RAMBOLL ENVIRON

ENVIRONMENT
& HEALTH

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

RE: FINAL GROUNDWATER COMPLIANCE STATUS REPORT
FORMER CAROLINA COMMERCIAL HEAT TREAT
FORMER GEORGIA HSI NO. 10341

November 3, 2017

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Dear Mr. Collins:

On behalf of our client, Rexmet Corporation, Ramboll Environ is pleased to submit this Final Groundwater Compliance Status Report for the above referenced site. Find enclosed one paper copy and two compact discs (electronic copies) of the report.

The groundwater at the former CCHT property is in compliance with the Type 2 Residential RRS. Further, groundwater at the downgradient properties can be certified as meeting residential RRS with institutional controls. Based on this information, the former CCHT property should be delisted from the HSI, and the O'Reilly's Auto Parts property (which is sublisted as part of the former CCHT HSI site), should be delisted from the HSI once a covenant restricting groundwater use has been recorded.

If you have any questions about the attached report, or any other project matter, please feel free to contact us at any time.

Sincerely,

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Enclosures
cc: Mr. John Rex, Rexmet Corporation
Mr. John Spinrad, Arnall Golden Gregory LLP.

FINAL GROUNDWATER COMPLIANCE STATUS REPORT

CAROLINA COMMERCIAL HEAT TREAT
GEORGIA HSI NO. 10341

November 2017

RAMBOLL ENVIRON

Groundwater Scientist Statement

I certify that I am a qualified groundwater scientist who has received a baccalaureate or post-graduate degree in the natural sciences or engineering, and have sufficient training and experience in groundwater hydrology and related fields, as demonstrated by state registration and completion of accredited university courses, that enable me to make sound professional judgments regarding groundwater monitoring and contaminant fate and transport. I further certify that the groundwater portions of this report were prepared by myself and appropriately qualified subordinates working under my direction.

11/2/17

Robert Patchett, P.G.
Georgia Registration No. 1639

CERTIFICATION

I certify under penalty of law that this document and all attachments were prepared under my direction in accordance with a system designated 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.

The groundwater at the former CCHT property (Parcel ID 069001003L) is in compliance with the Type 2 Residential RRS. Further, groundwater at the downgradient properties (Parcel IDs 071001002D, 0700010008, and 0710010003) can be certified as meeting residential RRS with institutional controls.

Signature: John W Rex Date: 10/3/2017

Name: John W. Rex

Title: President

Company: Rexmet Corp

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ACRONYMS AND ABBREVIATIONS

11DCE	1,1-Dichloroethene
12DCE	1,2-Dichloroethene
BTP	Bodycoat Thermal Processing
cm/sec	Centimeters per Second
CAP	Corrective Action Plan
CCHT	Carolina Commercial Heat Treat
cDCE	cis-1,2-Dichloroethene
CSM	Conceptual Site Model
CSR	Compliance Status Report
EDR	Environmental Data Resources
ft bgs	Feet Below Ground Surface
ft/day	Feet per Day
EPD	Environmental Protection Division
GCAL	Gulf Coast Analytical Laboratory
HSI	Hazardous Site Inventory
HSRA	Hazardous Site Response Act
ISWQS	In-Stream Water Quality Standard
J&E	Johnson & Ettinger
µg/L	Micrograms per Liter
MPE	Multiphase Extraction
OM&M	Operation, Maintenance, & Monitoring
PCE	Perchloroethylene
RexMet	Rex Heat Treat
RRS	Risk Reduction Standards
SVE	Soil Vapor Extraction
SMIP	Stone Mountain Industrial Property
TCE	Trichloroethylene
USEPA	United States Environmental Protection Agency
VC	Vinyl Chloride
VI	Vapor Intrusion
VOC	Volatile Organic Compound
VRP	Voluntary Remediation Program

1. INTRODUCTION

Ramboll Environ has prepared this Final Compliance Status Report (CSR) to summarize the assessment and remediation efforts associated with impacted groundwater at the former Carolina Commercial Heat Treat (CCHT) site (Georgia Hazardous Site Inventory [HSI] No. 10341) located in Conyers, Georgia. This report has been prepared on behalf of Rex Heat Treat (Rex or RexMet), and recommends that the site be removed from the HSI listing.

The Georgia Environmental Protection Division (EPD) listed the property on the Georgia HSI on July 1, 1995, due to a historic release of perchloroethylene (PCE) in soil. Perchloroethylene and its breakdown products trichloroethylene (TCE); cis 1,2-dichloroethene (cDCE); and, 1,1-dichloroethene (11DCE) have been detected in the groundwater associated with the site. The groundwater impacts extend southeast from the former CCHT property across Highway 138, to the southeast. The EPD determined that clean up levels have been met for the soil as stated in a March 2001 letter (**Appendix A**); therefore, subsequent investigation and corrective actions have focused on groundwater impacts on the former CCHT property and downgradient properties across Highway 138. Rexmet submitted a Voluntary Remediation Program (VRP) application in July 2013. The VRP application was approved by EPD in a letter dated November 22, 2013.

Characterization and delineation of the groundwater impacts have been ongoing since the site was listed on the HSI in 1995. During these assessment activities, a total of 29 groundwater monitoring wells have been installed upgradient, downgradient, and cross gradient of the site.

1.1 Site Description

The former CCHT property is located at 1690 Highway 138 NE in Conyers, Rockdale County, Georgia, approximately 1.3 miles north of Interstate 20. The 1.7 acre property is currently owned and maintained by John Rex, and consists of Parcel ID 069001003L. An asphalt lot exists on the south and southwest portions of the property, while the remainder of the property is gravel at the surface following demolition of the former manufacturing facility. Residential properties are located north and west (upgradient) of the former CCHT property, and commercial/industrial properties are located to the south and east of the former CCHT property.

The topography on the southeast side of Highway 138 consists of a steep grass slope and wooded area that leads to a surface water drainage swale. The intermittent storm water drainage swale flows south to a 1.5 acre retention pond that collects and retains storm water for the manufacturing businesses in an adjacent industrial park. This drainage swale conveys precipitation run-off from along Highway 138 to the pond.

Impacted groundwater has migrated beneath the downgradient properties owned by O'Reilly's Auto Parts (Parcel ID 0710010003), former Carpenter Insulation (Parcel ID 071001002D), and the former Stone Mountain Industrial Property (SMIP), now owned by Rexmet (Parcel ID 0700010008); referred to hereafter as the "downgradient site properties." The site layout presented in **Figure 1** depicts the former CCHT property, the downgradient site properties, and surrounding properties.

1.2 Site History

The initial investigative activities associated with the site culminated with the submittal of a Corrective Action Plan (CAP) in January 2001, which was approved by EPD in March 2001. Based on the approved CAP, an air sparge/soil vapor extraction (SVE) remediation system was installed

in 2001 to treat groundwater south of Highway 138. Following that, an aggressive groundwater remedial action was conducted in early 2005 in the source area located at the front of the former CCHT building. A series of six multi-phase extraction (MPE) events were performed to remediate the groundwater in that area.

Active remediation via the air sparge system was suspended in June 2009 while the SVE portion of the system remained in operation. The air sparge system remained off to further evaluate the rebounding effect and the aquifer response in the remediation area. The remediation system has remained shut down as natural attenuation of the groundwater impacts are monitored.

In order to monitor the natural attenuation of the groundwater impacts, semi-annual monitoring events have been performed since 2009. Additionally, to evaluate possible groundwater impact on the intermittent drainage swale and retention pond, surface water samples have been collected from two locations near the confluence of the drainage swale and pond. After the groundwater remediation system shut down in 2012, the groundwater concentrations have continued to decrease by an order of magnitude.

A summary listing of the groundwater investigative and remedial activities that have occurred since 1997 is presented below, followed by expanded information regarding the corrective actions performed at the site.

- April 1997: Evaluated the former degreasing pit area
- June 1997: Conducted source area SVE pilot test and designed SVE system
- January 1998: Installed and began operation of source area SVE system
- December 1998: Submitted Compliance Status Report
- January 1999: Sampled soil in source area following SVE operation
- March 1999: Submitted Compliance Status Report Addendum #1
- June 1999: Installed and sampled a deep monitoring well to define the vertical extent of impact (MW-10). Advanced five additional DPT borings (B-6 thru B-10) to address horizontal and vertical extent of soil impacts
- August 1999: Submitted Compliance Status Report Addendum #2
- December 1999: Offsite assessment using DPT screening. Installed and sampled two monitoring wells (MW-11 and MW-12) to assess groundwater impacts
- January 2000: Discontinued SVE remediation of former source area, performed supplemental groundwater sampling of selected monitoring wells
- February 2000: Conducted air sparge pilot test to design a system to address offsite groundwater impacts
- July 2000: Supplemental offsite assessment including DPT screening and surface water sampling
- January 2001: Submitted Corrective Action Plan

- September 2001: Installed remediation wells
- January 2002: Baseline groundwater sampling event for all wells
- March 2002: Installed and start up air sparge/SVE remediation system
- July 2003: Submitted Operation, Maintenance, & Monitoring (OM&M) Report to EPD; air sparge system re-design and retrofit performed and system started up
- March 2005: Commenced onsite source removal via six MPE episodic events
- 2005 – 2012: Performed semi-annual groundwater sampling in March and September each year, culminating with submittal of annual OM&M Reports in June
- February 2012: Groundwater remediation system shut down
- November 2013: The site was accepted into the Georgia VRP
- May 2014: Semiannual Groundwater Monitoring Report
- December 2015: Semiannual Groundwater Monitoring Report
- December 2016: Annual VRP Status Report

In October 2014 Environ, on behalf of Rexmet, requested to reduce the number of wells in the monitoring well network and reduce the sampling frequency to an annual period. The EPD approved the sampling program modifications in an email dated October 8, 2014.

1.3 Off-Site Properties

Rexmet purchased a 1-acre portion of the SMIP property south of Highway 138 and west of the drainage swale and has executed environmental covenants on the property deed that will be recorded with the deed after it is signed by the Director of the EPD. The former Carpenter Insulation property located southeast (downgradient) of the site has agreed to place environmental covenants on the property deed. Rexmet is also in the process of negotiating environmental covenants on the O'Reilly's Auto Parts property. Once the negotiations are completed, an environmental covenant will be executed for the site in conformance with O.C.G.A. 44-61-1, et seq., the "Georgia Uniform Environmental Covenants Act." The covenants for each property will specify that no drinking water wells will be installed on the property. The locations of the downgradient properties are shown on **Figure 2**. A copy of the draft Environmental Covenants is presented in **Appendix B**.

1.4 Summary of Surface Water Assessments

Surface water samples were collected during the semi-annual groundwater sampling events performed on January 31, 2012, and April 25, 2014. The samples were collected at two locations, one at the confluence of the intermittent drainage swale and one just downstream of the confluence (in the pond). These sampling locations are illustrated on **Figure 2**. The only constituent detected was PCE, which was detected only once (January 2012) in the upstream sample. The sample contained PCE at a concentration of 5.37 micrograms per liter (µg/L), which was only slightly greater than the detection limit of 5.0 µg/L, and the Georgia In-Stream Water Quality Standard (ISWQS) of 3.3 µg/L. No VOCs were detected in the surface water samples collected in 2014.

2. GEOLOGIC SETTING

2.1 Site Geology

The geology at the site and surrounding properties is variable, and this variability has controlled the migration of the groundwater contaminants. Specifically, a localized bedrock high area has been identified immediately northwest (upgradient) of the site, while a steep drop and localized bedrock low area has been identified to the southeast (downgradient). Shallow bedrock observed north of the drainage swale (adjacent to the east side of the former Carpenter Insulation building) is likely limiting groundwater migration to the east, as groundwater is not present in the overburden in this area. Numerous attempts to install shallow overburden wells northeast and southeast of the building were performed in 2006 and 2011. In all cases, bedrock was encountered above the water table; therefore, shallow monitoring wells could not be installed. Additionally, bedrock is at the ground surface on the northeast side of the building confirming the shallow rock presence along the east side of the groundwater plume. These locations are identified on **Figure 2**.

2.2 Site Hydrogeology

Well yield tests performed during investigations activities in January 1998 indicated monitoring wells would produce an estimated 0.5 to 1.5 gallons per minute. A sodium bromide injection study performed in 2000 yielded an estimated groundwater flow velocity range of 0.1 to 12 feet per day. Some of the shallow groundwater beneath the site appears to flow into the underlying bedrock as it moves downgradient, after which it ultimately discharges to the retention pond.

Based on current and historic groundwater sampling events, the groundwater flows generally to the southeast, consistent with the surface topography. The groundwater gradient for these events was approximately 0.025 ft/ft as measured between wells MW-4 and MW-19, which is consistent with the historic data.

Groundwater elevations have shown little fluctuation since the submittal of the 2005 OM&M Report. Graphical representations of groundwater elevation changes for monitoring wells are included in the PCE concentration trend charts located in **Appendix C**. Depth to groundwater measurements and corresponding groundwater elevations are in **Table 1**. Monitoring well locations and general site features are shown on **Figures 1** and **2**. The potentiometric surface map based on the May 2017 gauging data is presented as **Figure 3**.

3. GROUNDWATER ASSESSMENT

3.1 Summary of Groundwater Assessment and Remediation

An air sparge/SVE remediation system has been the primary method for remediating groundwater at the site. A description of the system operation and performance is presented below.

As described in the CAP, the remediation system was designed to function as a sparge treatment and barrier wall ("curtain") for the chlorinated constituents that have migrated from the former CCHT property in the groundwater. The system performance and uptime percentage is an indicator of the effectiveness of treating the contaminants in groundwater as it passed through the curtain. Prior to the actual blower malfunction in September 2010, the SVE system was operating at greater than 95 percent run-time. The SVE system has remained off while evaluating the groundwater concentrations, and is currently off as groundwater attenuation is being monitored. The remedial activities substantially reduced the groundwater concentrations on site creating a detached plume downgradient of the site that is naturally attenuating.

3.2 Annual Groundwater Monitoring

The VRP specifies that the groundwater from 14 select wells at the site is to be sampled semi-annually for two years. However, in an email dated October 8, 2014, EPD authorized a reduction in the number of wells sampled during the annual sampling events to a sub-set of five of the wells originally approved in the VRP Application. The wells are MW-15, MW-19, MW-21, MW-25D, and MW-27. Groundwater samples from these specified wells were most recently collected in July 2017.

The sampling methodology and results for the annual sampling events are presented in the following subsections.

3.3 Groundwater Sampling Methodology

Prior to sampling, each monitoring well was opened and allowed to equilibrate. An electronic water-level meter was used to measure the static water level in the 28 existing monitoring wells associated with the site. Once the static water levels were recorded, the five wells to be sampled were purged using low-flow techniques and groundwater samples were collected using a peristaltic pump fitted with new, disposable tubing. The monitoring wells were purged until the pH, specific conductance, and temperature of the groundwater stabilized.

Following adequate purging (i.e., reaching groundwater parameter stabilization), the samples were collected and placed into clean, laboratory provided, appropriately preserved (with laboratory-supplied hydrochloric acid), 40-milliliter glass vials, and labeled and placed on ice prior to delivery under chain-of-custody protocol to Gulf Coast Analytical Laboratory, LLC (GCAL) in Baton Rouge, Louisiana for analysis. The sample containers for each well were handled using new, disposable Nitrile gloves. The samples were analyzed for VOCs using U.S. EPA SW-846 Method 8260B. For quality assurance and control, two duplicate samples were collected, and a trip blank accompanied the sample containers and groundwater samples, and was analyzed for the same parameters as the groundwater samples. In addition, the laboratory produced method blanks, laboratory control spikes, matrix spikes, and matrix spike duplicates.

3.4 Analytical Results

Perchloroethylene was detected in each of the five monitoring wells sampled at concentrations ranging from 5.28 µg/L to 413 µg/L. The concentration of PCE in MW-15 has decreased since the October 2014 sampling event (from 493 µg/L to 88.8 µg/L), whereas the concentration in other wells has remained relatively constant. Several breakdown products of PCE, including TCE, 11DCE, and c12DCE have historically been detected in the downgradient monitoring wells at the site. A summary of the analytical results are presented in **Table 2**, and PCE concentrations in the groundwater are shown in **Figure 4**. Trend charts showing the VOC concentrations detected in the monitoring wells and the depth to groundwater are provided in **Appendix C,** and laboratory reports are provided in **Appendix D**.

4. NATURE AND EXTENT OF GROUNDWATER CONTAMINATION

The source of the groundwater impacts was identified as a former degreasing pit located in the central portion of the of the former CCHT property which was filled with concrete in the mid-1980s, and a former septic system located in the southern portion of the property. Based on data presented in historic CSRs and the CAP, as well as recent OM&M reports, the groundwater impacts have been delineated. This information is discussed further in the following subsections.

Volatile organic compounds (VOCs) have been detected in groundwater at the site. A summary of historic and recent VOC concentrations in groundwater are presented in **Table 2,** and **Figure 4** presents the results for the constituents that were detected during the most recent monitoring event. Contaminant concentrations were plotted against time to show the trending of the chemical constituent to allow an analysis of the fate and transport mechanisms and natural attenuation conditions that are occurring in the subsurface. Additionally, water table elevations were plotted with the concentration trends to depict the water table fluctuations that were occurring during the sampling period. This was done to evaluate whether a correlation exists between water table conditions and changing contaminant concentrations. Graphical trend analyses of historic PCE concentrations were prepared for select wells and are presented in **Appendix C**.

Former CCHT Property – Groundwater concentrations of PCE at the former CCHT property decreased to below detectable concentrations in each of the on-site monitoring wells except for MW-6 and MW-8R. The PCE concentrations detected in MW-06 and MW-08R in 2013 were 7.86 and 15.5 µg/L, respectively, which is less than the Type 2 Risk Reduction Standard (RRS) for PCE of 19 µg/L. The monitoring wells at the former CCHT property were abandoned with approval of the EPD, on June 29, 2015.

Downgradient Site Properties – Concentrations of PCE have generally trended downward and have been relatively stable from December 2009 through July 2017. The most dramatic downward trend in groundwater concentrations has been observed in the bedrock wells. During the monitoring period after the groundwater remediation system shut down, groundwater concentrations have decreased by an order of magnitude. The extent of impacted groundwater has been delineated to the EPD Type 1 RRS for PCE of 5 µg/L. The extent of the impacts have been defined in the upgradient direction (MW-3, MW-4, and MW-5), downgradient direction (MW-16 and MW-17), and vertically (MW-28D). In addition the groundwater impacts have been delineated laterally to the southwest in permanent wells (MW-11 and MW-29D) and temporary monitoring wells (TW13-1 and TW13-2), and to the northeast by wells (MW-9R and MW-22) and shallow bedrock. Based on the current site conditions, horizontal and vertical delineation has been achieved for the site-related constituents.

5. RISK EVALUATION

The EPD determined that clean up levels have been met for the soil; therefore, this risk evaluation for the former CCHT property and the downgradient site properties is focused on groundwater. This evaluation included identification of the contaminant sources and release mechanisms, potential receptors and associated exposure routes, and the derivation of RRS for direct exposure pathways (e.g., ingestion) and screening values for indirect pathways (e.g., vapor intrusion). This information is summarized presented below.

5.1 Contaminant Sources and Release Mechanisms

The sources of the regulated substances detected at the site are the former degreasing pit located in the central portion of the property and the former septic system located in the southern portion of the property. The degreasing pit leaked during its usage, with the regulated substances in the material reaching the surrounding soil. Infiltration and leaching from the soil caused the material to ultimately reach the groundwater. Releases from the former septic system likely reached the groundwater in the same manner as those from the degreasing pit.

5.2 Potential Receptors and Exposure Routes

Former CCHT Property - The potential receptors for media impacted by site-related constituents were identified based on current and reasonably-anticipated land use at the former CCHT property. Commercial/industrial workers were identified as potential receptors that may be exposed to the groundwater. The exposure routes for the commercial/industrial worker include potential inhalation of vapors from groundwater that may migrate through the subsurface into buildings and ingestion of constituents in the groundwater if, in the future, the groundwater is used as a drinking water source.

Downgradient Site Properties – As with the Former CCHT property, commercial/industrial workers were identified as potential receptors for the downgradient site properties that may be exposed to the groundwater. The exposure routes for the commercial/industrial worker include potential inhalation of vapors from groundwater that may migrate through the subsurface into buildings and ingestion of constituents in the groundwater if, in the future, the groundwater is used as a drinking water source.

5.3 Groundwater Risk Reduction Standards

The volatile organic compound PCE was the only constituent detected in the groundwater associated with the former CCHT property and the downgradient site properties. The Type 2 residential RRS for PCE were presented to the EPD during a meeting on April 26, 2017. The EPD accepted the RRS in a letter dated August 10, 2017, but noted some editorial corrections to be made on two of the tables. The corrected tables as well as the letter from the EPD are presented as **Appendix E**.

Former CCHT Property – The PCE concentrations detected the monitoring wells associated with the former CCHT Property were compared to the Type 2 residential RRS, as shown on **Table 3**. The maximum detected concentration of PCE was 15.5 µg/l in MW-08R, which is less than the Type 2 Residential RRS of 19 µg/L.

Downgradient Site Properties – The PCE concentrations detected the monitoring wells associated with the downgradient site properties were compared to the Type 2 Residential RRS, as shown on **Table 3**. The maximum detected concentration of PCE was 413 µg/l in MW-25D, which is greater than the Type 2 Residential RRS of 19 µg/L.

The point of exposure for the downgradient properties is the retention pond at the downgradient property line and at monitoring well MW-17 on the downgradient side of the pond. Percholorethylene has not been detected at either of these locations. However, the downgradient site properties do meet the residential RRS if institutional controls are employed to restrict groundwater use.

5.4 Vapor Intrusion Screening

Based on groundwater impacts on the downgradient site properties, the potential vapor intrusion exposure risk has been evaluated using the Johnson & Ettinger (J&E) Vapor Intrusion (VI) Model, as directed by EPD at the meeting on April 26, 2017. The J&E Model was run to calculate a risk-based screening level for PCE using known site information. The input parameters used in the J&E Model were the same parameters presented in the J&E model prepared by United Consulting for the former Carpenter Insulation property PPCSR, and approved by EPD, dated February 2016.

The PCE risk-based screening level for vapor intrusion using a target carcinogenic risk level of $1x10^{-5}$ for residential receptors (one in one hundred thousand or 1:100,000) and a non-carcinogenic hazard index of 1 is 7,150 ug/L. The J&E Model calculations are presented in **Appendix F**.

Former CCHT Property – The maximum detected concentrations of PCE in the groundwater beneath the former CCHT property is 15.5 ug/L in MW-08R, which is less than the vapor intrusion risk-based screening level (**Table 3**).

Downgradient Site Properties – The maximum detected concentrations of PCE in the groundwater beneath the downgradient site properties is 413 ug/L in MW-25D, which is less than the vapor intrusion risk-based screening level (**Table 3**).

6. SUMMARY AND CONCLUSIONS

Former CCHT Property – Based on the available data and the corrective actions that have been completed, the groundwater at the former CCHT property (Parcel ID 069001003L) is in compliance with the Type 2 Residential RRS. In addition; horizontal and vertical delineation of groundwater has been achieved for the site-related constituents. Based on this information, the former CCHT property should be delisted from the HSI.

Downgradient Site Properties – With respect to the downgradient site properties, once approved by the EPD, environmental covenants will be in place at the former Carpenter Insulation property (Parcel ID 071001002D) and the former SMIP property (Parcel ID 0700010008) located southeast (downgradient) of the site (**Appendix B**). Rexmet is in the process of negotiating environmental covenants on the O'Reilly's Auto Parts property (Parcel ID 0710010003). Once the negotiations are completed, an environmental covenant will be executed for the site in conformance with O.C.G.A. 44-61-1, et seq., the "Georgia Uniform Environmental Covenants Act." The covenants for each property require that no drinking water wells will be installed on the property.

Based on the information provided above, and in accordance with the approved VRP, the downgradient properties can be certified as meeting residential RRS with institutional controls. In Addition; the O'Reilly's Auto Parts property (which is sublisted as part of the former CCHT HSI site), should be delisted from the HSI.

7. REFRENCES

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USEPA, 2012. Vapor Intrusion Screening Level (VISL) Calculator and User's Guide. VISL Calculator Version 3.0, November 2012 RSLs. December.

Tables

Table 1 - Groundwater Elevation Data
CCHT - HSI No. 10341
Conyers, Georgia

Well IDs	Date of Installation	Top of Casing Elevation	DTW 10/30/2014	Elevation 10/30/2014	DTW 10/8/2015	Elevation 10/8/2015	DTW 9/28/2016	Elevation 9/28/2016	DTW 7/12/2017	Elevation 7/12/2017
MW-1 (1)	10/15/1993	865.81	26.72	839.09	--	--	--	--	--	--
MW-3 (1)	3/28/1995	866.61	19.73	846.88	--	--	--	--	--	--
MW-4 (1)	3/28/1995	874.16	NM	NM	--	--	--	--	--	--
MW-5 (1) (2)	3/29/1995	873.58	NM	NM	--	--	--	--	--	--
MW-6 (1)	11/28/1995	868.76	27.82	840.94	--	--	--	--	--	--
MW-7 (1)	11/29/1995	863.60	NM	NM	--	--	--	--	--	--
MW-8	3/1/1999	861.89	--	--	--	--	--	--	--	--
MW-8R (1) (3) (4)	9/6/2006	863.25	24.43	838.82	--	--	--	--	--	--
MW-9	3/2/1999	856.32	--	--	--	--	--	--	--	--
MW-9R (1) (3) (5)	9/6/2006	857.14	20.89	836.25	--	--	--	--	--	--
MW-10 (9)	6/18/1999	866.14	26.50	839.64	--	--	--	--	--	--
MW-11	12/27/1999	847.53	NM	NM	15.28	832.25	16.58	830.95	NM	NM
MW-12	12/27/1999	846.59	17.34	829.25	15.90	830.69	17.19	829.40	15.10	831.49
MW-13 (1)	3/27/2000	866.00	27.07	838.93	--	--	--	--	--	--
MW-14	7/7/2000	842.24	20.65	821.59	20.51	821.73	20.04	822.20	20.20	822.04
MW-15	7/7/2000	843.25	17.35	825.90	15.62	827.63	17.06	826.19	15.78	827.47
MW-16	7/26/2000	830.18	NM	NM	NM	NM	NM	NM	NM	NM
MW-17	7/26/2000	826.35	NM	NM	18.22	808.13	18.54	807.81	NM	NM
MW-18 (1) (6)	9/6/2006	861.56	22.96	838.60	--	--	--	--	--	--
MW-19	9/7/2006	836.42	18.86	817.56	18.74	817.68	19.04	817.38	19.60	816.82
MW-20	9/7/2006	841.37	17.69	823.68	16.64	824.73	17.93	823.44	15.85	825.52
MW-21	9/7/2006	838.58	18.91	819.67	18.72	819.86	18.86	819.72	18.53	820.05
MW-22	6/12/2007	854.34	NM	NM	23.31	831.03	24.08	830.26	22.51	831.83
MW-23	6/12/2007	841.56	13.86	827.70	12.49	829.07	13.99	827.57	11.90	829.66
MW-24	6/12/2007	847.36	24.60	822.76	24.15	823.21	23.96	823.40	23.80	823.56
MW-25D (7)	6/12/2007	850.17	20.29	829.88	18.73	831.44	19.90	830.27	17.76	832.41
MW-26D (1) (8)	6/12/2007	861.26	23.47	837.79	--	--	--	--	--	--
MW-27D	5/18/2012	834.31	7.56	826.75	6.24	828.07	7.67	826.64	5.48	828.83
MW-28D	5/18/2012	834.18	NM	NM	6.52	827.66	6.12	828.06	6.51	827.67
MW-29D (9)	5/3/2013	NA	NM	NM	16.33	NA	15.75	NA	16.53	NA

Notes:

(1) Well was abandoned on June 29, 2015.

(2) Well was resurveyed on June 8, 2003. Historic elevation was 874.66 ft amsl.

(3) Well is a replacement well installed on September 6, 2006.

(4) Well was resurveyed on May 22, 2012. Historic elevation was 863.24 ft amsl.

(5) Well was resurveyed on May 22, 2012. Historic elevation was 857.16 ft amsl.

(6) Well was resurveyed on May 22, 2012. Historic elevation was 861.56 ft amsl.

(7) Well was resurveyed on May 22, 2012. Historic elevation was 850.19 ft amsl.

(8) Well was resurveyed on May 22, 2012. Historic elevation was 857.18 ft amsl. The apparent inconsistancy between current and historic casing elevations for MW-26D is due to the mislabeling of a survey ID point on June 28, 2007.

(9) Well was not surveyed.

NA Not Available

DTW Depth to Water

NM Not Measured

-- Monitoring well has been abandoned

Table 2 - Summary of Groundwater Results
CCHT - Conyers, Georgia

		Analyte	1,1-DCE	Chloroform	Chloromethane	c12DCE	PCE	TCE	Vinyl Chloride
		CAS No.	75-35-4	67-66-3	74-87-3	156-59-2	127-18-4	79-01-6	75-01-4
		Type 1/2 RRS	4,000	80		70	19	5	2
Location	Date Sampled	Units							
MW-01	12/1/2009	ug/L	< 5	< 5	< 5	< 5	10.2	< 5	< 2
	9/20/2010	ug/L	< 5	5.83	< 5	< 5	6.98	< 5	< 2
	3/23/2011	ug/L	< 5	5.15	< 5	< 5	11	< 5	< 2
	9/27/2011	ug/L	< 5	< 5	16.2	< 5	13.6	< 5	< 2
	2/2/2012	ug/L	<5	< 5	< 5	< 5	16.9	< 5	< 5
	9/17/2012	ug/L	< 5	< 5	< 5	< 5	8.96	< 5	< 5
	5/1/2013	ug/L	< 5	< 5	< 5	< 5	< 5	< 5	< 5
MW-03	5/1/2013	ug/L	<5	< 5	< 5	< 5	< 5	< 5	< 5
MW-04	5/3/2013	ug/L	< 5	< 5	< 5	< 5	< 5	< 5	< 5
MW-05	5/2/2013	ug/L	< 5	< 5	< 5	< 5	< 5	< 5	< 5
MW-06	12/1/2009	ug/l	< 5	< 5	< 5	< 5	17.9	< 5	< 2
	9/20/2010	ug/l	< 5	< 5	< 5	< 5	5.03	< 5	< 2
	3/23/2011	ug/l	< 5	< 5	< 5	< 5	7.97	< 5	< 2
	9/28/2011	ug/l	< 5	< 5	< 5	< 5	< 5	< 5	< 2
	5/2/2013	ug/l	< 5	< 5	< 5	< 5	13.2	< 5	< 5
	10/7/2013	ug/l	< 5	< 5	< 5	< 5	8.72	< 5	< 5
	4/24/2014	ug/l	< 5	< 5	< 5	< 5	7.44	< 5	< 2
	10/30/2014	ug/l	< 5	< 5	< 5	< 5	7.86	< 5	< 5
MW-07	12/1/2009	ug/L	< 5	< 5	< 5	< 5	< 5	< 5	< 2
	9/20/2010	ug/L	< 5	< 5	< 5	< 5	< 5	< 5	< 2
	3/23/2011	ug/L	< 5	< 5	< 5	< 5	< 5	< 5	< 2
	9/27/2011	ug/L	< 5	< 5	< 5	< 5	< 5	< 5	< 2
	1/31/2012	ug/L	< 5	< 5	< 5	< 5	< 5	< 5	< 5
	9/17/2012	ug/L	< 5	< 5	< 5	< 5	10.2	< 5	< 5
	5/2/2013	ug/L	< 5	< 5	< 5	< 5	< 5	< 5	< 5
MW-08R	12/1/2009	ug/l	< 5	7.89	< 5	< 5	**19.8**	< 5	< 2
	9/20/2010	ug/l	< 5	< 5	< 5	< 5	< 5	< 5	< 2
	3/23/2011	ug/l	< 5	6.08	< 5	< 5	**19.7**	< 5	< 2
	9/27/2011	ug/l	< 5	5.23	< 5	< 5	15.3	< 5	< 2
	2/2/2012	ug/l	< 5	6.86	< 5	< 5	**31**	< 5	**< 5**
	9/18/2012	ug/l	< 5	< 5	< 5	< 5	11.1	< 5	**< 5**
DUP-02	9/18/2012	ug/l	< 5	< 5	< 5	< 5	9.55	< 5	**< 5**
	5/1/2013	ug/l	< 5	< 5	< 5	< 5	16.7	< 5	**< 5**
DUP-01	5/3/2013	ug/l	< 5	< 5	< 5	< 5	15.6	< 5	**< 5**
	10/7/2013	ug/l	< 5	< 5	< 5	< 5	10.9	< 5	**< 5**
	4/24/2014	ug/l	< 5	< 5	< 5	< 5	9.96	< 5	< 2
	10/30/2014	ug/l	< 5	< 5	< 5	< 5	15.5	< 5	**< 5**

Table 2 - Summary of Groundwater Results
CCHT - Conyers, Georgia

		Analyte	1,1-DCE	Chloroform	Chloromethane	c12DCE	PCE	TCE	Vinyl Chloride
		CAS No.	75-35-4	67-66-3	74-87-3	156-59-2	127-18-4	79-01-6	75-01-4
		Type 1/2 RRS	4,000	80		70	19	5	2
Location	Date Sampled	Units							
MW-09R	5/1/2013	ug/L	< 5	< 5	< 5	< 5	< 5	< 5	< 5
MW-10	12/1/2009	ug/L	< 5	< 5	< 5	< 5	35.5	< 5	< 2
	9/20/2010	ug/L	< 5	11.5	< 5	< 5	26.2	< 5	< 2
	3/23/2011	ug/L	< 5	< 5	< 5	< 5	< 5	< 5	< 2
	9/27/2011	ug/L	< 5	< 5	14.7	< 5	< 5	< 5	< 2
	2/2/2012	ug/L	< 5	< 5	< 5	< 5	< 5	< 5	< 5
	9/17/2012	ug/L	< 5	< 5	< 5	< 5	< 5	< 5	< 5
	5/1/2013	ug/L	< 5	< 5	< 5	< 5	< 5	< 5	< 5
MW-11	8/1/2012	ug/L	< 5	< 5	< 5	< 5	< 5	< 5	< 5
	5/3/2013	ug/L	< 5	< 5	< 5	< 5	< 5	< 5	< 5
MW-12	12/3/2009	ug/l	< 5	< 5	< 5	< 5	12.6	< 5	< 2
	9/21/2010	ug/l	< 5	< 5	< 5	< 5	8.9	< 5	< 2
	3/24/2011	ug/l	< 5	< 5	< 5	< 5	5.71	< 5	< 2
	9/27/2011	ug/l	< 5	< 5	8.35	< 5	9.36	< 5	< 2
	1/31/2012	ug/l	< 5	< 5	< 5	< 5	< 5	< 5	**< 5**
	9/18/2012	ug/l	< 5	< 5	< 5	< 5	6.68	< 5	**< 5**
	5/2/2013	ug/l	< 5	< 5	< 5	< 5	5.27	< 5	**< 5**
	10/8/2013	ug/l	< 5	< 5	< 5	< 5	7.75	< 5	**< 5**
	4/25/2014	ug/l	< 5	< 5	< 5	< 5	7.95	< 5	< 2
	10/30/2014	ug/l	< 5	< 5	< 5	< 5	8.75	< 5	**< 5**
MW-13	12/1/2009	ug/L	< 5	8.55	< 5	< 5	< 5	< 5	< 2
	9/20/2010	ug/L	< 5	< 5	< 5	< 5	< 5	< 5	< 2
	3/23/2011	ug/L	< 5	6.56	< 5	< 5	15.4	< 5	< 2
	9/27/2011	ug/L	< 5	< 5	7.09	< 5	13.5	< 5	< 2
	2/2/2012	ug/L	< 5	< 5	< 5	< 5	12.4	< 5	< 5
	9/18/2012	ug/L	< 5	< 5	< 5	< 5	7.97	< 5	< 5
	5/1/2013	ug/L	< 5	< 5	< 5	< 5	< 5	< 5	< 5
MW-14	12/1/2009	ug/l	< 5	< 5	< 5	< 5	**28.9**	< 5	< 2
	9/21/2010	ug/l	< 5	< 5	< 5	< 5	**21.8**	< 5	< 2
	3/24/2011	ug/l	< 5	< 5	< 5	< 5	**22.6**	< 5	< 2
	9/28/2011	ug/l	< 5	< 5	25	< 5	16.9	< 5	< 2
	2/1/2012	ug/l	< 5	< 5	< 5	< 5	**26**	< 5	**< 5**
	9/17/2012	ug/l	< 5	< 5	< 5	< 5	**22.1**	< 5	**< 5**
	5/2/2013	ug/l	< 5	< 5	< 5	< 5	17.3	< 5	**< 5**
	10/8/2013	ug/l	< 5	< 5	< 5	< 5	17.1	< 5	**< 5**
	4/25/2014	ug/l	< 5	< 5	< 5	< 5	17.4	< 5	< 2
	10/30/2014	ug/l	< 5	< 5	< 5	< 5	12.3	< 5	**< 5**

Table 2 - Summary of Groundwater Results
CCHT - Conyers, Georgia

		Analyte	1,1-DCE	Chloroform	Chloromethane	c12DCE	PCE	TCE	Vinyl Chloride
		CAS No.	75-35-4	67-66-3	74-87-3	156-59-2	127-18-4	79-01-6	75-01-4
		Type 1/2 RRS	4,000	80		70	19	5	2
Location	Date Sampled	Units							
MW-15	12/3/2009	ug/l	5.59	< 5	< 5	< 5	**100**	< 5	< 2
DUP-02	12/3/2009	ug/l	< 5	< 5	< 5	< 5	**110**	< 5	< 2
	9/21/2010	ug/l	14.6	< 5	< 5	6.87	**406**	< 5	< 2
	3/24/2011	ug/l	< 5	< 5	< 5	< 5	**91.7**	< 5	< 2
	9/28/2011	ug/l	17.9	< 5	26	13.6	**693**	< 5	< 2
	2/1/2012	ug/l	< 5	< 5	< 5	< 5	**82.2**	< 5	**< 5**
DUP-01	2/1/2012	ug/l	< 5	< 5	< 5	< 5	**88.8**	< 5	**< 5**
	9/17/2012	ug/l	< 25 D	< 25 D	< 25 D	< 25 D	**606 D**	**< 25 D**	**< 25 D**
	5/2/2013	ug/l	< 5	< 5	< 5	< 5	**171**	< 5	**< 5**
	10/8/2013	ug/l	< 25	< 25	< 25	< 25	**353**	**< 25**	**< 25**
DUP-01	10/8/2013	ug/l	< 25	< 25	< 25	< 25	**456**	**< 25**	**< 25**
	4/25/2014	ug/l	< 5	< 5	< 5	< 5	**148**	< 5	< 2
DUP-01	4/25/2014	ug/l	< 5	< 5	< 5	< 5	**114**	< 5	< 2
	10/30/2014	ug/l	< 25	< 25	< 25	< 25	**493**	**< 25**	**< 25**
	10/8/2015	ug/l	< 25	< 25	< 25	< 25	**324**	**< 25**	**< 10**
	9/28/2016	ug/l	< 5	< 5	< 5	< 5	**353**	< 5	< 2
	7/12/2017	ug/l	< 5	< 5	< 5	< 5	**88.8**	< 5	< 2
MW-16	2/2/2012	ug/L	< 5	< 5	< 5	< 5	< 5	< 5	< 5
	5/2/2013	ug/L	< 5	< 5	< 5	< 5	< 5	< 5	< 5
MW-17	2/2/2012	ug/L	< 5	< 5	< 5	< 5	< 5	< 5	< 5
	5/2/2013	ug/L	< 5	< 5	< 5	< 5	< 5	< 5	< 5
MW-18	12/3/2009	ug/l	< 5	< 5	< 5	< 5	< 5	< 5	< 2
	9/20/2010	ug/l	< 5	< 5	< 5	< 5	< 5	< 5	< 2
	3/23/2011	ug/l	< 5	< 5	< 5	< 5	< 5	< 5	< 2
	9/27/2011	ug/l	< 5	< 5	5.72	< 5	< 5	< 5	< 2
	2/1/2012	ug/l	< 5	< 5	< 5	< 5	< 5	< 5	**< 5**
	9/18/2012	ug/l	< 5	< 5	< 5	< 5	< 5	< 5	**< 5**
	5/1/2013	ug/l	< 5	< 5	< 5	< 5	< 5	< 5	**< 5**
	10/7/2013	ug/l	< 5	< 5	< 5	< 5	< 5	< 5	**< 5**
	4/24/2014	ug/l	< 5	< 5	< 5	< 5	< 5	< 5	< 2
	10/30/2014	ug/l	< 5	< 5	< 5	< 5	< 5	< 5	**< 5**

Table 2 - Summary of Groundwater Results
CCHT - Conyers, Georgia

		Analyte	1,1-DCE	Chloroform	Chloromethane	c12DCE	PCE	TCE	Vinyl Chloride
		CAS No.	75-35-4	67-66-3	74-87-3	156-59-2	127-18-4	79-01-6	75-01-4
		Type 1/2 RRS	4,000	80		70	19	5	2
Location	Date Sampled	Units							
MW-19	12/3/2009	ug/l	6.17	< 5	< 5	< 5	**355**	< 5	< 2
	3/5/2010	ug/l	< 5	< 5	< 5	9.66	**38.9**	< 5	< 2
	9/21/2010	ug/l	< 5	< 5	< 5	106	**20.9**	**18.9**	**2.76**
	3/24/2011	ug/l	< 5	< 5	< 5	< 5	**99.1**	< 5	< 2
	9/28/2011	ug/l	5.37	< 5	< 5	77.5	**62.8**	**8.82**	< 2
	1/31/2012	ug/l	7.14	< 5	< 5	< 5	**230 D**	< 5	**< 5**
	9/18/2012	ug/l	5.18	< 5	< 5	< 5	**150**	< 5	**< 5**
	5/2/2013	ug/l	5.81	< 5	< 5	< 5	**183**	< 5	**< 5**
	10/8/2013	ug/l	< 5	< 5	< 5	< 5	**86.2**	< 5	**< 5**
	4/25/2014	ug/l	5.15	< 5	< 5	< 5	**154**	< 5	< 2
	10/30/2014	ug/l	< 5	< 5	< 5	< 5	**43.9**	< 5	**< 5**
	10/30/2014	ug/l	< 10	< 10	< 10	< 10	**183**	**< 10**	**< 10**
	10/8/2015	ug/l	< 25	< 25	< 25	< 25	**164**	**< 25**	**< 10**
DUP-01	10/8/2015	ug/l	< 25	< 25	< 25	< 25	**179**	**< 25**	**< 10**
	9/28/2016	ug/l	< 5	< 5	< 5	< 5	**161**	< 5	< 2
DUP-01	9/28/2016	ug/l	< 5	< 5	< 5	< 5	**168**	< 5	< 2
	7/17/2017	ug/l	9.57	< 5	< 5	< 5	**183**	< 5	< 2
MW-20	12/3/2009	ug/l	< 5	< 5	< 5	< 5	15.2	< 5	< 2
	9/21/2010	ug/l	< 5	< 5	< 5	< 5	21	< 5	< 2
	3/24/2011	ug/l	< 5	< 5	< 5	< 5	9.57	< 5	< 2
	9/28/2011	ug/l	< 5	< 5	28.2	< 5	12.8	< 5	< 2
	2/1/2012	ug/l	< 5	< 5	< 5	< 5	**19.5**	< 5	**< 5**
	9/17/2012	ug/l	< 5	< 5	< 5	< 5	**19.7**	< 5	**< 5**
	5/2/2013	ug/l	< 5	< 5	< 5	< 5	12.7	< 5	**< 5**
	10/8/2013	ug/l	< 5	< 5	< 5	< 5	17.3	< 5	**< 5**
	4/25/2014	ug/l	< 5	< 5	< 5	< 5	5.25	< 5	**< 2**
	10/30/2014	ug/l	< 5	< 5	< 5	< 5	< 5	< 5	**< 5**
DUP-01	10/30/2014	ug/l	< 5	< 5	< 5	< 5	< 5	< 5	**< 5**

Table 2 - Summary of Groundwater Results
CCHT - Conyers, Georgia

		Analyte	1,1-DCE	Chloroform	Chloromethane	c12DCE	PCE	TCE	Vinyl Chloride
		CAS No.	75-35-4	67-66-3	74-87-3	156-59-2	127-18-4	79-01-6	75-01-4
		Type 1/2 RRS	4,000	80		70	19	5	2
Location	Date Sampled	Units							
MW-21	12/3/2009	ug/l	< 5	< 5	< 5	< 5	< 5	< 5	< 2
	3/5/2010	ug/l	< 5	< 5	< 5	< 5	**131**	< 5	< 2
	9/21/2010	ug/l	< 5	< 5	< 5	< 5	**117**	< 5	< 2
	3/24/2011	ug/l	< 5	< 5	< 5	25.1	< 5	< 5	**4.75**
	9/28/2011	ug/l	5.47	< 5	< 5	< 5	**107**	< 5	< 2
	1/31/2012	ug/l	< 5	< 5	< 5	9.95	**22.8**	< 5	< 5
	9/17/2012	ug/l	< 5	< 5	< 5	40.5	**50.6**	**14.1**	< 5
	5/2/2013	ug/l	< 5	< 5	< 5	< 5	**44.8**	< 5	**< 5**
	10/8/2013	ug/l	< 5	< 5	< 5	17	**63.9**	**11.2**	**< 5**
	4/25/2014	ug/l	< 5	< 5	< 5	< 5	**45.2**	< 5	< 2
	10/30/2014	ug/l	5.51	< 5	< 5	37.2	**88.9**	**39.2**	**< 5**
	10/30/2014	ug/l	< 5	< 5	< 5	37	**46.8**	**26.9**	**< 5**
	10/8/2015	ug/l	< 5	< 5	< 5	20.8	**24.3**	**10.8**	< 2
	9/28/2016	ug/l	< 5	< 5	< 5	54.5	< 5.00	**19.7**	< 2
	7/12/2017	ug/l	< 5	< 5	< 5	< 5	5.85	< 5	< 2
DUP-01	7/12/2017	ug/l	< 5	< 5	< 5	< 5	5.28	< 5	< 2
MW-23	12/3/2009	ug/l	58.1	< 5	< 5	10.9	**1730**	**31.8**	< 2
	9/21/2010	ug/l	< 5	< 5	< 5	< 5	**135**	< 5	< 2
DUP-02	9/21/2010	ug/l	< 5	< 5	< 5	< 5	**140**	< 5	< 2
	3/24/2011	ug/l	< 5	< 5	< 5	< 5	**123**	< 5	< 2
DUP-01	3/24/2011	ug/l	< 5	< 5	< 5	< 5	**121**	< 5	< 2
	9/27/2011	ug/l	< 5	< 5	17.7	< 5	**121**	< 5	< 2
DUP-02	9/27/2011	ug/l	< 5	< 5	25.7	< 5	**92.6**	< 5	< 2
	1/31/2012	ug/l	< 5	< 5	< 5	< 5	**77.7**	< 5	< 5
	9/18/2012	ug/l	< 5	< 5	< 5	< 5	**63.9**	< 5	< 5
	5/3/2013	ug/l	< 5	< 5	< 5	< 5	**51.7**	< 5	**< 5**
	10/24/2013	ug/l	< 5	5.72	< 5	< 5	**69.9**	< 5	**< 5**
	4/25/2014	ug/l	< 5	8.73	< 5	< 5	**59.6**	< 5	< 2
	10/30/2014	ug/l	< 5	11.2	< 5	< 5	**159**	< 5	**< 5**

Table 2 - Summary of Groundwater Results
CCHT - Conyers, Georgia

		Analyte	1,1-DCE	Chloroform	Chloromethane	c12DCE	PCE	TCE	Vinyl Chloride
		CAS No.	75-35-4	67-66-3	74-87-3	156-59-2	127-18-4	79-01-6	75-01-4
		Type 1/2 RRS	4,000	80		70	19	5	2
Location	Date Sampled	Units							
MW-24	12/3/2009	ug/l	< 5	< 5	< 5	< 5	< 5	< 5	< 2
	9/21/2010	ug/l	< 5	< 5	< 5	< 5	< 5	< 5	< 2
	3/24/2011	ug/l	< 5	< 5	< 5	< 5	< 5	< 5	< 2
	9/28/2011	ug/l	< 5	< 5	14.4	< 5	6.87	< 5	< 2
	2/1/2012	ug/l	< 5	< 5	< 5	< 5	10.2	< 5	**< 5**
	9/17/2012	ug/l	< 5	< 5	< 5	< 5	6.75	< 5	**< 5**
	5/2/2013	ug/l	< 5	< 5	< 5	< 5	< 5	< 5	**< 5**
	10/8/2013	ug/l	< 5	< 5	< 5	< 5	< 5	< 5	**< 5**
	4/24/2014	ug/l	< 5	< 5	< 5	< 5	< 5	< 5	< 2
	10/30/2014	ug/l	< 5	< 5	< 5	< 5	< 5	< 5	**< 5**
MW-25D	12/3/2009	ug/l	< 5	< 5	< 5	< 5	**296**	< 5	< 2
	9/21/2010	ug/l	< 5	< 5	< 5	< 5	**532**	< 5	< 2
	3/24/2011	ug/l	< 5	< 5	< 5	< 5	**146**	< 5	< 2
DUP-02	3/24/2011	ug/l	< 5	< 5	< 5	< 5	**93.8**	< 5	< 2
	9/27/2011	ug/l	< 5	< 5	< 5	< 5	**103**	< 5	< 2
DUP-01	9/27/2011	ug/l	< 5	< 5	15.8	< 5	**107**	< 5	< 2
	2/2/2012	ug/l	< 5	< 5	< 5	< 5	**355 D**	< 5	**< 5**
DUP-02	2/2/2012	ug/l	< 5	5	< 5	< 5	**274 D**	< 5	**< 5**
	9/18/2012	ug/l	< 25 D	< 25 D	< 25 D	< 25 D	**370 D**	**< 25 D**	**< 25 D**
DUP-01	9/18/2012	ug/l	< 25 D	< 25 D	< 25 D	< 25 D	**280 D**	**< 25 D**	**< 25 D**
	5/2/2013	ug/l	< 25	< 25	< 25	< 25	**318**	**< 25**	**< 25**
	10/8/2013	ug/l	< 10	< 10	< 10	< 10	**317**	**< 10**	**< 10**
DUP-02	10/8/2013	ug/l	< 25	< 25	< 25	< 25	**375**	**< 25**	**< 25**
	4/25/2014	ug/l	< 5	< 5	< 5	< 5	**293**	< 5	< 2
DUP-02	4/25/2014	ug/l	< 25	< 25	< 25	< 25	**369**	**< 25**	**< 25**
	10/30/2014	ug/l	< 10	< 10	< 10	< 10.0	**330**	**< 10**	**< 10**
DUP-02	10/30/2014	ug/l	< 10	< 10	< 10	< 10	**322**	**< 10**	**< 10**
	10/8/2015	ug/l	< 25	< 25	< 25	< 25	**222**	**< 25**	**< 10**
	9/28/2016	ug/l	< 5	< 5	< 5	< 5	**259**	< 5	< 2
	7/12/2017	ug/l	< 25	< 25	< 25	< 25	**413**	**< 25**	**< 10**

Table 2 - Summary of Groundwater Results
CCHT - Conyers, Georgia

		Analyte	1,1-DCE	Chloroform	Chloromethane	c12DCE	PCE	TCE	Vinyl Chloride
		CAS No.	75-35-4	67-66-3	74-87-3	156-59-2	127-18-4	79-01-6	75-01-4
		Type 1/2 RRS	4,000	80		70	19	5	2
Location	Date Sampled	Units							
MW-26D	12/3/2009	ug/l	< 5	< 5	< 5	< 5	**391**	< 5	< 2
DUP-01	12/3/2009	ug/l	56.6	< 5	< 5	11.2	**1900**	**31.9**	< 2
	9/20/2010	ug/l	38.7	< 5	< 5	5.59	**922**	**17.8**	< 2
DUP-01	9/20/2010	ug/l	38.4	< 5	< 5	5.69	**934**	**16.1**	< 2
	3/23/2011	ug/l	< 5	< 5	< 5	< 5	7.71	< 5	< 2
	9/27/2011	ug/l	< 5	< 5	5.38	< 5	**49.5**	< 5	< 2
	2/1/2012	ug/l	< 5	< 5	< 5	< 5	7.68	< 5	**< 5**
	9/18/2012	ug/l	< 5	< 5	< 5	< 5	**20.9**	< 5	**< 5**
	5/1/2013	ug/l	< 5	< 5	< 5	< 5	5.45	< 5	**< 5**
DUP-02	5/3/2013	ug/l	< 5	< 5	< 5	< 5	5.05	< 5	**< 5**
	10/7/2013	ug/l	< 5	< 5	< 5	< 5	10.4	< 5	**< 5**
	4/24/2014	ug/l	< 5	< 5	< 5	< 5	11.2	< 5	< 2
	10/30/2014	ug/l	< 5	< 5	< 5	< 5	**31.6**	< 5	**< 5**
	6/29/2015	Monitoring Well Abandoned							
MW-27D	5/18/2012	ug/l	< 5	14.4	< 5	< 5	**120**	< 5	**< 5**
	9/17/2012	ug/l	< 5	5.49	< 5	< 5	**114**	< 5	**< 5**
	5/3/2013	ug/l	< 5	5	< 5	< 5	**89.5**	< 5	**< 5**
	10/8/2013	ug/l	< 5	5.13	< 5	< 5	**96.2**	< 5	**< 5**
	4/25/2014	ug/l	< 5	< 5	< 5	< 5	**69.3**	< 5	< 2
	10/30/2014	ug/l	< 5	< 5	< 5	< 5	**106**	< 5	**< 5**
	10/8/2015	ug/l	< 5	< 5	< 5	< 5	**64.3**	< 5	< 2
	9/28/2016	ug/l	< 5	< 5	< 5	< 5	**99.5**	< 5	< 2
	7/12/2017	ug/l	< 5	< 5	< 5	< 5	**118**	< 5	< 2

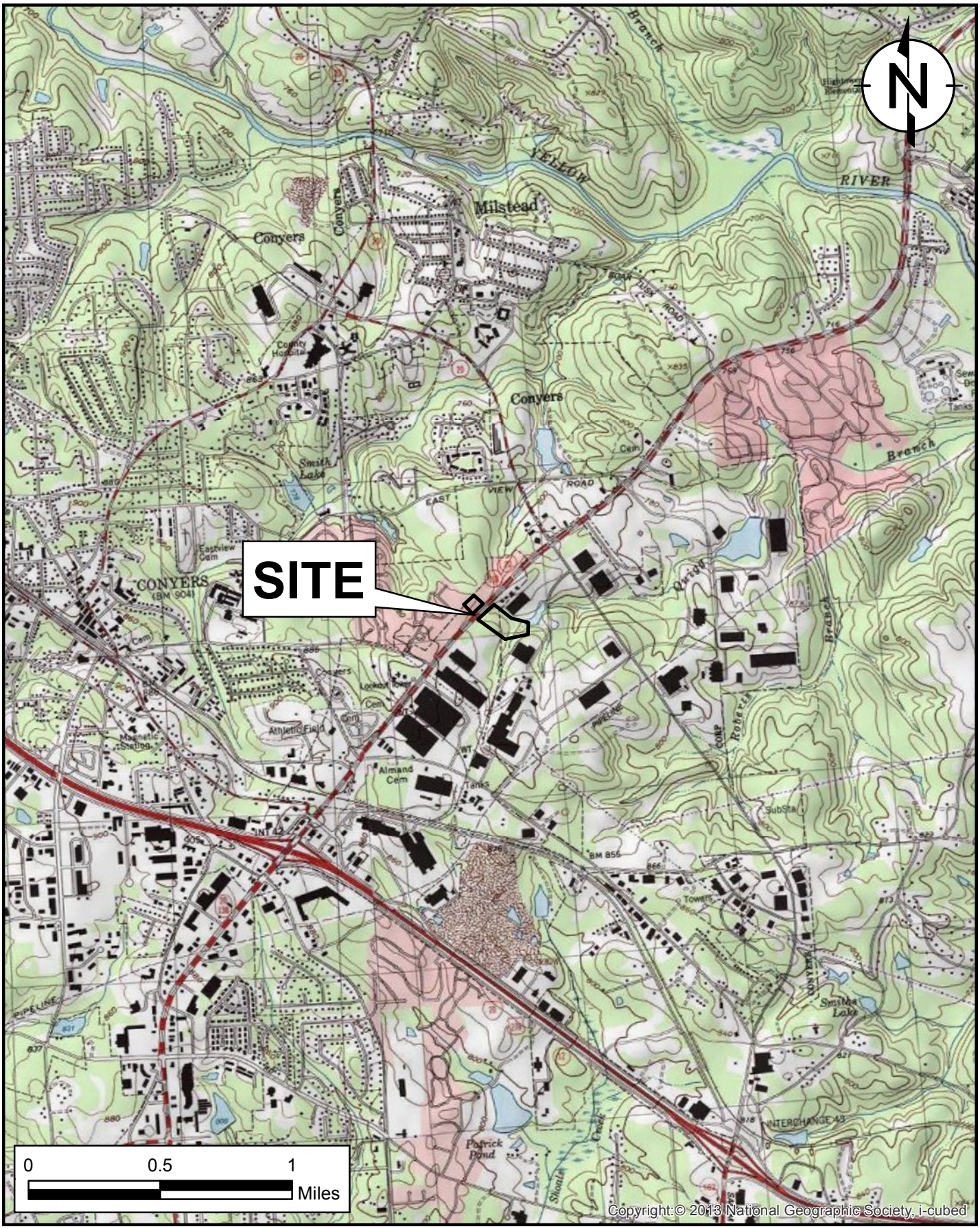
Notes:
ug/l -- Micrograms per liter (parts per billion)
Bolded values exceed the Type 1/2 RRS
< Analyte was not detected at the laboratory reporting limit indicated
J -- Concentration is greater than the method detection limit but less than the laboratory reporting limit

Table 3 - Comparison of PCE Concentrations to RRS and Vapor Intrusion Screening Criterion
CCHT - Conyers, Georgia

		Analyte	PCE
		CAS No.	127-18-4
		Type 2 RRS	19
		Vapor Intrustion Screening Value	7,150
Former CCHT Property	Date Sampled	Units	
MW-01*	5/1/2013	ug/l	< 5
MW-03*	5/1/2013	ug/l	< 5
MW-04*	5/3/2013	ug/l	< 5
MW-05*	5/2/2013	ug/l	< 5
MW-06	10/30/2014	ug/l	7.86
MW-07*	5/2/2013	ug/l	< 5
MW-08R	10/30/2014	ug/l	15.5
MW-10*	5/1/2013	ug/l	< 5
MW-13*	5/1/2013	ug/l	< 5
		Analyte	PCE
		CAS No.	127-18-4
		Type 2 RRS	19
		Vapor Intrustion Screening Value	7,150
Downgradient Site Properties	Date Sampled	Units	
MW-9R*	5/1/2013	ug/l	< 5
MW-11*	5/3/2013	ug/l	< 5
MW-12	10/30/2014	ug/l	8.75
MW-14	10/30/2014	ug/l	12.3
MW-15	7/12/2017	ug/l	88.8
MW-18	10/30/2014	ug/l	< 5
MW-19	7/17/2017	ug/l	183
MW-20	10/30/2014	ug/l	< 5
MW-21	7/12/2017	ug/l	5.85
MW-22*	5/2/2013	ug/l	< 5
MW-23	10/30/2014	ug/l	159
MW-24	10/30/2014	ug/l	< 5
MW-25D	7/12/2017	ug/l	413
MW-26D	10/30/2014	ug/l	31.6
MW-27D	7/12/2017	ug/l	118
MW-28D*	5/3/2013	ug/l	< 5
MW-29D*	5/3/2013	ug/l	< 5

Notes:
*Data for these wells were presented in the 2013 VRP Application
ug/l -- Micrograms per liter (parts per billion)
Bolded values exceed the Type 2 RRS
< Analyte was not detected at the laboratory reporting limit indicated

Figures



P:\CCHT\Figures\GIS\MXD\Figure 1. Site Location Map.mxdt

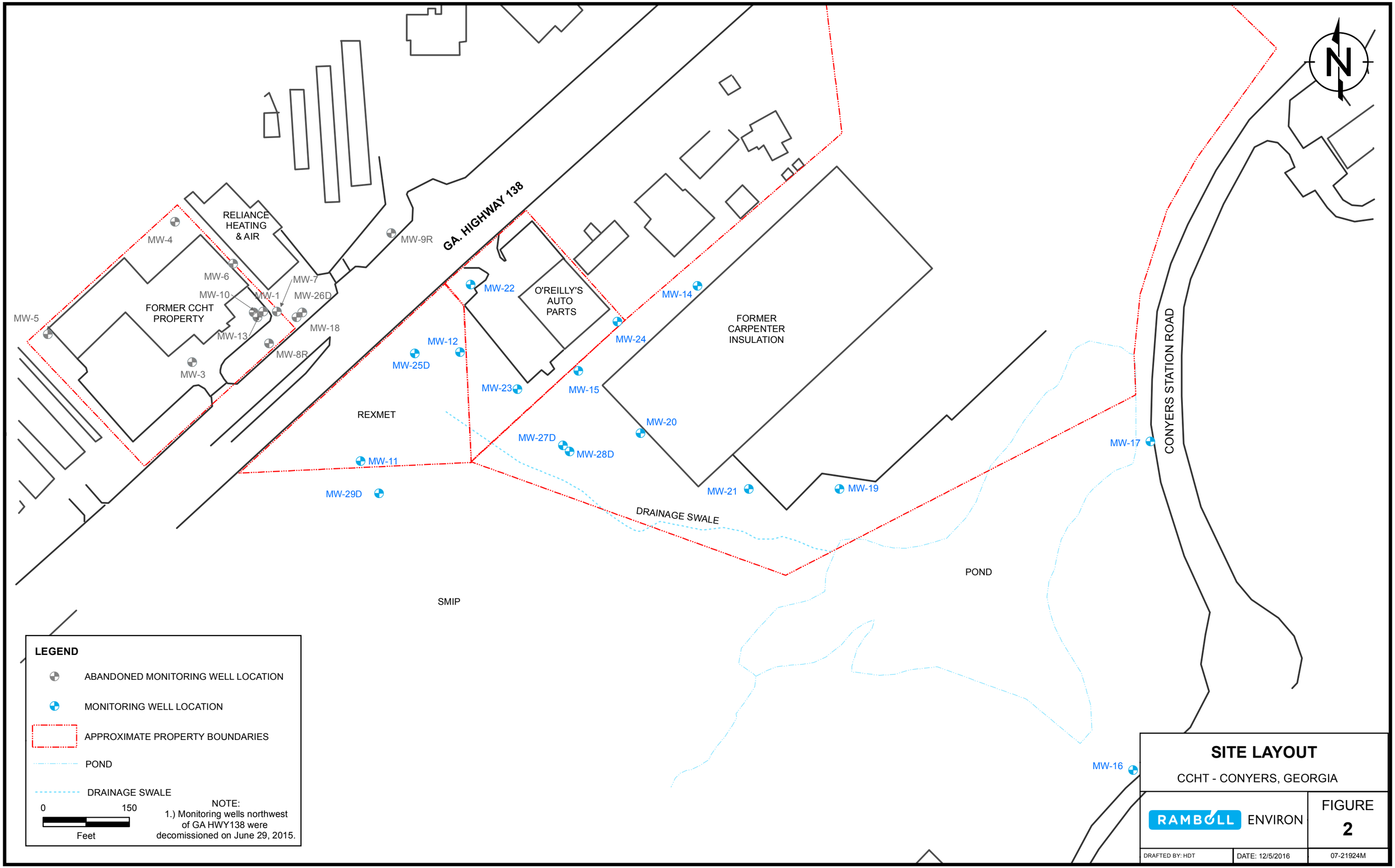
RAMBOLL ENVIRON

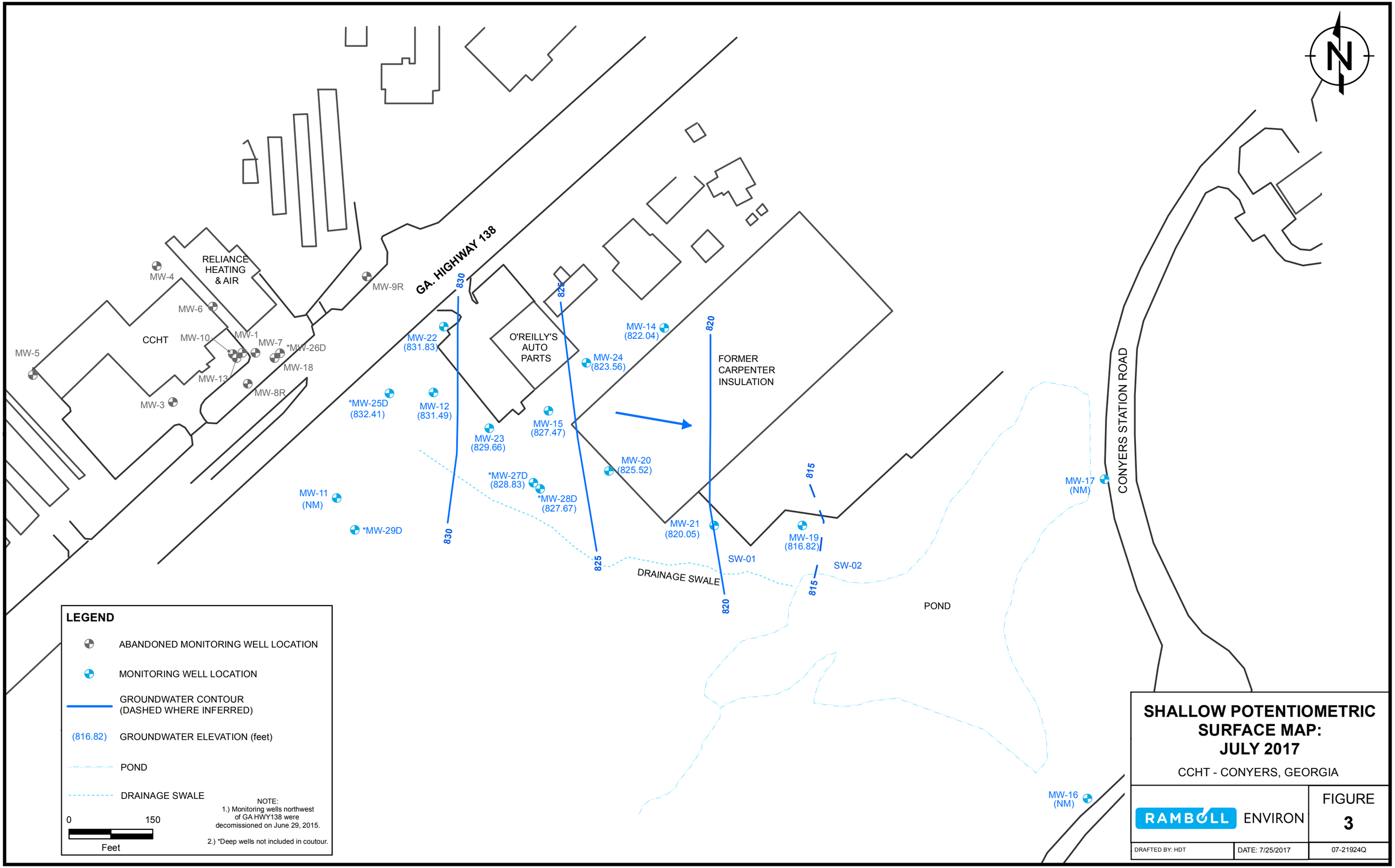
SITE LOCATION

CCHT - CONYERS, GEORGIA

Figure 1

DRAFTED BY: HDT | DATE: 10/9/2017 | 07-21924K


N
GA. HIGHWAY 138
RELIANCE HEATING & AIR
FORMER CCHT PROPERTY
O'REILLY'S AUTO PARTS
FORMER CARPENTER INSULATION
REXMET
SMIP
POND
POND
CONYERS STATION ROAD
DRAINAGE SWALE
MW-1
MW-3
MW-4
MW-5
MW-6
MW-7
MW-8R
MW-9R
MW-10
MW-11
MW-12
MW-13
MW-14
MW-15
MW-16
MW-17
MW-18
MW-19
MW-20
MW-21
MW-22
MW-23
MW-24
MW-25D
MW-26D
MW-27D
MW-28D
MW-29D
LEGEND
ABANDONED MONITORING WELL LOCATION
MONITORING WELL LOCATION
APPROXIMATE PROPERTY BOUNDARIES
POND
DRAINAGE SWALE
0
150
Feet
NOTE:
1.) Monitoring wells northwest of GA HWY138 were decomissioned on June 29, 2015.
SITE LAYOUT
CCHT - CONYERS, GEORGIA
RAMBOLL ENVIRON
FIGURE
2
DRAFTED BY: HDT
DATE: 12/5/2016
07-21924M



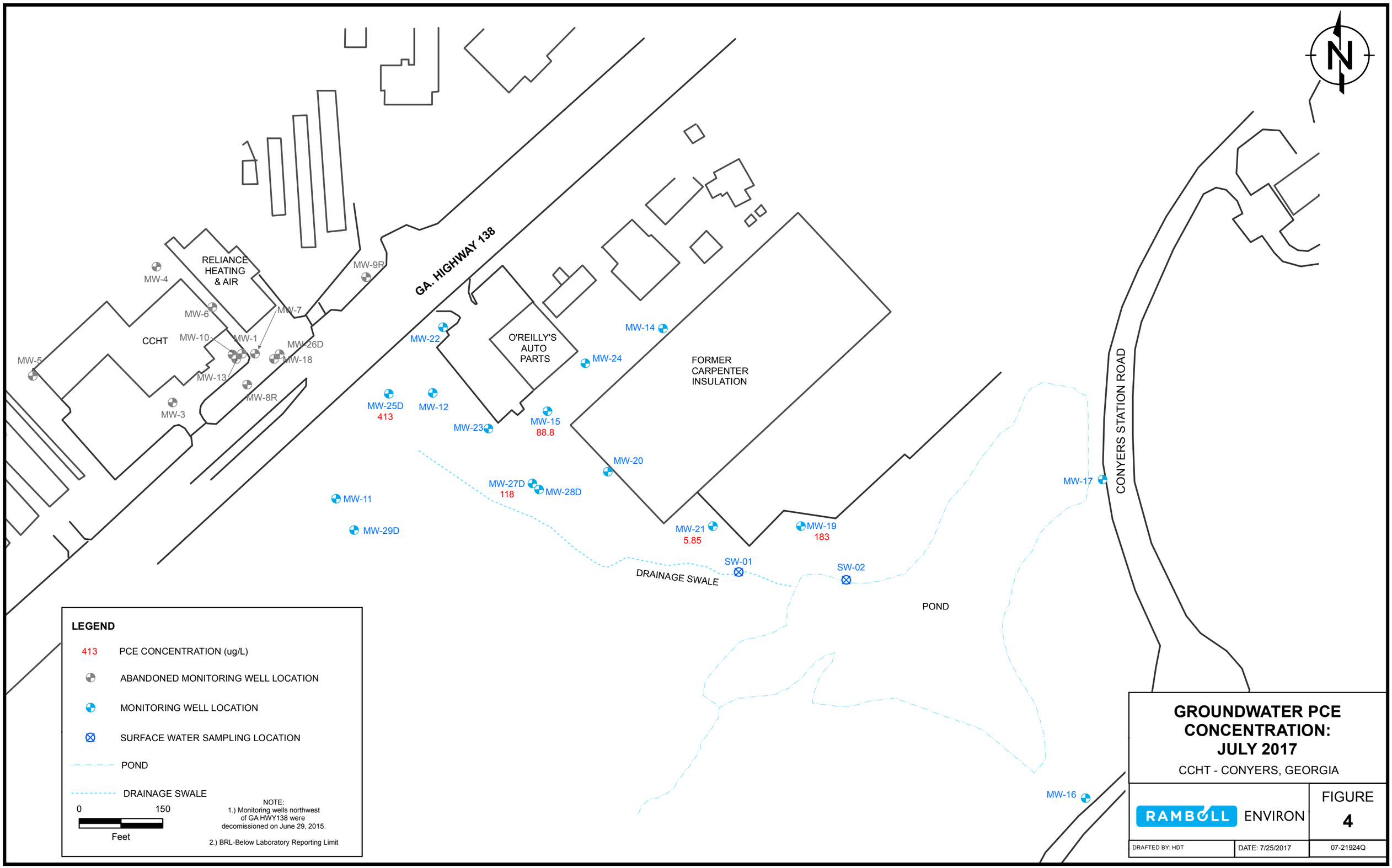
SHALLOW POTENTIOMETRIC SURFACE MAP: JULY 2017

CCHT - CONYERS, GEORGIA

RAMBOLL ENVIRON

FIGURE 3

DRAFTED BY: HDT | DATE: 7/25/2017 | 07-21924Q



GROUNDWATER PCE CONCENTRATION: JULY 2017

CCHT - CONYERS, GEORGIA

RAMBOLL ENVIRON

FIGURE 4

DRAFTED BY: HDT | DATE: 7/25/2017 | 07-21924Q

Appendix A

March 9, 2001, Letter from the EPD

Georgia Department of Natural Resources
205 Butler Street, SE, Suite 1462, Atlanta, Georgia 30334
Lonice C. Barrett, Commissioner
Environmental Protection Division
Harold F. Reheis, Director
404/657-8600

March 9, 2001

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

FILE COPY

John W. Rex
P.O. Box 270
Lansdale, PA 19446

Re: Carolina Commercial Heat Treating Site
CAP Approval, HSI # 10341

Dear Mr. Rex:

The Georgia Environmental Protection Division (EPD) has reviewed the revised Corrective Action Plan (CAP) submitted for the above referenced site on January 5, 2001. The revised CAP is hereby approved with the following stipulations as agreed upon in a March 2, 2001 telephone conversation between Sarah Divakarla and your consultant, David Smoak:

1. Section 5.6.2, System Monitoring and Reporting, states that a significant rise in contaminant concentrations in any of the boundary wells will trigger additional investigative procedures to determine the extent of plume migration beyond these points. This contingency must be revised to include specific dates and events. Therefore, increased concentrations detected in the boundary wells for two consecutive sampling events will require submittal to EPD of the proposed measures to address plume migration within 60 days of the second sampling event.

2. Section 5.6.2, System Monitoring and Reporting, states that the annual Operations & Maintenance Report will include a summary of changes in the remediation system. Any substantive changes in the remediation system will be considered a change in the corrective action plan and must be approved by EPD prior to implementation. Therefore, you must request an amendment to the CAP for any necessary changes.

In accordance with Condition 5 of Consent Order EPD-HSR-212, the CAP is now part of the Order and must be implemented in accordance with the schedule included in the CAP. Within ninety (90) days following completion of the corrective action at the site, you must submit a revised CSR that meets the requirements of Section 391-3-19-.06 of the Rules.

Enclosed is the public notice that will run in the *Atlanta Journal Constitution* and *The Rockdale Citizen* indicating EPD's approval of the CAP.

If you have any questions concerning this letter, please contact Sarah Divakarla of the Hazardous Site Response Program at (404) 657- 8600.

Sincerely,

Jane Hendricks
Unit Coordinator
Hazardous Sites Response Program

RJH/spd
Enc: Public Notice

c: David E. Smoak, Harding ESE
File: 10341
S:\RDRIVE\SARAHM\CSR\CAROLINA\cap\capapproval.doc

PUBLIC NOTICE OF EPD'S CONCURRENCE WITH CORRECTIVE ACTION PLAN FOR SITE LISTED ON HAZARDOUS SITE INVENTORY

This public notice is to inform all interested parties that the Environmental Protection Division, Department of Natural Resources, State of Georgia (EPD) has completed its review of the corrective action plan submitted on January 5, 2001, by John W. Rex for the Carolina Commercial Heat Treating Site. The Carolina Commercial Heat Treating Site is listed as No. 10341 on the Hazardous Sites Inventory. Soil contamination at the site has already been remediated. This corrective action plan addresses the remediation of groundwater that exceeds the appropriate risk reduction standards. EPD concurs with the corrective action plan that utilizes air sparging coupled with a soil vapor extraction system. Additional information about this site may be obtained by calling Sarah Divakarla of EPD at (404) 657-8600.

Appendix B
Environmental Covenants

After Recording Return to:

Troutman Sanders LLP
c/o Angela J. Levin
580 California Street, Suite 1100
San Francisco, CA 94104

CROSS-REFERENCE: Deed Book: 5813
Page: 211

Environmental Covenant

This instrument is an Environmental Covenant executed for the property identified below (hereinafter "the Property") as part of an environmental response project to address regulated substances released into the environment that have migrated onto the Property in the groundwater. This Environmental Covenant restricts the use of groundwater on the Property to prevent humans from coming into contact with regulated substances.

Fee Owner of Property/Grantor:

PAL Realty LLC (hereinafter "Grantor")
159 Liberty Street
Metuchen, NJ, 08840

Grantee/Holder:

Rexmet Corporation (hereinafter "Grantee/Holder")
951 W. 8th Street
Lansdale, PA 19446

Grantee/Entity with express power to enforce:

State of Georgia
Department of Natural Resources
Environmental Protection Division (hereinafter "EPD")
2 Martin Luther King Jr. Drive, SE
Suite 1456 East Tower
Atlanta, GA 30334

Parties with interest in the Property:

Georgia Department of Transportation
One Georgia Center
600 W. Peachtree Street NW
Atlanta, GA 30308
Attn: Legal Department

Rockdale County
Rockdale County Government
P.O. Box 289
Conyers, GA 30012
Attn: County Attorney

Oceanfirst Bank
975 Hooper Avenue
Toms River, New Jersey 08753

Property Information:

The property subject to this Environmental Covenant is located at 1820 Conyers Station Road in Conyers, Rockdale County, Georgia (hereinafter "Property"). This tract of land was conveyed on January 7, 2016 from Carpenter Co. to PAL Realty LLC recorded in Deed Book 5813, Pages 211-219, Rockdale County Records. The Property is located in Land Lots 325 and 326 of the 16th District of Rockdale County, Georgia. A complete legal description of the Property is attached as Exhibit A.

Tax Parcel Number(s): 071001002D of Rockdale County, Georgia

Name and Location of Administrative Record:

The administrative record for the environmental response project is identified as file Carolina Commercial Heat Treating Facility, HSI Site 10341, VRP Site VRP1120248590. This record is available for review at the following location:

Georgia Environmental Protection Division
Response and Remediation Program
2 MLK Jr. Drive, SE, Suite 1054 East Tower
Atlanta, GA 30334
M-F 8:00 AM to 4:30 PM excluding state holidays

Declaration of Covenant:

This Declaration of Covenant is made pursuant to the Georgia Uniform Environmental Covenants Act, O.C.G.A. § 44-16-1 et seq. by Grantor, Grantee/Holder, EPD, and their respective successors and assigns.

Grantor makes the following declaration as to restrictions to which the Property may be put and specifies that such declarations shall constitute covenants to run with the land, pursuant to O.C.G.A. § 44-16-5(a); is perpetual, unless modified or terminated pursuant to the terms of this Covenant pursuant to O.C.G.A. § 44-16-9; and shall be binding on all parties and all persons claiming under them, including all current and future owners of any portion of or interest in the Property. Should a transfer or sale of the Property occur before such time as this Environmental Covenant has been amended or revoked then said Environmental Covenant shall be binding on the transferee(s) or purchaser(s).

Grantor hereby binds Grantor, its successors and assigns to the following activity and use limitation for the Property identified herein and grants such other rights under this Environmental Covenant in favor of the Grantee/Holder and EPD.

Activity and/or Use Limitation

Groundwater Use Limitation. The use or extraction of groundwater beneath the Property for drinking water or other potable uses shall be prohibited. The use or extraction of groundwater for any other purpose besides site characterization is prohibited unless conducted under a plan approved in writing by EPD.

General Provisions

Notice of Limitation in Future Conveyances. Each instrument hereafter conveying an interest in the Property subject to this Environmental Covenant shall contain a notice of the activity and use limitation set forth in this Environmental Covenant and shall provide the recorded location of the Environmental Covenant.

Access. Grantor shall provide reasonable access to Grantee/Holder or its assigns to verify compliance for annual reporting to EPD.

Effective Date. The effective date of this Environmental Covenant shall be the date upon which the fully executed Environmental Covenant has been recorded in accordance with OCGA § 44-16-8(a).

Benefit. This Environmental Covenant shall inure to the benefit of Grantee/Holder, EPD, and their respective successors and assigns and shall be enforceable by the Director or his agents or assigns, Grantee/Holder or its successors and assigns, and other party(ies) as provided for in O.C.G.A. § 44¬16-11 in a court of competent jurisdiction.

Termination or Modification. This Environmental Covenant shall remain in full force and effect in accordance with O.C.G.A. § 44-16-5, unless and until the Director determines that the Property is in compliance with the Type 1 or 2 Risk Reduction Standards, as defined in Section 391-3-19-.07 of the Georgia Rules of Hazardous Site Response, whereupon the Environmental Covenant may be amended or terminated, as appropriate, in accordance with O.C.G.A. § 44-16-1 et seq.

Severability. If any provision of this Environmental Covenant is found to be unenforceable in any respect, the validity, legality, and enforceability of the remaining provisions shall not in any way be affected or impaired.

Warranty. Grantor hereby represents and warrants to the other signatories hereto that the Grantor has the power and authority to enter into this Environmental Covenant, to grant the rights and interests herein provided, and to carry out all obligations hereunder and in accordance with O.C.G.A. § 44-16-1 et seq.

Grantor has caused this Environmental Covenant to be executed pursuant to The Georgia Uniform Environmental Covenants Act, on the 5 day of December, 2016.

Signed, sealed, an delivered in the presence of:

_____
Unofficial Witness *(Signature)*

_____
Unofficial Witness Name *(Print)*

_____

_____

_____
Unofficial Witness Address *(Print)*

Maudie Sheppard
Notary Public *(Signature)*

My Commission Expires: 10-31-2019

For Grantor:

PAL REALTY LLC

_____(SEAL)
Authorized Representative *(Signature)*

ROBERT CARRIER
Authorized Representative Name *(Print)*

PRESIDENT
Title of Authorized Representative *(Print)*

Dated: 12-5-2016

(NOTARY SEAL)

[SIGNATURES CONTINUE ON NEXT PAGE]

[SIGNATURES CONTINUED FROM PREVIOUS PAGE]

Signed, sealed, an delivered in the presence of:

_____
Unofficial Witness *(Signature)*

_____
Unofficial Witness Name *(Print)*

_____
_____
_____
Unofficial Witness Address *(Print)*

Maudie Sheppard
Notary Public *(Signature)*

My Commission Expires: 10-31-2019

For Grantee/Holder:

REXMET CORPORATION

_____(SEAL)
Authorized Representative *(Signature)*

ROBERT CARRIER
Authorized Representative Name *(Print)*

PRESIDENT
Title of Authorized Representative *(Print)*

Dated: 12-5-16
(NOTARY SEAL)

[SIGNATURES CONTINUE ON NEXT PAGE]

[SIGNATURES CONTINUED FROM PREVIOUS PAGE]

Signed, sealed, an delivered in the presence of:

_____
Unofficial Witness *(Signature)*

_____
Unofficial Witness Name *(Print)*

_____
_____
_____
Unofficial Witness Address *(Print)*

_____
Notary Public *(Signature)*

My Commission Expires:_____

For the State of Georgia
Environmental Protection Division:

_____(SEAL)
(Signature)

Richard Dunn
Director

Dated: _____
(NOTARY SEAL)

Exhibit A
Legal Description

ALL THAT TRACT OR PARCEL OF LAND LYING AND BEING IN LAND LOT 325 & 326 OF THE 16TH LAND DISTRICT OF ROCKDALE COUNTY, GEORGIA, IN THE CITY OF CONYERS, CONTAINING 18.728 ACRES MORE OF LESS AND BEING MORE PARTICULARLY DESCRIBED AS FOLLOWS:

BEGINNING AT A 5/8" CAPPED REBAR SET AT THE RIGHT–OF-WAY (R/W) MITER OF THE SOUTHERN R/W OF GA. HWY. #20 / GA. HWY. #138 (R/W VARIES) AND THE WESTERN R/W OF SIGMAN ROAD (100' R/W) AND THE TRUE POINT OF BEGINNING; THENCE GO ALONG SAID R/W MITER S 74°01'49" E A DISTANCE OF 80.88' TO A R/W MONUMENT FOUND ON THE WESTERN R/W OF SIGMAN ROAD; THENCE ALONG SAID R/W S 32°05'23" E A DISTANCE OF 431.63' TO A 5/8" CAPPED REBAR SET ON THE R/W MITER OF THE WESTERN R/W OF SIGMAN ROAD (100' R/W) AND THE NORTHERN R/W OF CONYERS STATION ROAD; THENCE ALONG SAID R/W S 57°56'44" W A DISTANCE OF 155.00' TO A 5/8" CAPPED REBAR SET; THENCE ALONG SAID R/W ALONG A CURVE TO THE LEFT, HAVING A RADIUS OF 651.44', WITH A CHORD DIRECTION OF S 28°25'55" W, A CHORD LENGTH OF 641.84' AND AN ARC LENGTH OF 671.13' TO A 5/8" CAPPED REBAR SET; THENCE S 64°29'29" W A DISTANCE OF 565.63' TO A ½" REBAR FOUND; THENCE N 75 08'55" W A DISTANCE OF 500.09' TO A ½" REBAR FOUND; THENCE N 48°04'39" E A DISTANCE OF 750.10' TO A ½" REBAR FOUND; THENCE N 03°08'07" E A DISTANCE OF 291.10' TO A 5/8" CAPPED REBAR SET ON THE SOUTHERN R/W OF GA. HWY. #20 / GA. HWY. #138 (R/W VARIES); THENCE ALONG SAID R/W N 49°41'04" E A DISTANCE OF 150.16' TO A 5/8" CAPPED REBAR SET; THENCE ALONG SAID R/W N 50°04'14" E A DISTANCE OF 34.37' TO A 5/8" CAPPED REBAR SET; THENCE ALONG SAID R/W N 52°29'11" E A DISTANCE OF 20.74' TO A 5/8" CAPPED REBAR SET; THENCE ALONG SAID R/W S 35°23'51" E A DISTANCE OF 14.76' TO A R/W MONUMENT FOUND; THENCE ALONG SAID R/W N 54°36'12" E A DISTANCE OF 15.89' TO A R/W MONUMENT FOUND; THENCE ALONG SAID R/W 33°14'59" W A DISTANCE OF 14.96' TO A R/W MONUMENT FOUND; THENCE ALONG SAID R/W N 54°57'09" E A DISTANCE OF 139.72' TO A 5/8" CAPPED REBAR SET; THENCE ALONG SAID R/W N 52°12'32" E A DISTANCE OF 106.96' TO A 5/8" CAPPED REBAR SET; THENCE ALONG SAID R/W S 37°53'25" E A DISTANCE OF 64.00' TO A R/W MONUMENT FOUND; THENCE ALONG SAID R/W N 52°20'05" E A DISTANCE OF 28.56' TO A R/W MONUMENT FOUND; THENCE ALONG SAID R/W N 37°26'25" W A DISTANCE OF 64.00' TO A 5/8" CAPPED REBAR SET; THENCE N 54°48'16" E A DISTAMCE OF 211.77' TO A 5/8" CAPPED REBAR SET AT THE R/W MITER OF THE SOUTHERN R/W OF GA. HWY. #20 / GA. HWY. #138 (R/W VARIES) AND THE WESTERN R/W OF SIGMAN ROAD (100' R/W) AND THE TRUE POINT OF BEGINNING.

SAID PROPERTY BEING SHOWN ON THAT CERTAIN ALTA/ACSM TITLE SURVEY OF FOR PAL REALTY, LLC, A GEORGIA LIMITED LIABILITY COMPANY, OCEANFIRST BANK AND/OR ITS PARTICIPANTS, SUCCESSORS AND/OR ASSIGNS AS THEIR INTEREST MAY APPEAR, SANDERS, HAUGEN & SEARS, P.C. AND STEWART TITLE GUARANTY COMPANY, DATED DECEMBER 21, 2015, PREPARED BY JOHN F. BREWER & ASSOCIATES, BEARING THE SEAL OF JOHN F. BREWER, III, G.R.L.S. NO. 2905.

After Recording Return to:

Arnall Golden Gregory LLP
171 17th Street NW, Suite 2100
Atlanta, GA 30363
Attn: John C. Spinrad

CROSS-REFERENCE: Deed Book: 5622
Page: 1

Environmental Covenant

This instrument is an Environmental Covenant executed for the property identified below (hereinafter "the Property") as part of an environmental response project to address regulated substances released into the environment that have migrated onto the Property in the groundwater. This Environmental Covenant restricts the use of groundwater on the Property to prevent humans from coming into contact with regulated substances.

Fee Owner of Property/Grantor:	Rexmet Corporation (hereinafter "Grantor") 951 W. 8th Street Lansdale, PA 19446
Grantee/Holder:	Rexmet Corporation (hereinafter "Grantee/Holder") 951 W. 8th Street Lansdale, PA 19446
Grantee/Entity with express power to enforce:	State of Georgia Department of Natural Resources Environmental Protection Division (hereinafter "EPD") 2 Martin Luther King Jr. Drive, SE Suite 1456 East Tower Atlanta, GA 30334
Parties with interest in the Property:	Georgia Department of Transportation One Georgia Center 600 W. Peachtree Street NW Atlanta, GA 30308 Attn: Legal Department Georgia Power Company 241 Ralph McGill Blvd. BIN 10151 Atlanta, GA 30308 Attn: Legal Department

American Telephone and Telegraph (AT&T)
1025 Lenox Park Blvd.,
Atlanta, GA 30319
Attention: General Counsel

Snapping Shoals Electric Membership Corporation
P.O. Box 509
Covington, GA 30015
Attention: Legal Department

Property Information:

The property subject to this Environmental Covenant is located on GA Highway 138 in Conyers, Rockdale County, Georgia (hereinafter "Property"). This tract of land was conveyed on November 21, 2014 from Stone Mountain Industrial Park, Inc. to Rexmet Corporation recorded in Deed Book 5622, Page 1, Rockdale County Records. The Property is located in Land Lots 320 and 325 of the 16th District of Rockdale County, Georgia. A complete legal description of the Property is attached as Exhibit A.

Tax Parcel Number(s): 0700010008 of Rockdale County, Georgia

Name and Location of Administrative Record:

The administrative record for the environmental response project is identified as file Carolina Commercial Heat Treating Facility, HSI Site 10341, VRP Site VRP1120248590. This record is available for review at the following location:

Georgia Environmental Protection Division
Response and Remediation Program
2 MLK Jr. Drive, SE, Suite 1054 East Tower
Atlanta, GA 30334
M-F 8:00 AM to 4:30 PM excluding state holidays

Declaration of Covenant:

This Declaration of Covenant is made pursuant to the Georgia Uniform Environmental Covenants Act, O.C.G.A. § 44-16-1 et seq. by Grantor, Grantee/Holder, EPD, and their respective successors and assigns.

Grantor makes the following declaration as to restrictions to which the Property may be put and specifies that such declarations shall constitute covenants to run with the land, pursuant to O.C.G.A. § 44-16-5(a); is perpetual, unless modified or terminated pursuant to the terms of this Covenant pursuant to O.C.G.A. § 44-16-9; and shall be binding on all parties and all persons

claiming under them, including all current and future owners of any portion of or interest in the Property. Should a transfer or sale of the Property occur before such time as this Environmental Covenant has been amended or revoked then said Environmental Covenant shall be binding on the transferee(s) or purchaser(s).

Grantor hereby binds Grantor, its successors and assigns to the following activity and use limitation for the Property identified herein and grants such other rights under this Environmental Covenant in favor of the Grantee/Holder and EPD.

Activity and/or Use Limitation

Groundwater Use Limitation. The use or extraction of groundwater beneath the Property for drinking water or other potable uses shall be prohibited. The use or extraction of groundwater for any other purpose besides site characterization is prohibited unless conducted under a plan approved in writing by EPD.

General Provisions

Notice of Limitation in Future Conveyances. Each instrument hereafter conveying an interest in the Property subject to this Environmental Covenant shall contain a notice of the activity and use limitation set forth in this Environmental Covenant and shall provide the recorded location of the Environmental Covenant.

Access. Grantor shall provide reasonable access to Grantee/Holder or its assigns to verify compliance for annual reporting to EPD.

Effective Date. The effective date of this Environmental Covenant shall be the date upon which the fully executed Environmental Covenant has been recorded in accordance with OCGA § 44-16-8(a).

Benefit. This Environmental Covenant shall inure to the benefit of Grantee/Holder, EPD, and their respective successors and assigns and shall be enforceable by the Director or his agents or assigns, Grantee/Holder or its successors and assigns, and other party(ies) as provided for in O.C.G.A. § 44¬16-11 in a court of competent jurisdiction.

Termination or Modification. This Environmental Covenant shall remain in full force and effect in accordance with O.C.G.A. § 44-16-5, unless and until the Director determines that the Property is in compliance with the Type 1 or 2 Risk Reduction Standards, as defined in Section 391-3-19-.07 of the Georgia Rules of Hazardous Site Response, whereupon the Environmental Covenant may be amended or terminated, as appropriate, in accordance with O.C.G.A. § 44-16-1 et seq.

Severability. If any provision of this Environmental Covenant is found to be unenforceable in any respect, the validity, legality, and enforceability of the remaining provisions shall not in any way be affected or impaired.

Warranty. Grantor hereby represents and warrants to the other signatories hereto that the Grantor has the power and authority to enter into this Environmental Covenant, to grant the rights and interests herein provided, and to carry out all obligations hereunder and in accordance with O.C.G.A. § 44-16-1 et seq.

Grantor has caused this Environmental Covenant to be executed pursuant to The Georgia Uniform Environmental Covenants Act, on the 6 day of February, 2017.

Signed, sealed and delivered in the presence of:

Antonia Rex
Unofficial Witness *(Signature)*
ANTONIA REX

Unofficial Witness Name *(Print)*

Unofficial Witness Address *(Print)*

Notary Public *(Signature)*

My Commission Expires: 12/01/2019

For Grantor:

REXMET CORPORATION

John W Rex (SEAL)
Authorized Representative *(Signature)*

John W. Rex
Authorized Representative Name *(Print)*

President
Title of Authorized Representative *(Print)*

Dated: 2/6/17
(NOTARY SEAL)

KEVIN FARRELL
MY COMMISSION # FF 940220
EXPIRES: December 1, 2019
Bonded Thru Notary Public Underwriters

[SIGNATURES CONTINUE ON NEXT PAGE]

[SIGNATURES CONTINUED FROM PREVIOUS PAGE]

Signed, sealed and delivered in the presence of:

Antonia Rex
Unofficial Witness *(Signature)*

ANTONIA REX
Unofficial Witness Name *(Print)*

Unofficial Witness Address *(Print)*

Notary Public *(Signature)*

My Commission Expires: 12/01/2019

For Grantee/Holder:

REXMET CORPORATION

John W Rex (SEAL)
Authorized Representative *(Signature)*

John W. Rex
Authorized Representative Name *(Print)*

President
Title of Authorized Representative *(Print)*

Dated: 2/6/17
(NOTARY SEAL)

KEVIN FARRELL
MY COMMISSION # FF 940220
EXPIRES: December 1, 2019
Bonded Thru Notary Public Underwriters

[SIGNATURES CONTINUE ON NEXT PAGE]

[SIGNATURES CONTINUED FROM PREVIOUS PAGE]

Signed, sealed and delivered in the presence of:

_____
Unofficial Witness *(Signature)*

_____
Unofficial Witness Name *(Print)*

_____
_____
_____
Unofficial Witness Address *(Print)*

_____
Notary Public *(Signature)*

My Commission Expires:_____

For the State of Georgia
Environmental Protection Division:

_____(SEAL)
(Signature)

Richard Dunn
Director

Dated: _____
(NOTARY SEAL)

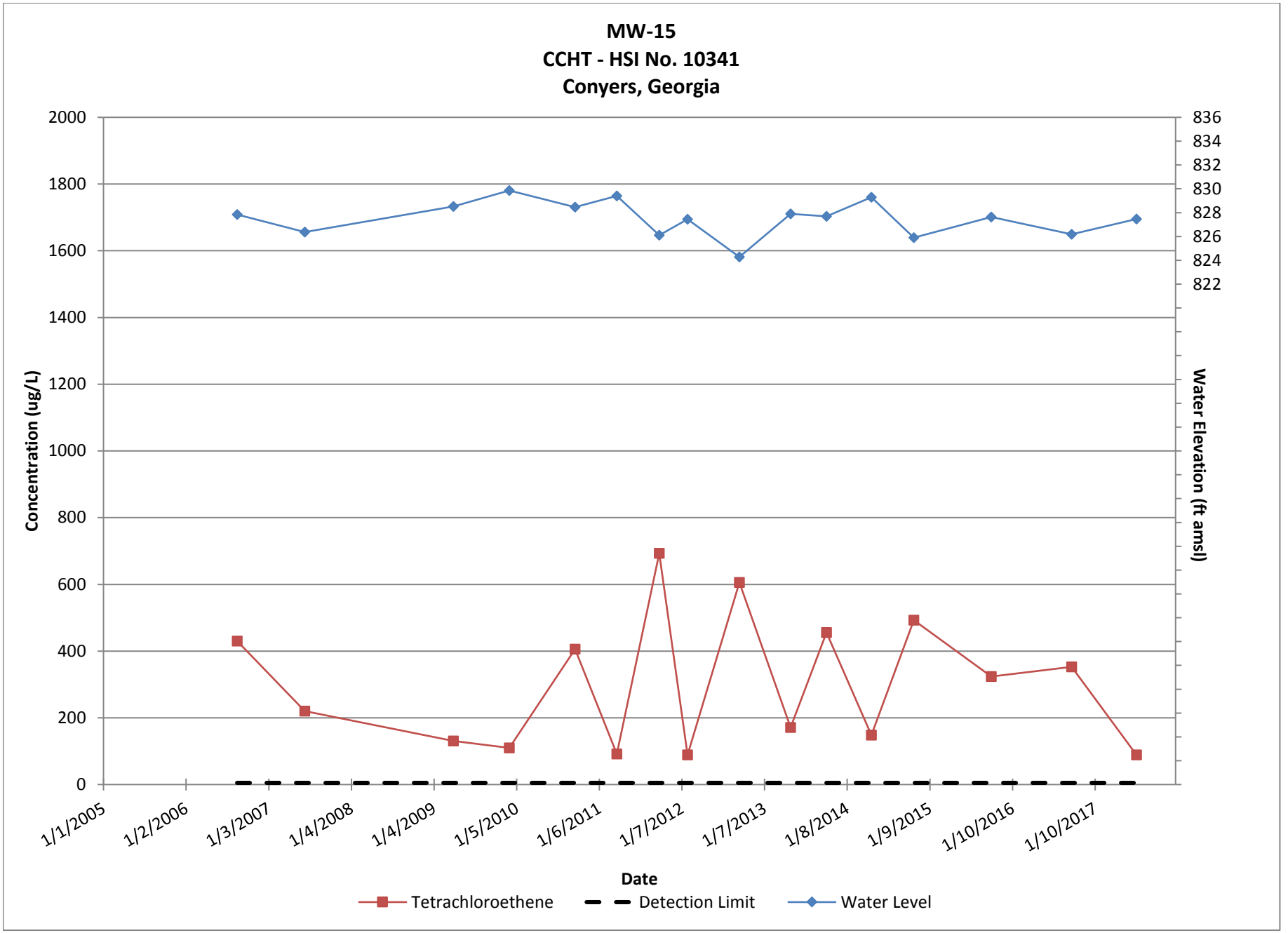
Exhibit A
Legal Description

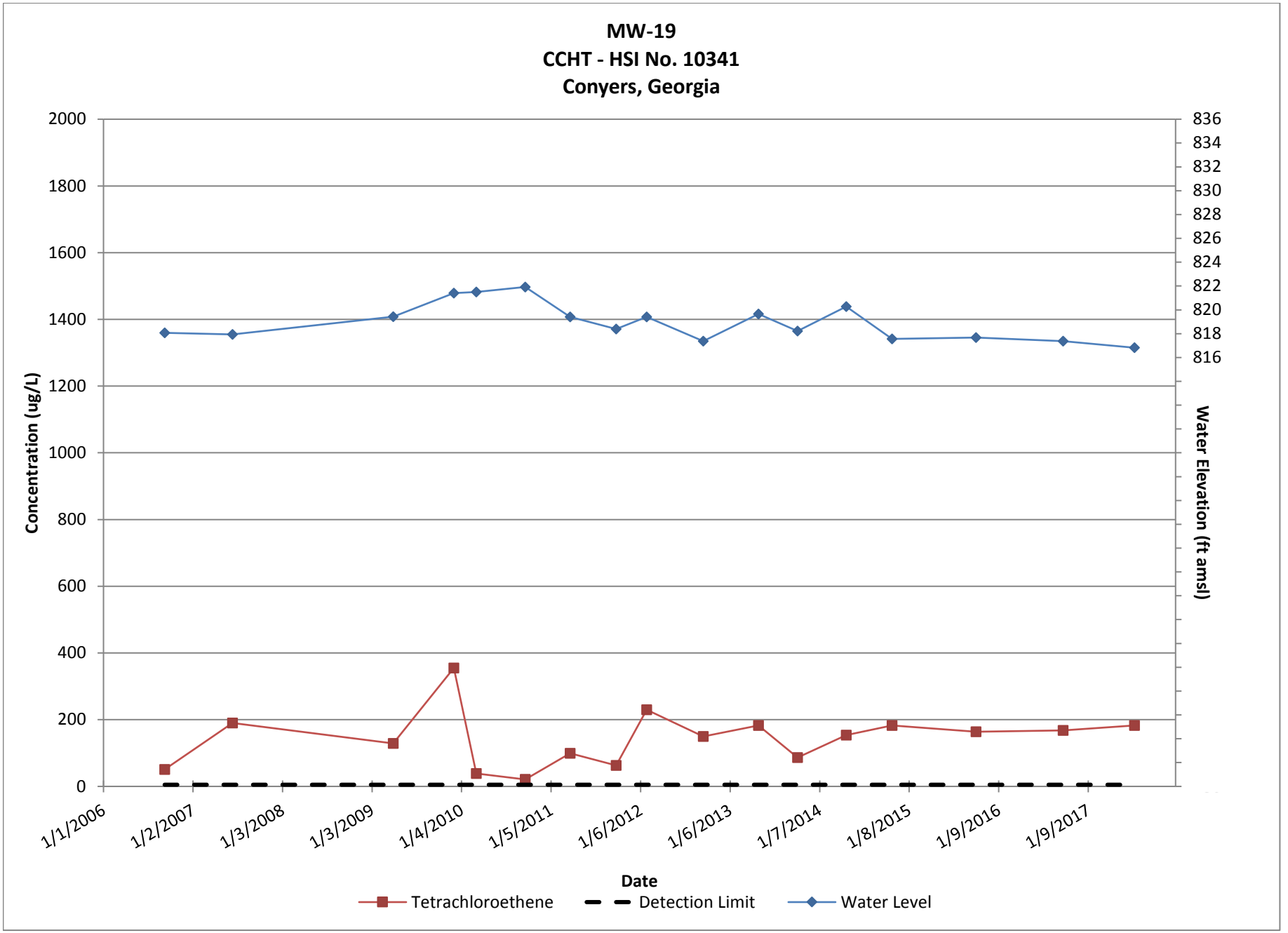
ALL THAT TRACT OR PARCEL OF LAND lying and being in Land Lots 320 and 325 of the 16th District, Rockdale County, Georgia, and being known as "Tract 3B" pursuant to that certain plat entitled:

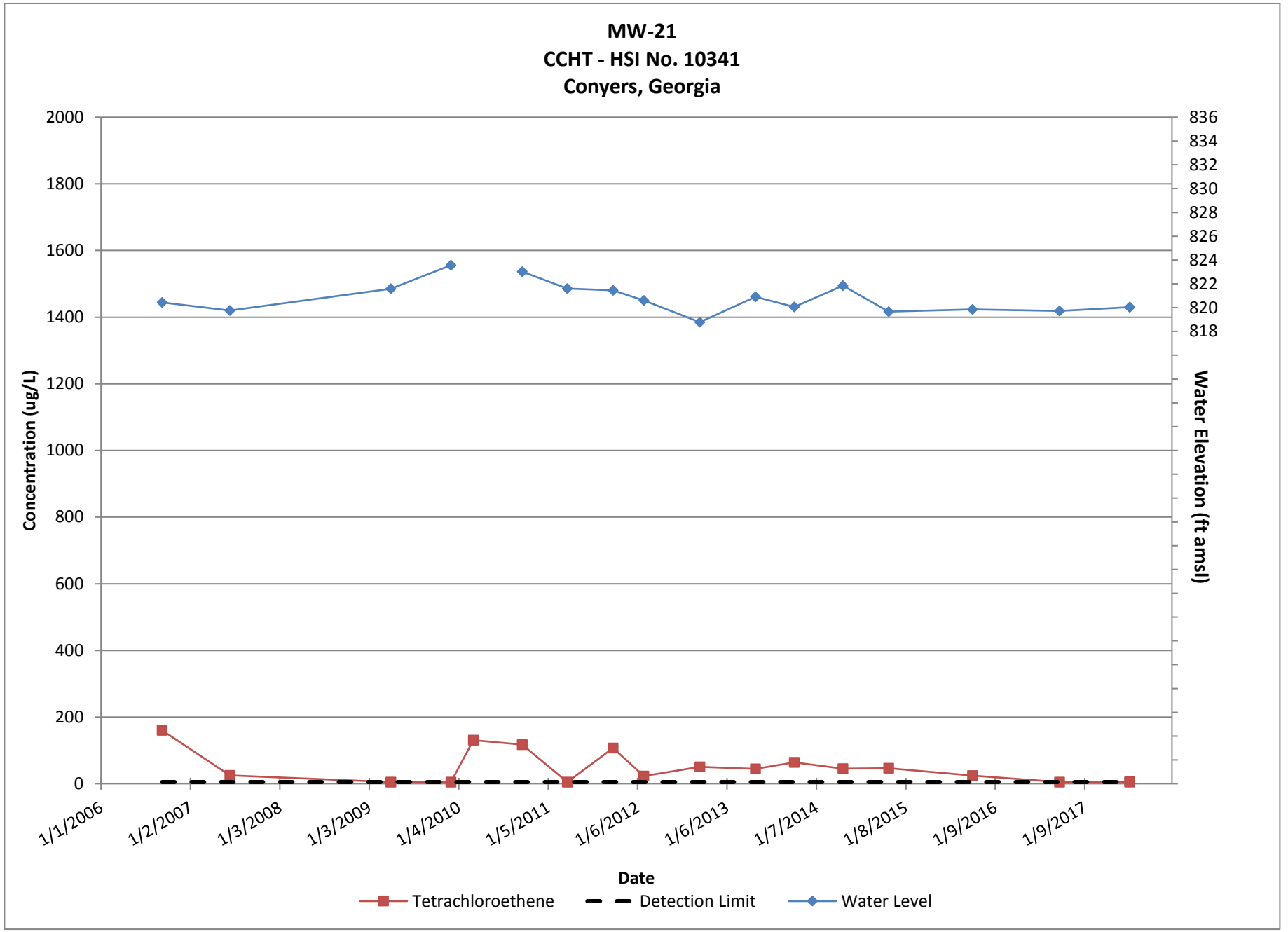
"Stone Mountain Industrial Park, Inc. for Revised Final Plat for the Resubdivision of Tract 3 Recorded in Plat Book 37, Page 51, into Tract 3A and 3B Tract 3 is Part of the Resubdivision of a 99.95 Acre Tract Recorded in Plat Book D, Page 90 Land Lots 320, 321 & 325 --- 16th District Rocldale County, Georgia"

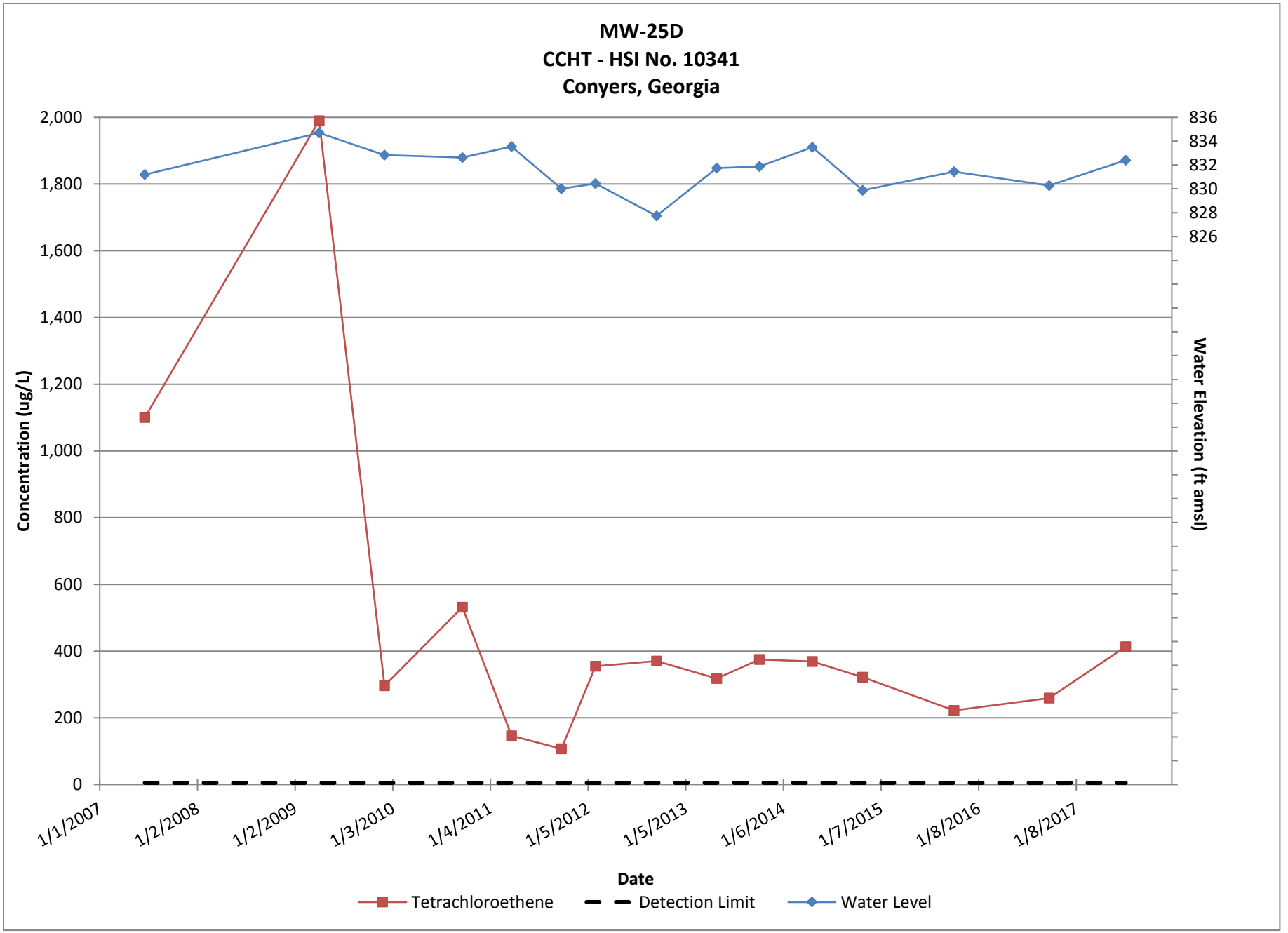
Date of plat preparation April 28, 2014, date of field survey April 28, 2014, recorded on June 9, 2014, in Plat Book 37, Pages 102-104, in the records of the Clerk of Superior Court of Rockdale County, Georgia.

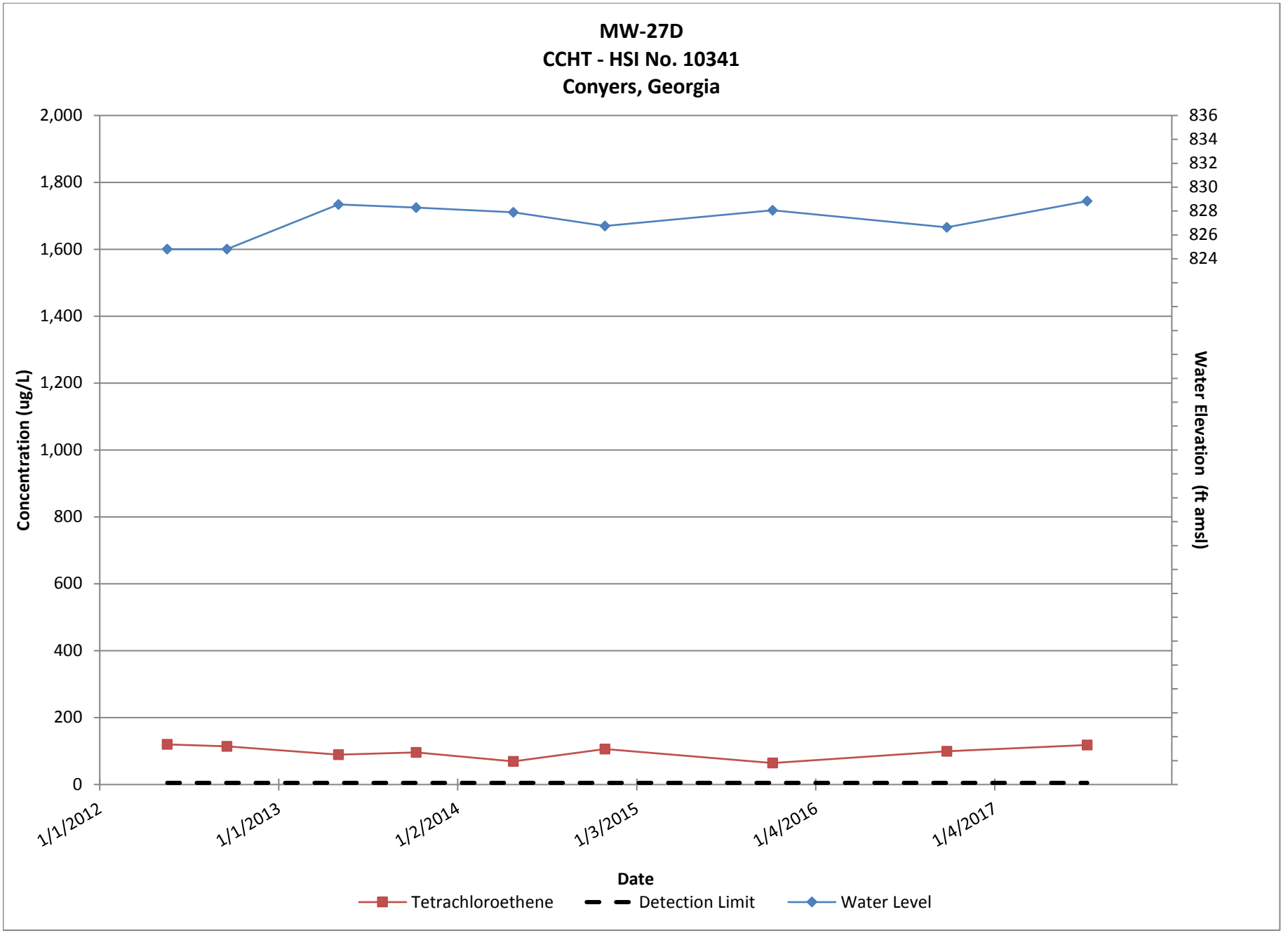
Appendix C
Groundwater Elevation and PCE Concentration Trend Charts


MW-15
CCHT - HSI No. 10341
Conyers, Georgia
Concentration (ug/L)
Water Elevation (ft amsl)
2000
1800
1600
1400
1200
1000
800
600
400
200
0
836
834
832
830
828
826
824
822
1/1/2005
1/2/2006
1/3/2007
1/4/2008
1/4/2009
1/5/2010
1/6/2011
1/7/2012
1/7/2013
1/8/2014
1/9/2015
1/10/2016
1/10/2017
Date
Tetrachloroethene
Detection Limit
Water Level


MW-19
CCHT - HSI No. 10341
Conyers, Georgia
Concentration (ug/L)
Water Elevation (ft amsl)
2000
1800
1600
1400
1200
1000
800
600
400
200
0
836
834
832
830
828
826
824
822
820
818
816
1/1/2006
1/2/2007
1/3/2008
1/3/2009
1/4/2010
1/5/2011
1/6/2012
1/6/2013
1/7/2014
1/8/2015
1/9/2016
1/9/2017
Date
Tetrachloroethene
Detection Limit
Water Level


MW-21
CCHT - HSI No. 10341
Conyers, Georgia
Concentration (ug/L)
Water Elevation (ft amsl)
2000
1800
1600
1400
1200
1000
800
600
400
200
0
836
834
832
830
828
826
824
822
820
818
1/1/2006
1/2/2007
1/3/2008
1/3/2009
1/4/2010
1/5/2011
1/6/2012
1/6/2013
1/7/2014
1/8/2015
1/9/2016
1/9/2017
Date
Tetrachloroethene
Detection Limit
Water Level


MW-25D
CCHT - HSI No. 10341
Conyers, Georgia
Concentration (ug/L)
Water Elevation (ft amsl)
2,000
1,800
1,600
1,400
1,200
1,000
800
600
400
200
0
836
834
832
830
828
826
1/1/2007
1/2/2008
1/2/2009
1/3/2010
1/4/2011
1/5/2012
1/5/2013
1/6/2014
1/7/2015
1/8/2016
1/8/2017
Date
Tetrachloroethene
Detection Limit
Water Level


MW-27D
CCHT - HSI No. 10341
Conyers, Georgia
Concentration (ug/L)
2,000
1,800
1,600
1,400
1,200
1,000
800
600
400
200
0
Water Elevation (ft amsl)
836
834
832
830
828
826
824
1/1/2012
1/1/2013
1/2/2014
1/3/2015
1/4/2016
1/4/2017
Date
Tetrachloroethene
Detection Limit
Water Level

Appendix D
Laboratory Analytical Reports

NELAP CERTIFICATE NUMBER: 01955
DOD ELAP CERTIFICATE NUMBER: L14-243

ANALYTICAL RESULTS

PERFORMED BY

GCAL, LLC
7979 Innovation Park Dr.
Baton Rouge, LA 70820

Report Date 07/18/2017

GCAL Report 217071411

Project CCHT

Deliver To	***Additional Recipients***
Rob Patchett Ramboll Environ 1600 Parkwood Cr. Atlanta, GA 30339 678-491-4230	Keith Cole, ENVIRON

Laboratory Endorsement

Sample analysis was performed in accordance with approved methodologies provided by the Environmental Protection Agency or other recognized agencies. The samples and their corresponding extracts will be maintained for a period of 30 days unless otherwise arranged. Following this retention period the samples will be disposed in accordance with GCAL's Standard Operating Procedures.

Common Abbreviations that may be Utilized in this Report

ND	Indicates the result was Not Detected at the specified reporting limit
NO	Indicates the sample did not ignite when preliminary test performed for EPA Method 1030
DO	Indicates the result was Diluted Out
MI	Indicates the result was subject to Matrix Interference
TNTC	Indicates the result was Too Numerous To Count
SUBC	Indicates the analysis was Sub-Contracted
FLD	Indicates the analysis was performed in the Field
DL	Detection Limit
DL	Diluted analysis – when appended to Client Sample ID
LOD	Limit of Detection
LOQ	Limit of Quantitation
RE	Re-analysis
CF	HPLC or GC Confirmation
00:01	Reported as a time equivalent to 12:00 AM

Reporting Flags that may be Utilized in this Report

J or I	Indicates the result is between the MDL and LOQ
J	DOD flag on analyte in the parent sample for MS/MSD outside acceptance criteria
U	Indicates the compound was analyzed for but not detected
B or V	Indicates the analyte was detected in the associated Method Blank
Q	Indicates a non-compliant QC Result (See Q Flag Application Report)
*****	Indicates a non-compliant or not applicable QC recovery or RPD – see narrative
E	The result is estimated because it exceeded the instrument calibration range
E	Metals - % diference for the serial dilution is > 10%
P	RPD between primary and confirmation result is greater than 40

Sample receipt at GCAL is documented through the attached chain of custody. In accordance with NELAC, this report shall be reproduced only in full and with the written permission of GCAL. The results contained within this report relate only to the samples reported. The documented results are presented within this report.

This report pertains only to the samples listed in the Report Sample Summary and should be retained as a permanent record thereof. The results contained within this report are intended for the use of the client. Any unauthorized use of the information contained in this report is prohibited.

I certify that this data package is in compliance with The NELAC Institute (TNI) Standard 2009 and terms and conditions of the contract and Statement of Work both technically and for completeness, for other than the conditions in the case narrative. Release of the data contained in this hardcopy data package and in the computer readable data submitted has been authorized by the Quality Assurance Manager or his/her designee, as verified by the following signature.

Estimated uncertainty of measurement is available upon request. This report is in compliance with the DOD QSM as specified in the contract if applicable.

Authorized Signature
GCAL Report 217071411

Certifications

Certification	Certification Number
DOD ELAP	L14-243
Alabama	01955
Arkansas	12-060-0
Colorado	01955
Delaware	01955
Florida	E87854
Georgia	01955
Hawaii	01955
Idaho	01955
Illinois	200048
Indiana	01955
Kansas	E-10354
Kentucky	95
Louisiana	01955
Maryland	01955
Massachusetts	01955
Michigan	01955
Mississippi	01955
Missouri	01955
Montana	N/A
Nebraska	01955
New Mexico	01955
North Carolina	618
North Dakota	R-195
Oklahoma	9403
South Carolina	73006001
South Dakota	01955
Tennessee	01955
Texas	T104704178
Vermont	01955
Virginia	460215
USDA Soil Permit	P330-10-00117

Case Narrative

Client: Ramboll ENVIRON International Corp **Report:** 217071411

Gulf Coast Analytical Laboratories received and analyzed the sample(s) listed on the Report Sample Summary page of this report. Receipt of the sample(s) is documented by the attached chain of custody. This applies only to the sample(s) listed in this report. No sample integrity or quality control exceptions were identified unless noted below.

VOLATILES MASS SPECTROMETRY

In the EPA 8260B analysis, sample 21707141104 (MW-25D 20170712) had to be diluted to bracket the concentration of target analytes within the calibration range of the instrument. The dilution is reflected in elevated detection limits.

Sample Summary

GCAL ID	Client ID	Matrix	Collect Date/Time	Receive Date/Time
21707141101	MW-15 20170712	Water	07/12/2017 17:30	07/14/2017 09:25
21707141102	MW-19 20170712	Water	07/12/2017 16:15	07/14/2017 09:25
21707141103	MW-21 20170712	Water	07/12/2017 15:37	07/14/2017 09:25
21707141104	MW-25D 20170712	Water	07/12/2017 18:53	07/14/2017 09:25
21707141105	MW-27D 2017	Water	07/12/2017 14:22	07/14/2017 09:25
21707141106	DUP-01 20170712	Water	07/12/2017 00:01	07/14/2017 09:25
21707141107	TB-01 20170712	Water	07/12/2017 00:01	07/14/2017 09:25

Summary of Compounds Detected

MW-15 20170712

Collect Date 07/12/2017 17:30 **GCAL ID** 21707141101
Receive Date 07/14/2017 09:25 **Matrix** Water

EPA 8260B

CAS#	Parameter	Result	LOQ	Units
127-18-4	Tetrachloroethene	88.8	5.00	ug/L

MW-19 20170712

Collect Date 07/12/2017 16:15 **GCAL ID** 21707141102
Receive Date 07/14/2017 09:25 **Matrix** Water

EPA 8260B

CAS#	Parameter	Result	LOQ	Units
75-35-4	1,1-Dichloroethene	9.57	5.00	ug/L
127-18-4	Tetrachloroethene	183	5.00	ug/L

MW-21 20170712

Collect Date 07/12/2017 15:37 **GCAL ID** 21707141103
Receive Date 07/14/2017 09:25 **Matrix** Water

EPA 8260B

CAS#	Parameter	Result	LOQ	Units
127-18-4	Tetrachloroethene	5.85	5.00	ug/L

MW-25D 20170712

Collect Date 07/12/2017 18:53 **GCAL ID** 21707141104
Receive Date 07/14/2017 09:25 **Matrix** Water

EPA 8260B

CAS#	Parameter	Result	LOQ	Units
127-18-4	Tetrachloroethene	413	25.0	ug/L

Summary of Compounds Detected

MW-27D 2017

Collect Date 07/12/2017 14:22 **GCAL ID** 21707141105
Receive Date 07/14/2017 09:25 **Matrix** Water

EPA 8260B

CAS#	Parameter	Result	LOQ	Units
127-18-4	Tetrachloroethene	118	5.00	ug/L

DUP-01 20170712

Collect Date 07/12/2017 00:01 **GCAL ID** 21707141106
Receive Date 07/14/2017 09:25 **Matrix** Water

EPA 8260B

CAS#	Parameter	Result	LOQ	Units
127-18-4	Tetrachloroethene	5.28	5.00	ug/L

TB-01 20170712

Collect Date 07/12/2017 00:01 **GCAL ID** 21707141107
Receive Date 07/14/2017 09:25 **Matrix** Water

EPA 8260B

CAS#	Parameter	Result	LOQ	Units
67-64-1	Acetone	5.30	5.00	ug/L

Sample Results

MW-15 20170712	**Collect Date**	07/12/2017 17:30	**GCAL ID**	21707141101
	Receive Date	07/14/2017 09:25	**Matrix**	Water

EPA 8260B

Prep Date	Prep Batch	Prep Method	Dilution	Analysis Date	By	Analytical Batch
NA	NA	NA	1	07/17/2017 10:42	IXE	614290

CAS#	Parameter	Result	LOQ	Units
630-20-6	1,1,1,2-Tetrachloroethane	<5.00	5.00	ug/L
71-55-6	1,1,1-Trichloroethane	<5.00	5.00	ug/L
79-34-5	1,1,2,2-Tetrachloroethane	<5.00	5.00	ug/L
79-00-5	1,1,2-Trichloroethane	<5.00	5.00	ug/L
75-34-3	1,1-Dichloroethane	<5.00	5.00	ug/L
75-35-4	1,1-Dichloroethene	<5.00	5.00	ug/L
563-58-6	1,1-Dichloropropene	<5.00	5.00	ug/L
96-18-4	1,2,3-Trichloropropane	<5.00	5.00	ug/L
120-82-1	1,2,4-Trichlorobenzene	<5.00	5.00	ug/L
95-63-6	1,2,4-Trimethylbenzene	<5.00	5.00	ug/L
96-12-8	1,2-Dibromo-3-chloropropane	<5.00	5.00	ug/L
106-93-4	1,2-Dibromoethane	<5.00	5.00	ug/L
95-50-1	1,2-Dichlorobenzene	<5.00	5.00	ug/L
107-06-2	1,2-Dichloroethane	<5.00	5.00	ug/L
540-59-0	1,2-Dichloroethene(Total)	<10.0	10.0	ug/L
78-87-5	1,2-Dichloropropane	<5.00	5.00	ug/L
108-67-8	1,3,5-Trimethylbenzene	<5.00	5.00	ug/L
541-73-1	1,3-Dichlorobenzene	<5.00	5.00	ug/L
142-28-9	1,3-Dichloropropane	<5.00	5.00	ug/L
106-46-7	1,4-Dichlorobenzene	<5.00	5.00	ug/L
594-20-7	2,2-Dichloropropane	<5.00	5.00	ug/L
78-93-3	2-Butanone	<5.00	5.00	ug/L
95-49-8	2-Chlorotoluene	<5.00	5.00	ug/L
591-78-6	2-Hexanone	<5.00	5.00	ug/L
106-43-4	4-Chlorotoluene	<5.00	5.00	ug/L
99-87-6	4-Isopropyltoluene	<5.00	5.00	ug/L
108-10-1	4-Methyl-2-pentanone	<5.00	5.00	ug/L
67-64-1	Acetone	<5.00	5.00	ug/L
71-43-2	Benzene	<5.00	5.00	ug/L
108-86-1	Bromobenzene	<5.00	5.00	ug/L
74-97-5	Bromochloromethane	<5.00	5.00	ug/L
75-27-4	Bromodichloromethane	<5.00	5.00	ug/L
75-25-2	Bromoform	<5.00	5.00	ug/L
74-83-9	Bromomethane	<5.00	5.00	ug/L
75-15-0	Carbon disulfide	<5.00	5.00	ug/L
56-23-5	Carbon tetrachloride	<5.00	5.00	ug/L
108-90-7	Chlorobenzene	<5.00	5.00	ug/L
75-00-3	Chloroethane	<5.00	5.00	ug/L
67-66-3	Chloroform	<5.00	5.00	ug/L
74-87-3	Chloromethane	<5.00	5.00	ug/L
156-59-2	cis-1,2-Dichloroethene	<5.00	5.00	ug/L
10061-01-5	cis-1,3-Dichloropropene	<5.00	5.00	ug/L
124-48-1	Dibromochloromethane	<5.00	5.00	ug/L
74-95-3	Dibromomethane	<5.00	5.00	ug/L
75-71-8	Dichlorodifluoromethane	<5.00	5.00	ug/L
100-41-4	Ethylbenzene	<5.00	5.00	ug/L
87-68-3	Hexachlorobutadiene	<5.00	5.00	ug/L

Sample Results

MW-15 20170712

Collect Date	07/12/2017 17:30	**GCAL ID**	21707141101
Receive Date	07/14/2017 09:25	**Matrix**	Water

EPA 8260B (Continued)

Prep Date	Prep Batch	Prep Method	Dilution	Analysis Date	By	Analytical Batch
NA	NA	NA	1	07/17/2017 10:42	IXE	614290

CAS#	Parameter	Result	LOQ	Units
98-82-8	Isopropylbenzene (Cumene)	<5.00	5.00	ug/L
136777-61-2	m,p-Xylene	<10.0	10.0	ug/L
74-88-4	Methyl iodide	<5.00	5.00	ug/L
75-09-2	Methylene chloride	<5.00	5.00	ug/L
91-20-3	Naphthalene	<5.00	5.00	ug/L
104-51-8	n-Butylbenzene	<5.00	5.00	ug/L
103-65-1	n-Propylbenzene	<5.00	5.00	ug/L
95-47-6	o-Xylene	<5.00	5.00	ug/L
135-98-8	sec-Butylbenzene	<5.00	5.00	ug/L
100-42-5	Styrene	<5.00	5.00	ug/L
1634-04-4	tert-Butyl methyl ether (MTBE)	<5.00	5.00	ug/L
98-06-6	tert-Butylbenzene	<5.00	5.00	ug/L
127-18-4	**Tetrachloroethene**	**88.8**	**5.00**	**ug/L**
108-88-3	Toluene	<5.00	5.00	ug/L
156-60-5	trans-1,2-Dichloroethene	<5.00	5.00	ug/L
10061-02-6	trans-1,3-Dichloropropene	<5.00	5.00	ug/L
110-57-6	trans-1,4-Dichloro-2-butene	<5.00	5.00	ug/L
79-01-6	Trichloroethene	<5.00	5.00	ug/L
75-69-4	Trichlorofluoromethane	<5.00	5.00	ug/L
76-13-1	Trichlorotrifluoroethane	<5.00	5.00	ug/L
108-05-4	Vinyl acetate	<5.00	5.00	ug/L
75-01-4	Vinyl chloride	<2.00	2.00	ug/L
1330-20-7	Xylene (total)	<15.0	15.0	ug/L

CAS#	Surrogate	Conc. Spiked	Conc. Rec	Units	% Recovery	Rec Limits
460-00-4	4-Bromofluorobenzene	50	47.6	ug/L	95	78 - 130
1868-53-7	Dibromofluoromethane	50	53.8	ug/L	108	77 - 127
2037-26-5	Toluene d8	50	51.1	ug/L	102	76 - 134
17060-07-0	1,2-Dichloroethane-d4	50	50.8	ug/L	102	71 - 127

MW-19 20170712

Collect Date	07/12/2017 16:15	**GCAL ID**	21707141102
Receive Date	07/14/2017 09:25	**Matrix**	Water

EPA 8260B

Prep Date	Prep Batch	Prep Method	Dilution	Analysis Date	By	Analytical Batch
NA	NA	NA	1	07/17/2017 13:28	IXE	614290

CAS#	Parameter	Result	LOQ	Units
630-20-6	1,1,1,2-Tetrachloroethane	<5.00	5.00	ug/L
71-55-6	1,1,1-Trichloroethane	<5.00	5.00	ug/L
79-34-5	1,1,2,2-Tetrachloroethane	<5.00	5.00	ug/L

Sample Results

MW-19 20170712	**Collect Date**	07/12/2017 16:15	**GCAL ID**	21707141102
	Receive Date	07/14/2017 09:25	**Matrix**	Water

EPA 8260B (Continued)

Prep Date	Prep Batch	Prep Method	Dilution	Analysis Date	By	Analytical Batch
NA	NA	NA	1	07/17/2017 13:28	IXE	614290

CAS#	Parameter	Result	LOQ	Units
79-00-5	1,1,2-Trichloroethane	<5.00	5.00	ug/L
75-34-3	1,1-Dichloroethane	<5.00	5.00	ug/L
75-35-4	**1,1-Dichloroethene**	**9.57**	**5.00**	**ug/L**
563-58-6	1,1-Dichloropropene	<5.00	5.00	ug/L
96-18-4	1,2,3-Trichloropropane	<5.00	5.00	ug/L
120-82-1	1,2,4-Trichlorobenzene	<5.00	5.00	ug/L
95-63-6	1,2,4-Trimethylbenzene	<5.00	5.00	ug/L
96-12-8	1,2-Dibromo-3-chloropropane	<5.00	5.00	ug/L
106-93-4	1,2-Dibromoethane	<5.00	5.00	ug/L
95-50-1	1,2-Dichlorobenzene	<5.00	5.00	ug/L
107-06-2	1,2-Dichloroethane	<5.00	5.00	ug/L
540-59-0	1,2-Dichloroethene(Total)	<10.0	10.0	ug/L
78-87-5	1,2-Dichloropropane	<5.00	5.00	ug/L
108-67-8	1,3,5-Trimethylbenzene	<5.00	5.00	ug/L
541-73-1	1,3-Dichlorobenzene	<5.00	5.00	ug/L
142-28-9	1,3-Dichloropropane	<5.00	5.00	ug/L
106-46-7	1,4-Dichlorobenzene	<5.00	5.00	ug/L
594-20-7	2,2-Dichloropropane	<5.00	5.00	ug/L
78-93-3	2-Butanone	<5.00	5.00	ug/L
95-49-8	2-Chlorotoluene	<5.00	5.00	ug/L
591-78-6	2-Hexanone	<5.00	5.00	ug/L
106-43-4	4-Chlorotoluene	<5.00	5.00	ug/L
99-87-6	4-Isopropyltoluene	<5.00	5.00	ug/L
108-10-1	4-Methyl-2-pentanone	<5.00	5.00	ug/L
67-64-1	Acetone	<5.00	5.00	ug/L
71-43-2	Benzene	<5.00	5.00	ug/L
108-86-1	Bromobenzene	<5.00	5.00	ug/L
74-97-5	Bromochloromethane	<5.00	5.00	ug/L
75-27-4	Bromodichloromethane	<5.00	5.00	ug/L
75-25-2	Bromoform	<5.00	5.00	ug/L
74-83-9	Bromomethane	<5.00	5.00	ug/L
75-15-0	Carbon disulfide	<5.00	5.00	ug/L
56-23-5	Carbon tetrachloride	<5.00	5.00	ug/L
108-90-7	Chlorobenzene	<5.00	5.00	ug/L
75-00-3	Chloroethane	<5.00	5.00	ug/L
67-66-3	Chloroform	<5.00	5.00	ug/L
74-87-3	Chloromethane	<5.00	5.00	ug/L
156-59-2	cis-1,2-Dichloroethene	<5.00	5.00	ug/L
10061-01-5	cis-1,3-Dichloropropene	<5.00	5.00	ug/L
124-48-1	Dibromochloromethane	<5.00	5.00	ug/L
74-95-3	Dibromomethane	<5.00	5.00	ug/L
75-71-8	Dichlorodifluoromethane	<5.00	5.00	ug/L
100-41-4	Ethylbenzene	<5.00	5.00	ug/L
87-68-3	Hexachlorobutadiene	<5.00	5.00	ug/L
98-82-8	Isopropylbenzene (Cumene)	<5.00	5.00	ug/L
136777-61-2	m,p-Xylene	<10.0	10.0	ug/L
74-88-4	Methyl iodide	<5.00	5.00	ug/L

Sample Results

MW-19 20170712

Collect Date	07/12/2017 16:15	**GCAL ID**	21707141102
Receive Date	07/14/2017 09:25	**Matrix**	Water

EPA 8260B (Continued)

Prep Date	Prep Batch	Prep Method	Dilution	Analysis Date	By	Analytical Batch
NA	NA	NA	1	07/17/2017 13:28	IXE	614290

CAS#	Parameter	Result	LOQ	Units
75-09-2	Methylene chloride	<5.00	5.00	ug/L
91-20-3	Naphthalene	<5.00	5.00	ug/L
104-51-8	n-Butylbenzene	<5.00	5.00	ug/L
103-65-1	n-Propylbenzene	<5.00	5.00	ug/L
95-47-6	o-Xylene	<5.00	5.00	ug/L
135-98-8	sec-Butylbenzene	<5.00	5.00	ug/L
100-42-5	Styrene	<5.00	5.00	ug/L
1634-04-4	tert-Butyl methyl ether (MTBE)	<5.00	5.00	ug/L
98-06-6	tert-Butylbenzene	<5.00	5.00	ug/L
127-18-4	**Tetrachloroethene**	**183**	**5.00**	**ug/L**
108-88-3	Toluene	<5.00	5.00	ug/L
156-60-5	trans-1,2-Dichloroethene	<5.00	5.00	ug/L
10061-02-6	trans-1,3-Dichloropropene	<5.00	5.00	ug/L
110-57-6	trans-1,4-Dichloro-2-butene	<5.00	5.00	ug/L
79-01-6	Trichloroethene	<5.00	5.00	ug/L
75-69-4	Trichlorofluoromethane	<5.00	5.00	ug/L
76-13-1	Trichlorotrifluoroethane	<5.00	5.00	ug/L
108-05-4	Vinyl acetate	<5.00	5.00	ug/L
75-01-4	Vinyl chloride	<2.00	2.00	ug/L
1330-20-7	Xylene (total)	<15.0	15.0	ug/L

CAS#	Surrogate	Conc. Spiked	Conc. Rec	Units	% Recovery	Rec Limits
460-00-4	4-Bromofluorobenzene	50	46.4	ug/L	93	78 - 130
1868-53-7	Dibromofluoromethane	50	53.9	ug/L	108	77 - 127
2037-26-5	Toluene d8	50	51	ug/L	102	76 - 134
17060-07-0	1,2-Dichloroethane-d4	50	49.6	ug/L	99	71 - 127

MW-21 20170712

Collect Date	07/12/2017 15:37	**GCAL ID**	21707141103
Receive Date	07/14/2017 09:25	**Matrix**	Water

EPA 8260B

Prep Date	Prep Batch	Prep Method	Dilution	Analysis Date	By	Analytical Batch
NA	NA	NA	1	07/17/2017 11:28	IXE	614290

CAS#	Parameter	Result	LOQ	Units
630-20-6	1,1,1,2-Tetrachloroethane	<5.00	5.00	ug/L
71-55-6	1,1,1-Trichloroethane	<5.00	5.00	ug/L
79-34-5	1,1,2,2-Tetrachloroethane	<5.00	5.00	ug/L
79-00-5	1,1,2-Trichloroethane	<5.00	5.00	ug/L
75-34-3	1,1-Dichloroethane	<5.00	5.00	ug/L
75-35-4	1,1-Dichloroethene	<5.00	5.00	ug/L

Sample Results

MW-21 20170712	**Collect Date**	07/12/2017 15:37	**GCAL ID**	21707141103
	Receive Date	07/14/2017 09:25	**Matrix**	Water

EPA 8260B (Continued)

Prep Date	Prep Batch	Prep Method	Dilution	Analysis Date	By	Analytical Batch
NA	NA	NA	1	07/17/2017 11:28	IXE	614290

CAS#	Parameter	Result	LOQ	Units
563-58-6	1,1-Dichloropropene	<5.00	5.00	ug/L
96-18-4	1,2,3-Trichloropropane	<5.00	5.00	ug/L
120-82-1	1,2,4-Trichlorobenzene	<5.00	5.00	ug/L
95-63-6	1,2,4-Trimethylbenzene	<5.00	5.00	ug/L
96-12-8	1,2-Dibromo-3-chloropropane	<5.00	5.00	ug/L
106-93-4	1,2-Dibromoethane	<5.00	5.00	ug/L
95-50-1	1,2-Dichlorobenzene	<5.00	5.00	ug/L
107-06-2	1,2-Dichloroethane	<5.00	5.00	ug/L
540-59-0	1,2-Dichloroethene(Total)	<10.0	10.0	ug/L
78-87-5	1,2-Dichloropropane	<5.00	5.00	ug/L
108-67-8	1,3,5-Trimethylbenzene	<5.00	5.00	ug/L
541-73-1	1,3-Dichlorobenzene	<5.00	5.00	ug/L
142-28-9	1,3-Dichloropropane	<5.00	5.00	ug/L
106-46-7	1,4-Dichlorobenzene	<5.00	5.00	ug/L
594-20-7	2,2-Dichloropropane	<5.00	5.00	ug/L
78-93-3	2-Butanone	<5.00	5.00	ug/L
95-49-8	2-Chlorotoluene	<5.00	5.00	ug/L
591-78-6	2-Hexanone	<5.00	5.00	ug/L
106-43-4	4-Chlorotoluene	<5.00	5.00	ug/L
99-87-6	4-Isopropyltoluene	<5.00	5.00	ug/L
108-10-1	4-Methyl-2-pentanone	<5.00	5.00	ug/L
67-64-1	Acetone	<5.00	5.00	ug/L
71-43-2	Benzene	<5.00	5.00	ug/L
108-86-1	Bromobenzene	<5.00	5.00	ug/L
74-97-5	Bromochloromethane	<5.00	5.00	ug/L
75-27-4	Bromodichloromethane	<5.00	5.00	ug/L
75-25-2	Bromoform	<5.00	5.00	ug/L
74-83-9	Bromomethane	<5.00	5.00	ug/L
75-15-0	Carbon disulfide	<5.00	5.00	ug/L
56-23-5	Carbon tetrachloride	<5.00	5.00	ug/L
108-90-7	Chlorobenzene	<5.00	5.00	ug/L
75-00-3	Chloroethane	<5.00	5.00	ug/L
67-66-3	Chloroform	<5.00	5.00	ug/L
74-87-3	Chloromethane	<5.00	5.00	ug/L
156-59-2	cis-1,2-Dichloroethene	<5.00	5.00	ug/L
10061-01-5	cis-1,3-Dichloropropene	<5.00	5.00	ug/L
124-48-1	Dibromochloromethane	<5.00	5.00	ug/L
74-95-3	Dibromomethane	<5.00	5.00	ug/L
75-71-8	Dichlorodifluoromethane	<5.00	5.00	ug/L
100-41-4	Ethylbenzene	<5.00	5.00	ug/L
87-68-3	Hexachlorobutadiene	<5.00	5.00	ug/L
98-82-8	Isopropylbenzene (Cumene)	<5.00	5.00	ug/L
136777-61-2	m,p-Xylene	<10.0	10.0	ug/L
74-88-4	Methyl iodide	<5.00	5.00	ug/L
75-09-2	Methylene chloride	<5.00	5.00	ug/L
91-20-3	Naphthalene	<5.00	5.00	ug/L
104-51-8	n-Butylbenzene	<5.00	5.00	ug/L

Sample Results

MW-21 20170712

Collect Date	07/12/2017 15:37	**GCAL ID**	21707141103
Receive Date	07/14/2017 09:25	**Matrix**	Water

EPA 8260B (Continued)

Prep Date	Prep Batch	Prep Method	Dilution	Analysis Date	By	Analytical Batch
NA	NA	NA	1	07/17/2017 11:28	IXE	614290

CAS#	Parameter	Result	LOQ	Units
103-65-1	n-Propylbenzene	<5.00	5.00	ug/L
95-47-6	o-Xylene	<5.00	5.00	ug/L
135-98-8	sec-Butylbenzene	<5.00	5.00	ug/L
100-42-5	Styrene	<5.00	5.00	ug/L
1634-04-4	tert-Butyl methyl ether (MTBE)	<5.00	5.00	ug/L
98-06-6	tert-Butylbenzene	<5.00	5.00	ug/L
127-18-4	**Tetrachloroethene**	**5.85**	**5.00**	**ug/L**
108-88-3	Toluene	<5.00	5.00	ug/L
156-60-5	trans-1,2-Dichloroethene	<5.00	5.00	ug/L
10061-02-6	trans-1,3-Dichloropropene	<5.00	5.00	ug/L
110-57-6	trans-1,4-Dichloro-2-butene	<5.00	5.00	ug/L
79-01-6	Trichloroethene	<5.00	5.00	ug/L
75-69-4	Trichlorofluoromethane	<5.00	5.00	ug/L
76-13-1	Trichlorotrifluoroethane	<5.00	5.00	ug/L
108-05-4	Vinyl acetate	<5.00	5.00	ug/L
75-01-4	Vinyl chloride	<2.00	2.00	ug/L
1330-20-7	Xylene (total)	<15.0	15.0	ug/L

CAS#	Surrogate	Conc. Spiked	Conc. Rec	Units	% Recovery	Rec Limits
460-00-4	4-Bromofluorobenzene	50	47.6	ug/L	95	78 - 130
1868-53-7	Dibromofluoromethane	50	53.5	ug/L	107	77 - 127
2037-26-5	Toluene d8	50	51.6	ug/L	103	76 - 134
17060-07-0	1,2-Dichloroethane-d4	50	50.1	ug/L	100	71 - 127

MW-25D 20170712

Collect Date	07/12/2017 18:53	**GCAL ID**	21707141104
Receive Date	07/14/2017 09:25	**Matrix**	Water

EPA 8260B

Prep Date	Prep Batch	Prep Method	Dilution	Analysis Date	By	Analytical Batch
NA	NA	NA	5	07/17/2017 13:51	IXE	614290

CAS#	Parameter	Result	LOQ	Units
630-20-6	1,1,1,2-Tetrachloroethane	<25.0	25.0	ug/L
71-55-6	1,1,1-Trichloroethane	<25.0	25.0	ug/L
79-34-5	1,1,2,2-Tetrachloroethane	<25.0	25.0	ug/L
79-00-5	1,1,2-Trichloroethane	<25.0	25.0	ug/L
75-34-3	1,1-Dichloroethane	<25.0	25.0	ug/L
75-35-4	1,1-Dichloroethene	<25.0	25.0	ug/L
563-58-6	1,1-Dichloropropene	<25.0	25.0	ug/L
96-18-4	1,2,3-Trichloropropane	<25.0	25.0	ug/L
120-82-1	1,2,4-Trichlorobenzene	<25.0	25.0	ug/L

Sample Results

MW-25D 20170712	**Collect Date**	07/12/2017 18:53	**GCAL ID**	21707141104
	Receive Date	07/14/2017 09:25	**Matrix**	Water

EPA 8260B (Continued)

Prep Date	Prep Batch	Prep Method	Dilution	Analysis Date	By	Analytical Batch
NA	NA	NA	5	07/17/2017 13:51	IXE	614290

CAS#	Parameter	Result	LOQ	Units
95-63-6	1,2,4-Trimethylbenzene	<25.0	25.0	ug/L
96-12-8	1,2-Dibromo-3-chloropropane	<25.0	25.0	ug/L
106-93-4	1,2-Dibromoethane	<25.0	25.0	ug/L
95-50-1	1,2-Dichlorobenzene	<25.0	25.0	ug/L
107-06-2	1,2-Dichloroethane	<25.0	25.0	ug/L
540-59-0	1,2-Dichloroethene(Total)	<50.0	50.0	ug/L
78-87-5	1,2-Dichloropropane	<25.0	25.0	ug/L
108-67-8	1,3,5-Trimethylbenzene	<25.0	25.0	ug/L
541-73-1	1,3-Dichlorobenzene	<25.0	25.0	ug/L
142-28-9	1,3-Dichloropropane	<25.0	25.0	ug/L
106-46-7	1,4-Dichlorobenzene	<25.0	25.0	ug/L
594-20-7	2,2-Dichloropropane	<25.0	25.0	ug/L
78-93-3	2-Butanone	<25.0	25.0	ug/L
95-49-8	2-Chlorotoluene	<25.0	25.0	ug/L
591-78-6	2-Hexanone	<25.0	25.0	ug/L
106-43-4	4-Chlorotoluene	<25.0	25.0	ug/L
99-87-6	4-Isopropyltoluene	<25.0	25.0	ug/L
108-10-1	4-Methyl-2-pentanone	<25.0	25.0	ug/L
67-64-1	Acetone	<25.0	25.0	ug/L
71-43-2	Benzene	<25.0	25.0	ug/L
108-86-1	Bromobenzene	<25.0	25.0	ug/L
74-97-5	Bromochloromethane	<25.0	25.0	ug/L
75-27-4	Bromodichloromethane	<25.0	25.0	ug/L
75-25-2	Bromoform	<25.0	25.0	ug/L
74-83-9	Bromomethane	<25.0	25.0	ug/L
75-15-0	Carbon disulfide	<25.0	25.0	ug/L
56-23-5	Carbon tetrachloride	<25.0	25.0	ug/L
108-90-7	Chlorobenzene	<25.0	25.0	ug/L
75-00-3	Chloroethane	<25.0	25.0	ug/L
67-66-3	Chloroform	<25.0	25.0	ug/L
74-87-3	Chloromethane	<25.0	25.0	ug/L
156-59-2	cis-1,2-Dichloroethene	<25.0	25.0	ug/L
10061-01-5	cis-1,3-Dichloropropene	<25.0	25.0	ug/L
124-48-1	Dibromochloromethane	<25.0	25.0	ug/L
74-95-3	Dibromomethane	<25.0	25.0	ug/L
75-71-8	Dichlorodifluoromethane	<25.0	25.0	ug/L
100-41-4	Ethylbenzene	<25.0	25.0	ug/L
87-68-3	Hexachlorobutadiene	<25.0	25.0	ug/L
98-82-8	Isopropylbenzene (Cumene)	<25.0	25.0	ug/L
136777-61-2	m,p-Xylene	<50.0	50.0	ug/L
74-88-4	Methyl iodide	<25.0	25.0	ug/L
75-09-2	Methylene chloride	<25.0	25.0	ug/L
91-20-3	Naphthalene	<25.0	25.0	ug/L
104-51-8	n-Butylbenzene	<25.0	25.0	ug/L
103-65-1	n-Propylbenzene	<25.0	25.0	ug/L
95-47-6	o-Xylene	<25.0	25.0	ug/L
135-98-8	sec-Butylbenzene	<25.0	25.0	ug/L

Sample Results

MW-25D 20170712

Collect Date	07/12/2017 18:53	**GCAL ID**	21707141104
Receive Date	07/14/2017 09:25	**Matrix**	Water

EPA 8260B (Continued)

Prep Date	Prep Batch	Prep Method	Dilution	Analysis Date	By	Analytical Batch
NA	NA	NA	5	07/17/2017 13:51	IXE	614290

CAS#	Parameter	Result	LOQ	Units
100-42-5	Styrene	<25.0	25.0	ug/L
1634-04-4	tert-Butyl methyl ether (MTBE)	<25.0	25.0	ug/L
98-06-6	tert-Butylbenzene	<25.0	25.0	ug/L
127-18-4	**Tetrachloroethene**	**413**	**25.0**	**ug/L**
108-88-3	Toluene	<25.0	25.0	ug/L
156-60-5	trans-1,2-Dichloroethene	<25.0	25.0	ug/L
10061-02-6	trans-1,3-Dichloropropene	<25.0	25.0	ug/L
110-57-6	trans-1,4-Dichloro-2-butene	<25.0	25.0	ug/L
79-01-6	Trichloroethene	<25.0	25.0	ug/L
75-69-4	Trichlorofluoromethane	<25.0	25.0	ug/L
76-13-1	Trichlorotrifluoroethane	<25.0	25.0	ug/L
108-05-4	Vinyl acetate	<25.0	25.0	ug/L
75-01-4	Vinyl chloride	<10.0	10.0	ug/L
1330-20-7	Xylene (total)	<75.0	75.0	ug/L

CAS#	Surrogate	Conc. Spiked	Conc. Rec	Units	% Recovery	Rec Limits
460-00-4	4-Bromofluorobenzene	250	233	ug/L	93	78 - 130
1868-53-7	Dibromofluoromethane	250	272	ug/L	109	77 - 127
2037-26-5	Toluene d8	250	254	ug/L	102	76 - 134
17060-07-0	1,2-Dichloroethane-d4	250	250	ug/L	100	71 - 127

MW-27D 2017

Collect Date	07/12/2017 14:22	**GCAL ID**	21707141105
Receive Date	07/14/2017 09:25	**Matrix**	Water

EPA 8260B

Prep Date	Prep Batch	Prep Method	Dilution	Analysis Date	By	Analytical Batch
NA	NA	NA	1	07/17/2017 14:14	IXE	614290

CAS#	Parameter	Result	LOQ	Units
630-20-6	1,1,1,2-Tetrachloroethane	<5.00	5.00	ug/L
71-55-6	1,1,1-Trichloroethane	<5.00	5.00	ug/L
79-34-5	1,1,2,2-Tetrachloroethane	<5.00	5.00	ug/L
79-00-5	1,1,2-Trichloroethane	<5.00	5.00	ug/L
75-34-3	1,1-Dichloroethane	<5.00	5.00	ug/L
75-35-4	1,1-Dichloroethene	<5.00	5.00	ug/L
563-58-6	1,1-Dichloropropene	<5.00	5.00	ug/L
96-18-4	1,2,3-Trichloropropane	<5.00	5.00	ug/L
120-82-1	1,2,4-Trichlorobenzene	<5.00	5.00	ug/L
95-63-6	1,2,4-Trimethylbenzene	<5.00	5.00	ug/L
96-12-8	1,2-Dibromo-3-chloropropane	<5.00	5.00	ug/L
106-93-4	1,2-Dibromoethane	<5.00	5.00	ug/L

Sample Results

MW-27D 2017	**Collect Date**	07/12/2017 14:22	**GCAL ID**	21707141105
	Receive Date	07/14/2017 09:25	**Matrix**	Water

EPA 8260B (Continued)

Prep Date	Prep Batch	Prep Method	Dilution	Analysis Date	By	Analytical Batch
NA	NA	NA	1	07/17/2017 14:14	IXE	614290

CAS#	Parameter	Result	LOQ	Units
95-50-1	1,2-Dichlorobenzene	<5.00	5.00	ug/L
107-06-2	1,2-Dichloroethane	<5.00	5.00	ug/L
540-59-0	1,2-Dichloroethene(Total)	<10.0	10.0	ug/L
78-87-5	1,2-Dichloropropane	<5.00	5.00	ug/L
108-67-8	1,3,5-Trimethylbenzene	<5.00	5.00	ug/L
541-73-1	1,3-Dichlorobenzene	<5.00	5.00	ug/L
142-28-9	1,3-Dichloropropane	<5.00	5.00	ug/L
106-46-7	1,4-Dichlorobenzene	<5.00	5.00	ug/L
594-20-7	2,2-Dichloropropane	<5.00	5.00	ug/L
78-93-3	2-Butanone	<5.00	5.00	ug/L
95-49-8	2-Chlorotoluene	<5.00	5.00	ug/L
591-78-6	2-Hexanone	<5.00	5.00	ug/L
106-43-4	4-Chlorotoluene	<5.00	5.00	ug/L
99-87-6	4-Isopropyltoluene	<5.00	5.00	ug/L
108-10-1	4-Methyl-2-pentanone	<5.00	5.00	ug/L
67-64-1	Acetone	<5.00	5.00	ug/L
71-43-2	Benzene	<5.00	5.00	ug/L
108-86-1	Bromobenzene	<5.00	5.00	ug/L
74-97-5	Bromochloromethane	<5.00	5.00	ug/L
75-27-4	Bromodichloromethane	<5.00	5.00	ug/L
75-25-2	Bromoform	<5.00	5.00	ug/L
74-83-9	Bromomethane	<5.00	5.00	ug/L
75-15-0	Carbon disulfide	<5.00	5.00	ug/L
56-23-5	Carbon tetrachloride	<5.00	5.00	ug/L
108-90-7	Chlorobenzene	<5.00	5.00	ug/L
75-00-3	Chloroethane	<5.00	5.00	ug/L
67-66-3	Chloroform	<5.00	5.00	ug/L
74-87-3	Chloromethane	<5.00	5.00	ug/L
156-59-2	cis-1,2-Dichloroethene	<5.00	5.00	ug/L
10061-01-5	cis-1,3-Dichloropropene	<5.00	5.00	ug/L
124-48-1	Dibromochloromethane	<5.00	5.00	ug/L
74-95-3	Dibromomethane	<5.00	5.00	ug/L
75-71-8	Dichlorodifluoromethane	<5.00	5.00	ug/L
100-41-4	Ethylbenzene	<5.00	5.00	ug/L
87-68-3	Hexachlorobutadiene	<5.00	5.00	ug/L
98-82-8	Isopropylbenzene (Cumene)	<5.00	5.00	ug/L
136777-61-2	m,p-Xylene	<10.0	10.0	ug/L
74-88-4	Methyl iodide	<5.00	5.00	ug/L
75-09-2	Methylene chloride	<5.00	5.00	ug/L
91-20-3	Naphthalene	<5.00	5.00	ug/L
104-51-8	n-Butylbenzene	<5.00	5.00	ug/L
103-65-1	n-Propylbenzene	<5.00	5.00	ug/L
95-47-6	o-Xylene	<5.00	5.00	ug/L
135-98-8	sec-Butylbenzene	<5.00	5.00	ug/L
100-42-5	Styrene	<5.00	5.00	ug/L
1634-04-4	tert-Butyl methyl ether (MTBE)	<5.00	5.00	ug/L
98-06-6	tert-Butylbenzene	<5.00	5.00	ug/L

Sample Results

MW-27D 2017

Collect Date	07/12/2017 14:22	**GCAL ID**	21707141105
Receive Date	07/14/2017 09:25	**Matrix**	Water

EPA 8260B (Continued)

Prep Date	Prep Batch	Prep Method	Dilution	Analysis Date	By	Analytical Batch
NA	NA	NA	1	07/17/2017 14:14	IXE	614290

CAS#	Parameter	Result	LOQ	Units
127-18-4	**Tetrachloroethene**	**118**	**5.00**	**ug/L**
108-88-3	Toluene	<5.00	5.00	ug/L
156-60-5	trans-1,2-Dichloroethene	<5.00	5.00	ug/L
10061-02-6	trans-1,3-Dichloropropene	<5.00	5.00	ug/L
110-57-6	trans-1,4-Dichloro-2-butene	<5.00	5.00	ug/L
79-01-6	Trichloroethene	<5.00	5.00	ug/L
75-69-4	Trichlorofluoromethane	<5.00	5.00	ug/L
76-13-1	Trichlorotrifluoroethane	<5.00	5.00	ug/L
108-05-4	Vinyl acetate	<5.00	5.00	ug/L
75-01-4	Vinyl chloride	<2.00	2.00	ug/L
1330-20-7	Xylene (total)	<15.0	15.0	ug/L

CAS#	Surrogate	Conc. Spiked	Conc. Rec	Units	% Recovery	Rec Limits
460-00-4	4-Bromofluorobenzene	50	46.8	ug/L	94	78 - 130
1868-53-7	Dibromofluoromethane	50	54.5	ug/L	109	77 - 127
2037-26-5	Toluene d8	50	51.3	ug/L	103	76 - 134
17060-07-0	1,2-Dichloroethane-d4	50	50.4	ug/L	101	71 - 127

DUP-01 20170712

Collect Date	07/12/2017 00:01	**GCAL ID**	21707141106
Receive Date	07/14/2017 09:25	**Matrix**	Water

EPA 8260B

Prep Date	Prep Batch	Prep Method	Dilution	Analysis Date	By	Analytical Batch
NA	NA	NA	1	07/17/2017 12:37	IXE	614290

CAS#	Parameter	Result	LOQ	Units
630-20-6	1,1,1,2-Tetrachloroethane	<5.00	5.00	ug/L
71-55-6	1,1,1-Trichloroethane	<5.00	5.00	ug/L
79-34-5	1,1,2,2-Tetrachloroethane	<5.00	5.00	ug/L
79-00-5	1,1,2-Trichloroethane	<5.00	5.00	ug/L
75-34-3	1,1-Dichloroethane	<5.00	5.00	ug/L
75-35-4	1,1-Dichloroethene	<5.00	5.00	ug/L
563-58-6	1,1-Dichloropropene	<5.00	5.00	ug/L
96-18-4	1,2,3-Trichloropropane	<5.00	5.00	ug/L
120-82-1	1,2,4-Trichlorobenzene	<5.00	5.00	ug/L
95-63-6	1,2,4-Trimethylbenzene	<5.00	5.00	ug/L
96-12-8	1,2-Dibromo-3-chloropropane	<5.00	5.00	ug/L
106-93-4	1,2-Dibromoethane	<5.00	5.00	ug/L
95-50-1	1,2-Dichlorobenzene	<5.00	5.00	ug/L
107-06-2	1,2-Dichloroethane	<5.00	5.00	ug/L
540-59-0	1,2-Dichloroethene(Total)	<10.0	10.0	ug/L

Sample Results

DUP-01 20170712	**Collect Date**	07/12/2017 00:01	**GCAL ID**	21707141106
	Receive Date	07/14/2017 09:25	**Matrix**	Water

EPA 8260B (Continued)

Prep Date	Prep Batch	Prep Method	Dilution	Analysis Date	By	Analytical Batch
NA	NA	NA	1	07/17/2017 12:37	IXE	614290

CAS#	Parameter	Result	LOQ	Units
78-87-5	1,2-Dichloropropane	<5.00	5.00	ug/L
108-67-8	1,3,5-Trimethylbenzene	<5.00	5.00	ug/L
541-73-1	1,3-Dichlorobenzene	<5.00	5.00	ug/L
142-28-9	1,3-Dichloropropane	<5.00	5.00	ug/L
106-46-7	1,4-Dichlorobenzene	<5.00	5.00	ug/L
594-20-7	2,2-Dichloropropane	<5.00	5.00	ug/L
78-93-3	2-Butanone	<5.00	5.00	ug/L
95-49-8	2-Chlorotoluene	<5.00	5.00	ug/L
591-78-6	2-Hexanone	<5.00	5.00	ug/L
106-43-4	4-Chlorotoluene	<5.00	5.00	ug/L
99-87-6	4-Isopropyltoluene	<5.00	5.00	ug/L
108-10-1	4-Methyl-2-pentanone	<5.00	5.00	ug/L
67-64-1	Acetone	<5.00	5.00	ug/L
71-43-2	Benzene	<5.00	5.00	ug/L
108-86-1	Bromobenzene	<5.00	5.00	ug/L
74-97-5	Bromochloromethane	<5.00	5.00	ug/L
75-27-4	Bromodichloromethane	<5.00	5.00	ug/L
75-25-2	Bromoform	<5.00	5.00	ug/L
74-83-9	Bromomethane	<5.00	5.00	ug/L
75-15-0	Carbon disulfide	<5.00	5.00	ug/L
56-23-5	Carbon tetrachloride	<5.00	5.00	ug/L
108-90-7	Chlorobenzene	<5.00	5.00	ug/L
75-00-3	Chloroethane	<5.00	5.00	ug/L
67-66-3	Chloroform	<5.00	5.00	ug/L
74-87-3	Chloromethane	<5.00	5.00	ug/L
156-59-2	cis-1,2-Dichloroethene	<5.00	5.00	ug/L
10061-01-5	cis-1,3-Dichloropropene	<5.00	5.00	ug/L
124-48-1	Dibromochloromethane	<5.00	5.00	ug/L
74-95-3	Dibromomethane	<5.00	5.00	ug/L
75-71-8	Dichlorodifluoromethane	<5.00	5.00	ug/L
100-41-4	Ethylbenzene	<5.00	5.00	ug/L
87-68-3	Hexachlorobutadiene	<5.00	5.00	ug/L
98-82-8	Isopropylbenzene (Cumene)	<5.00	5.00	ug/L
136777-61-2	m,p-Xylene	<10.0	10.0	ug/L
74-88-4	Methyl iodide	<5.00	5.00	ug/L
75-09-2	Methylene chloride	<5.00	5.00	ug/L
91-20-3	Naphthalene	<5.00	5.00	ug/L
104-51-8	n-Butylbenzene	<5.00	5.00	ug/L
103-65-1	n-Propylbenzene	<5.00	5.00	ug/L
95-47-6	o-Xylene	<5.00	5.00	ug/L
135-98-8	sec-Butylbenzene	<5.00	5.00	ug/L
100-42-5	Styrene	<5.00	5.00	ug/L
1634-04-4	tert-Butyl methyl ether (MTBE)	<5.00	5.00	ug/L
98-06-6	tert-Butylbenzene	<5.00	5.00	ug/L
127-18-4	**Tetrachloroethene**	**5.28**	**5.00**	**ug/L**
108-88-3	Toluene	<5.00	5.00	ug/L
156-60-5	trans-1,2-Dichloroethene	<5.00	5.00	ug/L

Sample Results

DUP-01 20170712

Collect Date	07/12/2017 00:01	**GCAL ID**	21707141106
Receive Date	07/14/2017 09:25	**Matrix**	Water

EPA 8260B (Continued)

Prep Date	Prep Batch	Prep Method	Dilution	Analysis Date	By	Analytical Batch
NA	NA	NA	1	07/17/2017 12:37	IXE	614290

CAS#	Parameter	Result	LOQ	Units
10061-02-6	trans-1,3-Dichloropropene	<5.00	5.00	ug/L
110-57-6	trans-1,4-Dichloro-2-butene	<5.00	5.00	ug/L
79-01-6	Trichloroethene	<5.00	5.00	ug/L
75-69-4	Trichlorofluoromethane	<5.00	5.00	ug/L
76-13-1	Trichlorotrifluoroethane	<5.00	5.00	ug/L
108-05-4	Vinyl acetate	<5.00	5.00	ug/L
75-01-4	Vinyl chloride	<2.00	2.00	ug/L
1330-20-7	Xylene (total)	<15.0	15.0	ug/L

CAS#	Surrogate	Conc. Spiked	Conc. Rec	Units	% Recovery	Rec Limits
460-00-4	4-Bromofluorobenzene	50	47.1	ug/L	94	78 - 130
1868-53-7	Dibromofluoromethane	50	55	ug/L	110	77 - 127
2037-26-5	Toluene d8	50	51.3	ug/L	103	76 - 134
17060-07-0	1,2-Dichloroethane-d4	50	50.7	ug/L	101	71 - 127

TB-01 20170712

Collect Date	07/12/2017 00:01	**GCAL ID**	21707141107
Receive Date	07/14/2017 09:25	**Matrix**	Water

EPA 8260B

Prep Date	Prep Batch	Prep Method	Dilution	Analysis Date	By	Analytical Batch
NA	NA	NA	1	07/17/2017 13:05	IXE	614290

CAS#	Parameter	Result	LOQ	Units
630-20-6	1,1,1,2-Tetrachloroethane	<5.00	5.00	ug/L
71-55-6	1,1,1-Trichloroethane	<5.00	5.00	ug/L
79-34-5	1,1,2,2-Tetrachloroethane	<5.00	5.00	ug/L
79-00-5	1,1,2-Trichloroethane	<5.00	5.00	ug/L
75-34-3	1,1-Dichloroethane	<5.00	5.00	ug/L
75-35-4	1,1-Dichloroethene	<5.00	5.00	ug/L
563-58-6	1,1-Dichloropropene	<5.00	5.00	ug/L
96-18-4	1,2,3-Trichloropropane	<5.00	5.00	ug/L
120-82-1	1,2,4-Trichlorobenzene	<5.00	5.00	ug/L
95-63-6	1,2,4-Trimethylbenzene	<5.00	5.00	ug/L
96-12-8	1,2-Dibromo-3-chloropropane	<5.00	5.00	ug/L
106-93-4	1,2-Dibromoethane	<5.00	5.00	ug/L
95-50-1	1,2-Dichlorobenzene	<5.00	5.00	ug/L
107-06-2	1,2-Dichloroethane	<5.00	5.00	ug/L
540-59-0	1,2-Dichloroethene(Total)	<10.0	10.0	ug/L
78-87-5	1,2-Dichloropropane	<5.00	5.00	ug/L
108-67-8	1,3,5-Trimethylbenzene	<5.00	5.00	ug/L
541-73-1	1,3-Dichlorobenzene	<5.00	5.00	ug/L

Sample Results

TB-01 20170712	**Collect Date**	07/12/2017 00:01	**GCAL ID**	21707141107
	Receive Date	07/14/2017 09:25	**Matrix**	Water

EPA 8260B (Continued)

Prep Date	Prep Batch	Prep Method	Dilution	Analysis Date	By	Analytical Batch
NA	NA	NA	1	07/17/2017 13:05	IXE	614290

CAS#	Parameter	Result	LOQ	Units
142-28-9	1,3-Dichloropropane	<5.00	5.00	ug/L
106-46-7	1,4-Dichlorobenzene	<5.00	5.00	ug/L
594-20-7	2,2-Dichloropropane	<5.00	5.00	ug/L
78-93-3	2-Butanone	<5.00	5.00	ug/L
95-49-8	2-Chlorotoluene	<5.00	5.00	ug/L
591-78-6	2-Hexanone	<5.00	5.00	ug/L
106-43-4	4-Chlorotoluene	<5.00	5.00	ug/L
99-87-6	4-Isopropyltoluene	<5.00	5.00	ug/L
108-10-1	4-Methyl-2-pentanone	<5.00	5.00	ug/L
67-64-1	**Acetone**	**5.30**	**5.00**	**ug/L**
71-43-2	Benzene	<5.00	5.00	ug/L
108-86-1	Bromobenzene	<5.00	5.00	ug/L
74-97-5	Bromochloromethane	<5.00	5.00	ug/L
75-27-4	Bromodichloromethane	<5.00	5.00	ug/L
75-25-2	Bromoform	<5.00	5.00	ug/L
74-83-9	Bromomethane	<5.00	5.00	ug/L
75-15-0	Carbon disulfide	<5.00	5.00	ug/L
56-23-5	Carbon tetrachloride	<5.00	5.00	ug/L
108-90-7	Chlorobenzene	<5.00	5.00	ug/L
75-00-3	Chloroethane	<5.00	5.00	ug/L
67-66-3	Chloroform	<5.00	5.00	ug/L
74-87-3	Chloromethane	<5.00	5.00	ug/L
156-59-2	cis-1,2-Dichloroethene	<5.00	5.00	ug/L
10061-01-5	cis-1,3-Dichloropropene	<5.00	5.00	ug/L
124-48-1	Dibromochloromethane	<5.00	5.00	ug/L
74-95-3	Dibromomethane	<5.00	5.00	ug/L
75-71-8	Dichlorodifluoromethane	<5.00	5.00	ug/L
100-41-4	Ethylbenzene	<5.00	5.00	ug/L
87-68-3	Hexachlorobutadiene	<5.00	5.00	ug/L
98-82-8	Isopropylbenzene (Cumene)	<5.00	5.00	ug/L
136777-61-2	m,p-Xylene	<10.0	10.0	ug/L
74-88-4	Methyl iodide	<5.00	5.00	ug/L
75-09-2	Methylene chloride	<5.00	5.00	ug/L
91-20-3	Naphthalene	<5.00	5.00	ug/L
104-51-8	n-Butylbenzene	<5.00	5.00	ug/L
103-65-1	n-Propylbenzene	<5.00	5.00	ug/L
95-47-6	o-Xylene	<5.00	5.00	ug/L
135-98-8	sec-Butylbenzene	<5.00	5.00	ug/L
100-42-5	Styrene	<5.00	5.00	ug/L
1634-04-4	tert-Butyl methyl ether (MTBE)	<5.00	5.00	ug/L
98-06-6	tert-Butylbenzene	<5.00	5.00	ug/L
127-18-4	Tetrachloroethene	<5.00	5.00	ug/L
108-88-3	Toluene	<5.00	5.00	ug/L
156-60-5	trans-1,2-Dichloroethene	<5.00	5.00	ug/L
10061-02-6	trans-1,3-Dichloropropene	<5.00	5.00	ug/L
110-57-6	trans-1,4-Dichloro-2-butene	<5.00	5.00	ug/L
79-01-6	Trichloroethene	<5.00	5.00	ug/L

Sample Results

TB-01 20170712	**Collect Date**	07/12/2017 00:01	**GCAL ID**	21707141107
	Receive Date	07/14/2017 09:25	**Matrix**	Water

EPA 8260B (Continued)

Prep Date	Prep Batch	Prep Method	Dilution	Analysis Date	By	Analytical Batch
NA	NA	NA	1	07/17/2017 13:05	IXE	614290

CAS#	Parameter	Result	LOQ	Units
75-69-4	Trichlorofluoromethane	<5.00	5.00	ug/L
76-13-1	Trichlorotrifluoroethane	<5.00	5.00	ug/L
108-05-4	Vinyl acetate	<5.00	5.00	ug/L
75-01-4	Vinyl chloride	<2.00	2.00	ug/L
1330-20-7	Xylene (total)	<15.0	15.0	ug/L

CAS#	Surrogate	Conc. Spiked	Conc. Rec	Units	% Recovery	Rec Limits
460-00-4	4-Bromofluorobenzene	50	47.8	ug/L	96	78 - 130
1868-53-7	Dibromofluoromethane	50	54.4	ug/L	109	77 - 127
2037-26-5	Toluene d8	50	51.7	ug/L	103	76 - 134
17060-07-0	1,2-Dichloroethane-d4	50	51.2	ug/L	102	71 - 127

GC/MS Volatiles QC Summary

Analytical Batch 614290	Client ID	MB614290		LCS614290				LCSD614290				
	GCAL ID	1702973		1702974				1702975				
	Sample Type	MB		LCS				LCSD				
	Prep Date	NA		NA				NA				
	Analysis Date	07/17/2017 10:18		07/17/2017 08:45				07/17/2017 09:08				
	Matrix	Water		Water				Water				
EPA 8260B		Units Result	ug/L LOQ	Spike Added	Result	%R	Control Limits%R	Spike Added	Result	%R	RPD	RPD Limit
1,1,1,2-Tetrachloroethane	630-20-6	<5.00	5.00	50.0	49.0	98	75 - 124	50.0	50.7	101	3	30
1,1,1-Trichloroethane	71-55-6	<5.00	5.00	50.0	46.4	93	76 - 126	50.0	47.3	95	2	30
1,1,2,2-Tetrachloroethane	79-34-5	<5.00	5.00	50.0	45.4	91	70 - 122	50.0	47.1	94	4	30
1,1,2-Trichloroethane	79-00-5	<5.00	5.00	50.0	49.6	99	72 - 121	50.0	52.3	105	5	30
1,1-Dichloroethane	75-34-3	<5.00	5.00	50.0	46.3	93	74 - 127	50.0	48.2	96	4	30
1,1-Dichloroethene	75-35-4	<5.00	5.00	50.0	56.4	113	69 - 129	50.0	57.0	114	1	20
1,1-Dichloropropene	563-58-6	<5.00	5.00	50.0	44.7	89	72 - 131	50.0	46.1	92	3	30
1,2,3-Trichloropropane	96-18-4	<5.00	5.00	50.0	46.7	93	70 - 120	50.0	50.1	100	7	30
1,2,4-Trichlorobenzene	120-82-1	<5.00	5.00	50.0	46.5	93	61 - 135	50.0	46.5	93	0	30
1,2,4-Trimethylbenzene	95-63-6	<5.00	5.00	50.0	48.4	97	74 - 125	50.0	48.4	97	0	30
1,2-Dibromo-3-chloropropane	96-12-8	<5.00	5.00	50.0	43.4	87	57 - 121	50.0	48.8	98	12	30
1,2-Dibromoethane	106-93-4	<5.00	5.00	50.0	53.0	106	70 - 124	50.0	56.0	112	6	30
1,2-Dichlorobenzene	95-50-1	<5.00	5.00	50.0	49.0	98	71 - 126	50.0	50.6	101	3	30
1,2-Dichloroethane	107-06-2	<5.00	5.00	50.0	46.1	92	71 - 129	50.0	49.3	99	7	30
1,2-Dichloroethene(Total)	540-59-0	<10.0	10.0	100	95.7	96	74 - 128	100	98.2	98	3	30
1,2-Dichloropropane	78-87-5	<5.00	5.00	50.0	45.0	90	72 - 128	50.0	45.8	92	2	30
1,3,5-Trimethylbenzene	108-67-8	<5.00	5.00	50.0	49.7	99	71 - 132	50.0	48.7	97	2	30
1,3-Dichlorobenzene	541-73-1	<5.00	5.00	50.0	50.1	100	74 - 126	50.0	50.0	100	0	30
1,3-Dichloropropane	142-28-9	<5.00	5.00	50.0	47.1	94	74 - 122	50.0	49.3	99	5	30
1,4-Dichlorobenzene	106-46-7	<5.00	5.00	50.0	50.8	102	72 - 122	50.0	50.8	102	0	30
2,2-Dichloropropane	594-20-7	<5.00	5.00	50.0	44.4	89	77 - 124	50.0	44.7	89	1	30
2-Butanone	78-93-3	<5.00	5.00	50.0	43.3	87	58 - 137	50.0	48.4	97	11	30
2-Chlorotoluene	95-49-8	<5.00	5.00	50.0	44.1	88	72 - 127	50.0	43.8	88	1	30
2-Hexanone	591-78-6	<5.00	5.00	50.0	42.7	85	50 - 135	50.0	47.1	94	10	30
4-Chlorotoluene	106-43-4	<5.00	5.00	50.0	45.6	91	75 - 126	50.0	45.5	91	0	30
4-Isopropyltoluene	99-87-6	<5.00	5.00	50.0	49.7	99	71 - 129	50.0	48.0	96	3	30
4-Methyl-2-pentanone	108-10-1	<5.00	5.00	50.0	42.4	85	57 - 132	50.0	46.7	93	10	30
Acetone	67-64-1	<5.00	5.00	50.0	47.9	96	44 - 156	50.0	54.0	108	12	30
Benzene	71-43-2	<5.00	5.00	50.0	48.7	97	70 - 129	50.0	50.2	100	3	20
Bromobenzene	108-86-1	<5.00	5.00	50.0	45.3	91	71 - 120	50.0	45.7	91	1	30
Bromochloromethane	74-97-5	<5.00	5.00	50.0	54.3	109	76 - 130	50.0	58.4	117	7	30
Bromodichloromethane	75-27-4	<5.00	5.00	50.0	49.1	98	74 - 125	50.0	51.4	103	5	30
Bromoform	75-25-2	<5.00	5.00	50.0	52.7	105	64 - 122	50.0	56.3	113	7	30
Bromomethane	74-83-9	<5.00	5.00	50.0	60.6	121	47 - 138	50.0	62.6	125	3	30
Carbon disulfide	75-15-0	<5.00	5.00	50.0	60.1	120	69 - 136	50.0	58.9	118	2	30
Carbon tetrachloride	56-23-5	<5.00	5.00	50.0	53.2	106	76 - 128	50.0	55.1	110	4	30
Chlorobenzene	108-90-7	<5.00	5.00	50.0	49.9	100	74 - 123	50.0	51.2	102	3	20
Chloroethane	75-00-3	<5.00	5.00	50.0	60.7	121	62 - 141	50.0	50.3	101	19	30
Chloroform	67-66-3	<5.00	5.00	50.0	48.0	96	75 - 122	50.0	50.2	100	4	30
Chloromethane	74-87-3	<5.00	5.00	50.0	47.5	95	59 - 132	50.0	48.3	97	2	30
cis-1,2-Dichloroethene	156-59-2	<5.00	5.00	50.0	46.1	92	73 - 130	50.0	48.2	96	4	30
cis-1,3-Dichloropropene	10061-01-5	<5.00	5.00	50.0	46.4	93	71 - 132	50.0	48.8	98	5	30
Dibromochloromethane	124-48-1	<5.00	5.00	50.0	49.7	99	71 - 123	50.0	52.3	105	5	30
Dibromomethane	74-95-3	<5.00	5.00	50.0	52.4	105	72 - 129	50.0	54.4	109	4	30
Dichlorodifluoromethane	75-71-8	<5.00	5.00	50.0	50.8	102	58 - 140	50.0	50.0	100	2	30
Ethylbenzene	100-41-4	<5.00	5.00	50.0	49.5	99	74 - 126	50.0	48.8	98	1	30
Hexachlorobutadiene	87-68-3	<5.00	5.00	50.0	49.6	99	61 - 144	50.0	46.3	93	7	30
Isopropylbenzene (Cumene)	98-82-8	<5.00	5.00	50.0	51.7	103	71 - 125	50.0	51.1	102	1	30
m,p-Xylene	136777-61-2	<10.0	10.0	100	102	102	74 - 126	100	103	103	1	30
Methyl iodide	74-88-4	<5.00	5.00	50.0	58.7	117	57 - 141	50.0	58.5	117	0	30
Methylene chloride	75-09-2	<5.00	5.00	50.0	49.7	99	68 - 132	50.0	51.9	104	4	30
Naphthalene	91-20-3	<5.00	5.00	50.0	42.3	85	57 - 138	50.0	45.9	92	8	35
n-Butylbenzene	104-51-8	<5.00	5.00	50.0	49.2	98	69 - 134	50.0	47.1	94	4	30
n-Propylbenzene	103-65-1	<5.00	5.00	50.0	48.9	98	75 - 129	50.0	47.0	94	4	30
o-Xylene	95-47-6	<5.00	5.00	50.0	48.2	96	73 - 130	50.0	48.0	96	0	30
sec-Butylbenzene	135-98-8	<5.00	5.00	50.0	48.4	97	70 - 136	50.0	45.8	92	6	30
Styrene	100-42-5	<5.00	5.00	50.0	57.1	114	71 - 127	50.0	58.0	116	2	30
tert-Butyl methyl ether (MTBE)	1634-04-4	<5.00	5.00	50.0	42.3	85	71 - 125	50.0	46.0	92	8	30

GC/MS Volatiles QC Summary

Analytical Batch 614290	Client ID	MB614290		LCS614290				LCSD614290				
	GCAL ID	1702973		1702974				1702975				
	Sample Type	MB		LCS				LCSD				
	Prep Date	NA		NA				NA				
	Analysis Date	07/17/2017 10:18		07/17/2017 08:45				07/17/2017 09:08				
	Matrix	Water		Water				Water				
EPA 8260B		Units Result	ug/L LOQ	Spike Added	Result	%R	Control Limits%R	Spike Added	Result	%R	RPD	RPD Limit
tert-Butylbenzene	98-06-6	<5.00	5.00	50.0	45.3	91	72 - 126	50.0	43.7	87	4	30
Tetrachloroethene	127-18-4	<5.00	5.00	50.0	49.6	99	68 - 128	50.0	49.1	98	1	30
Toluene	108-88-3	<5.00	5.00	50.0	47.1	94	72 - 120	50.0	48.1	96	2	20
trans-1,2-Dichloroethene	156-60-5	<5.00	5.00	50.0	49.6	99	69 - 132	50.0	50.0	100	1	30
trans-1,3-Dichloropropene	10061-02-6	<5.00	5.00	50.0	51.4	103	71 - 131	50.0	53.6	107	4	30
trans-1,4-Dichloro-2-butene	110-57-6	<5.00	5.00	50.0	55.6	111	56 - 132	50.0	59.4	119	7	30
Trichloroethene	79-01-6	<5.00	5.00	50.0	51.0	102	76 - 129	50.0	52.3	105	3	20
Trichlorofluoromethane	75-69-4	<5.00	5.00	50.0	55.6	111	72 - 136	50.0	63.5	127	13	30
Trichlorotrifluoroethane	76-13-1	<5.00	5.00	50.0	60.1	120	72 - 136	50.0	58.7	117	2	30
Vinyl acetate	108-05-4	<5.00	5.00	50.0	35.4	71	54 - 147	50.0	35.2	70	1	30
Vinyl chloride	75-01-4	<2.00	2.00	50.0	52.1	104	68 - 132	50.0	53.0	106	2	30
Xylene (total)	1330-20-7	<15.0	15.0	150	150	100	74 - 127	150	151	101	1	30
Surrogate												
1,2-Dichloroethane-d4	17060-07-0	51.3	103	50	51.3	103	71 - 127	50	51.9	104	NA	NA
4-Bromofluorobenzene	460-00-4	48.5	97	50	51.6	103	78 - 130	50	52.5	105	NA	NA
Dibromofluoromethane	1868-53-7	54.2	108	50	52.4	105	77 - 127	50	53.4	107	NA	NA
Toluene d8	2037-26-5	51.3	103	50	49	98	76 - 134	50	49.6	99	NA	NA

CHAIN OF CUSTODY RECORD

GCAL ANALYTICAL LABORATORIES, LLC
7979 Innovation Park Dr., Baton Rouge, LA 70820-7402
Phone: 225.769.4900 • Fax: 225.767.5717 • www.gcal.com

Client ID: 4447 - Ramboll ENVIRON International Corp
SDG: 217071411
PM: SAB3

Report to:
Client: RAMBOLL ENVIRON
Address: 1600 PARKWOOD CIR SE, STE 310
ATLANTA, GA 30339
Contact: ROB PATCHETT, KEITH COLE
Phone:
E-mail: RPATCHETT@RAMBOLL.COM
KCOLE@RAMBOLL.COM

Bill to:
Client: SAME
Address:
Contact:
Phone:
E-mail:

P.O. Number
Project Name/Number
Sampled By:

Analytical Requests & Method: 8260B - CHLORINATED VOCs

GCAL use only:
Custody Seal used ☐ yes ☐ no
intact ☐ yes ☐ no
Temperature °C 0.3E29
62CRM

☐ Dissolved Analysis Requested
☐ Field filtered
☐ Lab filtered

Matrix[1]	Date	Time (2400)	Comp	Grab	Sample Description	No Containers	HCL	Preservative
GW	07/12/17	17:30		X	MW-15 20170712	3	X	STANDARD TAT
		16:15		X	MW-19 20170712		X	
		15:37		X	MW-21 20170712		X	
		18:53		X	MW-25D 20170712		X	
		14:22		X	MW-27D 2017		X	
		—		X	DUP-01 20170712		X	
		—	X		TB-01 20170712		X	

1 2 3 4 5 6 7

Air Bill No: 7795 9248 3553

Turn Around Time (Business Days): ☐ 24h* ☐ 48h* ☐ 3 days* ☐ 1 week* ☒ Standard (Per Contract/Quote)

Relinquished by: (Signature)	Date:	Time:	Received by: (Signature)	Date:	Time:
AUSTIN KELLY	07/13/2017	1105	HUGO ANEZ	7/13/17	11:05
HUGO ANEZ	7/13/17		FEDEX	7/13/17	
	7-14-17	0925		7-14-17	0925

Note:

By submitting these samples, you agree to GCAL's terms and conditions contained in our most recent schedule of services.

Matrix[1]: W = water, S = solid, L = liquid, T = tissue

*Requires prior approval, rush charges may apply.

We cannot accept verbal changes. Please email written changes to your PM.

WHITE: CLIENT FINAL REPORT - CANARY: CLIENT

SAMPLE RECEIVING CHECKLIST

SAMPLE DELIVERY GROUP 217071411

Client **PM** SAB3 4447 - Ramboll ENVIRON International Corp	**Transport Method** FEDEX
Profile Number 229430	**Received By** Reese, Sean M.
Line Item(s) 1 - Waters	**Receive Date(s)** 07/14/17

CHECKLIST	YES	NO
Samples received with proper thermal and chemical preservation?	☑	☐
Radioactivity is <1600 cpm? If no, record cpm value in notes section.	☑	☐
If present, were custody seals intact?	☑	☐
COC relinquished and complete (including sampleIDs, collect dates/times, and sampler)?	☑	☐
All containers received in good condition and within hold time?	☑	☐
All sample labels and containers received match the chain of custody?	☑	☐
Preservation checked at receipt if necessary? Except: VOC, Coliform, TOC, O&G, DOC	☐	☑
Preservative added to any containers?	☐	☑
If received, was headspace for VOC water containers < 6mm?	☑	☐
Samples collected in containers provided by GCAL?	☑	☐

COOLERS

Airbill	Thermometer ID: E29	Temp °C
7795 9548 3553		0.3

DISCREPANCIES

None

LAB PRESERVATIONS

None

NOTES

Revision 1.6

Page 1 of 1

Appendix E
EPD Letter and Risk Reduction Standard Calculations

GEORGIA
DEPARTMENT OF NATURAL RESOURCES
ENVIRONMENTAL PROTECTION DIVISION

Richard E. Dunn, Director

Land Protection Branch
2 Martin Luther King, Jr. Drive
Suite 1054, East Tower
Atlanta, Georgia 30334
404-657-8600

August 10, 2017

Rexmet Corporation
c/o Mr. John Rex
P.O. Box 270
Landsdale, PA 19446

Subject: Amended Risk Reduction Standards Certification - Groundwater
Carolina Commercial Heat Treat Property, HSI # 10341
1690 Highway 138
Conyers, Rockdale County, Georgia
Tax Parcel 069001003L

Dear Mr. Rex:

The Georgia Environmental Protection Division (EPD) has reviewed your request to amend the above referenced site's risk reduction standards (RRS) groundwater certification. Based on the review of the RRS calculations provided during the April 26, 2017 meeting, EPD concurs that the groundwater at the property are in compliance with the established Type 2 RRS. The following editorial discrepancies were noted with the sample calculations, but they do not impact the RRS calculations as presented.

1. Table 5 and Table 6 are incorrectly labeled as "Type 4 RRS for PCE in Groundwater." Based on the generic exposure assumptions provided in the sample calculations, the illustration is actually the non-cancer and cancer risks for a Type 2 residential adult and child RRS respectively. Please revise the table headings or update the exposure factors to reflect risk to an on-site commercial worker.

2. Although the cancer-based inhalation RRS [$(RRS_i)_c$] is correct in Table 5, the inhalation cancer slope factor (SF_i) is listed incorrectly as 9.1E-03 instead of 9.1E-04 kg-day/mg. Please revise accordingly.

EPD anticipates receipt of the Compliance Status Report (CSR), along with the proposed environmental covenants by December 15, 2017. If you have any questions regarding this matter, please contact David DuBose at 404-657-8686.

Sincerely,

Kevin Collins
Unit Coordinator
Response and Remediation Program

c: Keith Cole, Environ (via email)
John Spinrad, Arnall Golden Gregory (via email)

File: HSI #10341

S:\RDRIVE\DDuBose\HSI Sites\10341 - CCHT\VIRP 2017\2017-07 Revised RRS Letter.docx

CCHT - HSI No. 10341
Conyers, Georgia

Detected Regulated Substance	Type 1 RRS (mg/L)	Source of Type 1 Standard	Type 2 RRS (mg/L)	Source of Type 2 *
Tetrachloroethene	**0.005**	A-III	**0.019**	RAGS c

	Risk Reduction Standard exceeded.
*	Source of Type 2 RRS: "T1" for Type 1, "RAGS c" for carcinogenic RAG
A-III	Appendix III Table 1.
RAGS	Risk Assessment Guidance
RRS	Risk Reduction Standard.

Table 1 - Toxicity Values
CCHT - HSI No. 10341
Conyers, Georgia

Constituent	Cancer Slope Factors (kg-day/mg) CSFo Oral	(ref)	CSFi Inhalation	(ref)	Weight of Evidence	Reference Doses (mg/kg/day) RfDo Oral	(ref)	RfDi Inhalation	(ref)
Tetrachloroethene	2.10E-03	2	9.10E-04	2	B2	6.00E-03	1	1.14E-02	2

A	Known human carcinogen
B2	Probable human carcinogen
C	Possible human carcinogen
D	Not classifiable as to human carcinogenicity

1. IRIS, 2010.
2. ORNL, 2009.

Table 2 - Types 1 and 2 Risk Reduction Standards for Groundwater
CCHT - HSI No. 10341
Conyers, Georgia

Detected Regulated Substance	Type 1 RRS (mg/L)	Source of Type 1 Standard	Type 2 RRS (mg/L)	Source of Type 2 *
Tetrachloroethene	**0.005**	A-III	**0.019**	RAGS c

	Risk Reduction Standard exceeded.
*	Source of Type 2 RRS: "T1" for Type 1, "RAGS c" for carcinogenic RAGS calculation.
A-III	Appendix III Table 1.
RAGS	Risk Assessment Guidance
RRS	Risk Reduction Standard.

Table 4 - Risk Reduction Standards for Potential Groundwater Ingestion Based on Residential Child (Type 2) Exposure
CCHT - HSI No. 10341
Conyers, Georgia

Constituent	CANCER EFFECTS			NON-CANCER EFFECTS			
	Route-Specific RRS (mg/L)		RRSc	Route-Specific RRS (mg/L)		RRSnc	RRS
	Oral	Inhalation	(mg/L)	Oral	Inhalation	(mg/L)	(mg/L)
Tetrachloroethene	8.7E-01	2.7E-01	0.2	9.4E-02	2.4E-02	0.019	0.019

RRSc (cancer effects) is calculated using a target cancer risk (TCR) of 10^{-5}; RRSnc (non-cancer effects) is calculated using a target hazard

mg/L Milligrams per liter.

Table 5 - Example Calculation of Type 2 Risk Reduction Standards for PCE in Groundwater, Adult
CCHT - HSI No. 10341
Conyers, Georgia

ROUTE-SPECIFIC RRSs:

Oral:

$$(RRS_o)_{C\ or\ NC} = \frac{(TCR\ or\ THI)\ x\ BW\ x\ (AT_C\ or\ AT_{NC})}{IR_w\ x\ EF\ x\ ED\ x\ [SF_O\ or\ (1/RfD_O)]}$$

Inhalation:

$$(RRS_i)_{C\ or\ NC} = \frac{(TCR\ or\ THI)\ x\ (AT_C\ or\ AT_{NC})\ x\ BW}{K\ x\ IR_a\ x\ EF\ x\ ED\ x\ [SF_i\ or\ (1/RfD_i)]}$$

Cancer Effects RRS:

$$RRS_C = \frac{1}{\frac{1}{(RRS_O)_C} + \frac{1}{(RRS_i)_C}}$$

Non-Cancer Effects RRS:

$$RRS_{NC} = \frac{1}{\frac{1}{(RRS_O)_{NC}} + \frac{1}{(RRS_i)_{NC}}}$$

RRS = Minimum result of RRS_C and RRS_{NC}.

where:

AT_C	Averaging time for cancer effects (25,550 days).
AT_{NC}	Averaging time for non-cancer effects; ED x 365 days/year.
BW	Body weight (70 kg adult) (GAEPD, 2003).
ED	Exposure duration (30 years; GAEPD, 2003).
EF	Exposure frequency (350 days/year; GAEPD, 2003).
IR_{air}	Inhalation rate (15 m^3/day; GAEPD, 2003).
IR_w	Ingestion rate of drinking water (2 L/day).
K	Volatilization factor for volatile organic compounds (VOCs) from household tap water (0.5 L/m^3) (USEPA, 1991).
RfDi	Reference dose for inhalation (mg/kg/day).
RfDo	Reference dose for ingestion (mg/kg/day).
RRS	Risk reduction standard for groundwater (mg/L); minimum of the RRS_C (based on cancer effects) and the RRS_{NC} (based on non-cancer effects), which are based on the route-specfic RRSs (RRSo for the oral route and RRSi for the inhalation route).
TCR	Target cancer risk (unitless); results presented for TCR value of 10^{-5} (10^{-4} for Class C carcinogens).
THI	Target hazard index (unitless); results presented for THI value of 1.

SAMPLE CALCULATIONS, Tetrachloroethene, Residential Adult Exposure (Type 2).

CANCER EFFECTS:

Oral:

$$(RRS_O)_C = \frac{10^{-5}\ x\ 70\ kg\ x\ 25{,}550\ days}{2\ L/day\ x\ 350\ days/yr\ x\ 30\ yrs\ x\ (0.0021\ kg\text{-}day/mg)}$$

$$= 0.41\ mg/L$$

Inhalation:

$$(RRS_i)_C = \frac{10^{-5}\ x\ 70\ kg\ x\ 25{,}550\ days}{0.5\ L/m^3\ x\ 350\ days/yr\ x\ 30\ yrs\ x\ 15\ m^3/day\ x\ (0.00091\ kg\text{-}day/}$$

$$= mg)\ 0.25\ mg/L$$

CANCER EFFECTS RRS:

$$\mathbf{RRS_C} = \frac{1}{\frac{1}{0.41\ mg/L} + \frac{1}{0.25\ mg/L}} = \mathbf{0.15\ mg/L}$$

Table 5 - Example Calculation of Type 2 Risk Reduction Standards for PCE in Groundwater, Adult
CCHT - HSI No. 10341
Conyers, Georgia

NON-CANCER EFFECTS:

Oral:

$$(RRS_o)_{NC} = \frac{1 \text{ x } 70 \text{ kg x } 10{,}950 \text{ days}}{2 \text{ L/day x } 350 \text{ days/yr x } 30 \text{ yrs x } (1/0.006 \text{ mg/kg-day})}$$

$$= 0.22 \text{ mg/L}$$

Inhalation:

$$(RRS_I)_{NC} = \frac{1 \text{ x } 70 \text{ kg x } 10{,}950 \text{ days}}{0.5 \text{ L/m}^3 \text{ x } 350 \text{ days/yr x } 30 \text{ yrs x } 15 \text{ m}^3\text{/day x } (1/0.0114 \text{ mg/kg-day})}$$

$$= 0.11 \text{ mg/L}$$

NON-CANCER EFFECTS RRS:

$$\mathbf{RRS_{NC}} = \frac{1}{\frac{1}{0.22 \text{ mg/L}} + \frac{1}{0.11 \text{ mg/L}}} = \mathbf{0.074 \text{ mg/L}}$$

RRS_{Adult} = Minumum result of RRS_C (0.15 mg/L) and RRS_{NC} (0.072 mg/L) = 0.072 mg/L

Table 6 - Example Calculation of Type 2 Risk Reduction Standards for PCE in Groundwater, Child
CCHT - HSI No. 10341
Conyers, Georgia

ROUTE-SPECIFIC RRSs:

Oral:

$$(RRS_o)_{C\ or\ NC} = \frac{(TCR\ or\ THI)\ x\ BW\ x\ (AT_C\ or\ AT_{NC})}{IR_w\ x\ EF\ x\ ED\ x\ [SF_O\ or\ (1/RfD_O)]}$$

Inhalation:

$$(RRS_i)_{C\ or\ NC} = \frac{(TCR\ or\ THI)\ x\ (AT_C\ or\ AT_{NC})\ x\ BW}{K\ x\ IR_a\ x\ EF\ x\ ED\ x\ [SF_i\ or\ (1/RfD_i)]}$$

Cancer Effects RRS:

$$RRS_C = \frac{1}{\frac{1}{(RRS_O)_C} + \frac{1}{(RRS_i)_C}}$$

Non-Cancer Effects RRS:

$$RRS_{NC} = \frac{1}{\frac{1}{(RRS_O)_{NC}} + \frac{1}{(RRS_i)_{NC}}}$$

RRS = Minimum result of RRS_C and RRS_{NC}.

where:

AT_C	Averaging time for cancer effects (25,550 days).
AT_{NC}	Averaging time for non-cancer effects; ED x 365 days/year.
BW	Body weight (15 kg adult) (GAEPD, 2003).
ED	Exposure duration (6 years; GAEPD, 2003).
EF	Exposure frequency (350 days/year; GAEPD, 2003).
IR_{air}	Inhalation rate (15 m^3/day; GAEPD, 2003).
IR_w	Ingestion rate of drinking water (1 L/day).
K	Volatilization factor for volatile organic compounds (VOCs) from household tap water (0.5 L/m^3) (USEPA, 1991).
RfDi	Reference dose for inhalation (mg/kg/day).
RfDo	Reference dose for ingestion (mg/kg/day).
RRS	Risk reduction standard for groundwater (mg/L); minimum of the RRS_C (based on cancer effects) and the RRS_{NC} (based on non-cancer effects), which are based on the route-specfic RRSs (RRSo for the oral route and RRSi for the inhalation route).
TCR	Target cancer risk (unitless); results presented for TCR value of 10^{-5} (10^{-4} for Class C carcinogens).
THI	Target hazard index (unitless); results presented for THI value of 1.

SAMPLE CALCULATIONS, Tetrachloroethene, Residential Child Exposure (Type 2).

CANCER EFFECTS:

Oral:

$$(RRS_O)_C = \frac{10^{-5}\ x\ 15\ kg\ x\ 25{,}550\ days}{1\ L/day\ x\ 350\ days/yr\ x\ 6\ yrs\ x\ (0.0021\ kg\text{-}day/mg)}$$

$$= 0.87\ mg/L$$

Inhalation:

$$(RRS_i)_C = \frac{10^{-5}\ x\ 15\ kg\ x\ 25{,}550\ days}{0.5\ L/m^3\ x\ 350\ days/yr\ x\ 6\ yrs\ x\ 15\ m^3/day\ x\ (0.00091\ kg\text{-}day/}$$

$$= mg)\ 0.27\ mg/L$$

CANCER EFFECTS RRS:

$$\mathbf{RRS_C} = \frac{1}{\frac{1}{0.87\ mg/L} + \frac{1}{0.27\ mg/L}} = \mathbf{0.20\ mg/L}$$

Table 6 - Example Calculation of Type 2 Risk Reduction Standards for PCE in Groundwater, Child
CCHT - HSI No. 10341
Conyers, Georgia

NON-CANCER EFFECTS:

Oral:

$$(RRS_o)_{NC} = \frac{1 \text{ x } 15 \text{ kg x } 2{,}190 \text{ days}}{1 \text{ L/day x } 350 \text{ days/yr x } 6 \text{ yrs x } (1/0.006 \text{ mg/kg-day})}$$

$$= 0.094 \text{ mg/L}$$

Inhalation:

$$(RRS_I)_{NC} = \frac{1 \text{ x } 15 \text{ kg x } 2{,}190 \text{ days}}{0.5 \text{ L/m}^3 \text{ x } 350 \text{ days/yr x } 6 \text{ yrs x } 15 \text{ m}^3\text{/day x } (1/0.0114 \text{ mg/kg-day})}$$

$$= 0.024 \text{ mg/L}$$

NON-CANCER EFFECTS RRS:

$$\mathbf{RRS_{NC}} = \frac{1}{\frac{1}{0.094 \text{ mg/L}} + \frac{1}{0.021 \text{ mg/L}}} = \mathbf{0.019 \text{ mg/L}}$$

RRS_{Adult} = Minumum result of RRS_C (0.20 mg/L) and RRS_{NC} (0.019 mg/L) = 0.019 mg/L

Appendix F
Johnson & Ettinger Vapor Intrusion Model Calculations

DATA ENTRY SHEET

GW-SCREEN Version 3.0; 04/03

Reset to Defaults

CALCULATE RISK-BASED GROUNDWATER CONCENTRATION (enter "X" in "YES" box)

YES: x

OR

CALCULATE INCREMENTAL RISKS FROM ACTUAL GROUNDWATER CONCENTRATION (enter "X" in "YES" box and initial groundwater conc. below)

YES:

ENTER Chemical CAS No. (numbers only, no dashes)	ENTER Initial groundwater conc., C_W (µg/L)	Chemical
127184	4.13E+02	Tetrachloroethylene

MORE ↓

ENTER Depth below grade to bottom of enclosed space floor, L_F (cm)	ENTER Depth below grade to water table, L_{WT} (cm)	ENTER SCS soil type directly above water table	ENTER Average soil/ groundwater temperature, T_S (°C)	ENTER Average vapor flow rate into bldg. (Leave blank to calculate) Q_{soil} (L/m)
15	457	SC	19.4	

MORE ↓

ENTER Vadose zone SCS soil type (used to estimate soil vapor permeability)		ENTER User-defined vandose zone soil vapor permeability, k_v (cm^2)	ENTER Vadose zone SCS soil type (Lookup Soil Parameters)	ENTER Vadose zone soil dry bulk density, ρ_b^V (g/cm^3)	ENTER Vadose zone soil total porosity, n^V (unitless)	ENTER Vadose zone soil water-filled porosity, θ_w^V (cm^3/cm^3)
SC	OR		SC	1.63	0.385	0.197

MORE ↓

ENTER Target risk for carcinogens, TR (unitless)	ENTER Target hazard quotient for noncarcinogens, THQ (unitless)	ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)
1.0E-05	1	70	30	30	350

Used to calculate risk-based groundwater concentration.

CHEMICAL PROPERTIES SHEET

ABC

Diffusivity in air, D_a (cm^2/s)	Diffusivity in water, D_w (cm^2/s)	Henry's law constant at reference temperature, H ($atm\text{-}m^3/mol$)	Henry's law constant reference temperature, T_R (^oC)	Enthalpy of vaporization at the normal boiling point, $\Delta H_{v,b}$ (cal/mol)	Normal boiling point, T_B (^oK)	Critical temperature, T_C (^oK)	Organic carbon partition coefficient, K_{oc} (cm^3/g)	Pure component water solubility, S (mg/L)	Unit risk factor, URF $(\mu g/m^3)^{-1}$	Reference conc., RfC (mg/m^3)
5.05E-02	9.46E-06	1.77E-02	25	8,288	394.40	620.20	9.49E+01	2.06E+02	2.6E-07	4.0E-02

END

INTERMEDIATE CALCULATIONS SHEET

Source-building separation, L_T (cm)	Vadose zone soil air-filled porosity, θ_a^V (cm^3/cm^3)	Vadose zone effective total fluid saturation, S_{te} (cm^3/cm^3)	Vadose zone soil intrinsic permeability, k_i (cm^2)	Vadose zone soil relative air permeability, k_{rg} (cm^2)	Vadose zone soil effective vapor permeability, k_v (cm^2)	Thickness of capillary zone, L_{cz} (cm)	Total porosity in capillary zone, n_{cz} (cm^3/cm^3)	Air-filled porosity in capillary zone, $\theta_{a,cz}$ (cm^3/cm^3)	Water-filled porosity in capillary zone, $\theta_{w,cz}$ (cm^3/cm^3)	Floor-wall seam perimeter, X_{crack} (cm)
442	0.188	0.299	1.77E-09	0.837	1.48E-09	30.00	0.385	0.030	0.355	4,000

Bldg. ventilation rate, $Q_{building}$ (cm^3/s)	Area of enclosed space below grade, A_B (cm^2)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave. groundwater temperature, $\Delta H_{v,TS}$ (cal/mol)	Henry's law constant at ave. groundwater temperature, H_{TS} ($atm\text{-}m^3/mol$)	Henry's law constant at ave. groundwater temperature, H'_{TS} (unitless)	Vapor viscosity at ave. soil temperature, μ_{TS} (g/cm-s)	Vadose zone effective diffusion coefficient, D^{eff}_V (cm^2/s)	Capillary zone effective diffusion coefficient, D^{eff}_{cz} (cm^2/s)	Total overall effective diffusion coefficient, D^{eff}_T (cm^2/s)
1.69E+04	1.00E+06	4.00E-04	15	9,458	1.30E-02	5.43E-01	1.78E-04	1.30E-03	6.67E-06	9.18E-05

Diffusion path length, L_d (cm)	Convection path length, L_p (cm)	Source vapor conc., C_{source} ($\mu g/m^3$)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg., Q_{soil} (cm^3/s)	Crack effective diffusion coefficient, D^{crack} (cm^2/s)	Area of crack, A_{crack} (cm^2)	Exponent of equivalent foundation Peclet number, $exp(Pe^f)$ (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg. conc., $C_{building}$ ($\mu g/m^3$)	Unit risk factor, URF ($\mu g/m^3)^{-1}$	Reference conc., RfC (mg/m^3)
442	15	5.43E+02	0.10	1.47E+00	1.30E-03	4.00E+02	1.60E+12	1.07E-05	5.83E-03	2.6E-07	4.0E-02

RESULTS SHEET

RISK-BASED GROUNDWATER CONCENTRATION CALCULATIONS:

Indoor exposure groundwater conc., carcinogen (µg/L)	Indoor exposure groundwater conc., noncarcinogen (µg/L)	Risk-based indoor exposure groundwater conc., (µg/L)	Pure component water solubility, S (µg/L)	Final indoor exposure groundwater conc., (µg/L)
1.61E+04	7.15E+03	7.15E+03	2.06E+05	7.15E+03

INCREMENTAL RISK CALCULATIONS:

Incremental risk from vapor intrusion to indoor air, carcinogen (unitless)	Hazard quotient from vapor intrusion to indoor air, noncarcinogen (unitless)
NA	NA

MESSAGE SUMMARY BELOW:
MESSAGE: The values of Csource and Cbuilding on the INTERCALCS worksheet are based on unity and do not represent actual values.

END

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