DELISTING

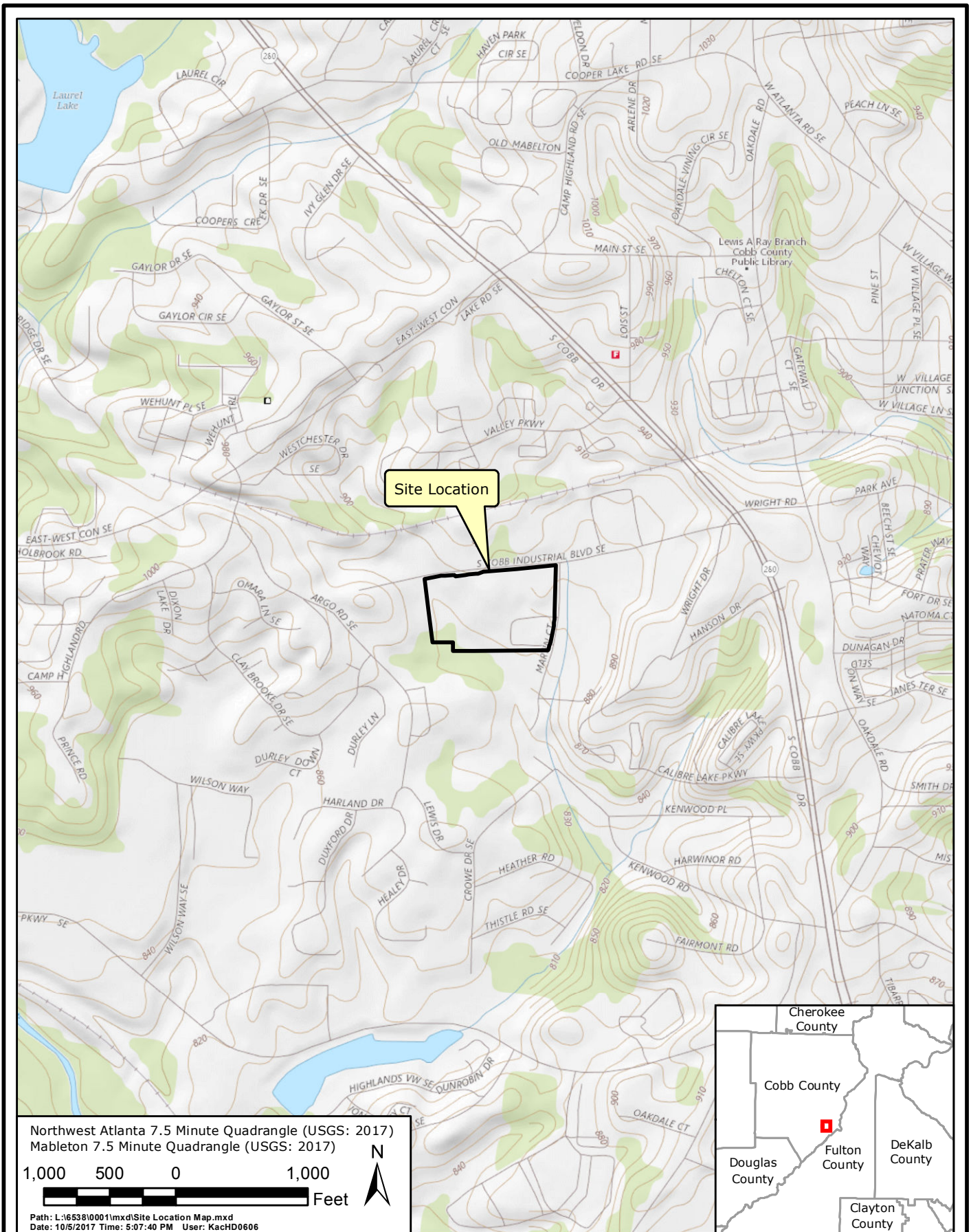
Based on this CSR, the Site is in compliance with Type 5 RRS for groundwater cleanup. Consequently, AMC is petitioning EPD to delist the Site from the HSRA Site Inventory.

Once the draft UEC is approved by EPD, AMC will submit a signed and recorded UEC to EPD that restricts the use of groundwater at the site to non-potable uses only. A revised schedule reflecting this recommendation is provided in **Table 7**.

6.0 References

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Figures

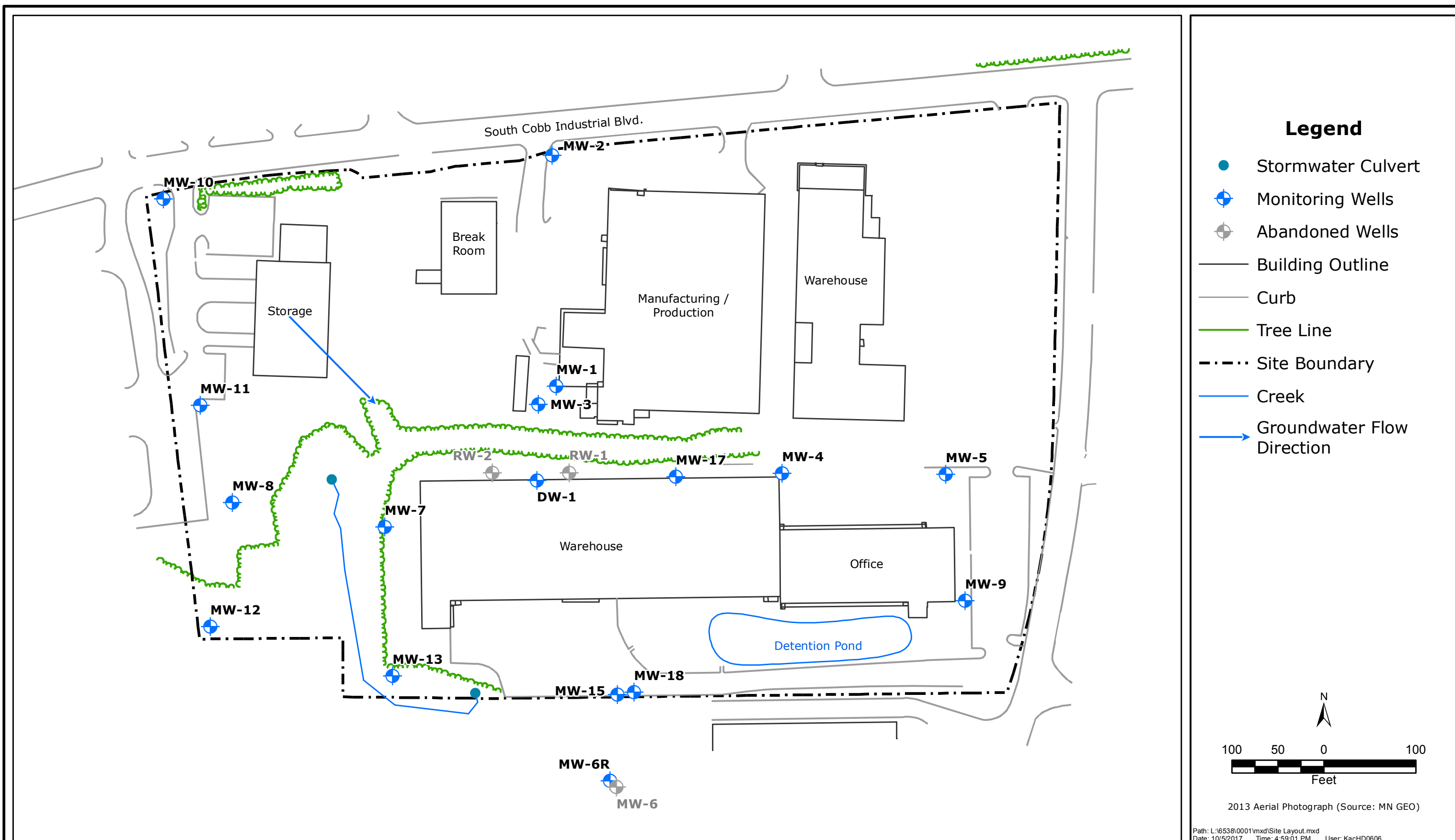


APOLLO INDUSTRIES, INC.
 1850 S. COBB INDUSTRIAL BLVD
 (HSI #: 10333)

Site Location Map



SEPT 2017
 Figure 1

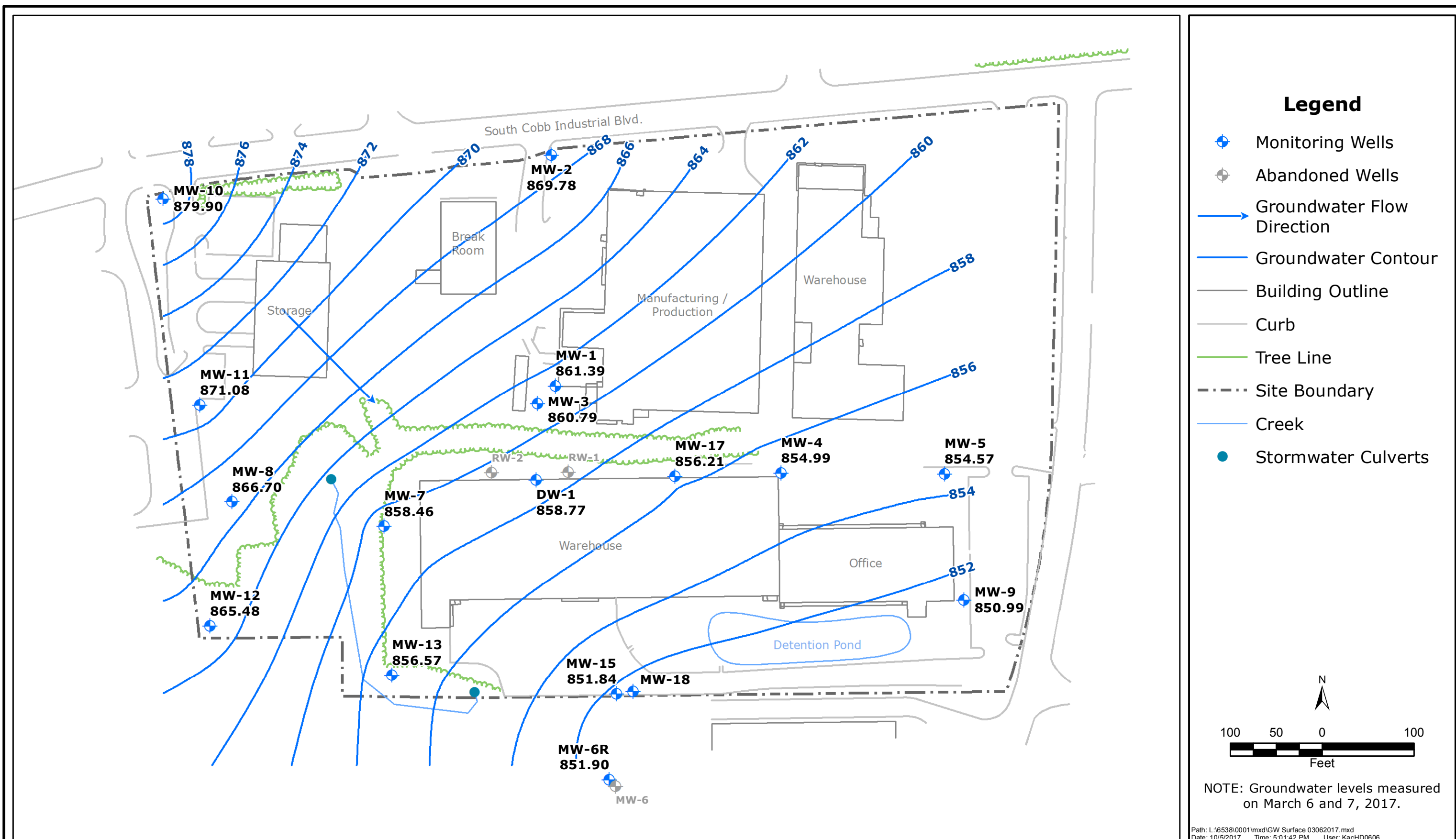


APOLLO INDUSTRIES, INC.
 1850 S. COBB INDUSTRIAL BLVD
 (HSI #: 10333)

Site Layout Map



OCT 2017
 Figure 2

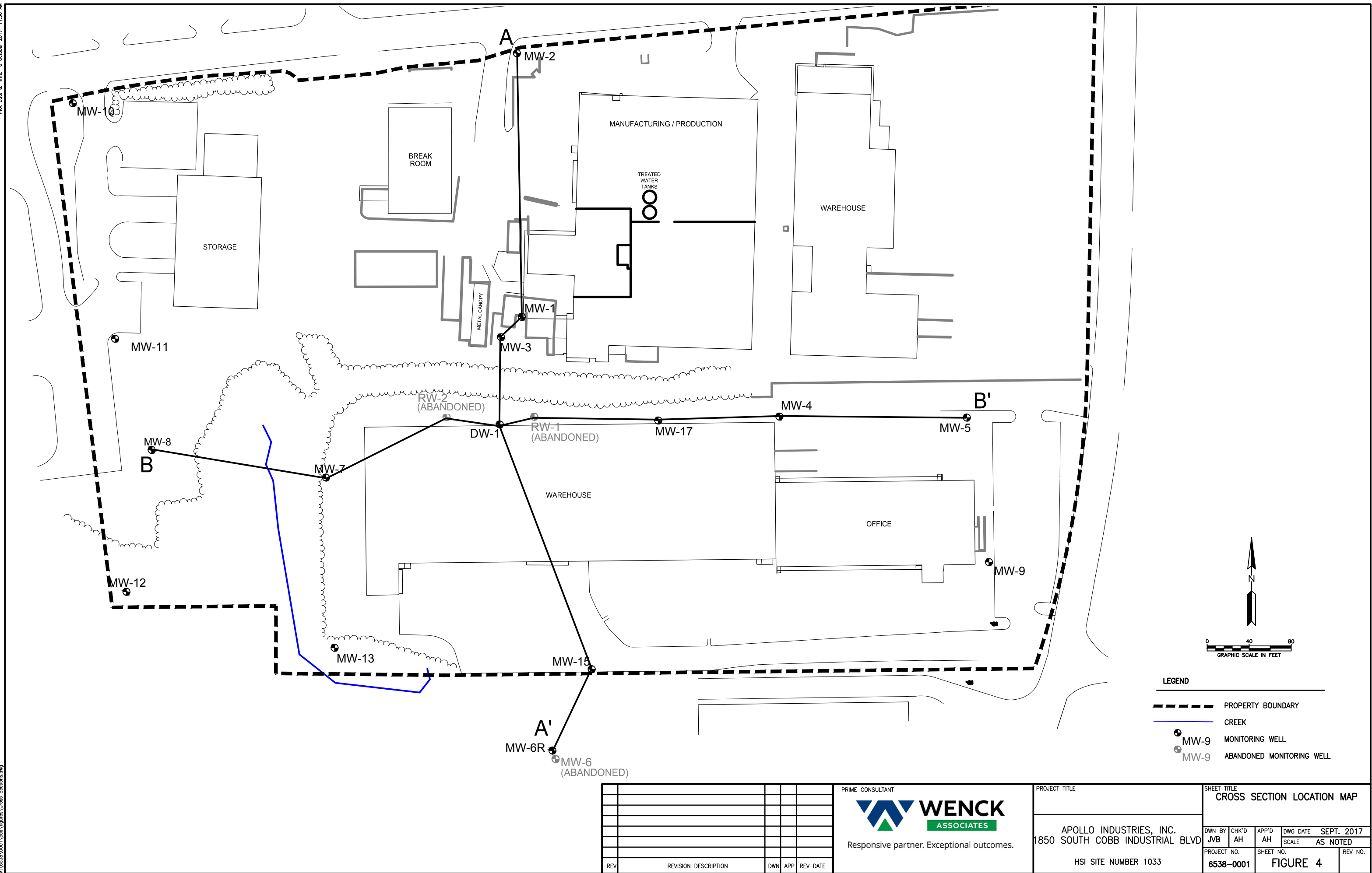


APOLLO INDUSTRIES, INC.
1850 S. COBB INDUSTRIAL BLVD
(HSI #: 10333)

Potentiometric Surface
March 2017

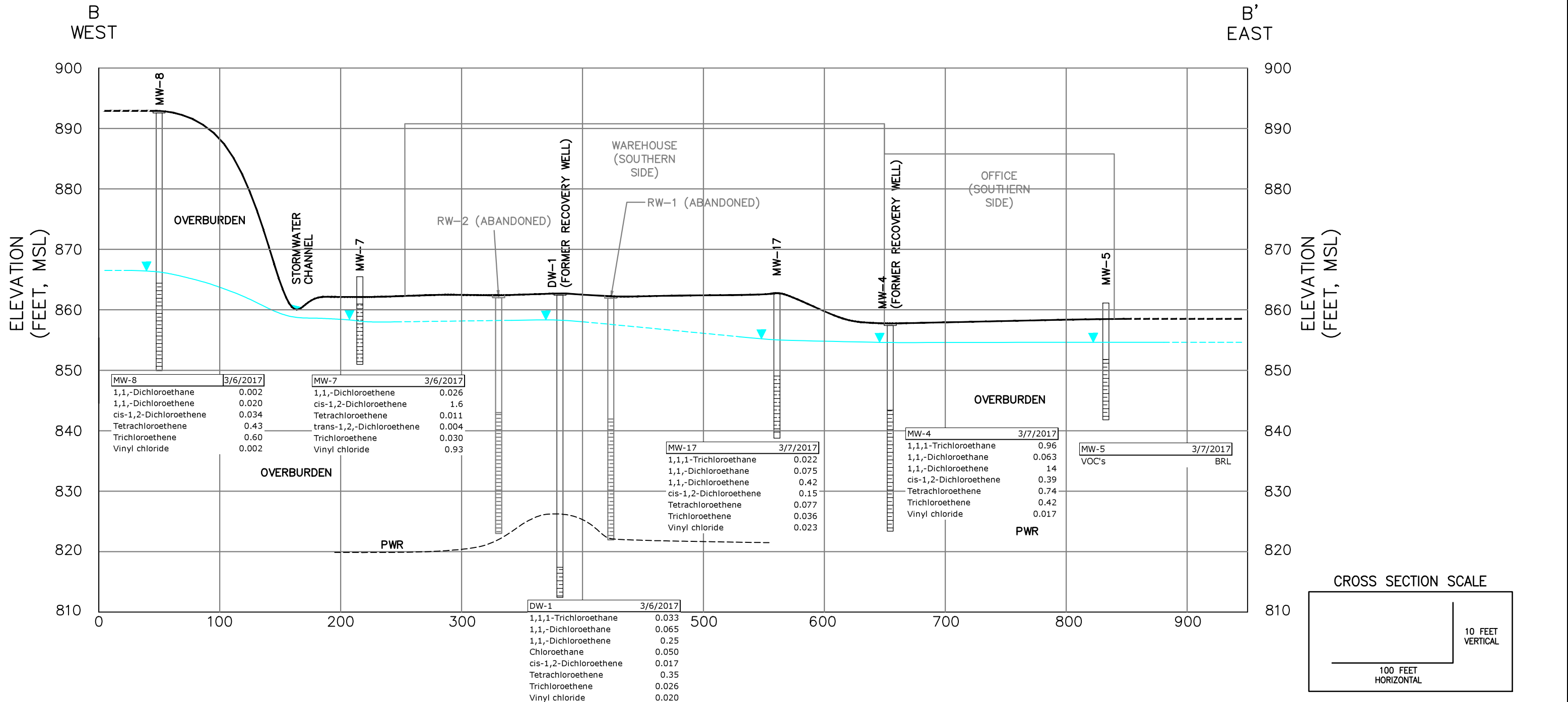


OCT 2017
Figure 3

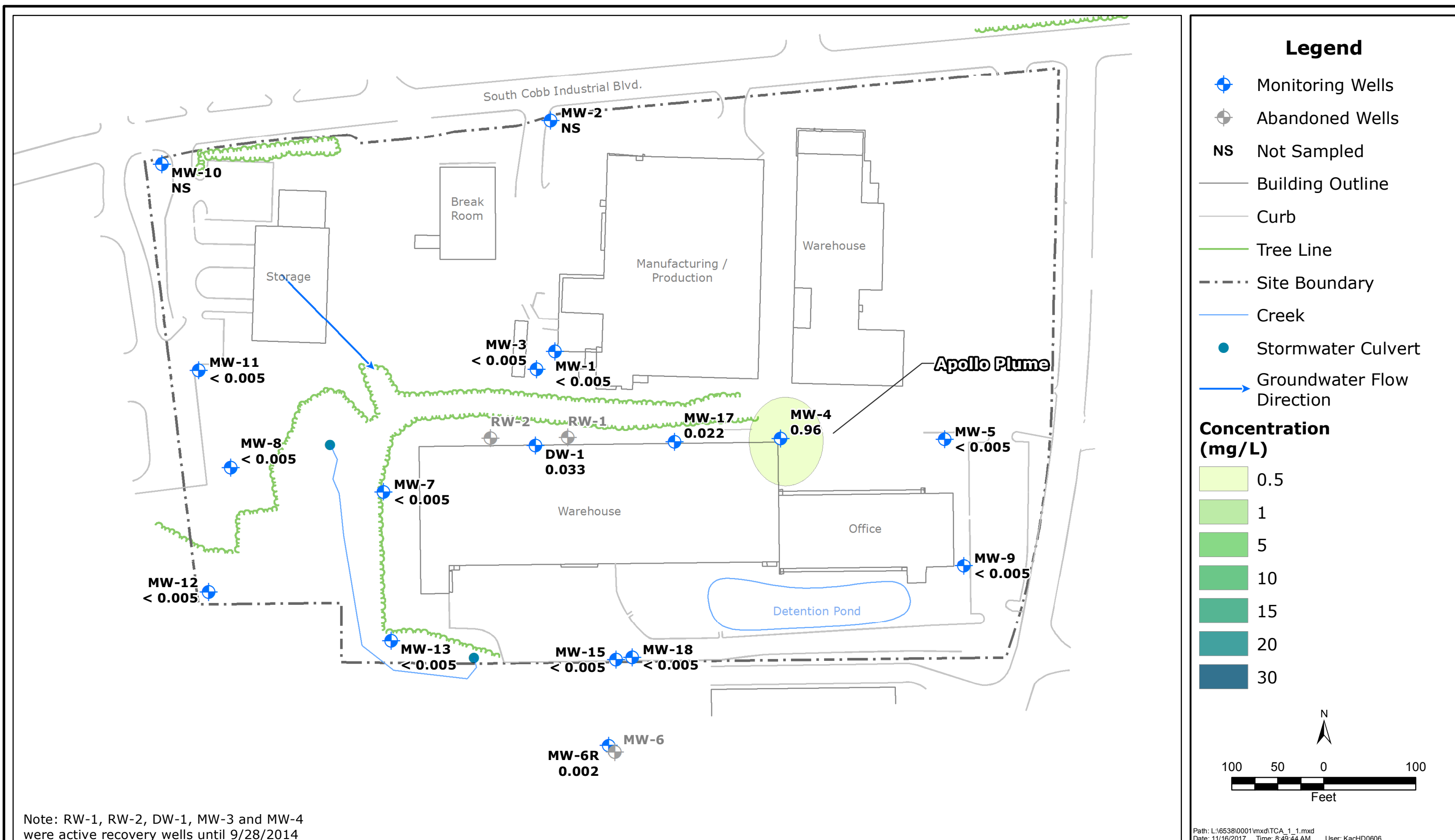




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Note: RW-1, RW-2, DW-1, MW-3 and MW-4 were active recovery wells until 9/28/2014

APOLLO INDUSTRIES, INC.
 1850 S. COBB INDUSTRIAL BLVD
 (HSI #: 10333)

Isoconcentration Map
 1,1,1 - Trichloroethane
 (1,1,1-TCA) March 2017



OCT 2017
 Figure 7

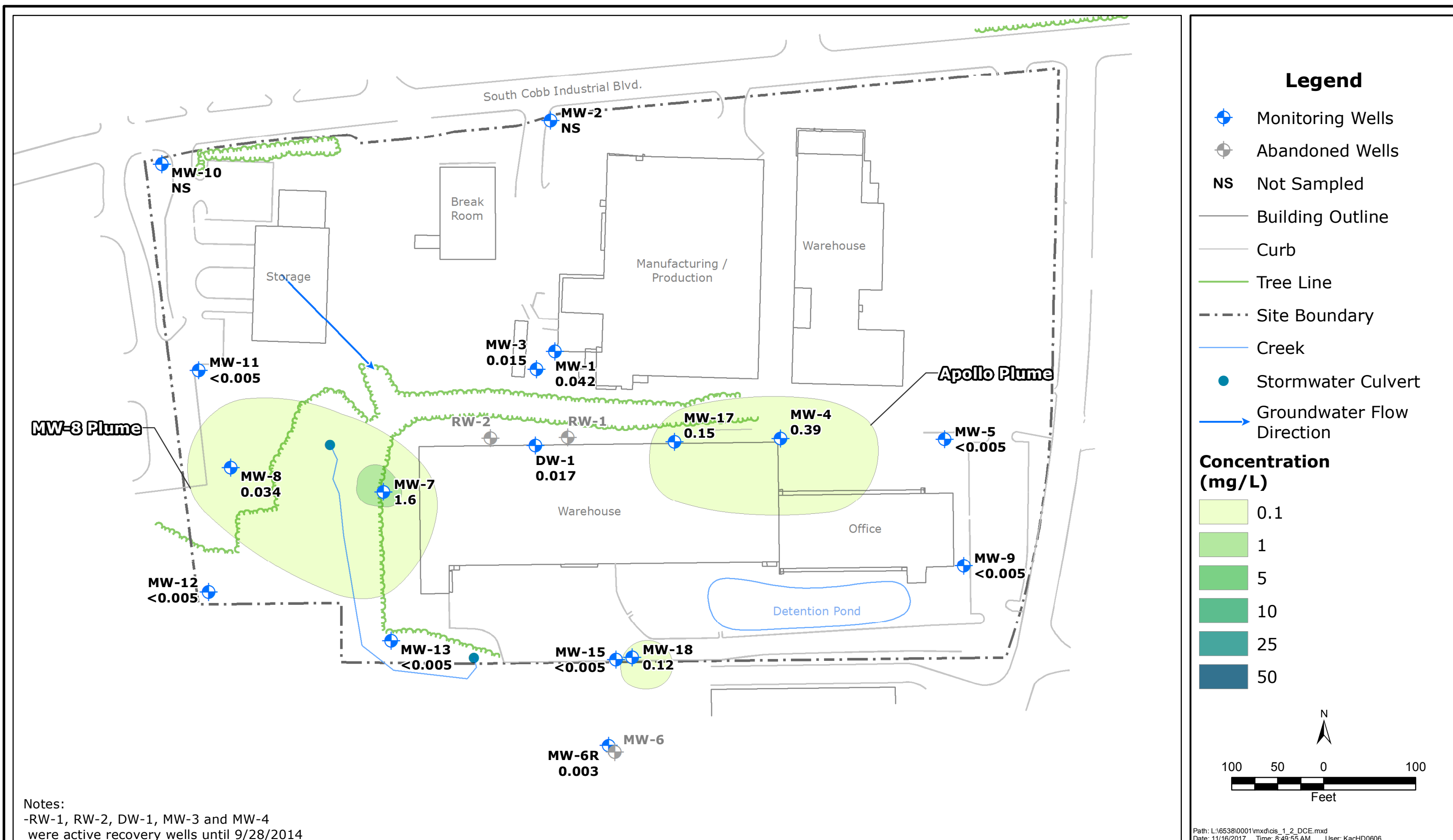


APOLLO INDUSTRIES, INC.
 1850 S. COBB INDUSTRIAL BLVD
 (HSI #: 10333)

Isoconcentration Map
 1, 1 - Dichloroethene (1,1-DCE)
 March 2017



OCT 2017
 Figure 8



APOLLO INDUSTRIES, INC.
 1850 S. COBB INDUSTRIAL BLVD
 (HSI #: 10333)

Isoconcentration Map
 cis-1, 2-Dichloroethene (cis-1,2-DCE)
 March 2017



OCT 2017
 Figure 9

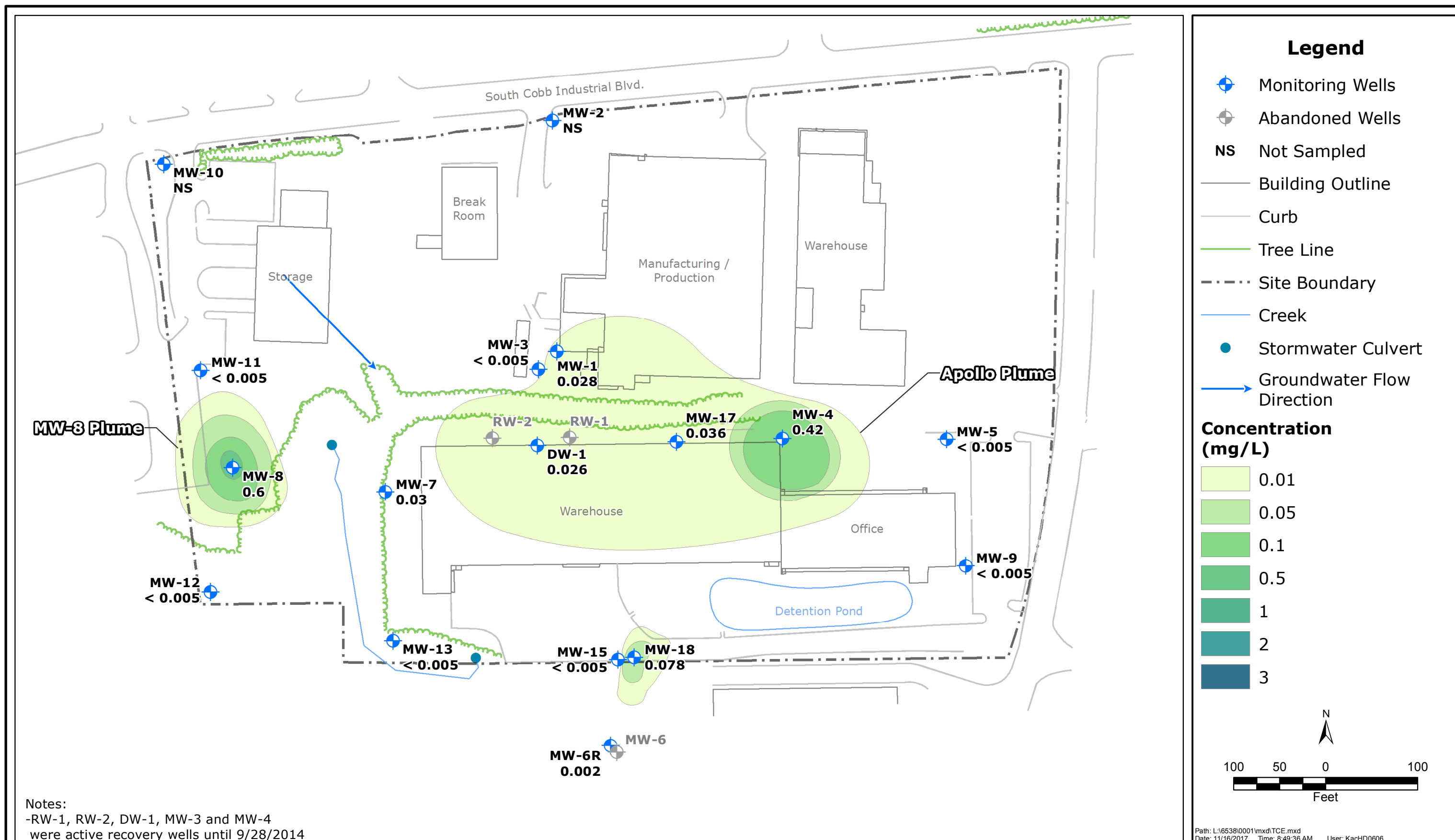


APOLLO INDUSTRIES, INC.
 1850 S. COBB INDUSTRIAL BLVD
 (HSI #: 10333)

Isoconcentration Map
 Tetrachloroethene (PCE)
 March 2017



OCT 2017
 Figure 10



APOLLO INDUSTRIES, INC.
 1850 S. COBB INDUSTRIAL BLVD
 (HSI #: 10333)

Isoconcentration Map
 Trichloroethene (TCE)
 March 2017



OCT 2017
 Figure 11



APOLLO INDUSTRIES, INC.
 1850 S. COBB INDUSTRIAL BLVD
 (HSI #: 10333)

Isoconcentration Map
 Vinyl Chloride (VC)
 March 2017



OCT 2017
 Figure 12

Tables

TABLE 1. MONITORING WELL CONSTRUCTION DETAILS

Monitoring Well	Installation Date	Total Depth feet, bgs	Screened Interval feet, bgs		Screen Length feet	Screened Zone	Top of Casing Elevation feet
			Top	Bottom			
DW-1	11/3/1997	50.0	45	50	5	BDRK	862.44
MW-1	3/18/1994	35.0	20	35	15	OVB	885.30
MW-2*	5/1/1995	46.0	31	46	15	OVB	896.38
MW-3	5/1/1995	49.0	19	49	30	OVB	883.43
MW-4	1/1/2005	34.0	14	34	20	OVB	857.57
MW-5	2/1/2007	19.5	9.5	19.5	10	OVB	861.75
MW-6R	9/16/2015	27.0	16.8	26.4	9.6	OVB	859.61
MW-7	2/1/2007	14.5	4.5	14.5	10	OVB	865.47
MW-8	9/1/2012	43.0	28	43	15	OVB	892.91
MW-9	9/1/2012	19.0	4	19	15	OVB	859.86
MW-10	10/4/2012	29.0	19	29	10	OVB	901.05
MW-11	10/4/2012	30.0	20	30	10	OVB	892.84
MW-12	10/3/2012	34.0	19	34	15	OVB	891.30
MW-13	10/3/2012	13.0	3	13	10	OVB	864.72
MW-15	10/3/2012	14.5	4.5	14.5	10	OVB	858.14
MW-17	10/21/2015	24.0	13.47	22.97	9.5	OVB	862.75
MW-18	7/12/2016	27.0	16.81	26.46	9.65	OVB	--

Notes

bgs - below ground surface

BDRK - bedrock

OVB - overburden

-- - not measured

* - total depth and screened interval estimated from field measurements

TABLE 2. WATER LEVEL MEASUREMENTS

Monitoring Well	Top of Casing Elevation feet, MSL	July 14, 2016		September 12, 2016		March 6/7, 2017	
		Depth to Water feet	Groundwater Elevation feet, MSL	Depth to Water feet	Groundwater Elevation feet, MSL	Depth to Water feet	Groundwater Elevation feet, MSL
DW-1	862.44	--	--	4.07	858.37	3.67	858.77
MW-1	885.30	--	--	24.05	861.25	23.91	861.39
MW-2	896.38	--	--	27.75	868.63	26.60	869.78
MW-3	883.43	--	--	23.03	860.40	22.64	860.79
MW-4	857.57	--	--	2.99	854.58	2.58	854.99
MW-5	861.75	--	--	7.11	854.64	7.18	854.57
MW-6R	859.61	--	--	8.70	850.91	7.71	851.90
MW-7	865.47	--	--	7.54	857.93	7.01	858.46
MW-8	892.91	--	--	26.40	866.51	26.21	866.70
MW-9	859.86	--	--	9.30	850.56	8.87	850.99
MW-10	901.05	--	--	20.05	881.00	21.15	879.90
MW-11	892.84	--	--	21.30	871.54	21.76	871.08
MW-12	891.30	--	--	26.61	864.69	25.82	865.48
MW-13	864.72	--	--	9.00	855.72	8.15	856.57
MW-15	858.14	6.73	851.41	7.24	850.90	6.30	851.84
MW-17	862.75	--	--	7.77	854.98	6.54	856.21
MW-18	--	7.00	NC	7.43	NC	6.53	NC

Notes

MSL - mean sea level

-- - not measured

NC - not calculated

TABLE 3. FIELD PARAMETERS

Sample Location	Date	Temperature °C	pH Standard Units	Dissolved Oxygen mg/L	ORP mV	Conductivity µS/cm	Turbidity NTU
DW-1*	9/12/16	20.53	6.14	11.13*	1.1	213	0.58
	3/6/17	18.90	6.36	0.26	14.9	185	2.59
MW-1	9/12/16	20.42	6.60	5.72	-208.1	421	0.49
	3/7/17	19.20	6.58	0.26	-122.4	340	3.16
MW-3	9/12/16	22.60	6.63	0.43	-99.8	256	7.96
	3/7/17	19.75	6.79	0.23	-114.5	150	9.70
MW-4	9/12/16	23.82	6.08	6.59	27.6	311	1.50
	3/7/17	18.98	6.19	0.52	131.6	312	9.80
MW-5	9/12/16	26.66	5.03	2.89	48.7	62	2.41
	3/7/17	19.01	5.34	0.34	196.8	50	9.94
MW-6R	9/12/16	21.52	5.89	7.79	6.9	93	0.90
	3/6/17	18.51	6.11	0.66	128.2	96	3.14
MW-7	9/12/16	21.10	5.74	1.74	-36.7	289	5.24
	3/6/17	15.76	6.02	0.14	-29.4	263	9.80
MW-8	9/12/16	21.50	5.36	8.9	42.4	52	1.29
	3/6/17	18.45	5.36	0.3	168.7	44	1.26
MW-9	9/12/16	22.67	4.42	1.38	73.1	80	1.73
	3/6/17	19.39	5.26	0.22	228.7	70	3.12
MW-11	9/12/16	22.17	5.96	0.51	-88.7	248	2.83
	3/6/17	20.72	6.25	0.25	-62.7	150	2.21
MW-12	9/12/16	19.49	4.88	0.88	95.1	50	1.53
	3/6/17	16.92	5.10	0.85	250.7	46	1.94
MW-13	9/12/16	19.46	5.70	1.89	-36.3	202	0.96
	3/7/17	15.74	5.93	0.20	11.0	173	9.00
MW-15	9/12/16	23.30	5.92	1.13	-54.5	552	0.21
	3/7/17	17.18	6.03	0.22	-40.8	551	1.75
MW-17	9/12/16	21.17	6.03	5.02	36	378	0.26
	3/7/17	17.60	6.39	0.13	43	398	3.50
MW-18	9/12/16	22.83	5.66	2.34	77.5	234	1.67
	3/7/17	19.01	5.92	0.16	40.1	295	3.41

Notes

* - DO sensor malfunction affected DW-1 readings

mg/L - milligrams per liter

mV - millivolts

µS/cm - microsiemens per centimeter

NTU - nephelometric turbidity units

TABLE 4. SUMMARY OF GROUNDWATER ANALYTICAL RESULTS

Constituent (mg/L)		1,1,1-TCA	1,1-DCA	1,1-DCE	1,2-DCA	Acetone	Chloroethane	cis-1,2-DCE	Cyclohexane	Methylene chloride	PCE	trans-1,2-DCE	TCE	Vinyl Chloride
Delineation Criteria (mg/L)		0.2	4	0.007	0.005	4	DL/0.01	0.07	DL/0.005	0.005	0.005	0.1	0.005	0.002
Type 1/3 RRS (mg/L)		0.2	4*	0.007	0.005*	4	DL/0.01	0.07	DL/0.005	0.005	0.005	0.1	0.005	0.002
Type 4 RRS (mg/L)		13.6*	NC	0.524*	NC	45.6*	29.2*	0.204*	17.5*	0.454*	0.0981*	0.161*	0.00524*	0.00327*
DW-1	9/13/16	0.034	0.098	0.250	< 0.005	< 0.050	0.068	0.033	< 0.005	< 0.005	0.360	< 0.005	0.047	0.031
	3/6/17	0.033	0.065	0.250	< 0.005	< 0.050	0.050	0.017	< 0.005	< 0.005	0.350	< 0.005	0.026	0.020
MW-1	9/14/16	0.013	0.060	< 0.005	< 0.005	0.560	< 0.010	0.049	< 0.005	< 0.005	0.012	< 0.005	< 0.005	0.032
	3/6/17	< 0.005	0.033	< 0.005	< 0.005	0.190	0.022	0.042	0.007	0.003	0.016	< 0.005	0.028	0.024
MW-3	9/14/16	0.099	0.350	0.079	< 0.005	< 0.050	0.074	0.700	< 0.005	0.009	< 0.005	< 0.005	< 0.005	0.360
	3/7/17	< 0.005	0.015	0.003	< 0.005	< 0.050	< 0.010	0.015	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.015
MW-4**	9/14/16	1.40	< 0.025	18.0	< 0.024	< 0.53	< 0.039	0.720	< 0.16	< 0.031	0.550	< 0.022	0.29 J	< 0.042
	3/7/17	0.960	0.063	14.0	< 0.005	< 0.050	< 0.010	0.390	< 0.005	< 0.005	0.740	< 0.005	0.420	0.017
MW-5	12/9/16	< 0.005	< 0.005	< 0.005	< 0.005	< 0.050	< 0.010	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.002
	3/7/17	< 0.005	< 0.005	< 0.005	< 0.005	< 0.050	< 0.010	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.002
MW-6R	9/13/16	< 0.005	0.005	0.260	< 0.005	< 0.050	< 0.010	< 0.005	< 0.005	< 0.005	0.023	< 0.005	< 0.005	< 0.002
	3/6/17	0.002	0.006	0.150	< 0.005	< 0.050	< 0.010	0.003	< 0.005	< 0.005	0.016	< 0.005	0.002	< 0.002
MW-7	12/9/16	< 0.005	< 0.005	< 0.005	< 0.005	< 0.050	< 0.010	0.170	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.350
	3/6/17	< 0.005	< 0.005	0.026	< 0.005	< 0.050	< 0.010	1.60	< 0.005	< 0.005	0.011	0.004	0.030	0.930
MW-8	9/13/16	< 0.005	< 0.005	0.013	< 0.005	< 0.050	< 0.010	0.029	< 0.005	< 0.005	0.550	< 0.005	0.830	< 0.002
	3/6/17	< 0.005	0.002	0.020	< 0.005	< 0.050	< 0.010	0.034	< 0.005	< 0.005	0.430	< 0.005	0.600	0.002
MW-9	12/9/16	< 0.005	< 0.005	< 0.005	< 0.005	< 0.050	< 0.010	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.002
	3/6/17	< 0.005	< 0.005	< 0.005	< 0.005	< 0.050	< 0.010	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.002
MW-11	9/13/16	< 0.005	< 0.005	< 0.005	< 0.005	< 0.050	< 0.010	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.002
	3/6/17	< 0.005	< 0.005	< 0.005	< 0.005	< 0.050	< 0.010	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.002
MW-12	9/13/16	< 0.005	< 0.005	< 0.005	< 0.005	< 0.050	< 0.010	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.002
	3/6/17	< 0.005	< 0.005	< 0.005	< 0.005	< 0.050	< 0.010	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.002
MW-13	12/9/16	< 0.005	< 0.005	< 0.005	< 0.005	< 0.050	< 0.010	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.002
	3/7/17	< 0.005	< 0.005	< 0.005	< 0.005	< 0.050	< 0.010	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.002
MW-15	7/14/16	< 0.005	< 0.005	< 0.005	< 0.005	< 0.050	0.071	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.002
	9/13/16	< 0.005	< 0.005	< 0.005	< 0.005	< 0.050	0.048	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.002
	3/7/17	< 0.005	< 0.005	< 0.005	< 0.005	< 0.050	0.069	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.001
MW-17	9/13/16	0.032	0.180	0.910	< 0.005	< 0.050	< 0.010	0.380	0.006	< 0.005	0.130	< 0.005	0.094	0.060
	3/7/17	0.022	0.075	0.420	< 0.005	< 0.050	< 0.010	0.150	< 0.005	< 0.005	0.077	< 0.005	0.036	0.023
MW-18	7/14/16	< 0.005	0.170	0.630	< 0.005	< 0.050	0.028	0.140	< 0.005	< 0.005	0.150	< 0.005	0.100	0.011
	9/13/16	< 0.005	0.200	0.470	< 0.005	< 0.050	0.015	0.160	< 0.005	< 0.005	0.190	< 0.005	0.110	0.010
	3/7/17	< 0.005	0.150	0.390	< 0.005	< 0.050	0.029	0.120	< 0.005	< 0.005	0.110	< 0.005	0.078	0.014

Notes

Delineation Criteria equals Type 1 Risk Reduction Standard (RRS)

mg/L - milligrams per liter

DL - Detection Limit

NC - not calculated; comparing to Type 1 RRS

*applicable RRS

** sample diluted; J - estimated concentration

BOLD - Concentration exceeds delineation criteria

BOLD and SHADED - Concentration exceeds applicable RRS

TABLE 5. GROUNDWATER MNA RESULTS

Monitoring Well	Date	TOC mg/L	Sulfide mg/L	Chloride mg/L	Nitrogen, Nitrate mg/L	Sulfate mg/L	Ethane mg/L	Ethylene mg/L	Methane mg/L	Alkalinity mg/L	Ferrous Iron mg/L
DW-1	9/13/16	0.450 J	2.40	19.0	0.37	0.82 J	0.026	0.066	0.660	60	1.62
	3/6/17	1.30	< 2	14.0	0.63	1.60	0.061	0.510	0.590	61	1.20
MW-1	9/14/16	15.20	6.72	4.3	< 0.25	1.30	0.015	0.018	0.084	141	0.86
	3/7/17	16.50	< 2	22.0	< 0.25	5.50	0.034	0.023	0.220	126	1.75
MW-3	9/14/16	11.60	2.32	4.2	< 0.25	1.20	0.120	0.051	1.300	80	3.21*
	3/7/17	4.16	< 2	1.6	< 0.25	3.90	0.0036 J	0.008	0.110	51	2.38
MW-4	9/14/16	0.789 J	2.72	49.0	< 0.25	0.85 J	< 0.0090	0.0044 J	0.094	62	0.02
	3/7/17	1.61	< 2	56.0	< 0.25	0.62 J	< 0.0090	< 0.0070	0.033	56	0.06
MW-5	12/9/16	< 1	2.80	5.1	0.47	1.10	< 0.0090	< 0.0070	< 0.0040	< 3	0.02
	3/7/17	1.07	< 2	3.8	0.32	1.30	< 0.0090	< 0.0070	< 0.0040	30	0.14
MW-6R	9/13/16	< 1	< 2	4.8	0.86	0.96 J	< 0.0090	< 0.0070	0.009	30	0.04
	3/6/17	< 1	< 2	4.6	0.81	0.98 J	< 0.0090	< 0.0070	0.007	36	0.00
MW-7	12/9/16	< 1	2.00	7.4	< 0.25	1.60	0.004	0.170	3.300	47	2.06
	3/6/17	< 1	< 2	14.0	< 0.25	1.90	0.100	0.260	5.000	74	1.21*
MW-8	9/13/16	< 1	2.40	4.7	0.19 J	0.57 J	< 0.0090	< 0.0070	0.210	14	0.30
	3/6/17	0.60 J	< 2	4.7	0.18 J	0.69 J	< 0.0090	< 0.0070	0.610	23	0.24
MW-9	12/9/16	< 1	2.00	10.0	0.065 J	2.50	< 0.0090	< 0.0070	0.280	< 3	0.05
	3/6/17	< 1	< 2	7.5	0.16 J	2.10	< 0.0090	< 0.0070	0.076	24	0.07
MW-11	9/13/16	< 1	2.00	8.8	< 0.25	8.00	< 0.0090	< 0.0070	3.700	30	3.28*
	3/6/17	1.33	< 2	7.4	< 0.25	0.79	< 0.0090	< 0.0070	3.300	42	1.38*
MW-12	9/13/16	< 1	3.20	6.6	0.41	0.19 J	< 0.0090	< 0.0070	0.0026 J	< 3	0.01
	3/6/17	2.60	< 2	7.5	0.40	0.17 J	< 0.0090	< 0.0070	0.0018 J	12	0.00
MW-13	12/9/16	< 1	5.20	7.8	< 0.25	0.15 J	0.130	< 0.0070	4.000	54	2.91
	3/7/17	0.917 J	< 2	8.1	< 0.25	0.28 J	0.091	< 0.0070	3.900	68	2.99
MW-15	9/13/16	3.05	1.2 J	32.0	< 0.25	0.16 J	0.023	< 0.0070	7.500	65	1.38
	3/7/17	4.36	< 2	34.0	< 0.25	0.22 J	0.046	< 0.0070	9.700	109	1.32
MW-17	9/13/16	< 1	2.40	23.0	< 0.25	8.80	0.014	0.008	0.590	128	0.74
	3/7/17	3.77	< 2	13.0	< 0.25	9.70	0.0038 J	< 0.0070	0.180	184	0.54
MW-18	9/13/16	1.68	1.2 J	14.0	< 0.25	2.30	0.017	< 0.0070	2.300	75	1.33
	3/7/17	2.18	< 2	15.0	< 0.25	1.50	0.024	< 0.0070	3.700	93	1.39

Notes

mg/L - milligrams per liter

TOC - total organic carbon

J - estimated concentration

* - Sampled was diluted due to initial reading exceeding 3.30 mg/L on HACH DR/820 colorimeter

TABLE 6. VAPOR INTRUSION SCREENING RESULTS

Constituent	VOC Groundwater Concentration (µg/L)	Calculated Indoor Air Concentration (mg/m ³)	OSHA PEL (mg/m ³)
1,1,1-TCA	960	0.675	2,400
1,1-DCA	150	0.0345	400
1,1-DCE	14,000	14.9	NL
1,2-DCA	<5	NC	202*
Acetone	190	0.000272	2,400
Chloroethane	69	0.0313	2,600
cis-1,2-DCE	1,600	NC	NL
Cyclohexane	7	0.013	1,050
Methylene Chloride	3	0.000399	87*
PCE	740	0.535	678*
trans-1,2-DCE	4	NC	NL
TCE	600	0.242	537*
Vinyl Chloride	930	1.060	2.56*

Notes

* - Calculated based on the OSHA 8-hour time weighted average concentration.

Calculated indoor concentrations based on a Target Risk of 1×10^{-5} and THQ=1

µg/L - micrograms per liter

mg/m³ - milligrams per cubic meter

NC - Not calculated

NL - No OSHA PEL listed

TABLE 7: PROJECTED MILESTONE SCHEDULE

Date	Activity
<i>June 4, 2014</i>	<i>VRP Application Approved</i>
<i>May 2015</i>	<i>First VIRP Progress Report</i>
<i>October 2015</i>	<i>Site wide groundwater sampling event</i>
<i>December 2015</i>	<i>Second VIRP Progress Report</i>
<i>March 2016</i>	<i>Site wide groundwater sampling event</i>
<i>May 2016</i>	<i>Third VIRP Progress Report</i>
<i>September 2016</i>	<i>Groundwater sampling event</i>
<i>November 2016</i>	<i>Fourth VIRP Progress Report</i>
<i>March 2017</i>	<i>Groundwater sampling event</i>
<i>May 2017</i>	<i>Fifth VIRP Progress Report</i>
<i>September 2017</i>	<i>Groundwater sampling event</i>
<i>November 2017</i>	<i>Compliance Status Report</i>

Fourth VIRP Progress Report and CSM



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November 18, 2016

Mr. Kevin Collins
Unit Coordinator
Response and Remediation Program
Georgia Department of Natural Resources
Environmental Protection Division
2 Martin Luther King, Jr. Drive, SE, Suite 1054 East
Atlanta, Georgia 30334

Subject: **Submittal of Fourth VIRP Progress Report
Apollo Industries, Inc., HSI No. 10333
1850 South Cobb Industrial Boulevard SE, Smyrna, Cobb County, Georgia**

Dear Mr. Collins:

EarthCon Consultants, Inc. ("EarthCon"), on behalf of our client AMC Cobb Holdings, LLC ("AMC Cobb") is pleased to submit to the Georgia Environmental Protection Division ("EPD") the Fourth Voluntary Investigation and Remediation ("VIRP") Progress Report for the Apollo Industries, Inc. Site (HSI No. 10333) located in Smyrna, Cobb County, Georgia, which is enclosed with this letter.

If you have any questions regarding the Fourth VIRP Progress Report, please feel free to contact the undersigned at (770) 973-2100.

Sincerely,

Samantha N. Woolf, E.I.T.
Staff Engineer

Carol D. Northern, P.G.
Principal Geologist

Attachment: Fourth VIRP Progress Report

Cc: Ms. Maria Callas, AMC Cobb Holdings, LLC
Ms. Robin Futch, Georgia EPD
Mr. Adam Sowatzka, King & Spalding

FOURTH VIRP PROGRESS REPORT

**APOLLO INDUSTRIES, INC.
1850 SOUTH COBB INDUSTRIAL BOULEVARD SE
SMYRNA, COBB COUNTY, GEORGIA
HSI SITE NUMBER 10333**

PREPARED FOR:

**AMC COBB HOLDINGS, LLC
1141 CREST VALLEY DRIVE
ATLANTA, GA 30327**

PREPARED BY:

**EARTHCON CONSULTANTS, INC.
1880 WEST OAK PARKWAY
BUILDING 100, SUITE 106
MARIETTA, GEORGIA 30062
770-973-2100**

EarthCon Project No. 02.20140391.16

NOVEMBER 2016

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Appendix A	MW-18 Boring Log
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Appendix C	Field Sampling Forms
Appendix D	Laboratory Analytical Reports
Appendix E	Groundwater Trend Graphs and Historical Data Summary

PG 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."

Carol D. Northern

Carol D. Northern, P.G.
Principal Geologist



Registration No. 793
State of Georgia

Date: 11/10/16

1.0 INTRODUCTION

The Voluntary Investigation and Remediation Plan (“VIRP”) Application for the Apollo Industries, Inc. Hazardous Site Inventory (“HSI”) Site Number 10333 located at 1850 South Cobb Industrial Boulevard SE in Smyrna, Cobb County, Georgia (the “Site”), was submitted to the Georgia Environmental Protection Division (“EPD”) on March 4, 2014. The Site is currently owned by AMC Cobb Holdings, LLC (“AMC Cobb”) and is operated by Apollo Technologies, Inc. (“Apollo”). The Site location is shown on Figure 1. The VIRP was approved by EPD in a letter dated June 4, 2014. On December 15, 2015, AMC Cobb submitted a letter notifying EPD that as of that date, AMC Cobb is responsible for performing the work under the VIRP. This Fourth VIRP Progress Report is being submitted by EarthCon on behalf of AMC Cobb and provides a summary of activities conducted at the Site from May 2016 through October 2016 (“Report Period”).

2.0 SUMMARY OF SITE ACTIVITIES

During this Report Period, AMC Cobb conducted the following activities at the Site:

- Installation of groundwater monitoring well MW-18;
- Analyses of groundwater samples for MW-15 and MW-18 for volatile organic compounds (“VOCs”) in July;
- A groundwater sampling event including 15 groundwater monitoring wells; and
- Analyses of groundwater samples for VOCs and monitored natural attenuation (“MNA”) parameters.

2.1 Well Installation

On July 12, 2016, monitoring well MW-18 was installed adjacent to monitoring well MW-15 to obtain additional information on groundwater quality near the southern property boundary (Figure 2). The total depth of MW-18 is 27 feet and the well is screened from approximately 16 to 26 feet below ground surface (“bgs”), similar to the total depth and screened interval of monitoring well MW-6R. The boring log and monitoring well construction details for MW-18 are provided in Appendix A.

2.2 Groundwater Sampling

Groundwater samples were collected from MW-15 and MW-18 in July 2016. Groundwater samples were collected from fifteen (15) monitoring wells during the groundwater monitoring event conducted in September 2016. The monitoring well locations are shown on Figure 2. The monitoring well construction details are presented in Table 1 and the groundwater elevation data are presented in Table 2. Field parameters are presented in Table 3. A description of the field

procedures is provided in Appendix B and the groundwater sampling field forms from the July 2016 and September 2016 sampling events are provided in Appendix C.

Static water level elevations were measured for all wells on September 12, 2016. Groundwater elevations were calculated using top of casing elevations presented in the VIRP (O'Brien & Gere, March 2014) as well as subsequent surveys for MW-9 on April 8, 2015 and MW-6R and MW-17 on November 3, 2015. The top of casing elevation for well MW-18 was not surveyed during the Report Period.

3.0 GROUNDWATER ANALYTICAL RESULTS

On July 14, 2016, groundwater samples were collected from monitoring wells MW-15 and MW-18. The samples were analyzed for volatile organic compounds ("VOCs") using EPA Method 8260B by Analytical Environmental Services ("AES").

Groundwater samples were collected from fifteen (15) monitoring wells from September 12 to September 14, 2016. The samples were analyzed for VOCs using EPA Method 8260B and for the following monitored natural attenuation ("MNA") parameters: total organic carbon ("TOC") by Method 9060A; sulfide by Method 9030B; chloride, nitrate, and sulfate by Method 9056A; ethane, ethylene, and methane by Method RSK-175; and total alkalinity by Method 2320B. The groundwater samples collected in September 2016 were also field tested for the presence of ferrous iron using a field test kit. A summary of the VOC analyses from July 2016 and September 2016 are provided in Table 4 while the MNA parameter results from September 2016 are summarized in Table 5. The laboratory analytical reports are provided in Appendix D.

The September 2016 groundwater analytical results indicated detections of 11 regulated substances at concentrations above laboratory reporting limits (Table 4). Of those, nine constituents were detected at concentrations above the delineation criteria including: 1,1,1-trichloroethane ("1,1,1-TCA"), 1,1-dichloroethene ("1,1-DCE"), chloroethane, cis-1,2-dichloroethene ("cis-1,2-DCE"), cyclohexane, methylene chloride, tetrachloroethene ("PCE"), trichloroethene ("TCE"), and vinyl chloride ("VC"). These nine constituents were then compared to EPD-approved Type 1/3 or Type 4 risk reduction standards ("RRS"). Five of the nine constituents were detected at concentrations above the applicable RRS, including: 1,1-DCE, cis-1,2-DCE, PCE, TCE, and VC.

4.0 CONCEPTUAL SITE MODEL

4.1 Source Areas

Historic on-site source areas included the former outdoor and current indoor batching operations and filling processes, as well as the former tank farm and former storm water collection basin near monitoring wells MW-1 and MW-3. Monitoring well MW-4 had been used as a recovery well from its installation in 2005 until September 2014, which appears to have

pulled contaminant mass away from the source area (MW-1 and MW-3) and downgradient toward MW-4. The facility layout is presented on Figure 2.

Off-site source areas include industrial and chemical facilities upgradient and north/northwest of the Site. As previously documented in the December 2015 Second VIRP Progress Report, the contaminant concentrations detected in wells MW-7 and MW-8 are attributed to these upgradient, off-site source area(s).

4.2 Groundwater Flow

The water level measurements collected on September 12, 2016 were used to develop a potentiometric surface map for the Site. As shown on Figure 3, the groundwater flow direction is to the southeast. The current measured groundwater flow is consistent with historic measured groundwater flow.

4.3 Extent of Groundwater Impacts

As shown in Table 4, nine VOCs were detected at concentrations above the delineation criteria. 1,1-DCE, cis-1,2-DCE, PCE, TCE, and VC were detected at concentrations above the applicable RRS. These detections and concentrations are reduced in comparison with previous sampling events. A groundwater cross section location map is provided as Figure 4. Groundwater cross sections are shown on Figures 5 and 6. September 2016 groundwater plume isoconcentration maps for total VOCs and seven of the primary constituents (1,1,1-TCA, 1,1-DCE, cis-1,2-DCE, PCE, TCE, VC, and acetone) documented in the Apollo Plume Area are provided as Figures 7 through 14, respectively. A summary of historical groundwater data collected since 2001, along with trend graphs, is provided in Appendix E.

With regard to groundwater delineation, horizontal delineation of groundwater is demonstrated by wells MW-2, MW-5, MW-9, MW-10, MW-11, MW-12, MW-13, and MW-15. Although vertical delineation has not been achieved at well DW-1, concentrations are continuing to decrease. Groundwater elevation measurements at wells DW-1, MW-17, and MW-4, indicate the bedrock and overburden are interconnected and it appears groundwater flow transitions from bedrock back into the overburden through this area. Additionally, the Facility is located in a highly industrialized area where chlorinated compounds are likely to be encountered. Since there are multiple plumes at the Site, one of which is associated with off-site sources, further vertical delineation is impracticable.

5.0 RECOMMENDATIONS

We anticipate conducting an additional round of sampling on March 2017. Groundwater data from that event will be assessed for natural attenuation, plume stability analysis, and the need for groundwater modeling. Compliance with applicable cleanup standards will be demonstrated

empirically through the Ricker Method® Plume Stability Analysis, through an environmental covenant, and potentially through fate and transport groundwater modeling.

6.0 MONTHLY INVOICE SUMMARY

EPD requires that a professional engineer or geologist oversee the implementation of the VIRP in accordance with the provisions, purposes, standards and policies of the Georgia Voluntary Remediation Program Act. From May 1, 2016 through October 31, 2016, Ms. Carol D. Northern, P.G., invoiced 15.5 hours to this project. A monthly summary of hours invoiced and a description of services provided is shown in Table 6.

7.0 SCHEDULE

A project schedule for activities is provided in Table 7. AMC Cobb expects to conduct the following activities during the next 6-month reporting period (November 2016 through April 2017):

- Groundwater sampling event in March 2017.

The Fifth VIRP Progress Report will be submitted by AMC Cobb on or before May 20, 2017, unless a compliance status report is submitted before or on that date.

TABLES

TABLE 1. MONITORING WELL CONSTRUCTION DETAILS

Monitoring Well	Installation Date	Total Depth feet, bgs	Screened Interval feet, bgs		Screen Length feet	Screened Zone	Top of Casing Elevation feet
			Top	Bottom			
DW-1	11/3/1997	50.0	45	50	5	BDRK	862.44
MW-1	3/18/1994	35.0	20	35	15	OVB	885.30
MW-2*	5/1/1995	46.0	31	46	15	OVB	896.38
MW-3	5/1/1995	49.0	19	49	30	OVB	883.43
MW-4	1/1/2005	34.0	14	34	20	OVB	857.57
MW-5	2/1/2007	19.5	9.5	19.5	10	OVB	861.75
MW-6R	9/16/2015	27.0	16.8	26.4	9.6	OVB	859.61
MW-7	2/1/2007	14.5	4.5	14.5	10	OVB	865.47
MW-8	9/1/2012	43.0	28	43	15	OVB	892.91
MW-9	9/1/2012	19.0	4	19	15	OVB	859.86
MW-10	10/4/2012	29.0	19	29	10	OVB	901.05
MW-11	10/4/2012	30.0	20	30	10	OVB	892.84
MW-12	10/3/2012	34.0	19	34	15	OVB	891.30
MW-13	10/3/2012	13.0	3	13	10	OVB	864.72
MW-15	10/3/2012	14.5	4.5	14.5	10	OVB	858.14
MW-17	10/21/2015	24.0	13.47	22.97	9.5	OVB	862.75
MW-18	7/12/2016	27.0	16.81	26.46	9.65	OVB	--

Notes

bgs - below ground surface

BDRK - bedrock

OVB - overburden

-- - not measured

* - total depth and screened interval estimated from field measurements

Prepared by: KAH 09/20/2016

Checked by: KRR 10/20/2016

TABLE 2. WATER LEVEL MEASUREMENTS

Monitoring Well	Top of Casing Elevation feet, MSL	July 14, 2016		September 12, 2016	
		Depth to Water feet	Groundwater Elevation feet, MSL	Depth to Water feet	Groundwater Elevation feet, MSL
DW-1	862.44	--	--	4.07	858.37
MW-1	885.30	--	--	24.05	861.25
MW-2	896.38	--	--	27.75	868.63
MW-3	883.43	--	--	23.03	860.40
MW-4	857.57	--	--	2.99	854.58
MW-5	861.75	--	--	7.11	854.64
MW-6R	859.61	--	--	8.70	850.91
MW-7	865.47	--	--	7.54	857.93
MW-8	892.91	--	--	26.40	866.51
MW-9	859.86	--	--	9.30	850.56
MW-10	901.05	--	--	20.05	881.00
MW-11	892.84	--	--	21.30	871.54
MW-12	891.30	--	--	26.61	864.69
MW-13	864.72	--	--	9.00	855.72
MW-15	858.14	6.73	851.41	7.24	850.90
MW-17	862.75	--	--	7.77	854.98
MW-18	--	7.00	NC	7.43	NC

Notes

MSL - mean sea level

-- - not measured

NC - not calculated

Prepared by: KAH 09/20/2016

Checked by: KRR 10/20/2016

TABLE 3. FIELD PARAMETERS

Sample Location	Temperature °C	pH Standard Units	Dissolved Oxygen mg/L	ORP mV	Conductivity µs/cm	Turbidity NTU
September 2016						
DW-1*	20.53	6.14	11.13*	1.1	213	0.58
MW-1	20.42	6.60	5.72	-208.1	421	0.49
MW-3	22.60	6.63	0.43	-99.8	256	7.96
MW-4	23.82	6.08	6.59	27.6	311	1.50
MW-5	26.66	5.03	2.89	48.7	62	2.41
MW-6R	21.52	5.89	7.79	6.9	93	0.90
MW-7	21.10	5.74	1.74	-36.7	289	5.24
MW-8	21.50	5.36	8.9	42.4	52	1.29
MW-9	22.67	4.42	1.38	73.1	80	1.73
MW-10	22.17	5.96	0.51	-88.7	248	2.83
MW-12	19.49	4.88	0.88	95.1	50	1.53
MW-13	19.46	5.70	1.89	-36.3	202	0.96
MW-15	23.30	5.92	1.13	-54.5	552	0.21
MW-17	21.17	6.03	5.02	36	378	0.26
MW-18	22.83	5.66	2.34	77.5	234	1.67

Notes

* - DO sensor malfunction affected DW-1 readings

mg/L - milligrams per liter

mV - millivolts

µs/cm - microsiemens per centimeter

NTU - nephelometric turbidity units

Prepared by: KAH 09/20/2016

Checked by: KRR 10/20/2016

TABLE 4. SUMMARY OF GROUNDWATER ANALYTICAL RESULTS

Constituent (mg/L)		1,1,1-TCA	1,1-DCA	1,1-DCE	1,2-DCA	Acetone	Chloroethane	cis-1,2-DCE	Cyclohexane	Methylene chloride	PCE	trans-1,2-DCE	TCE	Vinyl Chloride
Delineation Criteria (mg/L)		0.2	4	0.007	0.005	4	DL/0.01	0.07	DL/0.005	0.005	0.005	0.1	0.005	0.002
Type 1/3 RRS (mg/L)		0.2	4*	0.007	0.005*	4	DL/0.01	0.07	DL/0.005	0.005	0.005	0.1	0.005	0.002
Type 4 RRS (mg/L)		13.6*	NC	0.524*	NC	45.6*	29.2*	0.204*	17.5*	0.454*	0.0981*	0.161*	0.00524*	0.00327*
DW-1	9/13/16	0.034	0.098	0.25	< 0.005	< 0.050	0.068	0.033	< 0.005	< 0.005	0.36	< 0.005	0.047	0.031
MW-1	9/14/16	0.013	0.060	< 0.005	< 0.005	0.56	< 0.010	0.049	< 0.005	< 0.005	0.012	< 0.005	< 0.005	0.032
MW-3	9/14/16	0.099	0.35	0.079	< 0.005	< 0.050	0.074	0.70	< 0.005	0.009	< 0.005	< 0.005	< 0.005	0.36
MW-4**	9/14/16	1.4	< 0.025	18	< 0.024	< 0.53	< 0.039	0.72	< 0.16	< 0.031	0.55	< 0.022	0.29 J	< 0.042
MW-5	9/12/16	< 0.005	< 0.005	< 0.005	< 0.005	< 0.050	< 0.010	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.002
MW-6R	9/13/16	< 0.005	0.005	0.26	< 0.005	< 0.050	< 0.010	< 0.005	< 0.005	< 0.005	0.023	< 0.005	< 0.005	< 0.002
MW-7	9/12/16	< 0.005	< 0.005	< 0.005	< 0.005	< 0.050	< 0.010	0.17	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.35
MW-8	9/13/16	< 0.005	< 0.005	0.013	< 0.005	< 0.050	< 0.010	0.029	< 0.005	< 0.005	0.55	< 0.005	0.83	< 0.002
MW-9	9/12/16	< 0.005	< 0.005	< 0.005	< 0.005	< 0.050	< 0.010	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.002
MW-11	9/13/16	< 0.005	< 0.005	< 0.005	< 0.005	< 0.050	< 0.010	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.002
MW-12	9/13/16	< 0.005	< 0.005	< 0.005	< 0.005	< 0.050	< 0.010	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.002
MW-13	9/12/16	< 0.005	< 0.005	< 0.005	< 0.005	< 0.050	< 0.010	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.002
MW-15	7/14/16	< 0.005	< 0.005	< 0.005	< 0.005	< 0.050	0.071	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.002
	9/13/16	< 0.005	< 0.005	< 0.005	< 0.005	< 0.050	0.048	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.002
MW-17	9/13/16	0.032	0.18	0.91	< 0.005	< 0.050	< 0.010	0.38	0.006	< 0.005	0.13	< 0.005	0.094	0.06
MW-18	7/14/16	< 0.005	0.17	0.63	< 0.005	< 0.050	0.028	0.14	< 0.005	< 0.005	0.15	< 0.005	0.1	0.011
	9/13/16	< 0.005	0.20	0.47	< 0.005	< 0.050	0.015	0.16	< 0.005	< 0.005	0.19	< 0.005	0.11	0.01

Notes

Delineation Criteria equals Type 1 Risk Reduction Standard (RRS)

mg/L - milligrams per liter

DL - Detection Limit

NC - not calculated; comparing to Type 1 RRS

*applicable RRS

** method detection limit (MDL); sample diluted

J - estimated concentration

BOLD - Concentration exceeds delineation criteria

BOLD and SHADED - Concentration exceeds applicable RRS

Prepared by: KAH 09/26/2016

Checked by: KRR 10/20/2016

TABLE 5. GROUNDWATER MNA RESULTS

Monitoring Well	Date	TOC mg/L	Sulfide mg/L	Chloride mg/L	Nitrogen, Nitrate mg/L	Sulfate mg/L	Ethane mg/L	Ethylene mg/L	Methane mg/L	Alkalinity mg/L	Ferrous Iron mg/L
DW-1	9/13/16	0.450 J	2.4	19	0.37	0.82 J	0.026	0.066	0.66	60	1.62
MW-1	9/14/16	15.2	6.72	4.3	< 0.25	1.3	0.015	0.018	0.084	141	0.86
MW-3	9/14/16	11.6	2.32	4.2	< 0.25	1.2	0.12	0.051	1.3	80	3.21*
MW-4	9/14/16	0.789 J	2.72	49	< 0.25	0.85 J	< 0.0090	0.0044 J	0.094	62	0.02
MW-5	9/12/16	< 1	2.8	5.1	0.47	1.1	< 0.0090	< 0.0070	< 0.0040	< 3	0.02
MW-6R	9/13/16	< 1	< 2	4.8	0.86	0.96 J	< 0.0090	< 0.0070	0.0085	30	0.04
MW-7	9/12/16	< 1	2	7.4	< 0.25	1.6	0.0040	0.17	3.3	47	2.06
MW-8	9/13/16	< 1	2.4	4.7	0.19 J	0.57 J	< 0.0090	< 0.0070	0.21	14	0.30
MW-9	9/12/16	< 1	2	10	0.065 J	2.5	< 0.0090	< 0.0070	0.28	< 3	0.05
MW-11	9/13/16	< 1	2	8.8	< 0.25	8	< 0.0090	< 0.0070	3.7	30	3.28*
MW-12	9/13/16	< 1	3.2	6.6	0.41	0.19 J	< 0.0090	< 0.0070	0.0026 J	< 3	0.01
MW-13	9/12/16	< 1	5.2	7.8	< 0.25	0.15 J	0.13	< 0.0070	4.0	54	2.91
MW-15	9/13/16	3.05	1.2 J	32	< 0.25	0.16 J	0.023	< 0.0070	7.5	65	1.38
MW-17	9/13/16	< 1	2.4	23	< 0.25	8.8	0.014	0.0080	0.59	128	0.74
MW-18	9/13/16	1.68	1.2 J	14	< 0.25	2.3	0.017	< 0.0070	2.3	75	1.33

Notes

mg/L - milligrams per liter

TOC - total organic carbon

J - estimated concentration

* - Sampled was diluted three times due to initial reading exceeding 3.30 mg/L on HACH DR/820 colorimeter

Prepared by: KAH 09/26/2016

Checked by: KRR 10/20/2016

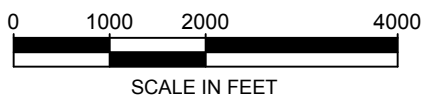
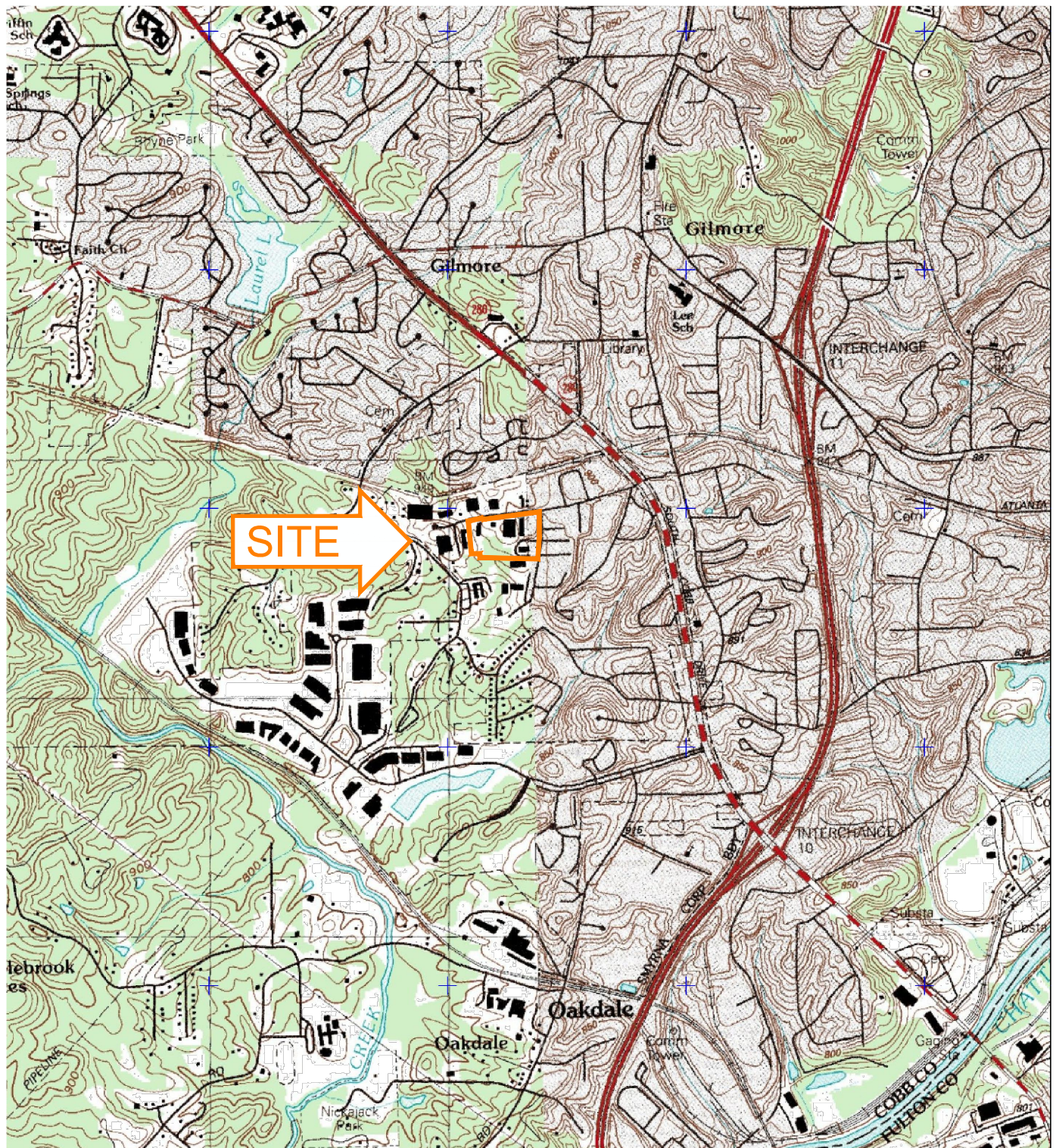
TABLE 6: SUMMARY OF MONTHLY INVOICES

Month	Hours Billed by Carol D. Northern, P.G.	Description of Activities
May 2016	7	– Reviewed the environmental covenant – Reviewed and submitted the Third VIRP Progress Report
June 2016	1.75	– Reviewed EPD's June 2016 Comment Letter – Review well installation plans
July 2016	1	– Reviewed July sampling results
August 2016	2.25	– Scheduling for September sampling event
September 2016	1	– Review results of September sampling event
October 2016	2.5	– Prepared and submitted response to EPD's June 2016 Comment Letter

TABLE 7: PROJECTED MILESTONE SCHEDULE

Date	Activity
<i>June 4, 2014</i>	<i>VIRP Application Approved</i>
<i>May 2015</i>	<i>First VIRP Progress Report</i>
<i>October 2015</i>	<i>Site wide groundwater sampling event</i>
<i>December 2015</i>	<i>Second VIRP Progress Report</i>
<i>March 2016</i>	<i>Site wide groundwater sampling event</i>
<i>May 2016</i>	<i>Third VIRP Progress Report</i>
<i>September 2016</i>	<i>Groundwater sampling event</i>
<i>November 2016</i>	<i>Fourth VIRP Progress Report</i>
March 2017	Groundwater sampling event
May 2017	Fifth VIRP Progress Report
September 2017	Groundwater sampling event
November 2017	Sixth VIRP Progress Report
March 2018	Groundwater sampling event
May 2018	Seventh VIRP Progress Report
September 2018	Groundwater sampling event
November 2018	Eighth VIRP Progress Report
March 2019	Groundwater sampling event
May 2019	Ninth VIRP Progress Report
July 28, 2019	Compliance Status Report

FIGURES



SOURCE: MAPCARD TOPOGRAPHIC MAP: SMYRNA, GEORGIA

APOLLO INDUSTRIES INC
1850 SOUTH COBB INDUSTRIAL BLVD
HSI SITE NUMBER 10333

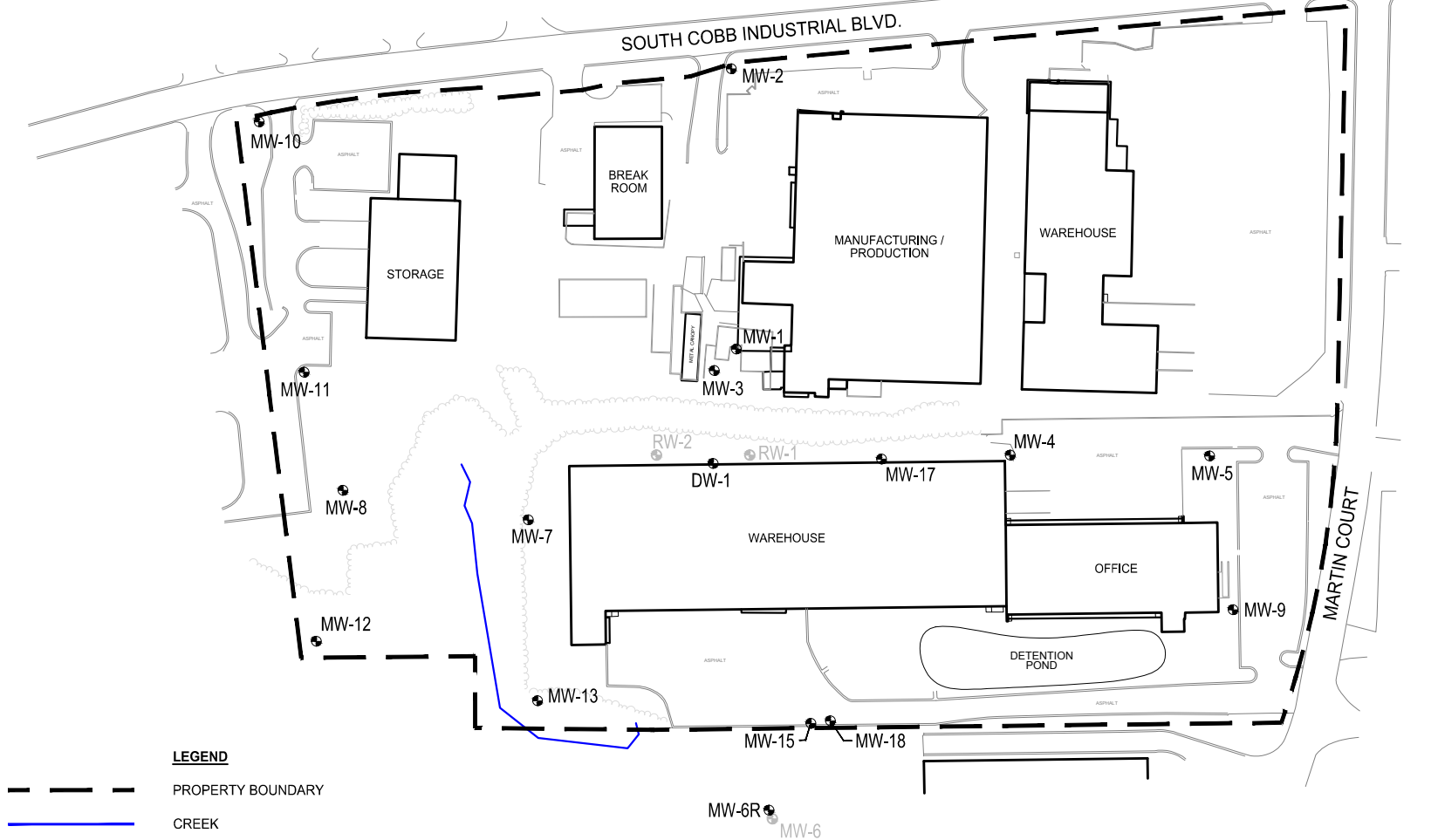
PROJECT NO. 02.20140391.16



EarthCon Consultants, Inc.
1880 WEST OAK PKWY, BLDG 100, STE 106, MARIETTA, GA, 30062

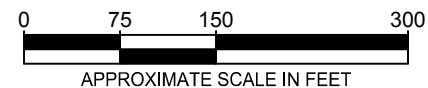
SITE LOCATION

DRAWN: SNW	CHECKED: CDN	DATE: NOV 1, 2016	FIGURE: 1
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LEGEND

- PROPERTY BOUNDARY
- CREEK
- MONITORING WELL
- ABANDONED MONITORING WELL



BASE MAP SOURCE: TERRAMARK LAND SURVEYING, INC. (6/5/2012)

APOLLO INDUSTRIES INC

1850 SOUTH COBB INDUSTRIAL BLVD
HSI SITE NUMBER 10333

PROJECT NO. 02.20140391.16

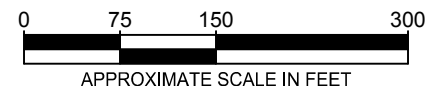
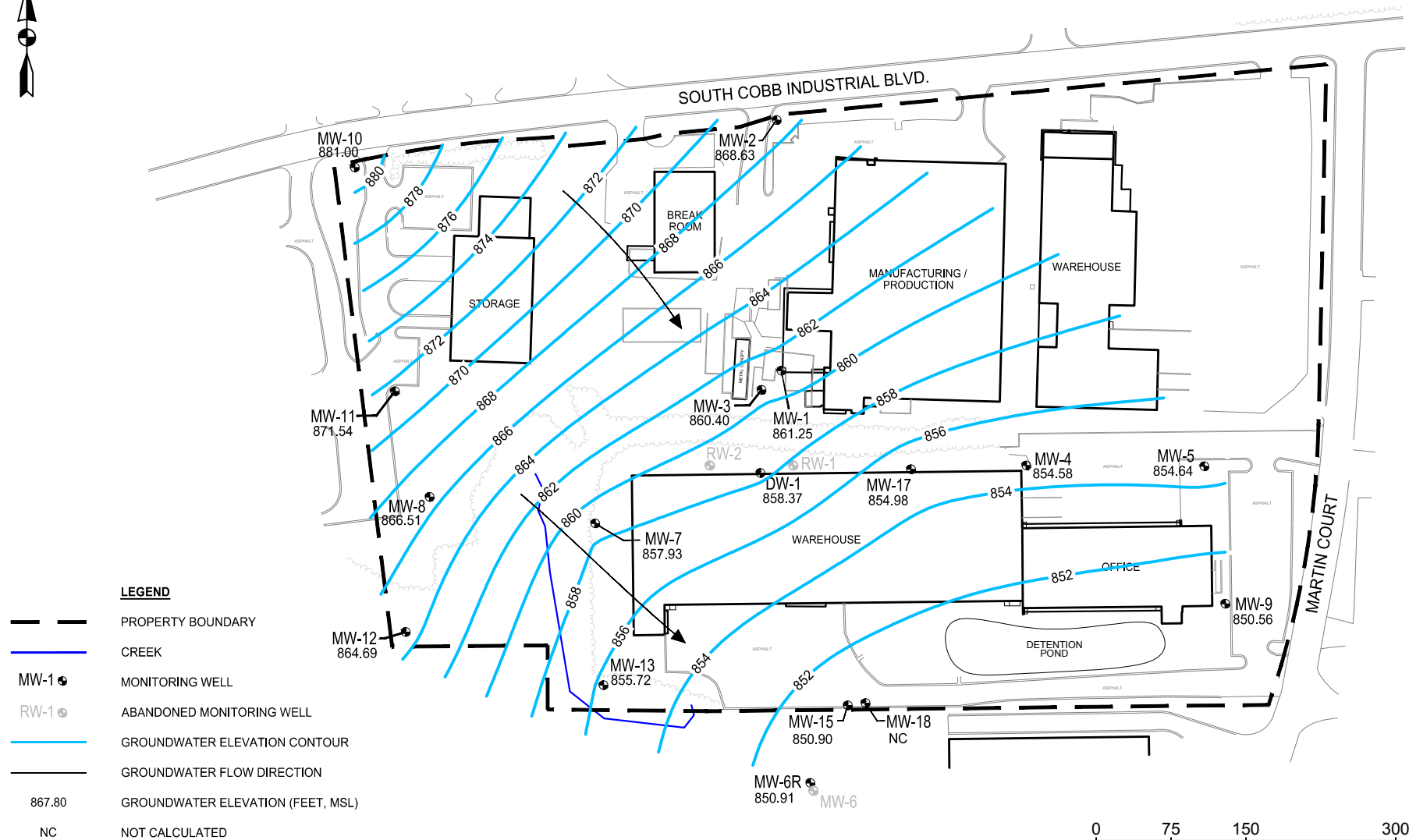


EarthCon Consultants, Inc.

1880 WEST OAK PKWY, BLDG 100, STE 106, MARIETTA, GA, 30062

FACILITY LAYOUT AND
SAMPLE LOCATIONS

DRAWN: SNW	CHECKED: CDN	DATE: NOV 1, 2016	FIGURE: 2
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BASE MAP SOURCE: TERRAMARK LAND SURVEYING, INC. (6/5/2012)

APOLLO INDUSTRIES INC

1850 SOUTH COBB INDUSTRIAL BLVD
HSI SITE NUMBER 10333

PROJECT NO. 02.20140391.16

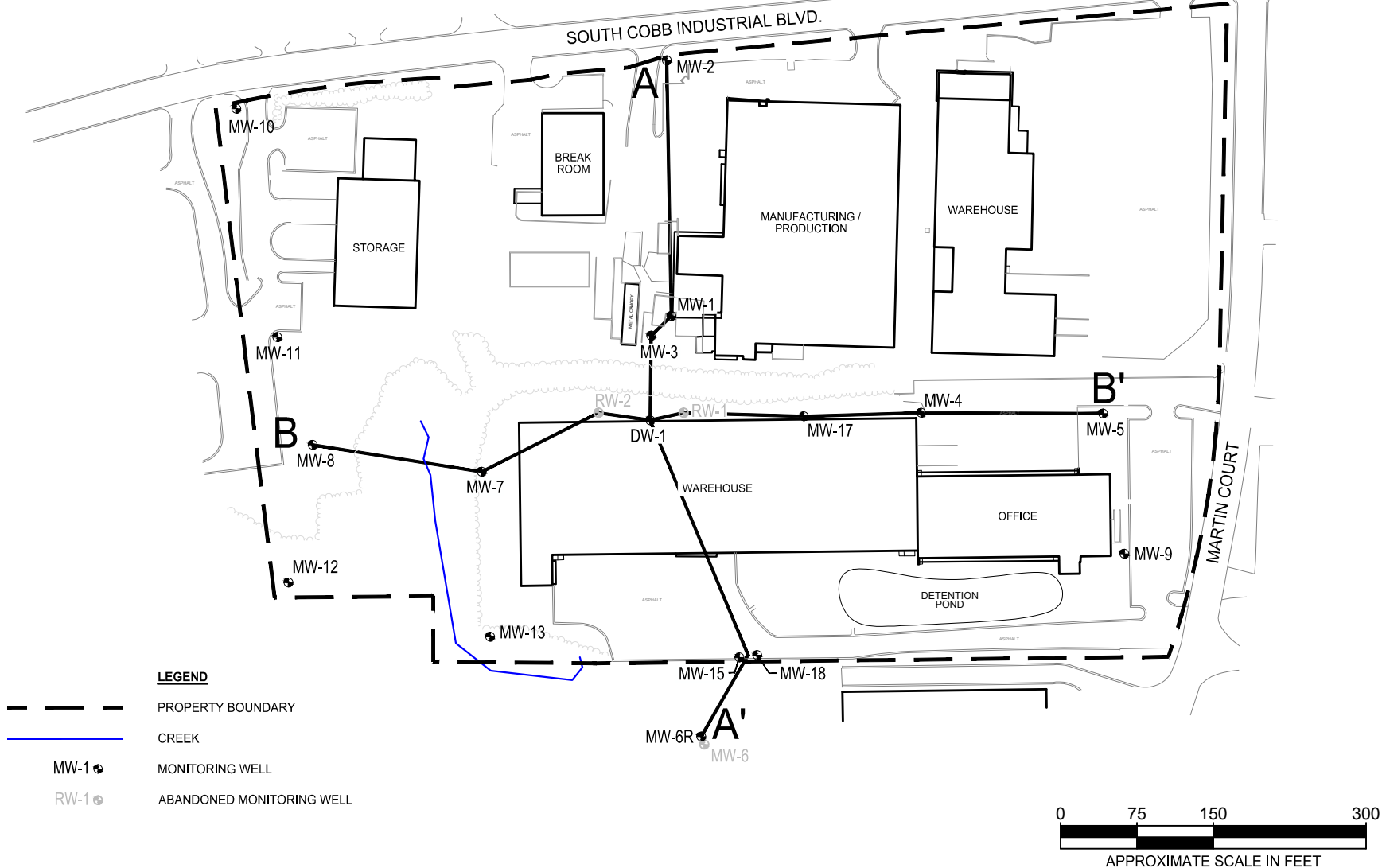


EarthCon Consultants, Inc.

1880 WEST OAK PKWY, BLDG 100, STE 106, MARIETTA, GA, 30062

POTENTIOMETRIC SURFACE MAP
SEPTEMBER 12, 2016

DRAWN: SNW	CHECKED: CDN	DATE: NOV 11, 2016	FIGURE: 3
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BASE MAP SOURCE: TERRAMARK LAND SURVEYING, INC. (6/5/2012)

APOLLO INDUSTRIES INC

1850 SOUTH COBB INDUSTRIAL BLVD
HSI SITE NUMBER 10333

PROJECT NO. 02.20140391.16



EarthCon Consultants, Inc.

1880 WEST OAK PKWY, BLDG 100, STE 106, MARIETTA, GA, 30062

GROUNDWATER CROSS SECTION LOCATIONS

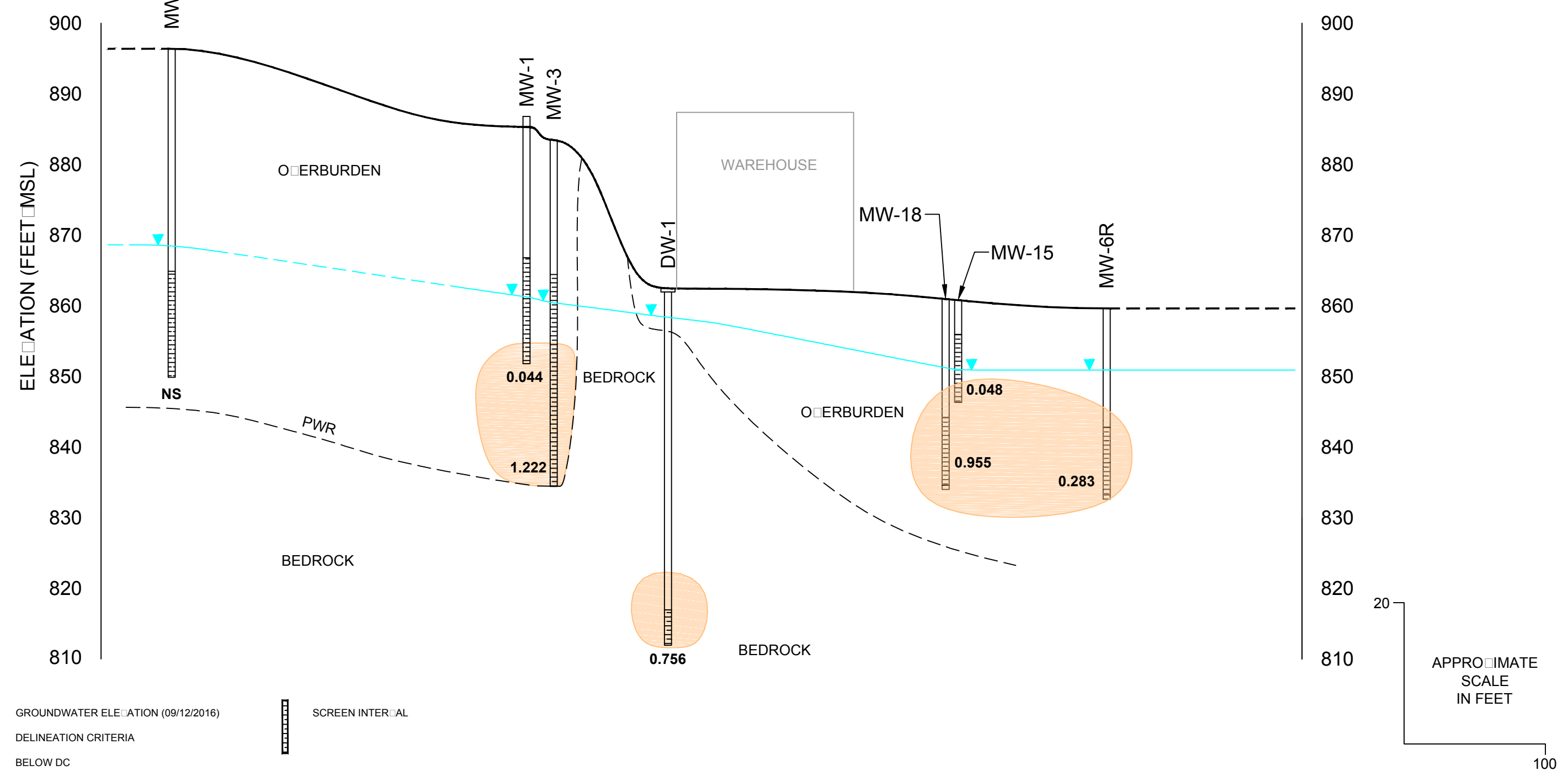
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A

NORTH

A'

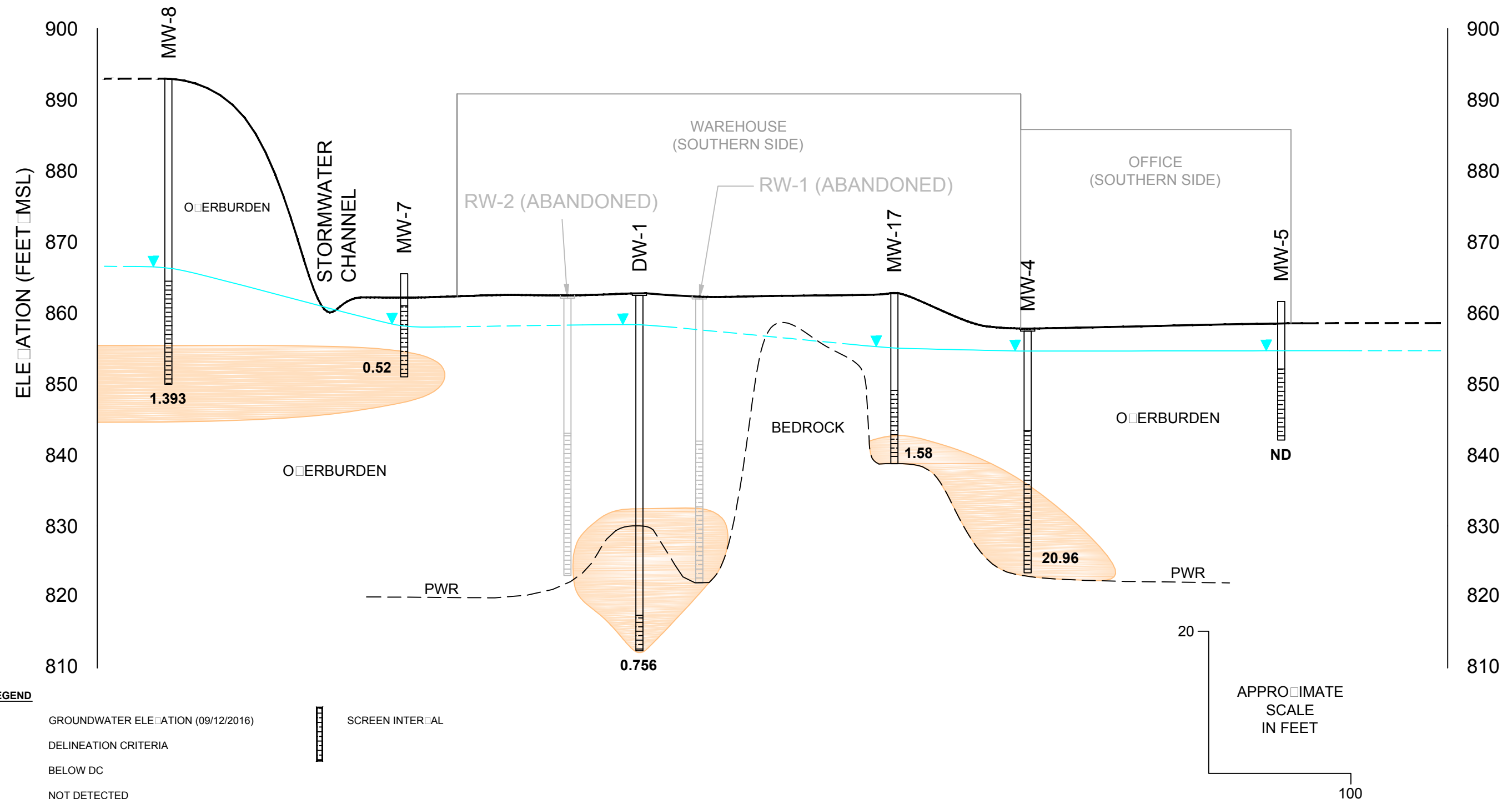
SOUTH



FILENAME: CROSS SECTIONS.DWG

B
WEST

B'
EAST



LEGEND

- GROUNDWATER ELEVATION (09/12/2016)
- DC DELINEATION CRITERIA
- BDC BELOW DC
- ND NOT DETECTED
- M/L MILLIGRAMS PER LITER
- DASHED WHERE INFERRED
- 1.393 TOTAL DOC CONCENTRATION (mg/L) IN GROUNDWATER GREATER THAN DC (SEPT-2016)
- FINE-GRAINED MATERIAL (SAND/SILT/CLAY)
- PWR PARTIALLY WEATHERED ROCK

SCREEN INTERVAL

APPROXIMATE
SCALE
IN FEET

100

APOLLO INDUSTRIES INC
1850 SOUTH COBB INDUSTRIAL BLVD
HSI SITE NUMBER 10333

PROJECT NO. 02.20140391.16

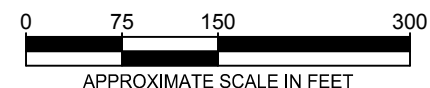
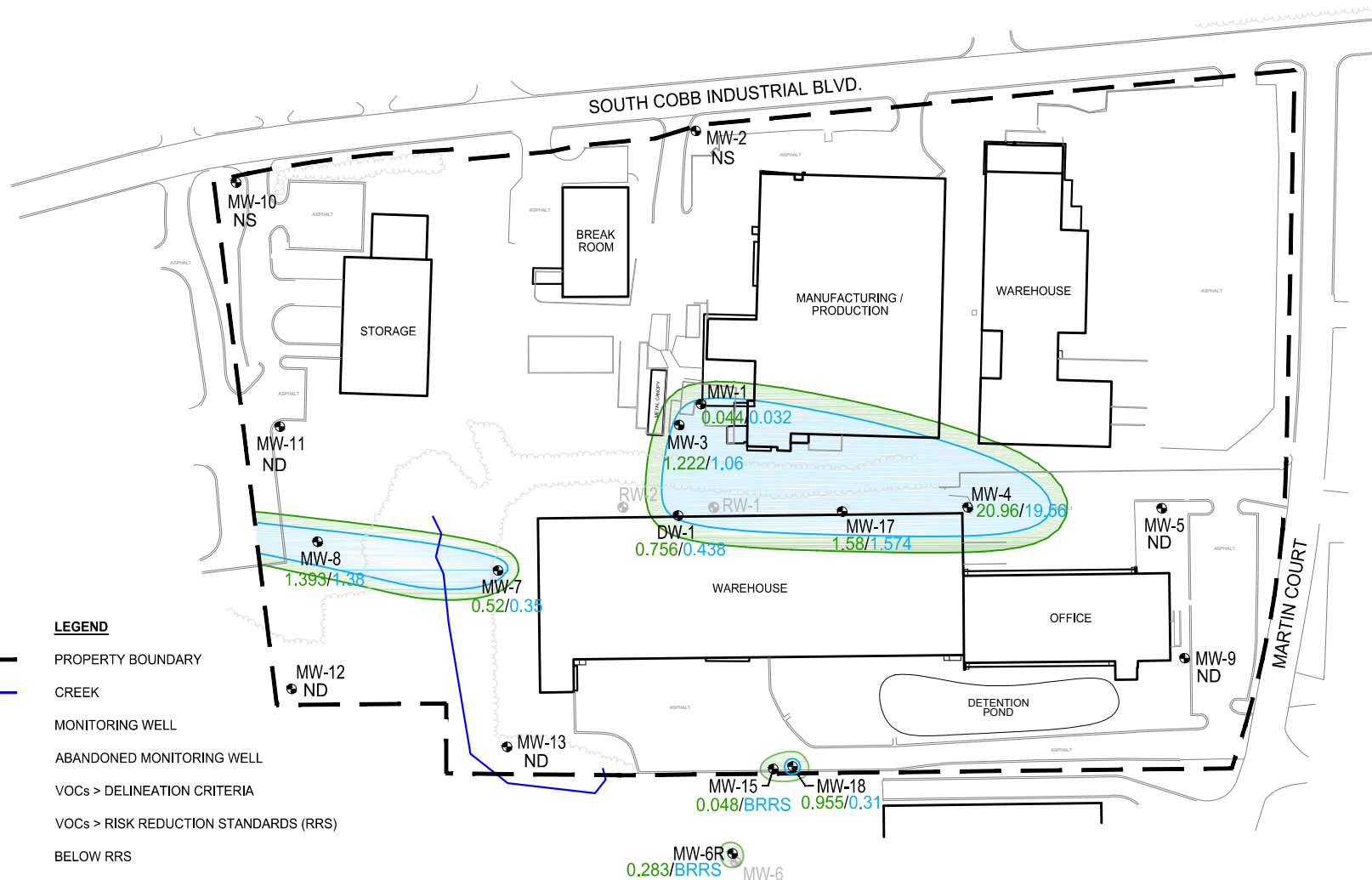


EarthCon Consultants, Inc.

1880 WEST OAK PKWY, BLDG 100, STE 106, MARIETTA, GA, 30062

CROSS SECTION B-B'

DRAWN: SNW CHECKED: CDN DATE: NOV 11, 2016 FIGURE: 6



BASE MAP SOURCE: TERRAMARK LAND SURVEYING, INC. (6/5/2012)

APOLLO INDUSTRIES INC

1850 SOUTH COBB INDUSTRIAL BLVD
HSI SITE NUMBER 10333

PROJECT NO. 02.20140391.16

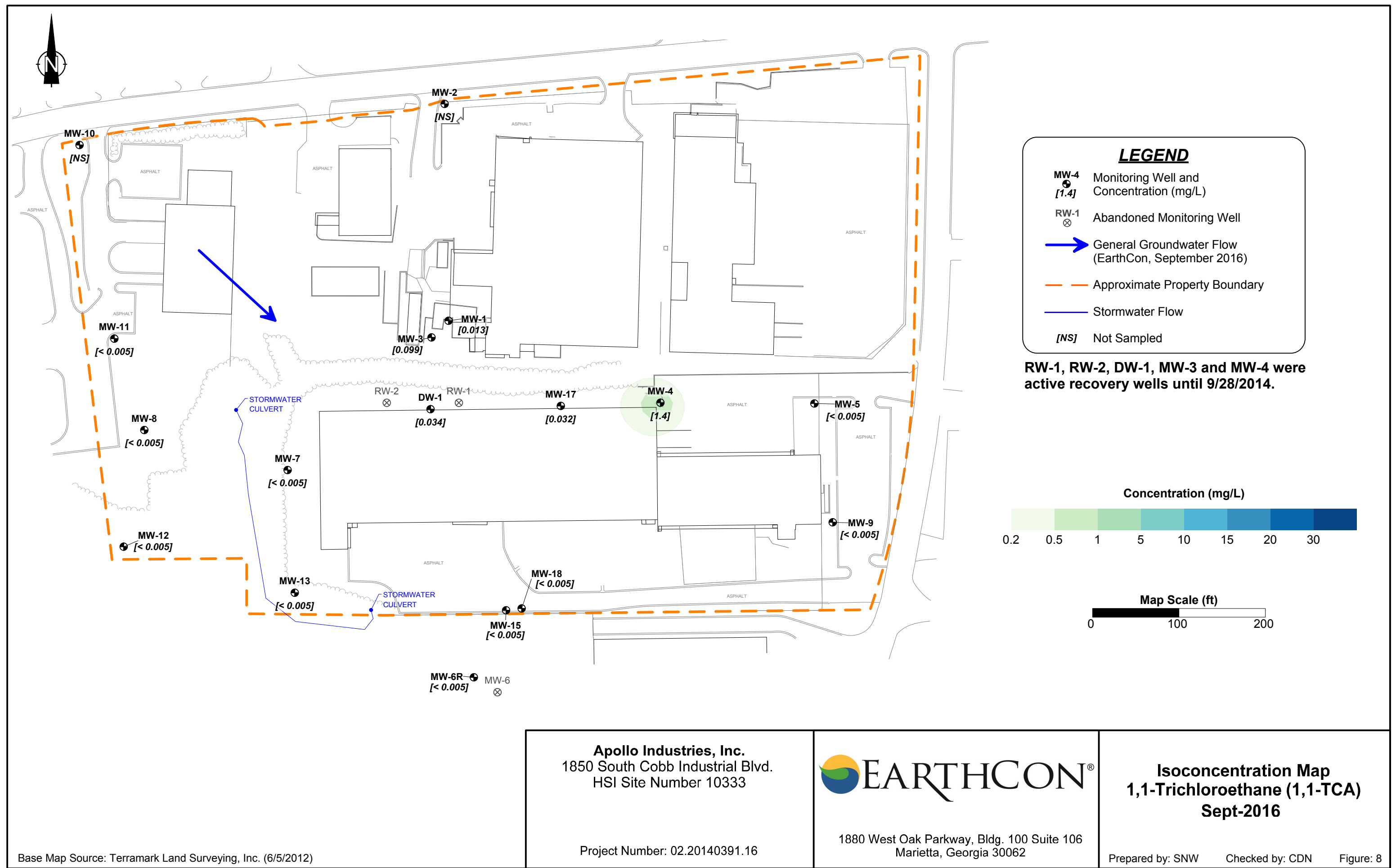


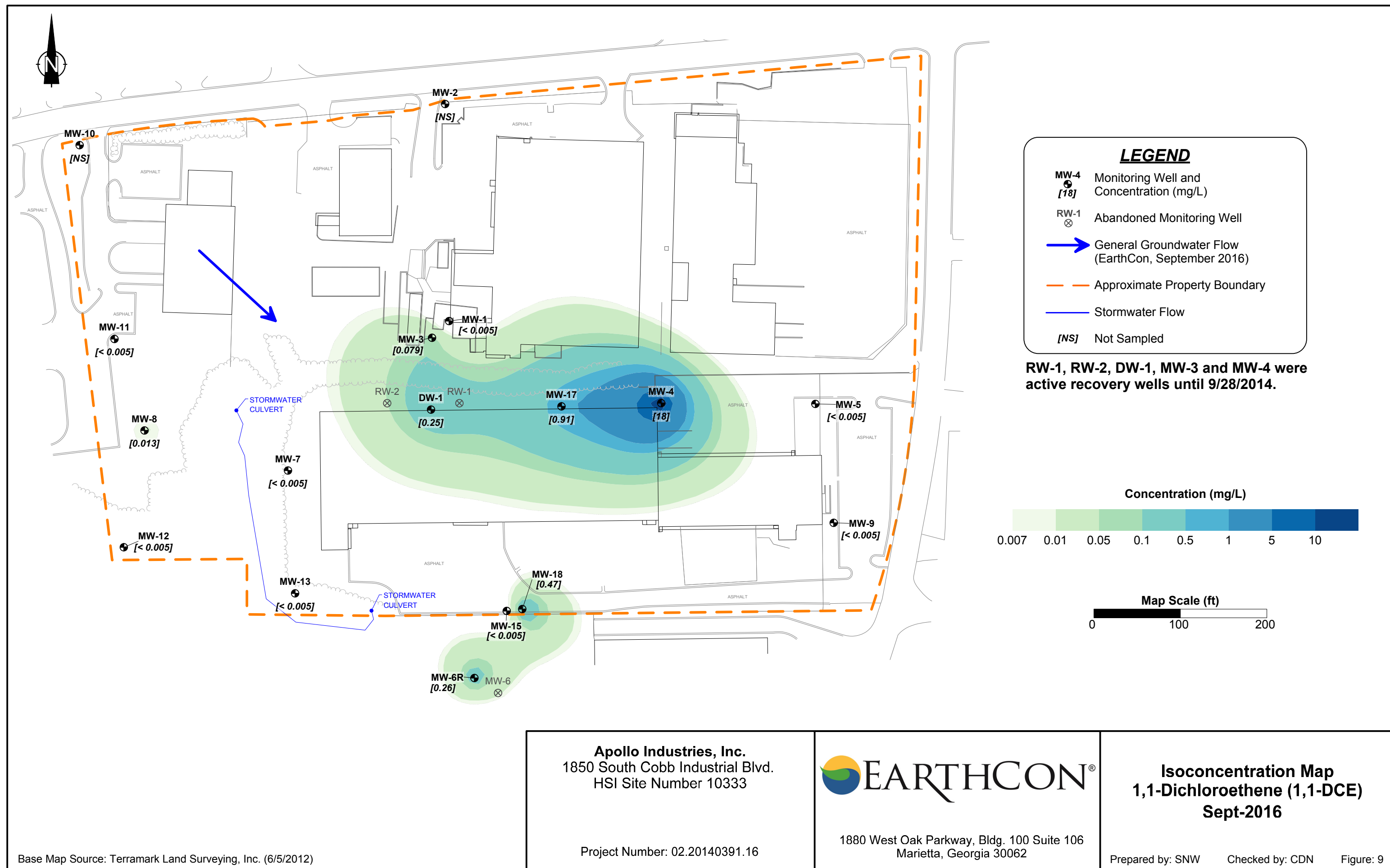
EarthCon Consultants, Inc.

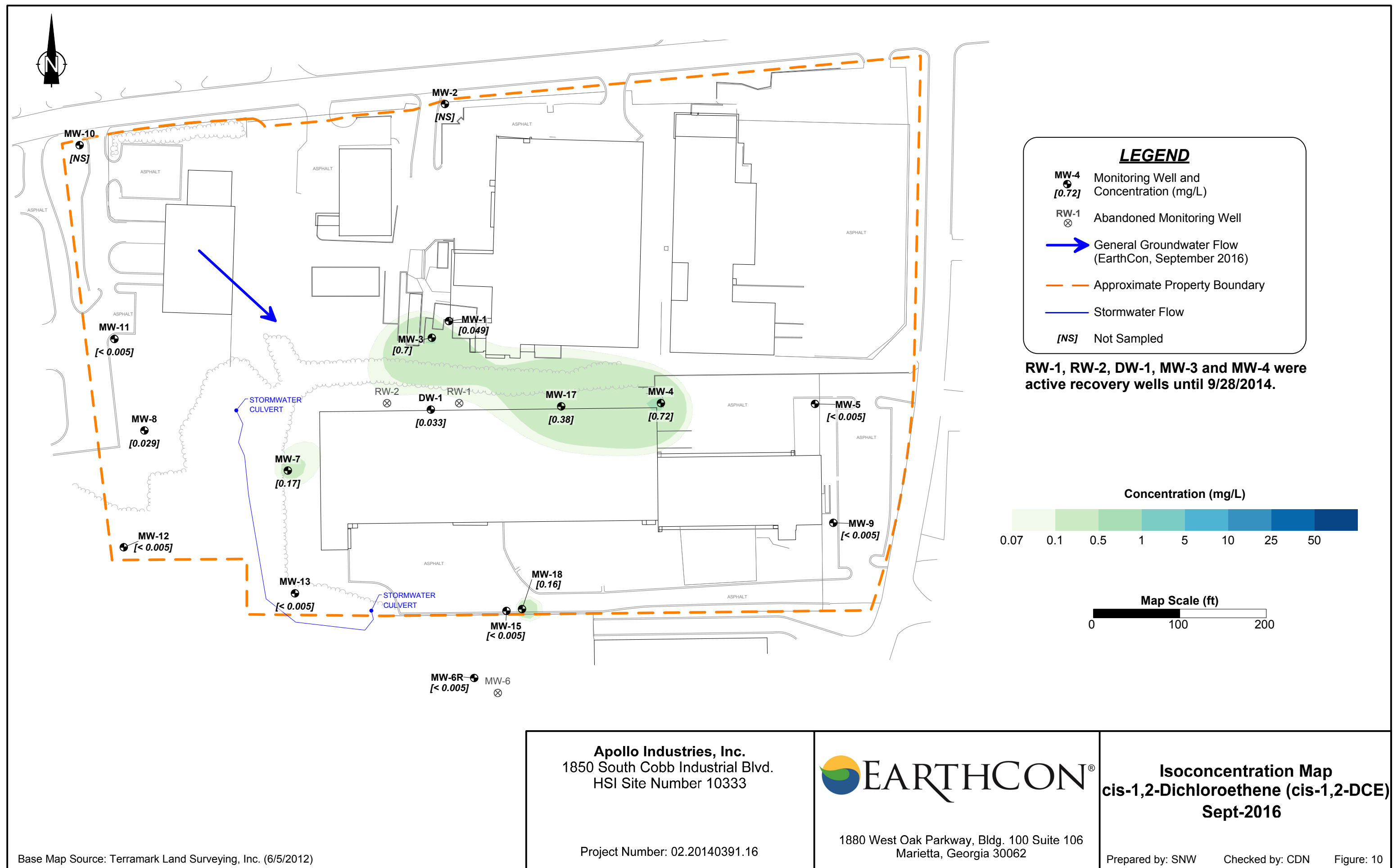
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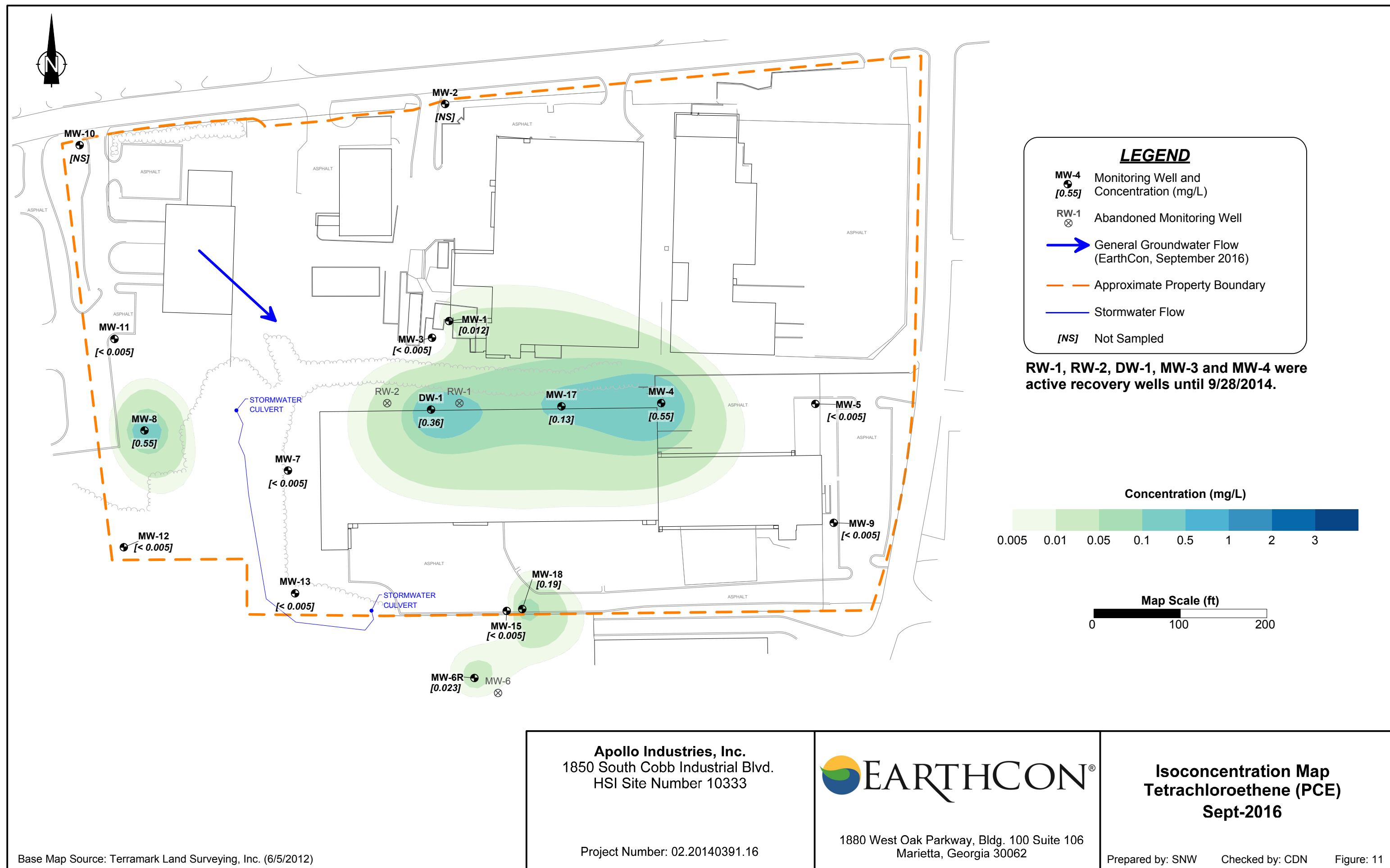
TOTAL OC
SEPTEMBER 2016

DRAWN: SNW	CHECKED: CDN	DATE: NOV 11, 2016	FIGURE: 7
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Apollo Industries, Inc.
1850 South Cobb Industrial Blvd.
HSI Site Number 10333

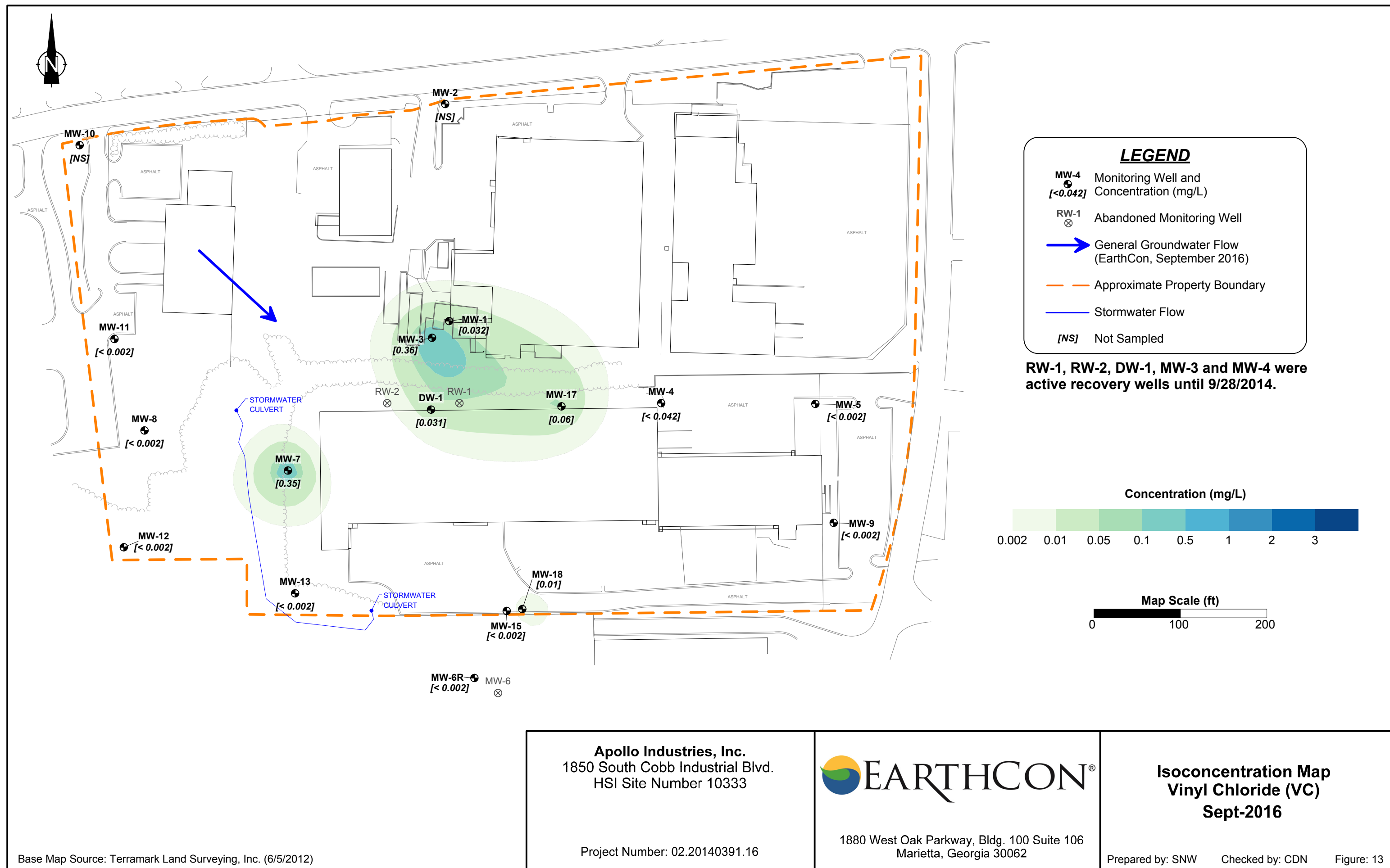
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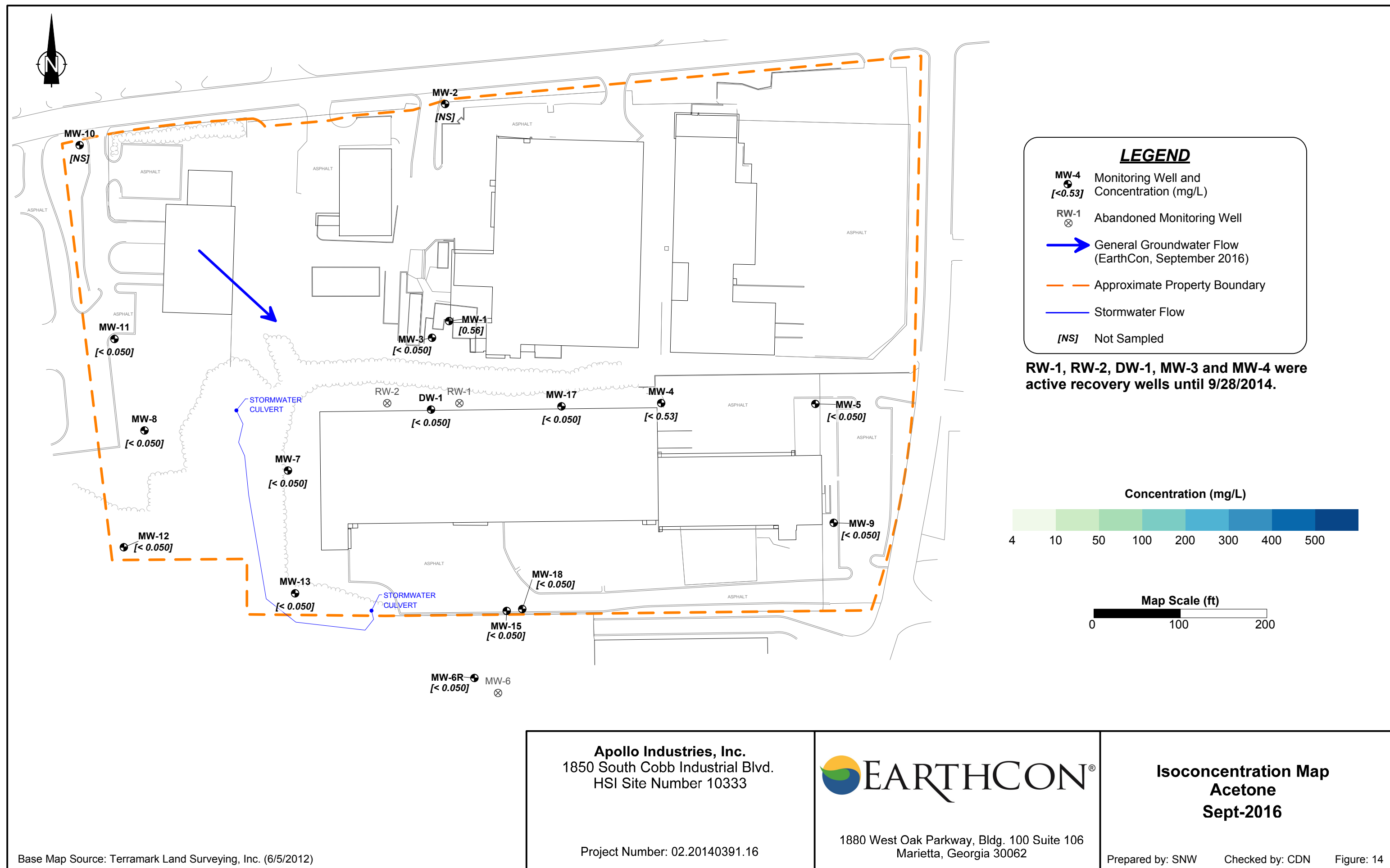
EARTHCON®

1880 West Oak Parkway, Bldg. 100 Suite 106
Marietta, Georgia 30062

**Isoconcentration Map
Tetrachloroethene (PCE)
Sept-2016**

Prepared by: SNW Checked by: CDN Figure: 11





APPENDICES

APPENDIX A

MW-18 BORING LOG

BORING LOG

BORING NO.: MW-18
TOTAL DEPTH: 27.06 feet

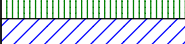
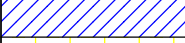
PROJECT INFORMATION

PROJECT: Apollo Smyrna
SITE LOCATION: 1850 S. Cobb Industrial Blvd
Smyrna, GA
JOB NO.: 02.20140391.16
PROJECT MANAGER: K. Rivera
LOGGED BY: J. Turner/K. Henry

DRILLING INFORMATION

DRILLING CO.: Atlas Geo Sampling
DRILLING METHOD: Hollow Stem Auger (HSA)
DATE: 7/12/2016
GPS LOCATION ACCURACY: N/A
LAT.: Not Measured LONG.: Not Measured

≡ Water level during drilling

DEPTH (FEET)	LITHOLOGIC SYMBOLS	SOIL DESCRIPTION	WELL INSTALLATION	COMMENTS
-1		ASPHALT: Asphalt		Grout
-2		FILL: Fill with gray sand and gravel.		Bentonite
-3		SAND: Brown silty sand.		
-4				
-5				
-6		SILT: Gray silt.		
-7		CLAY: Gray silty clay. Damp.		
-8				
-9				
-10				
-11		CLAY: Brown silty clay. Damp.		
-12				
-13				
-14		GRAVELLY SAND: Gray gravelly sand. Saturated.		
-15				
-16				
-17		Soils not classified.		Sand Pack
-18				
-19				
-20				
-21				
-22				2-inch diameter Sched 40 PVC 0.010 -inch slotted screen from 16.81 feet to 26.46 feet.
-23				
-24				
-25				
-26				
-27				Boring terminated at 27 feet.

APPENDIX B
SUMMARY OF FIELD PROCEDURES

APPENDIX B: SUMMARY OF FIELD PROCEDURES

Groundwater sampling was conducted in September 2016 at the Apollo Industries, Inc., HSI Site Number 10333 (Site). Field sampling forms are provided in Appendix C. Laboratory analytical reports are provided in Appendix D. The field activities are described in the following sections.

GROUNDWATER SAMPLING

A groundwater sampling event was conducted from September 12 through September 14, 2016. Groundwater samples were collected from fifteen (15) monitoring wells. Groundwater sampling was conducted in general accordance with the United States Environmental Protection Agency (USEPA) Region 4 Science and Ecosystem Support Division (SESD) Operating Procedure (OP) for *Groundwater Sampling* (SESDPROC-301-R3, March 2013). Prior to sampling, water level measurements were collected from each well and water quality parameters were measured. Water level measurements are presented in Table 2. The field parameters measured at the time of groundwater sampling are provided on the field forms in Appendix C. Field parameters collected during the September 2016 groundwater sampling event are presented in Table 3.

Sample Containers

The laboratory provided sample containers met the sampling requirements of the study. The laboratory verified the cleanliness of each batch of containers prior to use. The laboratory supplied the necessary preservation solutions and shipped these with the sample containers.

The field sampler took responsibility for properly identifying the location of each sample taken and for recording the sample date, the type of sample, the preservative used, and the applicable project number. This information was documented in the field book/field form. This same information was then placed on the sample identification label and the chain-of-custody record. Sample labels were filled out with indelible ink. If the field sampler determined that additional information was pertinent to a sample being taken, such data was recorded in the field book/field form.

Groundwater Level Measurement

Prior to well sampling, depth to groundwater and total well depth were measured using an electronic tape or water level indicator. A fixed point was marked with an indelible marker on each well to serve as a reference point for measurement. Depths were measured to the nearest 0.01 foot and recorded on the field sheet. The tape was cleaned with phosphate-free laboratory detergent and water, and rinsed with distilled water prior to each use.

During the last three monitoring events, the total depth field measurement for monitoring well MW-2 was not comparable to the information on the boring log and monitoring well construction diagram, as follows:

	MW-2 Boring Log/Construction Diagram	4/7/2015 Field Measurement	10/6/2015 Field Measurement	3/21/2016 Field Measurement
Total Depth (ft)	35	46.37	46.80	46.14

The monitoring well construction diagram shows that MW-2 was installed with a 15-foot screen from 20 to 35 feet below ground surface (bgs). Based on the 2015 and 2016 field measurements, it appears the total depth of well MW-2 is approximately 46 feet bgs, with an estimated screened interval from approximately 31 to 45 feet bgs. The Monitoring Well Construction Details presented in Table 1 and on Cross Section A to A' (Figure 5) have been updated to reflect the field measurements.

Well Purging

The monitoring wells were purged using a low flow/low volume method with a peristaltic or bladder pump and dedicated, disposable, Teflon-lined tubing. The pumps were decontaminated before use and between each well. The groundwater parameters of temperature, pH, specific conductivity, dissolved oxygen (DO), oxidation-reduction potential (ORP), and turbidity were measured during purging.

Purging continued until a minimum of three consecutive stable readings were measured with five-minute intervals between readings. The DO reading for DW-1 was higher than previous sampling events. It appeared that the DO sensor malfunctioned and the DO readings collected were not truly indicative of groundwater at DW-1. For the September 2016 monitoring event, the turbidity criterion of 10 NTUs was met for all wells. Pumping rates were reduced as much as possible to reduce the amount of drawdown in the wells. After purging began, drawdown stabilized and was less than 0.33 feet for all of the wells.

Purging was considered complete after the depth to water and water quality parameters stabilized. Purge water from the wells was temporarily placed in five-gallon buckets and emptied into a 55 gallon drum, which will be picked up and disposed at an appropriate facility off-site. Additional information regarding the purging and sampling activities including the volume of water in each well, purge rate, and depth to water during the purge process are provided in the field sampling forms in Appendix C.

Groundwater Sampling and Analysis

Groundwater samples were collected after the water level, the pH, and the specific conductance measurements appeared stabilized. The groundwater samples were placed in laboratory supplied pre-preserved containers. The containers were labeled, placed in a cooler on ice, and transported under chain-of-custody to Analytical Environmental Services, Inc. (AES) located in Norcross, Georgia. This laboratory is NELAC-certified. Groundwater samples were analyzed for

volatile organic compounds (VOCs) by EPA Method 8260B and for monitored natural attenuation (MNA) parameters including total organic carbon (TOC), alkalinity, sulfide, chloride, nitrate, sulfate, ethane, ethene, and methane. The groundwater samples were also field tested for the presence of ferrous iron using a field test kit.

Decontamination Procedures

Decontamination procedures consisted of the use of dedicated, disposable tubing at each sampling location. Equipment such as the water level indicator and field measurement instrumentation were cleaned with phosphate-free laboratory detergent and rinsed with distilled water in general accordance with the EPA SESD OP for *Field Equipment Cleaning and Decontamination* (SESDPROC-205-R2, December 2011). The equipment was allowed to air dry. Nitrile gloves were also worn and changed between each sampling location.

Equipment Calibration

Equipment used to perform field testing on groundwater samples included the following: a YSI 556 with flow thru cell to measure pH, specific conductivity, temperature, dissolved oxygen, and ORP; a Scientific Micro TPW, HF Scientific, or Hach turbidity meter to measure turbidity; and a Hach DR-890 to measure ferrous iron. Equipment calibration was verified on a daily basis.

Field Sampling Forms

Field personnel maintained a permanently bound, water resistant field notebook. Field activities were recorded with indelible ink. Additionally, sampling field forms were completed for each sample. The notebook, sampling forms, and chain-of-custody records contain sufficient information to allow reconstruction of the sample collection and handling procedures at a later time.

Chain-of-Custody

Sample custody was documented from the time of sample collection when the labeled sample was placed into an iced cooler in the possession of the sampling technician. A corresponding line item on the chain-of-custody record was filled out and initialed by the sampling technician. The chain-of-custody record is used to track custody of samples during transport and shipping. Upon completion of appropriate line items, or upon sample pick-up, the field representative signed, dated, listed the time, and confirmed the completeness of descriptive information contained on the form. The chain-of-custody form accompanied the samples and terminated upon laboratory receipt of samples. Entries were recorded in ink and individual samples had a corresponding entry on a chain-of-custody record.

Analytical Procedures and QA/QC

The groundwater samples were transported to AES in Norcross, Georgia under chain-of-custody protocol. The samples were analyzed for VOCs by EPA Method 8260B. Quality control

samples, consisting of blind duplicates, trip blanks, and laboratory method blanks were also collected and analyzed.

APPENDIX C
FIELD SAMPLING FORMS



Measurement and Sampling Equipment				
Type	Manufacturer		Model #	Calibration Date
Multi-Parameter	YSI	556 MPS	S/N 13C100009	7/14/16
Turbidimeter	LaMotte	2020 E	S/N ME-14727	7/14/16
Peristaltic Pump	Geotech	Geo Pump		
Calibrator	HACH	PR1890		

SAMPLE NUMBER	ANALYTICAL METHOD	BOTTLE TYPE/	PRESERVATIVES	QA REMARKS
<u>NW-15</u>	VOCs	40 mL VOA	HCl	
	GC Analysis	40 mL VOA	HCl	
	TOC	250 mL HDPE	H₂SO₄	
	Ion Scan	500 mL HDPE		
	Sulfide	500 mL HDPE	Zn + NaOH	
	Alkalinity	250 mL HDPE	..	

Groundwater Sampling Record



Apollo Smyrna 02.20140391.16

Water Levels

Date: 9/12/2016

Monitoring Well	Top of Casing Elevation	Time	Depth to Water	Total Depth	Groundwater Elevation	Notes
	feet, MSL		feet	feet	feet, MSL	
DW-1	862.44	10:27	4.17	49.46		
MW-1	885.30	11:11	24.05	32.01		
MW-2	896.38	11:06	27.75	46.78		Bolts are warped, needs replacing
MW-3	883.43	11:14	23.03	50.27		
MW-4	857.57	10:57	2.99	34.40		
MW-5	861.75	10:44	7.11	20.14		
MW-6R	859.61	9:54	8.70	27.40		Hard bottom
MW-7	865.47	10:18	7.54	17.10		
MW-8	892.91	9:28	26.40	45.01		
MW-9	859.86	10:38	9.30	19.23		
MW-10	901.05	9:35	20.05	29.35		
MW-11	892.84	9:24	21.30	29.55		Maximize pressure when removing well cap
MW-12	891.30	9:41	26.61	38.15		
MW-13	864.72	10:03 10:12	7.24 9.00	15.58		
MW-15	858.14	10:03	7.24	14.51		
MW-17	862.75	10:52	7.77	23.50		
MW-18		10:01	7.43	26.80		

1.7 in distance b/w sensor and tip of meter.

Groundwater Sampling Record

WELL No. MW-4		PROJECT # 02.20140391.16	LOCATION 1850 S Cobb Industrial Blvd SE, Smyrna, GA 30082	DATE 9/14/16
SAMPLE No. MW-4		PROJECT NAME Apollo Smyrna	FIELD PERSONNEL COMPANY Keaton Henry	/EarthCon
SAMPLE TIME: 12:30		SITE Smyrna, GA	FIELD CONDITIONS/WEATHER Mostly Sunny, 80's	

Well Condition Inspection (circle one)			Equipment Cleaning Procedures		
cover:	locked	not locked	-	potable water and phosphate-free soap	
number:	legible	not legible	-	potable water rinse	
outer casing:	good	fair	poor	- water rinse:	distilled
inner casing:	good	fair	poor	- solvent rinse:	acetone
well photographed:	yes	no		- air dry	hexane

Casing Diameter: (circle one) 2" **4"** 6" Other: _____

Casing Volume Calculation: $(\pi r^2 h)(7.48 \text{ gal/ft}^3)$
Casing Volume (gallons/ft) for: 2" = 0.163; 4" = 0.653; 6" = 1.47
Casing Volume (liters/ft) for: 2" = 0.618; 4" = 2.47; 6" = 5.56

Depth to Water (feet): 2.94
 Depth of Well (feet): 94.40
 Water Column (feet): 31.41
 Casing Volume (gallons/liters): 20.5
 Calculated Purge Volume (gallons/liters): _____
 Actual Purge Volume (gallons/liters): 255
 Pump Intake Depth (feet): ~25 ft
 Measuring Point Elevation (feet): _____
 Groundwater Surface Elevation: _____
 LNAPL present: _____ thickness: _____
 DNAPL present: _____ thickness: _____
 Remarks: _____
 Ferrous Iron (mg/L): 0.02 (no dilution)

Well Evacuation
Water level recovery is: very slow slow moderate fast Bailed dry: yes no

[illegible]

Measurement and Sampling Equipment			
Type	Manufacturer	Model #	Calibration Date
Multi-Parameter	YSI	556 MPS	9/14/16
Turbidimeter	Ht Sciomatic	DRT-15CE	9/14/16
Peristaltic Pump	Geo Tech	Geo Pump	
Colorimeter	HACH	DR/890	

SAMPLE NUMBER	ANALYTICAL METHOD	BOTTLE TYPE/	PRESERVATIVES	QA REMARKS
MW-9	VOCs	40 mL VOA	HCl	
"	GC Analysis	40 mL VOA	HCl	
"	TOC	250 mL HDPE	H ₂ SO ₄	
"	Ion Scan / Alkalinity	500 mL HDPE	--	
"	Sulfide	750 500 mL HDPE	Zn + NaOH	
	Alkalinity	250 mL HDPE	--	

Groundwater Sampling Record



SAMPLE NUMBER	ANALYTICAL METHOD	BOTTLE TYPE/	PRESERVATIVES	QA REMARKS
MW-8 ↓	VOCs	40 mL VOA	HCl	
	GC Analysis	40 mL VOA	HCl	
	TOC	250 mL HDPE	H ₂ SO ₄	
	Ion Scan	500 mL HDPE	--	
	Sulfide	500 mL HDPE	Zn + NaOH	
	Alkalinity	250 mL HDPE	--	

Groundwater Sampling Record

WELL No. MW-9		PROJECT # 02.20140391.16		LOCATION 1850 S Cobb Industrial Blvd SE, Smyrna, GA 30082		DATE 9/12/16			
SAMPLE No. MW-9		PROJECT NAME Apollo Smyrna		FIELD PERSONNEL/COMPANY Rob Andrews		/EarthCon			
SAMPLE TIME: 11:30		SITE Smyrna, GA		FIELD CONDITIONS/WEATHER 89°F Partly Cloudy					
Well Condition Inspection (circle one)				Equipment Cleaning Procedures					
cover: <u>locked</u> not locked				- potable water and phosphate-free soap					
number: <u>legible</u> not legible				- potable water rinse					
outer casing: <u>good</u> fair poor				- water rinse: <u>distilled</u> deionized					
inner casing: <u>good</u> fair poor				- solvent rinse: acetone hexane					
well photographed: yes <u>no</u>				- air dry					
Casing Diameter:		Casing Volume Calculation: ($\pi r^2 h$) (7.48 gal/ft ³)							
(circle one) <u>2"</u> 4" 6" Other: _____		Casing Volume (gallons/ft) for: 2" = 0.163; 4" = 0.653; 6" = 1.47							
		Casing Volume (liters/ft) for: 2" = 0.618; 4" = 2.47; 6" = 5.56							
Depth to Water (feet): <u>9.3</u>				Measuring Point Elevation (feet): _____					
Depth of Well (feet): <u>19.33</u>				Groundwater Surface Elevation: _____					
Water Column (feet): <u>9.93</u>				LNAPL present: _____ thickness: _____					
Casing Volume (gallons/liters): <u>1.61</u>				DNAPL present: _____ thickness: _____					
Calculated Purge Volume (gallons/liters): <u>4.9</u>				Remarks: <u>Clear</u>					
Actual Purge Volume (gallons/liters): <u>1.25</u>				Ferrous Iron (mg/L): <u>0.05 (no dilution)</u>					
Pump Intake Depth (feet): <u>15</u>									
Well Evacuation									
Water level recovery is: very slow slow <u>moderate</u> fast Bailed dry: yes <u>no</u>									
TIME 2400 hrs	CUMULATIVE VOLUME (gal)	TEMPERATURE (°C)	pH	DISSOLVED OXYGEN (mg/L)	ORP (mV)	CONDUCTIVITY (µs/cm)	TURBIDITY (NTU)	Depth to Water (Feet)	ODOR/COLOR/ REMARKS
1350	0								PURGE START
1355	0.1	25.24	5.45	4.04	25.5	0.133	3.85	9.37	Clear
1400	0.3	24.51	5.03	3.78	42.7	0.113	3.43	9.38	
1405	0.5	23.11	4.37	2.30	73.6	0.081	2.79	9.39	
1410	0.60	22.93	4.39	1.92	73.8	0.081	2.22	9.39	
1415	0.75	22.63	4.40	1.41	73.9	0.080	1.90	9.39	
1420	0.90	22.65	4.41	1.39	73.2	0.080	1.86	9.39	
1425	1.25	22.67	4.42	1.38	73.1	0.080	1.73	9.39	
1430	sample								
Measurement and Sampling Equipment									
Type	Manufacturer	Model #	Calibration Date						
Water Quality Meter	YSI	556 MPS	9/12/16						
Water Level Meter	Hiran	5-Kinney Pippin	→ 9/12/16						
Turbidity Meter	HF Scientific	ART-15CE							
Peristaltic	protech	peristaltic							
SAMPLE NUMBER	ANALYTICAL METHOD	BOTTLE TYPE/	PRESERVATIVES	QA REMARKS					
MW-9	VOCs	40 mL VOA	HCl						
	GC Analysis	40 mL VOA	HCl						
	TOC	250 mL HDPE	H ₂ SO ₄						
	Ion Scan	500 mL HDPE	--						
	Sulfide	500 mL HDPE	Zn + NaOH						
	Alkalinity	250 mL HDPE	--						

Groundwater Sampling Record

WELL No.		PROJECT #		LOCATION		DATE			
MW-11		02.20140391.16		1850 S Cobb Industrial Blvd SE, Smyrna, GA 30082		9/13/16			
SAMPLE No.		PROJECT NAME		FIELD PERSONNEL COMPANY		EarthCon			
MW-11		Apollo Smyrna		Rob Andrews					
SAMPLE TIME:		SITE		FIELD CONDITIONS WEATHER					
11:50		Smyrna, GA		74°F Partly Cloudy					
Well Condition Inspection (circle one)				Equipment Cleaning Procedures					
cover: ☒ locked ☐ not locked				☒ potable water and phosphate-free soap					
number: ☒ legible ☐ not legible				☐ potable water rinse					
outer casing: ☒ good fair poor				☐ water rinse: ☒ distilled deionized					
inner casing: ☒ good fair poor				☐ solvent rinse: acetone hexane					
well photographed: yes ☒ no				☒ air dry					
Casing Diameter: (circle one) ☒ 4" 6" Other: _____				Casing Volume Calculation: ($\pi r^2 h$) (7.48 gal/ft³) Casing Volume (gallons/ft) for: 2" = 0.163; 4" = 0.653; 6" = 1.47 Casing Volume (liters/ft) for: 2" = 0.618; 4" = 2.47; 6" = 5.56					
Depth to Water (feet): <u>21.30</u>				Measuring Point Elevation (feet): _____					
Depth of Well (feet): <u>29.55</u>				Groundwater Surface Elevation: _____					
Water Column (feet): <u>8.25</u>				LNAPL present: _____ thickness: _____					
Casing Volume (gallons/liters): <u>1.34</u>				DNAPL present: _____ thickness: _____					
Calculated Purge Volume (gallons/liters): <u>4.03</u>				Remarks: <u>Clear</u>					
Actual Purge Volume (gallons/liters): <u>1.25</u>				Ferrous Iron (mg/L): <u>3.28 (Diluted three X)</u>					
Pump Intake Depth (feet): <u>25</u>									
Well Evacuation									
Water level recovery is: very slow slow moderate ☒ fast Bailed dry: yes ☒ no									
TIME 2400 hrs	CUMULATIVE VOLUME (gal)	TEMPERATURE (°C)	pH	DISSOLVED OXYGEN (mg/L)	ORP (mV)	CONDUCTIVITY (µs/cm)	TURBIDITY (NTU)	Depth to Water (Feet)	ODOR/COLOR/ REMARKS
1100	0								PURGE START
1105	0.1	23.50	5.87	1.98	-59	0.245	4.80	21.31	↓ <u>Clear</u>
1110	0.25	23.48	5.82	1.47	-60.2	0.262	4.63	21.31	
1115	0.70	23.44	5.84	0.94	-63.7	0.270	4.11	21.31	
1120	0.90	23.26	5.84	0.77	-61.4	0.261	4.02	21.31	
1125	1.20	22.95	5.94	0.63	-62.4	0.256	4.0	21.31	
1130	1.40	22.72	5.86	0.57	-61.1	0.253	3.52	21.31	
1135	1.50	22.23	5.87	0.53	-69.3	0.249	3.14	21.31	
1140	1.60	22.20	5.86	0.52	-68.7	0.247	2.96	21.31	
1145	1.70	22.17	5.86	0.51	-68.7	0.248	2.83	21.31	
1150	sample								
Measurement and Sampling Equipment									
Type	Manufacturer		Model #		Calibration Date				
Water Quality Meter	YSI		556 MP5		9/13/16				
Water Level Meter	Heron		Skinny dipper		9/13/16				
Turbidity Meter	HE Scientific		DRS - 15 CG		9/13/16				
peri-pump	goetech		gripump						
SAMPLE NUMBER	ANALYTICAL METHOD	BOTTLE TYPE/	PRESERVATIVES	QA REMARKS					
MW-11	VOCs	40 mL VOA	HCl						
	GC Analysis	40 mL VOA	HCl						
	TOC	250 mL HDPE	H₂SO₄						
	Ion Scan	500 mL HDPE	--						
	Sulfide	500 mL HDPE	Zn + NaOH						
	Alkalinity	250 mL HDPE	--						

Groundwater Sampling Record

WELL No.		PROJECT #		LOCATION		DATE			
MW-12		02 20140391.16		1850 S Cobb Industrial Blvd SE, Smyrna, GA 30082		9/13/16			
SAMPLE No.		PROJECT NAME		FIELD PERSONNEL COMPANY					
MW-12		Apollo Smyrna		Rob Andrews					
SAMPLE TIME:		SITE		FIELD CONDITIONS WEATHER					
1445		Smyrna, GA		78°F, Partly Cloudy					
Well Condition Inspection (circle one)				Equipment Cleaning Procedures					
cover: <u>locked</u> not locked				- potable water and phosphate-free soap					
number: <u>legible</u> not legible				- potable water rinse					
outer casing: <u>good</u> fair poor				- water rinse: <u>distilled</u> deionized					
inner casing: <u>good</u> fair poor				- solvent rinse: acetone hexane					
well photographed: yes <u>no</u>				- air dry					
Casing Diameter:		Casing Volume Calculation: ($\pi r^2 h$) (7.48 gal/ft ³)							
(circle one) 2" 4" 6"		Casing Volume (gallons/ft) for: 2" = 0.163; 4" = 0.653; 6" = 1.47							
Other: _____		Casing Volume (liters/ft) for: 2" = 0.618; 4" = 2.47; 6" = 5.56							
Depth to Water (feet):		26.61		Measuring Point Elevation (feet):					
Depth of Well (feet):		38.15		Groundwater Surface Elevation:					
Water Column (feet):		11.54		LNAPL present:		thickness: _____			
Casing Volume (gallons/liters):		1.88		DNAPL present:		thickness: _____			
Calculated Purge Volume (gallons/liters):		5.64		Remarks:		clear			
Actual Purge Volume (gallons/liters):		1.25		Ferrous Iron (mg/L):		n.d. (new dilution)			
Pump Intake Depth (feet):		30							
Well Evacuation									
Water level recovery is: very slow slow <u>moderate</u> fast				Bailed dry: yes no					
TIME 2400 hrs	CUMULATIVE VOLUME (gal)	TEMPERATURE (°C)	pH	DISSOLVED OXYGEN (mg/L)	ORP (mV)	CONDUCTIVITY (µs/cm)	TURBIDITY (NTU)	Depth to Water (Feet)	ODOR/COLOR/ REMARKS
1350	0								PURGE START
1355	0.1	19.95	4.31	2.13	136.4	0.050	4.62	26.73	↓ clear
1400	0.25	19.72	4.52	1.76	122.3	0.049	4.12	26.75	
1405	0.5	19.53	4.76	1.18	108.7	0.047	3.91	26.79	
1410	0.6	19.51	4.88	1.33	92.9	0.048	3.46	26.79	
1415	0.75	19.50	4.88	1.11	95.3	0.049	2.83	26.79	
1420	0.90	19.50	4.88	0.89	95.2	0.049	2.31	26.79	
1425	0.95	19.49	4.88	0.88	95.1	0.049	1.87	26.78	
1430	1.0	19.49	4.88	0.88	95.1	0.050	1.53	26.78	
1445	sample								
Measurement and Sampling Equipment									
Type	Manufacturer	Model #	Calibration Date						
Water Quality Meter	YSI	556 MPS	9/13/16						
Water Level Meter	Heron	Skinny Dipper							
Turbidity meter	HF Scientific	DRT-15CE	9/13/16						
pvc pump	protech	pvc pump							
SAMPLE NUMBER	ANALYTICAL METHOD	BOTTLE TYPE/ PRESERVATIVES	QA REMARKS						
MW-12	VOCs	40 mL VOA HCl							
	GC Analysis	40 mL VOA HCl							
	TOC	250 mL HDPE H ₂ SO ₄							
	Ion Scan	500 mL HDPE --							
	Sulfide	500 mL HDPE Zn + NaOH							
	Alkalinity	250 mL HDPE --							

Scan

Sean

Groundwater Sampling Record

WELL No.		PROJECT #		LOCATION		DATE	
MW-17		02.20140391.16		1850 S Cobb Industrial Blvd SE, Smyrna, GA 30082		9/10/16	
SAMPLE No.	MW-17	PROJECT NAME	Apollo Smyrna	FIELD PERSONNEL/COMPANY	Keston Henry Partly Cloudy, 80's, Light Rain		
SAMPLE TIME:	16:05	SITE	Smyrna, GA	FIELD CONDITIONS/WEATHER	/EarthCon		

Well Condition Inspection (circle one)				Equipment Cleaning Procedures			
cover:	<u>locked</u>	not locked		- potable water and phosphate-free soap			
number:	<u>legible</u>	not legible		- potable water rinse			
outer casing:	<u>good</u>	fair	poor	- water rinse:	<u>distilled</u>	deionized	
inner casing:	<u>good</u>	fair	poor	- solvent rinse:	acetone	hexane	
well photographed:	yes	<u>no</u>		- air dry			

Casing Diameter: _____
(circle one) 2" 4" 6" Other: _____

Casing Volume Calculation: ($\pi r^2 h$) (7.48 gal/ft³)
Casing Volume (gallons/ft) for: 2" = 0.163; 4" = 0.653; 6" = 1.47
Casing Volume (liters/ft) for: 2" = 0.618; 4" = 2.47; 6" = 5.56

Depth to Water (feet):	<u>7.74</u>	Measuring Point Elevation (feet):	_____
Depth of Well (feet):	<u>23.50</u>	Groundwater Surface Elevation:	_____
Water Column (feet):	<u>15.76</u>	LNAPL present:	_____ thickness: _____
Casing Volume (gallons/liters):	<u>2.5</u>	DNAPL present:	_____ thickness: _____
Calculated Purge Volume (gallons/liters):	<u>2.25</u>	Remarks:	_____
Actual Purge Volume (gallons/liters):	<u>~ 18 ft</u>	Ferrous Iron (mg/L):	<u>0.74 (no dilution)</u>

Well Evacuation
Water level recovery is: very slow slow moderate fast Bailed dry: yes no

TIME 2400 hrs	CUMULATIVE VOLUME (gal)	TEMPERATURE (°C)	pH	DISSOLVED OXYGEN (mg/L)	ORP (mV)	CONDUCTIVITY (µS/cm)	TURBIDITY (NTU)	Depth to Water (Feet)	ODOR/COLOR/ REMARKS
15:10	0								PURGE START
15:15	0.35	21.58	6.02	3.54	66.1	378	2.45	8.99	clear
15:20	0.55	21.65	5.83	4.19	67.8	377	1.18	9.12	"
15:25	0.75	21.40	5.82	5.06	60.4	376	1.24	9.25	"
15:30	1.0	21.45	5.88	5.48	56.1	376	0.94	9.26	"
15:35	1.15	22.14	6.06	6.12	41.9	377	0.65	9.02	"
15:40	1.40	21.86	6.06	5.01	38.1	377	0.35	8.94	"
15:45	1.60	21.38	6.05	5.12	37.5	377	0.45	9.08	"
15:50	1.75	21.24	6.01	5.44	38.7	377	0.33	9.10	"
16:05	1.95	21.17	6.03	5.02	36.0	378	0.26	9.09	"
16:05		s a	m p	l	e				

Measurement and Sampling Equipment

Type	Manufacturer	Model #	Calibration Date
Multi-Parameter	VSI	556 MPS	9/13/16
Turbidimeter	Ht Scientific	DRJ - 15CE	9/13/16
Peristaltic Pump	Geo Tech	Geo Pump	
Colorimeter	HACH	DR / 890	

SAMPLE NUMBER	ANALYTICAL METHOD	BOTTLE TYPE/ PRESERVATIVES	QA REMARKS
MW-17	VOCs	40 mL VOA HCl	
"	GC Analysis	40 mL VOA HCl	
"	TOC	250 mL HDPE H₂SO₄	
"	Ion Scan / Alkalinity	500 mL HDPE --	
"	Sulfide	250 mL HDPE Zn + NaOH	
"	Alkalinity	250 mL HDPE	

Groundwater Sampling Record

WELL No.

MW-18

SAMPLE No.

MW-18

SAMPLE TIME

11:25

PROJECT #

02 20140391.16

LOCATION

1850 S Cobb Industrial Blvd SE, Smyrna, GA 30082

DATE

9/13/16

PROJECT NAME

Apollo Smyrna

FIELD PERSONNEL/COMPANY

Keaton Henry

FIELD CONDITIONS/WEATHER

Mostly Sunny, 80's

SITE

Smyrna, GA

Well Condition Inspection (circle one)

cover:

locked

not locked

number:

legible

not legible

outer casing:

good

fair

poor

inner casing:

good

fair

poor

well photographed:

yes

no

Equipment Cleaning Procedures

potable water and phosphate-free soap

potable water rinse

water rinse:

distilled

deionized

solvent rinse:

acetone

hexane

air dry

Casing Diameter:

(circle one)

2"

4"

6"

Other: _____

Casing Volume Calculation: $(\pi r^2 h)(7.48 \text{ gal/ft}^3)$

Casing Volume (gallons/ft) for: 2" = 0.163; 4" = 0.653; 6" = 1.47

Casing Volume (liters/ft) for: 2" = 0.618; 4" = 2.47; 6" = 5.56

Depth to Water (feet):

7.47

Depth of Well (feet):

26.80

Water Column (feet):

19.33

Casing Volume (gallons/liters):

3.15

Calculated Purge Volume (gallons/liters):

2.25

Actual Purge Volume (gallons/liters):

~22 ft

Pump Intake Depth (feet):

~22 ft

Measuring Point Elevation (feet):

Groundwater Surface Elevation:

LNAPL present:

thickness:

DNAPL present:

thickness:

Remarks:

Ferrous Iron (mg/L):

1.33 (no dilution)

Well Evacuation

Water level recovery is:

very slow

slow

moderate

fast

Bailed dry:

yes

no

TIME 2400 hrs	CUMULATIVE VOLUME (gal)	TEMPERATURE (°C)	pH	DISSOLVED OXYGEN (mg/L)	ORP (mV)	CONDUCTIVITY (µs/cm)	TURBIDITY (NTU)	Depth to Water (Feet)	ODOR/COLOR/ REMARKS
10:40	0								PURGE START
10:45	0.35	21.86	5.62	4.08	86.1	247	3.60	7.98	clear
10:50	0.55	22.65	5.43	3.38	90.7	250	6.72	7.84	"
10:55	0.75	22.39	5.50	2.27	86.9	250	8.30	7.84	"
11:00	1.0	22.38	5.51	2.04	84.8	247	8.08	7.85	"
11:05	1.25	22.65	5.63	2.23	82.0	240	4.64	7.86	"
11:10	1.45	22.49	5.64	2.25	81.3	237	2.40	7.87	"
11:15	1.70	22.83	5.66	2.34	77.5	234	1.67	7.89	"
11:25		5	a m	p	1	e			

Measurement and Sampling Equipment

Type

Multi-Parameter

Manufacturer

YSI

Model #

556 MPS

Calibration Date

9/13/16

Multi-Parameter

YSI

556 MPS

9/13/16

Turbidimeter

HI Scientific

ORT-150E

4/13/16

Peristaltic Pump

GeoTech

Geo Pump

—

Colorimeter

HAUT

DR/690

—

SAMPLE NUMBER	ANALYTICAL METHOD	BOTTLE TYPE/ PRESERVATIVES	QA REMARKS
MW-18	VOCs	40 mL VOA HCl	
"	GC Analysis	40 mL VOA HCl	
"	TOC	250 mL HDPE H ₂ SO ₄	
"	Ion Scan/Alkalinity	500 mL HDPE --	
"	Sulfide	250-500 mL HDPE Zn + NaOH	
"	Alkalinity	250 mL HDPE --	

Apollo Smyrna

9/12/15

Keaton Henry

Rob Andrews

Weather: Partly Cloudy

- K. Henry arrived on-site at 8:15
- signed in at Apollo Technology
bldg 4
- went to landscape company
on adjacent property to notify
them that we will sample
MW-6R either today or tomorrow
- spoke to Rob Huey at 8:34
to let him know that we will
be on-site for the next 3
days.
- Rob Andrews arrived on-site at
8:50
- Held H-S Meeting at 9:10
- Began taking GW Levels at 9:19
- finish at 11:

Rite in the Rain

Apollo Smyrna
Kenton Henry
Rob Andrews

9/13/16

- Arrived onsite at 7:25
- Signed in at Apollo Technologies Bldg 4

Calibration

YSI 556 MPS SIN 120101751

DO - 763.8 mmHg @ 22.5°C = 8.6 mg/L ✓

cond = 4.44 mS/cm = 1.49 ✓

pH 4 = 4.0 ✓

7 = 7.0 ✓

10 = ~~10.0~~ 9.97 ✓

ORP = 228 mV = 228 mV ✓

Turbidimeter DRT-15CE

0.02 NTU = 0.01 MU ✓

- Rob Andrews arrived onsite at 7:50

- left site at 8:15 to meet Javed
to pick up 55 gal drums

- arrived back onsite w/ drums at 9:00

Apollo Smyrna

9/13/16

- Arrived at MW-15 at 9:08
- began purging at 9:28
- sampled at 10:10

- Arrived at MW-18 at 10:35
- began purging at 10:40
- sampled at 11:25
- left well at 11:46

- Left site for lunch at 11:55

- Arrived back onsite at 12:30
- assisted R Andrews w/ colorimeter issues.

- Arrived at DW-1 at 12:46
- began purging at 12:59
- sampled at 14:35
- left well at 14:52

Rite in the Rain

Apollo Smyrna

9/13/16

- Arrived at MW-17 at 14:55

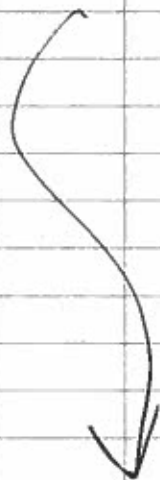
- began purging at 15:10

- sampled at 16:05

- left well at 16:30

- met w/ Danielle Edwards and transferred samples and one 55 gal drum at 17:10

- left site at 17:23.



Apollo Smyrna

9/14/16

Heaton Henry
Rob Andrews

- Arrived on-site at 7:25

- signal in at Apollo Technologies Bldg 4

- Calibration 7:40

YSI 556 MPS - S/N 120101751

• DO 23.5°C, 7638 μmHg - 8.5 mg/L = 8.5 ✓

• cond. 4.49 nS/cm = 4.49 nS/cm ✓

• pH 4: 4 ✓
7: 7 ✓

• ORP 228 mV = 228 mV

- Arrived at MW-1 at 8:10

- began purging at 8:45

- assisted R Andrews w/ tubing issues at MW-3

- sampled at 9:55

- collected Field DUP (VOC's only)

• WELL NEEDS NEW LOCK!!!

• left well at 10:39

• note, well area, potentially ^{poor} water, had slight septic smell

Rite in the Rain

Apollo Smearing

9/14/16

- Arrived at MW-4 at 10:42

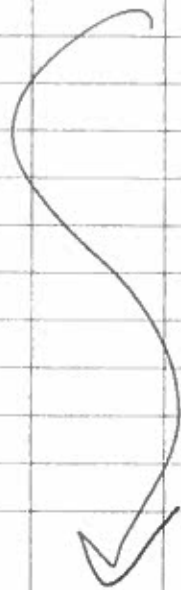
- tubing would not go past 10 ft
in well. Added check valve to
end tip of tubing to guide tubing
down well.

- began purging at 11:29.

- sampled cat 12:30

- left well at 12:53

- Packed up and left site at 13:05



9/12/16

0830 R. Andrews (EarthCon) on-site.

0835 Review and sign HASP

0840 Begin collecting MW DTUs

1130 Begin Calibrating equipment

YSE 556 MPS - 10/11/00/60

00 @ 768.10 @ 25.20°C →

	<u>Begin</u>	<u>Cal To</u>	<u>End</u>
Cond	4.16	4.49	4.60
pH 4	3.88	4.0	4.0
pH 7	7.02	7.0	7.0
ORP	223.4	228	228.0 - last
pH 10	9.88	10.0	9.98

HF Scientific DRT-15CE Turbidimeter

	<u>Begin</u>	<u>Cal To</u>	<u>End</u>
NTU	0.17	0.02	0.02

1200 Off-site for lunch.

9/12/16

1300 On-site, return from lunch.

1330 Set up on MW-9.

1350 Begin purging MW-9

1430 Begin sampling MW-9 for VOCs, GC Analysis, TOL, Ion Scan, Sulfide and alkalinity.

1540 Begin purging MW-5.

1610 Begin sampling MW-5 for VOCs, GC Analysis, TOL, Ion Scan, Sulfide and alkalinity.

1640 PALX samples, wait for DE.

1730 DE picks up samples. Leave site.

Rite in the Rain.

0800 R. Andrew (Earth Con) on-site.

0815 Begin calibrating equipment.

YSE 556 MP4 - 10 M 100.160

DO @ 768.2 @ 21.13°C →

	<u>Begin</u>	<u>Cal To</u>	<u>End</u>
Cond	4.41	4.49	4.53
pH 4	4.07	4.0	4.0
pH 7	7.03	7.0	7.0
pH 10	9.93	10.0	9.99
ORP	231.7	228	228

HF Scientific DRT-15CE
Turbidimeter

	<u>Begin</u>	<u>Cal to</u>	<u>End</u>
NTU	0.06	0.02	0.02

0830 Set up on MW-6R

0855 Begin purging MW-6R.

9/13/16

0950 Sample MW-6R for
VOLs, TOC, Ion Scan, GC
Analysis, ~~Iron Scan~~ ^(RA) Sulfide,
Alkalinity.

1010 Setup on MW-11.

1100 Begin purging MW-11.

1150 Sample MW-11 for VOLs, TOC,
Ion Scan, GC Analysis, Sulfide,
Alkalinity

1200 Lunch

1350 Begin purging MW-12.

1445 Sample MW-12 for VOLs, TOC,
Ion Scan, GC Analysis, Sulfide,
Alkalinity

1535 Begin purging MW-8.

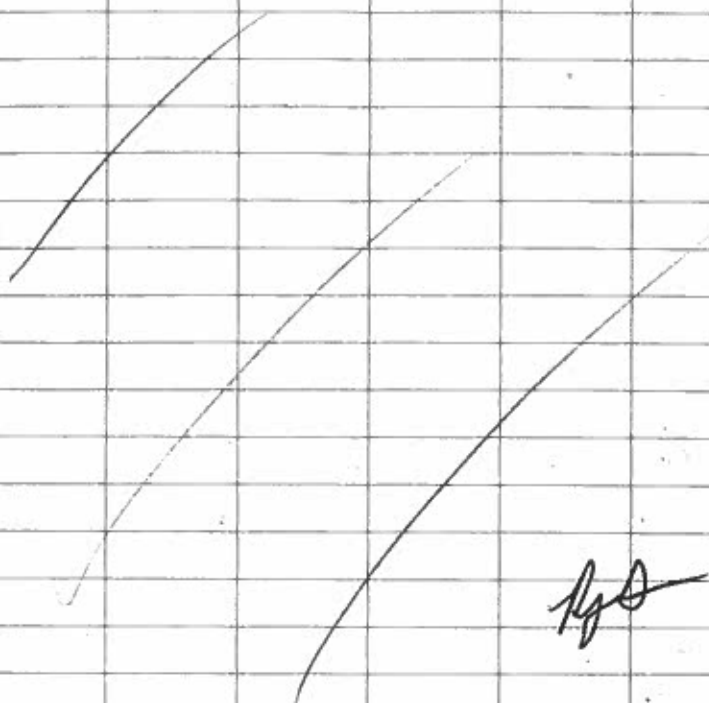
1610 Sample MW-8 for VOLs, TOC

Rite in the Rain.

9/13/16

Ion scan, GC Analysis, Sulfide,
Alkalinity1700 OE on-site to pick-up
samples.

1730 off-site.



9/14/16

0800 R. Andrews (Earth Cam) on-site.

0805 Begin calibrating equipment.

VSI 556 MPa - 10 M100/60

DO @ 766.5 @ 22.70

	Begin	Cal To	End
Cond	4.43	4.49	4.46
pH 4	3.94	4.0	4.0
pH 7	7.11	7.0	7.0
pH 10	9.82	10.0	10.0
ORP	220.4	228	228

HF Scientific DRT-15CE
Turbidimeter

	Begin	Cal To	End
NTU	0.07	0.02	0.02

0830 Set-up on MW-3.

0940 Begin purging MW-3.

Rite in the Rain

1040

9/14/16
Sample MW-3 for VOLs,
GC Analysis, TOC, Ion scan,
Sulfide & Alkalinity

1130

Inspect well flush mounts, replace
bolts/washers if missing

1150

MW-10 eyelet broken, only
1 bolt holding well cover.

1200

Pack-up / organize / decon
equipment.

1300

Leave site.

RJS

APPENDIX D

LABORATORY ANALYTICAL REPORTS



ANALYTICAL ENVIRONMENTAL SERVICES, INC.

July 19, 2016

Kristen Rivera
EarthCon Consultants, Inc.
1880 West Oak Parkway
Marietta GA 30062

TEL: (770) 973-2100
FAX: (770) 973-7395

RE: Apollo Smyrna

Dear Kristen Rivera:

Order No: 1607A61

Analytical Environmental Services, Inc. received 3 samples on July 14, 2016 1:09 pm for the analyses presented in following report.

No problems were encountered during the analyses. Additionally, all results for the associated Quality Control samples were within EPA and/or AES established limits. Any discrepancies associated with the analyses contained herein will be noted and submitted in the form of a project Case Narrative.

AES's accreditations are as follows:

- NELAC/Florida State Laboratory ID E87582 for analysis of Non-Potable Water, Solid & Chemical Materials, and Drinking Water Microbiology, effective 07/01/16-06/30/17.
- NELAC/Louisiana Agency Interest No. 100818 for or analysis of Non-Potable Water and Solid & Chemical Materials, effective 07/01/16-06/30/17.
- NELAC/Texas Certificate No. T104704509-16-6 for or analysis of Non-Potable Water and Solid & Chemical Materials, effective 03/01/16-02/28/17.
- AIHA-LAP, LLC Laboratory ID: 100671 for Industrial Hygiene samples (Organics, Metals, PCM Asbestos, Gravimetric), Environmental Lead (Paint, Soil, Dust Wipes, Air), and Environmental Microbiology (Fungal) Direct Examination, effective until 09/01/17.

Chris Pafford
Project Manager



ANALYTICAL ENVIRONMENTAL SERVICES, INC

3080 Presidential Drive, Atlanta GA 30340-3704

TEL: (770) 457-8177 / TOLL-FREE (800) 972-4889 / FAX: (770) 457-8188

CHAIN OF CUSTODY

Work Order: 1607A61

Date: 7/14/16

Page 1 of 1

COMPANY: EarthCon Consultants, Inc		ADDRESS: 1680 W Oak Pkwy Bldg 106 Suite 106 Marietta, GA 30062		ANALYSIS REQUESTED												Visit our website www.aesatlanta.com to check on the status of your results, place bottle orders, etc.		No # of Containers	
PHONE: 770-973-2100		FAX: 770-973-7395		PRESERVATION (See codes)															
SAMPLED BY: Keaton Henry/I		SIGNATURE: [Signature]														REMARKS			
#	SAMPLE ID	SAMPLED		Grab	Composite	Matrix (See codes)	H+I												
		DATE	TIME																
1	MW-15	7/14/16	9:30	✓		GW	2											2	
2	MW-18	7/14/16	11:50	✓		GW	2											2	
3	Trip Blank	7/14/16	—	✓		W	2											2	
4																			
5																			
6																			
7																			
8																			
9																			
10																			
11																			
12																			
13																			
14																			

RELINQUISHED BY: [Signature]		DATE/TIME: 7/14/16 13:09		RECEIVED BY: [Signature]		DATE/TIME: 7-14-16 1:09		PROJECT INFORMATION												RECEIPT	
1:				1:				PROJECT NAME: Apollo Smyrna												Total # of Containers: 6	
2:				2:				PROJECT #: 02.20160341.16												Turnaround Time Request ☒ Standard 5 Business Days ☐ 2 Business Day Rush ☐ Next Business Day Rush ☐ Same Day Rush (auth req.) ☐ Other	
3:				3:				SITE ADDRESS:													
								SEND REPORT TO: Kristen Rivera													
SPECIAL INSTRUCTIONS/COMMENTS:				SHIPMENT METHOD OUT / / VIA: IN / / VIA: CLIENT FedEx UPS MAIL COURIER GREYHOUND OTHER				INVOICE TO: (IF DIFFERENT FROM ABOVE)												STATE PROGRAM (if any):	
																				E-mail? Y / N, Fax? Y / N	
								QUOTE #:												DATA PACKAGE: I II III IV	

SAMPLES RECEIVED AFTER 3PM OR ON SATURDAY ARE CONSIDERED RECEIVED THE NEXT BUSINESS DAY. IF TURNAROUND TIME IS NOT INDICATED, AES WILL PROCEED WITH STANDARD TAT OF SAMPLES.

SAMPLES ARE DISPOSED 30 DAYS AFTER REPORT COMPLETION UNLESS OTHER ARRANGEMENTS ARE MADE.

MATRIX CODES: A = Air GW = Groundwater SE = Sediment SO = Soil SW = Surface Water W = Water (Blanks) DW = Drinking Water (Blanks) O = Other (specify) WW = Waste Water

PRESERVATIVE CODES: H+I = Hydrochloric acid + ice I = Ice only N = Nitric acid S+I = Sulfuric acid + ice S/M+I = Sodium Bisulfate/Methanol + ice O = Other (specify) NA = None

1607 A61

COMPANY: EARTHCON CONSULTANTS

PHONE: 770-973-2100

PROJECT MANAGER: KRISTEN RIVERA

PROJECT NAME: APOLLO SMYRNA

PROJECT NUMBER: 02.20140391.16

SITE ADDRESS: 1850 SOUTH COBB INDUSTRIAL BLVD, SMYRNA, GEORGIA

FOR SAMPLE ANALYSES VIA METHOD 8260B, PLEASE REPORT ONLY THE FOLLOWING
VOC CONSTITUENTS AT THE RESPECTIVE REPORTING LIMITS IN UNITS OF PPM:

ACETONE – 0.050 mg/L

1,1,1-TRICHLOROETHANE (1,1,1-TCA) – 0.005 mg/L

1,1-DICHLOROETHANE (1,1-DCA) – 0.005 mg/L

1,1-DICHLORETHENE (1,1-DCE) – 0.005 mg/L

1,2-DICHLORETHANE (1,2-DCA) – 0.005 mg/L

CHLOROETHANE – 0.010 mg/L

cis-1,2-DICHLOROETHENE (cis-1,2-DCE) – 0.005 mg/L

CYCLOHEXANE – 0.005 mg/L

METHYLENE CHLORIDE – 0.005 mg/L

TETRACHLOROETHENE (PCE) – 0.005 mg/L

trans-1,2-DICHLORETHENE (trans-1,2-DCE) – 0.005 mg/L

TRICHLOROETHENE (TCE) – 0.005 mg/L

VINYL CHLORIDE – 0.002 mg/L

Analytical Environmental Services, Inc

Date: 19-Jul-16

Client: EarthCon Consultants, Inc.
 Project Name: Apollo Smyrna
 Lab ID: 1607A61-001

Client Sample ID: MW-15
 Collection Date: 7/14/2016 9:30:00 AM
 Matrix: Groundwater

Analyses	Result	Qual	MDL	Reporting Limit	Units	BatchID	DF	Date Analyzed	Analyst
TCL VOLATILE ORGANICS SW8260B				(SW5030B)					
1,1,1-Trichloroethane	BRL		0.00025	0.005	mg/L	226834	1	07/15/2016 17:04	NP
1,1-Dichloroethane	0.001	J	0.00025	0.005	mg/L	226834	1	07/15/2016 17:04	NP
1,1-Dichloroethene	BRL		0.00036	0.005	mg/L	226834	1	07/15/2016 17:04	NP
1,2-Dichloroethane	BRL		0.00024	0.005	mg/L	226834	1	07/15/2016 17:04	NP
Acetone	BRL		0.0053	0.050	mg/L	226834	1	07/15/2016 17:04	NP
Chloroethane	0.071		0.00039	0.010	mg/L	226834	1	07/15/2016 17:04	NP
cis-1,2-Dichloroethene	BRL		0.00027	0.005	mg/L	226834	1	07/15/2016 17:04	NP
Cyclohexane	BRL		0.0016	0.005	mg/L	226834	1	07/15/2016 17:04	NP
Methylene chloride	BRL		0.00031	0.005	mg/L	226834	1	07/15/2016 17:04	NP
Tetrachloroethene	BRL		0.00029	0.005	mg/L	226834	1	07/15/2016 17:04	NP
trans-1,2-Dichloroethene	BRL		0.00022	0.005	mg/L	226834	1	07/15/2016 17:04	NP
Trichloroethene	BRL		0.00035	0.005	mg/L	226834	1	07/15/2016 17:04	NP
Vinyl chloride	BRL		0.00042	0.002	mg/L	226834	1	07/15/2016 17:04	NP
Surr: 4-Bromofluorobenzene	92.4		0	70.7-125	%REC	226834	1	07/15/2016 17:04	NP
Surr: Dibromofluoromethane	112		0	82.2-120	%REC	226834	1	07/15/2016 17:04	NP
Surr: Toluene-d8	101		0	81.8-120	%REC	226834	1	07/15/2016 17:04	NP

Qualifiers:

- * Value exceeds maximum contaminant level
- BRL Not detected at MDL
- H Holding times for preparation or analysis exceeded
- N Analyte not NELAC certified
- B Analyte detected in the associated method blank
- NC Not confirmed

- E Estimated value above quantitation range
- S Spike Recovery outside limits due to matrix
- J Estimated value detected below Reporting Limit
- > Greater than Result value
- < Less than Result value
- Narr See case narrative

Analytical Environmental Services, Inc

Date: 19-Jul-16

Client: EarthCon Consultants, Inc.
Project Name: Apollo Smyrna
Lab ID: 1607A61-002

Client Sample ID: MW-18
Collection Date: 7/14/2016 11:50:00 AM
Matrix: Groundwater

Analyses	Result	Qual	MDL	Reporting Limit	Units	BatchID	DF	Date Analyzed	Analyst
TCL VOLATILE ORGANICS SW8260B				(SW5030B)					
1,1,1-Trichloroethane	0.001	J	0.00025	0.005	mg/L	226834	1	07/15/2016 17:27	NP
1,1-Dichloroethane	0.17		0.00025	0.005	mg/L	226834	1	07/15/2016 17:27	NP
1,1-Dichloroethene	0.63		0.0036	0.050	mg/L	226834	10	07/18/2016 15:07	NP
1,2-Dichloroethane	BRL		0.00024	0.005	mg/L	226834	1	07/15/2016 17:27	NP
Acetone	BRL		0.0053	0.050	mg/L	226834	1	07/15/2016 17:27	NP
Chloroethane	0.028		0.00039	0.010	mg/L	226834	1	07/15/2016 17:27	NP
cis-1,2-Dichloroethene	0.14		0.00027	0.005	mg/L	226834	1	07/15/2016 17:27	NP
Cyclohexane	BRL		0.0016	0.005	mg/L	226834	1	07/15/2016 17:27	NP
Methylene chloride	0.001	J	0.00031	0.005	mg/L	226834	1	07/15/2016 17:27	NP
Tetrachloroethene	0.15		0.00029	0.005	mg/L	226834	1	07/15/2016 17:27	NP
trans-1,2-Dichloroethene	BRL		0.00022	0.005	mg/L	226834	1	07/15/2016 17:27	NP
Trichloroethene	0.10		0.00035	0.005	mg/L	226834	1	07/15/2016 17:27	NP
Vinyl chloride	0.011		0.00042	0.002	mg/L	226834	1	07/15/2016 17:27	NP
Surr: 4-Bromofluorobenzene	93.4		0	70.7-125	%REC	226834	1	07/15/2016 17:27	NP
Surr: 4-Bromofluorobenzene	94.3		0	70.7-125	%REC	226834	10	07/18/2016 15:07	NP
Surr: Dibromofluoromethane	114		0	82.2-120	%REC	226834	1	07/15/2016 17:27	NP
Surr: Dibromofluoromethane	115		0	82.2-120	%REC	226834	10	07/18/2016 15:07	NP
Surr: Toluene-d8	101		0	81.8-120	%REC	226834	1	07/15/2016 17:27	NP
Surr: Toluene-d8	101		0	81.8-120	%REC	226834	10	07/18/2016 15:07	NP

Qualifiers:

- * Value exceeds maximum contaminant level
- BRL Not detected at MDL
- H Holding times for preparation or analysis exceeded
- N Analyte not NELAC certified
- B Analyte detected in the associated method blank
- NC Not confirmed

- E Estimated value above quantitation range
- S Spike Recovery outside limits due to matrix
- J Estimated value detected below Reporting Limit
- > Greater than Result value
- < Less than Result value
- Narr See case narrative

Analytical Environmental Services, Inc

Date: 19-Jul-16

Client: EarthCon Consultants, Inc.
Project Name: Apollo Smyrna
Lab ID: 1607A61-003

Client Sample ID: TRIP BLANK
Collection Date: 7/14/2016
Matrix: Aqueous

Analyses	Result	Qual	MDL	Reporting Limit	Units	BatchID	DF	Date Analyzed	Analyst
TCL VOLATILE ORGANICS SW8260B				(SW5030B)					
1,1,1-Trichloroethane	BRL		0.00025	0.005	mg/L	226834	1	07/15/2016 16:40	NP
1,1-Dichloroethane	BRL		0.00025	0.005	mg/L	226834	1	07/15/2016 16:40	NP
1,1-Dichloroethene	BRL		0.00036	0.005	mg/L	226834	1	07/15/2016 16:40	NP
1,2-Dichloroethane	BRL		0.00024	0.005	mg/L	226834	1	07/15/2016 16:40	NP
Acetone	BRL		0.0053	0.050	mg/L	226834	1	07/15/2016 16:40	NP
Chloroethane	BRL		0.00039	0.010	mg/L	226834	1	07/15/2016 16:40	NP
cis-1,2-Dichloroethene	BRL		0.00027	0.005	mg/L	226834	1	07/15/2016 16:40	NP
Cyclohexane	BRL		0.0016	0.005	mg/L	226834	1	07/15/2016 16:40	NP
Methylene chloride	0.002	J	0.00031	0.005	mg/L	226834	1	07/15/2016 16:40	NP
Tetrachloroethene	BRL		0.00029	0.005	mg/L	226834	1	07/15/2016 16:40	NP
trans-1,2-Dichloroethene	BRL		0.00022	0.005	mg/L	226834	1	07/15/2016 16:40	NP
Trichloroethene	BRL		0.00035	0.005	mg/L	226834	1	07/15/2016 16:40	NP
Vinyl chloride	BRL		0.00042	0.002	mg/L	226834	1	07/15/2016 16:40	NP
Surr: 4-Bromofluorobenzene	95.8		0	70.7-125	%REC	226834	1	07/15/2016 16:40	NP
Surr: Dibromofluoromethane	110		0	82.2-120	%REC	226834	1	07/15/2016 16:40	NP
Surr: Toluene-d8	98.9		0	81.8-120	%REC	226834	1	07/15/2016 16:40	NP

Qualifiers:

- * Value exceeds maximum contaminant level
- BRL Not detected at MDL
- H Holding times for preparation or analysis exceeded
- N Analyte not NELAC certified
- B Analyte detected in the associated method blank
- NC Not confirmed

- E Estimated value above quantitation range
- S Spike Recovery outside limits due to matrix
- J Estimated value detected below Reporting Limit
- > Greater than Result value
- < Less than Result value
- Narr See case narrative

Analytical Environmental Services, Inc.

Sample/Cooler Receipt Checklist

Client Farther Work Order Number 1607A61

Checklist completed by Pamela Masera Signature Date 7/14/16

Carrier name: FedEx ☐ UPS ☐ Courier ☐ Client ☒ US Mail ☐ Other ☐

Shipping container/cooler in good condition? Yes ☒ No ☐ Not Present ☐

Custody seals intact on shipping container/cooler? Yes ☐ No ☐ Not Present ☒

Custody seals intact on sample bottles? Yes ☐ No ☐ Not Present ☒

Container/Temp Blank temperature in compliance? ($0^{\circ} \leq 6^{\circ}C$) * Yes ☒ No ☐

Cooler #1 1-2 Cooler #2 ☐ Cooler #3 ☐ Cooler #4 ☐ Cooler #5 ☐ Cooler #6 ☐

Chain of custody present? Yes ☒ No ☐

Chain of custody signed when relinquished and received? Yes ☒ No ☐

Chain of custody agrees with sample labels? Yes ☒ No ☐

Samples in proper container/bottle? Yes ☒ No ☐

Sample containers intact? Yes ☒ No ☐

Sufficient sample volume for indicated test? Yes ☒ No ☐

All samples received within holding time? Yes ☒ No ☐

Was TAT marked on the COC? Yes ☒ No ☐

Proceed with Standard TAT as per project history? Yes ☐ No ☐ Not Applicable ☒

Water - VOA vials have zero headspace? No VOA vials submitted ☐ Yes ☒ No ☐

Water - pH acceptable upon receipt? Yes ☒ No ☐ Not Applicable ☐

Adjusted? ☐ - Checked by ☐

Sample Condition: Good ☒ Other(Explain) ☐

(For diffusive samples or AIHA lead) Is a known blank included? Yes ☐ No ☒

See Case Narrative for resolution of the Non-Conformance.

* Samples do not have to comply with the given range for certain parameters.

\\Acs_server\\Sample Receipt\\My Documents\\COCs and pH Adjustment Sheet\\Sample_Cooler_Recipt_Checklist_Rev1.rtf

Client: EarthCon Consultants, Inc.
 Project Name: Apollo Smyrna
 Workorder: 1607A61

ANALYTICAL QC SUMMARY REPORT

BatchID: 226834

Sample ID: MB-226834	Client ID:	Units: mg/L				Prep Date: 07/15/2016	Run No: 321114				
SampleType: MBLK	TestCode: TCL VOLATILE ORGANICS SW8260B	BatchID: 226834				Analysis Date: 07/15/2016	Seq No: 6938474				
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual

1,1,1-Trichloroethane	BRL	0.005									
1,1-Dichloroethane	BRL	0.005									
1,1-Dichloroethene	BRL	0.005									
1,2-Dichloroethane	BRL	0.005									
Acetone	BRL	0.050									
Chloroethane	BRL	0.010									
cis-1,2-Dichloroethene	BRL	0.005									
Cyclohexane	BRL	0.005									
Methylene chloride	BRL	0.005									
Tetrachloroethene	BRL	0.005									
trans-1,2-Dichloroethene	BRL	0.005									
Trichloroethene	BRL	0.005									
Vinyl chloride	BRL	0.002									
Surr: 4-Bromofluorobenzene	0.04821	0	50.00		96.4	70.7	125				
Surr: Dibromofluoromethane	0.05707	0	50.00		114	82.2	120				
Surr: Toluene-d8	0.05037	0	50.00		101	81.8	120				

Sample ID: LCS-226834	Client ID:				Units: mg/L	Prep Date: 07/15/2016	Run No: 321114				
SampleType: LCS	TestCode: TCL VOLATILE ORGANICS SW8260B				BatchID: 226834	Analysis Date: 07/15/2016	Seq No: 6938472				
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual

1,1-Dichloroethene	0.05482	0.005	50.00		110	65.3	137				
Trichloroethene	0.04778	0.005	50.00		95.6	73.1	128				
Surr: 4-Bromofluorobenzene	0.04842	0	50.00		96.8	70.7	125				
Surr: Dibromofluoromethane	0.05467	0	50.00		109	82.2	120				
Surr: Toluene-d8	0.04957	0	50.00		99.1	81.8	120				

Qualifiers:	>	Greater than Result value	<	Less than Result value	B	Analyte detected in the associated method blank
	BRL	Below reporting limit	E	Estimated (value above quantitation range)	H	Holding times for preparation or analysis exceeded
	J	Estimated value detected below Reporting Limit	N	Analyte not NELAC certified	R	RPD outside limits due to matrix
	Rpt Lim	Reporting Limit	S	Spike Recovery outside limits due to matrix		

Client: EarthCon Consultants, Inc.
Project Name: Apollo Smyrna
Workorder: 1607A61

ANALYTICAL QC SUMMARY REPORT**BatchID: 226834**

Sample ID: 1607A61-001AMS	Client ID: MW-15	Units: mg/L			Prep Date: 07/15/2016	Run No: 321219					
SampleType: MS	TestCode: TCL VOLATILE ORGANICS SW8260B	BatchID: 226834			Analysis Date: 07/18/2016	Seq No: 6940875					
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual

1,1-Dichloroethene	0.07113	0.005	50.00		142	60	150				
Trichloroethene	0.05284	0.005	50.00		106	70	136				
Surr: 4-Bromofluorobenzene	0.04865	0	50.00		97.3	70.7	125				
Surr: Dibromofluoromethane	0.05599	0	50.00		112	82.2	120				
Surr: Toluene-d8	0.05031	0	50.00		101	81.8	120				

Sample ID: 1607A61-001AMSD	Client ID: MW-15	Units: mg/L			Prep Date: 07/15/2016	Run No: 321219					
SampleType: MSD	TestCode: TCL VOLATILE ORGANICS SW8260B	BatchID: 226834			Analysis Date: 07/18/2016	Seq No: 6940876					
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual

1,1-Dichloroethene	0.07460	0.005	50.00		149	60	150	71.13	4.76	17.7	
Trichloroethene	0.05677	0.005	50.00		114	70	136	52.84	7.17	20	
Surr: 4-Bromofluorobenzene	0.04645	0	50.00		92.9	70.7	125	48.65	0	0	
Surr: Dibromofluoromethane	0.05571	0	50.00		111	82.2	120	55.99	0	0	
Surr: Toluene-d8	0.04961	0	50.00		99.2	81.8	120	50.31	0	0	

Qualifiers:

> Greater than Result value

BRL Below reporting limit

J Estimated value detected below Reporting Limit

Rpt Lim Reporting Limit

< Less than Result value

E Estimated (value above quantitation range)

N Analyte not NELAC certified

S Spike Recovery outside limits due to matrix

B Analyte detected in the associated method blank

H Holding times for preparation or analysis exceeded

R RPD outside limits due to matrix



ANALYTICAL ENVIRONMENTAL SERVICES, INC.

September 21, 2016

Samantha Woolf
EarthCon Consultants, Inc.
1880 West Oak Parkway
Marietta GA 30062

TEL: (770) 973-2100
FAX: (770) 973-7395

RE: Apollo Smyrna

Dear Samantha Woolf:

Order No: 1609A03

Analytical Environmental Services, Inc. received 5 samples on September 13, 2016 5:00 pm for the analyses presented in following report.

No problems were encountered during the analyses. Additionally, all results for the associated Quality Control samples were within EPA and/or AES established limits. Any discrepancies associated with the analyses contained herein will be noted and submitted in the form of a project Case Narrative.

AES's accreditations are as follows:

- NELAC/Florida State Laboratory ID E87582 for analysis of Non-Potable Water, Solid & Chemical Materials, and Drinking Water Microbiology, effective 07/01/16-06/30/17.
- NELAC/Louisiana Agency Interest No. 100818 for or analysis of Non-Potable Water and Solid & Chemical Materials, effective 07/01/16-06/30/17.
- NELAC/Texas Certificate No. T104704509-16-6 for or analysis of Non-Potable Water and Solid & Chemical Materials, effective 03/01/16-02/28/17.
- AIHA-LAP, LLC Laboratory ID: 100671 for Industrial Hygiene samples (Organics, Metals, PCM Asbestos, Gravimetric), Environmental Lead (Paint, Soil, Dust Wipes, Air), and Environmental Microbiology (Fungal) Direct Examination, effective until 09/01/17.

Chris Pafford
Project Manager



TEL.: (770) 457-8177 / TOLL-FREE (800) 972-4889 / FAX: (770) 457-8188

Work Order: 1009 H03

Date: 9/12/16 Page 1 of 1

PRESERVATIVE CODES: H+I = Hydrochloric acid + ice I = Ice only N = Nitric acid S+I = Sulfuric acid + ice S/M+I = Sodium Bisulfate/Methanol + ice O = Other (specify) NA = None

White Copy - Original; Yellow Copy - Client

1609A03

COMPANY: EARTHCON CONSULTANTS

PHONE: 770-973-2100

PROJECT MANAGER: SAMANTHA WOOLF

PROJECT NAME: APOLLO SMYRNA

PROJECT NUMBER: 02.20140391.16

SITE ADDRESS: 1850 SOUTH COBB INDUSTRIAL BLVD, SMYRNA, GEORGIA

FOR SAMPLE ANALYSES VIA METHOD 8260B, PLEASE REPORT ONLY THE FOLLOWING
VOC CONSTITUENTS AT THE RESPECTIVE REPORTING LIMITS IN UNITS OF PPM:

ACETONE – 0.050 mg/L

1,1,1-TRICHLOROETHANE (1,1,1-TCA) – 0.005 mg/L

1,1-DICHLOROETHANE (1,1-DCA) – 0.005 mg/L

1,1-DICHLORETHENE (1,1-DCE) – 0.005 mg/L

1,2-DICHLORETHANE (1,2-DCA) – 0.005 mg/L

CHLOROETHANE – 0.010 mg/L

cis-1,2-DICHLOROETHENE (cis-1,2-DCE) – 0.005 mg/L

CYCLOHEXANE – 0.005 mg/L

METHYLENE CHLORIDE – 0.005 mg/L

TETRACHLOROETHENE (PCE) – 0.005 mg/L

trans-1,2-DICHLOROETHENE (trans-1,2-DCE) – 0.005 mg/L

TRICHLOROETHENE (TCE) – 0.005 mg/L

VINYL CHLORIDE – 0.002 mg/L

Analytical Environmental Services, Inc
Date: 21-Sep-16

Client: EarthCon Consultants, Inc.
Project Name: Apollo Smyrna
Lab ID: 1609A03-001

Client Sample ID: MW-7
Collection Date: 9/12/2016 2:35:00 PM
Matrix: Groundwater

Analyses	Result	Qual	MDL	Reporting Limit	Units	BatchID	DF	Date Analyzed	Analyst
Total Organic Carbon (TOC) SW9060A									
Organic Carbon, Total	BRL		0.337	1.00	mg/L	R325429	1	09/16/2016 18:02	JW
TCL VOLATILE ORGANICS SW8260B (SW5030B)									
1,1,1-Trichloroethane	BRL		0.00025	0.005	mg/L	229399	1	09/14/2016 17:49	NP
1,1-Dichloroethane	BRL		0.00025	0.005	mg/L	229399	1	09/14/2016 17:49	NP
1,1-Dichloroethene	BRL		0.00036	0.005	mg/L	229399	1	09/14/2016 17:49	NP
1,2-Dichloroethane	BRL		0.00024	0.005	mg/L	229399	1	09/14/2016 17:49	NP
Acetone	BRL		0.0053	0.050	mg/L	229399	1	09/14/2016 17:49	NP
Chloroethane	BRL		0.00039	0.010	mg/L	229399	1	09/14/2016 17:49	NP
cis-1,2-Dichloroethene	0.17		0.00027	0.005	mg/L	229399	1	09/14/2016 17:49	NP
Cyclohexane	BRL		0.0016	0.005	mg/L	229399	1	09/14/2016 17:49	NP
Methylene chloride	BRL		0.00031	0.005	mg/L	229399	1	09/14/2016 17:49	NP
Tetrachloroethene	BRL		0.00029	0.005	mg/L	229399	1	09/14/2016 17:49	NP
trans-1,2-Dichloroethene	BRL		0.00022	0.005	mg/L	229399	1	09/14/2016 17:49	NP
Trichloroethene	BRL		0.00035	0.005	mg/L	229399	1	09/14/2016 17:49	NP
Vinyl chloride	0.35		0.0042	0.020	mg/L	229399	10	09/15/2016 15:21	NP
Surr: 4-Bromofluorobenzene	91		0	70.7-125	%REC	229399	1	09/14/2016 17:49	NP
Surr: 4-Bromofluorobenzene	85.9		0	70.7-125	%REC	229399	10	09/15/2016 15:21	NP
Surr: Dibromofluoromethane	119		0	82.2-120	%REC	229399	1	09/14/2016 17:49	NP
Surr: Dibromofluoromethane	114		0	82.2-120	%REC	229399	10	09/15/2016 15:21	NP
Surr: Toluene-d8	104		0	81.8-120	%REC	229399	1	09/14/2016 17:49	NP
Surr: Toluene-d8	102		0	81.8-120	%REC	229399	10	09/15/2016 15:21	NP
Sulfide by SW9030B/9034 (SW9030B)									
Sulfide	2.00		0.764	2.00	mg/L	229608	1	09/19/2016 12:15	BD
ION SCAN SW9056A									
Chloride	7.4		0.11	1.0	mg/L	R325419	1	09/14/2016 03:55	JW
Nitrate	BRL		0.024	0.25	mg/L	R325419	1	09/14/2016 03:55	JW
Sulfate	1.6		0.10	1.0	mg/L	R325419	1	09/14/2016 03:55	JW
GC Analysis of Gaseous Samples SOP-RSK 175 (RSK175)									
Ethane	0.040		0.0019	0.0090	mg/L	229481	1	09/16/2016 11:00	MD
Ethylene	0.17		0.0035	0.0070	mg/L	229481	1	09/16/2016 11:00	MD
Methane	3.3		0.024	0.080	mg/L	229481	20	09/16/2016 12:01	MD
Alkalinity by SM2320B									
Alkalinity, Total (As CaCO3)	47.0		1.68	3.00	mg/L	R325605	1	09/20/2016 20:00	BD

Qualifiers: * Value exceeds maximum contaminant level
 BRL Not detected at MDL
 H Holding times for preparation or analysis exceeded
 N Analyte not NELAC certified
 B Analyte detected in the associated method blank
 NC Not confirmed

E Estimated value above quantitation range
 S Spike Recovery outside limits due to matrix
 J Estimated value detected below Reporting Limit
 > Greater than Result value
 < Less than Result value
 Narr See case narrative

Analytical Environmental Services, Inc
Date: 21-Sep-16

Client: EarthCon Consultants, Inc.
Project Name: Apollo Smyrna
Lab ID: 1609A03-002

Client Sample ID: MW-13
Collection Date: 9/12/2016 4:10:00 PM
Matrix: Groundwater

Analyses	Result	Qual	MDL	Reporting Limit	Units	BatchID	DF	Date Analyzed	Analyst
Total Organic Carbon (TOC) SW9060A									
Organic Carbon, Total	BRL		0.337	1.00	mg/L	R325429	1	09/16/2016 19:27	JW
TCL VOLATILE ORGANICS SW8260B (SW5030B)									
1,1,1-Trichloroethane	BRL		0.00025	0.005	mg/L	229399	1	09/14/2016 18:12	NP
1,1-Dichloroethane	BRL		0.00025	0.005	mg/L	229399	1	09/14/2016 18:12	NP
1,1-Dichloroethene	BRL		0.00036	0.005	mg/L	229399	1	09/14/2016 18:12	NP
1,2-Dichloroethane	BRL		0.00024	0.005	mg/L	229399	1	09/14/2016 18:12	NP
Acetone	BRL		0.0053	0.050	mg/L	229399	1	09/14/2016 18:12	NP
Chloroethane	BRL		0.00039	0.010	mg/L	229399	1	09/14/2016 18:12	NP
cis-1,2-Dichloroethene	BRL		0.00027	0.005	mg/L	229399	1	09/14/2016 18:12	NP
Cyclohexane	BRL		0.0016	0.005	mg/L	229399	1	09/14/2016 18:12	NP
Methylene chloride	BRL		0.00031	0.005	mg/L	229399	1	09/14/2016 18:12	NP
Tetrachloroethene	BRL		0.00029	0.005	mg/L	229399	1	09/14/2016 18:12	NP
trans-1,2-Dichloroethene	BRL		0.00022	0.005	mg/L	229399	1	09/14/2016 18:12	NP
Trichloroethene	BRL		0.00035	0.005	mg/L	229399	1	09/14/2016 18:12	NP
Vinyl chloride	BRL		0.00042	0.002	mg/L	229399	1	09/14/2016 18:12	NP
Surr: 4-Bromofluorobenzene	86.5		0	70.7-125	%REC	229399	1	09/14/2016 18:12	NP
Surr: Dibromofluoromethane	116		0	82.2-120	%REC	229399	1	09/14/2016 18:12	NP
Surr: Toluene-d8	102		0	81.8-120	%REC	229399	1	09/14/2016 18:12	NP
Sulfide by SW9030B/9034 (SW9030B)									
Sulfide	5.20		0.764	2.00	mg/L	229608	1	09/19/2016 12:15	BD
ION SCAN SW9056A									
Chloride	7.8		0.11	1.0	mg/L	R325419	1	09/14/2016 04:10	JW
Nitrate	BRL		0.024	0.25	mg/L	R325419	1	09/14/2016 04:10	JW
Sulfate	0.15	J	0.10	1.0	mg/L	R325419	1	09/14/2016 04:10	JW
GC Analysis of Gaseous Samples SOP-RSK 175 (RSK175)									
Ethane	0.13		0.0019	0.0090	mg/L	229481	1	09/16/2016 11:05	MD
Ethylene	BRL		0.0035	0.0070	mg/L	229481	1	09/16/2016 11:05	MD
Methane	4.0		0.047	0.16	mg/L	229481	40	09/16/2016 12:06	MD
Alkalinity by SM2320B									
Alkalinity, Total (As CaCO3)	54.0		1.68	3.00	mg/L	R325605	1	09/20/2016 20:00	BD

Qualifiers: * Value exceeds maximum contaminant level
 BRL Not detected at MDL
 H Holding times for preparation or analysis exceeded
 N Analyte not NELAC certified
 B Analyte detected in the associated method blank
 NC Not confirmed

E Estimated value above quantitation range
 S Spike Recovery outside limits due to matrix
 J Estimated value detected below Reporting Limit
 > Greater than Result value
 < Less than Result value
 Narr See case narrative

Analytical Environmental Services, Inc
Date: 21-Sep-16

Client: EarthCon Consultants, Inc.
Project Name: Apollo Smyrna
Lab ID: 1609A03-003

Client Sample ID: MW-5
Collection Date: 9/12/2016 4:10:00 PM
Matrix: Groundwater

Analyses	Result	Qual	MDL	Reporting Limit	Units	BatchID	DF	Date Analyzed	Analyst
Total Organic Carbon (TOC) SW9060A									
Organic Carbon, Total	BRL		0.337	1.00	mg/L	R325429	1	09/16/2016 19:54	JW
TCL VOLATILE ORGANICS SW8260B (SW5030B)									
1,1,1-Trichloroethane	BRL		0.00025	0.005	mg/L	229399	1	09/14/2016 18:36	NP
1,1-Dichloroethane	BRL		0.00025	0.005	mg/L	229399	1	09/14/2016 18:36	NP
1,1-Dichloroethene	BRL		0.00036	0.005	mg/L	229399	1	09/14/2016 18:36	NP
1,2-Dichloroethane	BRL		0.00024	0.005	mg/L	229399	1	09/14/2016 18:36	NP
Acetone	BRL		0.0053	0.050	mg/L	229399	1	09/14/2016 18:36	NP
Chloroethane	BRL		0.00039	0.010	mg/L	229399	1	09/14/2016 18:36	NP
cis-1,2-Dichloroethene	BRL		0.00027	0.005	mg/L	229399	1	09/14/2016 18:36	NP
Cyclohexane	BRL		0.0016	0.005	mg/L	229399	1	09/14/2016 18:36	NP
Methylene chloride	BRL		0.00031	0.005	mg/L	229399	1	09/14/2016 18:36	NP
Tetrachloroethene	BRL		0.00029	0.005	mg/L	229399	1	09/14/2016 18:36	NP
trans-1,2-Dichloroethene	BRL		0.00022	0.005	mg/L	229399	1	09/14/2016 18:36	NP
Trichloroethene	BRL		0.00035	0.005	mg/L	229399	1	09/14/2016 18:36	NP
Vinyl chloride	BRL		0.00042	0.002	mg/L	229399	1	09/14/2016 18:36	NP
Surr: 4-Bromofluorobenzene	91.7		0	70.7-125	%REC	229399	1	09/14/2016 18:36	NP
Surr: Dibromofluoromethane	119		0	82.2-120	%REC	229399	1	09/14/2016 18:36	NP
Surr: Toluene-d8	104		0	81.8-120	%REC	229399	1	09/14/2016 18:36	NP
Sulfide by SW9030B/9034 (SW9030B)									
Sulfide	2.80		0.764	2.00	mg/L	229608	1	09/19/2016 12:15	BD
ION SCAN SW9056A									
Chloride	5.1		0.11	1.0	mg/L	R325419	1	09/14/2016 04:25	JW
Nitrate	0.47		0.024	0.25	mg/L	R325419	1	09/14/2016 04:25	JW
Sulfate	1.1		0.10	1.0	mg/L	R325419	1	09/14/2016 04:25	JW
GC Analysis of Gaseous Samples SOP-RSK 175 (RSK175)									
Ethane	BRL		0.0019	0.0090	mg/L	229481	1	09/16/2016 11:11	MD
Ethylene	BRL		0.0035	0.0070	mg/L	229481	1	09/16/2016 11:11	MD
Methane	BRL		0.0012	0.0040	mg/L	229481	1	09/16/2016 11:11	MD
Alkalinity by SM2320B									
Alkalinity, Total (As CaCO3)	BRL		1.68	3.00	mg/L	R325605	1	09/20/2016 20:00	BD

Qualifiers:

- * Value exceeds maximum contaminant level
- BRL Not detected at MDL
- H Holding times for preparation or analysis exceeded
- N Analyte not NELAC certified
- B Analyte detected in the associated method blank
- NC Not confirmed

- E Estimated value above quantitation range
- S Spike Recovery outside limits due to matrix
- J Estimated value detected below Reporting Limit
- > Greater than Result value
- < Less than Result value
- Narr See case narrative

Analytical Environmental Services, Inc
Date: 21-Sep-16

Client: EarthCon Consultants, Inc.
Project Name: Apollo Smyrna
Lab ID: 1609A03-004

Client Sample ID: MW-9
Collection Date: 9/12/2016 2:30:00 PM
Matrix: Groundwater

Analyses	Result	Qual	MDL	Reporting Limit	Units	BatchID	DF	Date Analyzed	Analyst
Total Organic Carbon (TOC) SW9060A									
Organic Carbon, Total	BRL		0.337	1.00	mg/L	R325429	1	09/16/2016 20:23	JW
TCL VOLATILE ORGANICS SW8260B (SW5030B)									
1,1,1-Trichloroethane	BRL		0.00025	0.005	mg/L	229399	1	09/14/2016 18:59	NP
1,1-Dichloroethane	BRL		0.00025	0.005	mg/L	229399	1	09/14/2016 18:59	NP
1,1-Dichloroethene	BRL		0.00036	0.005	mg/L	229399	1	09/14/2016 18:59	NP
1,2-Dichloroethane	BRL		0.00024	0.005	mg/L	229399	1	09/14/2016 18:59	NP
Acetone	BRL		0.0053	0.050	mg/L	229399	1	09/14/2016 18:59	NP
Chloroethane	BRL		0.00039	0.010	mg/L	229399	1	09/14/2016 18:59	NP
cis-1,2-Dichloroethene	BRL		0.00027	0.005	mg/L	229399	1	09/14/2016 18:59	NP
Cyclohexane	BRL		0.0016	0.005	mg/L	229399	1	09/14/2016 18:59	NP
Methylene chloride	BRL		0.00031	0.005	mg/L	229399	1	09/14/2016 18:59	NP
Tetrachloroethene	BRL		0.00029	0.005	mg/L	229399	1	09/14/2016 18:59	NP
trans-1,2-Dichloroethene	BRL		0.00022	0.005	mg/L	229399	1	09/14/2016 18:59	NP
Trichloroethene	BRL		0.00035	0.005	mg/L	229399	1	09/14/2016 18:59	NP
Vinyl chloride	BRL		0.00042	0.002	mg/L	229399	1	09/14/2016 18:59	NP
Surr: 4-Bromofluorobenzene	88.1		0	70.7-125	%REC	229399	1	09/14/2016 18:59	NP
Surr: Dibromofluoromethane	116		0	82.2-120	%REC	229399	1	09/14/2016 18:59	NP
Surr: Toluene-d8	100		0	81.8-120	%REC	229399	1	09/14/2016 18:59	NP
Sulfide by SW9030B/9034 (SW9030B)									
Sulfide	2.00		0.764	2.00	mg/L	229608	1	09/19/2016 12:15	BD
ION SCAN SW9056A									
Chloride	10.0		0.11	1.0	mg/L	R325419	1	09/14/2016 04:39	JW
Nitrate	0.065	J	0.024	0.25	mg/L	R325419	1	09/14/2016 04:39	JW
Sulfate	2.5		0.10	1.0	mg/L	R325419	1	09/14/2016 04:39	JW
GC Analysis of Gaseous Samples SOP-RSK 175 (RSK175)									
Ethane	BRL		0.0019	0.0090	mg/L	229481	1	09/16/2016 11:17	MD
Ethylene	BRL		0.0035	0.0070	mg/L	229481	1	09/16/2016 11:17	MD
Methane	0.28		0.0024	0.0080	mg/L	229481	2	09/16/2016 12:11	MD
Alkalinity by SM2320B									
Alkalinity, Total (As CaCO3)	BRL		1.68	3.00	mg/L	R325605	1	09/20/2016 20:00	BD

Qualifiers:

- * Value exceeds maximum contaminant level
- BRL Not detected at MDL
- H Holding times for preparation or analysis exceeded
- N Analyte not NELAC certified
- B Analyte detected in the associated method blank
- NC Not confirmed

- E Estimated value above quantitation range
- S Spike Recovery outside limits due to matrix
- J Estimated value detected below Reporting Limit
- > Greater than Result value
- < Less than Result value
- Narr See case narrative

Analytical Environmental Services, Inc

Date: 21-Sep-16

Client: EarthCon Consultants, Inc.
Project Name: Apollo Smyrna
Lab ID: 1609A03-005

Client Sample ID: TRIP BLANK
Collection Date: 9/13/2016
Matrix: Aqueous

Analyses	Result	Qual	MDL	Reporting Limit	Units	BatchID	DF	Date Analyzed	Analyst
TCL VOLATILE ORGANICS SW8260B				(SW5030B)					
1,1,1-Trichloroethane	BRL		0.00025	0.005	mg/L	229399	1	09/14/2016 17:25	NP
1,1-Dichloroethane	BRL		0.00025	0.005	mg/L	229399	1	09/14/2016 17:25	NP
1,1-Dichloroethene	BRL		0.00036	0.005	mg/L	229399	1	09/14/2016 17:25	NP
1,2-Dichloroethane	BRL		0.00024	0.005	mg/L	229399	1	09/14/2016 17:25	NP
Acetone	0.015	J	0.0053	0.050	mg/L	229399	1	09/14/2016 17:25	NP
Chloroethane	BRL		0.00039	0.010	mg/L	229399	1	09/14/2016 17:25	NP
cis-1,2-Dichloroethene	BRL		0.00027	0.005	mg/L	229399	1	09/14/2016 17:25	NP
Cyclohexane	BRL		0.0016	0.005	mg/L	229399	1	09/14/2016 17:25	NP
Methylene chloride	0.003	J	0.00031	0.005	mg/L	229399	1	09/14/2016 17:25	NP
Tetrachloroethene	BRL		0.00029	0.005	mg/L	229399	1	09/14/2016 17:25	NP
trans-1,2-Dichloroethene	BRL		0.00022	0.005	mg/L	229399	1	09/14/2016 17:25	NP
Trichloroethene	BRL		0.00035	0.005	mg/L	229399	1	09/14/2016 17:25	NP
Vinyl chloride	BRL		0.00042	0.002	mg/L	229399	1	09/14/2016 17:25	NP
Surr: 4-Bromofluorobenzene	92.6		0	70.7-125	%REC	229399	1	09/14/2016 17:25	NP
Surr: Dibromofluoromethane	114		0	82.2-120	%REC	229399	1	09/14/2016 17:25	NP
Surr: Toluene-d8	102		0	81.8-120	%REC	229399	1	09/14/2016 17:25	NP

Qualifiers:

- * Value exceeds maximum contaminant level
- BRL Not detected at MDL
- H Holding times for preparation or analysis exceeded
- N Analyte not NELAC certified
- B Analyte detected in the associated method blank
- NC Not confirmed

- E Estimated value above quantitation range
- S Spike Recovery outside limits due to matrix
- J Estimated value detected below Reporting Limit
- > Greater than Result value
- < Less than Result value
- Narr See case narrative

Analytical Environmental Services, Inc.

Sample/Cooler Receipt Checklist

Client Earth Care

Work Order Number 11609403

Checklist completed by [Signature] 9/13/16
Signature Date

Carrier name: FedEx ☐ UPS ☐ Courier ☐ Client ☐ US Mail ☐ Other ☐

Shipping container/cooler in good condition? Yes ☒ No ☐ Not Present ☐

Custody seals intact on shipping container/cooler? Yes ☐ No ☐ Not Present ☒

Custody seals intact on sample bottles? Yes ☐ No ☐ Not Present ☒

Container/Temp Blank temperature in compliance? ($0^{\circ} \leq 6^{\circ}C$) * Yes ☒ No ☐

Cooler #1 1 Cooler #2 ☐ Cooler #3 ☐ Cooler #4 ☐ Cooler #5 ☐ Cooler #6 ☐

Chain of custody present? Yes ☒ No ☐

Chain of custody signed when relinquished and received? Yes ☒ No ☐

Chain of custody agrees with sample labels? Yes ☒ No ☐

Samples in proper container/bottle? Yes ☒ No ☐

Sample containers intact? Yes ☒ No ☐

Sufficient sample volume for indicated test? Yes ☒ No ☐

All samples received within holding time? Yes ☒ No ☐

Was TAT marked on the COC? Yes ☒ No ☐

Proceed with Standard TAT as per project history? Yes ☐ No ☐ Not Applicable ☒

Water - VOA vials have zero headspace? No VOA vials submitted ☐ Yes ☒ No ☐

Water - pH acceptable upon receipt? Yes ☒ No ☐ Not Applicable ☐

Adjusted? ☐ Checked by [Signature]

Sample Condition: Good ☒ Other(Explain) ☐

(For diffusive samples or AIHA lead) Is a known blank included? Yes ☐ No ☒

See Case Narrative for resolution of the Non-Conformance.

* Samples do not have to comply with the given range for certain parameters.

\\Aes_server\\Sample Receipt\\My Documents\\COCs and pH Adjustment Sheet\\Sample_Cooler_Recipt_Checklist_Rev1.rtf

Client: EarthCon Consultants, Inc.
Project Name: Apollo Smyrna
Lab Order: 1609A03

Dates Report

Lab Sample ID	Client Sample ID	Collection Date	Matrix	Test Name	TCLP Date	Prep Date	Analysis Date
1609A03-001A	MW-7	9/12/2016 2:35:00PM	Groundwater	TCL VOLATILE ORGANICS		9/14/2016 9:09:00 AM	09/14/2016
1609A03-001A	MW-7	9/12/2016 2:35:00PM	Groundwater	TCL VOLATILE ORGANICS		9/14/2016 9:09:00 AM	09/15/2016
1609A03-001B	MW-7	9/12/2016 2:35:00PM	Groundwater	GC Analysis of Gaseous Samples		9/16/2016 8:54:27 AM	09/16/2016
1609A03-001C	MW-7	9/12/2016 2:35:00PM	Groundwater	Total Organic Carbon (TOC)			09/16/2016
1609A03-001D	MW-7	9/12/2016 2:35:00PM	Groundwater	Sulfide by SW9030/9034		9/19/2016 12:15:00 PM	09/19/2016
1609A03-001E	MW-7	9/12/2016 2:35:00PM	Groundwater	ION SCAN			09/14/2016
1609A03-001E	MW-7	9/12/2016 2:35:00PM	Groundwater	Alkalinity by SM2320B			09/20/2016
1609A03-002A	MW-13	9/12/2016 4:10:00PM	Groundwater	TCL VOLATILE ORGANICS		9/14/2016 9:09:00 AM	09/14/2016
1609A03-002B	MW-13	9/12/2016 4:10:00PM	Groundwater	GC Analysis of Gaseous Samples		9/16/2016 8:54:27 AM	09/16/2016
1609A03-002C	MW-13	9/12/2016 4:10:00PM	Groundwater	Total Organic Carbon (TOC)			09/16/2016
1609A03-002D	MW-13	9/12/2016 4:10:00PM	Groundwater	Sulfide by SW9030/9034		9/19/2016 12:15:00 PM	09/19/2016
1609A03-002E	MW-13	9/12/2016 4:10:00PM	Groundwater	ION SCAN			09/14/2016
1609A03-002E	MW-13	9/12/2016 4:10:00PM	Groundwater	Alkalinity by SM2320B			09/20/2016
1609A03-003A	MW-5	9/12/2016 4:10:00PM	Groundwater	TCL VOLATILE ORGANICS		9/14/2016 9:09:00 AM	09/14/2016
1609A03-003B	MW-5	9/12/2016 4:10:00PM	Groundwater	GC Analysis of Gaseous Samples		9/16/2016 8:54:27 AM	09/16/2016
1609A03-003C	MW-5	9/12/2016 4:10:00PM	Groundwater	Total Organic Carbon (TOC)			09/16/2016
1609A03-003D	MW-5	9/12/2016 4:10:00PM	Groundwater	Sulfide by SW9030/9034		9/19/2016 12:15:00 PM	09/19/2016
1609A03-003E	MW-5	9/12/2016 4:10:00PM	Groundwater	ION SCAN			09/14/2016
1609A03-003E	MW-5	9/12/2016 4:10:00PM	Groundwater	Alkalinity by SM2320B			09/20/2016
1609A03-004A	MW-9	9/12/2016 2:30:00PM	Groundwater	TCL VOLATILE ORGANICS		9/14/2016 9:09:00 AM	09/14/2016
1609A03-004B	MW-9	9/12/2016 2:30:00PM	Groundwater	GC Analysis of Gaseous Samples		9/16/2016 8:54:27 AM	09/16/2016
1609A03-004C	MW-9	9/12/2016 2:30:00PM	Groundwater	Total Organic Carbon (TOC)			09/16/2016
1609A03-004D	MW-9	9/12/2016 2:30:00PM	Groundwater	Sulfide by SW9030/9034		9/19/2016 12:15:00 PM	09/19/2016
1609A03-004E	MW-9	9/12/2016 2:30:00PM	Groundwater	ION SCAN			09/14/2016
1609A03-004E	MW-9	9/12/2016 2:30:00PM	Groundwater	Alkalinity by SM2320B			09/20/2016
1609A03-005A	TRIP BLANK	9/13/2016 12:00:00AM	Aqueous	TCL VOLATILE ORGANICS		9/14/2016 9:09:00 AM	09/14/2016

Client: EarthCon Consultants, Inc.
Project Name: Apollo Smyrna
Workorder: 1609A03

ANALYTICAL QC SUMMARY REPORT**BatchID: 229399**

Sample ID: MB-229399	Client ID:					Units: mg/L	Prep Date: 09/14/2016	Run No: 325113			
SampleType: MBLK	TestCode: TCL VOLATILE ORGANICS SW8260B					BatchID: 229399	Analysis Date: 09/14/2016	Seq No: 7037543			
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual

1,1,1-Trichloroethane	BRL	0.005									
1,1-Dichloroethane	BRL	0.005									
1,1-Dichloroethene	BRL	0.005									
1,2-Dichloroethane	BRL	0.005									
Acetone	BRL	0.050									
Chloroethane	BRL	0.010									
cis-1,2-Dichloroethene	BRL	0.005									
Cyclohexane	BRL	0.005									
Methylene chloride	BRL	0.005									
Tetrachloroethene	BRL	0.005									
trans-1,2-Dichloroethene	BRL	0.005									
Trichloroethene	BRL	0.005									
Vinyl chloride	BRL	0.002									
Surr: 4-Bromofluorobenzene	0.04609	0	50.00		92.2	70.7	125				
Surr: Dibromofluoromethane	0.05795	0	50.00		116	82.2	120				
Surr: Toluene-d8	0.04959	0	50.00		99.2	81.8	120				

Sample ID: LCS-229399	Client ID:					Units: mg/L	Prep Date: 09/14/2016	Run No: 325113			
SampleType: LCS	TestCode: TCL VOLATILE ORGANICS SW8260B					BatchID: 229399	Analysis Date: 09/14/2016	Seq No: 7037542			
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual

1,1-Dichloroethene	0.05136	0.005	50.00		103	65.3	137				
Trichloroethene	0.05109	0.005	50.00		102	73.1	128				
Surr: 4-Bromofluorobenzene	0.04546	0	50.00		90.9	70.7	125				
Surr: Dibromofluoromethane	0.05617	0	50.00		112	82.2	120				
Surr: Toluene-d8	0.05002	0	50.00		100	81.8	120				

Qualifiers:	>	Greater than Result value	<	Less than Result value	B	Analyte detected in the associated method blank
	BRL	Below reporting limit	E	Estimated (value above quantitation range)	H	Holding times for preparation or analysis exceeded
	J	Estimated value detected below Reporting Limit	N	Analyte not NELAC certified	R	RPD outside limits due to matrix
	Rpt Lim	Reporting Limit	S	Spike Recovery outside limits due to matrix		

Client: EarthCon Consultants, Inc.
Project Name: Apollo Smyrna
Workorder: 1609A03

ANALYTICAL QC SUMMARY REPORT

BatchID: 229399

Sample ID: 1609785-001AMS	Client ID:	Units: mg/L				Prep Date: 09/14/2016	Run No: 325113				
SampleType: MS	TestCode: TCL VOLATILE ORGANICS SW8260B	BatchID: 229399				Analysis Date: 09/14/2016	Seq No: 7039073				
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual

1,1-Dichloroethene	0.04982	0.005	50.00		99.6	60	150				
Trichloroethene	0.04894	0.005	50.00		97.9	70	136				
Surr: 4-Bromofluorobenzene	0.04507	0	50.00		90.1	70.7	125				
Surr: Dibromofluoromethane	0.05615	0	50.00		112	82.2	120				
Surr: Toluene-d8	0.05031	0	50.00		101	81.8	120				

Sample ID: 1609785-001AMSD	Client ID:					Units: mg/L	Prep Date: 09/14/2016	Run No: 325113			
SampleType: MSD	TestCode: TCL VOLATILE ORGANICS SW8260B					BatchID: 229399	Analysis Date: 09/14/2016	Seq No: 7039074			
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual

1,1-Dichloroethene	0.04876	0.005	50.00		97.5	60	150	49.82	2.15	17.7	
Trichloroethene	0.04835	0.005	50.00		96.7	70	136	48.94	1.21	20	
Surr: 4-Bromofluorobenzene	0.04343	0	50.00		86.9	70.7	125	45.07	0	0	
Surr: Dibromofluoromethane	0.05738	0	50.00		115	82.2	120	56.15	0	0	
Surr: Toluene-d8	0.05108	0	50.00		102	81.8	120	50.31	0	0	

Qualifiers:	>	Greater than Result value	<	Less than Result value	B	Analyte detected in the associated method blank
	BRL	Below reporting limit	E	Estimated (value above quantitation range)	H	Holding times for preparation or analysis exceeded
	J	Estimated value detected below Reporting Limit	N	Analyte not NELAC certified	R	RPD outside limits due to matrix
	Rpt Lim	Reporting Limit	S	Spike Recovery outside limits due to matrix		

Client: EarthCon Consultants, Inc.
Project Name: Apollo Smyrna
Workorder: 1609A03

ANALYTICAL QC SUMMARY REPORT**BatchID: 229481**

Sample ID: MB-229481	Client ID:					Units: mg/L	Prep Date: 09/16/2016	Run No: 325358			
SampleType: MBLK	TestCode: GC Analysis of Gaseous Samples	SOP-RSK 175				BatchID: 229481	Analysis Date: 09/16/2016	Seq No: 7043116			
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual

Ethane	BRL	0.0090									
Ethylene	BRL	0.0070									
Methane	BRL	0.0040									

Sample ID: LCS-229481	Client ID:					Units: mg/L	Prep Date: 09/16/2016	Run No: 325358			
SampleType: LCS	TestCode: GC Analysis of Gaseous Samples	SOP-RSK 175				BatchID: 229481	Analysis Date: 09/16/2016	Seq No: 7043117			
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual

Ethane	0.1171	0.0090	200.0		58.6	40.9	115				
Ethylene	0.07677	0.0070	200.0		38.4	26.8	115				
Methane	0.1215	0.0040	200.0		60.8	45.9	115				

Sample ID: LCSD-229481	Client ID:				Units: mg/L	Prep Date: 09/16/2016	Run No: 325358				
SampleType: LCSD	TestCode: GC Analysis of Gaseous Samples	SOP-RSK 175			BatchID: 229481	Analysis Date: 09/16/2016	Seq No: 7043118				
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual

Ethane	0.1141	0.0090	200.0		57.0	40.9	115	117.1	2.62	20	
Ethylene	0.07594	0.0070	200.0		38.0	26.8	115	76.77	1.09	20	
Methane	0.1182	0.0040	200.0		59.1	45.9	115	121.5	2.73	20	

Sample ID: 1609A85-001BMS	Client ID:					Units: mg/L	Prep Date: 09/16/2016	Run No: 325358			
SampleType: MS	TestCode: GC Analysis of Gaseous Samples	SOP-RSK 175				BatchID: 229481	Analysis Date: 09/16/2016	Seq No: 7043200			
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual

Ethane	0.1265	0.0090	200.0		63.2	40.5	115				
Ethylene	0.08314	0.0070	200.0		41.6	23	115				
Methane	0.1319	0.0040	200.0	8.503	61.7	40	115				

Qualifiers:	>	Greater than Result value	<	Less than Result value	B	Analyte detected in the associated method blank
	BRL	Below reporting limit	E	Estimated (value above quantitation range)	H	Holding times for preparation or analysis exceeded
	J	Estimated value detected below Reporting Limit	N	Analyte not NELAC certified	R	RPD outside limits due to matrix
	Rpt Lim	Reporting Limit	S	Spike Recovery outside limits due to matrix		

Client: EarthCon Consultants, Inc.
Project Name: Apollo Smyrna
Workorder: 1609A03

ANALYTICAL QC SUMMARY REPORT

BatchID: 229481

Sample ID: 1609A85-001BMSD	Client ID:					Units: mg/L	Prep Date: 09/16/2016	Run No: 325358			
SampleType: MSD	TestCode: GC Analysis of Gaseous Samples	SOP-RSK 175				BatchID: 229481	Analysis Date: 09/16/2016	Seq No: 7043201			
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
Ethane	0.1297	0.0090	200.0		64.8	40.5	115	126.5	2.50	20	
Ethylene	0.08705	0.0070	200.0		43.5	23	115	83.14	4.60	20	
Methane	0.1357	0.0040	200.0	8.503	63.6	40	115	131.9	2.78	20	

Qualifiers:	>	Greater than Result value	<	Less than Result value	B	Analyte detected in the associated method blank
	BRL	Below reporting limit	E	Estimated (value above quantitation range)	H	Holding times for preparation or analysis exceeded
	J	Estimated value detected below Reporting Limit	N	Analyte not NELAC certified	R	RPD outside limits due to matrix
	Rpt Lim	Reporting Limit	S	Spike Recovery outside limits due to matrix		

Client: EarthCon Consultants, Inc.
Project Name: Apollo Smyrna
Workorder: 1609A03

ANALYTICAL QC SUMMARY REPORT

BatchID: 229608

Sample ID: MB-229608		Client ID:			Units: mg/L		Prep Date: 09/19/2016		Run No: 325458		
SampleType: MBLK		TestCode: Sulfide by SW9030B/9034			BatchID: 229608		Analysis Date: 09/19/2016		Seq No: 7045439		
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual

Sulfide BRL 2.00

Sample ID: LCS-229608		Client ID:			Units: mg/L		Prep Date: 09/19/2016		Run No: 325458		
SampleType: LCS		TestCode: Sulfide by SW9030B/9034			BatchID: 229608		Analysis Date: 09/19/2016		Seq No: 7045440		
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual

Sulfide 368.0 2.00 368.0 100 40 120

Sample ID: 1609A03-001DMS	Client ID: MW-7	Units: mg/L	Prep Date: 09/19/2016	Run No: 325458							
SampleType: MS	TestCode: Sulfide by SW9030B/9034	BatchID: 229608	Analysis Date: 09/19/2016	Seq No: 7045461							
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual

Sulfide 34.40 2.00 36.80 2.000 88.0 61.2 120

Sample ID: 1609A03-001DMSD	Client ID: MW-7	Units: mg/L	Prep Date: 09/19/2016	Run No: 325458							
SampleType: MSD	TestCode: Sulfide by SW9030B/9034	BatchID: 229608	Analysis Date: 09/19/2016	Seq No: 7045466							
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual

Sulfide 33.20 2.00 36.80 2.000 84.8 61.2 120 34.40 3.55 20

Qualifiers:	>	Greater than Result value	<	Less than Result value	B	Analyte detected in the associated method blank
	BRL	Below reporting limit	E	Estimated (value above quantitation range)	H	Holding times for preparation or analysis exceeded
	J	Estimated value detected below Reporting Limit	N	Analyte not NELAC certified	R	RPD outside limits due to matrix
	Rpt Lim	Reporting Limit	S	Spike Recovery outside limits due to matrix		

Client: EarthCon Consultants, Inc.
Project Name: Apollo Smyrna
Workorder: 1609A03

ANALYTICAL QC SUMMARY REPORT**BatchID: R325419**

Sample ID: MB-R325419	Client ID:				Units: mg/L	Prep Date:			Run No: 325419		
SampleType: MBLK	TestCode: ION SCAN SW9056A				BatchID: R325419	Analysis Date: 09/13/2016			Seq No: 7044494		
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual

Chloride	0.1221	1.0									J
Nitrate	BRL	0.25									
Sulfate	BRL	1.0									

Sample ID: LCS-R325419		Client ID:			Units: mg/L		Prep Date:		Run No: 325419		
SampleType: LCS		TestCode: ION SCAN SW9056A			BatchID: R325419		Analysis Date: 09/13/2016		Seq No: 7044493		
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual

Chloride	9.863	1.0	10.00	0.1221	97.4	90	110				
Nitrate	4.726	0.25	5.000		94.5	90	110				
Sulfate	24.48	1.0	25.00		97.9	90	110				

Sample ID: 1609998-012AMS	Client ID:				Units: mg/L	Prep Date:			Run No: 325419		
SampleType: MS	TestCode: ION SCAN SW9056A				BatchID: R325419	Analysis Date: 09/13/2016			Seq No: 7044496		
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual

Chloride	10.61	1.0	10.00	1.262	93.5	90	110				
Nitrate	4.668	0.25	5.000	0.04315	92.5	90	110				
Sulfate	30.41	1.0	25.00	6.740	94.7	90	110				

Sample ID: 1609998-012AMSD	Client ID:				Units: mg/L	Prep Date:			Run No: 325419		
SampleType: MSD	TestCode: ION SCAN	SW9056A			BatchID: R325419	Analysis Date: 09/14/2016			Seq No: 7044512		
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual

Chloride	10.72	1.0	10.00	1.262	94.5	90	110	10.61	0.943	20	
Nitrate	4.710	0.25	5.000	0.04315	93.3	90	110	4.668	0.894	20	
Sulfate	30.78	1.0	25.00	6.740	96.1	90	110	30.41	1.19	20	

Qualifiers:	>	Greater than Result value	<	Less than Result value	B	Analyte detected in the associated method blank
	BRL	Below reporting limit	E	Estimated (value above quantitation range)	H	Holding times for preparation or analysis exceeded
	J	Estimated value detected below Reporting Limit	N	Analyte not NELAC certified	R	RPD outside limits due to matrix
	Rpt Lim	Reporting Limit	S	Spike Recovery outside limits due to matrix		

Client: EarthCon Consultants, Inc.
Project Name: Apollo Smyrna
Workorder: 1609A03

ANALYTICAL QC SUMMARY REPORT**BatchID: R325429**

Sample ID: MB-R325429	Client ID:					Units: mg/L	Prep Date:			Run No: 325429	
SampleType: MBLK	TestCode: Total Organic Carbon (TOC) SW9060A					BatchID: R325429	Analysis Date: 09/16/2016			Seq No: 7044754	
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual

Organic Carbon, Total BRL 1.00

Sample ID: LCS-R325429	Client ID:					Units: mg/L	Prep Date:			Run No: 325429	
SampleType: LCS	TestCode: Total Organic Carbon (TOC) SW9060A					BatchID: R325429	Analysis Date: 09/16/2016			Seq No: 7044753	
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual

Organic Carbon, Total 23.06 1.00 25.00 92.2 90 110

Sample ID: 1609A03-001CMS	Client ID: MW-7	Units: mg/L				Prep Date:		Run No: 325429			
SampleType: MS	TestCode: Total Organic Carbon (TOC) SW9060A	BatchID: R325429				Analysis Date: 09/16/2016		Seq No: 7044757			
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual

Organic Carbon, Total 23.63 1.00 25.00 94.5 80 120

Sample ID: 1609A03-001CMSD	Client ID: MW-7					Units: mg/L	Prep Date:		Run No: 325429		
SampleType: MSD	TestCode: Total Organic Carbon (TOC) SW9060A					BatchID: R325429	Analysis Date: 09/16/2016		Seq No: 7044758		
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual

Organic Carbon, Total 24.29 1.00 25.00 97.2 80 120 23.63 2.75 20

Qualifiers:	> Greater than Result value	< Less than Result value	B Analyte detected in the associated method blank
	BRL Below reporting limit	E Estimated (value above quantitation range)	H Holding times for preparation or analysis exceeded
	J Estimated value detected below Reporting Limit	N Analyte not NELAC certified	R RPD outside limits due to matrix
	Rpt Lim Reporting Limit	S Spike Recovery outside limits due to matrix	

Client: EarthCon Consultants, Inc.
Project Name: Apollo Smyrna
Workorder: 1609A03

ANALYTICAL QC SUMMARY REPORT

BatchID: R325605

Sample ID: MB-R325605		Client ID:				Units: mg/L		Prep Date:		Run No: 325605	
SampleType: MBLK		TestCode: Alkalinity by SM2320B				BatchID: R325605		Analysis Date: 09/20/2016		Seq No: 7049251	
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
Alkalinity, Total (As CaCO3)		BRL	3.00								

Sample ID: LCS-R325605		Client ID:				Units: mg/L		Prep Date:		Run No: 325605	
SampleType: LCS		TestCode: Alkalinity by SM2320B				BatchID: R325605		Analysis Date: 09/20/2016		Seq No: 7049252	
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
Alkalinity, Total (As CaCO3)		126.0	3.00	125.0	101	75	125				

Sample ID: 1609989-001ADUP		Client ID:				Units: mg/L		Prep Date:		Run No: 325605	
SampleType: DUP		TestCode: Alkalinity by SM2320B				BatchID: R325605		Analysis Date: 09/20/2016		Seq No: 7049259	
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
Alkalinity, Total (As CaCO3)		670.0	30.0					660.0	1.50	30	

Qualifiers:	>	Greater than Result value	<	Less than Result value	B	Analyte detected in the associated method blank
	BRL	Below reporting limit	E	Estimated (value above quantitation range)	H	Holding times for preparation or analysis exceeded
	J	Estimated value detected below Reporting Limit	N	Analyte not NELAC certified	R	RPD outside limits due to matrix
	Rpt Lim	Reporting Limit	S	Spike Recovery outside limits due to matrix		



ANALYTICAL ENVIRONMENTAL SERVICES, INC.

September 22, 2016

Samantha Woolf
EarthCon Consultants, Inc.
1880 West Oak Parkway
Marietta GA 30062

TEL: (770) 973-2100
FAX: (770) 973-7395

RE: Apollo Smyrna

Dear Samantha Woolf:

Order No: 1609A84

Analytical Environmental Services, Inc. received 8 samples on 9/14/2016 11:40:00 AM for the analyses presented in following report.

No problems were encountered during the analyses. Additionally, all results for the associated Quality Control samples were within EPA and/or AES established limits. Any discrepancies associated with the analyses contained herein will be noted and submitted in the form of a project Case Narrative.

AES's accreditations are as follows:

- NELAC/Florida State Laboratory ID E87582 for analysis of Non-Potable Water, Solid & Chemical Materials, and Drinking Water Microbiology, effective 07/01/16-06/30/17.
- NELAC/Louisiana Agency Interest No. 100818 for or analysis of Non-Potable Water and Solid & Chemical Materials, effective 07/01/16-06/30/17.
- NELAC/Texas Certificate No. T104704509-16-6 for or analysis of Non-Potable Water and Solid & Chemical Materials, effective 03/01/16-02/28/17.
- AIHA-LAP, LLC Laboratory ID: 100671 for Industrial Hygiene samples (Organics, Metals, PCM Asbestos, Gravimetric), Environmental Lead (Paint, Soil, Dust Wipes, Air), and Environmental Microbiology (Fungal) Direct Examination, effective until 09/01/17.

Chris Pafford
Project Manager



AES

ANALYTICAL ENVIRONMENTAL SERVICES, INC

3080 Presidential Drive, Atlanta GA 30340-3704

TEL.: (770) 457-8177 / TOLL-FREE (800) 972-4889 / FAX: (770) 457-8188

CHAIN OF CUSTODY

Work Order: 1609A84

Date: _____ Page _____ of _____

COMPANY: EarthCon Consultants		ADDRESS: 1880 West Oak Pkwy Bldg 100 Suite 106 Marietta, GA 30062		ANALYSIS REQUESTED										Visit our website www.aesatlanta.com to check on the status of your results, place bottle orders, etc.		No # of Containers			
PHONE: 770-973-2100		FAX: 770-973-7395		VOC	GC Analysis	TOC	Alkalinity / Iron / Lead	Sulfide (Cat + NaOH)											
SAMPLED BY: Keaton Henry / Rob Andrews		SIGNATURE: [Signature]		PRESERVATION (See codes)										REMARKS					
#	SAMPLE ID	SAMPLED		DATE	TIME	Grab	Composite	Matrix (See codes)	H+I	H+I	S+I	I	O						
1	MW-8	9/13/16	16:10	X			GW	2	2	1	1	1						RA	7
2	MW-12	9/13/16	14:45	X			GW	2	2	1	1	1						RA	7
3	MW-11	9/13/16	11:50	X			GW	2	2	1	1	1						RA	7
4	MW-17	9/13/16	16:05	X			GW	2	2	1	1	1						KH	7
5	DW-1	9/13/16	14:35	X			GW	2	2	1	1	1						KH	7
6	MW-15	9/13/16	10:10	X			GW	2	2	1	1	1						KH	7
7	MW-18	9/13/16	11:25	X			GW	2	2	1	1	1						KH	7
8	Trip Blank	9/13/16	---	X			W	2											2
9																			
10																			
11																			
12																			
13																			
14																			

RELINQUISHED BY		DATE/TIME		RECEIVED BY		DATE/TIME		PROJECT INFORMATION				RECEIPT	
1: K My		9/13/16 14:05		1: [Signature]		19:05		PROJECT NAME: Apollo Smyrna				Total # of Containers	
2: [Signature]		9/14/16 9:05		2: [Signature]		9/14/16 9:05		PROJECT #: 02-24140391-16				Turnaround Time Request ☒ Standard 5 Business Days ☐ 2 Business Day Rush ☐ Next Business Day Rush ☐ Same Day Rush (auth req.) ☐ Other _____	
3: C.F.		9/14/16 11:40		3: [Signature]		9/14/16 11:40 am		SITE ADDRESS:					
SPECIAL INSTRUCTIONS/COMMENTS: Nitrates - 48 hr hold time				SHIPMENT METHOD OUT / / VIA: IN / / VIA: CLIENT FedEx UPS MAIL <u>COURIER</u> GREYHOUND OTHER				SEND REPORT TO: Samantha Wolff				STATE PROGRAM (if any): _____	
								INVOICE TO: (IF DIFFERENT FROM ABOVE)				E-mail? Y / N; Fax? Y / N	
								QUOTE #:				DATA PACKAGE: I II III IV	

SAMPLES RECEIVED AFTER 3PM OR ON SATURDAY ARE CONSIDERED RECEIVED THE NEXT BUSINESS DAY. IF TURNAROUND TIME IS NOT INDICATED, AES WILL PROCEED WITH STANDARD TAT OF SAMPLES.
 SAMPLES ARE DISPOSED 30 DAYS AFTER REPORT COMPLETION UNLESS OTHER ARRANGEMENTS ARE MADE.

MATRIX CODES: A = Air GW = Groundwater SE = Sediment SO = Soil SW = Surface Water W = Water (Blanks) DW = Drinking Water (Blanks) O = Other (specify) WW = Waste Water

PRESERVATIVE CODES: H+I = Hydrochloric acid + ice I = Ice only N = Nitric acid S+I = Sulfuric acid + ice S/M+I = Sodium Bisulfate/Methanol + ice O = Other (specify) NA = None

White Copy - Original; Yellow Copy - Client

Analytical Environmental Services, Inc
Date: 22-Sep-16

Client: EarthCon Consultants, Inc.
Project Name: Apollo Smyrna
Lab ID: 1609A84-001

Client Sample ID: MW-8
Collection Date: 9/13/2016 4:10:00 PM
Matrix: Groundwater

Analyses	Result	Qual	MDL	Reporting Limit	Units	BatchID	DF	Date Analyzed	Analyst
Total Organic Carbon (TOC) SW9060A									
Organic Carbon, Total	BRL		0.337	1.00	mg/L	R325429	1	09/16/2016 20:48	JW
TCL VOLATILE ORGANICS SW8260B (SW5030B)									
1,1,1-Trichloroethane	0.002	J	0.00025	0.005	mg/L	229483	1	09/15/2016 19:54	NP
1,1-Dichloroethane	0.002	J	0.00025	0.005	mg/L	229483	1	09/15/2016 19:54	NP
1,1-Dichloroethene	0.013		0.00036	0.005	mg/L	229483	1	09/15/2016 19:54	NP
1,2-Dichloroethane	BRL		0.00024	0.005	mg/L	229483	1	09/15/2016 19:54	NP
Acetone	BRL		0.0053	0.050	mg/L	229483	1	09/15/2016 19:54	NP
Chloroethane	BRL		0.00039	0.010	mg/L	229483	1	09/15/2016 19:54	NP
cis-1,2-Dichloroethene	0.029		0.00027	0.005	mg/L	229483	1	09/15/2016 19:54	NP
Cyclohexane	BRL		0.0016	0.005	mg/L	229483	1	09/15/2016 19:54	NP
Methylene chloride	BRL		0.00031	0.005	mg/L	229483	1	09/15/2016 19:54	NP
Tetrachloroethene	0.55		0.0029	0.050	mg/L	229483	10	09/15/2016 20:17	NP
trans-1,2-Dichloroethene	BRL		0.00022	0.005	mg/L	229483	1	09/15/2016 19:54	NP
Trichloroethene	0.83		0.0035	0.050	mg/L	229483	10	09/15/2016 20:17	NP
Vinyl chloride	BRL		0.00042	0.002	mg/L	229483	1	09/15/2016 19:54	NP
Surr: 4-Bromofluorobenzene	98.1		0	70.7-125	%REC	229483	1	09/15/2016 19:54	NP
Surr: 4-Bromofluorobenzene	98.5		0	70.7-125	%REC	229483	10	09/15/2016 20:17	NP
Surr: Dibromofluoromethane	90.4		0	82.2-120	%REC	229483	1	09/15/2016 19:54	NP
Surr: Dibromofluoromethane	89		0	82.2-120	%REC	229483	10	09/15/2016 20:17	NP
Surr: Toluene-d8	99.1		0	81.8-120	%REC	229483	1	09/15/2016 19:54	NP
Surr: Toluene-d8	98.6		0	81.8-120	%REC	229483	10	09/15/2016 20:17	NP
Sulfide by SW9030B/9034 (SW9030B)									
Sulfide	2.40		0.764	2.00	mg/L	229608	1	09/19/2016 12:15	BD
ION SCAN SW9056A									
Chloride	4.7		0.11	1.0	mg/L	R325452	1	09/14/2016 19:11	JW
Nitrate	0.19	J	0.024	0.25	mg/L	R325452	1	09/14/2016 19:11	JW
Sulfate	0.57	J	0.10	1.0	mg/L	R325452	1	09/14/2016 19:11	JW
GC Analysis of Gaseous Samples SOP-RSK 175 (RSK175)									
Ethane	BRL		0.0019	0.0090	mg/L	229481	1	09/16/2016 12:24	MD
Ethylene	BRL		0.0035	0.0070	mg/L	229481	1	09/16/2016 12:24	MD
Methane	0.21		0.0012	0.0040	mg/L	229481	1	09/16/2016 12:24	MD
Alkalinity by SM2320B									
Alkalinity, Total (As CaCO3)	14.0		1.68	3.00	mg/L	R325741	1	09/21/2016 19:25	BD

Qualifiers: * Value exceeds maximum contaminant level
 BRL Not detected at MDL
 H Holding times for preparation or analysis exceeded
 N Analyte not NELAC certified
 B Analyte detected in the associated method blank
 NC Not confirmed

E Estimated value above quantitation range
 S Spike Recovery outside limits due to matrix
 J Estimated value detected below Reporting Limit
 > Greater than Result value
 < Less than Result value
 Narr See case narrative

Analytical Environmental Services, Inc
Date: 22-Sep-16

Client: EarthCon Consultants, Inc.
Project Name: Apollo Smyrna
Lab ID: 1609A84-002

Client Sample ID: MW-12
Collection Date: 9/13/2016 2:45:00 PM
Matrix: Groundwater

Analyses	Result	Qual	MDL	Reporting Limit	Units	BatchID	DF	Date Analyzed	Analyst
Total Organic Carbon (TOC) SW9060A									
Organic Carbon, Total	BRL		0.337	1.00	mg/L	R325429	1	09/16/2016 21:10	JW
TCL VOLATILE ORGANICS SW8260B (SW5030B)									
1,1,1-Trichloroethane	BRL		0.00025	0.005	mg/L	229483	1	09/15/2016 18:43	NP
1,1-Dichloroethane	BRL		0.00025	0.005	mg/L	229483	1	09/15/2016 18:43	NP
1,1-Dichloroethene	BRL		0.00036	0.005	mg/L	229483	1	09/15/2016 18:43	NP
1,2-Dichloroethane	BRL		0.00024	0.005	mg/L	229483	1	09/15/2016 18:43	NP
Acetone	BRL		0.0053	0.050	mg/L	229483	1	09/15/2016 18:43	NP
Chloroethane	BRL		0.00039	0.010	mg/L	229483	1	09/15/2016 18:43	NP
cis-1,2-Dichloroethene	BRL		0.00027	0.005	mg/L	229483	1	09/15/2016 18:43	NP
Cyclohexane	BRL		0.0016	0.005	mg/L	229483	1	09/15/2016 18:43	NP
Methylene chloride	BRL		0.00031	0.005	mg/L	229483	1	09/15/2016 18:43	NP
Tetrachloroethene	BRL		0.00029	0.005	mg/L	229483	1	09/15/2016 18:43	NP
trans-1,2-Dichloroethene	BRL		0.00022	0.005	mg/L	229483	1	09/15/2016 18:43	NP
Trichloroethene	BRL		0.00035	0.005	mg/L	229483	1	09/15/2016 18:43	NP
Vinyl chloride	BRL		0.00042	0.002	mg/L	229483	1	09/15/2016 18:43	NP
Surr: 4-Bromofluorobenzene	99.2		0	70.7-125	%REC	229483	1	09/15/2016 18:43	NP
Surr: Dibromofluoromethane	90.4		0	82.2-120	%REC	229483	1	09/15/2016 18:43	NP
Surr: Toluene-d8	97.6		0	81.8-120	%REC	229483	1	09/15/2016 18:43	NP
Sulfide by SW9030B/9034 (SW9030B)									
Sulfide	3.20		0.764	2.00	mg/L	229608	1	09/19/2016 12:15	BD
ION SCAN SW9056A									
Chloride	6.6		0.11	1.0	mg/L	R325452	1	09/14/2016 19:26	JW
Nitrate	0.41		0.024	0.25	mg/L	R325452	1	09/14/2016 19:26	JW
Sulfate	0.19	J	0.10	1.0	mg/L	R325452	1	09/14/2016 19:26	JW
GC Analysis of Gaseous Samples SOP-RSK 175 (RSK175)									
Ethane	BRL		0.0019	0.0090	mg/L	229481	1	09/16/2016 12:29	MD
Ethylene	BRL		0.0035	0.0070	mg/L	229481	1	09/16/2016 12:29	MD
Methane	0.0026	J	0.0012	0.0040	mg/L	229481	1	09/16/2016 12:29	MD
Alkalinity by SM2320B									
Alkalinity, Total (As CaCO3)	BRL		1.68	3.00	mg/L	R325741	1	09/21/2016 19:25	BD

Qualifiers: * Value exceeds maximum contaminant level
 BRL Not detected at MDL
 H Holding times for preparation or analysis exceeded
 N Analyte not NELAC certified
 B Analyte detected in the associated method blank
 NC Not confirmed

E Estimated value above quantitation range
 S Spike Recovery outside limits due to matrix
 J Estimated value detected below Reporting Limit
 > Greater than Result value
 < Less than Result value
 Narr See case narrative

Analytical Environmental Services, Inc

Date: 22-Sep-16

Client: EarthCon Consultants, Inc.
Project Name: Apollo Smyrna
Lab ID: 1609A84-003

Client Sample ID: MW-11
Collection Date: 9/13/2016 11:50:00 AM
Matrix: Groundwater

Analyses	Result	Qual	MDL	Reporting Limit	Units	BatchID	DF	Date Analyzed	Analyst
Total Organic Carbon (TOC) SW9060A									
Organic Carbon, Total	BRL		0.337	1.00	mg/L	R325429	1	09/16/2016 21:35	JW
TCL VOLATILE ORGANICS SW8260B (SW5030B)									
1,1,1-Trichloroethane	BRL		0.00025	0.005	mg/L	229483	1	09/15/2016 19:06	NP
1,1-Dichloroethane	BRL		0.00025	0.005	mg/L	229483	1	09/15/2016 19:06	NP
1,1-Dichloroethene	BRL		0.00036	0.005	mg/L	229483	1	09/15/2016 19:06	NP
1,2-Dichloroethane	BRL		0.00024	0.005	mg/L	229483	1	09/15/2016 19:06	NP
Acetone	BRL		0.0053	0.050	mg/L	229483	1	09/15/2016 19:06	NP
Chloroethane	BRL		0.00039	0.010	mg/L	229483	1	09/15/2016 19:06	NP
cis-1,2-Dichloroethene	BRL		0.00027	0.005	mg/L	229483	1	09/15/2016 19:06	NP
Cyclohexane	BRL		0.0016	0.005	mg/L	229483	1	09/15/2016 19:06	NP
Methylene chloride	BRL		0.00031	0.005	mg/L	229483	1	09/15/2016 19:06	NP
Tetrachloroethene	BRL		0.00029	0.005	mg/L	229483	1	09/15/2016 19:06	NP
trans-1,2-Dichloroethene	BRL		0.00022	0.005	mg/L	229483	1	09/15/2016 19:06	NP
Trichloroethene	BRL		0.00035	0.005	mg/L	229483	1	09/15/2016 19:06	NP
Vinyl chloride	BRL		0.00042	0.002	mg/L	229483	1	09/15/2016 19:06	NP
Surr: 4-Bromofluorobenzene	100		0	70.7-125	%REC	229483	1	09/15/2016 19:06	NP
Surr: Dibromofluoromethane	90.8		0	82.2-120	%REC	229483	1	09/15/2016 19:06	NP
Surr: Toluene-d8	100		0	81.8-120	%REC	229483	1	09/15/2016 19:06	NP
Sulfide by SW9030B/9034 (SW9030B)									
Sulfide	2.00		0.764	2.00	mg/L	229608	1	09/20/2016 08:00	BD
ION SCAN SW9056A									
Chloride	8.8		0.11	1.0	mg/L	R325452	1	09/14/2016 19:40	JW
Nitrate	BRL		0.024	0.25	mg/L	R325452	1	09/14/2016 19:40	JW
Sulfate	8.0		0.10	1.0	mg/L	R325452	1	09/14/2016 19:40	JW
GC Analysis of Gaseous Samples SOP-RSK 175 (RSK175)									
Ethane	BRL		0.0019	0.0090	mg/L	229481	1	09/16/2016 12:33	MD
Ethylene	BRL		0.0035	0.0070	mg/L	229481	1	09/16/2016 12:33	MD
Methane	3.7		0.024	0.080	mg/L	229481	20	09/16/2016 13:10	MD
Alkalinity by SM2320B									
Alkalinity, Total (As CaCO3)	30.0		1.68	3.00	mg/L	R325741	1	09/21/2016 19:25	BD

Qualifiers:

- * Value exceeds maximum contaminant level
- BRL Not detected at MDL
- H Holding times for preparation or analysis exceeded
- N Analyte not NELAC certified
- B Analyte detected in the associated method blank
- NC Not confirmed

- E Estimated value above quantitation range
- S Spike Recovery outside limits due to matrix
- J Estimated value detected below Reporting Limit
- > Greater than Result value
- < Less than Result value
- Narr See case narrative

Analytical Environmental Services, Inc

Date: 22-Sep-16

Client: EarthCon Consultants, Inc.
Project Name: Apollo Smyrna
Lab ID: 1609A84-004

Client Sample ID: MW-17
Collection Date: 9/13/2016 4:05:00 PM
Matrix: Groundwater

Analyses	Result	Qual	MDL	Reporting Limit	Units	BatchID	DF	Date Analyzed	Analyst
Total Organic Carbon (TOC) SW9060A									
Organic Carbon, Total	BRL		0.337	1.00	mg/L	R325429	1	09/16/2016 23:06	JW
TCL VOLATILE ORGANICS SW8260B (SW5030B)									
1,1,1-Trichloroethane	0.032		0.00025	0.005	mg/L	229483	1	09/15/2016 20:41	NP
1,1-Dichloroethane	0.18		0.00025	0.005	mg/L	229483	1	09/15/2016 20:41	NP
1,1-Dichloroethene	0.91		0.0036	0.050	mg/L	229483	10	09/15/2016 21:04	NP
1,2-Dichloroethane	BRL		0.00024	0.005	mg/L	229483	1	09/15/2016 20:41	NP
Acetone	BRL		0.0053	0.050	mg/L	229483	1	09/15/2016 20:41	NP
Chloroethane	0.004	J	0.00039	0.010	mg/L	229483	1	09/15/2016 20:41	NP
cis-1,2-Dichloroethene	0.38		0.0027	0.050	mg/L	229483	10	09/15/2016 21:04	NP
Cyclohexane	0.006		0.0016	0.005	mg/L	229483	1	09/15/2016 20:41	NP
Methylene chloride	BRL		0.00031	0.005	mg/L	229483	1	09/15/2016 20:41	NP
Tetrachloroethene	0.13		0.00029	0.005	mg/L	229483	1	09/15/2016 20:41	NP
trans-1,2-Dichloroethene	BRL		0.00022	0.005	mg/L	229483	1	09/15/2016 20:41	NP
Trichloroethene	0.094		0.00035	0.005	mg/L	229483	1	09/15/2016 20:41	NP
Vinyl chloride	0.060		0.00042	0.002	mg/L	229483	1	09/15/2016 20:41	NP
Surr: 4-Bromofluorobenzene	96.4		0	70.7-125	%REC	229483	1	09/15/2016 20:41	NP
Surr: 4-Bromofluorobenzene	98.7		0	70.7-125	%REC	229483	10	09/15/2016 21:04	NP
Surr: Dibromofluoromethane	92.9		0	82.2-120	%REC	229483	1	09/15/2016 20:41	NP
Surr: Dibromofluoromethane	89.8		0	82.2-120	%REC	229483	10	09/15/2016 21:04	NP
Surr: Toluene-d8	98.5		0	81.8-120	%REC	229483	1	09/15/2016 20:41	NP
Surr: Toluene-d8	98.2		0	81.8-120	%REC	229483	10	09/15/2016 21:04	NP
Sulfide by SW9030B/9034 (SW9030B)									
Sulfide	2.40		0.764	2.00	mg/L	229608	1	09/20/2016 08:00	BD
ION SCAN SW9056A									
Chloride	23		0.11	1.0	mg/L	R325452	1	09/14/2016 19:55	JW
Nitrate	BRL		0.024	0.25	mg/L	R325452	1	09/14/2016 19:55	JW
Sulfate	8.8		0.10	1.0	mg/L	R325452	1	09/14/2016 19:55	JW
GC Analysis of Gaseous Samples SOP-RSK 175 (RSK175)									
Ethane	0.014		0.0019	0.0090	mg/L	229481	1	09/16/2016 12:38	MD
Ethylene	0.0080		0.0035	0.0070	mg/L	229481	1	09/16/2016 12:38	MD
Methane	0.59		0.012	0.040	mg/L	229481	10	09/16/2016 13:15	MD
Alkalinity by SM2320B									
Alkalinity, Total (As CaCO3)	128		1.68	3.00	mg/L	R325741	1	09/21/2016 19:25	BD

Qualifiers:

- * Value exceeds maximum contaminant level
- BRL Not detected at MDL
- H Holding times for preparation or analysis exceeded
- N Analyte not NELAC certified
- B Analyte detected in the associated method blank
- NC Not confirmed

- E Estimated value above quantitation range
- S Spike Recovery outside limits due to matrix
- J Estimated value detected below Reporting Limit
- > Greater than Result value
- < Less than Result value
- Narr See case narrative

Analytical Environmental Services, Inc
Date: 22-Sep-16

Client: EarthCon Consultants, Inc.
Project Name: Apollo Smyrna
Lab ID: 1609A84-005

Client Sample ID: DW-1
Collection Date: 9/13/2016 2:35:00 PM
Matrix: Groundwater

Analyses	Result	Qual	MDL	Reporting Limit	Units	BatchID	DF	Date Analyzed	Analyst
Total Organic Carbon (TOC) SW9060A									
Organic Carbon, Total	0.450	J	0.337	1.00	mg/L	R325429	1	09/16/2016 23:29	JW
TCL VOLATILE ORGANICS SW8260B (SW5030B)									
1,1,1-Trichloroethane	0.034		0.00025	0.005	mg/L	229483	1	09/15/2016 21:28	NP
1,1-Dichloroethane	0.098		0.00025	0.005	mg/L	229483	1	09/15/2016 21:28	NP
1,1-Dichloroethene	0.25		0.0036	0.050	mg/L	229483	10	09/15/2016 21:51	NP
1,2-Dichloroethane	0.001	J	0.00024	0.005	mg/L	229483	1	09/15/2016 21:28	NP
Acetone	BRL		0.0053	0.050	mg/L	229483	1	09/15/2016 21:28	NP
Chloroethane	0.068		0.00039	0.010	mg/L	229483	1	09/15/2016 21:28	NP
cis-1,2-Dichloroethene	0.033		0.00027	0.005	mg/L	229483	1	09/15/2016 21:28	NP
Cyclohexane	BRL		0.0016	0.005	mg/L	229483	1	09/15/2016 21:28	NP
Methylene chloride	0.002	J	0.00031	0.005	mg/L	229483	1	09/15/2016 21:28	NP
Tetrachloroethene	0.36		0.0029	0.050	mg/L	229483	10	09/15/2016 21:51	NP
trans-1,2-Dichloroethene	BRL		0.00022	0.005	mg/L	229483	1	09/15/2016 21:28	NP
Trichloroethene	0.047		0.00035	0.005	mg/L	229483	1	09/15/2016 21:28	NP
Vinyl chloride	0.031		0.00042	0.002	mg/L	229483	1	09/15/2016 21:28	NP
Surr: 4-Bromofluorobenzene	101		0	70.7-125	%REC	229483	1	09/15/2016 21:28	NP
Surr: 4-Bromofluorobenzene	98.6		0	70.7-125	%REC	229483	10	09/15/2016 21:51	NP
Surr: Dibromofluoromethane	95.5		0	82.2-120	%REC	229483	1	09/15/2016 21:28	NP
Surr: Dibromofluoromethane	89.7		0	82.2-120	%REC	229483	10	09/15/2016 21:51	NP
Surr: Toluene-d8	99.8		0	81.8-120	%REC	229483	1	09/15/2016 21:28	NP
Surr: Toluene-d8	99.3		0	81.8-120	%REC	229483	10	09/15/2016 21:51	NP
Sulfide by SW9030B/9034 (SW9030B)									
Sulfide	2.40		0.764	2.00	mg/L	229608	1	09/20/2016 08:00	BD
ION SCAN SW9056A									
Chloride	19		0.11	1.0	mg/L	R325452	1	09/14/2016 20:10	JW
Nitrate	0.37		0.024	0.25	mg/L	R325452	1	09/14/2016 20:10	JW
Sulfate	0.82	J	0.10	1.0	mg/L	R325452	1	09/14/2016 20:10	JW
GC Analysis of Gaseous Samples SOP-RSK 175 (RSK175)									
Ethane	0.026		0.0019	0.0090	mg/L	229481	1	09/16/2016 12:42	MD
Ethylene	0.066		0.0035	0.0070	mg/L	229481	1	09/16/2016 12:42	MD
Methane	0.66		0.012	0.040	mg/L	229481	10	09/16/2016 13:19	MD
Alkalinity by SM2320B									
Alkalinity, Total (As CaCO3)	60.0		1.68	3.00	mg/L	R325741	1	09/21/2016 19:25	BD

Qualifiers: * Value exceeds maximum contaminant level
 BRL Not detected at MDL
 H Holding times for preparation or analysis exceeded
 N Analyte not NELAC certified
 B Analyte detected in the associated method blank
 NC Not confirmed

E Estimated value above quantitation range
 S Spike Recovery outside limits due to matrix
 J Estimated value detected below Reporting Limit
 > Greater than Result value
 < Less than Result value
 Narr See case narrative

Analytical Environmental Services, Inc
Date: 22-Sep-16

Client: EarthCon Consultants, Inc.
Project Name: Apollo Smyrna
Lab ID: 1609A84-006

Client Sample ID: MW-15
Collection Date: 9/13/2016 10:10:00 AM
Matrix: Groundwater

Analyses	Result	Qual	MDL	Reporting Limit	Units	BatchID	DF	Date Analyzed	Analyst
Total Organic Carbon (TOC) SW9060A									
Organic Carbon, Total	3.05		0.337	1.00	mg/L	R325429	1	09/16/2016 23:54	JW
TCL VOLATILE ORGANICS SW8260B (SW5030B)									
1,1,1-Trichloroethane	BRL		0.00025	0.005	mg/L	229483	1	09/15/2016 19:30	NP
1,1-Dichloroethane	BRL		0.00025	0.005	mg/L	229483	1	09/15/2016 19:30	NP
1,1-Dichloroethene	BRL		0.00036	0.005	mg/L	229483	1	09/15/2016 19:30	NP
1,2-Dichloroethane	BRL		0.00024	0.005	mg/L	229483	1	09/15/2016 19:30	NP
Acetone	BRL		0.0053	0.050	mg/L	229483	1	09/15/2016 19:30	NP
Chloroethane	0.048		0.00039	0.010	mg/L	229483	1	09/15/2016 19:30	NP
cis-1,2-Dichloroethene	BRL		0.00027	0.005	mg/L	229483	1	09/15/2016 19:30	NP
Cyclohexane	BRL		0.0016	0.005	mg/L	229483	1	09/15/2016 19:30	NP
Methylene chloride	BRL		0.00031	0.005	mg/L	229483	1	09/15/2016 19:30	NP
Tetrachloroethene	BRL		0.00029	0.005	mg/L	229483	1	09/15/2016 19:30	NP
trans-1,2-Dichloroethene	BRL		0.00022	0.005	mg/L	229483	1	09/15/2016 19:30	NP
Trichloroethene	BRL		0.00035	0.005	mg/L	229483	1	09/15/2016 19:30	NP
Vinyl chloride	BRL		0.00042	0.002	mg/L	229483	1	09/15/2016 19:30	NP
Surr: 4-Bromofluorobenzene	97.7		0	70.7-125	%REC	229483	1	09/15/2016 19:30	NP
Surr: Dibromofluoromethane	90.9		0	82.2-120	%REC	229483	1	09/15/2016 19:30	NP
Surr: Toluene-d8	101		0	81.8-120	%REC	229483	1	09/15/2016 19:30	NP
Sulfide by SW9030B/9034 (SW9030B)									
Sulfide	1.20	J	0.764	2.00	mg/L	229608	1	09/20/2016 08:00	BD
ION SCAN SW9056A									
Chloride	32		0.11	1.0	mg/L	R325452	1	09/14/2016 20:25	JW
Nitrate	BRL		0.024	0.25	mg/L	R325452	1	09/14/2016 20:25	JW
Sulfate	0.16	J	0.10	1.0	mg/L	R325452	1	09/14/2016 20:25	JW
GC Analysis of Gaseous Samples SOP-RSK 175 (RSK175)									
Ethane	0.023		0.0019	0.0090	mg/L	229481	1	09/16/2016 15:31	MD
Ethylene	BRL		0.0035	0.0070	mg/L	229481	1	09/16/2016 15:31	MD
Methane	7.5		0.12	0.40	mg/L	229481	100	09/16/2016 15:48	MD
Alkalinity by SM2320B									
Alkalinity, Total (As CaCO3)	65.0		1.68	3.00	mg/L	R325741	1	09/21/2016 19:25	BD

Qualifiers:

- * Value exceeds maximum contaminant level
- BRL Not detected at MDL
- H Holding times for preparation or analysis exceeded
- N Analyte not NELAC certified
- B Analyte detected in the associated method blank
- NC Not confirmed

- E Estimated value above quantitation range
- S Spike Recovery outside limits due to matrix
- J Estimated value detected below Reporting Limit
- > Greater than Result value
- < Less than Result value
- Narr See case narrative

Analytical Environmental Services, Inc

Date: 22-Sep-16

Client: EarthCon Consultants, Inc.
 Project Name: Apollo Smyrna
 Lab ID: 1609A84-007

Client Sample ID: MW-18
 Collection Date: 9/13/2016 11:25:00 AM
 Matrix: Groundwater

Analyses	Result	Qual	MDL	Reporting Limit	Units	BatchID	DF	Date Analyzed	Analyst
Total Organic Carbon (TOC) SW9060A									
Organic Carbon, Total	1.68		0.337	1.00	mg/L	R325429	1	09/17/2016 00:21	JW
TCL VOLATILE ORGANICS SW8260B (SW5030B)									
1,1,1-Trichloroethane	0.001	J	0.00025	0.005	mg/L	229483	1	09/16/2016 10:08	NP
1,1-Dichloroethane	0.20		0.00025	0.005	mg/L	229483	1	09/16/2016 10:08	NP
1,1-Dichloroethene	0.47		0.0036	0.050	mg/L	229483	10	09/16/2016 10:34	NP
1,2-Dichloroethane	0.001	J	0.00024	0.005	mg/L	229483	1	09/16/2016 10:08	NP
Acetone	BRL		0.0053	0.050	mg/L	229483	1	09/16/2016 10:08	NP
Chloroethane	0.015		0.00039	0.010	mg/L	229483	1	09/16/2016 10:08	NP
cis-1,2-Dichloroethene	0.16		0.00027	0.005	mg/L	229483	1	09/16/2016 10:08	NP
Cyclohexane	BRL		0.0016	0.005	mg/L	229483	1	09/16/2016 10:08	NP
Methylene chloride	BRL		0.00031	0.005	mg/L	229483	1	09/16/2016 10:08	NP
Tetrachloroethene	0.19		0.00029	0.005	mg/L	229483	1	09/16/2016 10:08	NP
trans-1,2-Dichloroethene	BRL		0.00022	0.005	mg/L	229483	1	09/16/2016 10:08	NP
Trichloroethene	0.11		0.00035	0.005	mg/L	229483	1	09/16/2016 10:08	NP
Vinyl chloride	0.010		0.00042	0.002	mg/L	229483	1	09/16/2016 10:08	NP
Surr: 4-Bromofluorobenzene	87.3		0	70.7-125	%REC	229483	1	09/16/2016 10:08	NP
Surr: 4-Bromofluorobenzene	91.3		0	70.7-125	%REC	229483	10	09/16/2016 10:34	NP
Surr: Dibromofluoromethane	114		0	82.2-120	%REC	229483	1	09/16/2016 10:08	NP
Surr: Dibromofluoromethane	117		0	82.2-120	%REC	229483	10	09/16/2016 10:34	NP
Surr: Toluene-d8	99		0	81.8-120	%REC	229483	1	09/16/2016 10:08	NP
Surr: Toluene-d8	100		0	81.8-120	%REC	229483	10	09/16/2016 10:34	NP
Sulfide by SW9030B/9034 (SW9030B)									
Sulfide	1.20	J	0.764	2.00	mg/L	229608	1	09/20/2016 08:00	BD
ION SCAN SW9056A									
Chloride	14		0.11	1.0	mg/L	R325452	1	09/14/2016 20:39	JW
Nitrate	BRL		0.024	0.25	mg/L	R325452	1	09/14/2016 20:39	JW
Sulfate	2.3		0.10	1.0	mg/L	R325452	1	09/14/2016 20:39	JW
GC Analysis of Gaseous Samples SOP-RSK 175 (RSK175)									
Ethane	0.017		0.0019	0.0090	mg/L	229481	1	09/16/2016 13:30	MD
Ethylene	BRL		0.0035	0.0070	mg/L	229481	1	09/16/2016 13:30	MD
Methane	2.3		0.024	0.080	mg/L	229481	20	09/16/2016 15:54	MD
Alkalinity by SM2320B									
Alkalinity, Total (As CaCO3)	75.0		1.68	3.00	mg/L	R325741	1	09/21/2016 19:25	BD

Qualifiers:

- * Value exceeds maximum contaminant level
- BRL Not detected at MDL
- H Holding times for preparation or analysis exceeded
- N Analyte not NELAC certified
- B Analyte detected in the associated method blank
- NC Not confirmed

- E Estimated value above quantitation range
- S Spike Recovery outside limits due to matrix
- J Estimated value detected below Reporting Limit
- > Greater than Result value
- < Less than Result value
- Narr See case narrative

Analytical Environmental Services, Inc

Date: 22-Sep-16

Client: EarthCon Consultants, Inc.
 Project Name: Apollo Smyrna
 Lab ID: 1609A84-008

Client Sample ID: TRIP BLANK
 Collection Date: 9/13/2016
 Matrix: Aqueous

Analyses	Result	Qual	MDL	Reporting Limit	Units	BatchID	DF	Date Analyzed	Analyst
TCL VOLATILE ORGANICS SW8260B				(SW5030B)					
1,1,1-Trichloroethane	BRL		0.00025	0.005	mg/L	229483	1	09/15/2016 18:18	NP
1,1-Dichloroethane	BRL		0.00025	0.005	mg/L	229483	1	09/15/2016 18:18	NP
1,1-Dichloroethene	BRL		0.00036	0.005	mg/L	229483	1	09/15/2016 18:18	NP
1,2-Dichloroethane	BRL		0.00024	0.005	mg/L	229483	1	09/15/2016 18:18	NP
Acetone	BRL		0.0053	0.050	mg/L	229483	1	09/15/2016 18:18	NP
Chloroethane	BRL		0.00039	0.010	mg/L	229483	1	09/15/2016 18:18	NP
cis-1,2-Dichloroethene	BRL		0.00027	0.005	mg/L	229483	1	09/15/2016 18:18	NP
Cyclohexane	BRL		0.0016	0.005	mg/L	229483	1	09/15/2016 18:18	NP
Methylene chloride	BRL		0.00031	0.005	mg/L	229483	1	09/15/2016 18:18	NP
Tetrachloroethene	BRL		0.00029	0.005	mg/L	229483	1	09/15/2016 18:18	NP
trans-1,2-Dichloroethene	BRL		0.00022	0.005	mg/L	229483	1	09/15/2016 18:18	NP
Trichloroethene	BRL		0.00035	0.005	mg/L	229483	1	09/15/2016 18:18	NP
Vinyl chloride	BRL		0.00042	0.002	mg/L	229483	1	09/15/2016 18:18	NP
Surr: 4-Bromofluorobenzene	98.2		0	70.7-125	%REC	229483	1	09/15/2016 18:18	NP
Surr: Dibromofluoromethane	91.8		0	82.2-120	%REC	229483	1	09/15/2016 18:18	NP
Surr: Toluene-d8	101		0	81.8-120	%REC	229483	1	09/15/2016 18:18	NP

Qualifiers:

- * Value exceeds maximum contaminant level
- BRL Not detected at MDL
- H Holding times for preparation or analysis exceeded
- N Analyte not NELAC certified
- B Analyte detected in the associated method blank
- NC Not confirmed

- E Estimated value above quantitation range
- S Spike Recovery outside limits due to matrix
- J Estimated value detected below Reporting Limit
- > Greater than Result value
- < Less than Result value
- Narr See case narrative

Analytical Environmental Services, Inc.

Sample/Cooler Receipt Checklist

Client Earthcare

Work Order Number 1609A84

Checklist completed by [Signature] 9/14/10
Signature Date

Carrier name: FedEx ☐ UPS ☐ Courier ☒ Client ☐ US Mail ☐ Other ☐

Shipping container/cooler in good condition? Yes ☒ No ☐ Not Present ☐

Custody seals intact on shipping container/cooler? Yes ☐ No ☐ Not Present ☒

Custody seals intact on sample bottles? Yes ☐ No ☐ Not Present ☒

Container/Temp Blank temperature in compliance? ($0^{\circ}\leq 6^{\circ}\text{C}$)* Yes ☒ No ☐

Cooler #1 5-2 Cooler #2 ☐ Cooler #3 ☐ Cooler #4 ☐ Cooler#5 ☐ Cooler #6 ☐

Chain of custody present? Yes ☒ No ☐

Chain of custody signed when relinquished and received? Yes ☒ No ☐

Chain of custody agrees with sample labels? Yes ☒ No ☐

Samples in proper container/bottle? Yes ☒ No ☐

Sample containers intact? Yes ☒ No ☐

Sufficient sample volume for indicated test? Yes ☒ No ☐

All samples received within holding time? Yes ☒ No ☐

Was TAT marked on the COC? Yes ☒ No ☐

Proceed with Standard TAT as per project history? Yes ☐ No ☐ Not Applicable ☒

Water - VOA vials have zero headspace? No VOA vials submitted ☐ Yes ☒ No ☐

Water - pH acceptable upon receipt? Yes ☒ No ☐ Not Applicable ☐

Adjusted? ☐ Checked by CJ

Sample Condition: Good ☒ Other(Explain) ☐

(For diffusive samples or AIHA lead) Is a known blank included? Yes ☐ No ☒

See Case Narrative for resolution of the Non-Conformance.

* Samples do not have to comply with the given range for certain parameters.

\\Aes_server\1\Sample Receipt\My Documents\COCs and pH Adjustment Sheet\Sample_Cooler_Recipt_Checklist_Rev1.rtf

Client: EarthCon Consultants, Inc.
 Project Name: Apollo Smyrna
 Lab Order: 1609A84

Dates Report

Lab Sample ID	Client Sample ID	Collection Date	Matrix	Test Name	TCLP Date	Prep Date	Analysis Date
1609A84-001A	MW-8	9/13/2016 4:10:00PM	Groundwater	TCL VOLATILE ORGANICS		9/15/2016 5:30:00 PM	09/15/2016
1609A84-001B	MW-8	9/13/2016 4:10:00PM	Groundwater	GC Analysis of Gaseous Samples		9/16/2016 8:54:27 AM	09/16/2016
1609A84-001C	MW-8	9/13/2016 4:10:00PM	Groundwater	Total Organic Carbon (TOC)			09/16/2016
1609A84-001D	MW-8	9/13/2016 4:10:00PM	Groundwater	ION SCAN			09/14/2016
1609A84-001D	MW-8	9/13/2016 4:10:00PM	Groundwater	Alkalinity by SM2320B			09/21/2016
1609A84-001E	MW-8	9/13/2016 4:10:00PM	Groundwater	Sulfide by SW9030/9034		9/19/2016 12:15:00 PM	09/19/2016
1609A84-002A	MW-12	9/13/2016 2:45:00PM	Groundwater	TCL VOLATILE ORGANICS		9/15/2016 5:30:00 PM	09/15/2016
1609A84-002B	MW-12	9/13/2016 2:45:00PM	Groundwater	GC Analysis of Gaseous Samples		9/16/2016 8:54:27 AM	09/16/2016
1609A84-002C	MW-12	9/13/2016 2:45:00PM	Groundwater	Total Organic Carbon (TOC)			09/16/2016
1609A84-002D	MW-12	9/13/2016 2:45:00PM	Groundwater	ION SCAN			09/14/2016
1609A84-002D	MW-12	9/13/2016 2:45:00PM	Groundwater	Alkalinity by SM2320B			09/21/2016
1609A84-002E	MW-12	9/13/2016 2:45:00PM	Groundwater	Sulfide by SW9030/9034		9/19/2016 12:15:00 PM	09/19/2016
1609A84-003A	MW-11	9/13/2016 11:50:00AM	Groundwater	TCL VOLATILE ORGANICS		9/15/2016 5:30:00 PM	09/15/2016
1609A84-003B	MW-11	9/13/2016 11:50:00AM	Groundwater	GC Analysis of Gaseous Samples		9/16/2016 8:54:27 AM	09/16/2016
1609A84-003C	MW-11	9/13/2016 11:50:00AM	Groundwater	Total Organic Carbon (TOC)			09/16/2016
1609A84-003D	MW-11	9/13/2016 11:50:00AM	Groundwater	ION SCAN			09/14/2016
1609A84-003D	MW-11	9/13/2016 11:50:00AM	Groundwater	Alkalinity by SM2320B			09/21/2016
1609A84-003E	MW-11	9/13/2016 11:50:00AM	Groundwater	Sulfide by SW9030/9034		9/20/2016 8:00:00 AM	09/20/2016
1609A84-004A	MW-17	9/13/2016 4:05:00PM	Groundwater	TCL VOLATILE ORGANICS		9/15/2016 5:30:00 PM	09/15/2016
1609A84-004B	MW-17	9/13/2016 4:05:00PM	Groundwater	GC Analysis of Gaseous Samples		9/16/2016 8:54:27 AM	09/16/2016
1609A84-004C	MW-17	9/13/2016 4:05:00PM	Groundwater	Total Organic Carbon (TOC)			09/16/2016
1609A84-004D	MW-17	9/13/2016 4:05:00PM	Groundwater	ION SCAN			09/14/2016
1609A84-004D	MW-17	9/13/2016 4:05:00PM	Groundwater	Alkalinity by SM2320B			09/21/2016
1609A84-004E	MW-17	9/13/2016 4:05:00PM	Groundwater	Sulfide by SW9030/9034		9/20/2016 8:00:00 AM	09/20/2016
1609A84-005A	DW-1	9/13/2016 2:35:00PM	Groundwater	TCL VOLATILE ORGANICS		9/15/2016 5:30:00 PM	09/15/2016
1609A84-005B	DW-1	9/13/2016 2:35:00PM	Groundwater	GC Analysis of Gaseous Samples		9/16/2016 8:54:27 AM	09/16/2016
1609A84-005C	DW-1	9/13/2016 2:35:00PM	Groundwater	Total Organic Carbon (TOC)			09/16/2016
1609A84-005D	DW-1	9/13/2016 2:35:00PM	Groundwater	ION SCAN			09/14/2016
1609A84-005D	DW-1	9/13/2016 2:35:00PM	Groundwater	Alkalinity by SM2320B			09/21/2016

Client: EarthCon Consultants, Inc.
Project Name: Apollo Smyrna
Lab Order: 1609A84

Dates Report

Lab Sample ID	Client Sample ID	Collection Date	Matrix	Test Name	TCLP Date	Prep Date	Analysis Date
1609A84-005E	DW-1	9/13/2016 2:35:00PM	Groundwater	Sulfide by SW9030/9034		9/20/2016 8:00:00 AM	09/20/2016
1609A84-006A	MW-15	9/13/2016 10:10:00AM	Groundwater	TCL VOLATILE ORGANICS		9/15/2016 5:30:00 PM	09/15/2016
1609A84-006B	MW-15	9/13/2016 10:10:00AM	Groundwater	GC Analysis of Gaseous Samples		9/16/2016 8:54:27 AM	09/16/2016
1609A84-006C	MW-15	9/13/2016 10:10:00AM	Groundwater	Total Organic Carbon (TOC)			09/16/2016
1609A84-006D	MW-15	9/13/2016 10:10:00AM	Groundwater	ION SCAN			09/14/2016
1609A84-006D	MW-15	9/13/2016 10:10:00AM	Groundwater	Alkalinity by SM2320B			09/21/2016
1609A84-006E	MW-15	9/13/2016 10:10:00AM	Groundwater	Sulfide by SW9030/9034		9/20/2016 8:00:00 AM	09/20/2016
1609A84-007A	MW-18	9/13/2016 11:25:00AM	Groundwater	TCL VOLATILE ORGANICS		9/15/2016 5:30:00 PM	09/16/2016
1609A84-007B	MW-18	9/13/2016 11:25:00AM	Groundwater	GC Analysis of Gaseous Samples		9/16/2016 8:54:27 AM	09/16/2016
1609A84-007C	MW-18	9/13/2016 11:25:00AM	Groundwater	Total Organic Carbon (TOC)			09/17/2016
1609A84-007D	MW-18	9/13/2016 11:25:00AM	Groundwater	ION SCAN			09/14/2016
1609A84-007D	MW-18	9/13/2016 11:25:00AM	Groundwater	Alkalinity by SM2320B			09/21/2016
1609A84-007E	MW-18	9/13/2016 11:25:00AM	Groundwater	Sulfide by SW9030/9034		9/20/2016 8:00:00 AM	09/20/2016
1609A84-008A	TRIP BLANK	9/13/2016 12:00:00AM	Aqueous	TCL VOLATILE ORGANICS		9/15/2016 5:30:00 PM	09/15/2016

Client: EarthCon Consultants, Inc.
Project Name: Apollo Smyrna
Workorder: 1609A84

ANALYTICAL QC SUMMARY REPORT**BatchID: 229481**

Sample ID: MB-229481	Client ID:	Units: mg/L				Prep Date: 09/16/2016	Run No: 325358				
SampleType: MBLK	TestCode: GC Analysis of Gaseous Samples	SOP-RSK 175				BatchID: 229481	Analysis Date: 09/16/2016	Seq No: 7043116			
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual

Ethane	BRL	0.0090									
Ethylene	BRL	0.0070									
Methane	BRL	0.0040									

Sample ID: LCS-229481	Client ID:					Units: mg/L	Prep Date: 09/16/2016	Run No: 325358			
SampleType: LCS	TestCode: GC Analysis of Gaseous Samples	SOP-RSK 175				BatchID: 229481	Analysis Date: 09/16/2016	Seq No: 7043117			
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual

Ethane	0.1171	0.0090	200.0		58.6	40.9	115				
Ethylene	0.07677	0.0070	200.0		38.4	26.8	115				
Methane	0.1215	0.0040	200.0		60.8	45.9	115				

Sample ID: LCSD-229481	Client ID:				Units: mg/L	Prep Date: 09/16/2016	Run No: 325358				
SampleType: LCSD	TestCode: GC Analysis of Gaseous Samples	SOP-RSK 175			BatchID: 229481	Analysis Date: 09/16/2016	Seq No: 7043118				
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual

Ethane	0.1141	0.0090	200.0		57.0	40.9	115	117.1	2.62	20	
Ethylene	0.07594	0.0070	200.0		38.0	26.8	115	76.77	1.09	20	
Methane	0.1182	0.0040	200.0		59.1	45.9	115	121.5	2.73	20	

Sample ID: 1609A85-001BMS	Client ID:					Units: mg/L	Prep Date: 09/16/2016	Run No: 325358			
SampleType: MS	TestCode: GC Analysis of Gaseous Samples	SOP-RSK 175				BatchID: 229481	Analysis Date: 09/16/2016	Seq No: 7043200			
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual

Ethane	0.1265	0.0090	200.0		63.2	40.5	115				
Ethylene	0.08314	0.0070	200.0		41.6	23	115				
Methane	0.1319	0.0040	200.0	8.503	61.7	40	115				

Qualifiers:	>	Greater than Result value	<	Less than Result value	B	Analyte detected in the associated method blank
	BRL	Below reporting limit	E	Estimated (value above quantitation range)	H	Holding times for preparation or analysis exceeded
	J	Estimated value detected below Reporting Limit	N	Analyte not NELAC certified	R	RPD outside limits due to matrix
	Rpt Lim	Reporting Limit	S	Spike Recovery outside limits due to matrix		

Client: EarthCon Consultants, Inc.
Project Name: Apollo Smyrna
Workorder: 1609A84

ANALYTICAL QC SUMMARY REPORT

BatchID: 229481

Sample ID: 1609A85-001BMSD	Client ID:					Units: mg/L	Prep Date: 09/16/2016	Run No: 325358			
SampleType: MSD	TestCode: GC Analysis of Gaseous Samples	SOP-RSK 175				BatchID: 229481	Analysis Date: 09/16/2016	Seq No: 7043201			
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
Ethane	0.1297	0.0090	200.0		64.8	40.5	115	126.5	2.50	20	
Ethylene	0.08705	0.0070	200.0		43.5	23	115	83.14	4.60	20	
Methane	0.1357	0.0040	200.0	8.503	63.6	40	115	131.9	2.78	20	

Qualifiers:	>	Greater than Result value	<	Less than Result value	B	Analyte detected in the associated method blank
	BRL	Below reporting limit	E	Estimated (value above quantitation range)	H	Holding times for preparation or analysis exceeded
	J	Estimated value detected below Reporting Limit	N	Analyte not NELAC certified	R	RPD outside limits due to matrix
	Rpt Lim	Reporting Limit	S	Spike Recovery outside limits due to matrix		

Client: EarthCon Consultants, Inc.
 Project Name: Apollo Smyrna
 Workorder: 1609A84

ANALYTICAL QC SUMMARY REPORT

BatchID: 229483

Sample ID: MB-229483	Client ID:					Units: mg/L	Prep Date: 09/15/2016	Run No: 325204			
SampleType: MBLK	TestCode: TCL VOLATILE ORGANICS SW8260B					BatchID: 229483	Analysis Date: 09/15/2016	Seq No: 7041297			
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual

1,1,1-Trichloroethane	BRL	0.005									
1,1-Dichloroethane	BRL	0.005									
1,1-Dichloroethene	BRL	0.005									
1,2-Dichloroethane	BRL	0.005									
Acetone	BRL	0.050									
Chloroethane	BRL	0.010									
cis-1,2-Dichloroethene	BRL	0.005									
Cyclohexane	BRL	0.005									
Methylene chloride	BRL	0.005									
Tetrachloroethene	BRL	0.005									
trans-1,2-Dichloroethene	BRL	0.005									
Trichloroethene	BRL	0.005									
Vinyl chloride	BRL	0.002									
Surr: 4-Bromofluorobenzene	0.04866	0	50.00		97.3	70.7	125				
Surr: Dibromofluoromethane	0.04544	0	50.00		90.9	82.2	120				
Surr: Toluene-d8	0.04911	0	50.00		98.2	81.8	120				

Sample ID: LCS-229483	Client ID:					Units: mg/L	Prep Date: 09/15/2016	Run No: 325204			
SampleType: LCS	TestCode: TCL VOLATILE ORGANICS SW8260B					BatchID: 229483	Analysis Date: 09/15/2016	Seq No: 7041296			
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual

1,1-Dichloroethene	0.04744	0.005	50.00		94.9	65.3	137				
Trichloroethene	0.05362	0.005	50.00		107	73.1	128				
Surr: 4-Bromofluorobenzene	0.04903	0	50.00		98.1	70.7	125				
Surr: Dibromofluoromethane	0.04531	0	50.00		90.6	82.2	120				
Surr: Toluene-d8	0.04958	0	50.00		99.2	81.8	120				

Qualifiers:	>	Greater than Result value	<	Less than Result value	B	Analyte detected in the associated method blank
	BRL	Below reporting limit	E	Estimated (value above quantitation range)	H	Holding times for preparation or analysis exceeded
	J	Estimated value detected below Reporting Limit	N	Analyte not NELAC certified	R	RPD outside limits due to matrix
	Rpt Lim	Reporting Limit	S	Spike Recovery outside limits due to matrix		

Client: EarthCon Consultants, Inc.
Project Name: Apollo Smyrna
Workorder: 1609A84

ANALYTICAL QC SUMMARY REPORT

BatchID: 229483

Sample ID: 1609A84-007AMS	Client ID: MW-18	Units: mg/L	Prep Date: 09/15/2016	Run No: 325204							
SampleType: MS	TestCode: TCL VOLATILE ORGANICS SW8260B	BatchID: 229483	Analysis Date: 09/15/2016	Seq No: 7041310							
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual

1,1-Dichloroethene	1.066	0.050	500.0	528.7	107	60	150				
Trichloroethene	0.7185	0.050	500.0	126.0	118	70	136				
Surr: 4-Bromofluorobenzene	0.4915	0	500.0		98.3	70.7	125				
Surr: Dibromofluoromethane	0.4635	0	500.0		92.7	82.2	120				
Surr: Toluene-d8	0.5050	0	500.0		101	81.8	120				

Sample ID: 1609A84-007AMSD	Client ID: MW-18	Units: mg/L				Prep Date: 09/15/2016	Run No: 325204				
SampleType: MSD	TestCode: TCL VOLATILE ORGANICS SW8260B	BatchID: 229483				Analysis Date: 09/15/2016	Seq No: 7041311				
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual

1,1-Dichloroethene	1.017	0.050	500.0	528.7	97.6	60	150	1066	4.72	17.7	
Trichloroethene	0.6803	0.050	500.0	126.0	111	70	136	718.5	5.46	20	
Surr: 4-Bromofluorobenzene	0.4928	0	500.0		98.6	70.7	125	491.5	0	0	
Surr: Dibromofluoromethane	0.4468	0	500.0		89.4	82.2	120	463.5	0	0	
Surr: Toluene-d8	0.5051	0	500.0		101	81.8	120	505.0	0	0	

Qualifiers:	>	Greater than Result value	<	Less than Result value	B	Analyte detected in the associated method blank
	BRL	Below reporting limit	E	Estimated (value above quantitation range)	H	Holding times for preparation or analysis exceeded
	J	Estimated value detected below Reporting Limit	N	Analyte not NELAC certified	R	RPD outside limits due to matrix
	Rpt Lim	Reporting Limit	S	Spike Recovery outside limits due to matrix		

Client: EarthCon Consultants, Inc.
Project Name: Apollo Smyrna
Workorder: 1609A84

ANALYTICAL QC SUMMARY REPORT

BatchID: 229608

Sample ID: MB-229608		Client ID:			Units: mg/L		Prep Date: 09/19/2016		Run No: 325458		
SampleType: MBLK		TestCode: Sulfide by SW9030B/9034			BatchID: 229608		Analysis Date: 09/19/2016		Seq No: 7045439		
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual

Sulfide BRL 2.00

Sample ID: LCS-229608		Client ID:			Units: mg/L		Prep Date: 09/19/2016		Run No: 325458		
SampleType: LCS		TestCode: Sulfide by SW9030B/9034			BatchID: 229608		Analysis Date: 09/19/2016		Seq No: 7045440		
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual

Sulfide 368.0 2.00 368.0 100 40 120

Sample ID: 1609A03-001DMS	Client ID:	Units: mg/L	Prep Date: 09/19/2016	Run No: 325458							
SampleType: MS	TestCode: Sulfide by SW9030B/9034	BatchID: 229608	Analysis Date: 09/19/2016	Seq No: 7045461							
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual

Sulfide 34.40 2.00 36.80 2.000 88.0 61.2 120

Sample ID: 1609A03-001DMSD	Client ID:				Units: mg/L	Prep Date: 09/19/2016	Run No: 325458				
SampleType: MSD	TestCode: Sulfide by SW9030B/9034				BatchID: 229608	Analysis Date: 09/19/2016	Seq No: 7045466				
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual

Sulfide 33.20 2.00 36.80 2.000 84.8 61.2 120 34.40 3.55 20

Qualifiers:	>	Greater than Result value	<	Less than Result value	B	Analyte detected in the associated method blank
	BRL	Below reporting limit	E	Estimated (value above quantitation range)	H	Holding times for preparation or analysis exceeded
	J	Estimated value detected below Reporting Limit	N	Analyte not NELAC certified	R	RPD outside limits due to matrix
	Rpt Lim	Reporting Limit	S	Spike Recovery outside limits due to matrix		

Client: EarthCon Consultants, Inc.
Project Name: Apollo Smyrna
Workorder: 1609A84

ANALYTICAL QC SUMMARY REPORT

BatchID: R325429

Sample ID: MB-R325429	Client ID:					Units: mg/L	Prep Date:		Run No: 325429		
SampleType: MBLK	TestCode: Total Organic Carbon (TOC)	SW9060A				BatchID: R325429	Analysis Date: 09/16/2016		Seq No: 7044754		
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual

Organic Carbon, Total BRL 1.00

Sample ID: LCS-R325429	Client ID:					Units: mg/L	Prep Date:			Run No: 325429	
SampleType: LCS	TestCode: Total Organic Carbon (TOC)	SW9060A				BatchID: R325429	Analysis Date: 09/16/2016			Seq No: 7044753	
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual

Organic Carbon, Total 23.06 1.00 25.00 92.2 90 110

Sample ID: 1609A03-001CMS	Client ID:					Units: mg/L	Prep Date:			Run No: 325429	
SampleType: MS	TestCode: Total Organic Carbon (TOC)	SW9060A				BatchID: R325429	Analysis Date: 09/16/2016			Seq No: 7044757	
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual

Organic Carbon, Total 23.63 1.00 25.00 94.5 80 120

Sample ID: 1609A03-001CMSD	Client ID:					Units: mg/L	Prep Date:		Run No: 325429		
SampleType: MSD	TestCode: Total Organic Carbon (TOC)	SW9060A				BatchID: R325429	Analysis Date: 09/16/2016		Seq No: 7044758		
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual

Organic Carbon, Total 24.29 1.00 25.00 97.2 80 120 23.63 2.75 20

Qualifiers:	> Greater than Result value	< Less than Result value	B Analyte detected in the associated method blank
	BRL Below reporting limit	E Estimated (value above quantitation range)	H Holding times for preparation or analysis exceeded
	J Estimated value detected below Reporting Limit	N Analyte not NELAC certified	R RPD outside limits due to matrix
	Rpt Lim Reporting Limit	S Spike Recovery outside limits due to matrix	

Client: EarthCon Consultants, Inc.
Project Name: Apollo Smyrna
Workorder: 1609A84

ANALYTICAL QC SUMMARY REPORT**BatchID: R325452**

Sample ID: MB-R325452	Client ID:				Units: mg/L	Prep Date:			Run No: 325452		
SampleType: MBLK	TestCode: ION SCAN	SW9056A			BatchID: R325452	Analysis Date: 09/14/2016			Seq No: 7045359		
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual

Chloride	0.1606	1.0									J
Nitrate	BRL	0.25									
Sulfate	BRL	1.0									

Sample ID: LCS-R325452		Client ID:			Units: mg/L		Prep Date:		Run No: 325452		
SampleType: LCS		TestCode: ION SCAN SW9056A			BatchID: R325452		Analysis Date: 09/14/2016		Seq No: 7045358		
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual

Chloride	9.947	1.0	10.00	0.1606	97.9	90	110				
Nitrate	4.727	0.25	5.000		94.5	90	110				
Sulfate	24.44	1.0	25.00		97.7	90	110				

Sample ID: 1609A56-002BMS	Client ID:				Units: mg/L	Prep Date:			Run No: 325452		
SampleType: MS	TestCode: ION SCAN SW9056A				BatchID: R325452	Analysis Date: 09/14/2016			Seq No: 7045362		
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual

Chloride	144.8	10	100.0	52.61	92.2	90	110				
Nitrate	57.05	2.5	50.00	11.13	91.8	90	110				
Sulfate	274.3	10	250.0	41.18	93.3	90	110				

Sample ID: 1609A57-002BMS	Client ID:	Units: mg/L	Prep Date:	Run No: 325452							
SampleType: MS	TestCode: ION SCAN SW9056A	BatchID: R325452	Analysis Date: 09/14/2016	Seq No: 7045366							
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual

Chloride	134.4	10	100.0	44.34	90.1	90	110				
Nitrate	54.30	2.5	50.00	7.422	93.7	90	110				
Sulfate	269.5	10	250.0	36.11	93.4	90	110				

Qualifiers:	>	Greater than Result value	<	Less than Result value	B	Analyte detected in the associated method blank
	BRL	Below reporting limit	E	Estimated (value above quantitation range)	H	Holding times for preparation or analysis exceeded
	J	Estimated value detected below Reporting Limit	N	Analyte not NELAC certified	R	RPD outside limits due to matrix
	Rpt Lim	Reporting Limit	S	Spike Recovery outside limits due to matrix		

Client: EarthCon Consultants, Inc.
Project Name: Apollo Smyrna
Workorder: 1609A84

ANALYTICAL QC SUMMARY REPORT

BatchID: R325452

Sample ID: 1609A56-002BMSD		Client ID:				Units: mg/L		Prep Date:		Run No: 325452	
SampleType: MSD		TestCode: ION SCAN SW9056A				BatchID: R325452		Analysis Date: 09/14/2016		Seq No: 7045363	
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
Chloride	145.8	10	100.0	52.61	93.2	90	110	144.8	0.669	20	
Nitrate	57.43	2.5	50.00	11.13	92.6	90	110	57.05	0.670	20	
Sulfate	274.9	10	250.0	41.18	93.5	90	110	274.3	0.204	20	

Qualifiers:	>	Greater than Result value	<	Less than Result value	B	Analyte detected in the associated method blank
	BRL	Below reporting limit	E	Estimated (value above quantitation range)	H	Holding times for preparation or analysis exceeded
	J	Estimated value detected below Reporting Limit	N	Analyte not NELAC certified	R	RPD outside limits due to matrix
	Rpt Lim	Reporting Limit	S	Spike Recovery outside limits due to matrix		

Client: EarthCon Consultants, Inc.
Project Name: Apollo Smyrna
Workorder: 1609A84

ANALYTICAL QC SUMMARY REPORT

BatchID: R325741

Sample ID: MB-R325741		Client ID:				Units: mg/L		Prep Date:		Run No: 325741	
SampleType: MBLK		TestCode: Alkalinity by SM2320B				BatchID: R325741		Analysis Date: 09/21/2016		Seq No: 7052885	
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
Alkalinity, Total (As CaCO3)		BRL	3.00								

Sample ID: LCS-R325741		Client ID:				Units: mg/L		Prep Date:		Run No: 325741	
SampleType: LCS		TestCode: Alkalinity by SM2320B				BatchID: R325741		Analysis Date: 09/21/2016		Seq No: 7052886	
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
Alkalinity, Total (As CaCO3)		127.0	3.00	125.0	102	75	125				

Sample ID: 1609A45-005ADUP		Client ID:				Units: mg/L		Prep Date:		Run No: 325741	
SampleType: DUP		TestCode: Alkalinity by SM2320B				BatchID: R325741		Analysis Date: 09/21/2016		Seq No: 7052901	
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
Alkalinity, Total (As CaCO3)		16.00	3.00					16.00	0	30	

Qualifiers:	>	Greater than Result value	<	Less than Result value	B	Analyte detected in the associated method blank
	BRL	Below reporting limit	E	Estimated (value above quantitation range)	H	Holding times for preparation or analysis exceeded
	J	Estimated value detected below Reporting Limit	N	Analyte not NELAC certified	R	RPD outside limits due to matrix
	Rpt Lim	Reporting Limit	S	Spike Recovery outside limits due to matrix		



ANALYTICAL ENVIRONMENTAL SERVICES, INC.

September 22, 2016

Samantha Woolf
EarthCon Consultants, Inc.
1880 West Oak Parkway
Marietta GA 30062

TEL: (770) 973-2100
FAX: (770) 973-7395

RE: Apollo Smyrna

Dear Samantha Woolf:

Order No: 1609A85

Analytical Environmental Services, Inc. received 1 samples on 9/14/2016 11:40:00 AM for the analyses presented in following report.

No problems were encountered during the analyses. Additionally, all results for the associated Quality Control samples were within EPA and/or AES established limits. Any discrepancies associated with the analyses contained herein will be noted and submitted in the form of a project Case Narrative.

AES's accreditations are as follows:

- NELAC/Florida State Laboratory ID E87582 for analysis of Non-Potable Water, Solid & Chemical Materials, and Drinking Water Microbiology, effective 07/01/16-06/30/17.
- NELAC/Louisiana Agency Interest No. 100818 for or analysis of Non-Potable Water and Solid & Chemical Materials, effective 07/01/16-06/30/17.
- NELAC/Texas Certificate No. T104704509-16-6 for or analysis of Non-Potable Water and Solid & Chemical Materials, effective 03/01/16-02/28/17.
- AIHA-LAP, LLC Laboratory ID: 100671 for Industrial Hygiene samples (Organics, Metals, PCM Asbestos, Gravimetric), Environmental Lead (Paint, Soil, Dust Wipes, Air), and Environmental Microbiology (Fungal) Direct Examination, effective until 09/01/17.

Chris Pafford
Project Manager



AES

ANALYTICAL ENVIRONMENTAL SERVICES, INC

3080 Presidential Drive, Atlanta GA 30340-3704

TEL.: (770) 457-8177 / TOLL-FREE (800) 972-4889 / FAX: (770) 457-8188

CHAIN OF CUSTODY

Work Order:

1609A85

Date: 9/13/16

Page 1 of 1

COMPANY: Earth Con Consultants		ADDRESS: 1550 West Oake Pkwy Bldg 100, Suite 106 Marietta, GA 30062		ANALYSIS REQUESTED										Visit our website www.aesatlanta.com to check on the status of your results, place bottle orders, etc.		No # of Containers			
PHONE: 770-473-2100		FAX: 770-473-7395		VOL GC Analysis TOL Alkalinity/Total Solids Sulfide, Zn, Manganese															
SAMPLED BY: Rob Andrews		SIGNATURE: <i>[Signature]</i>		PRESERVATION (See codes)										REMARKS					
#	SAMPLE ID	SAMPLED		Grab	Composite	Matrix (See codes)													
		DATE	TIME																
1	MW-6R	9/13/16	9:50	X		GW	2	2	1	1	1							RA	7
2																			
3																			
4																			
5																			
6																			
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14																			

RELINQUISHED BY		DATE/TIME		RECEIVED BY		DATE/TIME		PROJECT INFORMATION				RECEIPT	
1: <i>[Signature]</i>		9/13/16 19:05		1: <i>[Signature]</i>		19:05		PROJECT NAME: Apollo Smyrna				Total # of Containers	
2: <i>[Signature]</i>		9/14/16 9:05		2: <i>[Signature]</i>		9:05		PROJECT #: 02 20140391.16				☒ Turnaround Time Request ☐ Standard 5 Business Days ☐ 2 Business Day Rush ☐ Next Business Day Rush ☐ Same Day Rush (auth req.) ☐ Other _____	
3: <i>[Signature]</i>		9/14/16 11:40		3: <i>[Signature]</i>		11:40 am		SITE ADDRESS:					
								SEND REPORT TO: Samantha Woult					
SPECIAL INSTRUCTIONS/COMMENTS: Nitrates - 48 hold time				SHIPMENT METHOD OUT / / VIA: IN / / VIA: CLIENT FedEx UPS MAIL <u>COURIER</u> GREYHOUND OTHER				INVOICE TO: (IF DIFFERENT FROM ABOVE)				STATE PROGRAM (if any): _____	
								QUOTE #:				PO#:	
												E-mail? Y / N; Fax? Y / N	
												DATA PACKAGE: I II III IV	

SAMPLES RECEIVED AFTER 3PM OR ON SATURDAY ARE CONSIDERED RECEIVED THE NEXT BUSINESS DAY. IF TURNAROUND TIME IS NOT INDICATED, AES WILL PROCEED WITH STANDARD TAT OF SAMPLES.
 SAMPLES ARE DISPOSED 30 DAYS AFTER REPORT COMPLETION UNLESS OTHER ARRANGEMENTS ARE MADE.

MATRIX CODES: A = Air GW = Groundwater SE = Sediment SO = Soil SW = Surface Water W = Water (Blanks) DW = Drinking Water (Blanks) O = Other (specify) WW = Waste Water

PRESERVATIVE CODES: H+I = Hydrochloric acid + ice I = Ice only N = Nitric acid S+I = Sulfuric acid + ice S/M+I = Sodium Bisulfate/Methanol + ice O = Other (specify) NA = None

White Copy - Original; Yellow Copy - Client

Page 2 of 14

Analytical Environmental Services, Inc
Date: 22-Sep-16

Client: EarthCon Consultants, Inc.
Project Name: Apollo Smyrna
Lab ID: 1609A85-001

Client Sample ID: MW-6R
Collection Date: 9/13/2016 9:50:00 AM
Matrix: Groundwater

Analyses	Result	Qual	MDL	Reporting Limit	Units	BatchID	DF	Date Analyzed	Analyst
Total Organic Carbon (TOC) SW9060A									
Organic Carbon, Total	BRL		0.337	1.00	mg/L	R325429	1	09/17/2016 00:45	JW
TCL VOLATILE ORGANICS SW8260B (SW5030B)									
1,1,1-Trichloroethane	0.002	J	0.00025	0.005	mg/L	229483	1	09/15/2016 21:34	NP
1,1-Dichloroethane	0.005		0.00025	0.005	mg/L	229483	1	09/15/2016 21:34	NP
1,1-Dichloroethene	0.26		0.0036	0.050	mg/L	229483	10	09/16/2016 14:01	NP
1,2-Dichloroethane	BRL		0.00024	0.005	mg/L	229483	1	09/15/2016 21:34	NP
Acetone	BRL		0.0053	0.050	mg/L	229483	1	09/15/2016 21:34	NP
Chloroethane	BRL		0.00039	0.010	mg/L	229483	1	09/15/2016 21:34	NP
cis-1,2-Dichloroethene	0.002	J	0.00027	0.005	mg/L	229483	1	09/15/2016 21:34	NP
Cyclohexane	BRL		0.0016	0.005	mg/L	229483	1	09/15/2016 21:34	NP
Methylene chloride	0.002	J	0.00031	0.005	mg/L	229483	1	09/15/2016 21:34	NP
Tetrachloroethene	0.023		0.00029	0.005	mg/L	229483	1	09/15/2016 21:34	NP
trans-1,2-Dichloroethene	BRL		0.00022	0.005	mg/L	229483	1	09/15/2016 21:34	NP
Trichloroethene	0.002	J	0.00035	0.005	mg/L	229483	1	09/15/2016 21:34	NP
Vinyl chloride	BRL		0.00042	0.002	mg/L	229483	1	09/15/2016 21:34	NP
Surr: 4-Bromofluorobenzene	81.7		0	70.7-125	%REC	229483	1	09/15/2016 21:34	NP
Surr: 4-Bromofluorobenzene	82.9		0	70.7-125	%REC	229483	10	09/16/2016 14:01	NP
Surr: Dibromofluoromethane	111		0	82.2-120	%REC	229483	1	09/15/2016 21:34	NP
Surr: Dibromofluoromethane	97.9		0	82.2-120	%REC	229483	10	09/16/2016 14:01	NP
Surr: Toluene-d8	93.7		0	81.8-120	%REC	229483	1	09/15/2016 21:34	NP
Surr: Toluene-d8	91.9		0	81.8-120	%REC	229483	10	09/16/2016 14:01	NP
Sulfide by SW9030B/9034 (SW9030B)									
Sulfide	BRL		0.764	2.00	mg/L	229608	1	09/20/2016 08:00	BD
ION SCAN SW9056A									
Chloride	4.8		0.11	1.0	mg/L	R325452	1	09/14/2016 18:56	JW
Nitrate	0.86		0.024	0.25	mg/L	R325452	1	09/14/2016 18:56	JW
Sulfate	0.96	J	0.10	1.0	mg/L	R325452	1	09/14/2016 18:56	JW
GC Analysis of Gaseous Samples SOP-RSK 175 (RSK175)									
Ethane	BRL		0.0019	0.0090	mg/L	229481	1	09/16/2016 13:34	MD
Ethylene	BRL		0.0035	0.0070	mg/L	229481	1	09/16/2016 13:34	MD
Methane	0.0085		0.0012	0.0040	mg/L	229481	1	09/16/2016 13:34	MD
Alkalinity by SM2320B									
Alkalinity, Total (As CaCO3)	30.0		1.68	3.00	mg/L	R325741	1	09/21/2016 19:25	BD

Qualifiers: * Value exceeds maximum contaminant level
 BRL Not detected at MDL
 H Holding times for preparation or analysis exceeded
 N Analyte not NELAC certified
 B Analyte detected in the associated method blank
 NC Not confirmed

E Estimated value above quantitation range
 S Spike Recovery outside limits due to matrix
 J Estimated value detected below Reporting Limit
 > Greater than Result value
 < Less than Result value
 Narr See case narrative

Analytical Environmental Services, Inc.

Sample/Cooler Receipt Checklist

Client Earthscan

Work Order Number 1609A85

Checklist completed by *[Signature]* 9/14/10
Signature Date

Carrier name: FedEx ☐ UPS ☐ Courier ☒ Client ☐ US Mail ☐ Other ☐

Shipping container/cooler in good condition? Yes ☒ No ☐ Not Present ☐

Custody seals intact on shipping container/cooler? Yes ☐ No ☐ Not Present ☒

Custody seals intact on sample bottles? Yes ☐ No ☐ Not Present ☒

Container/Temp Blank temperature in compliance? ($0^{\circ} \leq 6^{\circ}\text{C}$) * Yes ☒ No ☐

Cooler #1 5.2 Cooler #2 ☐ Cooler #3 ☐ Cooler #4 ☐ Cooler #5 ☐ Cooler #6 ☐

Chain of custody present? Yes ☒ No ☐

Chain of custody signed when relinquished and received? Yes ☒ No ☐

Chain of custody agrees with sample labels? Yes ☒ No ☐

Samples in proper container/bottle? Yes ☒ No ☐

Sample containers intact? Yes ☒ No ☐

Sufficient sample volume for indicated test? Yes ☒ No ☐

All samples received within holding time? Yes ☒ No ☐

Was TAT marked on the COC? Yes ☒ No ☐

Proceed with Standard TAT as per project history? Yes ☐ No ☐ Not Applicable ☒

Water - VOA vials have zero headspace? No VOA vials submitted ☐ Yes ☒ No ☐

Water - pH acceptable upon receipt? Yes ☒ No ☐ Not Applicable ☐

Adjusted? ☐ Checked by CJ

Sample Condition: Good ☒ Other(Explain) ☐

(For diffusive samples or AIHA lead) Is a known blank included? Yes ☐ No ☒

See Case Narrative for resolution of the Non-Conformance.

* Samples do not have to comply with the given range for certain parameters.

\\Aes_server\\Sample Receipt\\My Documents\\COCs and pH Adjustment Sheet\\Sample_Cooler_Recipt_Checklist_Rev1.rtf

Client: EarthCon Consultants, Inc.
Project Name: Apollo Smyrna
Lab Order: 1609A85

Dates Report

Lab Sample ID	Client Sample ID	Collection Date	Matrix	Test Name	TCLP Date	Prep Date	Analysis Date
1609A85-001A	MW-6R	9/13/2016 9:50:00AM	Groundwater	TCL VOLATILE ORGANICS		9/15/2016 5:30:00 PM	09/15/2016
1609A85-001A	MW-6R	9/13/2016 9:50:00AM	Groundwater	TCL VOLATILE ORGANICS		9/15/2016 5:30:00 PM	09/16/2016
1609A85-001B	MW-6R	9/13/2016 9:50:00AM	Groundwater	GC Analysis of Gaseous Samples		9/16/2016 8:54:27 AM	09/16/2016
1609A85-001C	MW-6R	9/13/2016 9:50:00AM	Groundwater	Total Organic Carbon (TOC)			09/17/2016
1609A85-001D	MW-6R	9/13/2016 9:50:00AM	Groundwater	ION SCAN			09/14/2016
1609A85-001D	MW-6R	9/13/2016 9:50:00AM	Groundwater	Alkalinity by SM2320B			09/21/2016
1609A85-001E	MW-6R	9/13/2016 9:50:00AM	Groundwater	Sulfide by SW9030/9034		9/20/2016 8:00:00 AM	09/20/2016

Client: EarthCon Consultants, Inc.
Project Name: Apollo Smyrna
Workorder: 1609A85

ANALYTICAL QC SUMMARY REPORT**BatchID: 229481**

Sample ID: MB-229481	Client ID:	Units: mg/L				Prep Date: 09/16/2016	Run No: 325358				
SampleType: MBLK	TestCode: GC Analysis of Gaseous Samples	SOP-RSK 175				BatchID: 229481	Analysis Date: 09/16/2016	Seq No: 7043116			
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual

Ethane	BRL	0.0090									
Ethylene	BRL	0.0070									
Methane	BRL	0.0040									

Sample ID: LCS-229481	Client ID:					Units: mg/L	Prep Date: 09/16/2016	Run No: 325358			
SampleType: LCS	TestCode: GC Analysis of Gaseous Samples	SOP-RSK 175				BatchID: 229481	Analysis Date: 09/16/2016	Seq No: 7043117			
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual

Ethane	0.1171	0.0090	200.0		58.6	40.9	115				
Ethylene	0.07677	0.0070	200.0		38.4	26.8	115				
Methane	0.1215	0.0040	200.0		60.8	45.9	115				

Sample ID: LCSD-229481	Client ID:				Units: mg/L	Prep Date: 09/16/2016	Run No: 325358				
SampleType: LCSD	TestCode: GC Analysis of Gaseous Samples	SOP-RSK 175			BatchID: 229481	Analysis Date: 09/16/2016	Seq No: 7043118				
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual

Ethane	0.1141	0.0090	200.0		57.0	40.9	115	117.1	2.62	20	
Ethylene	0.07594	0.0070	200.0		38.0	26.8	115	76.77	1.09	20	
Methane	0.1182	0.0040	200.0		59.1	45.9	115	121.5	2.73	20	

Sample ID: 1609A85-001BMS	Client ID: MW-6R	Units: mg/L			Prep Date: 09/16/2016	Run No: 325358					
SampleType: MS	TestCode: GC Analysis of Gaseous Samples	SOP-RSK 175	BatchID: 229481		Analysis Date: 09/16/2016	Seq No: 7043200					
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual

Ethane	0.1265	0.0090	200.0		63.2	40.5	115				
Ethylene	0.08314	0.0070	200.0		41.6	23	115				
Methane	0.1319	0.0040	200.0	8.503	61.7	40	115				

Qualifiers:	> Greater than Result value	< Less than Result value	B Analyte detected in the associated method blank
	BRL Below reporting limit	E Estimated (value above quantitation range)	H Holding times for preparation or analysis exceeded
	J Estimated value detected below Reporting Limit	N Analyte not NELAC certified	R RPD outside limits due to matrix
	Rpt Lim Reporting Limit	S Spike Recovery outside limits due to matrix	

Client: EarthCon Consultants, Inc.
Project Name: Apollo Smyrna
Workorder: 1609A85

ANALYTICAL QC SUMMARY REPORT

BatchID: 229481

Sample ID: 1609A85-001BMSD	Client ID: MW-6R					Units: mg/L	Prep Date: 09/16/2016	Run No: 325358			
SampleType: MSD	TestCode: GC Analysis of Gaseous Samples	SOP-RSK 175				BatchID: 229481	Analysis Date: 09/16/2016	Seq No: 7043201			
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
Ethane	0.1297	0.0090	200.0		64.8	40.5	115	126.5	2.50	20	
Ethylene	0.08705	0.0070	200.0		43.5	23	115	83.14	4.60	20	
Methane	0.1357	0.0040	200.0	8.503	63.6	40	115	131.9	2.78	20	

Qualifiers:	>	Greater than Result value	<	Less than Result value	B	Analyte detected in the associated method blank
	BRL	Below reporting limit	E	Estimated (value above quantitation range)	H	Holding times for preparation or analysis exceeded
	J	Estimated value detected below Reporting Limit	N	Analyte not NELAC certified	R	RPD outside limits due to matrix
	Rpt Lim	Reporting Limit	S	Spike Recovery outside limits due to matrix		

Client: EarthCon Consultants, Inc.
 Project Name: Apollo Smyrna
 Workorder: 1609A85

ANALYTICAL QC SUMMARY REPORT

BatchID: 229483

Sample ID: MB-229483	Client ID:					Units: mg/L	Prep Date: 09/15/2016	Run No: 325204			
SampleType: MBLK	TestCode: TCL VOLATILE ORGANICS SW8260B					BatchID: 229483	Analysis Date: 09/15/2016	Seq No: 7041297			
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual

1,1,1-Trichloroethane	BRL	0.005									
1,1-Dichloroethane	BRL	0.005									
1,1-Dichloroethene	BRL	0.005									
1,2-Dichloroethane	BRL	0.005									
Acetone	BRL	0.050									
Chloroethane	BRL	0.010									
cis-1,2-Dichloroethene	BRL	0.005									
Cyclohexane	BRL	0.005									
Methylene chloride	BRL	0.005									
Tetrachloroethene	BRL	0.005									
trans-1,2-Dichloroethene	BRL	0.005									
Trichloroethene	BRL	0.005									
Vinyl chloride	BRL	0.002									
Surr: 4-Bromofluorobenzene	0.04866	0	50.00		97.3	70.7	125				
Surr: Dibromofluoromethane	0.04544	0	50.00		90.9	82.2	120				
Surr: Toluene-d8	0.04911	0	50.00		98.2	81.8	120				

Sample ID: LCS-229483	Client ID:					Units: mg/L	Prep Date: 09/15/2016	Run No: 325204			
SampleType: LCS	TestCode: TCL VOLATILE ORGANICS SW8260B					BatchID: 229483	Analysis Date: 09/15/2016	Seq No: 7041296			
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual

1,1-Dichloroethene	0.04744	0.005	50.00		94.9	65.3	137				
Trichloroethene	0.05362	0.005	50.00		107	73.1	128				
Surr: 4-Bromofluorobenzene	0.04903	0	50.00		98.1	70.7	125				
Surr: Dibromofluoromethane	0.04531	0	50.00		90.6	82.2	120				
Surr: Toluene-d8	0.04958	0	50.00		99.2	81.8	120				

Qualifiers:	>	Greater than Result value	<	Less than Result value	B	Analyte detected in the associated method blank
	BRL	Below reporting limit	E	Estimated (value above quantitation range)	H	Holding times for preparation or analysis exceeded
	J	Estimated value detected below Reporting Limit	N	Analyte not NELAC certified	R	RPD outside limits due to matrix
	Rpt Lim	Reporting Limit	S	Spike Recovery outside limits due to matrix		

Client: EarthCon Consultants, Inc.
Project Name: Apollo Smyrna
Workorder: 1609A85

ANALYTICAL QC SUMMARY REPORT

BatchID: 229483

Sample ID: 1609A84-007AMS	Client ID:					Units: mg/L	Prep Date: 09/15/2016	Run No: 325204			
SampleType: MS	TestCode: TCL VOLATILE ORGANICS SW8260B					BatchID: 229483	Analysis Date: 09/15/2016	Seq No: 7041310			
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual

1,1-Dichloroethene	1.066	0.050	500.0	528.7	107	60	150				
Trichloroethene	0.7185	0.050	500.0	126.0	118	70	136				
Surr: 4-Bromofluorobenzene	0.4915	0	500.0		98.3	70.7	125				
Surr: Dibromofluoromethane	0.4635	0	500.0		92.7	82.2	120				
Surr: Toluene-d8	0.5050	0	500.0		101	81.8	120				

Sample ID: 1609A84-007AMSD	Client ID:	Units: mg/L				Prep Date: 09/15/2016	Run No: 325204				
SampleType: MSD	TestCode: TCL VOLATILE ORGANICS SW8260B	BatchID: 229483				Analysis Date: 09/15/2016	Seq No: 7041311				
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual

1,1-Dichloroethene	1.017	0.050	500.0	528.7	97.6	60	150	1066	4.72	17.7	
Trichloroethene	0.6803	0.050	500.0	126.0	111	70	136	718.5	5.46	20	
Surr: 4-Bromofluorobenzene	0.4928	0	500.0		98.6	70.7	125	491.5	0	0	
Surr: Dibromofluoromethane	0.4468	0	500.0		89.4	82.2	120	463.5	0	0	
Surr: Toluene-d8	0.5051	0	500.0		101	81.8	120	505.0	0	0	

Qualifiers:	>	Greater than Result value	<	Less than Result value	B	Analyte detected in the associated method blank
	BRL	Below reporting limit	E	Estimated (value above quantitation range)	H	Holding times for preparation or analysis exceeded
	J	Estimated value detected below Reporting Limit	N	Analyte not NELAC certified	R	RPD outside limits due to matrix
	Rpt Lim	Reporting Limit	S	Spike Recovery outside limits due to matrix		

Client: EarthCon Consultants, Inc.
Project Name: Apollo Smyrna
Workorder: 1609A85

ANALYTICAL QC SUMMARY REPORT

BatchID: 229608

Sample ID: MB-229608		Client ID:			Units: mg/L		Prep Date: 09/19/2016		Run No: 325458		
SampleType: MBLK		TestCode: Sulfide by SW9030B/9034			BatchID: 229608		Analysis Date: 09/19/2016		Seq No: 7045439		
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual

Sulfide BRL 2.00

Sample ID: LCS-229608		Client ID:			Units: mg/L		Prep Date: 09/19/2016		Run No: 325458		
SampleType: LCS		TestCode: Sulfide by SW9030B/9034			BatchID: 229608		Analysis Date: 09/19/2016		Seq No: 7045440		
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual

Sulfide 368.0 2.00 368.0 100 40 120

Sample ID: 1609A03-001DMS	Client ID:	Units: mg/L	Prep Date: 09/19/2016	Run No: 325458							
SampleType: MS	TestCode: Sulfide by SW9030B/9034	BatchID: 229608	Analysis Date: 09/19/2016	Seq No: 7045461							
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual

Sulfide 34.40 2.00 36.80 2.000 88.0 61.2 120

Sample ID: 1609A03-001DMSD	Client ID:				Units: mg/L	Prep Date: 09/19/2016	Run No: 325458				
SampleType: MSD	TestCode: Sulfide by SW9030B/9034				BatchID: 229608	Analysis Date: 09/19/2016	Seq No: 7045466				
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual

Sulfide 33.20 2.00 36.80 2.000 84.8 61.2 120 34.40 3.55 20

Qualifiers:	> Greater than Result value	< Less than Result value	B Analyte detected in the associated method blank
	BRL Below reporting limit	E Estimated (value above quantitation range)	H Holding times for preparation or analysis exceeded
	J Estimated value detected below Reporting Limit	N Analyte not NELAC certified	R RPD outside limits due to matrix
	Rpt Lim Reporting Limit	S Spike Recovery outside limits due to matrix	

Client: EarthCon Consultants, Inc.
Project Name: Apollo Smyrna
Workorder: 1609A85

ANALYTICAL QC SUMMARY REPORT

BatchID: R325429

Sample ID: MB-R325429	Client ID:					Units: mg/L	Prep Date:		Run No: 325429		
SampleType: MBLK	TestCode: Total Organic Carbon (TOC)	SW9060A				BatchID: R325429	Analysis Date: 09/16/2016		Seq No: 7044754		
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual

Organic Carbon, Total BRL 1.00

Sample ID: LCS-R325429	Client ID:					Units: mg/L	Prep Date:		Run No: 325429		
SampleType: LCS	TestCode: Total Organic Carbon (TOC)	SW9060A				BatchID: R325429	Analysis Date: 09/16/2016		Seq No: 7044753		
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual

Organic Carbon, Total 23.06 1.00 25.00 92.2 90 110

Sample ID: 1609A03-001CMS	Client ID:					Units: mg/L	Prep Date:		Run No: 325429		
SampleType: MS	TestCode: Total Organic Carbon (TOC)	SW9060A				BatchID: R325429	Analysis Date: 09/16/2016		Seq No: 7044757		
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual

Organic Carbon, Total 23.63 1.00 25.00 94.5 80 120

Sample ID: 1609A03-001CMSD	Client ID:					Units: mg/L	Prep Date:		Run No: 325429		
SampleType: MSD	TestCode: Total Organic Carbon (TOC)	SW9060A				BatchID: R325429	Analysis Date: 09/16/2016		Seq No: 7044758		
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual

Organic Carbon, Total 24.29 1.00 25.00 97.2 80 120 23.63 2.75 20

Qualifiers:	> Greater than Result value	< Less than Result value	B Analyte detected in the associated method blank
	BRL Below reporting limit	E Estimated (value above quantitation range)	H Holding times for preparation or analysis exceeded
	J Estimated value detected below Reporting Limit	N Analyte not NELAC certified	R RPD outside limits due to matrix
	Rpt Lim Reporting Limit	S Spike Recovery outside limits due to matrix	

Client: EarthCon Consultants, Inc.
Project Name: Apollo Smyrna
Workorder: 1609A85

ANALYTICAL QC SUMMARY REPORT**BatchID: R325452**

Sample ID: MB-R325452	Client ID:				Units: mg/L	Prep Date:			Run No: 325452		
SampleType: MBLK	TestCode: ION SCAN	SW9056A			BatchID: R325452	Analysis Date: 09/14/2016			Seq No: 7045359		
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual

Chloride	0.1606	1.0									J
Nitrate	BRL	0.25									
Sulfate	BRL	1.0									

Sample ID: LCS-R325452		Client ID:			Units: mg/L		Prep Date:		Run No: 325452		
SampleType: LCS		TestCode: ION SCAN SW9056A			BatchID: R325452		Analysis Date: 09/14/2016		Seq No: 7045358		
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual

Chloride	9.947	1.0	10.00	0.1606	97.9	90	110				
Nitrate	4.727	0.25	5.000		94.5	90	110				
Sulfate	24.44	1.0	25.00		97.7	90	110				

Sample ID: 1609A56-002BMS	Client ID:	Units: mg/L	Prep Date:	Run No: 325452							
SampleType: MS	TestCode: ION SCAN SW9056A	BatchID: R325452	Analysis Date: 09/14/2016	Seq No: 7045362							
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual

Chloride	144.8	10	100.0	52.61	92.2	90	110				
Nitrate	57.05	2.5	50.00	11.13	91.8	90	110				
Sulfate	274.3	10	250.0	41.18	93.3	90	110				

Sample ID: 1609A57-002BMS	Client ID:	Units: mg/L	Prep Date:	Run No: 325452							
SampleType: MS	TestCode: ION SCAN SW9056A	BatchID: R325452	Analysis Date: 09/14/2016	Seq No: 7045366							
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual

Chloride	134.4	10	100.0	44.34	90.1	90	110				
Nitrate	54.30	2.5	50.00	7.422	93.7	90	110				
Sulfate	269.5	10	250.0	36.11	93.4	90	110				

Qualifiers:	>	Greater than Result value	<	Less than Result value	B	Analyte detected in the associated method blank
	BRL	Below reporting limit	E	Estimated (value above quantitation range)	H	Holding times for preparation or analysis exceeded
	J	Estimated value detected below Reporting Limit	N	Analyte not NELAC certified	R	RPD outside limits due to matrix
	Rpt Lim	Reporting Limit	S	Spike Recovery outside limits due to matrix		

Client: EarthCon Consultants, Inc.
Project Name: Apollo Smyrna
Workorder: 1609A85

ANALYTICAL QC SUMMARY REPORT

BatchID: R325452

Sample ID: 1609A56-002BMSD		Client ID:				Units: mg/L		Prep Date:		Run No: 325452	
SampleType: MSD		TestCode: ION SCAN SW9056A				BatchID: R325452		Analysis Date: 09/14/2016		Seq No: 7045363	
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
Chloride	145.8	10	100.0	52.61	93.2	90	110	144.8	0.669	20	
Nitrate	57.43	2.5	50.00	11.13	92.6	90	110	57.05	0.670	20	
Sulfate	274.9	10	250.0	41.18	93.5	90	110	274.3	0.204	20	

Qualifiers:	>	Greater than Result value	<	Less than Result value	B	Analyte detected in the associated method blank
	BRL	Below reporting limit	E	Estimated (value above quantitation range)	H	Holding times for preparation or analysis exceeded
	J	Estimated value detected below Reporting Limit	N	Analyte not NELAC certified	R	RPD outside limits due to matrix
	Rpt Lim	Reporting Limit	S	Spike Recovery outside limits due to matrix		

Client: EarthCon Consultants, Inc.
Project Name: Apollo Smyrna
Workorder: 1609A85

ANALYTICAL QC SUMMARY REPORT

BatchID: R325741

Sample ID: MB-R325741		Client ID:				Units: mg/L		Prep Date:		Run No: 325741	
SampleType: MBLK		TestCode: Alkalinity by SM2320B				BatchID: R325741		Analysis Date: 09/21/2016		Seq No: 7052885	
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
Alkalinity, Total (As CaCO3)		BRL	3.00								

Sample ID: LCS-R325741		Client ID:				Units: mg/L		Prep Date:		Run No: 325741	
SampleType: LCS		TestCode: Alkalinity by SM2320B				BatchID: R325741		Analysis Date: 09/21/2016		Seq No: 7052886	
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
Alkalinity, Total (As CaCO3)		127.0	3.00	125.0	102	75	125				

Sample ID: 1609A45-005ADUP		Client ID:				Units: mg/L		Prep Date:		Run No: 325741	
SampleType: DUP		TestCode: Alkalinity by SM2320B				BatchID: R325741		Analysis Date: 09/21/2016		Seq No: 7052901	
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
Alkalinity, Total (As CaCO3)		16.00	3.00					16.00	0	30	

Qualifiers:	>	Greater than Result value	<	Less than Result value	B	Analyte detected in the associated method blank
	BRL	Below reporting limit	E	Estimated (value above quantitation range)	H	Holding times for preparation or analysis exceeded
	J	Estimated value detected below Reporting Limit	N	Analyte not NELAC certified	R	RPD outside limits due to matrix
	Rpt Lim	Reporting Limit	S	Spike Recovery outside limits due to matrix		



ANALYTICAL ENVIRONMENTAL SERVICES, INC.

September 23, 2016

Samantha Woolf
EarthCon Consultants, Inc.
1880 West Oak Parkway
Marietta GA 30062

TEL: (770) 973-2100
FAX: (770) 973-7395

RE: Apollo Smyrna

Dear Samantha Woolf:

Order No: 1609D04

Analytical Environmental Services, Inc. received 5 samples on 9/15/2016 3:15:00 PM for the analyses presented in following report.

No problems were encountered during the analyses. Additionally, all results for the associated Quality Control samples were within EPA and/or AES established limits. Any discrepancies associated with the analyses contained herein will be noted and submitted in the form of a project Case Narrative.

AES's accreditations are as follows:

- NELAC/Florida State Laboratory ID E87582 for analysis of Non-Potable Water, Solid & Chemical Materials, and Drinking Water Microbiology, effective 07/01/16-06/30/17.
- NELAC/Louisiana Agency Interest No. 100818 for or analysis of Non-Potable Water and Solid & Chemical Materials, effective 07/01/16-06/30/17.
- NELAC/Texas Certificate No. T104704509-16-6 for or analysis of Non-Potable Water and Solid & Chemical Materials, effective 03/01/16-02/28/17.
- AIHA-LAP, LLC Laboratory ID: 100671 for Industrial Hygiene samples (Organics, Metals, PCM Asbestos, Gravimetric), Environmental Lead (Paint, Soil, Dust Wipes, Air), and Environmental Microbiology (Fungal) Direct Examination, effective until 09/01/17.

Chris Pafford
Project Manager



Work Order: 1609004

TEL.: (770) 457-8177 / TOLL-FREE (800) 972-4889 / FAX: (770) 457-8188

Date: 9/14/16 Page 1 of 1

COMPANY: Earshon Consultants						ADDRESS: 1880 West Oak Pkwy Bldg 100 Suite 106 Marietta, GA 30062						ANALYSIS REQUESTED														Visit our website www.aesatlanta.com to check on the status of your results, place bottle orders, etc.	
PHONE: 770-973-2100						FAX: 770-973-7395						VOCs GC Analysis TOC Ion Spec/Alkalinity Sulfide Cr+Mn+Pb															
SAMPLED BY: Keaton Henry/Rub Andrews						SIGNATURE: [Signature]																					
#	SAMPLE ID	SAMPLED		Grab	Composite	Matrix (See codes)	PRESERVATION (See codes)														REMARKS	No # of Containers					
		DATE	TIME				1st	1st	5:1	I	O																
1	MW-1	9/14/16	9:55	X		GW	2	2	1	1	1									7							
2	MW-4	9/14/16	12:30	X		GW	2	2	1	1	1									7							
3	MW-3	9/14/16	10:40	X		GW	2	2	1	1										7							
4	Field Dup	9/14/16	-	X		GW	2													2							
5	Trip Blank	9/14/16	-	X		W	2													2							
6																											
7																											
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14																											
RELINQUISHED BY		DATE/TIME		RECEIVED BY		DATE/TIME		PROJECT INFORMATION														RECEIPT					
1: Z-Y		9/14/16 13:56		Daniel Edwards		9/14/16 13:58		PROJECT NAME: Apollo Smyrna														Total # of Containers 25					
2: Daniel Edwards		9/15/16 12:45		LLH		9/15/16 12:45		PROJECT #: 02-20140341.16														Turnaround Time Request: ☒ Standard 5 Business Days ☐ 2 Business Day Rush ☐ Next Business Day Rush ☐ Same Day Rush (auth req.) ☐ Other _____					
3: LLH		9/15/16 3:15		Gina Ashley		9/15/16 3:15 p.m.		SITE ADDRESS:																			
SPECIAL INSTRUCTIONS/COMMENTS:				SHIPMENT METHOD		INVOICE TO:		SEND REPORT TO: Samantha Wolff														STATE PROGRAM (if any): _____ E-mail? Y/N; Fax? Y/N DATA PACKAGE: I II III IV					
				OUT / / VIA:		(IF DIFFERENT FROM ABOVE)																					
				IN / / VIA:				QUOTE #: _____ PO#: _____																			
				CLIENT FedEx UPS MAIL COURIER																							
				GREYHOUND OTHER _____																							
SAMPLES RECEIVED AFTER 3PM OR ON SATURDAY ARE CONSIDERED RECEIVED THE NEXT BUSINESS DAY. IF TURNAROUND TIME IS NOT INDICATED, AES WILL PROCEED WITH STANDARD TAT OF SAMPLES. SAMPLES ARE DISPOSED 30 DAYS AFTER REPORT COMPLETION UNLESS OTHER ARRANGEMENTS ARE MADE.																											

MATRIX CODES: A = Air GW = Groundwater SE = Sediment SO = Soil SW = Surface Water W = Water (Blanks) DW = Drinking Water (Blanks) O = Other (specify) WW = Waste Water
PRESERVATIVE CODES: H+I = Hydrochloric acid + ice I = Ice only N = Nitric acid S+I = Sulfuric acid + ice S/M+I = Sodium Bisulfate/Methanol + ice O = Other (specify) NA = None

White Copy - Original; Yellow Copy - Client

Client: EarthCon Consultants, Inc.
Project: Apollo Smyrna
Lab ID: 1609D04

Case Narrative

Volatile Organic Compounds Analysis by Method 8260B:

Due to sample matrix, sample 1609D04-002A required dilution during preparation and/or analysis resulting in elevated reporting limits.

1,1-Dichloroethene value for the QC sample 1609D04-002AMS/MSD is "E" qualified indicating estimated value over linear calibration range due to the level of target analyte present in the unspiked sample.

Analytical Environmental Services, Inc
Date: 23-Sep-16

Client: EarthCon Consultants, Inc.
Project Name: Apollo Smyrna
Lab ID: 1609D04-001

Client Sample ID: MW-1
Collection Date: 9/14/2016 9:55:00 AM
Matrix: Groundwater

Analyses	Result	Qual	MDL	Reporting Limit	Units	BatchID	DF	Date Analyzed	Analyst
Total Organic Carbon (TOC) SW9060A									
Organic Carbon, Total	15.2		0.337	1.00	mg/L	R325429	1	09/17/2016 01:08	JW
TCL VOLATILE ORGANICS SW8260B (SW5030B)									
1,1,1-Trichloroethane	0.013		0.00025	0.005	mg/L	229563	1	09/16/2016 18:23	BN
1,1-Dichloroethane	0.060		0.00025	0.005	mg/L	229563	1	09/16/2016 18:23	BN
1,1-Dichloroethene	BRL		0.00036	0.005	mg/L	229563	1	09/16/2016 18:23	BN
1,2-Dichloroethane	BRL		0.00024	0.005	mg/L	229563	1	09/16/2016 18:23	BN
Acetone	0.56		0.053	0.50	mg/L	229563	10	09/19/2016 13:48	BN
Chloroethane	BRL		0.00039	0.010	mg/L	229563	1	09/16/2016 18:23	BN
cis-1,2-Dichloroethene	0.049		0.00027	0.005	mg/L	229563	1	09/16/2016 18:23	BN
Cyclohexane	BRL		0.0016	0.005	mg/L	229563	1	09/16/2016 18:23	BN
Methylene chloride	BRL		0.00031	0.005	mg/L	229563	1	09/16/2016 18:23	BN
Tetrachloroethene	0.012		0.00029	0.005	mg/L	229563	1	09/16/2016 18:23	BN
trans-1,2-Dichloroethene	BRL		0.00022	0.005	mg/L	229563	1	09/16/2016 18:23	BN
Trichloroethene	0.004	J	0.00035	0.005	mg/L	229563	1	09/16/2016 18:23	BN
Vinyl chloride	0.032		0.00042	0.002	mg/L	229563	1	09/16/2016 18:23	BN
Surr: 4-Bromofluorobenzene	87.7		0	70.7-125	%REC	229563	1	09/16/2016 18:23	BN
Surr: 4-Bromofluorobenzene	88.5		0	70.7-125	%REC	229563	10	09/19/2016 13:48	BN
Surr: Dibromofluoromethane	114		0	82.2-120	%REC	229563	1	09/16/2016 18:23	BN
Surr: Dibromofluoromethane	120		0	82.2-120	%REC	229563	10	09/19/2016 13:48	BN
Surr: Toluene-d8	101		0	81.8-120	%REC	229563	1	09/16/2016 18:23	BN
Surr: Toluene-d8	103		0	81.8-120	%REC	229563	10	09/19/2016 13:48	BN
Sulfide by SW9030B/9034 (SW9030B)									
Sulfide	6.72		0.764	2.00	mg/L	229767	1	09/21/2016 09:00	BD
ION SCAN SW9056A									
Chloride	4.3		0.11	1.0	mg/L	R325760	1	09/15/2016 20:01	JC
Nitrate	BRL		0.024	0.25	mg/L	R325760	1	09/15/2016 20:01	JC
Sulfate	1.3		0.10	1.0	mg/L	R325760	1	09/15/2016 20:01	JC
GC Analysis of Gaseous Samples SOP-RSK 175 (RSK175)									
Ethane	0.015		0.0019	0.0090	mg/L	229481	1	09/16/2016 13:39	MD
Ethylene	0.018		0.0035	0.0070	mg/L	229481	1	09/16/2016 13:39	MD
Methane	0.084		0.0012	0.0040	mg/L	229481	1	09/16/2016 13:39	MD
Alkalinity by SM2320B									
Alkalinity, Total (As CaCO3)	141		1.68	3.00	mg/L	R325741	1	09/21/2016 19:25	BD

Qualifiers: * Value exceeds maximum contaminant level
 BRL Not detected at MDL
 H Holding times for preparation or analysis exceeded
 N Analyte not NELAC certified
 B Analyte detected in the associated method blank
 NC Not confirmed

E Estimated value above quantitation range
 S Spike Recovery outside limits due to matrix
 J Estimated value detected below Reporting Limit
 > Greater than Result value
 < Less than Result value
 Narr See case narrative

Analytical Environmental Services, Inc

Date: 23-Sep-16

Client: EarthCon Consultants, Inc.
 Project Name: Apollo Smyrna
 Lab ID: 1609D04-002

Client Sample ID: MW-4
 Collection Date: 9/14/2016 12:30:00 PM
 Matrix: Groundwater

Analyses	Result	Qual	MDL	Reporting Limit	Units	BatchID	DF	Date Analyzed	Analyst
Total Organic Carbon (TOC) SW9060A									
Organic Carbon, Total	0.789	J	0.337	1.00	mg/L	R325429	1	09/17/2016 01:29	JW
TCL VOLATILE ORGANICS SW8260B (SW5030B)									
1,1,1-Trichloroethane	1.4		0.025	0.50	mg/L	229563	100	09/16/2016 17:06	BN
1,1-Dichloroethane	BRL		0.025	0.50	mg/L	229563	100	09/16/2016 17:06	BN
1,1-Dichloroethene	18		0.18	2.5	mg/L	229563	500	09/19/2016 11:13	BN
1,2-Dichloroethane	BRL		0.024	0.50	mg/L	229563	100	09/16/2016 17:06	BN
Acetone	BRL		0.53	5.0	mg/L	229563	100	09/16/2016 17:06	BN
Chloroethane	BRL		0.039	1.0	mg/L	229563	100	09/16/2016 17:06	BN
cis-1,2-Dichloroethene	0.72		0.027	0.50	mg/L	229563	100	09/16/2016 17:06	BN
Cyclohexane	BRL		0.16	0.50	mg/L	229563	100	09/16/2016 17:06	BN
Methylene chloride	BRL		0.031	0.50	mg/L	229563	100	09/16/2016 17:06	BN
Tetrachloroethene	0.55		0.029	0.50	mg/L	229563	100	09/16/2016 17:06	BN
trans-1,2-Dichloroethene	BRL		0.022	0.50	mg/L	229563	100	09/16/2016 17:06	BN
Trichloroethene	0.29	J	0.035	0.50	mg/L	229563	100	09/16/2016 17:06	BN
Vinyl chloride	BRL		0.042	0.20	mg/L	229563	100	09/16/2016 17:06	BN
Surr: 4-Bromofluorobenzene	88.2		0	70.7-125	%REC	229563	500	09/19/2016 11:13	BN
Surr: 4-Bromofluorobenzene	87.3		0	70.7-125	%REC	229563	100	09/16/2016 17:06	BN
Surr: Dibromofluoromethane	110		0	82.2-120	%REC	229563	500	09/19/2016 11:13	BN
Surr: Dibromofluoromethane	113		0	82.2-120	%REC	229563	100	09/16/2016 17:06	BN
Surr: Toluene-d8	94.5		0	81.8-120	%REC	229563	500	09/19/2016 11:13	BN
Surr: Toluene-d8	98.6		0	81.8-120	%REC	229563	100	09/16/2016 17:06	BN
Sulfide by SW9030B/9034 (SW9030B)									
Sulfide	2.72		0.764	2.00	mg/L	229767	1	09/21/2016 09:00	BD
ION SCAN SW9056A									
Chloride	49		1.1	10	mg/L	R325760	10	09/16/2016 09:50	JC
Nitrate	BRL		0.024	0.25	mg/L	R325760	1	09/15/2016 20:15	JC
Sulfate	0.85	J	0.10	1.0	mg/L	R325760	1	09/15/2016 20:15	JC
GC Analysis of Gaseous Samples SOP-RSK 175 (RSK175)									
Ethane	BRL		0.0019	0.0090	mg/L	229481	1	09/16/2016 13:43	MD
Ethylene	0.0044	J	0.0035	0.0070	mg/L	229481	1	09/16/2016 13:43	MD
Methane	0.094		0.0012	0.0040	mg/L	229481	1	09/16/2016 13:43	MD
Alkalinity by SM2320B									
Alkalinity, Total (As CaCO3)	62.0		1.68	3.00	mg/L	R325741	1	09/21/2016 19:25	BD

Qualifiers:

- * Value exceeds maximum contaminant level
- BRL Not detected at MDL
- H Holding times for preparation or analysis exceeded
- N Analyte not NELAC certified
- B Analyte detected in the associated method blank
- NC Not confirmed

- E Estimated value above quantitation range
- S Spike Recovery outside limits due to matrix
- J Estimated value detected below Reporting Limit
- > Greater than Result value
- < Less than Result value
- Narr See case narrative

Analytical Environmental Services, Inc
Date: 23-Sep-16

Client: EarthCon Consultants, Inc.
Project Name: Apollo Smyrna
Lab ID: 1609D04-003

Client Sample ID: MW-3
Collection Date: 9/14/2016 10:40:00 AM
Matrix: Groundwater

Analyses	Result	Qual	MDL	Reporting Limit	Units	BatchID	DF	Date Analyzed	Analyst
Total Organic Carbon (TOC) SW9060A									
Organic Carbon, Total	11.6		0.337	1.00	mg/L	R325429	1	09/17/2016 01:51	JW
TCL VOLATILE ORGANICS SW8260B (SW5030B)									
1,1,1-Trichloroethane	0.099		0.00025	0.005	mg/L	229563	1	09/16/2016 16:08	BN
1,1-Dichloroethane	0.35		0.0025	0.050	mg/L	229563	10	09/16/2016 16:40	BN
1,1-Dichloroethene	0.079		0.00036	0.005	mg/L	229563	1	09/16/2016 16:08	BN
1,2-Dichloroethane	BRL		0.00024	0.005	mg/L	229563	1	09/16/2016 16:08	BN
Acetone	BRL		0.0053	0.050	mg/L	229563	1	09/16/2016 16:08	BN
Chloroethane	0.074		0.00039	0.010	mg/L	229563	1	09/16/2016 16:08	BN
cis-1,2-Dichloroethene	0.70		0.0027	0.050	mg/L	229563	10	09/16/2016 16:40	BN
Cyclohexane	BRL		0.0016	0.005	mg/L	229563	1	09/16/2016 16:08	BN
Methylene chloride	0.009		0.00031	0.005	mg/L	229563	1	09/16/2016 16:08	BN
Tetrachloroethene	BRL		0.00029	0.005	mg/L	229563	1	09/16/2016 16:08	BN
trans-1,2-Dichloroethene	BRL		0.00022	0.005	mg/L	229563	1	09/16/2016 16:08	BN
Trichloroethene	BRL		0.00035	0.005	mg/L	229563	1	09/16/2016 16:08	BN
Vinyl chloride	0.36		0.0042	0.020	mg/L	229563	10	09/16/2016 16:40	BN
Surr: 4-Bromofluorobenzene	96.8		0	70.7-125	%REC	229563	1	09/16/2016 16:08	BN
Surr: 4-Bromofluorobenzene	89.6		0	70.7-125	%REC	229563	10	09/16/2016 16:40	BN
Surr: Dibromofluoromethane	118		0	82.2-120	%REC	229563	1	09/16/2016 16:08	BN
Surr: Dibromofluoromethane	118		0	82.2-120	%REC	229563	10	09/16/2016 16:40	BN
Surr: Toluene-d8	103		0	81.8-120	%REC	229563	1	09/16/2016 16:08	BN
Surr: Toluene-d8	99.1		0	81.8-120	%REC	229563	10	09/16/2016 16:40	BN
Sulfide by SW9030B/9034 (SW9030B)									
Sulfide	2.32		0.764	2.00	mg/L	229767	1	09/21/2016 09:00	BD
ION SCAN SW9056A									
Chloride	4.2		0.11	1.0	mg/L	R325760	1	09/15/2016 20:59	JC
Nitrate	BRL		0.024	0.25	mg/L	R325760	1	09/15/2016 20:59	JC
Sulfate	1.2		0.10	1.0	mg/L	R325760	1	09/15/2016 20:59	JC
GC Analysis of Gaseous Samples SOP-RSK 175 (RSK175)									
Ethane	0.12		0.0019	0.0090	mg/L	229481	1	09/16/2016 15:24	MD
Ethylene	0.051		0.0035	0.0070	mg/L	229481	1	09/16/2016 15:24	MD
Methane	1.3		0.012	0.040	mg/L	229481	10	09/16/2016 15:59	MD
Alkalinity by SM2320B									
Alkalinity, Total (As CaCO3)	80.0		1.68	3.00	mg/L	R325741	1	09/21/2016 19:25	BD

Qualifiers:

- * Value exceeds maximum contaminant level
- BRL Not detected at MDL
- H Holding times for preparation or analysis exceeded
- N Analyte not NELAC certified
- B Analyte detected in the associated method blank
- NC Not confirmed

- E Estimated value above quantitation range
- S Spike Recovery outside limits due to matrix
- J Estimated value detected below Reporting Limit
- > Greater than Result value
- < Less than Result value
- Narr See case narrative

Analytical Environmental Services, Inc

Date: 23-Sep-16

Client: EarthCon Consultants, Inc.
 Project Name: Apollo Smyrna
 Lab ID: 1609D04-004

Client Sample ID: FIELD DUP
 Collection Date: 9/14/2016
 Matrix: Groundwater

Analyses	Result	Qual	MDL	Reporting Limit	Units	BatchID	DF	Date Analyzed	Analyst
TCL VOLATILE ORGANICS SW8260B				(SW5030B)					
1,1,1-Trichloroethane	0.015		0.00025	0.005	mg/L	229563	1	09/19/2016 13:23	BN
1,1-Dichloroethane	0.068		0.00025	0.005	mg/L	229563	1	09/19/2016 13:23	BN
1,1-Dichloroethene	BRL		0.00036	0.005	mg/L	229563	1	09/19/2016 13:23	BN
1,2-Dichloroethane	BRL		0.00024	0.005	mg/L	229563	1	09/19/2016 13:23	BN
Acetone	0.38		0.0053	0.050	mg/L	229563	1	09/19/2016 13:23	BN
Chloroethane	0.007	J	0.00039	0.010	mg/L	229563	1	09/19/2016 13:23	BN
cis-1,2-Dichloroethene	0.048		0.00027	0.005	mg/L	229563	1	09/19/2016 13:23	BN
Cyclohexane	BRL		0.0016	0.005	mg/L	229563	1	09/19/2016 13:23	BN
Methylene chloride	BRL		0.00031	0.005	mg/L	229563	1	09/19/2016 13:23	BN
Tetrachloroethene	0.006		0.00029	0.005	mg/L	229563	1	09/19/2016 13:23	BN
trans-1,2-Dichloroethene	BRL		0.00022	0.005	mg/L	229563	1	09/19/2016 13:23	BN
Trichloroethene	0.004	J	0.00035	0.005	mg/L	229563	1	09/19/2016 13:23	BN
Vinyl chloride	0.030		0.00042	0.002	mg/L	229563	1	09/19/2016 13:23	BN
Surr: 4-Bromofluorobenzene	90.8		0	70.7-125	%REC	229563	1	09/19/2016 13:23	BN
Surr: Dibromofluoromethane	119		0	82.2-120	%REC	229563	1	09/19/2016 13:23	BN
Surr: Toluene-d8	102		0	81.8-120	%REC	229563	1	09/19/2016 13:23	BN

Qualifiers:

- * Value exceeds maximum contaminant level
- BRL Not detected at MDL
- H Holding times for preparation or analysis exceeded
- N Analyte not NELAC certified
- B Analyte detected in the associated method blank
- NC Not confirmed

- E Estimated value above quantitation range
- S Spike Recovery outside limits due to matrix
- J Estimated value detected below Reporting Limit
- > Greater than Result value
- < Less than Result value
- Narr See case narrative

Analytical Environmental Services, Inc

Date: 23-Sep-16

Client: EarthCon Consultants, Inc.
 Project Name: Apollo Smyrna
 Lab ID: 1609D04-005

Client Sample ID: TRIP BLANK
 Collection Date: 9/14/2016
 Matrix: Aqueous

Analyses	Result	Qual	MDL	Reporting Limit	Units	BatchID	DF	Date Analyzed	Analyst
TCL VOLATILE ORGANICS SW8260B				(SW5030B)					
1,1,1-Trichloroethane	BRL		0.00025	0.005	mg/L	229563	1	09/16/2016 19:15	BN
1,1-Dichloroethane	BRL		0.00025	0.005	mg/L	229563	1	09/16/2016 19:15	BN
1,1-Dichloroethene	BRL		0.00036	0.005	mg/L	229563	1	09/16/2016 19:15	BN
1,2-Dichloroethane	BRL		0.00024	0.005	mg/L	229563	1	09/16/2016 19:15	BN
Acetone	BRL		0.0053	0.050	mg/L	229563	1	09/16/2016 19:15	BN
Chloroethane	BRL		0.00039	0.010	mg/L	229563	1	09/16/2016 19:15	BN
cis-1,2-Dichloroethene	BRL		0.00027	0.005	mg/L	229563	1	09/16/2016 19:15	BN
Cyclohexane	BRL		0.0016	0.005	mg/L	229563	1	09/16/2016 19:15	BN
Methylene chloride	BRL		0.00031	0.005	mg/L	229563	1	09/16/2016 19:15	BN
Tetrachloroethene	BRL		0.00029	0.005	mg/L	229563	1	09/16/2016 19:15	BN
trans-1,2-Dichloroethene	BRL		0.00022	0.005	mg/L	229563	1	09/16/2016 19:15	BN
Trichloroethene	BRL		0.00035	0.005	mg/L	229563	1	09/16/2016 19:15	BN
Vinyl chloride	BRL		0.00042	0.002	mg/L	229563	1	09/16/2016 19:15	BN
Surr: 4-Bromofluorobenzene	89		0	70.7-125	%REC	229563	1	09/16/2016 19:15	BN
Surr: Dibromofluoromethane	113		0	82.2-120	%REC	229563	1	09/16/2016 19:15	BN
Surr: Toluene-d8	96.4		0	81.8-120	%REC	229563	1	09/16/2016 19:15	BN

Qualifiers:

- * Value exceeds maximum contaminant level
- BRL Not detected at MDL
- H Holding times for preparation or analysis exceeded
- N Analyte not NELAC certified
- B Analyte detected in the associated method blank
- NC Not confirmed

- E Estimated value above quantitation range
- S Spike Recovery outside limits due to matrix
- J Estimated value detected below Reporting Limit
- > Greater than Result value
- < Less than Result value
- Narr See case narrative

Analytical Environmental Services, Inc.

Sample/Cooler Receipt Checklist

Client Earthcon

Work Order Number 1609D04

Checklist completed by Chris J. [Signature] 9/15/2014
Signature Date

Carrier name: FedEx ☐ UPS ☐ Courier ☒ Client ☐ US Mail ☐ Other ☐

Shipping container/cooler in good condition? Yes ☒ No ☐ Not Present ☐

Custody seals intact on shipping container/cooler? Yes ☐ No ☐ Not Present ☒

Custody seals intact on sample bottles? Yes ☐ No ☐ Not Present ☒

Container/Temp Blank temperature in compliance? ($0^{\circ} \leq 6^{\circ}C$) * Yes ☒ No ☐

Cooler #1 16°C Cooler #2 ☐ Cooler #3 ☐ Cooler #4 ☐ Cooler #5 ☐ Cooler #6 ☐

Chain of custody present? Yes ☒ No ☐

Chain of custody signed when relinquished and received? Yes ☒ No ☐

Chain of custody agrees with sample labels? Yes ☒ No ☐

Samples in proper container/bottle? Yes ☒ No ☐

Sample containers intact? Yes ☒ No ☐

Sufficient sample volume for indicated test? Yes ☒ No ☐

All samples received within holding time? Yes ☒ No ☐

Was TAT marked on the COC? Yes ☒ No ☐

Proceed with Standard TAT as per project history? Yes ☐ No ☐ Not Applicable ☒

Water - VOA vials have zero headspace? No VOA vials submitted ☐ Yes ☒ No ☐

Water - pH acceptable upon receipt? Yes ☒ No ☐ Not Applicable ☐

Adjusted? ☐ Checked by CJ

Sample Condition: Good ☒ Other(Explain) ☐

(For diffusive samples or AIHA lead) Is a known blank included? Yes ☐ No ☒

See Case Narrative for resolution of the Non-Conformance.

* Samples do not have to comply with the given range for certain parameters.

\\Aes_server\\Sample Receipt\\My Documents\\COCs and pH Adjustment Sheet\\Sample_Cooler_Recipt_Checklist_Rev1.rtf

Client: EarthCon Consultants, Inc.
Project Name: Apollo Smyrna
Lab Order: 1609D04

Dates Report

Lab Sample ID	Client Sample ID	Collection Date	Matrix	Test Name	TCLP Date	Prep Date	Analysis Date
1609D04-001A	MW-1	9/14/2016 9:55:00AM	Groundwater	TCL VOLATILE ORGANICS		9/16/2016 10:42:00 AM	09/16/2016
1609D04-001A	MW-1	9/14/2016 9:55:00AM	Groundwater	TCL VOLATILE ORGANICS		9/16/2016 10:42:00 AM	09/19/2016
1609D04-001B	MW-1	9/14/2016 9:55:00AM	Groundwater	GC Analysis of Gaseous Samples		9/16/2016 8:54:27 AM	09/16/2016
1609D04-001C	MW-1	9/14/2016 9:55:00AM	Groundwater	Total Organic Carbon (TOC)			09/17/2016
1609D04-001D	MW-1	9/14/2016 9:55:00AM	Groundwater	ION SCAN			09/15/2016
1609D04-001D	MW-1	9/14/2016 9:55:00AM	Groundwater	Alkalinity by SM2320B			09/21/2016
1609D04-001E	MW-1	9/14/2016 9:55:00AM	Groundwater	Sulfide by SW9030/9034		9/21/2016 9:00:00 AM	09/21/2016
1609D04-002A	MW-4	9/14/2016 12:30:00PM	Groundwater	TCL VOLATILE ORGANICS		9/16/2016 10:42:00 AM	09/16/2016
1609D04-002A	MW-4	9/14/2016 12:30:00PM	Groundwater	TCL VOLATILE ORGANICS		9/16/2016 10:42:00 AM	09/19/2016
1609D04-002B	MW-4	9/14/2016 12:30:00PM	Groundwater	GC Analysis of Gaseous Samples		9/16/2016 8:54:27 AM	09/16/2016
1609D04-002C	MW-4	9/14/2016 12:30:00PM	Groundwater	Total Organic Carbon (TOC)			09/17/2016
1609D04-002D	MW-4	9/14/2016 12:30:00PM	Groundwater	ION SCAN			09/15/2016
1609D04-002D	MW-4	9/14/2016 12:30:00PM	Groundwater	ION SCAN			09/16/2016
1609D04-002D	MW-4	9/14/2016 12:30:00PM	Groundwater	Alkalinity by SM2320B			09/21/2016
1609D04-002E	MW-4	9/14/2016 12:30:00PM	Groundwater	Sulfide by SW9030/9034		9/21/2016 9:00:00 AM	09/21/2016
1609D04-003A	MW-3	9/14/2016 10:40:00AM	Groundwater	TCL VOLATILE ORGANICS		9/16/2016 10:42:00 AM	09/16/2016
1609D04-003B	MW-3	9/14/2016 10:40:00AM	Groundwater	GC Analysis of Gaseous Samples		9/16/2016 8:54:27 AM	09/16/2016
1609D04-003C	MW-3	9/14/2016 10:40:00AM	Groundwater	Total Organic Carbon (TOC)			09/17/2016
1609D04-003D	MW-3	9/14/2016 10:40:00AM	Groundwater	ION SCAN			09/15/2016
1609D04-003D	MW-3	9/14/2016 10:40:00AM	Groundwater	Alkalinity by SM2320B			09/21/2016
1609D04-003E	MW-3	9/14/2016 10:40:00AM	Groundwater	Sulfide by SW9030/9034		9/21/2016 9:00:00 AM	09/21/2016
1609D04-004A	FIELD DUP	9/14/2016 12:00:00AM	Groundwater	TCL VOLATILE ORGANICS		9/16/2016 10:42:00 AM	09/19/2016
1609D04-005A	TRIP BLANK	9/14/2016 12:00:00AM	Aqueous	TCL VOLATILE ORGANICS		9/16/2016 10:42:00 AM	09/16/2016

Client: EarthCon Consultants, Inc.
 Project Name: Apollo Smyrna
 Workorder: 1609D04

ANALYTICAL QC SUMMARY REPORT

BatchID: 229481

Sample ID: MB-229481	Client ID:	Units: mg/L				Prep Date: 09/16/2016	Run No: 325358				
SampleType: MBLK	TestCode: GC Analysis of Gaseous Samples	SOP-RSK 175				BatchID: 229481	Analysis Date: 09/16/2016	Seq No: 7043116			
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual

Ethane	BRL	0.0090									
Ethylene	BRL	0.0070									
Methane	BRL	0.0040									

Sample ID: LCS-229481	Client ID:					Units: mg/L	Prep Date: 09/16/2016	Run No: 325358			
SampleType: LCS	TestCode: GC Analysis of Gaseous Samples	SOP-RSK 175				BatchID: 229481	Analysis Date: 09/16/2016	Seq No: 7043117			
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual

Ethane	0.1171	0.0090	200.0		58.6	40.9	115				
Ethylene	0.07677	0.0070	200.0		38.4	26.8	115				
Methane	0.1215	0.0040	200.0		60.8	45.9	115				

Sample ID: LCSD-229481	Client ID:				Units: mg/L	Prep Date: 09/16/2016	Run No: 325358				
SampleType: LCSD	TestCode: GC Analysis of Gaseous Samples	SOP-RSK 175			BatchID: 229481	Analysis Date: 09/16/2016	Seq No: 7043118				
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual

Ethane	0.1141	0.0090	200.0		57.0	40.9	115	117.1	2.62	20	
Ethylene	0.07594	0.0070	200.0		38.0	26.8	115	76.77	1.09	20	
Methane	0.1182	0.0040	200.0		59.1	45.9	115	121.5	2.73	20	

Sample ID: 1609A85-001BMS	Client ID:					Units: mg/L	Prep Date: 09/16/2016	Run No: 325358			
SampleType: MS	TestCode: GC Analysis of Gaseous Samples	SOP-RSK 175				BatchID: 229481	Analysis Date: 09/16/2016	Seq No: 7043200			
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual

Ethane	0.1265	0.0090	200.0		63.2	40.5	115				
Ethylene	0.08314	0.0070	200.0		41.6	23	115				
Methane	0.1319	0.0040	200.0	8.503	61.7	40	115				

Qualifiers:	>	Greater than Result value	<	Less than Result value	B	Analyte detected in the associated method blank
	BRL	Below reporting limit	E	Estimated (value above quantitation range)	H	Holding times for preparation or analysis exceeded
	J	Estimated value detected below Reporting Limit	N	Analyte not NELAC certified	R	RPD outside limits due to matrix
	Rpt Lim	Reporting Limit	S	Spike Recovery outside limits due to matrix		

Client: EarthCon Consultants, Inc.
Project Name: Apollo Smyrna
Workorder: 1609D04

ANALYTICAL QC SUMMARY REPORT

BatchID: 229481

Sample ID: 1609A85-001BMSD	Client ID:					Units: mg/L	Prep Date: 09/16/2016	Run No: 325358			
SampleType: MSD	TestCode: GC Analysis of Gaseous Samples	SOP-RSK 175				BatchID: 229481	Analysis Date: 09/16/2016	Seq No: 7043201			
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
Ethane	0.1297	0.0090	200.0		64.8	40.5	115	126.5	2.50	20	
Ethylene	0.08705	0.0070	200.0		43.5	23	115	83.14	4.60	20	
Methane	0.1357	0.0040	200.0	8.503	63.6	40	115	131.9	2.78	20	

Qualifiers:	>	Greater than Result value	<	Less than Result value	B	Analyte detected in the associated method blank
	BRL	Below reporting limit	E	Estimated (value above quantitation range)	H	Holding times for preparation or analysis exceeded
	J	Estimated value detected below Reporting Limit	N	Analyte not NELAC certified	R	RPD outside limits due to matrix
	Rpt Lim	Reporting Limit	S	Spike Recovery outside limits due to matrix		

Client: EarthCon Consultants, Inc.
 Project Name: Apollo Smyrna
 Workorder: 1609D04

ANALYTICAL QC SUMMARY REPORT

BatchID: 229563

Sample ID: MB-229563	Client ID:					Units: mg/L	Prep Date: 09/16/2016	Run No: 325389			
SampleType: MBLK	TestCode: TCL VOLATILE ORGANICS SW8260B					BatchID: 229563	Analysis Date: 09/16/2016	Seq No: 7043985			
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual

1,1,1-Trichloroethane	BRL	0.005									
1,1-Dichloroethane	BRL	0.005									
1,1-Dichloroethene	BRL	0.005									
1,2-Dichloroethane	BRL	0.005									
Acetone	BRL	0.050									
Chloroethane	BRL	0.010									
cis-1,2-Dichloroethene	BRL	0.005									
Cyclohexane	BRL	0.005									
Methylene chloride	BRL	0.005									
Tetrachloroethene	BRL	0.005									
trans-1,2-Dichloroethene	BRL	0.005									
Trichloroethene	BRL	0.005									
Vinyl chloride	BRL	0.002									
Surr: 4-Bromofluorobenzene	0.04417	0	50.00		88.3	70.7	125				
Surr: Dibromofluoromethane	0.05335	0	50.00		107	82.2	120				
Surr: Toluene-d8	0.04673	0	50.00		93.5	81.8	120				

Sample ID: LCS-229563	Client ID:					Units: mg/L	Prep Date: 09/16/2016	Run No: 325389			
SampleType: LCS	TestCode: TCL VOLATILE ORGANICS SW8260B					BatchID: 229563	Analysis Date: 09/16/2016	Seq No: 7043984			
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual

1,1-Dichloroethene	0.06075	0.005	50.00		122	65.3	137				
Trichloroethene	0.04730	0.005	50.00		94.6	73.1	128				
Surr: 4-Bromofluorobenzene	0.04586	0	50.00		91.7	70.7	125				
Surr: Dibromofluoromethane	0.05002	0	50.00		100	82.2	120				
Surr: Toluene-d8	0.04487	0	50.00		89.7	81.8	120				

Qualifiers:	>	Greater than Result value	<	Less than Result value	B	Analyte detected in the associated method blank
	BRL	Below reporting limit	E	Estimated (value above quantitation range)	H	Holding times for preparation or analysis exceeded
	J	Estimated value detected below Reporting Limit	N	Analyte not NELAC certified	R	RPD outside limits due to matrix
	Rpt Lim	Reporting Limit	S	Spike Recovery outside limits due to matrix		

Client: EarthCon Consultants, Inc.
Project Name: Apollo Smyrna
Workorder: 1609D04

ANALYTICAL QC SUMMARY REPORT

BatchID: 229563

Sample ID: 1609D04-002AMS	Client ID: MW-4	Units: mg/L	Prep Date: 09/16/2016	Run No: 325389							
SampleType: MS	TestCode: TCL VOLATILE ORGANICS SW8260B	BatchID: 229563	Analysis Date: 09/16/2016	Seq No: 7043999							
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual

1,1-Dichloroethene	25.64	0.50	5000	21470	83.2	60	150				E
Trichloroethene	4.820	0.50	5000	287.0	90.7	70	136				
Surr: 4-Bromofluorobenzene	4.492	0	5000		89.8	70.7	125				
Surr: Dibromofluoromethane	5.291	0	5000		106	82.2	120				
Surr: Toluene-d8	4.515	0	5000		90.3	81.8	120				

Sample ID: 1609D04-002AMSD	Client ID: MW-4	Units: mg/L				Prep Date: 09/16/2016	Run No: 325389				
SampleType: MSD	TestCode: TCL VOLATILE ORGANICS SW8260B	BatchID: 229563				Analysis Date: 09/16/2016	Seq No: 7044000				
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual

1,1-Dichloroethene	24.73	0.50	5000	21470	65.2	60	150	25640	3.59	17.7	E
Trichloroethene	4.769	0.50	5000	287.0	89.6	70	136	4820	1.06	20	
Surr: 4-Bromofluorobenzene	4.391	0	5000		87.8	70.7	125	4492	0	0	
Surr: Dibromofluoromethane	5.351	0	5000		107	82.2	120	5291	0	0	
Surr: Toluene-d8	4.658	0	5000		93.2	81.8	120	4515	0	0	

Qualifiers:	>	Greater than Result value	<	Less than Result value	B	Analyte detected in the associated method blank
	BRL	Below reporting limit	E	Estimated (value above quantitation range)	H	Holding times for preparation or analysis exceeded
	J	Estimated value detected below Reporting Limit	N	Analyte not NELAC certified	R	RPD outside limits due to matrix
	Rpt Lim	Reporting Limit	S	Spike Recovery outside limits due to matrix		

Client: EarthCon Consultants, Inc.
Project Name: Apollo Smyrna
Workorder: 1609D04

ANALYTICAL QC SUMMARY REPORT

BatchID: 229767

Sample ID: MB-229767	Client ID:	Units: mg/L				Prep Date: 09/21/2016	Run No: 325723				
SampleType: MBLK	TestCode: Sulfide by SW9030B/9034	BatchID: 229767				Analysis Date: 09/21/2016	Seq No: 7052285				
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual

Sulfide BRL 2.00

Sample ID: LCS-229767	Client ID:					Units: mg/L	Prep Date: 09/21/2016	Run No: 325723			
SampleType: LCS	TestCode: Sulfide by SW9030B/9034					BatchID: 229767	Analysis Date: 09/21/2016	Seq No: 7052286			
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual

Sulfide 339.2 2.00 339.2 100 40 120

Sample ID: 1609D04-001EMS	Client ID: MW-1	Units: mg/L	Prep Date: 09/21/2016	Run No: 325723							
SampleType: MS	TestCode: Sulfide by SW9030B/9034	BatchID: 229767	Analysis Date: 09/21/2016	Seq No: 7052336							
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual

Sulfide 39.12 2.00 33.92 6.720 95.5 61.2 120

Sample ID: 1609D04-001EMSD	Client ID: MW-1	Units: mg/L	Prep Date: 09/21/2016	Run No: 325723							
SampleType: MSD	TestCode: Sulfide by SW9030B/9034	BatchID: 229767	Analysis Date: 09/21/2016	Seq No: 7052402							
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual

Sulfide 37.12 2.00 33.92 6.720 89.6 61.2 120 39.12 5.25 20

Qualifiers:	> Greater than Result value	< Less than Result value	B Analyte detected in the associated method blank
	BRL Below reporting limit	E Estimated (value above quantitation range)	H Holding times for preparation or analysis exceeded
	J Estimated value detected below Reporting Limit	N Analyte not NELAC certified	R RPD outside limits due to matrix
	Rpt Lim Reporting Limit	S Spike Recovery outside limits due to matrix	

Client: EarthCon Consultants, Inc.
Project Name: Apollo Smyrna
Workorder: 1609D04

ANALYTICAL QC SUMMARY REPORT

BatchID: R325429

Sample ID: MB-R325429	Client ID:					Units: mg/L	Prep Date:		Run No: 325429		
SampleType: MBLK	TestCode: Total Organic Carbon (TOC)	SW9060A				BatchID: R325429	Analysis Date: 09/16/2016		Seq No: 7044754		
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual

Organic Carbon, Total BRL 1.00

Sample ID: LCS-R325429	Client ID:					Units: mg/L	Prep Date:			Run No: 325429	
SampleType: LCS	TestCode: Total Organic Carbon (TOC)	SW9060A				BatchID: R325429	Analysis Date: 09/16/2016			Seq No: 7044753	
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual

Organic Carbon, Total 23.06 1.00 25.00 92.2 90 110

Sample ID: 1609A03-001CMS	Client ID:					Units: mg/L	Prep Date:			Run No: 325429	
SampleType: MS	TestCode: Total Organic Carbon (TOC)	SW9060A				BatchID: R325429	Analysis Date: 09/16/2016			Seq No: 7044757	
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual

Organic Carbon, Total 23.63 1.00 25.00 94.5 80 120

Sample ID: 1609A03-001CMSD	Client ID:					Units: mg/L	Prep Date:		Run No: 325429		
SampleType: MSD	TestCode: Total Organic Carbon (TOC) SW9060A					BatchID: R325429	Analysis Date: 09/16/2016		Seq No: 7044758		
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual

Organic Carbon, Total 24.29 1.00 25.00 97.2 80 120 23.63 2.75 20

Qualifiers:	>	Greater than Result value	<	Less than Result value	B	Analyte detected in the associated method blank
	BRL	Below reporting limit	E	Estimated (value above quantitation range)	H	Holding times for preparation or analysis exceeded
	J	Estimated value detected below Reporting Limit	N	Analyte not NELAC certified	R	RPD outside limits due to matrix
	Rpt Lim	Reporting Limit	S	Spike Recovery outside limits due to matrix		

Client: EarthCon Consultants, Inc.
Project Name: Apollo Smyrna
Workorder: 1609D04

ANALYTICAL QC SUMMARY REPORT

BatchID: R325741

Sample ID: MB-R325741		Client ID:				Units: mg/L		Prep Date:		Run No: 325741	
SampleType: MBLK		TestCode: Alkalinity by SM2320B				BatchID: R325741		Analysis Date: 09/21/2016		Seq No: 7052885	
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
Alkalinity, Total (As CaCO3)		BRL	3.00								

Sample ID: LCS-R325741		Client ID:				Units: mg/L		Prep Date:		Run No: 325741	
SampleType: LCS		TestCode: Alkalinity by SM2320B				BatchID: R325741		Analysis Date: 09/21/2016		Seq No: 7052886	
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
Alkalinity, Total (As CaCO3)		127.0	3.00	125.0	102	75	125				

Sample ID: 1609A45-005ADUP		Client ID:				Units: mg/L		Prep Date:		Run No: 325741	
SampleType: DUP		TestCode: Alkalinity by SM2320B				BatchID: R325741		Analysis Date: 09/21/2016		Seq No: 7052901	
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
Alkalinity, Total (As CaCO3)		16.00	3.00					16.00	0	30	

Qualifiers:	>	Greater than Result value	<	Less than Result value	B	Analyte detected in the associated method blank
	BRL	Below reporting limit	E	Estimated (value above quantitation range)	H	Holding times for preparation or analysis exceeded
	J	Estimated value detected below Reporting Limit	N	Analyte not NELAC certified	R	RPD outside limits due to matrix
	Rpt Lim	Reporting Limit	S	Spike Recovery outside limits due to matrix		

Client: EarthCon Consultants, Inc.
Project Name: Apollo Smyrna
Workorder: 1609D04

ANALYTICAL QC SUMMARY REPORT**BatchID: R325760**

Sample ID: MB-R325760	Client ID:					Units: mg/L	Prep Date:	Run No: 325760			
SampleType: MBLK	TestCode: ION SCAN SW9056A					BatchID: R325760	Analysis Date: 09/15/2016	Seq No: 7053234			
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual

Chloride	0.1231	1.0									J
Nitrate	BRL	0.25									
Sulfate	BRL	1.0									

Sample ID: LCS-R325760	Client ID:				Units: mg/L	Prep Date:			Run No: 325760		
SampleType: LCS	TestCode: ION SCAN SW9056A				BatchID: R325760	Analysis Date: 09/15/2016			Seq No: 7053232		
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual

Chloride	9.432	1.0	10.00	0.1231	93.1	90	110				
Nitrate	4.696	0.25	5.000		93.9	90	110				
Sulfate	24.15	1.0	25.00		96.6	90	110				

Sample ID: 1609D01-009AMS	Client ID:				Units: mg/L	Prep Date:			Run No: 325760		
SampleType: MS	TestCode: ION SCAN	SW9056A			BatchID: R325760	Analysis Date: 09/15/2016			Seq No: 7053259		
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual

Chloride	11.71	1.0	10.00	2.580	91.4	90	110				
Nitrate	4.722	0.25	5.000		94.4	90	110				
Sulfate	24.57	1.0	25.00	0.2246	97.4	90	110				

Sample ID: 1609D04-002DMS	Client ID: MW-4				Units: mg/L	Prep Date:			Run No: 325760		
SampleType: MS	TestCode: ION SCAN SW9056A				BatchID: R325760	Analysis Date: 09/16/2016			Seq No: 7053290		
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual

Chloride	144.8	10	100.0	48.62	96.2	90	110				
Nitrate	45.28	2.5	50.00		90.6	90	110				
Sulfate	240.6	10	250.0	1.813	95.5	90	110				

Qualifiers:	>	Greater than Result value	<	Less than Result value	B	Analyte detected in the associated method blank
	BRL	Below reporting limit	E	Estimated (value above quantitation range)	H	Holding times for preparation or analysis exceeded
	J	Estimated value detected below Reporting Limit	N	Analyte not NELAC certified	R	RPD outside limits due to matrix
	Rpt Lim	Reporting Limit	S	Spike Recovery outside limits due to matrix		

Client: EarthCon Consultants, Inc.
Project Name: Apollo Smyrna
Workorder: 1609D04

ANALYTICAL QC SUMMARY REPORT

BatchID: R325760

Sample ID: 1609D04-002DMSD		Client ID: MW-4				Units: mg/L		Prep Date:		Run No: 325760	
SampleType: MSD		TestCode: ION SCAN SW9056A				BatchID: R325760		Analysis Date: 09/16/2016		Seq No: 7053291	
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
Chloride	145.4	10	100.0	48.62	96.8	90	110	144.8	0.408	20	
Nitrate	45.35	2.5	50.00		90.7	90	110	45.28	0.154	20	
Sulfate	240.8	10	250.0	1.813	95.6	90	110	240.6	0.101	20	

Qualifiers:	>	Greater than Result value	<	Less than Result value	B	Analyte detected in the associated method blank
	BRL	Below reporting limit	E	Estimated (value above quantitation range)	H	Holding times for preparation or analysis exceeded
	J	Estimated value detected below Reporting Limit	N	Analyte not NELAC certified	R	RPD outside limits due to matrix
	Rpt Lim	Reporting Limit	S	Spike Recovery outside limits due to matrix		

APPENDIX E

GROUNDWATER TREND GRAPHS AND HISTORICAL DATA SUMMARY

Figure E1A. Apollo Plume Area Monitoring Wells - Tetrachloroethene

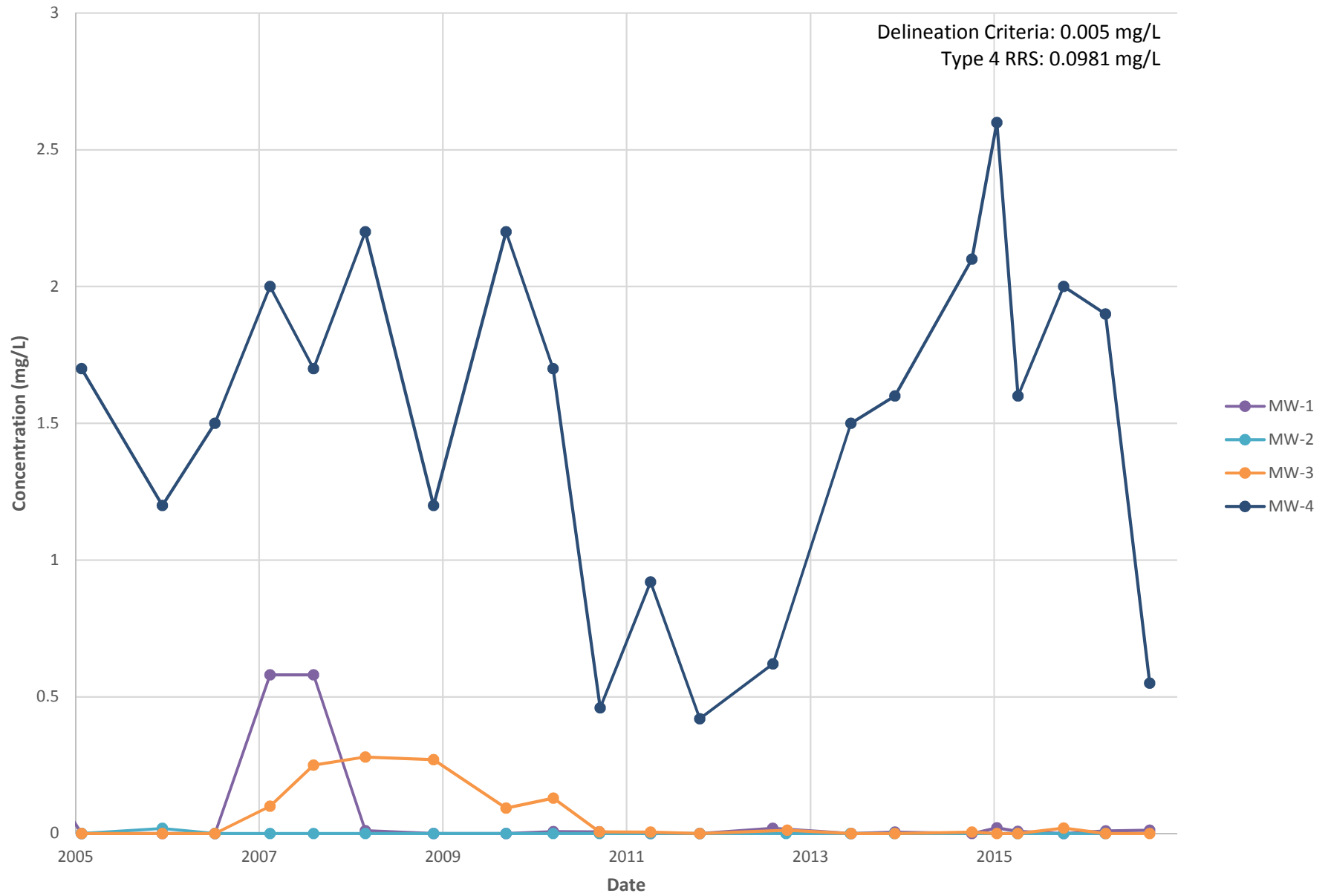


Figure E2A. Apollo Plume Area Monitoring Wells - Trichloroethene

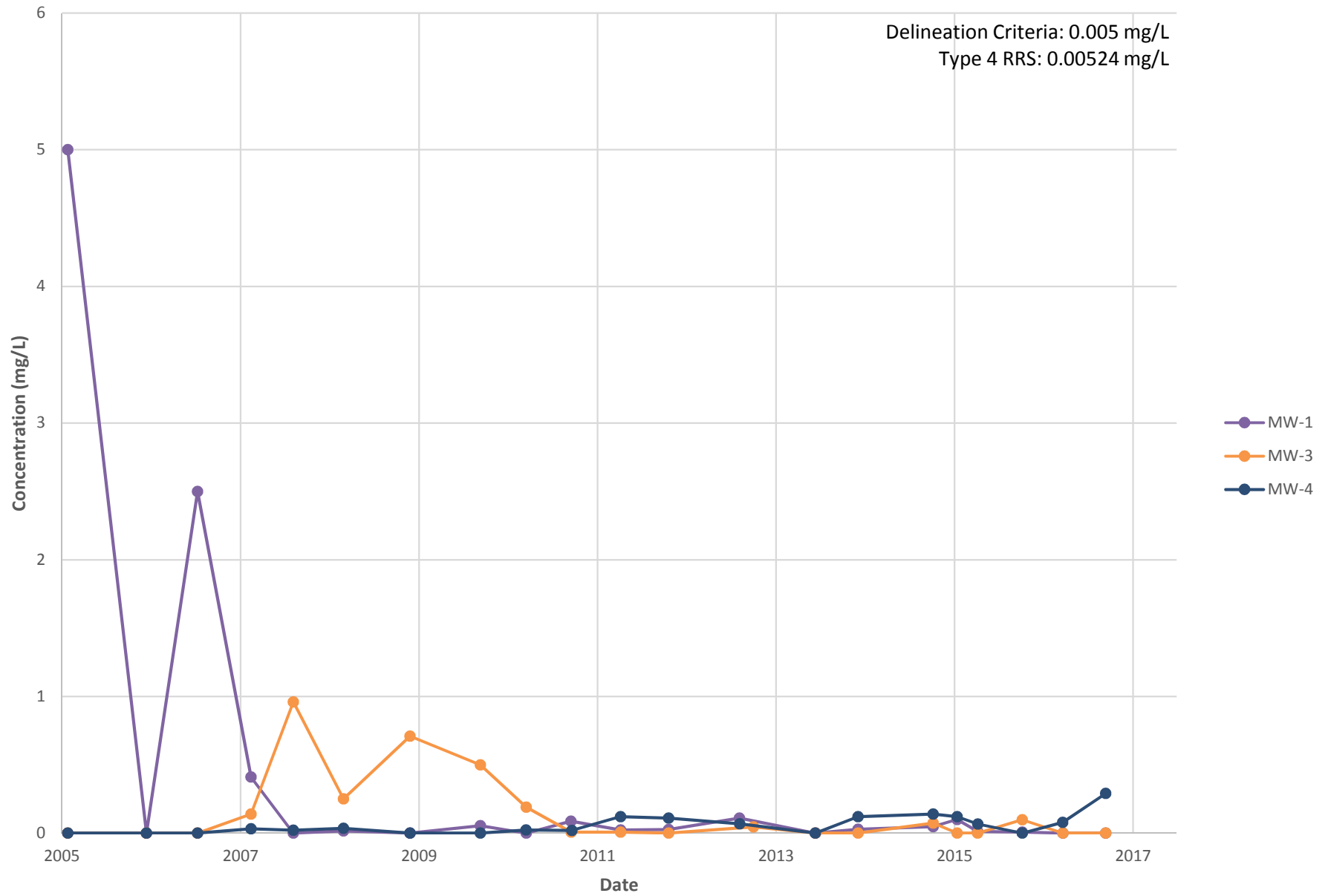


Figure E3A. Apollo Plume Area Monitoring Wells - 1,1-Dichloroethene

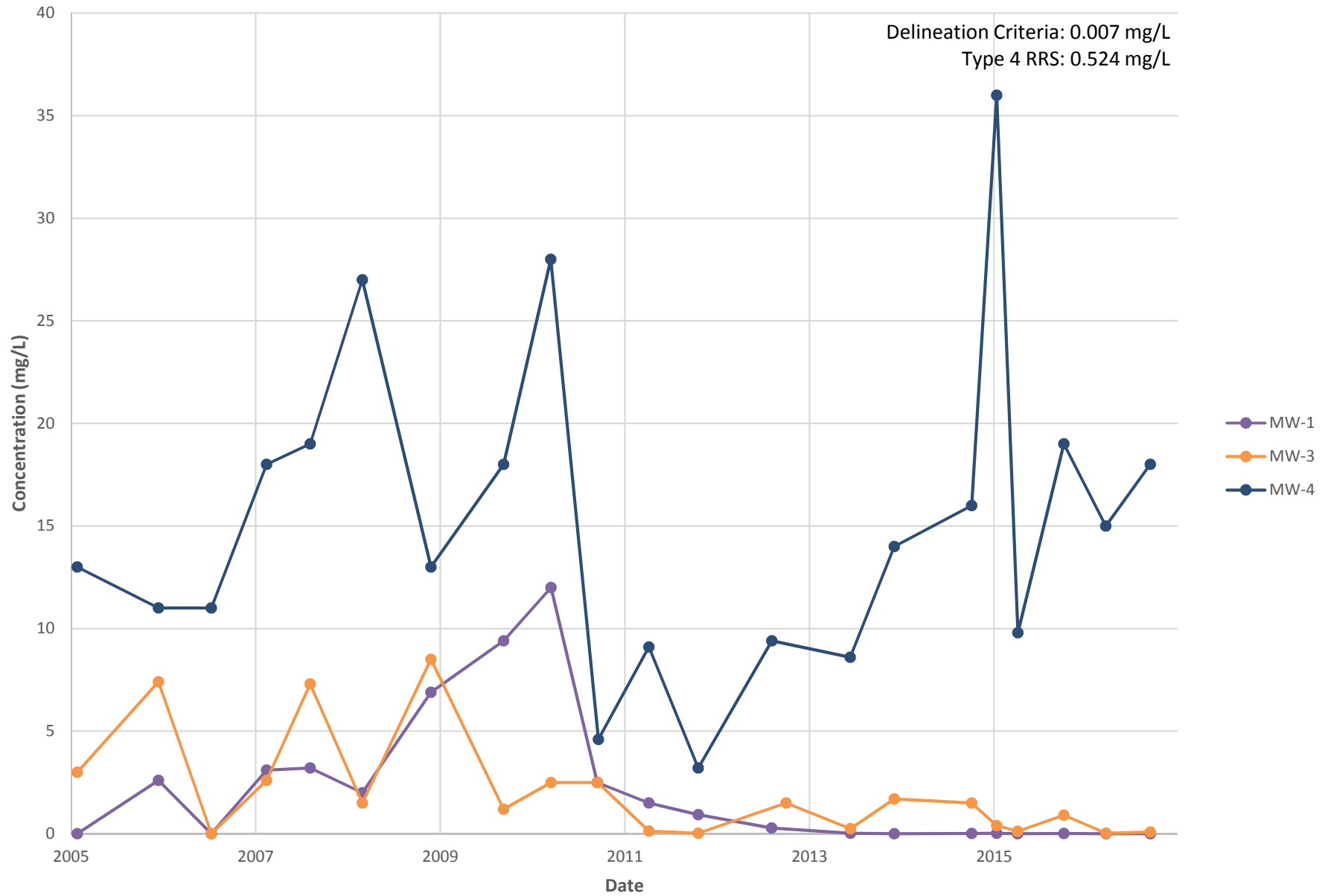


Figure E4A. Apollo Plume Area Monitoring Wells - cis-1,2-Dichloroethene

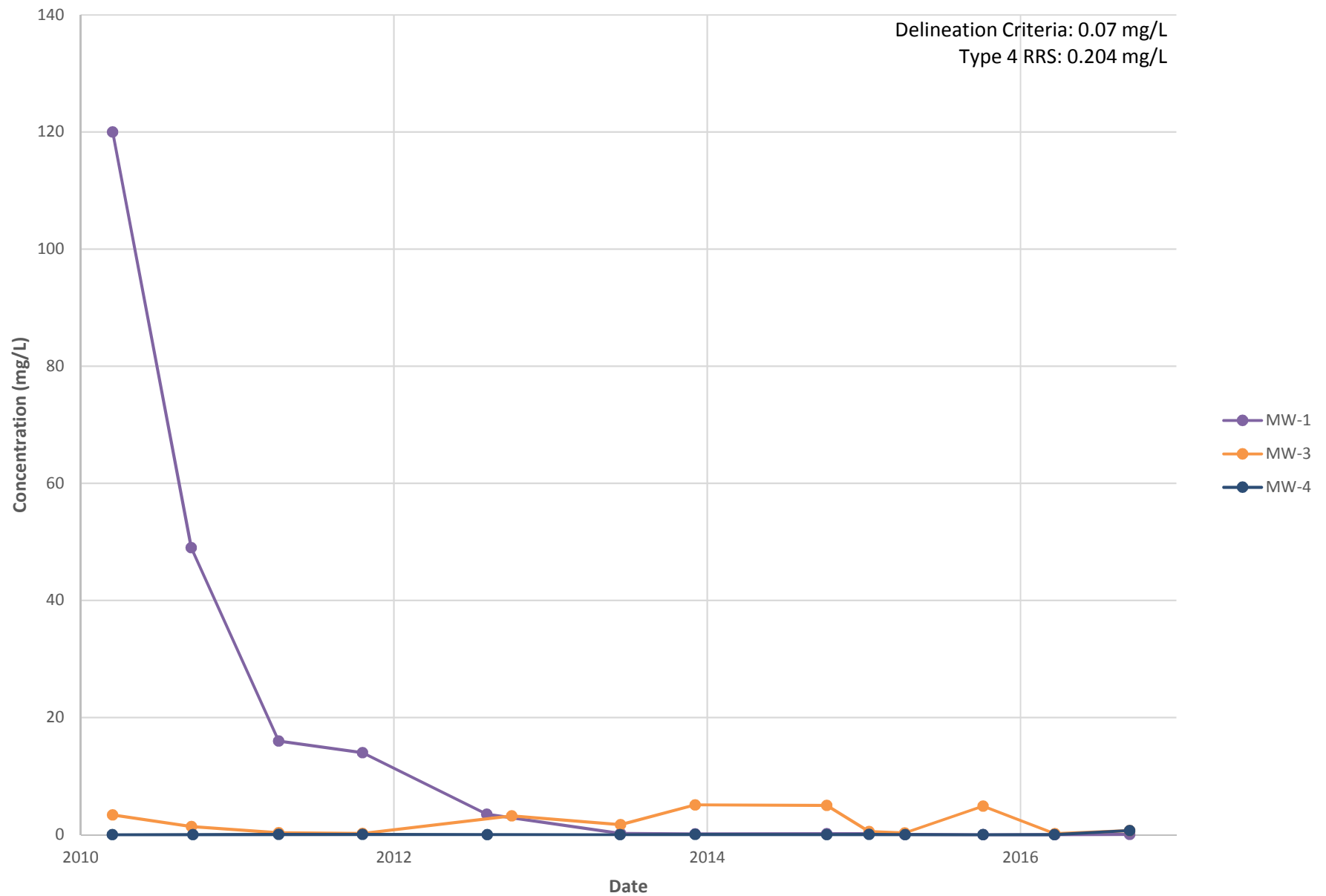


Figure E5A. Apollo Plume Area Monitoring Wells - Vinyl Chloride

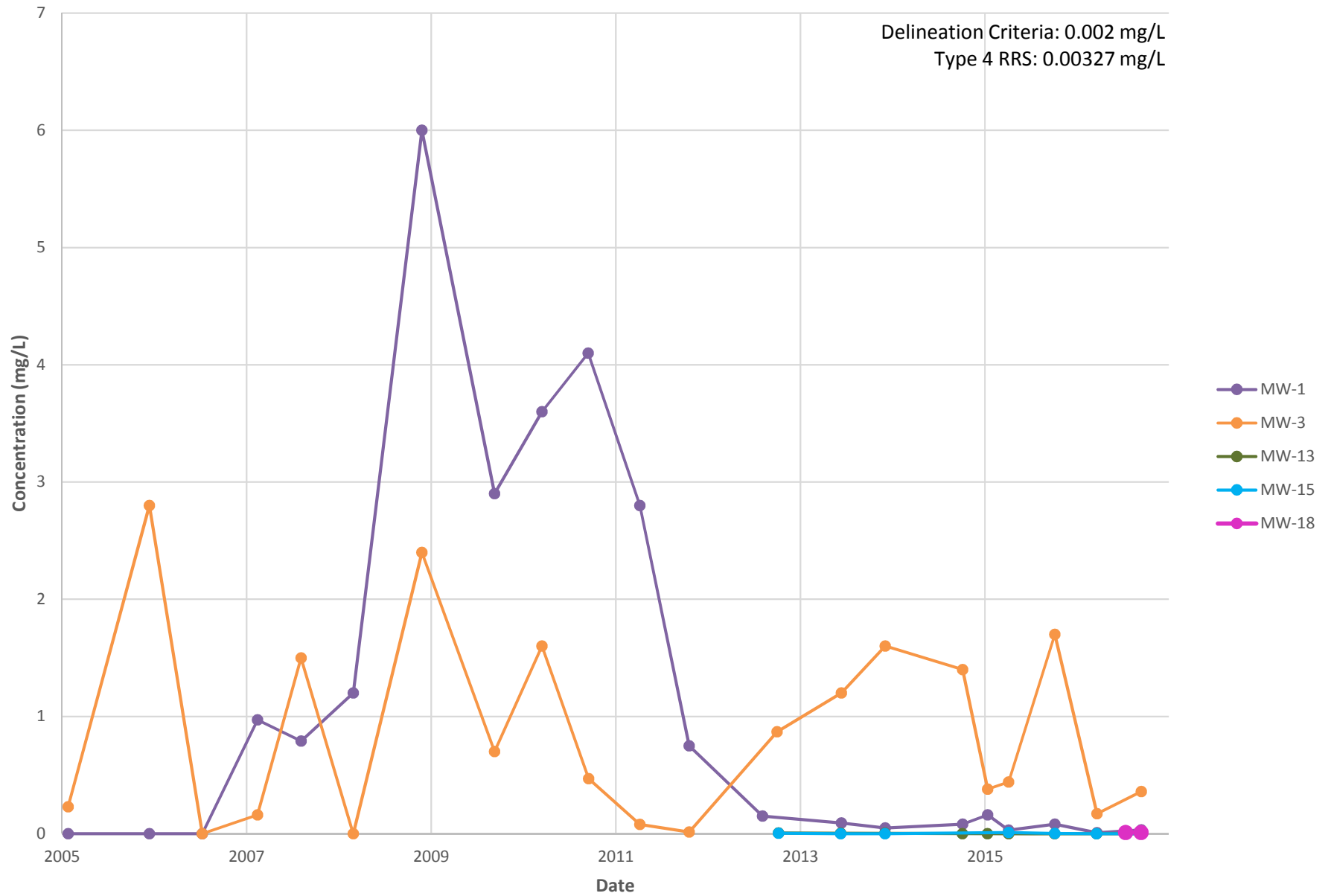


Figure E6A. Apollo Plume Area Monitoring Wells - 1,1,1-Trichloroethane

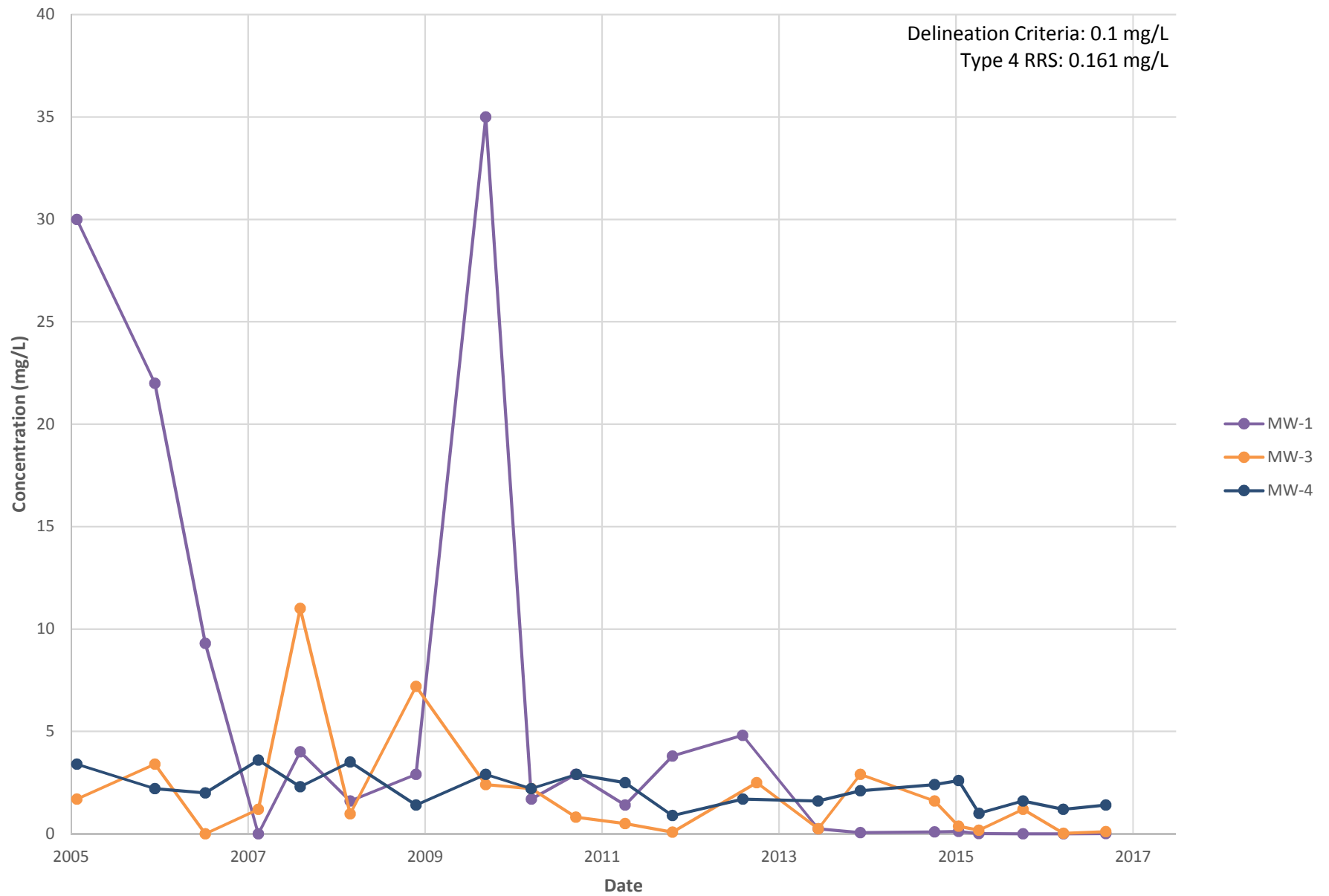


Figure E1B. Offsite/Upgradient Source Area Monitoring Wells - Tetrachloroethene

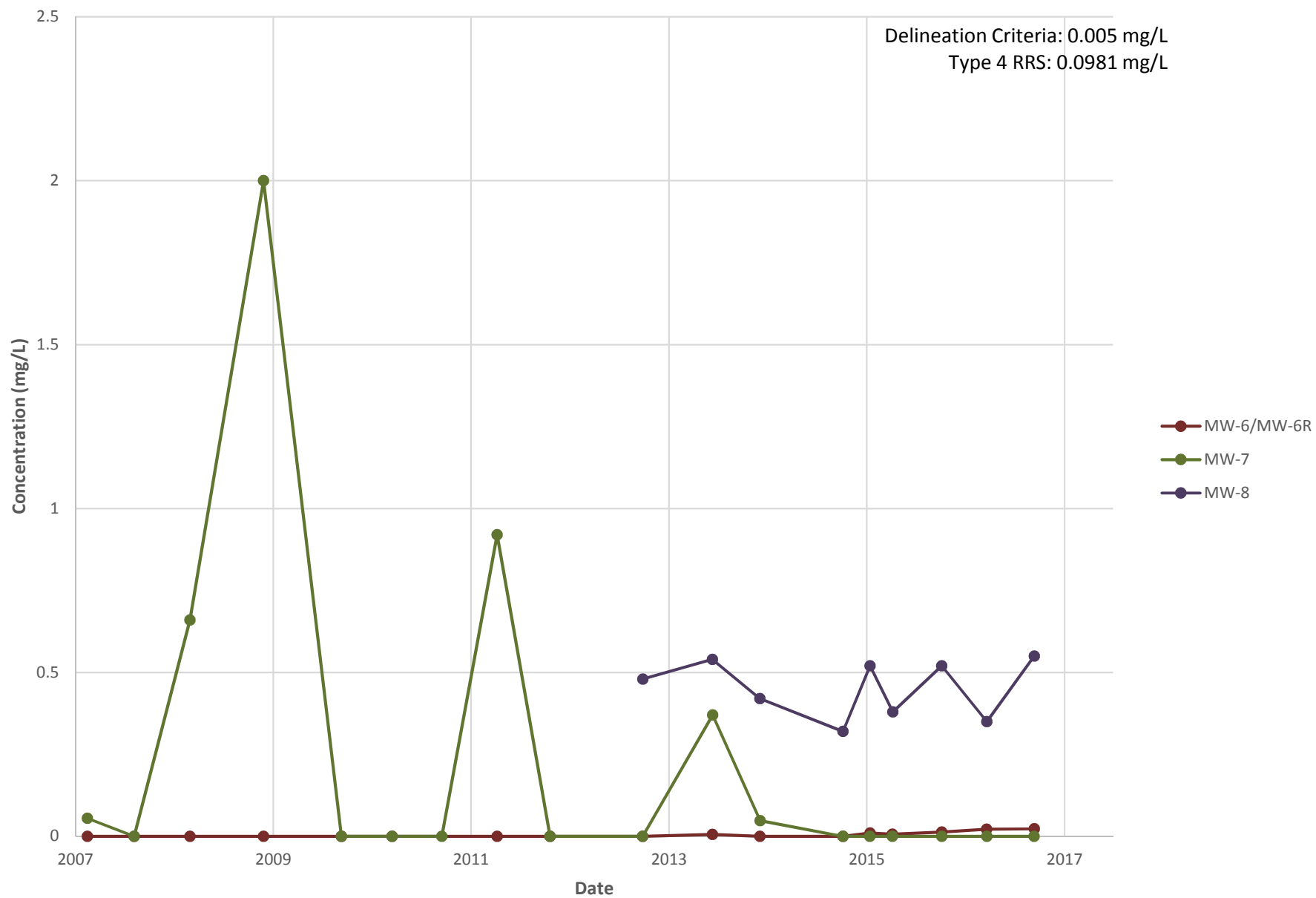


Figure E2B. Offsite/Upgradient Source Area Monitoring Wells - Trichloroethene

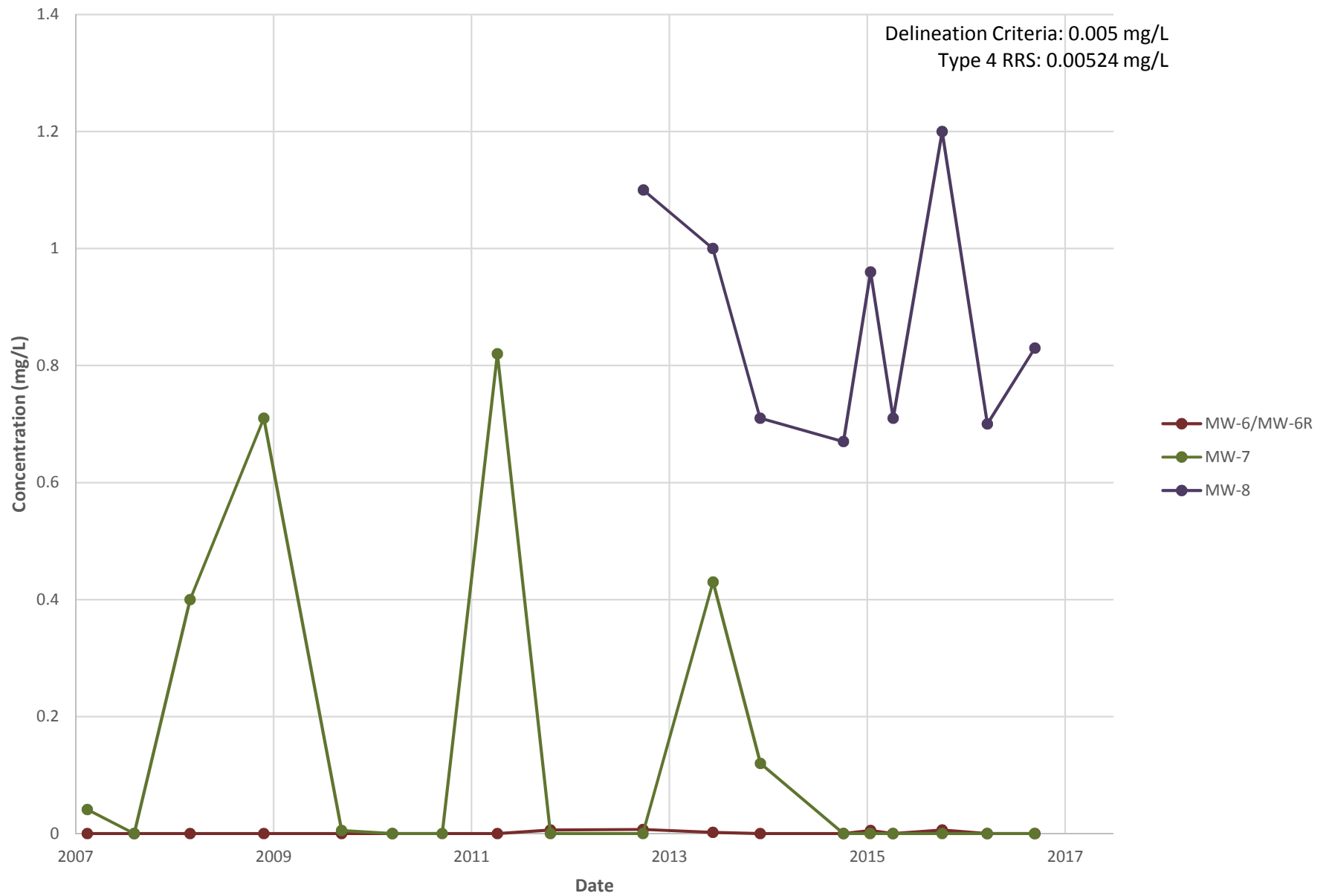


Figure E3B. Offsite/Upgradient Source Area Monitoring Wells - 1,1-Dichloroethene

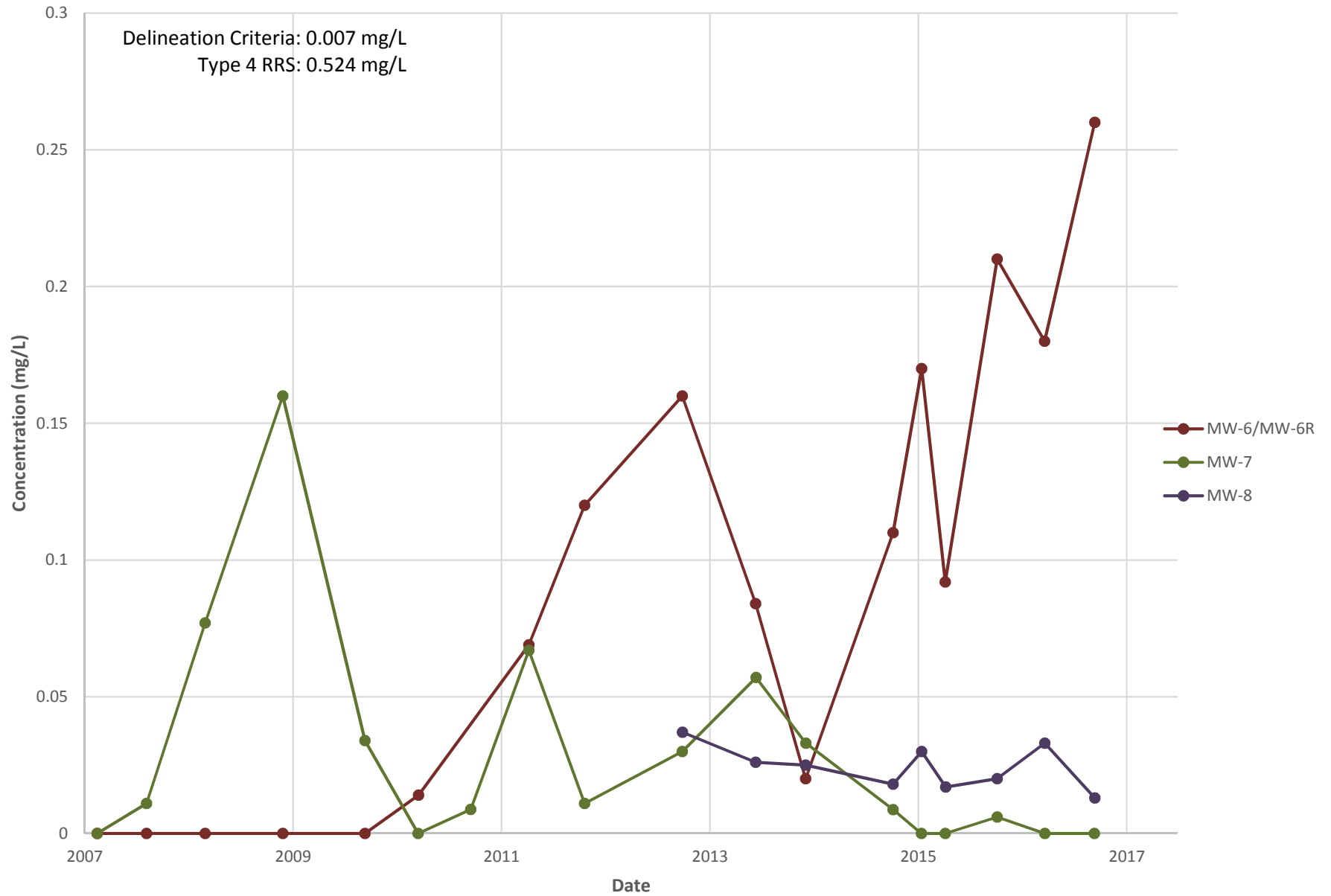


Figure E4B. Offsite/Upgradient Source Area Monitoring Wells - cis-1,2-Dichloroethene

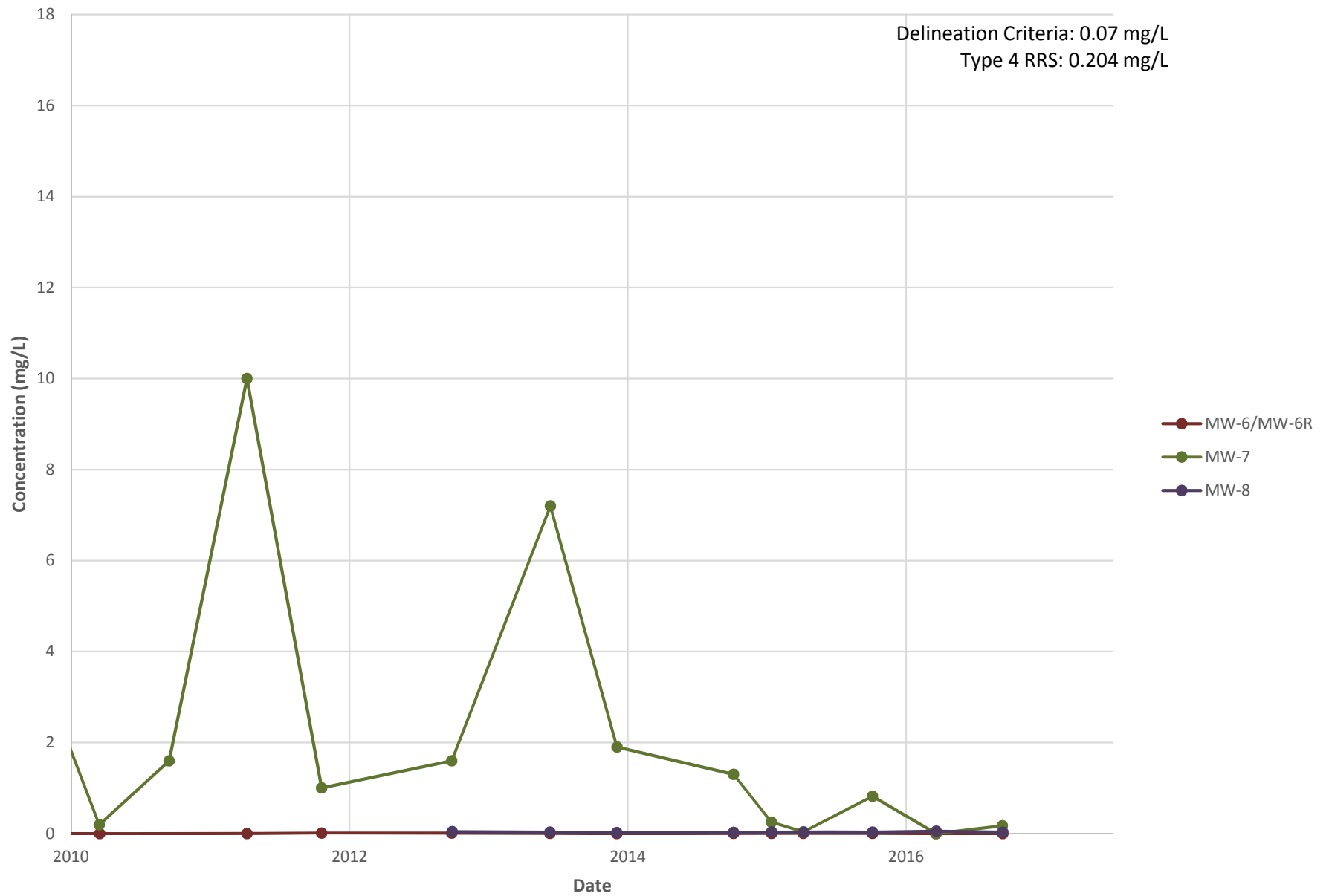


Figure E5B. Offsite/Upgradient Source Area Monitoring Wells - Vinyl Chloride

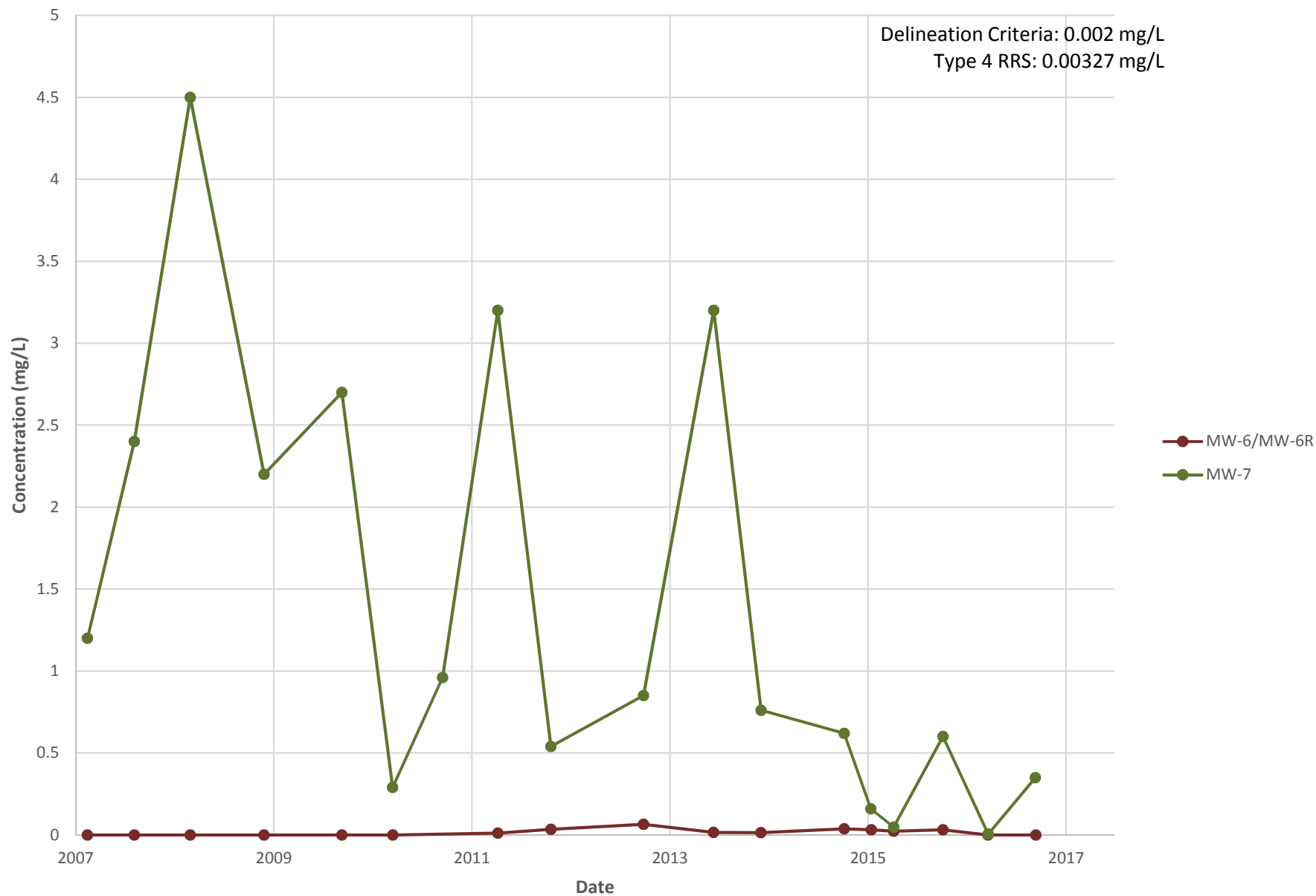


Figure E6B. Offsite/Upgradient Source Area Monitoring Wells - 1,1,1-Trichloroethane

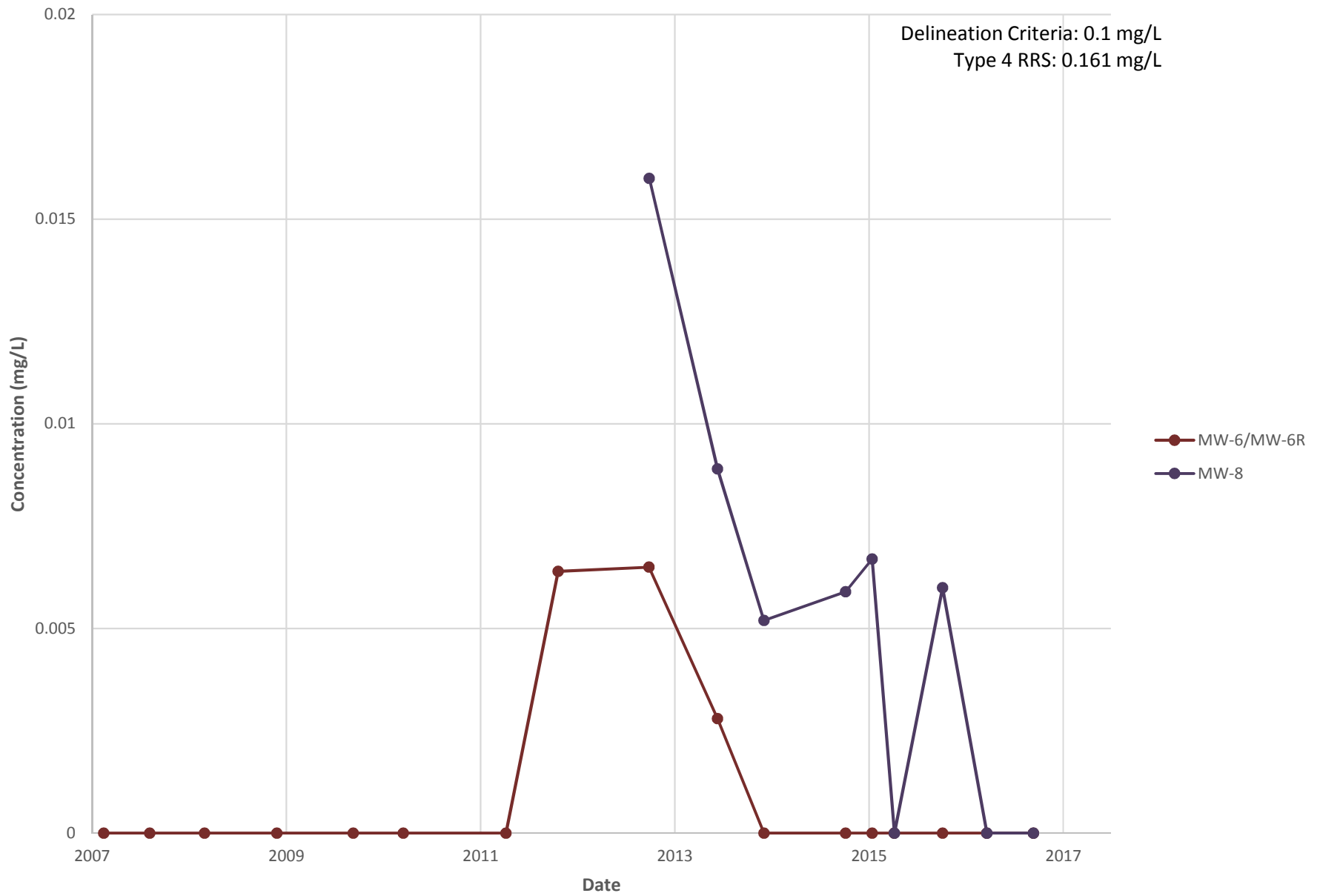


TABLE E1. HISTORICAL GROUNDWATER DATA

		1,1,1-Trichloroethane	1,1-Dichloroethane	1,1-Dichloroethene	1,2-Dichloroethane	Acetone	Chloroethane	cis-1,2-Dichloroethene	Cyclohexane	Methylene chloride	Tetrachloroethene	trans-1,2-Dichloroethene	Trichloroethene	Vinyl Chloride
Monitoring Well	Date	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
RW-1	7/13/1995	16.249	4.435	9.113	9.113	3.705	< 0.5	--	--	11.604	--	--	< 0.05	< 0.5
RW-1	3/22/1996	13	2.2	6.4	0.001	0.12	--	--	--	3.8	0.47	--	0.033	--
RW-1	8/15/1997	0.68	0.16	0.16	< 0.005	< 0.5	< 0.005	--	--	< 0.05	0.13	--	< 0.025	< 0.005
RW-1	11/5/1997	18	4.5	11	< 0.005	77	< 0.005	--	--	61	1.1	--	< 0.25	< 0.005
RW-1	11/27/2000	11	8.4	16	0.032	23	0.72	--	--	21	1	--	0.48	1.7
RW-1	7/20/2001	0.28	0.21	0.49	< 0.005	< 0.005	0.03	--	--	0.1	0.11	--	0.081	0.043
RW-1	2/5/2002	6	4.1	10	< 0.005	0.8	0.65	--	--	1.2	0.8	--	0.36	1
RW-1	7/23/2002	10	6.5	17	0.011	< 0.005	< 0.005	--	--	0.61	0.27	--	0.35	0.93
RW-1	12/18/2002	13	6.9	21	0.011	< 0.005	1.2	--	--	1.1	0.72	--	0.26	1
RW-1	6/5/2003	6.6	5.2	15	0.013	< 0.005	0.65	--	--	0.32	0.93	--	0.38	< 0.005
RW-1	12/10/2003	12	11	14	0.013	< 0.02	< 1	0.63	--	0.19	0.94	--	< 0.5	2.5
RW-1	6/17/2004	11	5.7	14	0.014	< 0.02	0.17	0.51	--	0.27	0.48	--	0.3	0.97
RW-1	1/25/2005	9.1	6.9	15	< 0.5	< 2	< 1	<0.5	--	< 0.5	0.63	--	< 0.5	1
RW-1	12/13/2005	6.3	11	18	< 0.5	17	< 1	<0.5	--	1.4	0.52	--	< 0.5	1.7
RW-1	7/10/2006	4.6	5.2	11	< 0.5	15	< 1	<0.5	--	0.86	< 0.5	--	< 0.5	0.64
RW-1	2/14/2007	5.3	7.9	16	0.019	37	1.5	0.78	--	1.7	0.56	--	0.3	1.4
RW-1	8/6/2007	2.5	5.4	11	0.015	55	1.6	0.35	--	2.3	0.16	--	0.19	0.79
RW-1	2/28/2008	4.7	4.7	14	0.017	53	3	0.85	--	2.2	0.31	--	0.19	0.87
RW-1	11/26/2008	3.9	3.4	15	< 0.5	43	3.7	0.67	--	4.4	< 0.5	--	< 0.5	0.82
RW-1	9/10/2009	5.4	3.2	15	0.017	50	< 0.01	0.77	--	3.2	0.11	--	0.23	0.8
RW-1	3/17/2010	2	1.4	8.8	0.0086	19	2.9	0.41	< 0.005	2.2	0.07	< 0.005	0.46	0.46
RW-1	9/20/2010	0.81	1.8	1.8	< 0.5	49	3.9	< 0.5	< 0.5	1.6	< 0.5	< 0.5	< 0.5	1.8
RW-1	4/8/2011	1.6	2.4	9.5	0.014	53	2.9	0.53	< 0.005	4	0.078	< 0.005	0.15	0.88
RW-1	10/21/2011	2.2	2.3	11	0.012	37	3.5	0.4	< 0.005	3.1	0.06	< 0.005	0.15	1.3
RW-1	10/3/2012	0.19	0.21	1.1	< 0.005	1.9	0.32	0.054	--	0.25	0.022	< 0.005	0.019	0.19
RW-1	6/13/2013	0.16	1.2	1.7	< 0.1	10	1.1	0.16	--	1.2	< 0.1	< 0.1	< 0.1	1.2
RW-1	12/5/2013	0.76	1.4	< 0.001	0.012	2.5	1.4	0.39	0.019	0.2	0.082	0.0026	0.14	0.68
RW-1	10/8/2014	0.3	1.8	1.2	0.015	1.7	0.78	0.15	< 0.005	0.2	0.0072	< 0.005	0.014	0.61
RW-1	1/16/2015	0.18	0.47	0.87	0.0086	4.5	0.89	0.11	0.02	0.018	0.023	< 0.005	0.031	0.35
RW-2	7/13/1995	0.377	0.062	0.192	0.192	3.792	< 0.5	--	--	1.306	0.335	--	< 0.05	< 0.5
RW-2	3/22/1996	0.084	0.028	0.044	--	0.76	--	--	--	0.37	0.015	--	0.008	--
RW-2	8/15/1997	0.17	0.02	0.039	< 0.005	< 0.1	< 0.005	--	--	0.065	0.015	--	< 0.005	< 0.005
RW-2	11/5/1997	0.54	0.082	0.31	< 0.005	< 0.5	< 0.005	--	--	0.6	0.05	--	< 0.025	< 0.005
RW-2	11/27/2000	0.063	0.0079	0.054	< 0.005	< 0.005	< 0.005	--	--	< 0.005	0.044	--	< 0.005	< 0.005
RW-2	7/20/2001	0.025	< 0.005	0.027	< 0.005	< 0.005	< 0.005	--	--	< 0.005	0.021	--	< 0.005	< 0.005
RW-2	2/5/2002	0.058	0.012	0.06	< 0.005	< 0.005	< 0.005	--	--	< 0.005	0.053	--	< 0.005	< 0.005
RW-2	7/23/2002	0.033	0.024	0.043	< 0.005	< 0.005	< 0.005	--	--	< 0.005	0.035	--	< 0.005	< 0.005
RW-2	12/18/2002	0.13	< 0.005	0.13	< 0.005	< 0.005	0.0061	--	--	< 0.005	1.209	--	0.0054	0.0062
RW-2	6/5/2003	0.048	0.13	0.11	< 0.005	< 0.005	< 0.005	--	--	< 0.005	0.11	--	0.0068	< 0.005
RW-2	12/10/2003	0.12	0.29	0.25	< 0.005	0.21	0.019	0.021	--	0.0063	0.2	--	0.011	0.0045
RW-2	6/17/2004	0.16	0.23	0.33	< 0.005	< 0.02	0.047	0.036	--	0.038	0.18	--	0.041	0.01
RW-2	1/25/2005	0.092	0.18	0.2	< 0.005	< 0.02	0.033	0.033	--	0.032	0.087	--	0.028	0.01
RW-2	12/13/2005	0.15	0.54	0.54	< 0.005	< 0.05	0.071	0.14	--	0.015	0.16	--	0.11	0.044
RW-2	7/10/2006	0.059	0.18	0.32	< 0.005	< 0.05	0.03	0.056	--	0.0085	0.091	--	0.06	0.0077
RW-2	2/14/2007	0.061	0.28	0.21	< 0.005	0.34	0.043	0.1	--	0.012	0.1	--	0.075	0.015
RW-2	8/6/2007	0.077	0.22	0.27	< 0.005	0.6	0.026	0.088	--	< 0.005	0.11	--	0.11	0.031
RW-2	2/28/2008	0.065	0.22	0.19	< 0.005	< 0.05	0.017	0.078	--	< 0.005	0.09	--	0.094	0.021
RW-2	11/26/2008	0.069	0.14	0.25	< 0.005	0.99	0.021	0.081	--	0.274	0.1	--	0.13	0.029
RW-2	9/10/2009	0.043	0.093	0.1	< 0.005	< 0.05	< 0.01	0.071	--	< 0.005	0.069	--	0.1	0.023
RW-2	3/17/2010	< 0.005	< 0.005	< 0.005	< 0.005	0.19	< 0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.002
RW-2	9/17/2010	0.095	0.037	0.51										

TABLE E1. HISTORICAL GROUNDWATER DATA

		1,1,1-Trichloroethane	1,1-Dichloroethane	1,1-Dichloroethene	1,2-Dichloroethane	Acetone	Chloroethane	cis-1,2-Dichloroethene	Cyclohexane	Methylene chloride	Tetrachloroethene	trans-1,2-Dichloroethene	Trichloroethene	Vinyl Chloride
Monitoring Well	Date	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
DW-1	9/13/2016	0.034	0.098	0.25	< 0.005	< 0.050	0.068	0.033	< 0.005	< 0.005	0.36	< 0.005	0.047	0.031
MW-1	7/13/1995	140	1.69	53.816	1.69	95.204	< 0.5	--	--	141.054	16.293	--	0.358	< 0.05
MW-1	3/22/1996	200	4.5	13	--	55	0.26	--	--	160	2.3	--	0.017	< 0.05
MW-1	8/15/1997	500	< 25	26	< 0.005	< 500	< 0.005	--	--	390	< 25	--	< 2.5	< 10
MW-1	11/27/2000	64	1.9	7.6	< 0.005	8.1	0.011	--	--	29	1.1	--	0.41	< 0.005
MW-1	7/20/2001	74	1.1	6.7	< 0.005	< 0.005	< 0.005	--	--	8.3	1.1	--	0.94	< 0.005
MW-1	2/5/2002	6.1	1.8	6.8	< 0.005	9	< 0.005	--	--	4.3	0.57	--	2.6	< 0.005
MW-1	7/23/2002	65	0.75	4.9	0.011	2.9	< 0.005	--	--	16	0.91	--	0.67	< 0.005
MW-1	12/18/2002	96	1.2	6.4	< 0.005	19	< 0.005	--	--	15	1.8	--	1.4	0.0071
MW-1	6/5/2003	45	0.55	3.4	< 0.005	< 0.005	< 0.005	--	--	3.5	0.81	--	2.4	< 0.005
MW-1	12/10/2003	73	< 2.5	15	< 2.5	< 10	< 5	5.4	--	4.8	2.9	--	< 2.5	< 1
MW-1	6/17/2004	42	0.32	2.2	< 0.005	< 0.02	< 0.01	4.7	--	5.9	0.32	--	0.93	< 0.002
MW-1	1/25/2005	30	15	< 2.5	< 2.5	< 10	< 5	15	--	< 2.5	< 2.3	--	5	< 1
MW-1	12/13/2005	22	9.7	2.6	< 2.5	480	< 5	49	--	3.4	< 2.5	--	< 2.5	< 1
MW-1	7/10/2006	9.3	9.6	< 2.5	< 2.5	1000	< 5	56	--	< 2.5	< 2.5	--	2.5	< 2.5
MW-1	2/14/2007	< 0.005	18	3.1	< 0.005	3900	< 0.01	91	--	< 0.005	0.58	--	0.41	0.97
MW-1	8/6/2007	4	22	3.2	< 0.25	12000	< 0.5	100	--	7.5	0.58	--	< 0.25	0.79
MW-1	2/28/2008	1.6	18	2	< 0.005	900	< 0.01	100	--	< 0.005	0.011	--	0.016	1.2
MW-1	11/26/2008	2.9	27	6.9	< 0.25	7000	< 0.5	110	--	0.98	< 0.25	--	< 0.25	6
MW-1	9/10/2009	35	25	9.4	0.038	3200	< 0.0099	100	--	4.4	< 0.0086	--	0.054	2.9
MW-1	3/17/2010	1.7	36	12	< 0.005	2600	0.017	120	0.027	0.065	0.0073	0.11	< 0.005	3.6
MW-1	9/16/2010	2.9	8.5	2.5	< 0.005	1200	< 0.01	49	0.023	< 0.005	0.0064	0.089	0.088	4.1
MW-1	4/8/2011	1.4	9.4	1.5	0.009	420	< 0.01	16	0.038	0.23	< 0.005	0.016	0.023	2.8
MW-1	10/21/2011	3.8	6.8	0.93	< 0.005	460	< 0.01	14	< 0.005	0.49	< 0.005	< 0.005	0.027	0.75
MW-1	8/6/2012	4.8	1.5	0.28	< 0.005	92	< 0.01	3.5	--	0.19	0.019	0.0094	0.11	0.15
MW-1	6/14/2013	0.24	0.56	0.018	< 0.01	0.78	< 0.05	0.2	--	< 0.05	< 0.01	< 0.01	< 0.01	0.092
MW-1	12/5/2013	0.057	0.12	0.0031	< 0.001	0.26	< 0.005	0.12	0.0093	< 0.005	0.0051	< 0.001	0.028	0.049
MW-1	10/8/2014	0.09	0.19	0.012	< 0.005	0.17	< 0.01	0.16	< 0.005	< 0.005	< 0.005	< 0.005	0.047	0.082
MW-1	1/15/2015	0.11	0.57	0.019	< 0.005	4.5	0.057	0.19	0.011	< 0.005	0.021	< 0.005	0.1	0.16
MW-1	4/8/2015	0.014	0.084	< 0.005	< 0.005	< 0.05	0.01	0.041	< 0.005	< 0.005	0.0081	< 0.005	0.013	0.03
MW-1	10/8/2015	0.10	0.37	0.015	< 0.005	3.6	0.056	0.13	0.008	< 0.005	< 0.005	< 0.005	0.008	0.082
MW-1	3/23/2016	< 0.005	0.008	< 0.005	< 0.005	< 0.050	< 0.010	0.022	< 0.005	< 0.005	0.010	< 0.005	< 0.005	0.008
MW-1	9/14/2016	0.013	0.06	< 0.005	< 0.005	0.56	< 0.010	0.049	< 0.005	< 0.005	0.012	< 0.005	< 0.005	0.032
MW-2	7/13/1995	0.016	0.013	0.0071	--	0.262	< 0.01	--	--	0.047	--	--	0.0012	< 0.001
MW-2	3/22/1996	0.003	0.002	< 0	--	0.017	--	--	--	0.009	0.003	--	< 0.01	< 0.01
MW-2	8/15/1997	< 0.005	< 0.005	< 0.005	< 0.005	< 0.1	< 0.005	--	--	< 0.01	< 0.005	--	< 0.005	< 0.002
MW-2	11/27/2000	--	< 0.005	< 0.005	< 0.005	--	< 0.005	--	--	< 0.005	< 0.005	--	< 0.005	< 0.005
MW-2	7/20/2001	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	--	--	< 0.005	< 0.005	--	< 0.005	< 0.005
MW-2	2/5/2002	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	--	--	< 0.005	< 0.005	--	< 0.005	< 0.005
MW-2	7/23/2002	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	--	--	< 0.005	< 0.005	--	< 0.005	< 0.005
MW-2	12/18/2002	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	--	--	< 0.005	< 0.005	--	< 0.005	< 0.005
MW-2	6/5/2003	< 0.005	< 0.005	0.029	< 0.005	0.029	< 0.005	< 0.005	--	< 0.005	< 0.005	--	< 0.005	< 0.005
MW-2	12/10/2003	< 0.005	< 0.005	< 0.02	< 0.005	< 0.02	< 0.01	< 0.005	--	< 0.005	< 0.005	--	< 0.005	< 0.002
MW-2	6/17/2004	< 0.005	< 0.005	< 0.02	< 0.005	< 0.02	< 0.01	< 0.005	--	< 0.005	< 0.005	--	< 0.005	< 0.002
MW-2	1/25/2005	< 0.005	< 0.005	< 0.02	< 0.005	< 0.02	< 0.01	< 0.005	--	< 0.005	< 0.005	--	< 0.005	< 0.002
MW-2	12/13/2005	< 0.005	< 0.005	< 0.05	< 0.005	< 0.05	< 0.01	< 0.005	--	< 0.005	0.019	--	< 0.005	< 0.002
MW-2	7/10/2006	< 0.005	< 0.005	< 0.05	< 0.005	< 0.05	< 0.01	< 0.005	--	< 0.005	< 0.005	--	< 0.005	< 0.002
MW-2	2/14/2007	< 0.005	< 0.005	< 0.005	< 0.005	< 0.05	< 0.01	< 0.005	--	< 0.005	< 0.005	--	< 0.005	< 0.002
MW-2	8/6/2007	< 0.005	< 0.005	< 0.005	< 0.005	< 0.05	< 0.01	< 0.005	--	< 0.005	< 0.005	--	< 0.005	< 0.002
MW-2	2/28/2008	< 0.005	< 0.005	< 0.005	< 0.005	< 0.05	< 0.01	< 0.005	--	< 0.005	< 0.005	--	< 0.005	< 0.002
MW-2	11/26/2008	< 0.005	< 0.005	< 0.005	< 0.005	< 0.05	< 0.01	< 0.005	--	< 0.005	< 0.005	--	< 0.005	< 0.002
MW-2	9/10/2009	< 0.005	< 0.005	< 0.005	< 0.005	< 0.05	< 0.01	< 0.005	--	< 0.005	< 0.005	--	< 0.005	< 0.002
MW-2	3/16/2010	< 0.005	< 0.005	< 0.005	< 0.005	< 0.05	< 0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.002
MW-2	9/17/2010	< 0.005	< 0.005	< 0.005	< 0.005	< 0.05	< 0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.002
MW-2	4/8/2011	< 0.005	< 0.005	< 0.005	< 0.005	< 0.05	< 0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.002
MW-2	10/21/2011	< 0.005	< 0.005	< 0.005	< 0.005	< 0.05	< 0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.002
MW-2	9/28/2012	< 0.005	< 0.005	< 0.005	< 0.005	< 0.05	< 0.01	< 0.005	--	< 0.005	< 0.005	< 0.005	< 0.005	< 0.002
MW-2	6/11/2013	< 0.001	< 0.001	< 0.001	< 0.001	< 0.05	< 0.005	< 0.001	--	< 0.005	< 0.001	< 0.001	< 0.001	< 0.001
MW-2	12/3/2013	< 0.001	< 0.001	< 0.001	< 0.001	< 0.05	< 0.005	< 0.001	< 0.001	< 0.005	< 0.001	< 0.001	< 0.001	< 0.001
MW-2	4/7/2015	< 0.005	< 0.005	< 0.005	< 0.005	< 0.05	< 0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.002
MW-2	10/8/2015	< 0.005	< 0.005	< 0.005	< 0.005	< 0.050	< 0.010	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.002
MW-2	3/21/2016	< 0.005	< 0.005	< 0.005	< 0.005	< 0.050	< 0.010	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.002
MW-3	7/13/1995	203.981	4.298	34.101	34.101	89.065	< 0.5	--	--	77.212	0.721	--	< 0.05	< 0.05
MW-3	3/22/1996	25	0.56	4.5	0.051	46	0.012	--	--	1	2.1	--	0.79	< 0.01
MW-3	8/15/1997	43	3.6	9.5	< 0.005	100	< 0.005	--	--	110	< 2.5	--	< 2.5	< 1
MW-3	11/27/2000	11	10	6.6	0.029	42	0.35	--	--	52	0.56	--	0.66	0.73
MW-3	7/20/2001	34	25	16	0.072	< 0.005	1.1	--	--	130	0.53	--	1.4	1.4
MW-3	2/5/2002	29	24	11	< 0.005	560	1.4	--	--	160	0.37	--	1.7	1.4
MW-3	7/23/2002	13	33	13	0.074	110	2.7	--	--	150	0.23	--	1.1	3.6
MW-3	12/18/2002	3.4	7.2	1.6	0.02	83	0.19	--	--	28	0.08	--	0.18	0.13
MW-3	6/5/2003	2.9	0.007	6.1	0.0069	< 0.005	0.16	--	--	1.2	0.31	--	0.14	0.57
MW-3	12/10/2003	0.7	0.78	1.8	< 0.005	< 0.02	0.018	0.06	--	0.26	0.046	--	0.026	0.064
MW-3	6/17/2004	1.4	1.9	1.5	< 0.005	3.1	0.31	0.58	--	2.2	0.018	--	0.05	0.19
MW-3	1/25/2005	1.7	2.5	3	< 0.5	< 2	< 1	< 0.5	--	< 0.5	< 0.5	--	< 0.5	0.23
MW-3	12/13/2005	3.4	17	7.4	< 0.5	59	1.6	5.2	--	6.5	< 0.5	--	< 0.5	2.8
MW-3	7/10/2006	< 0.005	0.008	< 5	< 0.005	4.3	< 0.01	< 0.005	--	0.0093	< 0.005	--	< 0.005	< 0.002
MW-3	2/14/2007	1.2	1.6	2.6	0.0073	18	0.21	0.1						

TABLE E1. HISTORICAL GROUNDWATER DATA

		1,1,1-Trichloroethane	1,1-Dichloroethane	1,1-Dichloroethene	1,2-Dichloroethane	Acetone	Chloroethane	cis-1,2-Dichloroethene	Cyclohexane	Methylene chloride	Tetrachloroethene	trans-1,2-Dichloroethene	Trichloroethene	Vinyl Chloride
Monitoring Well	Date	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
MW-3	6/14/2013	0.24	4	0.24	< 0.05	15	0.27	1.7	--	< 0.25	< 0.05	< 0.05	< 0.05	1.2
MW-3	12/5/2013	2.9	2.9	1.7	< 0.25	--	< 1.2	5.1	< 0.25	< 1.2	< 0.25	< 0.25	< 0.25	1.6
MW-3	10/8/2014	1.6	3	1.5	0.0093	53	0.24	5	0.013	< 0.005	0.0057	0.0065	0.073	1.4
MW-3	1/15/2015	0.37	0.76	0.39	< 0.005	18	0.29	0.55	0.0055	0.018	< 0.005	0.0067	< 0.005	0.38
MW-3	4/8/2015	0.17	0.83	0.11	< 0.005	20	0.6	0.28	< 0.005	0.0087	< 0.005	< 0.005	< 0.005	0.44
MW-3	10/8/2015	1.2	1.8	0.9	0.008	10	0.42	4.9	0.007	0.005	0.02	0.006	0.10	1.70
MW-3	3/23/2016	0.022	0.18	0.023	< 0.005	0.33	0.32	0.17	< 0.005	0.009	< 0.005	< 0.005	< 0.005	0.17
MW-3	9/14/2016	0.099	0.35	0.079	< 0.005	< 0.050	0.074	0.7	< 0.005	0.009	< 0.005	< 0.005	< 0.005	0.36
MW-4	1/25/2005	3.4	< 0.5	13	< 0.5	< 0.5	< 1	< 0.5	--	< 0.5	1.7	--	< 0.5	< 0.2
MW-4	12/13/2005	2.2	< 0.5	11	< 0.5	7	< 1	< 0.5	--	< 0.5	1.2	--	< 0.5	< 0.2
MW-4	7/10/2006	2	< 0.5	11	< 0.5	< 5	< 1	< 0.005	--	< 0.5	1.5	--	< 0.5	< 0.2
MW-4	2/14/2007	3.6	< 0.005	18	< 0.005	< 0.05	< 0.01	< 0.005	--	< 0.005	2	--	0.032	< 0.002
MW-4	8/6/2007	2.3	0.033	19	< 0.005	< 0.05	< 0.01	< 0.005	--	< 0.005	1.7	--	0.021	< 0.002
MW-4	2/28/2008	3.5	0.063	27	0.0075	< 0.05	< 0.01	0.022	--	< 0.005	2.2	--	0.035	< 0.002
MW-4	11/26/2008	1.4	< 0.5	13	< 0.5	< 5	< 1	< 0.5	--	< 0.5	1.2	--	< 0.5	< 0.2
MW-4	9/10/2009	2.9	< 0.013	18	0.024	< 0.55	< 0.02	< 0.5	--	< 0.096	2.2	--	< 0.012	< 0.019
MW-4	3/16/2010	2.2	0.046	28	< 0.005	< 0.05	< 0.01	< 0.005	0.012	< 0.005	1.7	< 0.005	0.023	< 0.002
MW-4	9/20/2010	2.9	0.023	4.6	< 0.005	< 0.05	< 0.01	0.015	< 0.005	< 0.005	0.46	< 0.005	0.02	< 0.002
MW-4	4/8/2011	2.5	0.09	9.1	< 0.005	< 0.05	< 0.01	0.042	< 0.005	< 0.005	0.92	< 0.005	0.12	< 0.002
MW-4	10/21/2011	0.89	0.088	3.2	< 0.005	< 0.05	< 0.01	0.069	< 0.005	< 0.005	0.42	< 0.005	0.11	< 0.002
MW-4	8/7/2012	1.7	0.061	9.4	< 0.005	< 0.05	< 0.01	0.013	--	< 0.005	0.62	< 0.005	0.069	< 0.002
MW-4	6/13/2013	1.6	< 0.2	8.6	< 0.2	< 10	< 1	< 0.2	--	< 1	1.5	< 0.2	< 0.2	< 0.2
MW-4	12/5/2013	2.1	0.12	14	< 0.025	< 1.2	< 0.12	0.039	< 0.025	< 0.12	1.6	< 0.025	0.12	< 0.025
MW-4	10/8/2014	2.4	0.075	16	< 0.005	< 0.05	< 0.01	0.011	0.011	< 0.005	2.1	< 0.005	0.14	< 0.002
MW-4	1/15/2015	2.6	0.083	36	< 0.005	< 0.05	< 0.01	0.037	0.016	< 0.005	2.6	< 0.005	0.12	< 0.002
MW-4	4/9/2015	1	0.056	9.8	< 0.005	< 0.05	< 0.01	0.019	0.0091	< 0.005	1.6	< 0.005	0.067	0.0055
MW-4	10/8/2015	1.6	< 0.50	19	< 0.50	< 5.0	< 1.0	< 0.50	< 0.50	< 0.50	2.0	< 0.50	< 0.50	< 0.20
MW-4	3/22/2016	1.2	0.063	15	< 0.005	< 0.050	< 0.010	0.014	< 0.005	< 0.005	1.9	< 0.005	0.079	0.006
MW-4	9/14/2016	1.4	< 0.025	18	< 0.024	< 0.53	< 0.039	0.72	< 0.16	< 0.031	0.55	< 0.022	0.29	< 0.042
MW-5	2/14/2007	< 0.005	< 0.005	< 0.005	< 0.005	< 0.05	< 0.01	< 0.005	--	< 0.005	< 0.005	--	< 0.005	< 0.002
MW-5	8/6/2007	< 0.005	< 0.005	< 0.005	< 0.005	< 0.05	< 0.01	< 0.005	--	< 0.005	< 0.005	--	< 0.005	< 0.002
MW-5	2/28/2008	< 0.005	< 0.005	< 0.005	< 0.005	< 0.05	< 0.01	< 0.005	--	< 0.005	< 0.005	--	< 0.005	< 0.002
MW-5	11/26/2008	< 0.005	< 0.005	< 0.005	< 0.005	< 0.05	< 0.01	< 0.005	--	< 0.005	< 0.005	--	< 0.005	< 0.002
MW-5	9/10/2009	< 0.005	< 0.005	< 0.005	< 0.005	< 0.05	< 0.01	< 0.005	--	< 0.005	< 0.005	--	< 0.005	< 0.002
MW-5	3/16/2010	< 0.005	< 0.005	< 0.005	< 0.005	< 0.05	< 0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.002
MW-5	9/17/2010	< 0.005	< 0.005	< 0.005	< 0.005	< 0.05	< 0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.002
MW-5	4/8/2011	< 0.005	< 0.005	< 0.005	< 0.005	< 0.05	< 0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.002
MW-5	10/21/2011	< 0.005	< 0.005	< 0.005	< 0.005	< 0.05	< 0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.002
MW-5	9/27/2012	< 0.005	< 0.005	< 0.005	< 0.005	< 0.05	< 0.01	< 0.005	--	< 0.005	< 0.005	< 0.005	< 0.005	< 0.002
MW-5	6/11/2013	< 0.001	< 0.001	< 0.001	< 0.001	< 0.05	< 0.005	< 0.001	--	< 0.005	< 0.001	< 0.001	< 0.001	< 0.001
MW-5	12/3/2013	< 0.001	< 0.001	< 0.001	< 0.001	< 0.05	< 0.005	< 0.001	< 0.001	< 0.005	< 0.001	< 0.001	< 0.001	< 0.001
MW-5	4/8/2015	< 0.005	< 0.005	< 0.005	< 0.005	< 0.05	< 0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.002
MW-5	10/7/2015	< 0.005	< 0.005	< 0.005	< 0.005	< 0.050	< 0.010	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.002
MW-5	3/21/2016	< 0.005	< 0.005	< 0.005	< 0.005	< 0.050	< 0.010	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.002
MW-5	9/12/2016	< 0.005												

TABLE E1. HISTORICAL GROUNDWATER DATA

		1,1,1-Trichloroethane	1,1-Dichloroethane	1,1-Dichloroethene	1,2-Dichloroethane	Acetone	Chloroethane	cis-1,2-Dichloroethene	Cyclohexane	Methylene chloride	Tetrachloroethene	trans-1,2-Dichloroethene	Trichloroethene	Vinyl Chloride
Monitoring Well	Date	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
MW-8	1/15/2015	0.0067	< 0.005	0.03	< 0.005	< 0.05	< 0.01	0.037	< 0.005	< 0.005	0.52	< 0.005	0.96	< 0.002
MW-8	4/9/2015	< 0.005	< 0.005	0.017	< 0.005	< 0.05	< 0.01	0.033	< 0.005	< 0.005	0.38	< 0.005	0.71	< 0.002
MW-8	10/7/2015	0.006	< 0.005	0.020	< 0.005	< 0.050	< 0.010	0.033	< 0.005	< 0.005	0.52	< 0.005	1.2	< 0.002
MW-8	3/22/2016	< 0.005	< 0.005	0.033	< 0.005	< 0.050	< 0.010	0.051	< 0.005	< 0.005	0.35	< 0.005	0.70	0.002 J
MW-8	9/13/2016	< 0.005	< 0.005	0.013	< 0.005	< 0.050	< 0.010	0.029	< 0.005	< 0.005	0.55	< 0.005	0.83	< 0.002
MW-9	9/27/2012	< 0.005	< 0.005	< 0.005	< 0.005	< 0.05	< 0.01	< 0.005	--	< 0.005	< 0.005	< 0.005	< 0.005	< 0.002
MW-9	6/11/2013	< 0.001	< 0.001	< 0.001	< 0.001	< 0.05	< 0.005	< 0.001	--	< 0.005	< 0.001	< 0.001	< 0.001	< 0.001
MW-9	12/3/2013	< 0.001	< 0.001	< 0.001	< 0.001	< 0.05	< 0.005	< 0.001	< 0.001	< 0.005	< 0.001	< 0.001	< 0.001	< 0.001
MW-9	10/7/2014	< 0.005	< 0.005	< 0.005	< 0.005	< 0.05	< 0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.002
MW-9	1/14/2015	< 0.005	< 0.005	< 0.005	< 0.005	< 0.05	< 0.01	< 0.005	< 0.005	< 0.01	< 0.005	< 0.005	< 0.005	< 0.002
MW-9	4/8/2015	< 0.005	< 0.005	< 0.005	< 0.005	< 0.05	< 0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.002
MW-9	10/7/2015	< 0.005	< 0.005	< 0.005	< 0.005	< 0.050	< 0.010	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.002
MW-9	3/21/2016	< 0.005	< 0.005	< 0.005	< 0.005	< 0.050	< 0.010	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.002
MW-9	9/12/2016	< 0.005	< 0.005	< 0.005	< 0.005	< 0.050	< 0.010	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.002
MW-10	10/8/2012	< 0.005	< 0.005	< 0.005	< 0.005	< 0.05	< 0.01	< 0.005	--	< 0.005	< 0.005	< 0.005	< 0.005	< 0.002
MW-10	6/12/2013	< 0.001	< 0.001	< 0.001	< 0.001	< 0.05	< 0.005	< 0.001	--	< 0.005	< 0.001	< 0.001	< 0.001	< 0.001
MW-10	12/4/2013	< 0.001	< 0.001	< 0.001	< 0.001	< 0.05	< 0.005	< 0.001	< 0.001	< 0.005	< 0.001	< 0.001	< 0.001	< 0.001
MW-10	4/7/2015	< 0.005	< 0.005	< 0.005	< 0.005	< 0.05	< 0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.002
MW-10	10/7/2015	< 0.005	< 0.005	< 0.005	< 0.005	< 0.050	< 0.010	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.002
MW-10	3/22/2016	< 0.005	< 0.005	< 0.005	< 0.005	< 0.050	< 0.010	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.002
MW-11	10/8/2012	< 0.005	< 0.005	< 0.005	< 0.005	< 0.05	< 0.01	< 0.005	--	< 0.005	< 0.005	< 0.005	< 0.005	< 0.002
MW-11	6/12/2013	< 0.001	< 0.001	< 0.001	< 0.001	< 0.05	< 0.005	< 0.001	--	< 0.005	< 0.001	< 0.001	< 0.001	< 0.001
MW-11	12/4/2013	< 0.001	< 0.001	< 0.001	< 0.001	< 0.05	< 0.005	< 0.001	< 0.001	< 0.005	< 0.001	< 0.001	< 0.001	< 0.001
MW-11	4/7/2015	< 0.005	< 0.005	< 0.005	< 0.005	< 0.05	< 0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.002
MW-11	10/7/2015	< 0.005	< 0.005	< 0.005	< 0.005	< 0.050	< 0.010	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.002
MW-11	3/22/2016	< 0.005	< 0.005	< 0.005	< 0.005	< 0.050	< 0.010	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.002
MW-11	9/13/2016	< 0.005	< 0.005	< 0.005	< 0.005	< 0.050	< 0.010	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.002
MW-12	10/8/2012	< 0.005	< 0.005	< 0.005	< 0.005	< 0.05	< 0.01	< 0.005	--	< 0.005	< 0.005	< 0.005	< 0.005	< 0.002
MW-12	6/12/2013	< 0.001	< 0.001	< 0.001	< 0.001	< 0.05	< 0.005	< 0.001	--	< 0.005	< 0.001	< 0.001	< 0.001	< 0.001
MW-12	12/3/2013	< 0.001	< 0.001	< 0.001	< 0.001	< 0.05	< 0.005	< 0.001	< 0.001	< 0.005	< 0.001	< 0.001	< 0.001	< 0.001
MW-12	4/7/2015	< 0.005	< 0.005	< 0.005	< 0.005	< 0.05	< 0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.002
MW-12	10/7/2015	< 0.005	< 0.005	< 0.005	< 0.005	< 0.050	< 0.010	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.002
MW-12	3/22/2016	< 0.005	< 0.005	< 0.005	< 0.005	< 0.050	< 0.010	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.002
MW-12	9/13/2016	< 0.005	< 0.005	< 0.005	< 0.005	< 0.050	< 0.010	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.002
MW-13	10/8/2012	< 0.005	< 0.005	< 0.005	< 0.005	< 0.05	< 0.01	0.0055	--	< 0.005	< 0.005	< 0.005	< 0.005	0.0059
MW-13	6/12/2013	< 0.001	< 0.001	< 0.001	< 0.001	< 0.05	< 0.005	0.011	--	< 0.005	< 0.001	< 0.001	< 0.001	0.0041
MW-13	12/4/2013	< 0.001	0.001	< 0.001	< 0.001	< 0.05	< 0.005	0.009	< 0.001	< 0.005	< 0.001	< 0.001	< 0.001	0.0035
MW-13	10/7/2014	< 0.005	< 0.005	< 0.005	< 0.005	< 0.05	< 0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.002
MW-13	1/14/2015	< 0.005	< 0.005	< 0.005	< 0.005	< 0.05	< 0.01	< 0.005	< 0.005	< 0.01	< 0.005	< 0.005	< 0.005	< 0.002
MW-13	4/8/2015	< 0.005	< 0.005	< 0.005	< 0.005	< 0.05	< 0.01	< 0.005	< 0.005	0.005	< 0.005	< 0.005	< 0.005	< 0.002
MW-13	10/7/2015	< 0.005	< 0.005	< 0.005	< 0.005	< 0.050	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.002
MW-13	3/21/2016	< 0.005	< 0.005	< 0.005	< 0.005	< 0.050	< 0.010	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.002
MW-13	9/12/2016	< 0.005	< 0.005	< 0.005	< 0.005	< 0.050	< 0.010	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.002
MW-15	10/8/2012	< 0.005	< 0.005	< 0.005	< 0.005	< 0.05	0.078	< 0.005	--	< 0.005	< 0.005	< 0.005	< 0.005	0.0037
MW-15	6/12/2013	< 0.001	0.0017	< 0.001	< 0.001	< 0.05	0.042	< 0.001	--	< 0.005	< 0.001	< 0.001	< 0.001	< 0.001
MW-15	12/4/2013	< 0.001	0.0014	< 0.001	< 0.001	< 0.05	0.064	< 0.001	< 0.001	< 0.005	< 0.001	< 0.001	< 0.001	< 0.001
MW-15	4/8/2015	< 0.005	0.0081	< 0.005	< 0.005	< 0.05	0.11	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.01
MW-15	10/8/2015	< 0.005	< 0.005	< 0.005	< 0.005	< 0.050	0.078	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.002
MW-15	3/21/2016	< 0.005	< 0.005	< 0.005	< 0.005	< 0.050	0.070	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	<0.002
MW-15	7/14/2016	< 0.005	< 0.005	< 0.005	< 0.005	< 0.050	0.071	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	<0.002
MW-15	9/13/2016	< 0.005	< 0.005	< 0.005	< 0.005	< 0.050	0.048	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.002
MW-17	10/30/2015	0.006	0.047	0.22	< 0.005	0.009	< 0.010	0.089	< 0.005	< 0.005	0.045	< 0.005	0.019	0.024
MW-17	3/22/2016	0.015	0.11	0.67	< 0.005	< 0.050	< 0.010	0.23	< 0.005	< 0.005	0.079	< 0.005	0.041	0.073
MW-17	9/13/2016	0.032	0.18	0.91	< 0.005	< 0.050	< 0.010	0.38	0.006	< 0.005	0.13	< 0.005	0.094	0.06
MW-18	7/14/2016	< 0.005	0.17	0.63	< 0.005	< 0.050	0.028	0.14	< 0.005	< 0.005	0.15	< 0.005	0.1	0.011
MW-18	9/13/2016	< 0.005	0.2	0.47	< 0.005	< 0.050	0.015	0.16	< 0.005	< 0.005	0.19	< 0.005	0.11	0.01

Historical Soil Analytical Data

HISTORICAL SOIL DATA

			1,1,1-Trichloroethane	1,1-Dichloroethane	1,1-Dichloroethene	Acetone	cis-1,2-Dichloroethene	Cyclohexane	Ethylbenzene	Isopropylbenzene	m,p-Xylene	Methylene chloride	o-Xylene	Tetrachloroethene	Toluene	Trichloroethene	Xylenes, Total
Sample Location	Sample Depth feet	Date	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg
FTUA-B1	0-2	6/25/2011	< 0.0041	< 0.0041	< 0.0041	< 0.083	< 0.0041	< 0.0041	< 0.0041	< 0.0041	< 0.0083	< 0.0041	< 0.0041	< 0.0041	< 0.0041	< 0.0041	NR
FTUA-B1	5	6/25/2011	< 0.0081	< 0.0081	< 0.0081	< 0.016	< 0.0081	< 0.0081	< 0.0081	< 0.0081	< 0.0016	< 0.0081	< 0.0081	< 0.0081	< 0.0081	< 0.0081	NR
FTUA-B2	0-2	6/25/2011	< 0.0062	< 0.0062	< 0.0062	< 0.012	< 0.0062	< 0.0062	< 0.0062	< 0.0062	< 0.0012	< 0.0062	< 0.0062	< 0.0062	< 0.0062	< 0.0062	NR
FTUA-B2	5	6/25/2011	< 0.0098	< 0.0098	< 0.0098	< 0.02	< 0.0098	< 0.0098	< 0.0098	< 0.0098	< 0.002	< 0.0098	< 0.0098	0.024	< 0.0098	< 0.0098	NR
FTUA-B2	10	6/25/2011	< 0.0097	< 0.0097	< 0.0097	< 0.019	< 0.0097	< 0.0097	< 0.0097	< 0.0097	< 0.0019	< 0.0097	< 0.0097	< 0.0097	< 0.0097	< 0.0097	NR
FTUA-B3	0-2	6/25/2011	< 0.0063	< 0.0063	< 0.0063	< 0.013	< 0.0063	0.018	< 0.0063	< 0.0063	< 0.0013	< 0.0063	< 0.0063	< 0.0063	< 0.0063	< 0.0063	NR
FTUA-B3	5	6/25/2011	< 0.0077	< 0.0077	< 0.0077	< 0.015	0.024	< 0.0077	< 0.0077	< 0.0077	< 0.0015	< 0.0077	< 0.0077	< 0.0077	< 0.0077	< 0.0077	NR
FTUA-B3	10	6/25/2011	< 0.0085	< 0.0085	< 0.0085	0.024	< 0.0085	< 0.0085	< 0.0085	< 0.0085	< 0.0017	< 0.0085	< 0.0085	< 0.0085	< 0.0085	< 0.0085	NR
FTUA-B3	15	6/25/2011	< 0.0088	< 0.0088	< 0.0088	< 0.018	< 0.0088	< 0.0088	< 0.0088	< 0.0088	< 0.0018	< 0.0088	< 0.0088	< 0.0088	< 0.0088	< 0.0088	NR
FTUA-B4	5	6/25/2011	< 0.0061	< 0.0061	< 0.0061	< 0.012	0.058	< 0.0061	< 0.0061	< 0.0061	< 0.0012	< 0.0061	< 0.0061	< 0.0061	0.0079	< 0.0061	NR
FTUA-B4	10	6/25/2011	< 0.0071	< 0.0071	< 0.0071	< 0.014	< 0.0071	< 0.0071	< 0.0071	< 0.0071	< 0.0014	< 0.0071	< 0.0071	0.034	< 0.0071	0.092	NR
FTUA-B4	15	6/25/2011	< 0.0086	< 0.0086	< 0.0086	< 0.017	< 0.0086	< 0.0086	< 0.0086	< 0.0086	< 0.0017	< 0.0086	< 0.0086	< 0.0086	< 0.0086	< 0.0086	NR
CSA-B5	0-2	6/25/2011	< 0.0084	< 0.0084	< 0.0084	< 0.17	< 0.0084	< 0.0084	< 0.0084	< 0.0084	< 0.017	< 0.0084	< 0.0084	< 0.0084	< 0.0084	< 0.0084	NR
CSA-B5	15	6/25/2011	< 0.007	< 0.007	< 0.007	< 0.14	< 0.007	< 0.007	< 0.007	< 0.007	< 0.014	< 0.007	< 0.007	< 0.007	< 0.007	< 0.007	NR
CSA-B6	0-2	9/9/2011	< 0.0084	< 0.0084	< 0.0084	< 0.17	< 0.0084	< 0.0084	< 0.0084	< 0.0084	< 0.017	< 0.0084	< 0.0084	< 0.0084	< 0.0084	< 0.0084	NR
CSA-B6	10	9/9/2011	< 0.0098	< 0.0098	< 0.0098	< 0.2	0.038	< 0.0098	< 0.0098	< 0.0098	< 0.02	< 0.0098	< 0.0098	< 0.0098	< 0.0098	< 0.0098	NR
CSA-B6	15	9/9/2011	< 0.008	< 0.008	< 0.008	< 0.16	< 0.008	< 0.008	< 0.008	< 0.008	< 0.016	< 0.008	< 0.008	< 0.008	< 0.008	< 0.008	NR
CSA-B7	0-2	9/9/2011	< 0.0084	< 0.0084	< 0.0084	0.19	< 0.0084	< 0.0084	< 0.0084	< 0.0084	< 0.017	< 0.0084	< 0.0084	< 0.0084	< 0.0084	< 0.0084	NR
CSA-B7	14	9/9/2011	< 0.0081	< 0.0081	< 0.0081	< 0.16	< 0.0081	< 0.0081	< 0.0081	< 0.0081	< 0.016	< 0.0081	< 0.0081	< 0.0081	< 0.0081	< 0.0081	NR
CSA-B8	0-2	9/9/2011	< 0.01	< 0.01	< 0.01	< 0.2	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	0.11	< 0.01	< 0.01	NR
CSA-B8	5	9/9/2011	< 0.0071	< 0.0071	< 0.0071	0.16	< 0.0071	< 0.0071	< 0.0071	< 0.0071	< 0.014	< 0.0071	< 0.0071	0.16	< 0.0071	< 0.0071	NR
CSA-B8	10	9/9/2011	< 0.0072	< 0.0072	< 0.0072	< 0.14	< 0.0072	< 0.0072	< 0.0072	< 0.0072	< 0.014	< 0.0072	< 0.0072	< 0.0072	< 0.0072	< 0.0072	NR

Notes
mg/Kg - milligrams per kilogram
< - less than reporting limit
-- no data

HISTORICAL SOIL DATA

			1,1,1-Trichloroethane	1,1-Dichloroethane	1,1-Dichloroethene	Acetone	cis-1,2-Dichloroethene	Cyclohexane	Ethylbenzene	Isopropylbenzene	m,p-Xylene	Methylene chloride	o-Xylene	Tetrachloroethene	Toluene	Trichloroethene	Xylenes, Total
Sample Location	Sample Depth feet	Date	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg
S-1	1	8/4/2012	< 1.9	< 1.9	< 1.9	79	< 1.9	< 1.9	13	< 1.9	60	< 7.5	22	190	66	7.6	82
S-1	6	8/4/2012	< 0.59	< 0.59	< 0.59	< 12	< 0.59	< 0.59	1.5	< 0.59	9.3	< 2.4	8.7	160	6.1	1.3	18
S-1	11	8/4/2012	< 2.7	< 2.7	< 2.7	< 54	< 2.7	< 2.7	3	3.2	12	< 11	5.9	110	9.3	< 2.7	18
S-1	17	8/4/2012	< 0.0046	< 0.0046	< 0.0046	0.42	< 0.0046	< 0.0046	0.0056	< 0.0046	0.027	< 0.018	0.014	0.13	0.023	0.0051	40
S-1	21	8/4/2012	< 2.4	< 2.4	< 2.4	< 49	< 2.4	< 2.4	3.7	< 2.4	15	< 9.8	5.4	68	21	2.6	21
S-2	3	8/4/2012	0.26	0.029	< 0.0049	16	0.37	0.081	0.044	< 0.0049	1.4	0.042	0.54	2.4	0.4	1	1.9
S-2	7	8/4/2012	< 0.0043	< 0.0043	< 0.0043	< 0.086	< 0.0043	< 0.0043	< 0.0043	< 0.0043	< 0.0043	< 0.017	< 0.0043	< 0.0043	< 0.0043	< 0.0043	< 0.0043
S-2	11	8/4/2012	0.0067	< 0.0048	< 0.0048	< 0.096	0.019	< 0.0048	< 0.0048	< 0.0048	< 0.0048	< 0.019	< 0.0048	0.011	< 0.0048	0.025	< 0.0048
S-2	19	8/4/2012	0.02	< 0.005	< 0.005	< 0.099	0.037	< 0.005	< 0.005	< 0.005	0.0054	< 0.02	< 0.005	0.038	0.0064	0.057	0.0084
S-3	4	8/4/2012	< 2.2	< 2.2	< 2.2	1600	< 2.2	17	86	3.4	260	< 9	50	310	79	180	310
S-3	7	8/4/2012	< 2.3	< 2.3	< 2.3	940	< 2.3	< 2.3	49	3	150	< 9.3	27	370	76	190	180
S-4	4	8/4/2012	32	< 2.5	< 2.5	970	< 2.5	< 2.5	< 2.5	< 2.5	6.5	24	2.6	40	9.3	54	9.1
S-4	6	8/4/2012	180	< 1.7	3.7	150	< 1.7	< 1.7	18	2.2	69	< 6.9	18	270	71	230	87
S-5	4	9/28/2012	< 0.0065	< 0.0065	< 0.0065	0.15	< 0.0065	< 0.0065	< 0.0065	< 0.0065	< 0.0065	< 0.0065	< 0.0065	< 0.0065	< 0.0065	< 0.0065	< 0.0065
S-5	7.5	9/28/2012	< 0.0053	< 0.0053	< 0.0053	< 0.11	< 0.0053	< 0.0053	< 0.0053	< 0.0053	< 0.0053	< 0.0053	< 0.0053	< 0.0053	< 0.0053	< 0.0053	< 0.0053
S-5	12.5	9/28/2012	< 0.0072	< 0.0072	< 0.0072	< 0.14	< 0.0072	< 0.0072	< 0.0072	< 0.0072	< 0.0072	< 0.0072	< 0.0072	< 0.0072	< 0.0072	< 0.0072	< 0.0072
S-5	17.5	9/28/2012	< 0.0057	< 0.0057	< 0.0057	< 0.11	< 0.0057	< 0.0057	< 0.0057	< 0.0057	< 0.0057	< 0.0057	< 0.0057	< 0.0057	< 0.0057	< 0.0057	< 0.0057
S-6	4	9/28/2012	< 0.006	< 0.006	< 0.006	< 0.12	< 0.006	< 0.006	< 0.006	< 0.006	< 0.006	< 0.006	< 0.006	< 0.006	< 0.006	< 0.006	< 0.006
S-6	7.5	9/28/2012	< 0.005	< 0.005	< 0.005	< 0.1	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
S-6	12.5	9/28/2012	< 0.0063	< 0.0063	< 0.0063	< 0.13	< 0.0063	< 0.0063	< 0.0063	< 0.0063	< 0.0063	< 0.0063	< 0.0063	< 0.0063	< 0.0063	< 0.0063	< 0.0063
S-6	17.5	9/28/2012	< 0.0069	< 0.0069	< 0.0069	< 0.14	< 0.0069	< 0.0069	< 0.0069	< 0.0069	< 0.0069	< 0.0069	< 0.0069	< 0.0069	< 0.0069	< 0.0069	< 0.0069
S-7	2	8/4/2012	0.078	< 0.0038	< 0.0038	0.083	0.017	< 0.0038	< 0.0038	< 0.0038	< 0.0038	< 0.023	< 0.0038	0.21	< 0.0038	0.27	< 0.0069
S-7	8	8/4/2012	0.025	< 0.0039	< 0.0039	< 0.077	0.0072	< 0.0039	0.01	< 0.0039	0.026	< 0.015	0.023	2.3	0.059	0.14	0.049
S-7	13	8/4/2012	< 0.19	< 0.19	< 0.19	< 3.7	< 0.19	< 0.19	0.32	< 0.19	0.9	< 0.75	0.47	4.7	0.27	< 0.19	1.4
S-8	3	8/4/2012	< 0.006	< 0.006	< 0.006	< 0.12	< 0.006	< 0.006	< 0.006	< 0.006	< 0.006	< 0.024	< 0.006	< 0.006	< 0.006	< 0.006	< 0.006
S-9	2	8/4/2012	< 1.5	< 1.5	< 1.5	< 30	5.4	< 1.5	1.9	< 1.5	9.8	< 6	7.4	53	< 1.5	3.1	17
S-10	2	8/4/2012	0.0064	0.019	< 0.0032	< 0.063	0.065	< 0.0032	< 0.0032	< 0.0032	0.0064	< 0.013	0.006	0.0061	< 0.0032	0.0091	0.012

Notes
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< - less than reporting limit
-- no data

HISTORICAL SOIL DATA

			1,1,1-Trichloroethane	1,1-Dichloroethane	1,1-Dichloroethene	Acetone	cis-1,2-Dichloroethene	Cyclohexane	Ethylbenzene	Isopropylbenzene	m,p-Xylene	Methylene chloride	o-Xylene	Tetrachloroethene	Toluene	Trichloroethene	Xylenes, Total
Sample Location	Sample Depth feet	Date	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg
S-11	2	8/4/2012	< 0.0032	< 0.0032	< 0.0032	< 0.064	< 0.0032	< 0.0032	< 0.0032	< 0.0032	< 0.0032	< 0.013	< 0.0032	< 0.0032	< 0.0032	< 0.0032	< 0.0032
S-11	7	8/4/2012	< 0.0034	< 0.0034	< 0.0034	< 0.068	< 0.0034	< 0.0034	< 0.0034	< 0.0034	< 0.0034	< 0.014	< 0.0034	< 0.0034	< 0.0034	< 0.0034	< 0.0034
S-11	12	8/4/2012	< 0.0031	< 0.0031	< 0.0031	< 0.062	< 0.0031	< 0.0031	< 0.0031	< 0.0031	< 0.0031	< 0.012	< 0.0031	< 0.0031	< 0.0031	< 0.0031	< 0.0031
S-11	17	8/4/2012	< 0.0034	0.0061	< 0.0034	< 0.067	0.005	< 0.0034	< 0.0034	< 0.0034	< 0.0034	< 0.013	< 0.0034	< 0.0034	< 0.0034	< 0.0034	< 0.0034
S-11	22	8/4/2012	< 0.0033	< 0.0033	< 0.0033	< 0.067	< 0.0033	< 0.0033	< 0.0033	< 0.0033	< 0.0033	< 0.013	< 0.0033	< 0.0033	< 0.0033	< 0.0033	< 0.0033
S-12	3	10/2/2012	< 0.0051	< 0.0051	< 0.0051	< 0.1	< 0.0051	< 0.0051	< 0.0051	< 0.0051	< 0.0051	< 0.0051	< 0.0051	< 0.0051	< 0.0051	< 0.0051	< 0.0051
S-12	6	10/2/2012	< 0.0032	< 0.0032	< 0.0032	< 0.064	< 0.0032	< 0.0032	< 0.0032	< 0.0032	< 0.0032	< 0.0032	< 0.0032	< 0.0032	< 0.0032	< 0.0032	< 0.0032
S-13	4	8/4/2012	< 0.0037	< 0.0037	< 0.0037	< 0.074	< 0.0037	< 0.0037	< 0.0037	< 0.0037	< 0.0037	< 0.015	< 0.0037	< 0.0037	< 0.0037	< 0.0037	< 0.0037
S-14	3	10/2/2012	< 0.0033	< 0.0033	< 0.0033	< 0.066	< 0.0033	< 0.0033	< 0.0033	< 0.0033	< 0.0033	< 0.0033	< 0.0033	< 0.0033	< 0.0033	< 0.0033	< 0.0033
S-15	7.5	10/2/2012	< 0.0043	< 0.0043	< 0.0043	< 0.087	< 0.0043	< 0.0043	< 0.0043	< 0.0043	< 0.0043	< 0.0043	< 0.0043	< 0.0043	< 0.0043	< 0.0043	< 0.0043
S-15	12.5	10/2/2012	< 0.0041	< 0.0041	< 0.0041	< 0.083	< 0.0041	< 0.0041	< 0.0041	< 0.0041	< 0.0041	< 0.0041	< 0.0041	< 0.0041	< 0.0041	< 0.0041	< 0.0041
S-15	17.5	10/2/2012	< 0.0054	< 0.0054	< 0.0054	< 0.11	< 0.0054	< 0.0054	< 0.0054	< 0.0054	< 0.0054	< 0.0054	< 0.0054	< 0.0054	< 0.0054	< 0.0054	< 0.0054
S-15	22.5	10/2/2012	< 0.0053	< 0.0053	< 0.0053	< 0.11	< 0.0053	< 0.0053	< 0.0053	< 0.0053	< 0.0053	< 0.0053	< 0.0053	< 0.0053	< 0.0053	< 0.0053	< 0.0053
S-16	3	10/2/2012	< 0.0045	< 0.0045	< 0.0045	< 0.089	< 0.0045	< 0.0045	< 0.0045	< 0.0045	< 0.0045	< 0.0045	< 0.0045	< 0.0045	< 0.0045	< 0.0045	< 0.0045
S-16	7.5	10/2/2012	< 0.0046	< 0.0046	< 0.0046	< 0.092	0.056	< 0.0046	< 0.0046	< 0.0046	< 0.0046	< 0.0046	0.0058	0.015	< 0.0046	0.046	0.0058
S-16	17.5	10/2/2012	< 0.005	< 0.005	< 0.005	< 0.1	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
S-16	22.5	10/2/2012	< 0.0055	< 0.0055	< 0.0055	< 0.11	0.0072	< 0.0055	< 0.0055	< 0.0055	< 0.0055	< 0.0055	< 0.0055	< 0.0055	< 0.0055	< 0.0055	< 0.0055
S-17	4	9/28/2012	< 0.005	< 0.005	< 0.005	< 0.1	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
S-17	7.5	9/28/2012	< 0.0057	< 0.0057	< 0.0057	< 0.11	< 0.0057	< 0.0057	< 0.0057	< 0.0057	< 0.0057	< 0.0057	< 0.0057	< 0.0057	< 0.0057	< 0.0057	< 0.0057
S-17	12.5	9/28/2012	< 0.0061	< 0.0061	< 0.0061	< 0.12	< 0.0061	< 0.0061	< 0.0061	< 0.0061	< 0.0061	< 0.0061	< 0.0061	< 0.0061	< 0.0061	< 0.0061	< 0.0061
S-17	17.5	9/28/2012	< 0.0049	< 0.0049	< 0.0049	< 0.099	0.0068	< 0.0049	< 0.0049	< 0.0049	< 0.0049	< 0.0049	< 0.0049	< 0.0049	< 0.0049	< 0.0049	< 0.0049
S-18	2	9/28/2012	< 0.0024	< 0.0024	< 0.0024	< 0.048	< 0.0024	< 0.0024	0.0035	< 0.0024	0.066	< 0.0024	0.0044	< 0.0024	< 0.0024	< 0.0024	0.0704
S-18	7.5	9/28/2012	< 0.0068	< 0.0068	< 0.0068	< 0.14	< 0.0068	< 0.0068	< 0.0068	< 0.0068	< 0.0068	< 0.0068	< 0.0068	< 0.0068	< 0.0068	< 0.0068	< 0.0068
S-18	12.5	9/28/2012	< 0.0052	< 0.0052	< 0.0052	< 0.1	< 0.0052	< 0.0052	< 0.0052	< 0.0052	< 0.0052	< 0.0052	< 0.0052	< 0.0052	< 0.0052	< 0.0052	< 0.0052
S-18	17.5	9/28/2012	< 0.0059	< 0.0059	< 0.0059	< 0.12	< 0.0059	< 0.0059	< 0.0059	< 0.0059	< 0.0059	< 0.0059	< 0.0059	< 0.0059	< 0.0059	< 0.0059	< 0.0059
S-19	3	9/28/2012	< 0.0048	< 0.0048	< 0.0048	< 0.096	0.022	< 0.0048	< 0.0048	< 0.0048	< 0.0048	< 0.0048	< 0.0048	< 0.0048	< 0.0048	0.0069	< 0.0048
S-19	7.5	9/28/2012	< 0.0055	< 0.0055	< 0.0055	< 0.11	< 0.0055	< 0.0055	< 0.0055	< 0.0055	< 0.0055	< 0.0055	< 0.0055	< 0.0055	< 0.0055	< 0.0055	< 0.0055
S-19	12.5	9/28/2012	< 0.0056	< 0.0056	< 0.0056	< 0.11	< 0.0056	< 0.0056	< 0.0056	< 0.0056	< 0.0056	< 0.0056	< 0.0056	< 0.0056	< 0.0056	< 0.0056	< 0.0056
S-19	16	9/28/2012	< 0.0055	< 0.0055	< 0.0055	< 0.11	< 0.0055	< 0.0055	< 0.0055	< 0.0055	< 0.0055	< 0.0055	< 0.0055	< 0.0055	< 0.0055	< 0.0055	< 0.0055

Notes
mg/Kg - milligrams per kilogram
< - less than reporting limit
-- no data

HISTORICAL SOIL DATA

			1,1,1-Trichloroethane	1,1-Dichloroethane	1,1-Dichloroethene	Acetone	cis-1,2-Dichloroethene	Cyclohexane	Ethylbenzene	Isopropylbenzene	m,p-Xylene	Methylene chloride	o-Xylene	Tetrachloroethene	Toluene	Trichloroethene	Xylenes, Total
Sample Location	Sample Depth feet	Date	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg
S-20	4	9/28/2012	< 0.0043	< 0.0043	< 0.0043	0.15	< 0.0043	< 0.0043	< 0.0043	< 0.0043	< 0.0043	< 0.0043	< 0.0043	0.013	< 0.0043	< 0.0043	< 0.0043
S-20	7.5	9/28/2012	< 0.0059	< 0.0059	< 0.0059	< 0.12	< 0.0059	< 0.0059	< 0.0059	< 0.0059	< 0.0059	< 0.0059	< 0.0059	< 0.0059	< 0.0059	< 0.0059	< 0.0059
S-20	12.5	9/28/2012	< 0.0057	< 0.0057	< 0.0057	< 0.11	< 0.0057	< 0.0057	< 0.0057	< 0.0057	< 0.0057	< 0.0057	< 0.0057	< 0.0057	< 0.0057	< 0.0057	< 0.0057
S-20	16	9/28/2012	< 0.0048	< 0.0048	< 0.0048	< 0.095	< 0.0048	< 0.0048	< 0.0048	< 0.0048	< 0.0048	< 0.0048	< 0.0048	< 0.0048	< 0.0048	< 0.0048	< 0.0048
S-21	6	9/28/2012	< 0.0049	< 0.0049	< 0.0049	< 0.098	< 0.0049	< 0.0049	< 0.0049	< 0.0049	< 0.0049	< 0.0049	< 0.0049	0.074	< 0.0049	0.005	< 0.0049
S-21	8	9/28/2012	< 0.006	< 0.006	< 0.006	< 0.12	< 0.006	< 0.006	< 0.006	< 0.006	< 0.006	< 0.006	< 0.006	< 0.006	< 0.006	< 0.006	< 0.006
S-21	12.5	9/28/2012	< 0.0053	< 0.0053	< 0.0053	< 0.11	< 0.0053	< 0.0053	< 0.0053	< 0.0053	< 0.0053	< 0.0053	< 0.0053	< 0.0053	< 0.0053	< 0.0053	< 0.0053
S-21	17.5	9/28/2012	< 0.006	< 0.006	< 0.006	< 0.12	< 0.006	< 0.006	< 0.006	< 0.006	< 0.006	< 0.006	< 0.006	< 0.006	< 0.006	< 0.006	< 0.006
S-22	5	9/28/2012	< 0.005	< 0.005	< 0.005	< 0.1	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
S-22	12.5	9/28/2012	< 0.0066	< 0.0066	< 0.0066	< 0.13	0.018	< 0.0066	< 0.0066	< 0.0066	< 0.0066	< 0.0066	< 0.0066	< 0.0066	< 0.0066	0.0085	< 0.0056
S-22	7.5	9/28/2012	< 0.0056	< 0.0056	< 0.0056	< 0.11	< 0.0056	< 0.0056	< 0.0056	< 0.0056	< 0.0056	< 0.0056	< 0.0056	< 0.0056	< 0.0056	< 0.0056	< 0.0066
S-22	17.5	9/28/2012	< 0.0065	< 0.0065	< 0.0065	< 0.13	< 0.0065	< 0.0065	< 0.0065	< 0.0065	< 0.0065	< 0.0065	< 0.0065	< 0.0065	< 0.0065	< 0.0065	< 0.0065
S-23	3.5	10/2/2012	< 0.0041	< 0.0041	0.0087	< 0.083	0.011	< 0.0041	< 0.0041	< 0.0041	< 0.0041	< 0.0041	< 0.0041	< 0.0041	< 0.0041	< 0.0041	< 0.0041
S-23	12.5	10/2/2012	< 0.0061	< 0.0061	< 0.0061	< 0.12	< 0.0061	< 0.0061	< 0.0061	< 0.0061	< 0.0061	< 0.0061	< 0.0061	< 0.0061	< 0.0061	< 0.0061	< 0.0041
S-23	7.5	10/2/2012	< 0.0041	< 0.0041	0.011	< 0.082	0.02	< 0.0041	< 0.0041	< 0.0041	< 0.0041	< 0.0041	< 0.0041	< 0.0041	< 0.0041	< 0.0041	< 0.0061
S-23	17	10/2/2012	< 0.0044	< 0.0044	< 0.0044	< 0.088	< 0.0044	< 0.0044	< 0.0044	< 0.0044	< 0.0044	< 0.0044	< 0.0044	< 0.0044	< 0.0044	< 0.0044	< 0.0044
S-24	3	10/2/2012	< 0.0046	< 0.0046	< 0.0046	< 0.092	< 0.0046	< 0.0046	< 0.0046	< 0.0046	< 0.0046	< 0.0046	< 0.0046	< 0.0046	< 0.0046	< 0.0046	< 0.0046
S-25	2	10/2/2012	< 0.0042	< 0.0042	< 0.0042	< 0.085	< 0.0042	< 0.0042	< 0.0042	< 0.0042	< 0.0042	< 0.0042	< 0.0042	< 0.0042	< 0.0042	< 0.0042	< 0.0042
S-26	3	10/2/2012	< 0.0053	< 0.0053	< 0.0053	< 0.11	< 0.0053	< 0.0053	< 0.0053	< 0.0053	< 0.0053	< 0.0053	< 0.0053	< 0.0053	< 0.0053	< 0.0053	< 0.0053
S-27	3	10/2/2012	< 0.0049	< 0.0049	< 0.0049	< 0.097	< 0.0049	< 0.0049	< 0.0049	< 0.0049	< 0.0049	< 0.0097	< 0.0049	< 0.0049	< 0.0049	< 0.0049	< 0.0049
MW-12	2.5	10/3/2012	< 0.0054	< 0.0054	< 0.0054	< 0.11	< 0.0054	< 0.0054	< 0.0054	< 0.0054	< 0.0054	< 0.0054	< 0.0054	< 0.0054	< 0.0054	< 0.0054	< 0.0054
MW-12	12.5	10/3/2012	< 0.0052	< 0.0052	< 0.0052	< 0.1	< 0.0052	< 0.0052	< 0.0052	< 0.0052	< 0.0052	< 0.0052	< 0.0052	< 0.0052	< 0.0052	< 0.0052	< 0.0052
MW-12	17.5	10/3/2012	< 0.0055	< 0.0055	< 0.0055	< 0.11	< 0.0055	< 0.0055	< 0.0055	< 0.0055	< 0.0055	< 0.0055	< 0.0055	< 0.0055	< 0.0055	< 0.0055	< 0.0055
OBG-2	0-3.5	3/23/2013	0.32	< 0.53	< 0.53	32	< 0.53	< 1.1	0.28	< 0.53	NR	< 0.53	NR	8.2	2.1	7.1	1.5
OBG-5	3.5-7	3/24/2013	26	< 11	< 11	720	< 11	< 21	12	< 11	NR	< 11	NR	220	43	110	55
OBG-7	0-2	3/25/2013	4.3	< 11	< 11	1000	< 11	< 22	4	< 11	NR	< 11	NR	52	7.6	39	19
OBG-9	0-2	3/26/2013	23	< 260	< 260	1600	< 260	< 530	< 260	< 260	NR	120	NR	5500	290	4200	< 530
OBG-9	2-4	3/27/2013	510	< 100	< 100	610	< 100	< 210	< 100	< 100	NR	< 100	NR	2400	88	1100	< 210
OBG-12	0-2	10/25/2013	< 47	< 47	< 47	1000	< 47	< 93	45	< 47	NR	< 47	NR	1100	66	210	190
OBG-12	5	10/25/2013	< 64	< 64	< 64	3700	< 64	< 130	66	< 64	NR	< 64	NR	1700	90	310	300
OBG-13	0-3.5	10/25/2013	< 25	< 25	< 25	3200	< 25	9.8	46	< 25	NR	< 25	NR	270	76	140	180

Notes

mg/Kg - milligrams per kilogram

< - less than reporting limit

-- no data

HISTORICAL SOIL DATA

			1,1,1-Trichloroethane	1,1-Dichloroethane	1,1-Dichloroethene	Acetone	cis-1,2-Dichloroethene	Cyclohexane	Ethylbenzene	Isopropylbenzene	m,p-Xylene	Methylene chloride	o-Xylene	Tetrachloroethene	Toluene	Trichloroethene	Xylenes, Total
Sample Location	Sample Depth feet	Date	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg
OBG-14	0-4	10/25/2013	< 0.19	< 0.19	< 0.19	< 1.9	< 0.19	3.2	0.42	0.076	NR	< 0.19	NR	< 0.19	< 0.19	< 0.19	2.1
OBG-14	5	10/25/2013	< 0.45	< 0.45	< 0.45	< 4.5	< 0.45	11	1.3	0.24	NR	< 0.45	NR	< 0.45	< 0.45	< 0.45	6.5
OBG-14	10	10/25/2013	< 0.005	< 0.005	< 0.005	0.033	< 0.005	< 0.0099	< 0.005	< 0.005	NR	< 0.005	NR	< 0.005	< 0.005	< 0.005	< 0.0099
OBG-14	15	10/25/2013	< 0.005	< 0.005	< 0.005	0.021	< 0.005	< 0.0099	< 0.005	< 0.005	NR	< 0.005	NR	< 0.005	< 0.005	< 0.005	< 0.0099
OBG-14	20	10/25/2013	< 0.0052	< 0.0052	< 0.0052	< 0.052	0.002	< 0.01	< 0.0052	< 0.0052	NR	< 0.0052	NR	< 0.0052	< 0.0052	< 0.0052	< 0.01
OBG-14	27	10/25/2013	< 0.21	< 0.21	< 0.21	< 2.1	0.086	< 0.42	< 0.21	< 0.21	NR	< 0.21	NR	0.37	< 0.21	0.083	< 0.42
OBG-14	30	10/25/2013	0.0029	0.0014	0.0017	0.032	0.048	< 0.0091	< 0.0046	< 0.0046	NR	< 0.0046	NR	0.022	< 0.0046	0.041	< 0.0091
MW-16	0-1	11/1/2014	0.0063	0.0057	< 0.0042	0.32	0.0068	< 0.0042	< 0.0042	< 0.0042	< 0.0042	< 0.017	< 0.0042	0.017	< 0.0042	0.0084	NR
SB-1	1-1.5	11/1/2014	1.1	0.67	0.31	< 3.9	< 0.2	< 0.2	0.26	0.26	0.98	< 0.79	0.43	25	0.6	1.9	NR
SB-1	2-2.5	11/1/2014	2.5	0.45	0.19	0.74	0.076	0.059	1.3	0.045	6.6	0.56	2.5	99	2	3.1	NR
SB-2	1.5-2	11/1/2014	< 0.004	< 0.004	< 0.004	0.14	< 0.004	< 0.004	< 0.004	< 0.004	< 0.004	< 0.016	< 0.004	0.049	< 0.004	< 0.004	NR
SB-2	3.5-4	11/1/2014	< 0.0049	< 0.0049	< 0.0049	0.14	< 0.0049	< 0.0049	< 0.0049	< 0.0049	< 0.0049	< 0.019	< 0.0049	< 0.0049	< 0.0049	< 0.0049	NR
SB-3	1-1.5	11/1/2014	0.012	0.03	0.006	0.12	< 0.0044	< 0.0044	< 0.0044	< 0.0044	< 0.0044	< 0.017	< 0.0044	1.5	< 0.0044	< 0.0044	NR
SB-3	2-2.5	11/1/2014	< 0.0045	< 0.0045	< 0.0045	0.28	< 0.0045	< 0.0045	< 0.0045	< 0.0045	< 0.0045	< 0.018	< 0.0045	0.011	< 0.0045	< 0.0045	NR
SB-4	1.5-2	11/1/2014	< 0.0046	< 0.0046	< 0.0046	0.12	< 0.0046	< 0.0046	< 0.0046	< 0.0046	< 0.0046	< 0.019	< 0.0046	< 0.0046	< 0.0046	< 0.0046	NR
SB-4	3.5-4	11/1/2014	< 0.0054	< 0.0054	< 0.0054	0.22	< 0.0054	< 0.0054	< 0.0054	< 0.0054	< 0.0054	< 0.021	< 0.0054	< 0.0054	< 0.0054	< 0.0054	NR
SB-4	7-7.5	11/1/2014	< 0.005	< 0.005	< 0.005	0.14	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.02	< 0.005	< 0.005	< 0.005	< 0.005	NR
SB-4	14-14.5	11/1/2014	< 0.0053	< 0.0053	< 0.0053	0.23	< 0.0053	< 0.0053	< 0.0053	< 0.0053	< 0.0053	< 0.021	< 0.0053	< 0.0053	< 0.0053	< 0.0053	NR
SB-5	1-1.5	11/1/2014	< 0.0045	< 0.0045	< 0.0045	< 0.091	< 0.0045	< 0.0045	< 0.0045	< 0.0045	< 0.0045	< 0.018	< 0.0045	< 0.0045	< 0.0045	< 0.0045	NR
SB-5	7-7.5	11/1/2014	< 0.005	< 0.005	< 0.005	< 0.1	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.02	< 0.005	< 0.005	< 0.005	< 0.005	NR
SB-5	14-14.5	11/1/2014	< 0.005	< 0.005	< 0.005	< 0.099	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.02	< 0.005	< 0.005	< 0.005	< 0.005	NR
SB-5	18-18.5	11/1/2014	< 0.0049	< 0.0049	< 0.0049	< 0.098	< 0.0049	< 0.0049	< 0.0049	< 0.0049	< 0.0049	< 0.02	< 0.0049	< 0.0049	< 0.0049	< 0.0049	NR

Notes
mg/Kg - milligrams per kilogram
< - less than reporting limit
-- no data

Historical Groundwater Analytical Data

HISTORICAL GROUNDWATER DATA														
Monitoring Well	Date	1,1,1-Trichloroethane mg/L	1,1-Dichloroethane mg/L	1,1-Dichloroethene mg/L	1,2-Dichloroethane mg/L	Acetone mg/L	Chloroethane mg/L	cis-1,2-Dichloroethene mg/L	Cyclohexane mg/L	Methylene chloride mg/L	Tetrachloroethene mg/L	trans-1,2-Dichloroethene mg/L	Trichloroethene mg/L	Vinyl Chloride mg/L
RW-1	7/13/1995	16.249	4.435	9.113	9.113	3.705	< 0.5	--	--	11.604	--	--	< 0.05	< 0.5
RW-1	3/22/1996	13	2.2	6.4	0.001	0.12	--	--	--	3.8	0.47	--	0.033	--
RW-1	8/15/1997	0.68	0.16	0.16	< 0.005	< 0.5	< 0.005	--	--	< 0.05	0.13	--	< 0.025	< 0.005
RW-1	11/5/1997	18	4.5	11	< 0.005	77	< 0.005	--	--	61	1.1	--	< 0.25	< 0.005
RW-1	11/27/2000	11	8.4	16	0.032	23	0.72	--	--	21	1	--	0.48	1.7
RW-1	7/20/2001	0.28	0.21	0.49	< 0.005	< 0.005	0.03	--	--	0.1	0.11	--	0.081	0.043
RW-1	2/5/2002	6	4.1	10	< 0.005	0.8	0.65	--	--	1.2	0.8	--	0.36	1
RW-1	7/23/2002	10	6.5	17	0.011	< 0.005	< 0.005	--	--	0.61	0.27	--	0.35	0.93
RW-1	12/18/2002	13	6.9	21	0.011	< 0.005	1.2	--	--	1.1	0.72	--	0.26	1
RW-1	6/5/2003	6.6	5.2	15	0.013	< 0.005	0.65	--	--	0.32	0.93	--	0.38	< 0.005
RW-1	12/10/2003	12	11	14	0.013	< 0.02	< 1	0.63	--	0.19	0.94	--	< 0.5	2.5
RW-1	6/17/2004	11	5.7	14	0.014	< 0.02	0.17	0.51	--	0.27	0.48	--	0.3	0.97
RW-1	1/25/2005	9.1	6.9	15	< 0.5	< 2	< 1	<0.5	--	< 0.5	0.63	--	< 0.5	1
RW-1	12/13/2005	6.3	11	18	< 0.5	17	< 1	<0.5	--	1.4	0.52	--	< 0.5	1.7
RW-1	7/10/2006	4.6	5.2	11	< 0.5	15	< 1	<0.5	--	0.86	< 0.5	--	< 0.5	0.64
RW-1	2/14/2007	5.3	7.9	16	0.019	37	1.5	0.78	--	1.7	0.56	--	0.3	1.4
RW-1	8/6/2007	2.5	5.4	11	0.015	55	1.6	0.35	--	2.3	0.16	--	0.19	0.79
RW-1	2/28/2008	4.7	4.7	14	0.017	53	3	0.85	--	2.2	0.31	--	0.19	0.87
RW-1	11/26/2008	3.9	3.4	15	< 0.5	43	3.7	0.67	--	4.4	< 0.5	--	< 0.5	0.82
RW-1	9/10/2009	5.4	3.2	15	0.017	50	< 0.01	0.77	--	3.2	0.11	--	0.23	0.8
RW-1	3/17/2010	2	1.4	8.8	0.0086	19	2.9	0.41	< 0.005	2.2	0.07	< 0.005	0.46	0.46
RW-1	9/20/2010	0.81	1.8	1.8	< 0.5	49	3.9	< 0.5	< 0.5	1.6	< 0.5	< 0.5	< 0.5	1.8
RW-1	4/8/2011	1.6	2.4	9.5	0.014	53	2.9	0.53	< 0.005	4	0.078	< 0.005	0.15	0.88
RW-1	10/21/2011	2.2	2.3	11	0.012	37	3.5	0.4	< 0.005	3.1	0.06	< 0.005	0.15	1.3
RW-1	10/3/2012	0.19	0.21	1.1	< 0.005	1.9	0.32	0.054	--	0.25	0.022	< 0.005	0.019	0.19
RW-1	6/13/2013	0.16	1.2	1.7	< 0.1	10	1.1	0.16	--	1.2	< 0.1	< 0.1	< 0.1	1.2
RW-1	12/5/2013	0.76	1.4	< 0.001	0.012	2.5	1.4	0.39	0.019	0.2	0.082	0.0026	0.14	0.68
RW-1	10/8/2014	0.3	1.8	1.2	0.015	1.7	0.78	0.15	< 0.005	0.2	0.0072	< 0.005	0.014	0.61
RW-1	1/16/2015	0.18	0.47	0.87	0.0086	4.5	0.89	0.11	0.02	0.018	0.023	< 0.005	0.031	0.35
RW-2	7/13/1995	0.377	0.062	0.192	0.192	3.792	< 0.5	--	--	1.306	0.335	--	< 0.05	< 0.5
RW-2	3/22/1996	0.084	0.028	0.044	--	0.76	--	--	--	0.37	0.015	--	0.008	--
RW-2	8/15/1997	0.17	0.02	0.039	< 0.005	< 0.1	< 0.005	--	--	0.065	0.015	--	< 0.005	< 0.005
RW-2	11/5/1997	0.54	0.082	0.31	< 0.005	< 0.5	< 0.005	--	--	0.6	0.05	--	< 0.025	< 0.005
RW-2	11/27/2000	0.063	0.0079	0.054	< 0.005	< 0.005	< 0.005	--	--	< 0.005	0.044	--	< 0.005	< 0.005
RW-2	7/20/2001	0.025	< 0.005	0.027	< 0.005	< 0.005	< 0.005	--	--	< 0.005	0.021	--	< 0.005	< 0.005
RW-2	2/5/2002	0.058	0.012	0.06	< 0.005	< 0.005	< 0.005	--	--	< 0.005	0.053	--	< 0.005	< 0.005
RW-2	7/23/2002	0.033	0.024	0.043	< 0.005	< 0.005	< 0.005	--	--	< 0.005	0.035	--	< 0.005	< 0.005
RW-2	12/18/2002	0.13	< 0.005	0.13	< 0.005	< 0.005	0.0061	--	--	< 0.005	1.209	--	0.0054	0.0062
RW-2	6/5/2003	0.048	0.13	0.11	< 0.005	< 0.005	< 0.005	--	--	< 0.005	0.11	--	0.0068	< 0.005
RW-2	12/10/2003	0.12	0.29	0.25	< 0.005	0.21	0.019	0.021	--	0.0063	0.2	--	0.011	0.0045
RW-2	6/17/2004	0.16	0.23	0.33	< 0.005	< 0.02	0.047	0.036	--	0.038	0.18	--	0.041	0.01
RW-2	1/25/2005	0.092	0.18	0.2	< 0.005	< 0.02	0.033	0.033	--	0.032	0.087	--	0.028	0.01
RW-2	12/13/2005	0.15	0.54	0.54	< 0.005	< 0.05	0.071	0.14	--	0.015	0.16	--	0.11	0.044
RW-2	7/10/2006	0.059	0.18	0.32	< 0.005	< 0.05	0.03	0.056	--	0.0085	0.091	--	0.06	0.0077
RW-2	2/14/2007	0.061	0.28	0.21	< 0.005	0.34	0.043	0.1	--	0.012	0.1	--	0.075	0.015
RW-2	8/6/2007	0.077	0.22	0.27	< 0.005	0.6	0.026	0.088	--	< 0.005	0.11	--	0.11	0.031
RW-2	2/28/2008	0.065	0.22	0.19	< 0.005	< 0.05	0.017	0.078	--	< 0.005	0.09	--	0.094	0.021
RW-2	11/26/2008	0.069	0.14	0.25	< 0.005	0.99	0.021	0.081	--	0.274	0.1	--	0.13	0.029
RW-2	9/10/2009	0.043	0.093	0.1	< 0.005	< 0.05	< 0.01	0.071	--	< 0.005	0.069	--	0.1	0.023
RW-2	3/17/2010	< 0.005	< 0.005	< 0.005	< 0.005	0.19	< 0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.002
RW-2	9/17/2010	0.095	0.037	0.51	< 0.005	< 0.05	0.01	0.0066	< 0.005	0.0058	0.081	< 0.005	0.0075	0.0067
RW-2	4/8/2011	0.019	0.089	0.057	< 0.005	0.077	< 0.01	0.086	< 0.005	< 0.005	0.059	< 0.005	0.1	0.022
RW-2	10/21/2011	0.012	0.081	0.032	< 0.005	< 0.05	< 0.01	0.12	< 0.005	< 0.005	0.04	< 0.005	0.06	0.018
RW-2	10/2/2012	0.015	0.1	0.038	< 0.005	< 0.05	0.041	0.16	--	< 0.005	0.071	< 0.005	0.11	0.022
RW-2	6/13/2013	0.013	0.038	0.016	< 0.001	< 0.05	0.015	0.25	--	< 0.005	0.092	< 0.001	0.13	0.0065
RW-2	12/4/2013	0.013	0.046	0.03	< 0.001	< 0.05	0.036	0.32	< 0.001	< 0.005	0.083	< 0.001	0.13	0.014
RW-2	10/8/2014	0.014	0.036	0.027	< 0.005	< 0.05	0.022	0.36	< 0.005	< 0.005	0.13	< 0.005	0.18	0.0088
RW-2	1/16/2015	< 0.005	< 0.005	< 0.005	< 0.005	< 0.05	< 0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.002
DW-1	11/5/1997	3	< 0.25	1.9	< 0.005	54	< 0.005	--	--	28	0.32	--	< 0.25	< 0.005
DW-1	11/27/2000	0.78	< 0.005	0.85	< 0.005	< 0.005	< 0.005	--	--	< 0.005	0.14	--	< 0.005	< 0.005
DW-1	7/20/2001	0.49	0.011	0.54	< 0.005	< 0.005	< 0.005	--	--	< 0.005	0.14	--	0.0084	< 0.005
DW-1	2/5/2002	1.2	0.0092	1.7	< 0.005	< 0.005	< 0.005	--	--	< 0.005	0.3	--	0.0054	< 0.005
DW-1	7/23/2002	0.46	< 0.005	0.75	< 0.005	< 0.005	< 0.005	--	--	< 0.005	0.15	--	< 0.005	< 0.005
DW-1	12/18/2002	1	1.6	1.6	< 0.005	< 0.005	< 0.005	--	--	< 0.005	0.24	--	< 0.005	< 0.005
DW-1	6/5/2003	5	0.1	11	0.0076	< 0.005	< 0.005	--	--	0.014	2	--	0.04	< 0.005
DW-1	12/10/2003	12	< 0.5	15	< 0.5	< 2	< 1	< 0.5	--	< 0.5	3.6	--	< 0.5	< 0.2
DW-1	6/17/2004	4.2	0.12	6.5	< 0.005	< 0.02	< 0.01	0.0055	--	< 0.005	1.2	--	0.023	< 0.002
DW-1	1/25/2005	6.2	< 0.5	12	< 0.5	< 2	< 1	< 0.5	--	< 0.5	2.3	--	< 0.5	< 0.2
DW-1	12/13/2005	1.5	5.8	5.7	< 0.5	39	< 1	< 0.5	--	3.6	0.76	--	< 0.5	0.74
DW-1	7/10/2006	0.61	12	3.9	< 0.5	150	< 1	< 0.5	--	6.3	< 0.5	--	< 0.5	1.7
DW-1	2/14/2007	0.026	0.16	0.06	< 0.005	0.38	< 0.01	0.012	--	< 0.005	0.031	--	0.013	0.013
DW-1	8/6/2007	0.55	7.3	2.3	0.0091	330	0.86	0.16	--	3.9	0.27	--	0.079	0.82
DW-1	2/28/2008	0.49	7.1	2.3	0.015	150	16	0.22	--	2	0.37	--	0.13	1.2
DW-1	11/26/2008	0.29	3.6	1.6	0.0097	140	1.3	0.16	--	0.85	0.24	--	0.1	0.77
DW-1	9/10/2009	0.36	3.4	1.2	0.0079	48	< 0.01	0.2	--	0.43	0.23	--	0.12	0.7
DW-1	3/17/2010	0.37	2.1	1.4	0.0062	14	1.7	0.19	< 0.005	0.26	0.28	< 0.005	0.52	0.52
DW-1	9/17/2010	0.31	1.4	1	0.0058	11	1	0.16	< 0.5	0.13	0.34	< 0.005	0.14	0.31
DW-1	4/8/2011	0.35	1.5	1.1	< 0.005	10	0.73	0.16	< 0.005	0.12	0.37	< 0.005	0.14	0.29
DW-1	10/21/2011	0.24	0.78	0.76	< 0.005	3.5	0.63	0.097	< 0.005	0.046	0.3	< 0.005	0.11	0.15
DW-1	10/2/2012	0.23	0.68	0.84	0.0054	2.5	1.2	0.069	--	0.032	0.26	< 0.005	0.049	0.14

HISTORICAL GROUNDWATER DATA														
Monitoring Well	Date	1,1,1-Trichloroethane mg/L	1,1-Dichloroethane mg/L	1,1-Dichloroethene mg/L	1,2-Dichloroethane mg/L	Acetone mg/L	Chloroethane mg/L	cis-1,2-Dichloroethene mg/L	Cyclohexane mg/L	Methylene chloride mg/L	Tetrachloroethene mg/L	trans-1,2-Dichloroethene mg/L	Trichloroethene mg/L	Vinyl Chloride mg/L
MW-1	7/13/1995	140	1.69	53.816	1.69	95.204	< 0.5	--	--	141.054	16.293	--	0.358	< 0.05
MW-1	3/22/1996	200	4.5	13	--	55	0.26	--	--	160	2.3	--	0.017	< 0.05
MW-1	8/15/1997	500	< 25	26	< 0.005	< 500	< 0.005	--	--	390	< 25	--	< 2.5	< 10
MW-1	11/27/2000	64	1.9	7.6	< 0.005	8.1	0.011	--	--	29	1.1	--	0.41	< 0.005
MW-1	7/20/2001	74	1.1	6.7	< 0.005	< 0.005	< 0.005	--	--	8.3	1.1	--	0.94	< 0.005
MW-1	2/5/2002	6.1	1.8	6.8	< 0.005	9	< 0.005	--	--	4.3	0.57	--	2.6	< 0.005
MW-1	7/23/2002	65	0.75	4.9	0.011	2.9	< 0.005	--	--	16	0.91	--	0.67	< 0.005
MW-1	12/18/2002	96	1.2	6.4	< 0.005	19	< 0.005	--	--	15	1.8	--	1.4	0.0071
MW-1	6/5/2003	45	0.55	3.4	< 0.005	< 0.005	< 0.005	--	--	3.5	0.81	--	2.4	< 0.005
MW-1	12/10/2003	73	< 2.5	15	< 2.5	< 10	< 5	5.4	--	4.8	2.9	--	< 2.5	< 1
MW-1	6/17/2004	42	0.32	2.2	< 0.005	< 0.02	< 0.01	4.7	--	5.9	0.32	--	0.93	< 0.002
MW-1	1/25/2005	30	15	< 2.5	< 2.5	< 10	< 5	15	--	< 2.5	< 2.3	--	5	< 1
MW-1	12/13/2005	22	9.7	2.6	< 2.5	480	< 5	49	--	3.4	< 2.5	--	< 2.5	< 1
MW-1	7/10/2006	9.3	9.6	< 2.5	< 2.5	1000	< 5	56	--	< 2.5	< 2.5	--	2.5	< 2.5
MW-1	2/14/2007	< 0.005	18	3.1	< 0.005	3900	< 0.01	91	--	< 0.005	0.58	--	0.41	0.97
MW-1	8/6/2007	4	22	3.2	< 0.25	12000	< 0.5	100	--	7.5	0.58	--	< 0.25	0.79
MW-1	2/28/2008	1.6	18	2	< 0.005	900	< 0.01	100	--	< 0.005	0.011	--	0.016	1.2
MW-1	11/26/2008	2.9	27	6.9	< 0.25	7000	< 0.5	110	--	0.98	< 0.25	--	< 0.25	6
MW-1	9/10/2009	35	25	9.4	0.038	3200	< 0.0099	100	--	4.4	< 0.0086	--	0.054	2.9
MW-1	3/17/2010	1.7	36	12	< 0.005	2600	0.017	120	0.027	0.065	0.0073	0.11	< 0.005	3.6
MW-1	9/16/2010	2.9	8.5	2.5	< 0.005	1200	< 0.01	49	0.023	< 0.005	0.0064	0.089	0.088	4.1
MW-1	4/8/2011	1.4	9.4	1.5	0.009	420	< 0.01	16	0.038	0.23	< 0.005	0.016	0.023	2.8
MW-1	10/21/2011	3.8	6.8	0.93	< 0.005	460	< 0.01	14	< 0.005	0.49	< 0.005	< 0.005	0.027	0.75
MW-1	8/6/2012	4.8	1.5	0.28	< 0.005	92	< 0.01	3.5	--	0.19	0.019	0.0094	0.11	0.15
MW-1	6/14/2013	0.24	0.56	0.018	< 0.01	0.78	< 0.05	0.2	--	< 0.05	< 0.01	< 0.01	< 0.01	0.092
MW-1	12/5/2013	0.057	0.12	0.0031	< 0.001	0.26	< 0.005	0.12	0.0093	< 0.005	0.0051	< 0.001	0.028	0.049
MW-1	10/8/2014	0.09	0.19	0.012	< 0.005	0.17	< 0.01	0.16	< 0.005	< 0.005	< 0.005	< 0.005	0.047	0.082
MW-1	1/15/2015	0.11	0.57	0.019	< 0.005	4.5	0.057	0.19	0.011	< 0.005	0.021	< 0.005	0.1	0.16
MW-1	4/8/2015	0.014	0.084	< 0.005	< 0.005	< 0.05	0.01	0.041	< 0.005	< 0.005	0.0081	< 0.005	0.013	0.03
MW-1	10/8/2015	0.10	0.37	0.015	< 0.005	3.6	0.056	0.13	0.008	< 0.005	< 0.005	< 0.005	0.008	0.082
MW-1	3/23/2016	< 0.005	0.008	< 0.005	< 0.005	< 0.050	< 0.010	0.022	< 0.005	< 0.005	0.010	< 0.005	< 0.005	0.008
MW-1	9/14/2016	0.013	0.06	< 0.005	< 0.005	0.56	< 0.010	0.049	< 0.005	< 0.005	0.012	< 0.005	< 0.005	0.032
MW-1	3/7/2017	< 0.005	0.033	< 0.005	< 0.005	0.19	0.022	0.042	0.007	< 0.005	0.016	< 0.005	0.028	0.024
MW-2	7/13/1995	0.016	0.013	0.0071	--	0.262	< 0.01	--	--	0.047	--	--	0.0012	< 0.001
MW-2	3/22/1996	0.003	0.002	< 0	--	0.017	--	--	--	0.009	0.003	--	< 0.01	< 0.01
MW-2	8/15/1997	< 0.005	< 0.005	< 0.005	< 0.005	< 0.1	< 0.005	--	--	< 0.01	< 0.005	--	< 0.005	< 0.002
MW-2	11/27/2000	--	< 0.005	< 0.005	< 0.005	--	< 0.005	--	--	< 0.005	< 0.005	--	< 0.005	< 0.005
MW-2	7/20/2001	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	--	--	< 0.005	< 0.005	--	< 0.005	< 0.005
MW-2	2/5/2002	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	--	--	< 0.005	< 0.005	--	< 0.005	< 0.005
MW-2	7/23/2002	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	--	--	< 0.005	< 0.005	--	< 0.005	< 0.005
MW-2	12/18/2002	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	--	--	< 0.005	< 0.005	--	< 0.005	< 0.005
MW-2	6/5/2003	< 0.005	< 0.005	0.029	< 0.005	0.029	< 0.005	< 0.005	--	< 0.005	< 0.005	--	< 0.005	< 0.005
MW-2	12/10/2003	< 0.005	< 0.005	< 0.02	< 0.005	< 0.02	< 0.01	< 0.005	--	< 0.005	< 0.005	--	< 0.005	< 0.002
MW-2	6/17/2004	< 0.005	< 0.005	< 0.02	< 0.005	< 0.02	< 0.01	< 0.005	--	< 0.005	< 0.005	--	< 0.005	< 0.002
MW-2	1/25/2005	< 0.005	< 0.005	< 0.02	< 0.005	< 0.02	< 0.01	< 0.005	--	< 0.005	< 0.005	--	< 0.005	< 0.002
MW-2	12/13/2005	< 0.005	< 0.005	< 0.05	< 0.005	< 0.05	< 0.01	< 0.005	--	< 0.005	0.019	--	< 0.005	< 0.002
MW-2	7/10/2006	< 0.005	< 0.005	< 0.05	< 0.005	< 0.05	< 0.01	< 0.005	--	< 0.005	< 0.005	--	< 0.005	< 0.002
MW-2	2/14/2007	< 0.005	< 0.005	< 0.005	< 0.005	< 0.05	< 0.01	< 0.005	--	< 0.005	< 0.005	--	< 0.005	< 0.002
MW-2	8/6/2007	< 0.005	< 0.005	< 0.005	< 0.005	< 0.05	< 0.01	< 0.005	--	< 0.005	< 0.005	--	< 0.005	< 0.002
MW-2	2/28/2008	< 0.005	< 0.005	< 0.005	< 0.005	< 0.05	< 0.01	< 0.005	--	< 0.005	< 0.005	--	< 0.005	< 0.002
MW-2	11/26/2008	< 0.005	< 0.005	< 0.005	< 0.005	< 0.05	< 0.01	< 0.005	--	< 0.005	< 0.005	--	< 0.005	< 0.002
MW-2	9/10/2009	< 0.005	< 0.005	< 0.005	< 0.005	< 0.05	< 0.01	< 0.005	--	< 0.005	< 0.005	--	< 0.005	< 0.002
MW-2	3/16/2010	< 0.005	< 0.005	< 0.005	< 0.005	< 0.05	< 0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.002
MW-2	9/17/2010	< 0.005	< 0.005	< 0.005	< 0.005	< 0.05	< 0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.002
MW-2	4/8/2011	< 0.005	< 0.005	< 0.005	< 0.005	< 0.05	< 0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.002
MW-2	10/21/2011	< 0.005	< 0.005	< 0.005	< 0.005	< 0.05	< 0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.002
MW-2	9/28/2012	< 0.005	< 0.005	< 0.005	< 0.005	< 0.05	< 0.01	< 0.005	--	< 0.005	< 0.005	< 0.005	< 0.005	< 0.002
MW-2	6/11/2013	< 0.001	< 0.001	< 0.001	< 0.001	< 0.05	< 0.005	< 0.001	--	< 0.005	< 0.001	< 0.001	< 0.001	< 0.001
MW-2	12/3/2013	< 0.001	< 0.001	< 0.001	< 0.001	< 0.05	< 0.005	< 0.001	< 0.001	< 0.005	< 0.001	< 0.001	< 0.001	< 0.001
MW-2	4/7/2015	< 0.005	< 0.005	< 0.005	< 0.005	< 0.05	< 0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.002
MW-2	10/8/2015	< 0.005	< 0.005	< 0.005	< 0.005	< 0.050	< 0.010	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.002
MW-2	3/21/2016	< 0.005	< 0.005	< 0.005	< 0.005	< 0.050	< 0.010	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.002
MW-3	7/13/1995	203.981	4.298	34.101	34.101	89.065	< 0.5	--	--	77.212	0.721	--	< 0.05	< 0.05
MW-3	3/22/1996	25	0.56	4.5	0.051	46	0.012	--	--	1	2.1	--	0.79	< 0.01
MW-3	8/15/1997	43	3.6	9.5	< 0.005	100	< 0.005	--	--	110	< 2.5	--	< 2.5	< 1
MW-3	11/27/2000	11	10	6.6	0.029	42	0.35	--	--	52	0.56	--	0.66	0.73
MW-3	7/20/2001	34	25	16	0.072	< 0.005	1.1	--	--	130	0.53	--	1.4	1.4
MW-3	2/5/2002	29	24	11	< 0.005	560	1.4	--	--	160	0.37	--	1.7	1.4
MW-3	7/23/2002	13	33	13	0.074	110	2.7	--	--	150	0.23	--	1.1	3.6
MW-3	12/18/2002	3.4	7.2	1.6	0.02	83	0.19	--	--	28	0.08	--	0.18	0.13
MW-3	6/5/2003	2.9	0.007	6.1	0.0069	< 0.005	0.16	--	--	1.2	0.31	--	0.14	0.57
MW-3	12/10/2003	0.7	0.78	1.8	< 0.005	< 0.02	0.018	0.06	--	0.26	0.046	--	0.026	0.064
MW-3	6/17/2004	1.4	1.9	1.5	< 0.005	3.1	0.31	0.58	--	2.2	0.018	--	0.05	0.19
MW-3	1/25/2005	1.7	2.5	3	< 0.5	< 2	< 1	< 0.5	--	< 0.5	< 0.5	--	< 0.5	0.23
MW-3	12/13/2005	3.4	17	7.4	< 0.5	59	1.6	5.2	--	6.5	< 0.5	--	< 0.5	2.8
MW-3	7/10/2006	< 0.005	0.008	< 5	< 0.005	4.3	< 0.01	< 0.005	--	0.0093	< 0.005	--	< 0.005	< 0.002
MW-3	2/14/2007	1.2												

HISTORICAL GROUNDWATER DATA														
		1,1,1-Trichloroethane	1,1-Dichloroethane	1,1-Dichloroethene	1,2-Dichloroethane	Acetone	Chloroethane	cis-1,2-Dichloroethene	Cyclohexane	Methylene chloride	Tetrachloroethene	trans-1,2-Dichloroethene	Trichloroethene	Vinyl Chloride
Monitoring Well	Date	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
MW-3	10/8/2014	1.6	3	1.5	0.0093	53	0.24	5	0.013	< 0.005	0.0057	0.0065	0.073	1.4
MW-3	1/15/2015	0.37	0.76	0.39	< 0.005	18	0.29	0.55	0.0055	0.018	< 0.005	0.0067	< 0.005	0.38
MW-3	4/8/2015	0.17	0.83	0.11	< 0.005	20	0.6	0.28	< 0.005	0.0087	< 0.005	< 0.005	< 0.005	0.44
MW-3	10/8/2015	1.2	1.8	0.9	0.008	10	0.42	4.9	0.007	0.005	0.02	0.006	0.10	1.70
MW-3	3/23/2016	0.022	0.18	0.023	< 0.005	0.33	0.32	0.17	< 0.005	0.009	< 0.005	< 0.005	< 0.005	0.17
MW-3	9/14/2016	0.099	0.35	0.079	< 0.005	< 0.050	0.074	0.7	< 0.005	0.009	< 0.005	< 0.005	< 0.005	0.36
MW-3	3/7/2017	<0.005	0.015	0.003	<0.005	< 0.050	<0.010	0.015	<0.005	<0.005	<0.005	<0.005	<0.005	0.015
MW-4	1/25/2005	3.4	< 0.5	13	< 0.5	< 0.5	< 1	< 0.5	--	< 0.5	1.7	--	< 0.5	< 0.2
MW-4	12/13/2005	2.2	< 0.5	11	< 0.5	7	< 1	< 0.5	--	< 0.5	1.2	--	< 0.5	< 0.2
MW-4	7/10/2006	2	< 0.5	11	< 0.5	< 5	< 1	< 0.005	--	< 0.5	1.5	--	< 0.5	< 0.2
MW-4	2/14/2007	3.6	< 0.005	18	< 0.005	< 0.05	< 0.01	< 0.005	--	< 0.005	2	--	0.032	< 0.002
MW-4	8/6/2007	2.3	0.033	19	< 0.005	< 0.05	< 0.01	< 0.005	--	< 0.005	1.7	--	0.021	< 0.002
MW-4	2/28/2008	3.5	0.063	27	0.0075	< 0.05	< 0.01	0.022	--	< 0.005	2.2	--	0.035	< 0.002
MW-4	11/26/2008	1.4	< 0.5	13	< 0.5	< 5	< 1	< 0.5	--	< 0.5	1.2	--	< 0.5	< 0.2
MW-4	9/10/2009	2.9	< 0.013	18	0.024	< 0.55	< 0.02	< 0.5	--	< 0.096	2.2	--	< 0.012	< 0.019
MW-4	3/16/2010	2.2	0.046	28	< 0.005	< 0.05	< 0.01	< 0.005	0.012	< 0.005	1.7	< 0.005	0.023	< 0.002
MW-4	9/20/2010	2.9	0.023	4.6	< 0.005	< 0.05	< 0.01	0.015	< 0.005	< 0.005	0.46	< 0.005	0.02	< 0.002
MW-4	4/8/2011	2.5	0.09	9.1	< 0.005	< 0.05	< 0.01	0.042	< 0.005	< 0.005	0.92	< 0.005	0.12	< 0.002
MW-4	10/21/2011	0.89	0.088	3.2	< 0.005	< 0.05	< 0.01	0.069	< 0.005	< 0.005	0.42	< 0.005	0.11	< 0.002
MW-4	8/7/2012	1.7	0.061	9.4	< 0.005	< 0.05	< 0.01	0.013	--	< 0.005	0.62	< 0.005	0.069	< 0.002
MW-4	6/13/2013	1.6	< 0.2	8.6	< 0.2	< 10	< 1	< 0.2	--	< 1	1.5	< 0.2	< 0.2	< 0.2
MW-4	12/5/2013	2.1	0.12	14	< 0.025	< 1.2	< 0.12	0.039	< 0.025	< 0.12	1.6	< 0.025	0.12	< 0.025
MW-4	10/8/2014	2.4	0.075	16	< 0.005	< 0.05	< 0.01	0.011	0.011	< 0.005	2.1	< 0.005	0.14	< 0.002
MW-4	1/15/2015	2.6	0.083	36	< 0.005	< 0.05	< 0.01	0.037	0.016	< 0.005	2.6	< 0.005	0.12	< 0.002
MW-4	4/9/2015	1	0.056	9.8	< 0.005	< 0.05	< 0.01	0.019	0.0091	< 0.005	1.6	< 0.005	0.067	0.0055
MW-4	10/8/2015	1.6	< 0.50	19	< 0.50	< 5.0	< 1.0	< 0.50	< 0.50	< 0.50	2.0	< 0.50	< 0.50	< 0.20
MW-4	3/22/2016	1.2	0.063	15	< 0.005	< 0.050	< 0.010	0.014	< 0.005	< 0.005	1.9	< 0.005	0.079	0.006
MW-4	9/14/2016	1.4	< 0.025	18	< 0.024	< 0.53	< 0.039	0.72	< 0.16	< 0.031	0.55	< 0.022	0.29	< 0.042
MW-4	3/7/2017	0.96	0.063	14	< 0.005	< 0.050	< 0.010	0.39	< 0.005	< 0.005	0.74	< 0.005	0.42	0.017
MW-5	2/14/2007	< 0.005	< 0.005	< 0.005	< 0.005	< 0.05	< 0.01	< 0.005	--	< 0.005	< 0.005	--	< 0.005	< 0.002
MW-5	8/6/2007	< 0.005	< 0.005	< 0.005	< 0.005	< 0.05	< 0.01	< 0.005	--	< 0.005	< 0.005	--	< 0.005	< 0.002
MW-5	2/28/2008	< 0.005	< 0.005	< 0.005	< 0.005	< 0.05	< 0.01	< 0.005	--	< 0.005	< 0.005	--	< 0.005	< 0.002
MW-5	11/26/2008	< 0.005	< 0.005	< 0.005	< 0.005	< 0.05	< 0.01	< 0.005	--	< 0.005	< 0.005	--	< 0.005	< 0.002
MW-5	9/10/2009	< 0.005	< 0.005	< 0.005	< 0.005	< 0.05	< 0.01	< 0.005	--	< 0.005	< 0.005	--	< 0.005	< 0.002
MW-5	3/16/2010	< 0.005	< 0.005	< 0.005	< 0.005	< 0.05	< 0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.002
MW-5	9/17/2010	< 0.005	< 0.005	< 0.005	< 0.005	< 0.05	< 0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.002
MW-5	4/8/2011	< 0.005	< 0.005	< 0.005	< 0.005	< 0.05	< 0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.002
MW-5	10/21/2011	< 0.005	< 0.005	< 0.005	< 0.005	< 0.05	< 0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.002
MW-5	9/27/2012	< 0.005	< 0.005	< 0.005	< 0.005	< 0.05	< 0.01	< 0.005	--	< 0.005	< 0.005	< 0.005	< 0.005	< 0.002
MW-5	6/11/2013	< 0.001	< 0.001	< 0.001	< 0.001	< 0.05	< 0.005	< 0.001	--	< 0.005	< 0.001	< 0.001	< 0.001	< 0.001
MW-5	12/3/2013	< 0.001	< 0.001	< 0.001	< 0.001	< 0.05	< 0.005	< 0.001	< 0.001	< 0.005	< 0.001	< 0.001	< 0.001	< 0.001
MW-5	4/8/2015	< 0.005	< 0.005	< 0.005	< 0.005	< 0.05	< 0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.002
MW-5	10/7/2015	< 0.005	< 0.005	< 0.005	< 0.005	< 0.050	< 0.010	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.002
MW-5	3/21/2016	< 0.005	< 0.005	< 0.005	< 0.005	< 0.050	< 0.010	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.002
MW-5	9/12/2016													

EPA Regional Screening Level Input and Outputs

Site-specific

Resident Equation Inputs for Tap Water

1

Variable	Value
THQ (target hazard quotient) unitless	1
TR (target risk) unitless	1.0E-5
LT (lifetime) years	70
K (volatilization factor of Andelman) L/m ³	0.5
I _{sc} (apparent thickness of stratum corneum) cm	0.001
ED _{res} (exposure duration - resident) years	26
ED _{res,c} (exposure duration - child) years	6
ED _{res,a} (exposure duration - adult) years	20
ED _{1,1} (mutagenic exposure duration first phase) years	2
ED _{2,1} (mutagenic exposure duration second phase) years	4
ED _{3,1} (mutagenic exposure duration third phase) years	10
ED _{4,1} (mutagenic exposure duration fourth phase) years	10
EF _{res} (exposure frequency) days/year	350
EF _{res,c} (exposure frequency - child) days/year	350
EF _{res,a} (exposure frequency - adult) days/year	350
EF _{1,1} (mutagenic exposure frequency first phase) days/year	350
EF _{2,1} (mutagenic exposure frequency second phase) days/year	350
EF _{3,1} (mutagenic exposure frequency third phase) days/year	350
EF _{4,1} (mutagenic exposure frequency fourth phase) days/year	350
ET _{avant res,adj} (age-adjusted exposure time) hours/event	0.67077
ET _{res,mut} (mutagenic age-adjusted exposure time) hours/event	0.67077
ET _{res} (exposure time) hours/day	24
ET _{res,c} (dermal exposure time - child) hours/event	0.54
ET _{res,a} (dermal exposure time - adult) hours/event	0.71
ET _{res,c} (inhalation exposure time - child) hours/day	24
ET _{res,a} (inhalation exposure time - adult) hours/day	24
ET _{1,1} (mutagenic inhalation exposure time first phase) hours/day	24
ET _{2,1} (mutagenic inhalation exposure time second phase) hours/day	24
ET _{3,1} (mutagenic inhalation exposure time third phase) hours/day	24
ET _{4,1} (mutagenic inhalation exposure time fourth phase) hours/day	24
ET _{1,1} (mutagenic dermal exposure time first phase) hours/event	0.54
ET _{2,1} (mutagenic dermal exposure time second phase) hours/event	0.54
ET _{3,1} (mutagenic dermal exposure time third phase) hours/event	0.71
ET _{4,1} (mutagenic dermal exposure time fourth phase) hours/event	0.71

Site-specific

Resident Equation Inputs for Tap Water

2

Variable	Value
BW _{res-a} (body weight - adult) kg	80
BW _{res-c} (body weight - child) kg	15
BW ₀₋₂ (mutagenic body weight) kg	15
BW ₂₋₆ (mutagenic body weight) kg	15
BW ₆₋₁₆ (mutagenic body weight) kg	80
BW ₁₆₋₂₆ (mutagenic body weight) kg	80
IFW _{res-adj} (adjusted intake factor) L/kg	327.95
IFW _{res-adj} (adjusted intake factor) L/kg	327.95
IFWM _{res-adj} (mutagenic adjusted intake factor) L/kg	1019.9
IFWM _{res-adj} (mutagenic adjusted intake factor) L/kg	1019.9
IRW _{res-c} (water intake rate - child) L/day	0.78
IRW _{res-a} (water intake rate - adult) L/day	2.5
IRW ₀₋₂ (mutagenic water intake rate) L/day	0.78
IRW ₂₋₆ (mutagenic water intake rate) L/day	0.78
IRW ₆₋₁₆ (mutagenic water intake rate) L/day	2.5
IRW ₁₆₋₂₆ (mutagenic water intake rate) L/day	2.5
EV _{res-a} (events - adult) per day	1
EV _{res-c} (events - child) per day	1
EV ₀₋₂ (mutagenic events) per day	1
EV ₂₋₆ (mutagenic events) per day	1
EV ₆₋₁₆ (mutagenic events) per day	1
EV ₁₆₋₂₆ (mutagenic events) per day	1
DFW _{res-adj} (age-adjusted dermal factor) cm ² -event/kg	2610650
DFWM _{res-adj} (mutagenic age-adjusted dermal factor) cm ² -event/kg	8191633
DFW _{res-adj} (age-adjusted dermal factor) cm ² -event/kg	2610650
DFWM _{res-adj} (mutagenic age-adjusted dermal factor) cm ² -event/kg	8191633
SA _{res-c} (skin surface area - child) cm ²	6365
SA _{res-a} (skin surface area - adult) cm ²	19652
SA ₀₋₂ (mutagenic skin surface area) cm ²	6365
SA ₂₋₆ (mutagenic skin surface area) cm ²	6365
SA ₆₋₁₆ (mutagenic skin surface area) cm ²	19652
SA ₁₆₋₂₆ (mutagenic skin surface area) cm ²	19652

Site-specific

Resident Screening Levels (RSL) for Tap Water

Key: I = IRIS; P = PPRTV; D = DWSHA; O = OPP; A = ATSDR; C = Cal EPA; X = APPENDIX PPRTV SCREEN (See FAQ #27); H = HEAST; F = See FAQ; J = New Jersey; E = see user guide Section 2.3.5; L = see user guide on lead; M = mutagen; S = see user guide Section 5; V = volatile; R = RBA applied (See User Guide for Arsenic notice) ; c = cancer; n = noncancer; * = where: n SL < 100X c SL; ** = where n SL < 10X c SL; SSL values are based on DAF=1; m = Concentration may exceed ceiling limit (See User Guide); s = Concentration may exceed Csat (See User Guide)

Chemical	CAS Number	Mutagen?	VOC?	Chemical Type	Ingestion SF (mg/kg-day) ⁻¹	SFO Ref	Inhalation Unit Risk (ug/m ³) ⁻¹	IUR Ref	RfD (mg/kg-day)	RfD Ref	RfC (mg/m ³)	RfC Ref	GIABS	K _p (cm/hr)	MW
Dichloroethylene, 1,1-	75-35-4	No	Yes	Organics	-		-		5.00E-02	U	2.00E-01	U	1	0.0117	96.9

Chemical	B (unitless)	tSUP (hr)	τ _{event} (hr/event)	FA (unitless)	In EPD?	&bold _{DA event (c)}	&bold _{DA event (nc child)}	&bold _{DA event (nc adult)}	MCL ug/L	Ingestion SL TR=1.0E-5 (ug/L)	Dermal SL TR=1.0E-5 (ug/L)	Inhalation SL TR=1.0E-5 (ug/L)
Dichloroethylene, 1,1-	0.044297	0.8804405	0.3668502	1	Yes	-	0.1228818	0.2122648	7.00E+00	-	-	-

Chemical	Carcinogenic SL TR=1.0E-5 (ug/L)	Ingestion SL Child THQ=1 (ug/L)	Dermal SL Child THQ=1 (ug/L)	Inhalation SL Child THQ=1 (ug/L)	Noncarcinogenic SL Child THI=1 (ug/L)	Ingestion SL Adult THQ=1 (ug/L)	Dermal SL Adult THQ=1 (ug/L)	Inhalation SL Adult THQ=1 (ug/L)	Noncarcinogenic SL Adult THI=1 (ug/L)	Screening Level (ug/L)
Dichloroethylene, 1,1-	-	1.00E+03	8.54E+03	4.17E+02	2.85E+02	1.67E+03	1.29E+04	4.17E+02	3.25E+02	2.85E+02 nc

Site-specific

Resident Equation Inputs for Tap Water

1

Variable	Value
THQ (target hazard quotient) unitless	1
TR (target risk) unitless	1.0E-5
LT (lifetime) years	70
K (volatilization factor of Andelman) L/m ³	0.5
I _{sc} (apparent thickness of stratum corneum) cm	0.001
ED _{res} (exposure duration - resident) years	26
ED _{res-yr} (exposure duration - child) years	6
ED _{res-ad} (exposure duration - adult) years	20
ED ₁₋₇ (mutagenic exposure duration first phase) years	2
ED ₇₋₁₅ (mutagenic exposure duration second phase) years	4
ED ₁₅₋₁₆ (mutagenic exposure duration third phase) years	10
ED ₁₆₋₂₆ (mutagenic exposure duration fourth phase) years	10
EF _{res} (exposure frequency) days/year	350
EF _{res-yr} (exposure frequency - child) days/year	350
EF _{res-ad} (exposure frequency - adult) days/year	350
EF ₁₋₇ (mutagenic exposure frequency first phase) days/year	350
EF ₇₋₁₅ (mutagenic exposure frequency second phase) days/year	350
EF ₁₅₋₁₆ (mutagenic exposure frequency third phase) days/year	350
EF ₁₆₋₂₆ (mutagenic exposure frequency fourth phase) days/year	350
ET _{avant res-adj} (age-adjusted exposure time) hours/event	0.67077
ET _{res-mut} (mutagenic age-adjusted exposure time) hours/event	0.67077
ET _{res} (exposure time) hours/day	24
ET _{res-yr} (dermal exposure time - child) hours/event	0.54
ET _{res-ad} (dermal exposure time - adult) hours/event	0.71
ET _{res-yr} (inhalation exposure time - child) hours/day	24
ET _{res-ad} (inhalation exposure time - adult) hours/day	24
ET ₁₋₇ (mutagenic inhalation exposure time first phase) hours/day	24
ET ₇₋₁₅ (mutagenic inhalation exposure time second phase) hours/day	24
ET ₁₅₋₁₆ (mutagenic inhalation exposure time third phase) hours/day	24
ET ₁₆₋₂₆ (mutagenic inhalation exposure time fourth phase) hours/day	24
ET ₁₋₇ (mutagenic dermal exposure time first phase) hours/event	0.54
ET ₇₋₁₅ (mutagenic dermal exposure time second phase) hours/event	0.54
ET ₁₅₋₁₆ (mutagenic dermal exposure time third phase) hours/event	0.71
ET ₁₆₋₂₆ (mutagenic dermal exposure time fourth phase) hours/event	0.71

Site-specific

Resident Equation Inputs for Tap Water

2

Variable	Value
BW_{res-a} (body weight - adult) kg	80
BW_{res-c} (body weight - child) kg	15
$BW_{0.2}$ (mutagenic body weight) kg	15
BW_{2-6} (mutagenic body weight) kg	15
BW_{6-16} (mutagenic body weight) kg	80
BW_{16-26} (mutagenic body weight) kg	80
$IFW_{res-adj}$ (adjusted intake factor) L/kg	327.95
IFW_{res-c} (adjusted intake factor) L/kg	327.95
$IFWM_{res-adj}$ (mutagenic adjusted intake factor) L/kg	1019.9
$IFWM_{res-c}$ (mutagenic adjusted intake factor) L/kg	1019.9
IRW_{res-c} (water intake rate - child) L/day	0.78
IRW_{res-a} (water intake rate - adult) L/day	2.5
$IRW_{0.2}$ (mutagenic water intake rate) L/day	0.78
IRW_{2-6} (mutagenic water intake rate) L/day	0.78
IRW_{6-16} (mutagenic water intake rate) L/day	2.5
IRW_{16-26} (mutagenic water intake rate) L/day	2.5
EV_{res-a} (events - adult) per day	1
EV_{res-c} (events - child) per day	1
$EV_{0.2}$ (mutagenic events) per day	1
EV_{2-6} (mutagenic events) per day	1
EV_{6-16} (mutagenic events) per day	1
EV_{16-26} (mutagenic events) per day	1
$DFW_{res-adj}$ (age-adjusted dermal factor) cm^2 -event/kg	2610650
$DFWM_{res-adj}$ (mutagenic age-adjusted dermal factor) cm^2 -event/kg	8191633
DFW_{res-c} (age-adjusted dermal factor) cm^2 -event/kg	2610650
$DFWM_{res-c}$ (mutagenic age-adjusted dermal factor) cm^2 -event/kg	8191633
SA_{res-c} (skin surface area - child) cm^2	6365
SA_{res-a} (skin surface area - adult) cm^2	19652
$SA_{0.2}$ (mutagenic skin surface area) cm^2	6365
SA_{2-6} (mutagenic skin surface area) cm^2	6365
SA_{6-16} (mutagenic skin surface area) cm^2	19652
SA_{16-26} (mutagenic skin surface area) cm^2	19652

Site-specific

Resident Screening Levels (RSL) for Tap Water

Key: I = IRIS; P = PPRTV; D = DWSHA; O = OPP; A = ATSDR; C = Cal EPA; X = APPENDIX PPRTV SCREEN (See FAQ #27); H = HEAST; F = See FAQ; J = New Jersey; E = see user guide Section 2.3.5; L = see user guide on lead; M = mutagen; S = see user guide Section 5; V = volatile; R = RBA applied (See User Guide for Arsenic notice) ; c = cancer; n = noncancer; * = where: n SL < 100X c SL; ** = where n SL < 10X c SL; SSL values are based on DAF=1; m = Concentration may exceed ceiling limit (See User Guide); s = Concentration may exceed Csat (See User Guide)

Chemical	CAS Number	Mutagen?	VOC?	Chemical Type	Ingestion SF (mg/kg-day) ⁻¹	SFO Ref	Inhalation Unit Risk (ug/m ³) ⁻¹	IUR Ref	RfD (mg/kg-day)	RfD Ref	RfC (mg/m ³)	RfC Ref	GIABS	K _p (cm/hr)	MW
Tetrachloroethylene	127-18-4	No	Yes	Organics	2.10E-03	U	2.60E-07	U	6.00E-03	U	4.00E-02	U	1	0.0334	166

Chemical	B (unitless)	tSUP (hr)	τ _{event} (hr/event)	FA (unitless)	In EPD?	&bold DA_{event} (c)	&bold DA_{event} (nc child)	&bold DA_{event} (nc adult)	MCL ug/L	Ingestion SL TR=1.0E-5 (ug/L)	Dermal SL TR=1.0E-5 (ug/L)	Inhalation SL TR=1.0E-5 (ug/L)
Tetrachloroethylene	0.1655111	2.1461496	0.894229	1	Yes	0.046604	0.0147458	0.0254718	5.00E+00	3.71E+02	6.52E+02	2.16E+02

Chemical	Carcinogenic SL TR=1.0E-5 (ug/L)	Ingestion SL Child THQ=1 (ug/L)	Dermal SL Child THQ=1 (ug/L)	Inhalation SL Child THQ=1 (ug/L)	Noncarcinogenic SL Child THI=1 (ug/L)	Ingestion SL Adult THQ=1 (ug/L)	Dermal SL Adult THQ=1 (ug/L)	Inhalation SL Adult THQ=1 (ug/L)	Noncarcinogenic SL Adult THI=1 (ug/L)	Screening Level (ug/L)
Tetrachloroethylene	1.13E+02	1.20E+02	2.30E+02	8.34E+01	4.06E+01	2.00E+02	3.46E+02	8.34E+01	5.03E+01	4.06E+01 nc

EPA Vapor Intrusion Screening Level Output Sheets

OSWER VAPOR INTRUSION ASSESSMENT
Groundwater Concentration to Indoor Air Concentration (GWC-IAC) Calculator Version 3.5, June 2017 RSLs

Parameter	Symbol	Value	Instructions
Exposure Scenario	Scenario	Residential	Select residential or commercial scenario from pull down list
Target Risk for Carcinogens	TCR	1.00E-05	Enter target risk for carcinogens (for comparison to the calculated VI carcinogenic risk in column F)
Target Hazard Quotient for Non-Carcinogens	THQ	1	Enter target hazard quotient for non-carcinogens (for comparison to the calculated VI hazard in column G)
Average Groundwater Temperature (°C)	Tgw	25	Enter average of the stabilized groundwater temperature to correct Henry's Law Constant for groundwater target concentrations

CAS	Chemical Name	Site Groundwater Concentration	Calculated Indoor Air Concentration	VI Carcinogenic Risk	VI Hazard
		Cgw	Cia	CR	HQ
		(ug/L)	(ug/m ³)		
75-07-0	Acetaldehyde		--	--	--
67-64-1	Acetone	1.9E+02	2.72E-01	No IUR	8.4E-06
75-05-8	Acetonitrile		--	--	--
107-02-8	Acrolein				
79-10-7	Acrylic Acid				
107-13-1	Acrylonitrile				
309-00-2	Aldrin				
107-18-6	Allyl Alcohol				
107-05-1	Allyl Chloride				
7664-41-7	Ammonia		--	--	--
75-85-4	Amyl Alcohol, tert-		--	--	--
12674-11-2	Aroclor 1016		--	--	--
11104-28-2	Aroclor 1221		--	--	--
11141-16-5	Aroclor 1232		--	--	--
53469-21-9	Aroclor 1242		--	--	--
12672-29-6	Aroclor 1248		--	--	--
11097-69-1	Aroclor 1254		--	--	--
11096-82-5	Aroclor 1260		--	--	--
103-33-3	Azobenzene		--	--	--
56-55-3	Benz[a]anthracene		--	--	--
71-43-2	Benzene		--	--	--
100-44-7	Benzyl Chloride		--	--	--
92-52-4	Biphenyl, 1,1'-		--	--	--
111-44-4	Bis(2-chloroethyl)ether		--	--	--
542-88-1	Bis(chloromethyl)ether		--	--	--
10294-34-5	Boron Trichloride		--	--	--
7637-07-2	Boron Trifluoride		--	--	--
107-04-0	Bromo-2-chloroethane, 1-		--	--	--
108-86-1	Bromobenzene		--	--	--
74-97-5	Bromochloromethane		--	--	--
75-27-4	Bromodichloromethane		--	--	--
75-25-2	Bromoform		--	--	--
74-83-9	Bromomethane		--	--	--
106-99-0	Butadiene, 1,3-		--	--	--
78-92-2	Butyl alcohol, sec-		--	--	--
75-15-0	Carbon Disulfide		--	--	--
56-23-5	Carbon Tetrachloride		--	--	--
463-58-1	Carbonyl Sulfide		--	--	--
12789-03-6	Chlordane		--	--	--
7782-50-5	Chlorine		--	--	--
10049-04-4	Chlorine Dioxide		--	--	--
75-68-3	Chloro-1,1-difluoroethane, 1-		--	--	--
126-99-8	Chloro-1,3-butadiene, 2-		--	--	--
108-90-7	Chlorobenzene		--	--	--
98-56-6	Chlorobenzotrifluoride, 4-		--	--	--
75-45-6	Chlorodifluoromethane		--	--	--
67-66-3	Chloroform		--	--	--
74-87-3	Chloromethane		--	--	--
107-30-2	Chloromethyl Methyl Ether		--	--	--
76-06-2	Chloropicrin		--	--	--
8007-45-2	Coke Oven Emissions		--	--	--
98-82-8	Cumene		--	--	--
57-12-5	Cyanide (CN-)		--	--	--
110-82-7	Cyclohexane		--	--	--
108-94-1	Cyclohexanone		--	--	--
110-83-8	Cyclohexene	7.0E+00	1.30E+01	No IUR	1.2E-02
72-55-9	DDE, p,p'-		--	--	--

Inhalation Unit Risk	IUR Source*	Reference Concentration	RFC Source*	Mutagenic Indicator
IUR		RfC		i
(ug/m ³) ⁻¹		(mg/m ³)		
2.20E-06	I	9.00E-03	I	
		3.10E+01	A	
		6.00E-02	I	
		5.00E-01	I	
		3.00E-03	X	
2.00E-05	S			
5.70E-04	S			
5.70E-04	S			
5.70E-04	S			
5.70E-04	S			
5.70E-04	S			
5.70E-04	S			
3.10E-05	I			
6.00E-05	E			Mut
7.80E-06	I	3.00E-02	I	
4.90E-05	CA	1.00E-03	P	
		4.00E-04	X	
3.30E-04	I			
6.20E-02	I			
		2.00E-02	P	
		1.30E-02	CA	
6.00E-04	X			
		6.00E-02	I	
		4.00E-02	X	
3.70E-05	CA			
1.10E-06	I			
		5.00E-03	I	
3.00E-05	I	2.00E-03	I	
		3.00E+01	P	
		7.00E-01	I	
6.00E-06	I	1.00E-01	I	
		1.00E-01	P	
1.00E-04	I	7.00E-04	I	
		1.50E-04	A	
		2.00E-04	I	
		5.00E+01	I	
3.00E-04	I	2.00E-02	I	
		5.00E-02	P	
		3.00E-01	P	
		5.00E+01	I	
2.30E-05	I	9.80E-02	A	
		9.00E-02	I	
6.90E-04	CA			
		4.00E-04	CA	
6.20E-04	I			Mut
		4.00E-01	I	
		8.00E-04	S	
		6.00E+00	I	
		7.00E-01	P	
		1.00E+00	X	
9.70E-05	CA			

OSWER VAPOR INTRUSION ASSESSMENT

Groundwater Concentration to Indoor Air Concentration (GWC-IAC) Calculator Version 3.5, June 2017 RSLs

Parameter	Symbol	Value	Instructions
Exposure Scenario	Scenario	Residential	Select residential or commercial scenario from pull down list
Target Risk for Carcinogens	TCR	1.00E-05	Enter target risk for carcinogens (for comparison to the calculated VI carcinogenic risk in column F)
Target Hazard Quotient for Non-Carcinogens	THQ	1	Enter target hazard quotient for non-carcinogens (for comparison to the calculated VI hazard in column G)
Average Groundwater Temperature (°C)	Tgw	25	Enter average of the stabilized groundwater temperature to correct Henry's Law Constant for groundwater target concentrations

CAS	Chemical Name	Site Groundwater Concentration	Calculated Indoor Air Concentration	VI Carcinogenic Risk	VI Hazard
		Cgw (ug/L)	Cia (ug/m ³)	CR	HQ
96-12-8	Dibromo-3-chloropropane, 1,2-		--	--	--
106-93-4	Dibromoethane, 1,2-		--	--	--
74-95-3	Dibromomethane (Methylene Bromide)		--	--	--
764-41-0	Dichloro-2-butene, 1,4-		--	--	--
1476-11-5	Dichloro-2-butene, cis-1,4-		--	--	--
110-57-6	Dichloro-2-butene, trans-1,4-		--	--	--
95-50-1	Dichlorobenzene, 1,2-		--	--	--
106-46-7	Dichlorobenzene, 1,4-		--	--	--
75-71-8	Dichlorodifluoromethane		--	--	--
75-34-3	Dichloroethane, 1,1-	1.5E+02	3.45E+01	2.0E-05	No RfC
107-06-2	Dichloroethane, 1,2-		--	--	--
75-35-4	Dichloroethylene, 1,1-	1.4E+04	1.49E+04	No IUR	7.2E+01
78-87-5	Dichloropropane, 1,2-		--	--	--
542-75-6	Dichloropropene, 1,3-		--	--	--
77-73-6	Dicyclopentadiene		--	--	--
75-37-6	Difluoroethane, 1,1-		--	--	--
94-58-6	Dihydrosafrole		--	--	--
108-20-3	Diisopropyl Ether		--	--	--
68-12-2	Dimethylformamide		--	--	--
57-14-7	Dimethylhydrazine, 1,1-		--	--	--
540-73-8	Dimethylhydrazine, 1,2-		--	--	--
513-37-1	Dimethylvinylchloride		--	--	--
123-91-1	Dioxane, 1,4-		--	--	--
106-89-8	Epichlorohydrin		--	--	--
106-88-7	Epoxybutane, 1,2-		--	--	--
111-15-9	Ethoxyethanol Acetate, 2-		--	--	--
110-80-5	Ethoxyethanol, 2-		--	--	--
141-78-6	Ethyl Acetate		--	--	--
140-88-5	Ethyl Acrylate		--	--	--
75-00-3	Ethyl Chloride (Chloroethane)	6.9E+01	3.13E+01	No IUR	3.0E-03
97-63-2	Ethyl Methacrylate		--	--	--
100-41-4	Ethylbenzene		--	--	--
75-21-8	Ethylene Oxide		--	--	--
151-56-4	Ethyleneimine		--	--	--
50-00-0	Formaldehyde		--	--	--
64-18-6	Formic Acid		--	--	--
98-01-1	Furfural		--	--	--
765-34-4	Glycidyl		--	--	--
76-44-8	Heptachlor		--	--	--
1024-57-3	Heptachlor Epoxide		--	--	--
39635-31-9	Heptachlorobiphenyl, 2,3,3',4,4',5,5'- (PCB 189)		--	--	--
118-74-1	Hexachlorobenzene		--	--	--
38380-08-4	Hexachlorobiphenyl, 2,3,3',4,4',5- (PCB 156)		--	--	--
69782-90-7	Hexachlorobiphenyl, 2,3,3',4,4',5'- (PCB 157)		--	--	--
52663-72-6	Hexachlorobiphenyl, 2,3',4,4',5,5'- (PCB 167)		--	--	--
32774-16-6	Hexachlorobiphenyl, 3,3',4,4',5,5'- (PCB 169)		--	--	--
87-68-3	Hexachlorobutadiene		--	--	--
77-47-4	Hexachlorocyclopentadiene		--	--	--
67-72-1	Hexachloroethane		--	--	--
822-06-0	Hexamethylene Diisocyanate, 1,6-		--	--	--
110-54-3	Hexane, N-		--	--	--
591-78-6	Hexanone, 2-		--	--	--
302-01-2	Hydrazine		--	--	--
7647-01-0	Hydrogen Chloride		--	--	--
74-90-8	Hydrogen Cyanide		--	--	--
7664-39-3	Hydrogen Fluoride		--	--	--
7783-06-4	Hydrogen Sulfide		--	--	--

Inhalation Unit Risk	IUR Source*	Reference Concentration	RFC Source*	Mutagenic Indicator
IUR (ug/m ³) ⁻¹		RfC (mg/m ³)		i
6.00E-03	P	2.00E-04	I	Mut
6.00E-04	I	9.00E-03	I	
		4.00E-03	X	
4.20E-03	P			
4.20E-03	P			
4.20E-03	P			
		2.00E-01	H	
1.10E-05	CA	8.00E-01	I	
		1.00E-01	X	
1.60E-06	CA			
2.60E-05	I	7.00E-03	P	
		2.00E-01	I	
3.73E-06	P	4.00E-03	I	
4.00E-06	I	2.00E-02	I	
		3.00E-04	X	
		4.00E+01	I	
1.30E-05	CA			
		7.00E-01	P	
		3.00E-02	I	
		2.00E-06	X	
1.60E-01	CA			
1.30E-05	CA			
5.00E-06	I	3.00E-02	I	
1.20E-06	I	1.00E-03	I	
		2.00E-02	I	
		6.00E-02	P	
		2.00E-01	I	
		7.00E-02	P	
		8.00E-03	P	
		1.00E+01	I	
		3.00E-01	P	
2.50E-06	CA	1.00E+00	I	
3.00E-03	I	3.00E-02	CA	Mut
1.90E-02	CA			
1.30E-05	I	9.80E-03	A	
		3.00E-04	X	
		5.00E-02	H	
		1.00E-03	H	
1.30E-03	I			
2.60E-03	I			
1.10E-03	E	1.30E-03	E	
4.60E-04	I			
1.10E-03	E	1.30E-03	E	
1.10E-03	E	1.30E-03	E	
1.10E-03	E	1.30E-03	E	
1.10E+00	E	1.30E-06	E	
2.20E-05	I			
		2.00E-04	I	
1.10E-05	CA	3.00E-02	I	
		1.00E-05	I	
		7.00E-01	I	
		3.00E-02	I	
4.90E-03	I	3.00E-05	P	
		2.00E-02	I	
		8.00E-04	I	
		1.40E-02	CA	
		2.00E-03	I	

OSWER VAPOR INTRUSION ASSESSMENT
Groundwater Concentration to Indoor Air Concentration (GWC-IAC) Calculator Version 3.5, June 2017 RSLs

Parameter	Symbol	Value	Instructions
Exposure Scenario	Scenario	Residential	Select residential or commercial scenario from pull down list
Target Risk for Carcinogens	TCR	1.00E-05	Enter target risk for carcinogens (for comparison to the calculated VI carcinogenic risk in column F)
Target Hazard Quotient for Non-Carcinogens	THQ	1	Enter target hazard quotient for non-carcinogens (for comparison to the calculated VI hazard in column G)
Average Groundwater Temperature (°C)	Tgw	25	Enter average of the stabilized groundwater temperature to correct Henry's Law Constant for groundwater target concentrations

CAS	Chemical Name	Site Groundwater Concentration	Calculated Indoor Air Concentration	VI Carcinogenic Risk	VI Hazard
		Cgw (ug/L)	Cia (ug/m ³)	CR	HQ
67-63-0	Isopropanol		--	--	--
7439-97-6	Mercury (elemental)		--	--	--
126-98-7	Methacrylonitrile		--	--	--
67-56-1	Methanol		--	--	--
110-49-6	Methoxyethanol Acetate, 2-		--	--	--
109-86-4	Methoxyethanol, 2-		--	--	--
96-33-3	Methyl Acrylate		--	--	--
78-93-3	Methyl Ethyl Ketone (2-Butanone)		--	--	--
60-34-4	Methyl Hydrazine		--	--	--
108-10-1	Methyl Isobutyl Ketone (4-methyl-2-pentanone)		--	--	--
624-83-9	Methyl Isocyanate		--	--	--
80-62-6	Methyl Methacrylate		--	--	--
25013-15-4	Methyl Styrene (Mixed Isomers)		--	--	--
1634-04-4	Methyl tert-Butyl Ether (MTBE)		--	--	--
75-09-2	Methylene Chloride	3.0E+00	3.99E-01	3.9E-09	6.4E-04
2385-85-5	Mirex		--	--	--
64742-95-6	Naphtha, High Flash Aromatic (HFAN)		--	--	--
91-20-3	Naphthalene		--	--	--
13463-39-3	Nickel Carbonyl		--	--	--
98-95-3	Nitrobenzene		--	--	--
75-52-5	Nitromethane		--	--	--
79-46-9	Nitropropane, 2-		--	--	--
62-75-9	Nitrosodimethylamine, N-		--	--	--
924-16-3	Nitroso-di-N-butylamine, N-		--	--	--
10595-95-6	Nitrosomethylethylamine, N-		--	--	--
111-84-2	Nonane, n-		--	--	--
32598-14-4	Pentachlorobiphenyl, 2,3,3',4,4'- (PCB 105)		--	--	--
74472-37-0	Pentachlorobiphenyl, 2,3,4,4',5- (PCB 114)		--	--	--
31508-00-6	Pentachlorobiphenyl, 2,3',4,4',5- (PCB 118)		--	--	--
65510-44-3	Pentachlorobiphenyl, 2',3,4,4',5- (PCB 123)		--	--	--
57465-28-8	Pentachlorobiphenyl, 3,3',4,4',5- (PCB 126)		--	--	--
109-66-0	Pentane, n-		--	--	--
75-44-5	Phosgene		--	--	--
7803-51-2	Phosphine		--	--	--
123-38-6	Propionaldehyde		--	--	--
103-65-1	Propyl benzene		--	--	--
115-07-1	Propylene		--	--	--
107-98-2	Propylene Glycol Monomethyl Ether		--	--	--
75-56-9	Propylene Oxide		--	--	--
100-42-5	Styrene		--	--	--
7446-11-9	Sulfur Trioxide		--	--	--
1746-01-6	TCDD, 2,3,7,8-		--	--	--
70362-50-4	Tetrachlorobiphenyl, 3,4,4',5- (PCB 81)		--	--	--
630-20-6	Tetrachloroethane, 1,1,1,2-		--	--	--
79-34-5	Tetrachloroethane, 1,1,2,2-		--	--	--
127-18-4	Tetrachloroethylene	7.4E+02	5.35E+02	5.0E-05	1.3E+01
811-97-2	Tetrafluoroethane, 1,1,1,2-		--	--	--
109-99-9	Tetrahydrofuran		--	--	--
7550-45-0	Titanium Tetrachloride		--	--	--
108-88-3	Toluene		--	--	--
76-13-1	Trichloro-1,2,2-trifluoroethane, 1,1,2-		--	--	--
120-82-1	Trichlorobenzene, 1,2,4-		--	--	--
71-55-6	Trichloroethane, 1,1,1-	9.6E+02	6.75E+02	No IUR	1.3E-01
79-00-5	Trichloroethane, 1,1,2-		--	--	--
79-01-6	Trichloroethylene	6.0E+02	2.42E+02	5.1E-04	1.2E+02
96-18-4	Trichloropropane, 1,2,3-		--	--	--
96-19-5	Trichloropropene, 1,2,3-		--	--	--

Inhalation Unit Risk	IUR Source*	Reference Concentration	RFC Source*	Mutagenic Indicator
IUR (ug/m ³) ⁻¹		RFC (mg/m ³)		
		2.00E-01	P	
		3.00E-04	I	
		3.00E-02	P	
		2.00E+01	I	
		1.00E-03	P	
		2.00E-02	I	
		2.00E-02	P	
		5.00E+00	I	
1.00E-03	X	2.00E-05	X	
		3.00E+00	I	
		1.00E-03	CA	
		7.00E-01	I	
		4.00E-02	H	
2.60E-07	CA	3.00E+00	I	
1.00E-08	I	6.00E-01	I	Mut
5.10E-03	CA			
		1.00E-01	P	
3.40E-05	CA	3.00E-03	I	
2.60E-04	CA	1.40E-05	CA	
4.00E-05	I	9.00E-03	I	
8.80E-06	P	5.00E-03	P	
2.70E-03	H	2.00E-02	I	
1.40E-02	I	4.00E-05	X	Mut
1.60E-03	I			
6.30E-03	CA			
		2.00E-02	P	
1.10E-03	E	1.30E-03	E	
1.10E-03	E	1.30E-03	E	
1.10E-03	E	1.30E-03	E	
1.10E-03	E	1.30E-03	E	
3.80E+00	E	4.00E-07	E	
		1.00E+00	P	
		3.00E-04	I	
		3.00E-04	I	
		8.00E-03	I	
		1.00E+00	X	
		3.00E+00	CA	
		2.00E+00	I	
3.70E-06	I	3.00E-02	I	
		1.00E+00	I	
		1.00E-03	CA	
3.80E+01	CA	4.00E-08	CA	
1.10E-02	E	1.30E-04	E	
7.40E-06	I			
5.80E-05	CA			
2.60E-07	I	4.00E-02	I	
		8.00E+01	I	
		2.00E+00	I	
		1.00E-04	A	
		5.00E+00	I	
		5.00E+00	P	
		2.00E-03	P	
		5.00E+00	I	
1.60E-05	I	2.00E-04	X	
see note	I	2.00E-03	I	TCE
		3.00E-04	I	Mut
		3.00E-04	P	

OSWER VAPOR INTRUSION ASSESSMENT
Groundwater Concentration to Indoor Air Concentration (GWC-IAC) Calculator Version 3.5, June 2017 RSLs

Parameter	Symbol	Value	Instructions
Exposure Scenario	Scenario	Residential	Select residential or commercial scenario from pull down list
Target Risk for Carcinogens	TCR	1.00E-05	Enter target risk for carcinogens (for comparison to the calculated VI carcinogenic risk in column F)
Target Hazard Quotient for Non-Carcinogens	THQ	1	Enter target hazard quotient for non-carcinogens (for comparison to the calculated VI hazard in column G)
Average Groundwater Temperature (°C)	Tgw	25	Enter average of the stabilized groundwater temperature to correct Henry's Law Constant for groundwater target concentrations

CAS	Chemical Name	Site Groundwater Concentration	Calculated Indoor Air Concentration	VI Carcinogenic Risk	VI Hazard
		Cgw	Cia	CR	HQ
		(ug/L)	(ug/m ³)		
121-44-8	Triethylamine		--	--	--
420-46-2	Trifluoroethane, 1,1,1-		--	--	--
526-73-8	Trimethylbenzene, 1,2,3-		--	--	--
95-63-6	Trimethylbenzene, 1,2,4-		--	--	--
108-67-8	Trimethylbenzene, 1,3,5-		--	--	--
126-72-7	Tris(2,3-dibromopropyl)phosphate		--	--	--
108-05-4	Vinyl Acetate		--	--	--
593-60-2	Vinyl Bromide		--	--	--
75-01-4	Vinyl Chloride	9.3E+02	1.06E+03	6.3E-03	1.0E+01
108-38-3	Xylene, m-		--	--	--
95-47-6	Xylene, o-		--	--	--
106-42-3	Xylene, P-		--	--	--
1330-20-7	Xylenes		--	--	--
142-82-5	Heptane, N-		--	--	--
584-84-9	Toluene-2,4-diisocyanate		--	--	--
91-08-7	Toluene-2,6-diisocyanate		--	--	--

Inhalation Unit Risk	IUR Source*	Reference Concentration	RFC Source*	Mutagenic Indicator
IUR		RfC		i
(ug/m ³) ⁻¹		(mg/m ³)		
		7.00E-03	I	
		2.00E+01	P	
		6.00E-02	I	
		6.00E-02	I	
		6.00E-02	I	
6.60E-04	CA			
		2.00E-01	I	
3.20E-05	H	3.00E-03	I	
4.40E-06	I	1.00E-01	I	VC
		1.00E-01	S	
		1.00E-01	S	
		1.00E-01	S	
		1.00E-01	I	
		4.00E-01	P	
1.10E-05	CA	8.00E-06	CA	
1.10E-05	CA	8.00E-06	CA	

Notes:

(1)	<u>Inhalation Pathway Exposure Parameters (RME):</u>	Units	Residential		Commercial		Selected (based on scenario)	
	Exposure Scenario		Symbol	Value	Symbol	Value	Symbol	Value
	Averaging time for carcinogens	(yrs)	ATc_R_GW	70	ATc_C_GW	70	ATc_GW	70
	Averaging time for non-carcinogens	(yrs)	ATnc_R_GW	26	ATnc_C_GW	25	ATnc_GW	26
	Exposure duration	(yrs)	ED_R_GW	26	ED_C_GW	25	ED_GW	26
	Exposure frequency	(days/yr)	EF_R_GW	350	EF_C_GW	250	EF_GW	350
	Exposure time	(hr/day)	ET_R_GW	24	ET_C_GW	8	ET_GW	24
(2)	<u>Generic Attenuation Factors:</u>		Residential		Commercial		Selected (based on scenario)	
	Source Medium of Vapors		Symbol	Value	Symbol	Value	Symbol	Value
	Groundwater	(-)	AFgw_R_GW	0.001	AFgw_C_GW	0.001	AFgw_GW	0.001
	Sub-Slab and Exterior Soil Gas	(-)	AFss_R_GW	0.03	AFss_C_GW	0.03	AFss_GW	0.03
(3)	<u>Formulas</u>							
	Cia, target = MIN(Cia,c; Cia,nc)							
	Cia,c (ug/m3) = TCR x ATc x (365 days/yr) x (24 hrs/day) / (ED x EF x ET x IUR)							
	Cia,nc (ug/m3) = THQ x ATnc x (365 days/yr) x (24 hrs/day) x RfC x (1000 ug/mg) / (ED x EF x ET)							
(4)	<u>Special Case Chemicals</u>		Residential		Commercial		Selected (based on scenario)	
	Trichloroethylene		Symbol	Value	Symbol	Value	Symbol	Value
			mIURTCE_R_GW	1.00E-06	mIURTCE_C_GW	0.00E+00	mIURTCE_GW	1.00E-06
			IURTCE_R_GW	3.10E-06	IURTCE_C_GW	4.10E-06	IURTCE_GW	3.10E-06

Mutagenic Chemicals

The exposure durations and age-dependent adjustment factors for mutagenic-mode-of-action are listed in the table below:

Note: This section applies to trichloroethylene and other mutagenic chemicals, but not to vinyl chloride.	Age Cohort	Exposure Duration	Age-dependent adjustment factor
	0 - 2 years	2	10
	2 - 6 years	4	3
	6 - 16 years	10	3
	16 - 26 years	10	1

Mutagenic-mode-of-action (MMOA) adjustment factor 72 This factor is used in the equations for mutagenic chemicals.

OSWER VAPOR INTRUSION ASSESSMENT

Groundwater Concentration to Indoor Air Concentration (GWC-IAC) Calculator Version 3.5, June 2017 RSLs

Parameter	Symbol	Value	Instructions
Exposure Scenario	Scenario	Residential	Select residential or commercial scenario from pull down list
Target Risk for Carcinogens	TCR	1.00E-05	Enter target risk for carcinogens (for comparison to the calculated VI carcinogenic risk in column F)
Target Hazard Quotient for Non-Carcinogens	THQ	1	Enter target hazard quotient for non-carcinogens (for comparison to the calculated VI hazard in column G)
Average Groundwater Temperature (°C)	Tgw	25	Enter average of the stabilized groundwater temperature to correct Henry's Law Constant for groundwater target concentrations

CAS	Chemical Name	Site Groundwater Concentration	Calculated Indoor Air Concentration	VI Carcinogenic Risk	VI Hazard
		Cgw	Cia	CR	HQ
		(ug/L)	(ug/m ³)		

Inhalation Unit Risk	IUR Source*	Reference Concentration	RFC Source*	Mutagenic Indicator
IUR		RfC		
(ug/m ³) ⁻¹		(mg/m ³)		

Notation:

I = IRIS: EPA Integrated Risk Information System (IRIS). Available online at: <http://www.epa.gov/iris/subst/index.html>

P = PPRTV. EPA Provisional Peer Reviewed Toxicity Values (PPRTVs). Available online at: <http://hhpprtv.ornl.gov/pprtv.shtml>

A = Agency for Toxic Substances and Disease Registry (ATSDR) Minimum Risk Levels (MRLs). Available online at: <http://www.atsdr.cdc.gov/mrls/index.html>

CA = California Environmental Protection Agency/Office of Environmental Health Hazard Assessment assessments. Available online at: <http://www.oehha.ca.gov/risk/ChemicalDB/index.asp>

H = HEAST. EPA Superfund Health Effects Assessment Summary Tables (HEAST) database. Available online at: <http://epa-heast.ornl.gov/heast.shtml>

S = See RSL User Guide, Section 5

X = PPRTV Appendix

Mut = Chemical acts according to the mutagenic-mode-of-action, special exposure parameters apply (see footnote (4) above).

VC = Special exposure equation for vinyl chloride applies (see Navigation Guide for equation).

TCE = Special mutagenic and non-mutagenic IURs for trichloroethylene apply (see footnote (4) above).

Yellow highlighting indicates site-specific parameters that may be edited by the user.

Blue highlighting indicates exposure factors that are based on Risk Assessment Guidance for Superfund (RAGS) or EPA vapor intrusion guidance, which generally should not be changed.

Pink highlighting indicates VI carcinogenic risk greater than the target risk for carcinogens (TCR) or VI Hazard greater than or equal to the target hazard quotient for non-carcinogens (THQ).

Cobb County Private Well Ordinance

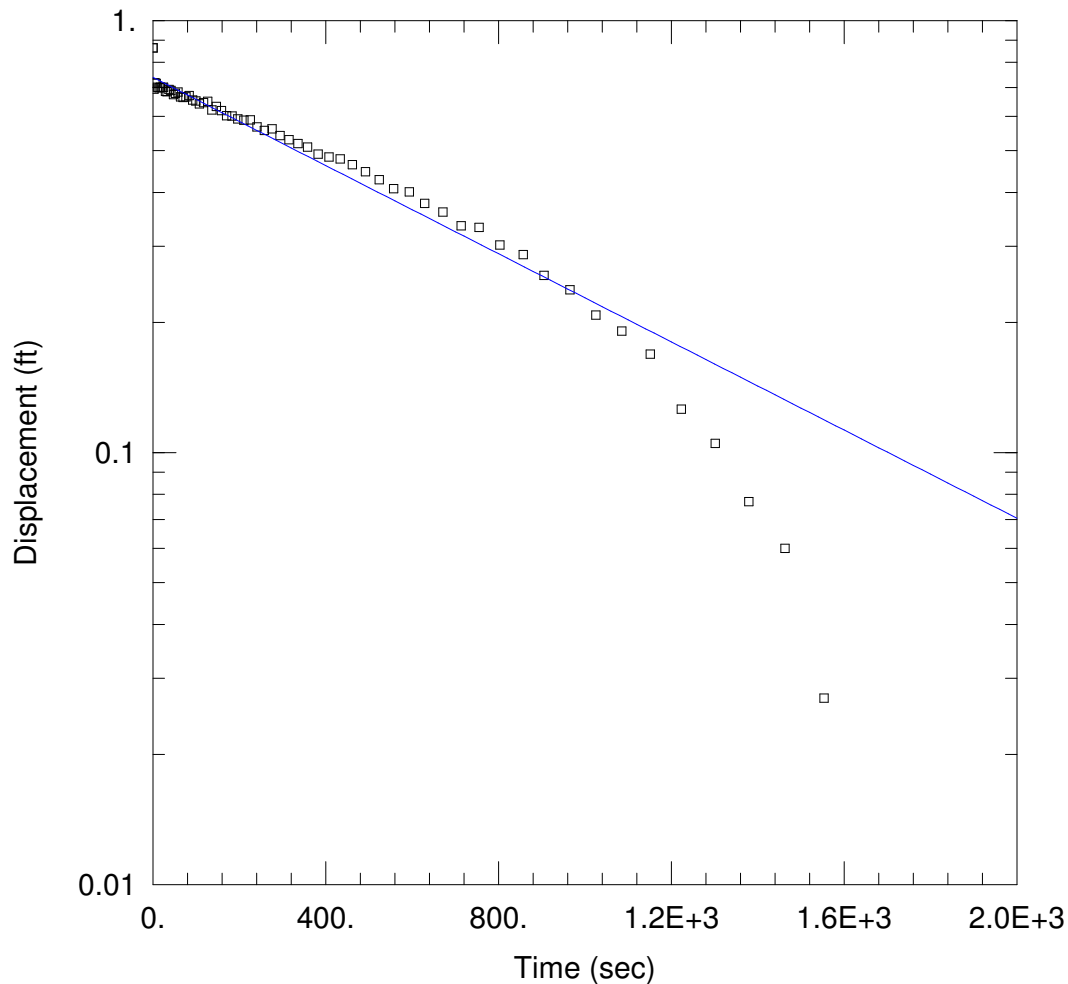
Sec. 122-221. - Conditions for use of private wells.

- (a) *Definition.* The term "private well" shall include any well constructed for the purpose of obtaining groundwater for supply to a residential dwelling or appurtenant buildings for domestic use, including, but not limited to, household purposes, the watering of farm livestock or gardens, irrigation, heating/cooling and recreational uses.
- (b) *Location and construction criteria.* All private wells located in the county must be in compliance with the following criteria:
 - (1) Not less than 50 feet from a septic tank.
 - (2) Not less than 100 feet away from a septic tank absorption field.
 - (3) Not less than ten feet away from a sewer.
 - (4) Not less than 1,000 feet away from a solid waste disposal site and not in a direction where groundwater flow from the site may be intercepted by the well.
 - (5) As far removed as possible from all open abandoned wells.
 - (6) No well shall be located in the floodplain unless adequate protection is provided to prevent submergence of the well casing, pumps and appurtenances.
 - (7) No well shall be drilled, bored or dug without a permanent sealed casing.
 - (8) Private wells shall be physically and totally disconnected from the premises when public water is connected to the premises.
- (c) *Wastewater disposal.* Residential units connected to private wells must use private wastewater disposal systems. Residential units connected to public water must use the public wastewater system, if available.
- (d) *Connection to available public water system required.*
 - (1) The water distribution system of any building in which plumbing fixtures are installed shall be connected to a public water supply, if public water is available. A public water supply shall be deemed available if public water exists within 200 feet of such premises.
 - (2) When public water is made available, line fees and such other charges as are required by sections 122-83 and 122-112 and other applicable sections shall be paid.
- (e) *Materials of construction.* All permanent casing, liners, screens and other manufactured material used in potable water supply well installation must be new and adequate to protect the well against entrance of contaminants during the expected life of the well. All casing and liner pipe joints shall be watertight.
- (f)

Cross-connecting systems prohibited. The interconnection of any private wells with the county water system piping is prohibited. Under no circumstances shall any interconnection be allowed whether separated by valves, check valves, backflow preventers or any other such devices.

(Ord. of 6-28-88, § 3-26-121)

AQTESOLV Slug Test Results



WELL TEST ANALYSIS

Data Set: A:\Technical\6538 AMC Cobb\6538-0001\Modeling\Slug Testing Info\DW-1.aqt
 Date: 09/21/17 Time: 09:59:57

PROJECT INFORMATION

Company: Wenck Associates, Inc.
 Client: AMC Cobb Holding, LLC
 Project: 6538-0001
 Location: Smyrna, GA
 Test Well: DW-1
 Test Date: 8/17/2017

AQUIFER DATA

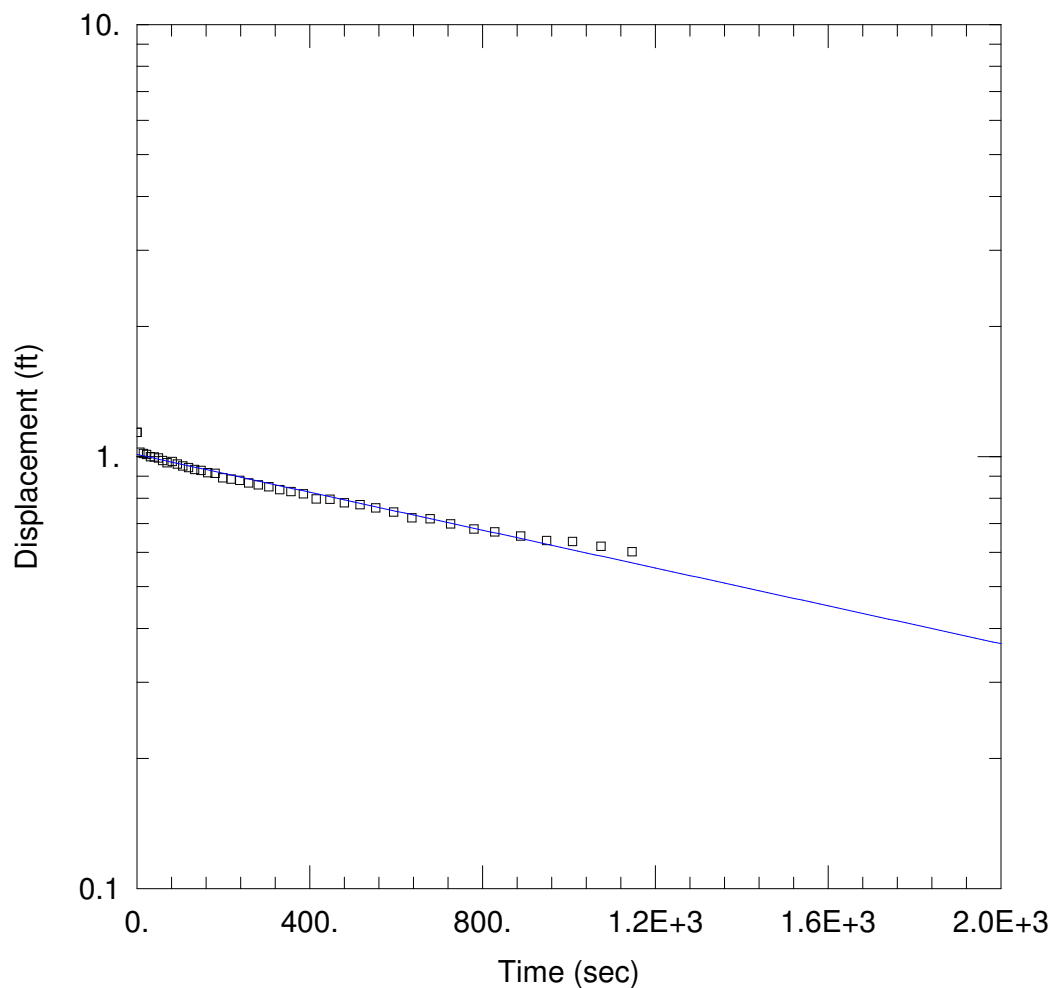
Saturated Thickness: 65. ft Anisotropy Ratio (K_z/K_r): 0.1

WELL DATA (DW-1)

Initial Displacement: 0.865 ft Static Water Column Height: 65. ft
 Total Well Penetration Depth: 65. ft Screen Length: 5. ft
 Casing Radius: 0.083 ft Well Radius: 0.333 ft
 Gravel Pack Porosity: 0.35

SOLUTION

Aquifer Model: Unconfined Solution Method: Bouwer-Rice
 $K = 0.0006891$ cm/sec $y_0 = 0.7384$ ft



WELL TEST ANALYSIS

Data Set: A:\Technical\6538 AMC Cobb\6538-0001\Modeling\Slug Testing Info\MW-4.aqt

Date: 09/21/17

Time: 10:01:29

PROJECT INFORMATION

Company: Wenck Associates, Inc.

Client: AMC Cobb Holding, LLC

Project: 6538-0001

Location: Smyrna, GA

Test Well: MW-4

Test Date: 8/17/2017

AQUIFER DATA

Saturated Thickness: 40. ft

Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (MW-4)

Initial Displacement: 1.138 ft

Static Water Column Height: 31.17 ft

Total Well Penetration Depth: 31.17 ft

Screen Length: 20. ft

Casing Radius: 0.167 ft

Well Radius: 0.333 ft

Gravel Pack Porosity: 0.35

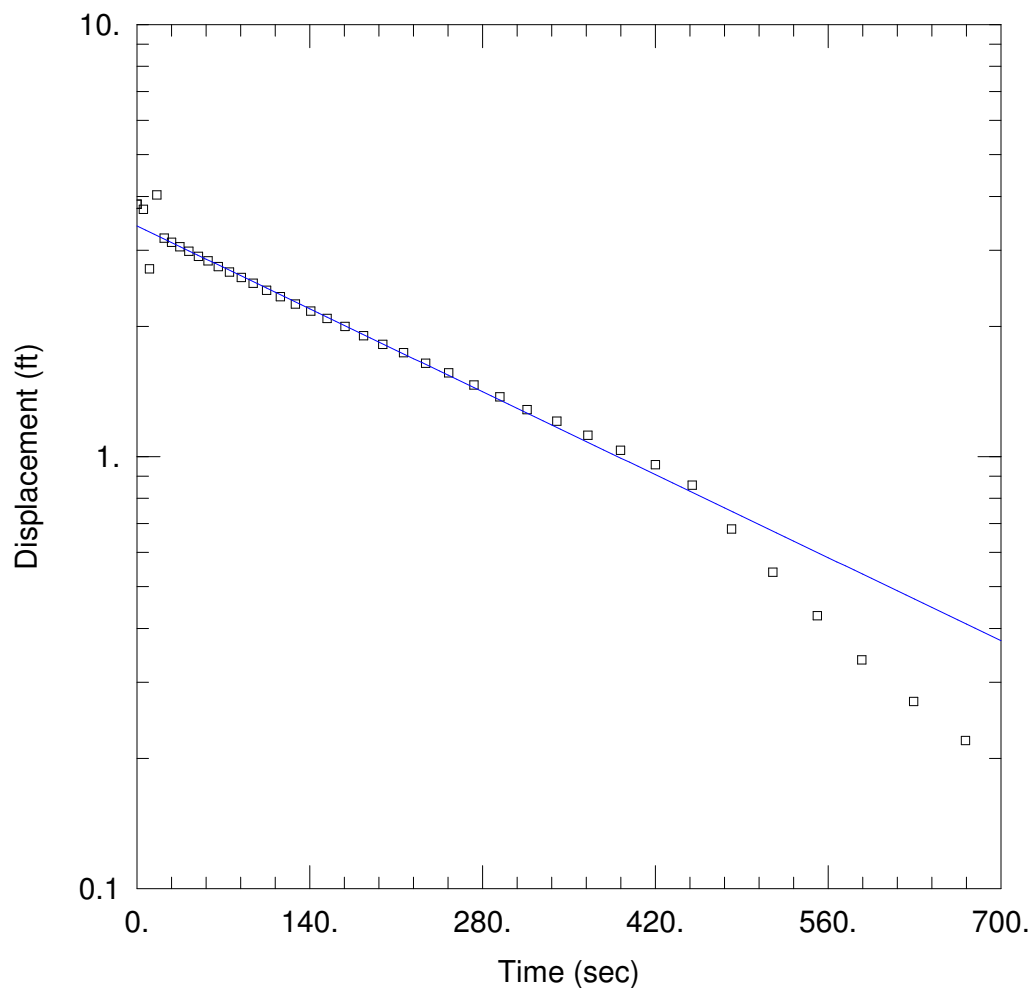
SOLUTION

Aquifer Model: Unconfined

Solution Method: Bouwer-Rice

K = 8.725E-5 cm/sec

y0 = 1.011 ft



WELL TEST ANALYSIS

Data Set: A:\Technical\6538 AMC Cobb\6538-0001\Modeling\Slug Testing Info\MW-17.aqt
 Date: 09/21/17 Time: 10:18:39

PROJECT INFORMATION

Company: Wenck Associates, Inc.
 Client: AMC Cobb Holding, LLC
 Project: 6538-0001
 Location: Smyrna, GA
 Test Well: MW-17
 Test Date: 8/17/2017

AQUIFER DATA

Saturated Thickness: 40. ft Anisotropy Ratio (K_z/K_r): 0.1

WELL DATA (MW-17)

Initial Displacement: 3.84 ft Static Water Column Height: 16. ft
 Total Well Penetration Depth: 16.18 ft Screen Length: 9.5 ft
 Casing Radius: 0.083 ft Well Radius: 0.333 ft
 Gravel Pack Porosity: 0.35

SOLUTION

Aquifer Model: Unconfined Solution Method: Bouwer-Rice
 $K = 0.0007178$ cm/sec $y_0 = 3.418$ ft

BIOCHLOR Groundwater Modeling Results

Data Type	Parameter	Value	Source of Data
Hydrogeology	Hydraulic Conductivity:	2.5×10^{-4} cm/sec	Slug test results August 2017 (geomean of MW-1, MW-2, MW-3, MW-4, MW-5, MW-6, MW-7 and MW-8)
	Hydraulic Gradient:	0.040 ft/ft	Static water level measurements (Sept 2016 sampling event)
	Effective Porosity:	0.2	Estimated
	Seepage Velocity:	51.7 ft/yr	BIOCHLOR calculated value
Dispersion	Longitudinal Dispersivity:	27.5	10% of length of plume
	Transverse Dispersivity:	2.75	10% of longitudinal dispersivity value
	Vertical Dispersivity:	1×10^{-99}	BIOCHLOR default value
Adsorption	Soil Bulk Density:	1.7 kg/l	BIOCHLOR default value
	Fraction Organic Carbon:	1.8×10^{-3}	BIOCHLOR default value
	Partition Coefficients (ethenes):	PCE = 426 L/kg	BIOCHLOR default value
		TCE = 130 L/kg	BIOCHLOR default value
		DCE = 125 L/kg	BIOCHLOR default value
		VC = 30 L/kg	BIOCHLOR default value
		ETH = 302 L/kg	BIOCHLOR default value
	Common Retardation Factor (ethenes and ethanes):	2.99	BIOCHLOR calculated value
	Partition Coefficients (ethanes):	TCA = 426 L/kg	BIOCHLOR default value
		DCA = 130 L/kg	BIOCHLOR default value
		CA = 125 L/kg	BIOCHLOR default value
Biotransformation	BioTrans Rate Coefficients	PCE to TCE = 0.722	Values based on calibration to site data using a simulation of 22 years (July 1995 and September 2016).
		TCE to c-DCE = 1.65	
		c-DCE to VC = 1.873	
		VC to ETH = 27.72	
General	Modeled Area Length:	275 ft	Estimated based on Sept 12, 2016 data
	Modeled Area Width:	120 ft	Estimated based on Sept 12, 2016 data
	Zone length:	1,000 ft	Hypothetical POE (i.e., drinking water well) VRP guidance
	Simulation Time:	multiple	1995 to 2016 (22yrs for calibration), 30 years, 50 years, 100 years
Source Data	Source Thickness:	50 ft	Estimated from boring logs and cross sections
	Source Width:	120 ft	Estimated based on Sept 12, 2016 data
	Source Concentrations:	PCE = 16.293 mg/l	July 1995 concentration measured at MW-1 the presumed source
		TCE = 0.353 mg/l	
		cDCE = 0.0 mg/l	
		VC = 0.0 mg/l	
		ETH = 0.0 mg/l	
		TCA = 140 mg/L	
		DCA = 1.69 mg/L	
		CA = 0.0 mg/L	
Actual Data	PCE Conc. (mg/L):	0.74 - 275' from source	March 2017 concentrations measured at at downgradient well MW-4
	TCE Conc. (mg/L):	0.42 - 275' from source	
	cDCE Conc. (mg/L):	0.39 - 275' from source	
	VC Conc. (mg/L):	0.017 - 275' from source	
	ETH Conc. (mg/L):	0.0079 - 275' from source	
Output	Calibration run		See Attachements in Appendix H
	30-year run		
	50-year run		
	100-year run		

BIOCHLOR Natural Attenuation Decision Support System

Version 2.2

Excel 2000

AMC Cobb

Calibration run

Run Name

TYPE OF CHLORINATED SOLVENT:

Ethenes ☒
Ethanes ☐**1. ADVECTION**

Seepage Velocity* Vs 51.7 (ft/yr)

or

Hydraulic Conductivity K 2.5E-04 (cm/sec)

Hydraulic Gradient i 0.04 (ft/ft)

Effective Porosity n 0.2 (-)

2. DISPERSION

Alpha x* 27.5 (ft)

(Alpha y) / (Alpha x)* 0.1 (-)

(Alpha z) / (Alpha x)* 1.E-99 (-)

3. ADSORPTION

Retardation Factor* R

or

Soil Bulk Density, rho 1.7 (kg/L)

Fraction Organic Carbon, f_{oc} 1.8E-3 (-)Partition Coefficient K_{oc}

PCE 426 (L/kg) 7.52 (-)

TCE 130 (L/kg) 2.99 (-)

DCE 125 (L/kg) 2.91 (-)

VC 30 (L/kg) 1.45 (-)

ETH 302 (L/kg) 5.62 (-)

Common R (used in model)* = 2.99

4. BIOTRANSFORMATION

Zone 1 -1st Order Decay Coefficient*

PCE → TCE λ (1/yr) 0.722 half-life (yrs) 0.96 Yield 0.79

TCE → DCE 1.650 0.42 0.74

DCE → VC 1.873 0.37 0.64

VC → ETH 27.720 0.03 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* 22 (yr)

Modeled Area Width* 120 (ft)

Modeled Area Length* 275 (ft)

Zone 1 Length* 275 (ft)

Zone 2 Length* 0 (ft)

6. SOURCE DATA

Source Options

Source Thickness in Sat. Zone* 50 (ft)

Width* (ft) 120

Conc. (mg/L)* C1

PCE 16.293

TCE .358

DCE .0

VC .0

ETH 0.0001

7. FIELD DATA FOR COMPARISON

PCE Conc. (mg/L) 16.293

TCE Conc. (mg/L) .358

DCE Conc. (mg/L) .0

VC Conc. (mg/L) 0.0

ETH Conc. (mg/L) 0.0

Distance from Source (ft) 0

Date Data Collected 1995

8. CHOOSE TYPE OF OUTPUT TO SEE:

RUN CENTERLINE

RUN ARRAY

Help

Restore

RESET

SEE OUTPUT

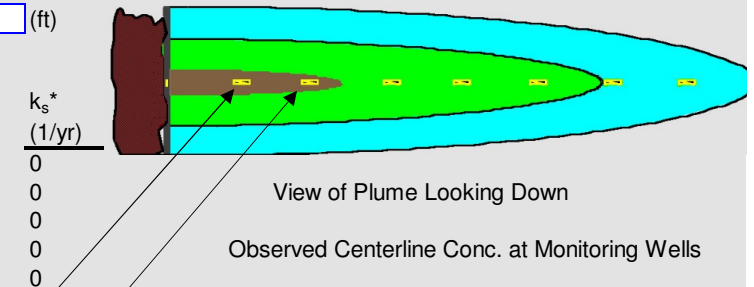
Paste

Data Input Instructions:

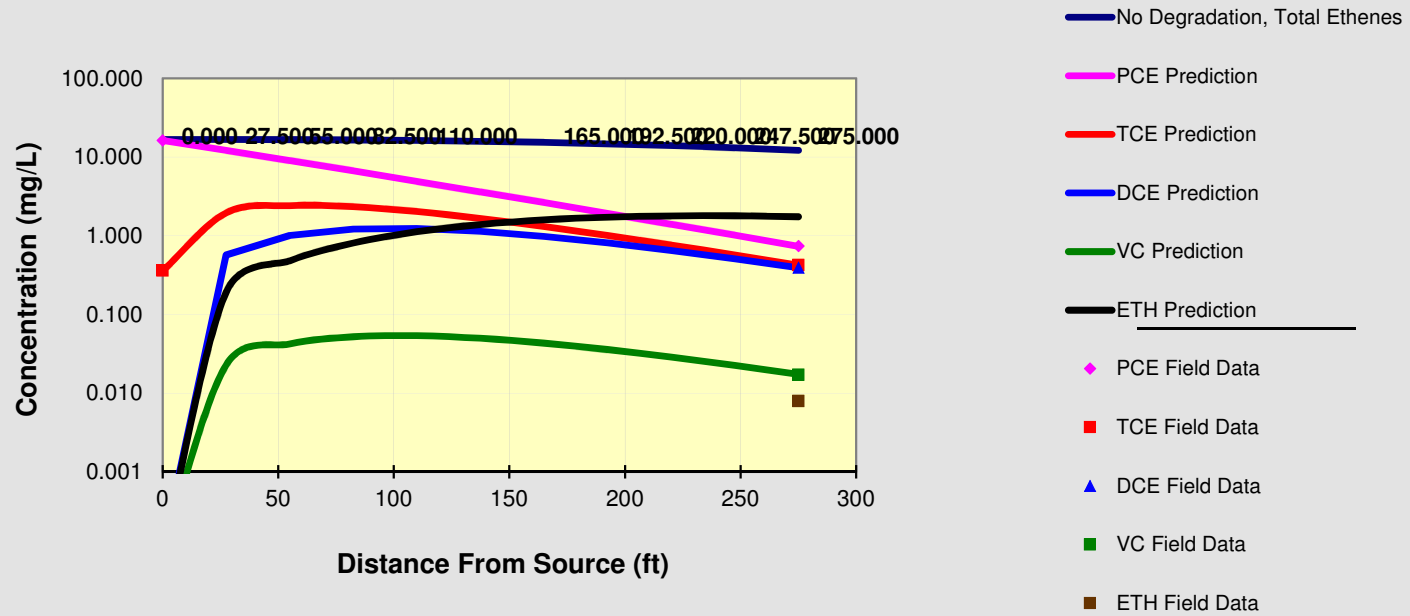
- 115 → 1. Enter value directly....or
 or
 0.02 → 2. Calculate by filling in gray cells. Press Enter, then **C**
 (To restore formulas, hit "Restore Formulas" button)
 Variable* → Data used directly in model.

Test if Biotransformation is Occurring → Natural Attenuation Screening Protocol

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



DISSOLVED CHLORINATED SOLVENT CONCENTRATIONS ALONG PLUME CENTERLINE

Log ☒ Linear

Time:

22 Years

To Input

To Individual
Compounds

BIOCHLOR Natural Attenuation Decision Support System

Version 2.2

Excel 2000

AMC Cobb

Year 2025

Run Name

TYPE OF CHLORINATED SOLVENT:

Ethenes
Ethanes**1. ADVECTION**

Seepage Velocity* Vs 51.7 (ft/yr)

or

Hydraulic Conductivity K 2.5E-04 (cm/sec)

Hydraulic Gradient i 0.04 (ft/ft)

Effective Porosity n 0.2 (-)

2. DISPERSION

Alpha x* 27.5 (ft)

(Alpha y) / (Alpha x)* 0.1 (-)

(Alpha z) / (Alpha x)* 1.E-99 (-)

3. ADSORPTION

Retardation Factor* R

or

Soil Bulk Density, rho 1.7 (kg/L)

Fraction Organic Carbon, foc 1.8E-3 (-)

Partition Coefficient Koc

PCE 426 (L/kg) 7.52 (-)

TCE 130 (L/kg) 2.99 (-)

DCE 125 (L/kg) 2.91 (-)

VC 30 (L/kg) 1.45 (-)

ETH 302 (L/kg) 5.62 (-)

Common R (used in model)* = 2.99

4. BIOTRANSFORMATION

Zone 1

PCE → TCE 0.722 (1/yr) 0.960 (yrs) 0.79

TCE → DCE 1.650 (1/yr) 0.420 (yrs) 0.74

DCE → VC 1.873 (1/yr) 0.370 (yrs) 0.64

VC → ETH 27.720 (1/yr) 0.025 (yrs) 0.45

Zone 2

PCE → TCE 0.000 (1/yr) half-life (yrs)

TCE → DCE 0.000 (1/yr) half-life (yrs)

DCE → VC 0.000 (1/yr) half-life (yrs)

VC → ETH 0.000 (1/yr) half-life (yrs)

5. GENERAL

Simulation Time* 30 (yr)

Modeled Area Width* 120 (ft)

Modeled Area Length* 1000 (ft)

Zone 1 Length* 1000 (ft)

Zone 2 Length* 0 (ft)

6. SOURCE DATA

Source Options

Source Thickness in Sat. Zone* 50 (ft)

Width* (ft) 120

Conc. (mg/L)* C1

PCE 16.293

TCE .353

DCE .0

VC 0.0

ETH 0.0

7. FIELD DATA FOR COMPARISON

PCE Conc. (mg/L)

TCE Conc. (mg/L)

DCE Conc. (mg/L)

VC Conc. (mg/L)

ETH Conc. (mg/L)

Distance from Source (ft)

Date Data Collected 2025

8. CHOOSE TYPE OF OUTPUT TO SEE:

RUN CENTERLINE

RUN ARRAY

Help

Restore

RESET

SEE OUTPUT

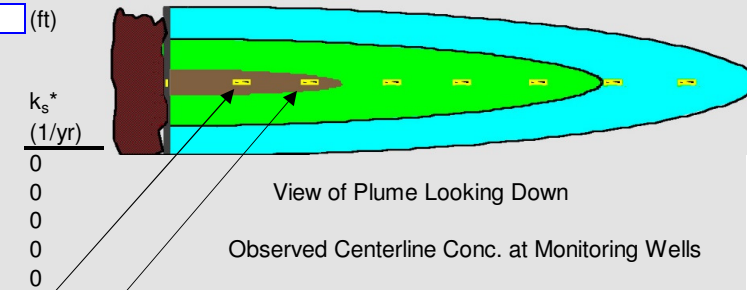
Paste

Data Input Instructions:

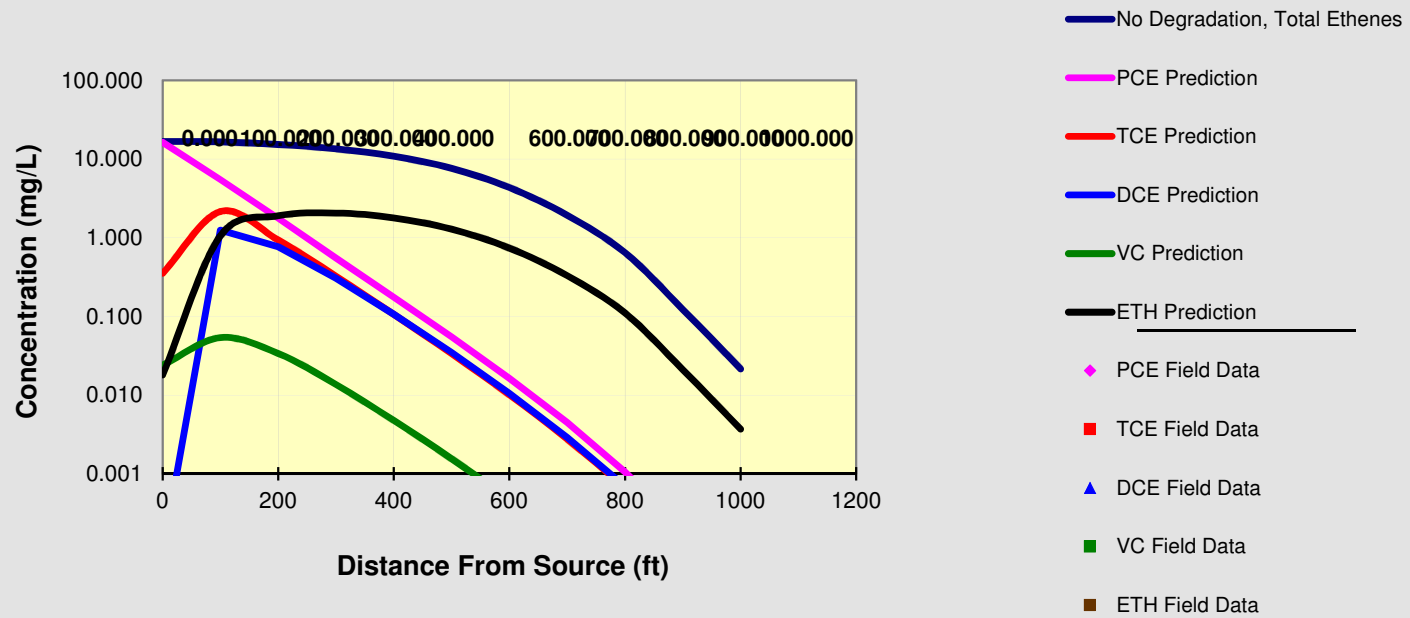
- 115 → 1. Enter value directly....or
↑ or 0.02 → 2. Calculate by filling in gray cells. Press Enter, then **C**
(To restore formulas, hit "Restore Formulas" button)
Variable* → Data used directly in model.

Test if
Biotransformation
is Occurring → Natural Attenuation
Screening Protocol

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



DISSOLVED CHLORINATED SOLVENT CONCENTRATIONS ALONG PLUME CENTERLINE

Log ☒ Linear

Time:

30 Years

To Input

To Individual
Compounds

BIOCHLOR Natural Attenuation Decision Support System

Version 2.2

Excel 2000

AMC Cobb

Year 2045

Run Name

TYPE OF CHLORINATED SOLVENT:

Ethenes ☒Ethanes ☐

1. ADVECTION

Seepage Velocity* Vs

Vs

51.7 (ft/yr)

or

Hydraulic Conductivity K

K

2.5E-04 (cm/sec)

Hydraulic Gradient i

i

0.04 (ft/ft)

Effective Porosity n

n

0.2 (-)

2. DISPERSION

Alpha x*

27.5 (ft)

(Alpha y) / (Alpha x)*

0.1 (-)

(Alpha z) / (Alpha x)*

1.E-99 (-)

3. ADSORPTION

Retardation Factor* R

R

or

Soil Bulk Density, rho

1.6 (kg/L)

Fraction Organic Carbon, foc

1.8E-3 (-)

Partition Coefficient Koc

Koc

PCE

426 (L/kg)

7.13 (-)

TCE

130 (L/kg)

2.87 (-)

DCE

125 (L/kg)

2.80 (-)

VC

30 (L/kg)

1.43 (-)

ETH

302 (L/kg)

5.35 (-)

Common R (used in model)* = 2.87

4. BIOTRANSFORMATION

Zone 1



PCE → TCE

0.722 (1/yr)

half-life (yrs)

0.96

Yield

0.79

TCE → DCE

1.650 (1/yr)

half-life (yrs)

0.42

Yield

0.74

DCE → VC

1.873 (1/yr)

half-life (yrs)

0.37

Yield

0.64

VC → ETH

27.720 (1/yr)

half-life (yrs)

0.03

Yield

0.45

Zone 2



PCE → TCE

0.000 (1/yr)

half-life (yrs)

0.000

TCE → DCE

0.000 (1/yr)

half-life (yrs)

0.000

DCE → VC

0.000 (1/yr)

half-life (yrs)

0.000

VC → ETH

0.000 (1/yr)

half-life (yrs)

0.000

λ
HELP

5. GENERAL

Simulation Time*

40 (yr)

Modeled Area Width*

120 (ft)

Modeled Area Length*

1000 (ft)

Zone 1 Length*

1000 (ft)

Zone 2 Length*

0 (ft)

6. SOURCE DATA

Source Options

Source Thickness in Sat. Zone*

50 (ft)

Width* (ft)

120

Conc. (mg/L)* C1

PCE

16.293

TCE

.353

DCE

.0

VC

0.0

ETH

0.0

7. FIELD DATA FOR COMPARISON

PCE Conc. (mg/L)

TCE Conc. (mg/L)

DCE Conc. (mg/L)

VC Conc. (mg/L)

ETH Conc. (mg/L)

Distance from Source (ft)

Date Data Collected

2035

8. CHOOSE TYPE OF OUTPUT TO SEE:

RUN CENTERLINE

RUN ARRAY

Help

Restore

RESET

SEE OUTPUT

Paste

Data Input Instructions:

115

or

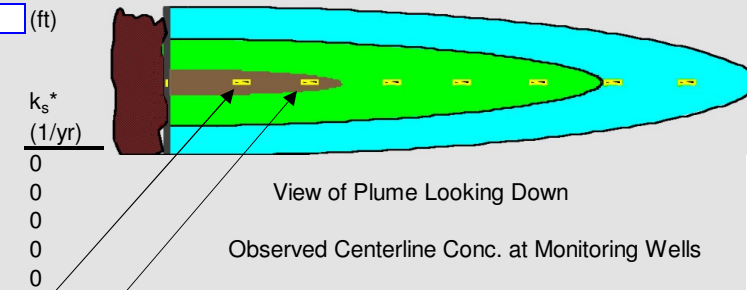
0.02

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

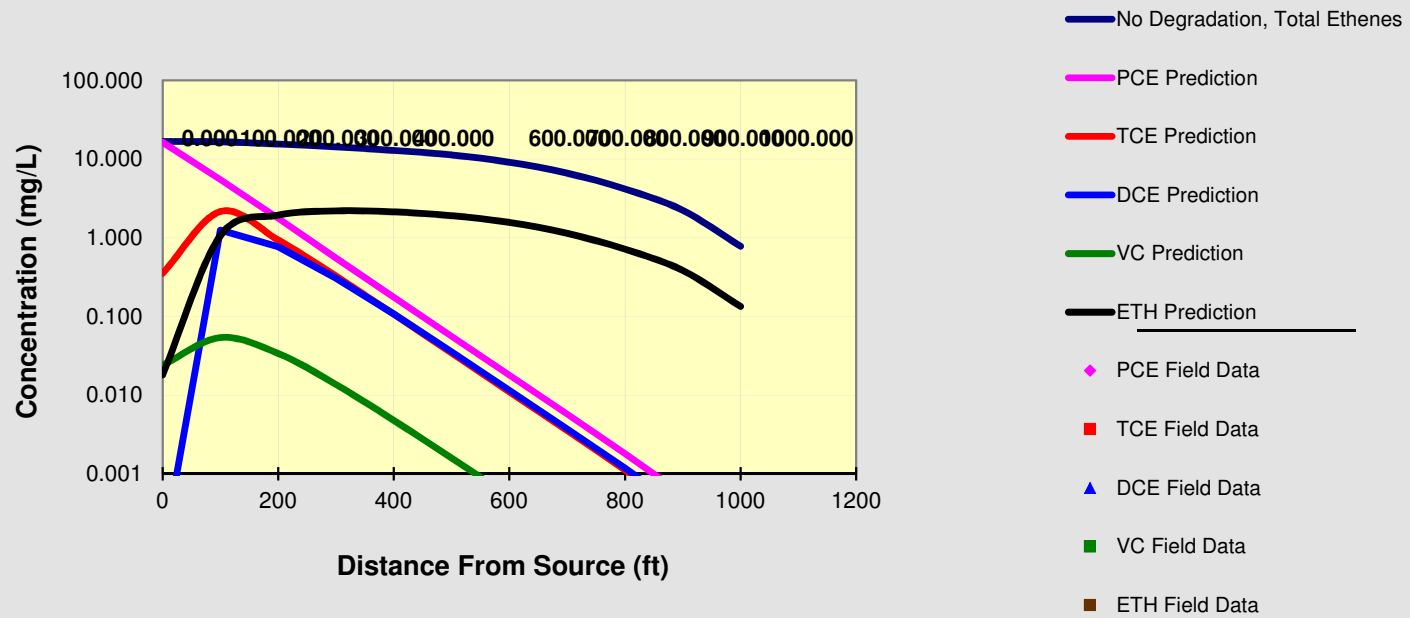
Test if
Biotransformation
is Occurring

Natural Attenuation
Screening Protocol

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



DISSOLVED CHLORINATED SOLVENT CONCENTRATIONS ALONG PLUME CENTERLINE

Log ☒ Linear

Time:

40 Years

To Input

To Individual
Compounds

BIOCHLOR Natural Attenuation Decision Support System

Version 2.2

Excel 2000

AMC Cobb

Year 2095

Run Name

TYPE OF CHLORINATED SOLVENT:

Ethenes ☒Ethanes ☐**1. ADVECTION**

Seepage Velocity* Vs

Vs

51.7 (ft/yr)

or

Hydraulic Conductivity K

K

2.5E-04 (cm/sec)

Hydraulic Gradient i

i

0.04 (ft/ft)

Effective Porosity n

n

0.2 (-)

2. DISPERSION

Alpha x*

27.5 (ft)

(Alpha y) / (Alpha x)*

0.1 (-)

(Alpha z) / (Alpha x)*

1.E-99 (-)

3. ADSORPTION

Retardation Factor* R

R

or

Soil Bulk Density, rho

1.7 (kg/L)

Fraction Organic Carbon, foc

1.8E-3 (-)

Partition Coefficient Koc

Koc

PCE

426 (L/kg)

7.52 (-)

TCE

130 (L/kg)

2.99 (-)

DCE

125 (L/kg)

2.91 (-)

VC

30 (L/kg)

1.45 (-)

ETH

302 (L/kg)

5.62 (-)

Common R (used in model)* = 2.99

4. BIOTRANSFORMATION

Zone 1



PCE → TCE

λ (1/yr)

0.722

half-life (yrs)

0.96

Yield

0.79

TCE → DCE

1.650

0.42

0.74

DCE → VC

1.873

0.37

0.64

VC → ETH

27.720

0.03

0.45

Zone 2



PCE → TCE

0.000

half-life (yrs)

0.000

TCE → DCE

0.000

0.000

DCE → VC

0.000

0.000

VC → ETH

0.000

0.000

λ

HELP

5. GENERAL

Simulation Time*

Modeled Area Width*

Modeled Area Length*

Zone 1 Length*

Zone 2 Length*

100 (yr)

120 (ft)

1000 (ft)

1000 (ft)

0 (ft)

L

W

Zone 2=

L - Zone 1

6. SOURCE DATA

Source Options

Source Thickness in Sat. Zone*

Y1

Width* (ft)

120

Conc. (mg/L)* C1

PCE

16.293

TCE

.353

DCE

.0

VC

0.0

ETH

0.0

7. FIELD DATA FOR COMPARISON

PCE Conc. (mg/L)

TCE Conc. (mg/L)

DCE Conc. (mg/L)

VC Conc. (mg/L)

ETH Conc. (mg/L)

Distance from Source (ft)

Date Data Collected

2095

8. CHOOSE TYPE OF OUTPUT TO SEE:

RUN CENTERLINE

RUN ARRAY

Help

Restore

RESET

SEE OUTPUT

Paste

Data Input Instructions:

115

or

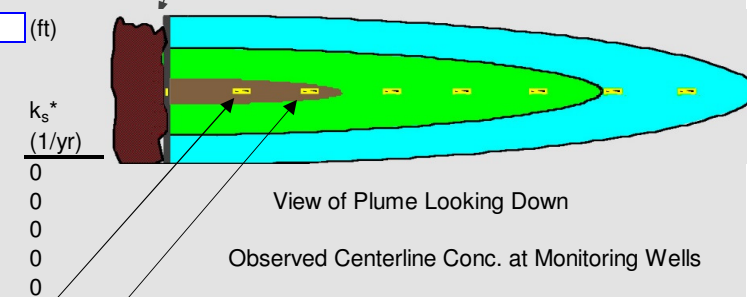
0.02

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

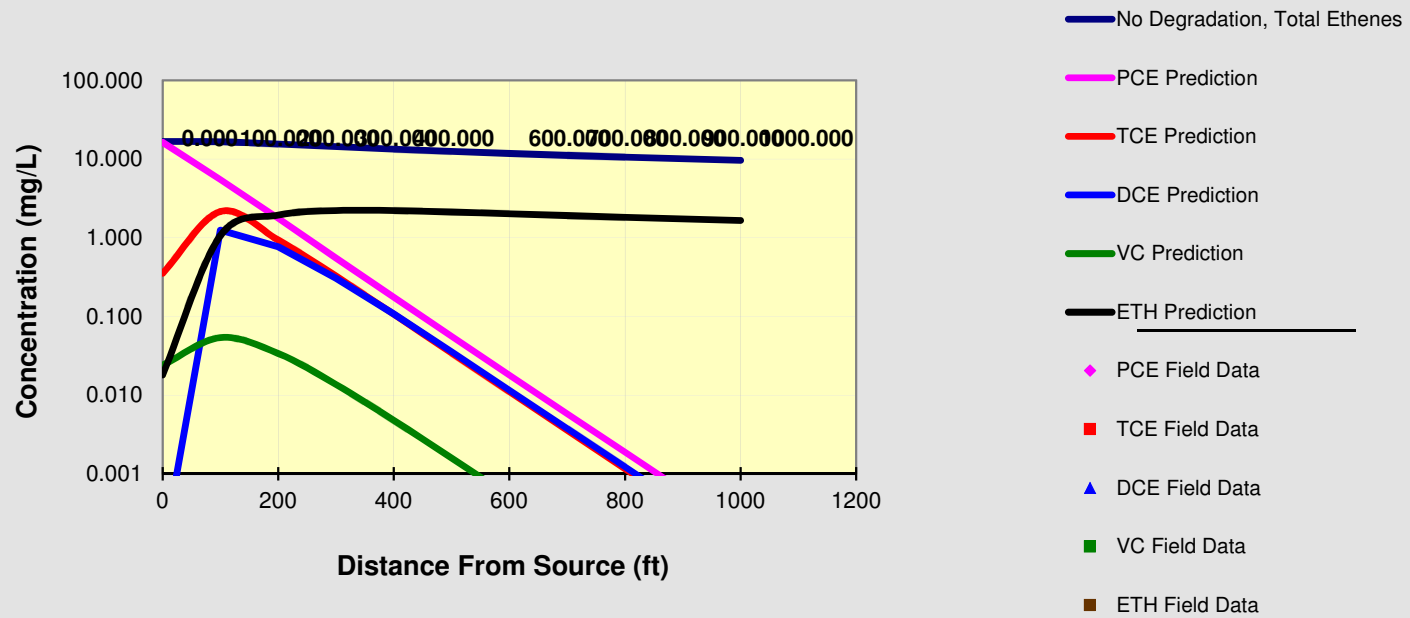
Test if
Biotransformation
is Occurring

Natural Attenuation
Screening Protocol

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



DISSOLVED CHLORINATED SOLVENT CONCENTRATIONS ALONG PLUME CENTERLINE

Log ☐ Linear

Time:

100 Years

To Input

To Individual
Compounds

Appendix I

Uniform Environmental Covenant

After Recording Return to:

**Adam G. Sowatzka
Partner
King & Spalding LLP
1180 Peachtree Street, N.E.
Atlanta, GA 30309-3521**

Cross Reference:

**Deed Book 15301, Page 4184;
Deed Book 15301, Page 4193;
Cobb County Records.**

Environmental Covenant

This instrument is an Environmental Covenant executed pursuant to the Georgia Uniform Environmental Covenants Act, O.C.G.A. § 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 is defined as the date upon which the fully executed Environmental Covenant has been recorded in accordance with O.C.G.A. § 44-16-8(a).

**Fee Owner of
Property/Grantor:**

AMC Cobb Holdings, LLC
1141 Crest Valley Drive
Atlanta, GA 30327

Grantee/Holder:

AMC Cobb Holdings, LLC
1141 Crest Valley Drive
Atlanta, GA 30327

**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 1850 South Cobb Industrial Boulevard, a landlocked parcel off of South Cobb Industrial Boulevard, and property located on 4830 Martin Court, Smyrna, Georgia (the "Property"). The various portions of this tract of land were conveyed to AMC Cobb Holdings, LLC, on the following dates:

- On December 8, 2015, from AMC Ventures, Inc., recorded in Deed Book 15301, Page 4184.
- On December 8, 2015, from Callas Family Partnership, L.P., recorded in Deed Book 15301, Page 4193.

The Property is located in the Land Lots 618, 678, and 679 of the 17th District, 2nd Section, Cobb County, Georgia. A complete legal description of the Property is attached as Exhibit A and a map of the Property is attached as Exhibit B. In the event of a conflict between the information contained on Exhibit A and Exhibit B, Exhibit A controls.

Tax Parcel Number(s):

- 17-0678-00040, Cobb County, Georgia;
- 17-0618-01240, Cobb County, Georgia, and;
- 17-0679-00130, Cobb County, Georgia.

Name and Location of Administrative Records:

Documents associated with the Property are available for review, by appointment, at the following locations:

Georgia Environmental Protection Division
Land Protection Branch
2 MLK 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 Declaration of Covenant is made pursuant to the Georgia Uniform Environmental Covenants Act, O.C.G.A. § 44-16-1 *et seq.* by AMC Cobb Holdings, LLC, its successors and assigns, and the State of Georgia, Department of Natural Resources, Environmental Protection Division (hereinafter “EPD”), its successors and assigns. This Environmental Covenant is required because of the migration of “regulated substances” as that term is 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) on to the Property. The remaining Corrective Action for the Property consists of completing additional monitoring as required by a Voluntary Remediation Plan (“VRP”) entered into with EPD concerning the Property and implementing institutional controls to protect human health and the environment.

Grantor, AMC Cobb Holdings, LLC, (the “Grantor”), 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 Grantee 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.

Grantor makes the following declaration 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); is perpetual, unless modified or terminated pursuant to the terms of this 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 Grantee and EPD, and its successors and assigns and shall be enforceable by the Director or his agents or assigns, Grantor 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.

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) days 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, if any is necessary. The Owner of the Property must also give thirty (30) days 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 Property.
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. Periodic Reporting. By no later than one (1) year following the Effective Date of this Environmental Covenant, and annually thereafter, the Owner shall submit to EPD an Annual Report providing a certification of non-residential use of the Property and stating whether or not the activity and use limitations in this Environmental Covenant are being abided by.

5. 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 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.
6. Groundwater Limitation. The use or extraction of groundwater beneath the Property from the surficial aquifer for drinking water or for any other non-remedial purposes shall be prohibited. The use or extraction of groundwater beneath the Property from the lower aquifers shall be limited to non-potable uses.
7. Right of Access. In addition to any rights already possessed by EPD, the Owner shall allow authorized representatives of EPD the right to enter the Property with advance notice at reasonable times for the purpose of determining compliance with this Environmental Covenant.
8. 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 Records 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) each person holding a recorded interest in the Property subject to the covenant, (2) each person in possession of the real Property subject to the covenant, (3) each municipality, county, consolidated government, or other unit of local government in which real Property subject to the covenant is located, and (4) each owner in fee simple whose property abuts the Property subject to the Environmental Covenant.
9. Termination or Modification. The Environmental Covenant shall remain in full force and effect in accordance with O.C.G.A. § 44-16-1 *et seq.*, unless modified or terminated pursuant to the terms of this Covenant pursuant to O.C.G.A. § 44-16-9 and 10.
10. 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.
11. 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;
- 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 8 above with a copy of the proposed final text 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.

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

[SIGNATURES TO APPEAR ON THE FOLLOWING PAGE]

Grantor have caused this Environmental Covenant to be executed pursuant to The Georgia Uniform Environmental Covenants Act, on the _____ day of _____, 2016.

Signed, sealed, and delivered in the presence of:

For the Grantor:

Unofficial Witness (*Print*)

AMC COBB HOLDINGS, LLC
Name of Grantor (*Print*)

Unofficial Witness Name (*Signature*)

Grantor's Authorized Representative
(*Signature*)

Unofficial Witness Address (*Print*)

Authorized Representative Name (*Print*)

Title of Authorized Representative (*Print*)

Notary Public (*Signature*)

My Commission Expires: _____

Dated: _____

(NOTARY SEAL)

Signed, sealed, and delivered in the presence
of:

Unofficial Witness (*Print*)

Unofficial Witness Name (*Signature*)

Unofficial Witness Address (*Print*)

Notary Public (*Signature*)

My Commission Expires: _____

Dated: _____

(NOTARY SEAL)

For the Grantee/Holder:

Name of Grantee (*Print*)

Grantee's Authorized Representative
(*Signature*)

Authorized Representative Name (*Print*)

Title of Authorized Representative (*Print*)

Signed, sealed, and delivered in the presence
of:

**For the State of Georgia, Environmental
Protection Division:**

Unofficial Witness (*Print*)

Judson H. Turner, Director (*Signature*)

Unofficial Witness Name (*Signature*)

Unofficial Witness Address (*Print*)

Notary Public (*Signature*)

My Commission Expires: _____

Dated: _____

(NOTARY SEAL)

EXHIBIT A

Map Parcel No. 17-0678-0-004-0 (1850 S. Cobb Industrial)

ALL THAT TRACT OR PARCEL OF LAND LYING OR BEING IN LAND LOT 678, OF THE 17TH LAND DISTRICT, 2ND SECTION OF COBB COUNTY, GEORGIA, AND BEING MORE PARTICULARLY DESCRIBED AS FOLLOWS:

TO FIND THE POINT OF BEGINNING, COMMENCE FROM A 1/2" REBAR FOUND AT THE LAND LOT CORNER COMMON TO LAND LOTS 618, 619, 678 AND 679 OF SAID DISTRICT, SECTION, COUNTY AND STATE; THENCE RUNNING ALONG THE LAND LOT LINE COMMON TO LAND LOTS 678 AND 679, THENCE S 89°21'37" E A DISTANCE OF 179.28' TO A POINT, WHICH IS THE POINT OF BEGINNING.

FROM THE POINT OF BEGINNING AS THUS ESTABLISHED, THENCE N 00°04'49" E A DISTANCE OF 289.52' TO A POINT ON THE SOUTHERLY RIGHT OF WAY OF SOUTH COBB INDUSTRIAL BOULEVARD (HAVING A RIGHT OF WAY THAT VARIES); THENCE RUNNING ALONG SAID RIGHT OF WAY N 84°45'32" E A DISTANCE OF 13.18' TO A POINT; THENCE CONTINUING ALONG SAID RIGHT OF WAY N 72°52'57" E A DISTANCE OF 42.71' TO A POINT; THENCE CONTINUING ALONG SAID RIGHT OF WAY N 84°46'20" E A DISTANCE OF 247.86' TO A POINT; THENCE LEAVING SAID RIGHT OF WAY S 01°31'29" W A DISTANCE OF 329.26' TO A POINT ON THE LAND LOT LINE COMMON TO LAND LOTS 678 AND 679, SAID DISTRICT, SECTION, COUNTY AND STATE; THEN RUNNING ALONG SAID LAND LOT LINE N 89°21'37" W A DISTANCE OF 292.44' TO A POINT, WHICH IS THE POINT OF BEGINNING.

SAID TRACT OR PARCEL OF LAND CONTAINS 2.128 ACRES (BEING 92,703+/- SQUARE FEET), INCLUDING AREA WITHIN ALL ONSITE EASEMENTS.

Map Parcel No. 17-0618—0-124-0 (S. Cobb Industrial)

ALL THAT TRACT OR PARCEL OF LAND LYING OR BEING IN LAND LOT 678, OF THE 17TH LAND DISTRICT, 2ND SECTION OF COBB COUNTY, GEORGIA, AND BEING MORE PARTICULARLY DESCRIBED AS FOLLOWS:

BEGINNING FROM A 1/2" REBAR FOUND AT THE LAND LOT CORNER COMMON TO LAND LOTS 618, 619, 678 AND 679 OF SAID DISTRICT, SECTION, COUNTY AND STATE; THENCE RUNNING ALONG THE LAND LOT LINE COMMON TO LAND LOTS 618 AND 679, S 00°00'59" E A DISTANCE OF 230.65' TO A 1/2" REBAR FOUND; THENCE LEAVING SAID LAND LOT LINE S 89°38'11" W A DISTANCE OF 155.74' TO A 1/2" REBAR FOUND; THENCE N 06°51'21" W A DISTANCE OF 237.45' TO A 1/2" REBAR FOUND ON THE LAND LOT LINE COMMON TO LAND LOTS 618 AND 619, SAID DISTRICT, SECTION, COUNTY AND STATE; THENCE RUNNING ALONG SAID LAND LOT LINE S 88°43'04" E A DISTANCE OF 184.07' TO A 1/2" REBAR FOUND AT THE LAND LOT CORNER COMMON TO LAND LOTS 618, 619, 678 AND 679, WHICH IS THE POINT OF BEGINNING.

SAID TRACT OR PARCEL OF LAND CONTAINS 0.908 ACRE (BEING 39,593+/- SQUARE FEET), INCLUDING AREA WITHIN ALL ONSITE EASEMENTS.

Map Parcel No. 17-0679-0-013-0 (4830 Martin Court)

ALL THAT TRACT OR PARCEL OF LAND LYING OR BEING IN LAND LOT 679, OF THE 17TH LAND DISTRICT, 2ND SECTION OF COBB COUNTY, GEORGIA, AND BEING MORE PARTICULARLY DESCRIBED AS FOLLOWS:

BEGINNING FROM A 1/2" REBAR FOUND AT THE LAND LOT CORNER COMMON TO LAND LOTS 618, 619, 678 AND 679 OF SAID DISTRICT, SECTION, COUNTY AND STATE; THENCE RUNNING ALONG THE LAND LOT LINE COMMON TO LAND LOTS 678 AND 679, S 89°21'37" E A DISTANCE OF 471.72' TO A POINT; THENCE CONTINUING ALONG SAID LAND LOT LINE S 89°22'54" E A DISTANCE OF 300.00' TO A 1/2" REBAR FOUND ON THE WESTERLY RIGHT OF WAY OF MARTIN COURT (50' RIGHT OF WAY WIDTH); THENCE RUNNING ALONG SAID RIGHT OF WAY WITH A CURVE TURNING TO THE RIGHT WITH AN ARC LENGTH OF 287.10', WITH A RADIUS OF 929.46', WITH A CHORD BEARING OF S 10°06'20" W, WITH A CHORD LENGTH OF 285.96' TO A POINT; THENCE LEAVING SAID RIGHT OF WAY S 89°20'10" W A DISTANCE OF 561.94' TO A POINT; THENCE N 89°22'39" W A DISTANCE OF 159.52' TO A CONCRETE MONUMENT FOUND ON THE LAND LOT LINE COMMON TO LAND LOTS 618 AND 679; THENCE RUNNING ALONG SAID LAND LOT LINE N 00°00'59" W A DISTANCE OF 294.81' TO A 1/2" REBAR FOUND AT THE LAND LOT CORNER COMMON TO LAND LOTS 618, 619, 678 AND 679, WHICH IS THE POINT OF BEGINNING.

SAID TRACT OR PARCEL OF LAND CONTAINS 5.010 ACRES (BEING 218,265+/- SQUARE FEET), INCLUDING AREA WITHIN ALL ONSITE EASEMENTS.

EXHIBIT B





Toll Free: 800-472-2232 Email: wenckmp@wenck.com Web: wenck.com

MINNESOTA			COLORADO	GEORGIA	NORTH DAKOTA	WYOMING
Maple Plain	Golden Valley	New Hope	Denver	Roswell	Fargo	Cheyenne
763-479-4200	763-252-6800	800-368-8831	800-472-2232	678-987-5840	701-297-9600	307-634-7848
	Windom	Woodbury	Fort Collins		Mandan	Sheridan
	507-831-2703	651-294-4580	970-223-4705		701-751-3370	307-675-1148
					Dickinson	
					800-472-2232	