

Prepared for:

CEA, LLC
633 Chestnut Street, Suite 1640
Chattanooga, TN 37450

**SEVENTH SEMIANNUAL VRP PROGRESS REPORT
CAPITOL USA – DALTON FACILITY
Dalton, Georgia**

Prepared by:



1050 Crown Pointe Parkway, Suite 550
Atlanta, Georgia 30338
Tel: 404-315-9113

April, 2015

DCN: RIVEDAPR007

SEVENTH SEMIANNUAL VRP PROGRESS REPORT

CAPITOL USA – DALTON FACILITY

Dalton, Georgia

Prepared For:

CEA, LLC
633 Chestnut Street, Suite 1640
Chattanooga, TN 37450

Prepared By:



1050 Crown Pointe Parkway, Suite 550
Atlanta, GA 30338
Tel: 404-315-9113

A handwritten signature in blue ink, reading "Kirk Kessler", written over a horizontal line.

Kirk Kessler, P.G.
Principal

A handwritten signature in blue ink, reading "T Bullman", written over a horizontal line.

Timmerly Bullman, P.E.
Associate

April 2015

**SEVENTH SEMIANNUAL VRP PROGRESS REPORT
CAPITOL USA – DALTON FACILITY
Dalton, Georgia**

TABLE OF CONTENTS

PROFESSIONAL GEOLOGIST CERTIFICATION	1
1 INTRODUCTION	2
2 VRP PROJECT MANAGEMENT	3
2.1 Professional Geologist Oversight.....	3
2.2 Milestone Schedule	3
2.3 Conceptual Site Model.....	3
3 SUMMARY OF REMEDIATION ACTIVITIES.....	4
3.1 Remedial Action Plan.....	4
3.2 Site Preparations	4
3.3 Area A and B (Outside AST).....	4
3.4 Area C (Inside AST).....	5
3.5 Material Management	5
3.6 Post-Remedial Action Condition – Solid Aquifer Matrix Media.....	6
3.7 Post-Remedial Action Condition - Groundwater	6
3.7.1 Sampling	6
3.7.2 Groundwater Modeling.....	7
3.8 Summary	7
4 VAPOR INTRUSION PATHWAY	8
5 REFINED DIRECT CONTACT RISK EVALUATION.....	9
5.1 Introduction	9
5.2 Soil/Solid Aquifer Matrix.....	9
5.3 Groundwater	10
6 REFERENCES	11

LIST OF TABLES

Table 1	Analytical Results for Constituents Detected in Subsurface Solids
Table 2	Groundwater Analytical Results – November 2014

LIST OF FIGURES

Figure 1	Topographic Map
Figure 2	Aerial of Property and Site Features
Figure 3	Projected Milestone Schedule
Figure 4	Remediation Areas
Figure 5	Post-Excavation Solid Matrix Condition
Figure 6a	Groundwater PCE (November 2014)
Figure 6b	Groundwater TCE (November 2014)
Figure 6c	Groundwater cis-DCE (November 2014)
Figure 6d	Groundwater Vinyl Chloride (November 2014)
Figure 7a	Groundwater 1,1,1-TCA (November 2014)
Figure 7b	Groundwater 1,1-DCA (November 2014)
Figure 7c	Groundwater CA (November 2014)
Figure 8	Chlorinated Ethene Modeling Results (November 2014)
Figure 9	Chlorinated Ethane Modeling Results (November 2014)
Figure 10	Environmental Covenant Restricted Area

LIST OF APPENDICES

Appendix A	Professional Geologist Summary of Hours
Appendix B	Conceptual Site Model
Appendix C	Photolog
Appendix D	Fill Material Laboratory Data Report
Appendix E	Solid Matrix Laboratory Data Report
Appendix F	Manifests and TCLP Laboratory Data Report
Appendix G	Groundwater Laboratory Data Report and Well Forms
Appendix H	Risk Evaluation Calculations

PROFESSIONAL GEOLOGIST CERTIFICATION

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

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

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

Kirk Kessler GA000685

Printed Name and GA PE/PG Number

04/07/2015

Date

Signature and Stamp



1 INTRODUCTION

CEA, LLC (CEA) submitted a revised application for the Voluntary Remediation Program (VRP) (which the EPD refers to as the Voluntary Investigation and Remediation Plan, VIRP; EPS, 2011) for the Capitol USA – Dalton Facility in May 2011 (HSI Site 10795). In a letter dated October 3, 2011, the Georgia Environmental Protection Division (EPD) accepted CEA as a participant into the VRP. Pursuant to the conditions of the acceptance letter, semiannual progress reports have been submitted since April 2012, the most recent of which was submitted on September 23, 2014. This CSR includes certification by the Professional Geologist (Kirk Kessler) specified in the VIRP.

The Capitol property is located at 300 Cross Plains Boulevard, Dalton, Georgia (Property). Figure 1 is a topographic map of the surrounding area, and Figure 2 is an aerial photograph of the Property. The Site is located on a total parcel of approximately 15.31 acres. The Property is currently owned by Barrett Properties, who has given CEA express permission to perform corrective action at the Property. QEP Co., Inc. is currently operating on the Property.

This Seventh Semiannual Progress Report (Progress Report) summarizes (by task) what actions have been taken since the Sixth Semiannual Progress Report was submitted (September 2014) and the upcoming activities. The primary activities that have taken place during this period are implementation of the remediation plan outlined in the Fifth Progress Report, and a final groundwater sampling event. The EPD sent a letter dated February 26, 2015 that contained comments associated with the Fifth and Sixth Progress Reports. These comments are addressed in this Progress Report.

2 VRP PROJECT MANAGEMENT

2.1 Professional Geologist Oversight

This Progress Report includes certification by the Professional Geologist (Kirk Kessler) specified in the VIRP. Appendix A contains a monthly summary of hours invoiced and description of services provided.

2.2 Milestone Schedule

A revised projected milestone schedule has been attached as Figure 3.

2.3 Conceptual Site Model

The Conceptual Site Model (CSM) has been updated with information collected as part of a pilot test and pre-remediation sampling. The updated CSM is included as Appendix B.

3 SUMMARY OF REMEDIATION ACTIVITIES

3.1 Remedial Action Plan

The final remediation plan was submitted as part of the Fifth Progress Report (EPS, 2014). The three remedial action areas described in the plan are shown on Figure 4. Area A is to the north of the AST containment area, Area B is to the east of the AST containment area and Area C is within the AST containment area at the location of the highest observed concentrations within the AST containment area. The plan was to excavate in Areas A and B to the nearest historical sample locations (horizontally and vertically) that had results below the Remedial Extent Level (REL), which is 7.5 milligrams per kilogram (mg/kg) for tetrachloroethene (PCE), 7 mg/kg for trichloroethene (TCE) and 16 mg/kg for 1,1,1-trichloroethane (1,1,1-TCA). As discussed with the EPD, a focused excavation was planned in the AST containment area (Area C) to encompass AST-9 and IW-1. After excavating, a sample was to be collected at the bottom of the excavated area and oxidant was to be poured into the open excavation area to address the remaining condition.

3.2 Site Preparations

Remediation activities were conducted starting September 30, 2014. In preparation for the excavation work, the fencing around the AST unit was removed and the concrete in Areas A and C was saw cut and removed. Additionally, the pilot test wells (IW-1 and IW-2) were removed.

3.3 Area A and B (Outside AST)

As previously mentioned, historical data was used to define the remediation footprint in Areas A and B. As shown on Figure 4, these areas were to be excavated at least to the nearest historical sample locations (horizontally and vertically) that had results below the REL. The remedial action was executed as planned.

Area A was excavated to a depth of 4 feet (ft), based on SO-3R. The excavation proceeded around a pipe that was approximately 9 inches north of the AST unit being careful not to damage the pipe in any way. No evidence of leaking or staining was noted from the pipe. Similarly, the excavation was conducted around a support column for an awning in the area. A photolog is included as Appendix C.

Area B was excavated to 5 ft. Some odors were observed during excavations in parts of the Area B excavation near the junction of the two AST units. The highest photoionization detector (PID) reading was 95.6 parts per million (ppm). All workers wore respirators as a precaution.

These excavations resulted in removal of source material outside the AST containment area¹. A summary of the excavation areas is shown below.

Area	Horizontal Area (square ft)	Depth (ft)	Volume (cubic yards)
Area A	273	4	40
Area B	519	5	96

Immediately after the subsurface was excavated, the excavated areas were backfilled with 3.5 ft of #57 stone, 0.5 ft of clean soil in Area A and 1.5 ft of clean soil in Area B, which was then compacted to surface grade. The fill was brought in from off-Site. The soil was tested prior to being brought on-Site. A copy of the analytical report is included as Appendix D. Concrete was replaced to grade in Area A. Concrete was also added to the area east of the AST (which was previously covered with gravel) to cover the entire area east of the AST as shown on Figure 4 and in Appendix C.

3.4 Area C (Inside AST)

A focused excavation was undertaken in the AST containment area to encompass AST-9 and IW-1. A 3 ft by 3 ft section of concrete was removed and the soil was hand excavated as deep as was feasible, which was 3 ft. Once the excavation was complete, a sample was collected at the bottom of the excavated area and analyzed for PCE, TCE and 1,1,1-TCA (sample called AreaC). The laboratory data report is included in Appendix E and the results are shown in Table 1. Oxidant application is a two phase process with an activator being added first, followed by the oxidant the next day. After the sample was collected, approximately 40 gallons of the oxidant activator was mixed and poured into the open excavation area. The area was covered and the reactant was allowed to infiltrate overnight. The following day approximately 40 gallons of the oxidant was mixed and poured into the excavation area. After allowing for infiltration, the excavation area was then backfilled with #57 stone. A specialty sealing contractor (Blackwell's Inc) patched and sealed the concrete slab.

3.5 Material Management

After excavations were complete, a composite sample was collected of the soil in the roll-offs and analyzed using the Toxicity Characteristic Leaching Procedure (TCLP) for volatile organic compounds, semi-volatile organic compounds, pesticides, herbicides and metals (laboratory data report is included in Appendix F). As the soil tested non-hazardous, it was transported off-Site for

¹ Note, the location IW-2 is in an area associated with the AST containment area piping and support structures and is inaccessible for excavation. However, oxidant was added through this well during pilot test treating the subsurface in this area.

disposal at the Dalton-Whitfield Regional Solid Waste Management Authority's Old Dixie Highway Subtitle-D landfill. Copies of the manifests are included in Appendix F.

3.6 Post-Remedial Action Condition – Solid Aquifer Matrix Media

The remedial action was focused on addressing source material in the solid aquifer matrix, as vadose zone soils were in compliance with Type 1 RRSs prior to the remedial action. Accordingly, this section focuses on the condition of the solid aquifer matrix material. Figure 5 shows the post-remedial condition for solid aquifer matrix material in and around the spill area and AST containment area. This figure excludes the laboratory data associated with soil that was excavated or treated with oxidant. The post-remedial action condition is evaluated below by comparing the representative condition (i.e., 95% upper confidence limit (UCL) on the mean) to REL (SSLmod) to determine if source material has been adequately addressed. The 95% UCL on the mean is commonly used in risk assessments to represent the condition.

Post-Remediation Condition (95% UCL on the mean)

	SSLmod (mg/kg)	Post-Remedial Action Condition (mg/kg)
PCE	7.5	5.5
TCE	7.0	5.0
1,1,1-TCA	16	5.2

The 95% UCL concentrations for the constituents of interest (PCE, TCE, 1,1,1-TCA) are below the SSLmod indicating that source material has been addressed.

3.7 Post-Remedial Action Condition - Groundwater

3.7.1 Sampling

Consistent with the VIRP, semi-annual groundwater sampling was conducted for a period of two years. EPD requested one additional groundwater sampling event to be conducted after the source area remediation, to collect data for a final verification of the groundwater models. Accordingly, the wells used in the groundwater models (MW-3, MW-3D, MW-4, MW-5, MW-15, MW-1R and MW-16) were sampled according to the standard EPA protocols used in previous sampling events and analyzed for the constituents used in the models (PCE, TCE, cis-1,2-dichloroethene (cis-DCE), vinyl chloride (VC), 1,1,1-TCA, 1,1-dichloroethane (1,1-DCA), and chloroethane (CA)). EPS conducted the event the week of November 10, 2014.

Results from this sampling event are included in Table 2. The laboratory data report and well sampling forms are included as Appendix G. Figures 6a, 6b, 6c, and 6d show groundwater concentrations of the chlorinated ethenes (PCE, TCE, cis-DCE, and VC, respectively) from this

sampling event. Similarly, Figures 7a, 7b, and 7c show groundwater concentrations of chlorinated ethanes (1,1,1-TCA, 1,1-DCA, and CA). Similar to previous sampling events, groundwater exhibits the highest concentrations immediately north of the tanker truck spill area with decreasing concentrations in the direction of the groundwater flow (northeast). These figures show that the chlorinated solvent plume continues to be bounded within the Property.

3.7.2 Groundwater Modeling

A groundwater computer model for chlorinated ethenes and a model for chlorinated ethanes using BIOCHLOR were developed and presented in the VIRP. In an effort to conservatively model site conditions, the models were calibrated using the empirical data collected from 2004 through 2007, prior to EHC[®] injections. Therefore, the models assume that there is no positive influence from the injections. The models predict estimated concentrations that are higher than seen in empirical data collected after the injections. Thus, the models conservatively estimate future concentrations.

The groundwater models were run for the year 2014 while plotting the results from the November 2014 sampling event. The results for the chlorinated ethene and chlorinated ethane models for 2014 are shown in Figure 8 and 9, respectively. The comparison of the analytical data to the modeling results in 2014 is similar to previous results. Overall, the model continues to overestimate the concentrations of the constituents, providing a conservative assessment of future conditions.

3.8 Summary

Source material has been adequately addressed as set forth in the approved Remediation Plan and discussions with EPD through a combination of excavation and oxidant addition. No action was needed to address vadose zone soils as they are in compliance with Type 1 RRSs. Although groundwater on the Property exceeds Type 1 RRSs, the point of demonstration (POD) well is in compliance with Type 1 RRSs. Modeling indicates that in the future the POD well and the hypothetical point of exposure (POE) will not have concentrations in excess of the Type 1 RRSs. Additionally, through a combination of addressing the source material and natural attenuation processes, the groundwater condition will continue to improve over time.

4 VAPOR INTRUSION PATHWAY

The EPD's letter dated February 26, 2015 stated that further evaluation of vapor intrusion (VI) is not required at this time. However, the EPD requested that the Uniform Environmental Covenant (UEC) specify the need for a VI evaluation of PCE, TCE and VC if the future if the use of the property changes (e.g., if the site is not operated under an OSHA Hazardous Communication program). CEA is actively investigating several options related to the vapor intrusion issue that may alleviate the concerns for VI issues in the future.

5 REFINED DIRECT CONTACT RISK EVALUATION

5.1 Introduction

The May 2014 Progress Report contained a risk evaluation for whether there is a potential risk or hazard to receptors in order to better inform what is needed in a restrictive environmental covenant for the Site. This section contains refinements to the risk evaluation based on comments provided by the EPD in a letter dated February 26, 2015. Specifically, the following changes were made:

- Skin surface area was changed to 3,470 cm²
- Water ingestion rate was changed to 0.1 L/day
- Exposure frequency was changed to 125 days/year
- Inhalation of volatiles in outdoor air was included
- Body weight was changed to 80 kg

The receptors of interest are future construction or utility workers that may be exposed to the subsurface. As discussed in previous reports, the primary constituents of interest in the soil or solid aquifer matrix are PCE, TCE and 1,1,1-TCA. The primary constituents in groundwater are PCE, TCE, cis-DCE, VC, and 1,1,1-TCA. Thus, these are the constituents that are evaluated in this section.

5.2 Soil/Solid Aquifer Matrix

To evaluate the potential impacts to a construction or utility worker exposed to the subsurface in the impacted area at the site, the formulas used in determining the potential risk or hazard for direct contact with media for calculating risk reduction standards (“RRSs”) were used². The calculations are included in Appendix H. These calculations are based on standard exposure parameters for a construction worker. The calculations also employ a maximum hazard index (“HI”) of 1 or an excess lifetime cancer risk (“ELCR”) of 10⁻⁵ (per EPD Guidance for calculating RRSs). Soil concentrations that are protective of the construction worker were calculated and are presented in the table below. These concentrations are compared against the current, post-remedial action condition at the Site (see Section 3).

It is appropriate and standard risk assessment protocol to use an average concentration to represent the potential exposure to a receptor. The 95% upper confidence limit of the arithmetic mean (95% UCL) is commonly used to represent the upper end of the likely average concentration. The 95% UCLs (based on EPA’s ProUCL software, see Appendix H) for the post-excavation condition at

² These equations are taken from the EPA’s Risk Assessment Guidance for Superfund (EPA, 1991).

the Site are shown in the table below. The protective soil concentrations (the lowest concentrations between those based on an HI of 1 and ELCR of 10^{-5}) are also shown in this table.

Solid Aquifer Matrix Exposure Point Concentrations

Constituent	Protective Soil Concentration (mg/kg)	95% UCL of Arithmetic Mean Post-excavation (mg/kg)
PCE	347	5.5
TCE	16	5.0
1,1,1-TCA	103,951	5.2

The table above shows the protective soil concentrations for all constituents of concern are above the average soil condition (95% UCL of the mean) at the Site. Thus, the construction or utility worker does not have an unacceptable risk due to exposure to the solid aquifer matrix material.

5.3 Groundwater

As the groundwater table is high at the Site, construction or utility workers may potentially have contact with groundwater. The potential risk and hazard for these receptors potentially exposed to groundwater (dermal exposure, incidental ingestion, and inhalation) are presented in Appendix H and summarized below. Protective groundwater concentrations were calculated based on a threshold ELCR of 10^{-5} , an HI of 1 and an exposure of 8 hours per day. The groundwater concentrations that are protective of the construction and utility workers are shown in the table below. Also shown in this table are the 95% UCL of the arithmetic mean using shallow monitoring well data collected during the VRP program (October 2010 – November 2014).

Groundwater Exposure Point Concentrations

Constituent	Protective Concentration (µg/L)	95% UCL of Arithmetic Mean (µg/L)
PCE	446	983
TCE	31	1,432
Cis-DCE	1,422	611
VC	661	91
1,1,1-TCA	80,271	151

As shown in the table above, two constituents (PCE and TCE) have concentrations that are above the protective concentrations. Accordingly, protective measures should be in place if construction or utility workers plan to access the subsurface with groundwater present. In order to be protective of construction and utility works, the Uniform Environmental Covenant (UEC) will restrict access to the area with the highest groundwater concentrations shown on Figure 10. The 95% UCL of the arithmetic mean (included in Appendix H) of the groundwater outside the UEC restricted area are 8.7 µg/L of PCE and 28.8 µg/L of TCE, which are below the protective concentrations.

6 REFERENCES

- Cherry, J.A. and S. Feenstra. 1991. Identification of DNAPL Sites: An Eleven Point Approach. Draft document in Dense Immiscible Phase Liquid Contaminants in Porous and Fractured Media, short course notes. Waterloo Centre for Ground Water Research.
- Cressler, C.W. 1974. Geology and Ground-Water Resources of Gordon, Whitfield, and Murray Counties, Georgia. Earth and Water Division of the Geological Survey of Georgia. Atlanta. 1974.
- EPA. 1996. Soil Screening Guidance: User's Guide. Office of Solid Waste and Emergency Response. Publication 9355.4-23.
- EPA. 1998. Technical Protocol for Evaluating Natural Attenuation of Chlorinated Solvents in Groundwater. Office of Research and Development. EPA/600/R-98/128.
- EPA. 2013a. OSWER Final Guidance for Assessing and Mitigating the Vapor intrusion Pathway from Subsurface Sources to Indoor Air. April 11.
- EPA. 2013b. Vapor Intrusion Screening Level Calculator (VISL). Version 3.1. June.
- EPS. 2008. Source Area Investigation Report. November, 2008.
- EPS. 2009. Corrective Action Plan Addendum. June 12, 2009.
- EPS. 2011. Revised Voluntary Remediation Program Application: Capitol USA-Dalton Facility. May.
- EPS. 2012. First Semiannual VRP Progress Report: Capitol USA-Dalton Facility. April, 2012.
- EPS. 2013a. Third Semiannual VRP Progress Report: Capitol USA-Dalton Facility. April, 2013.
- EPS. 2013b. Fourth Semiannual VRP Progress Report: Capitol USA-Dalton Facility. October, 2013.
- EPS. 2014. Fifth Semiannual VRP Progress Report: Capitol USA-Dalton Facility. May, 2014.
- Tri-State Testing & Drilling, LLC (Tri-State). 2004a. Phase II Environmental Investigation. August, 2004.
- Tri-State. 2004b. Release Notification and Reportable Quantities Screening Method. August 26, 2004.
- WRS Infrastructure & Environment, Inc. (WRS) 2006. Corrective Action Plan, Capitol Adhesives – Dalton Facility. August, 2006.

TABLES

Capitol Adhesives

Table 1. Analytical Results for Constituents Detected in Subsurface Solids (mg/kg)

Sample ID	Depth (ft bgs)	Date Sampled	Tetrachloroethene (mg/kg)	Trichloroethene (mg/kg)	cis-1,2- Dichloroethene (mg/kg)	Vinyl chloride (mg/kg)	Total Chlorinated Ethenes (mg/kg)	1,1,1-Trichloroethane (mg/kg)	1,1-Dichloroethane (mg/kg)	Chloroethane (mg/kg)	Total Chlorinated Ethanes (mg/kg)	1,1,2-Trichloroethane (mg/kg)	1,1-Dichloroethene (mg/kg)	1,2,4- Trimethylbenzene (mg/kg)	1,2-Dibromoethane (mg/kg)	1,2-Dichlorobenzene (mg/kg)	1,2-Dichloroethane (mg/kg)	1,2-Dichloropropane (mg/kg)	1,3,5- Trimethylbenzene (mg/kg)	1,4-Dioxane (mg/kg)	2-Butanone (MEK) (mg/kg)	4-Methyl-2-pentanone (mg/kg)	Acetone (mg/kg)	Benzene (mg/kg)	Carbon disulfide (mg/kg)	Carbon tetra chloride (mg/kg)	
Solid Aquifer Matrix																											
REL, SSLmod (mg/kg)			7.57					16																			
GP001	6-8	8/9/05	<0.0054	<0.0054	<0.0054	NA	ND	<0.0054	NA	NA	ND	NA	<0.0054	<0.0054	NA	NA	<0.0054	<5.4	<0.0054	NA	NA	NA	NA	NA	NA	NA	NA
GP002	4-6	8/9/05	<0.0049	<0.0049	<0.0049	NA	ND	<0.0049	NA	NA	ND	NA	<0.0049	<0.0049	NA	NA	<0.0049	<4.9	<0.0049	NA	NA	NA	NA	NA	NA	NA	NA
GP003	2-4	8/9/05	<0.0048	<0.0048	<0.0048	NA	ND	<0.0048	NA	NA	ND	NA	<0.0048	<0.0048	NA	NA	<0.0048	<4.8	<0.0048	NA	NA	NA	NA	NA	NA	NA	NA
GP004	4-6	8/9/05	<0.004	<0.004	<0.004	NA	ND	<0.004	NA	NA	ND	NA	<0.004	<0.004	NA	NA	<0.004	<4	<0.004	NA	NA	NA	NA	NA	NA	NA	NA
GP005	4-6	8/9/05	<0.0045	<0.0045	<0.0045	NA	ND	<0.0045	NA	NA	ND	NA	<0.0045	<0.0045	NA	NA	<0.0045	<4.5	<0.0045	NA	NA	NA	NA	NA	NA	NA	NA
GP006	2-4	8/9/05	<0.0046	<0.0046	<0.0046	NA	ND	<0.0046	NA	NA	ND	NA	<0.0046	<0.0046	NA	NA	<0.0046	<4.6	<0.0046	NA	NA	NA	NA	NA	NA	NA	NA
GP009	2-4	8/10/05	<0.0043	<0.0043	<0.0043	NA	ND	<0.0043	NA	NA	ND	NA	<0.0043	<0.0043	NA	NA	<0.0043	<4.3	<0.0043	NA	NA	NA	NA	NA	NA	NA	NA
GP010	4-6	8/10/05	0.13	0.33	<0.067	NA	0.46	0.15	NA	NA	0.15	NA	0.093	<0.067	NA	NA	<0.067	<67	<0.067	NA	NA	NA	NA	NA	NA	NA	NA
GP011	2-4	8/10/05	0.13	0.63	<0.061	NA	0.76	<0.061	NA	NA	ND	NA	0.099	<0.061	NA	NA	<0.061	<61	<0.061	NA	NA	NA	NA	NA	NA	NA	NA
GP012	4-6	8/10/05	1.5	1.8	0.56	NA	3.86	0.41	NA	NA	0.41	NA	0.72	<0.063	NA	NA	0.15	150	<0.063	NA	NA	NA	NA	NA	NA	NA	NA
GP013	4-6	8/10/05	<0.0052	<0.0052	<0.0052	NA	ND	<0.0052	NA	NA	ND	NA	<0.0052	<0.0052	NA	NA	<0.0052	<5.2	<0.0052	NA	NA	NA	NA	NA	NA	NA	NA
IW2	1	1/20/14	65	9.6	NA	NA	74.6	12	NA	NA	12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
IW2	2	1/20/14	42	6.2	NA	NA	48.2	1.7	NA	NA	1.7	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
IW2	3	1/20/14	48	19	NA	NA	67	2.4	NA	NA	2.4	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MIP-1	2	10/16/08	15	12	2.2	0.025	29.225	0.2	0.18	<0.012	0.38	0.029	0.35	NA	<0.006	<0.006	0.36	<0.006	NA	<8.40E-02	<0.06	<0.012	<0.12	<0.006	<0.012	<0.006	<0.006
MIP-1	5	10/16/08	0.036	0.02	<0.0067	<0.013	0.056	<0.0067	<0.0067	<0.013	ND	<0.0067	<0.0067	NA	<0.0067	<0.0067	<0.0067	<0.0067	NA	<0.2	<0.067	<0.013	<0.13	<0.0067	<0.013	<0.0067	<0.0067
MIP-1	9	10/16/08	0.024	0.0052	0.018	0.015	0.0622	<0.0029	<0.0029	<0.0058	ND	<0.0029	<0.0029	NA	<0.0029	<0.0029	<0.0029	<0.0029	NA	<8.80E-02	<0.029	<0.0058	<0.058	<0.0029	<0.0058	<0.0029	<0.0029
MIP-5	3	10/16/08	<0.0022	<0.0022	<0.0022	<0.0045	ND	<0.0022	<0.0022	<0.0045	ND	<0.0022	<0.0022	NA	<0.0022	<0.0022	<0.0022	<0.0022	NA	<0.067	<0.022	<0.0045	<0.045	<0.0022	<0.0045	<0.0022	<0.0022
MIP-6	6	10/16/08	<0.008	<0.008	<0.008	<0.016	ND	<0.008	<0.008	<0.016	ND	<0.008	<0.008	NA	<0.008	<0.008	<0.008	<0.008	NA	<0.24	<0.08	<0.016	<0.16	<0.008	<0.016	<0.008	<0.008
MIP-8	2	10/16/08	0.37	2.4	0.068	0.04	2.878	0.014	0.031	<0.0026	0.045	0.0048	0.21	NA	<0.0013	<0.0013	0.14	<0.0013	NA	<0.039	<0.013	<0.0026	0.54	<0.0013	<0.0026	<0.0013	<0.0013
MIP-8	4	10/16/08	0.091	0.2	<0.007	<0.014	0.291	<0.007	<0.007	<0.014	ND	<0.007	<0.007	NA	<0.007	<0.007	<0.007	<0.007	NA	<0.21	<0.07	<0.014	<0.14	<0.007	<0.014	<0.007	<0.007
MIP-12	12	10/16/08	0.73	0.38	<0.11	0.0056	1.1156	0.13	0.018	<0.0038	0.148	0.0022	0.21	NA	<0.0019	<0.0019	0.038	<0.0019	NA	<0.056	<0.019	<0.0038	<0.038	<0.0019	<0.0038	<0.0019	<0.0019
MIP-12	4	10/16/08	<0.0069	<0.0069	<0.0069	<0.014	ND	<0.0069	<0.0069	<0.014	ND	<0.0069	<0.0069	NA	<0.0069	<0.0069	<0.0069	<0.0069	NA	<0.21	<0.069	<0.014	<0.14	<0.0069	<0.014	<0.0069	<0.0069
MIP-12	6	10/16/08	<0.0076	<0.0076	<0.0076	<0.015	ND	<0.0076	<0.0076	<0.015	ND	<0.0076	<0.0076	NA	<0.0076	<0.0076	0.026	<0.0076	NA	<0.23	<0.076	<0.015	<0.15	<0.0076	<0.015	<0.0076	<0.0076
MIP-13	1	10/16/08	0.0087	<0.0038	0.0068	0.54	0.5555	<0.0038	0.12	0.42	0.54	<0.0038	<0.0038	NA	<0.0038	<0.0038	0.052	<0.0038	NA	1.4	0.12	0.0098	<0.076	0.0071	<0.0076	<0.0038	<0.0038
MIP-13	3	10/16/08	0.0069	0.0093	0.058	0.79	0.8642	0.0034	0.22	0.14	0.3634	<0.0027	0.047	NA	<0.0027	<0.0027	0.046	<0.0027	NA	0.510	<0.027	<0.0053	<0.053	<0.0027	<0.0053	<0.0027	<0.0027
MIP-13	6	10/16/08	1.5	2.6	2	0.66	6.76	0.42	0.44	0.03	0.89	0.017	1.8	NA	<0.0027	<0.0027	0.78	<0.0027	NA	0.64	<0.027	<0.0054	<0.054	0.0066	<0.0054	<0.0027	<0.0027
MIP-19	1	10/16/08	<0.0059	<0.0059	<0.0059	<0.012	ND	<0.0059	<0.0059	<0.012	ND	<0.0059	<0.0059	NA	<0.0059	<0.0059	<0.0059	<0.0059	NA	<0.18	<0.059	<0.012	<0.12	<0.0059	<0.012	<0.0059	<0.0059
MIP-19	3	10/16/08	<0.0071	<0.0071	<0.0071	<0.014	ND	<0.0071	<0.0071	<0.014	ND	<0.0071	<0.0071	NA	<0.0071	<0.0071	<0.0071	<0.0071	NA	<0.21	<0.071	<0.014	<0.14	<0.0071	<0.014	<0.0071	<0.0071
MW-1D	8-10	7/13/04	<0.0019	<0.0019	<0.0019	<0.0019	ND	<0.0019	<0.0019	<0.0019	ND	<0.0019	<0.0019	<0.0019	<0.00184	<0.0019	<0.0019	NA	<0.00184	NA	<0.0461	<0.00921	<0.0461	<0.0019	<0.00184	<0.0019	<0.0019
MW-2D	8-10	7/13/04	<0.0017	<0.0017	<0.0017	<0.0017	ND	<0.0017	<0.0017	<0.0017	ND	<0.0017	<0.0017	<0.0017	<0.0017	<0.0017	<0.0017	NA	<0.0017	NA	<0.0428	<0.00856	<0.0428	<0.0017	<0.0171	<0.0017	<0.0017
MW-3	8-10	7/14/04	0.0191	0.0138	<0.0018	<0.0018	0.0329	0.0312	<0.0018	<0.0018	0.0312	<0.0018	0.0025	<0.0018	<0.0018	<0.0018	0.0067	NA	<0.0018	NA	<0.0448	<0.00895	<0.0448	<0.0018	<0.0018	<0.0018	<0.0018
MW-3D	13-15	7/14/04	2.44	1.31	<0.134	<0.134	3.75	0.416	<0.134	<0.134	0.416	<0.134	<0.134	<0.134	<0.134	<0.134	<0.134	NA	<0.134	NA	<3.36	<0.67	<3.36	<0.134	<0.134	<0.134	<0.134
MW-8	8-10	6/27/06	<0.005	<0.005	<0.005	<0.01	ND	<0.005	<0.005	<0.01	ND	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	NA	<0.005	NA	<0.1	<0.05	<0.1	<0.005	<0.005	<0.005	<0.005
MW-9	8-10	6/27/06	<0.005	<0.005	<0.005	<0.01	ND	<0.005	<0.005	<0.01	ND	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	NA	<0.005	NA	<0.1	<0.05	<0.1	<0.005	<0.005	<0.005	<0.005
MW-10	5-10	7/7/06	<0.005	0.006	<0.005	<0.01	0.006	<0.005	<0.005	<0.01	ND	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	NA	<0.005	NA	<0.1	<0.05	<0.1	<0.005	<0.005	<0.005	<0.005
MW-11	5-10	7/6/06	<0.005	0.008	0.005	<0.01	0.013	<0.005	<0.005	<0.01	ND	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	NA	<0.005	NA	<0.1	<0.05	<0.1	<0.005	<0.005	<0.005	<0.005
MW-12	5-10	7/6/06	<0.005	<0.005	<0.005	<0.01	ND	<0.005	<0.005	<0.01	ND	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	NA	<0.005	NA	<0.1	<0.05	<0.1	<0.005	<0.005	<0.005	<0.005
MW-13	13-15	6/27/06	<0.005	<0.005	<0.005	<0.01	ND	<0.005	<0.005	<0.01	ND	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	NA	<0.005	NA	<0.1	<0.05	<0.1	<0.005	<0.005	<0.005	<0.005
MW-14	13-15	6/27/06	<0.005	<0.005	<0.005	<0.01	ND	<0.005	<0.005	<0.01	ND	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	NA	<0.005	NA	<0.1	<0.05	<0.1	<0.005	<0.005	<0.005	<0.005
MW-15	8-10	6/28/06	<0.005	<0.005	<0.005	<0.01	ND	<0.005	<0.005	<0.01	ND	<0.005	<0.005	0.215	<0.005	<0.005	<0.005	NA	0.074	NA	<0.1	<0.05	<0.1	<0.005	<0.005	<0.005	<0.005
MW-16	8-10	6/27/06	<0.005	<0.005	<0.005	<0.01	ND	<0.005	<0.005	<0.01	ND	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	NA	<0.005	NA	<0.1	<0.05	<0.1	<0.005	<0.005	<0.005	<0.005
SB-1	1																										

Capitol Adhesives
Table 1. Analytical Results for Constituents Detected in Subsurface Solids (mg/kg)

Sample ID	Depth (ft bgs)	Date Sampled	Chlorobenzene (mg/kg)	Chloroform (mg/kg)	cis/trans 1,2- Dichloroethene (mg/kg)	Cyclohexane (mg/kg)	Dichloro methane (Methylene chloride) (mg/kg)	Ethyl benzene (mg/kg)	Freon-11 (mg/kg)	Freon-113 (mg/kg)	Isopropyl benzene (mg/kg)	m&p-Xylene (mg/kg)	Methyl acetate (mg/kg)	Methyl cyclohexane (mg/kg)	Naphthalene (mg/kg)	n-Propyl benzene (mg/kg)	o-Xylene (mg/kg)	sec-Butyl benzene (mg/kg)	Toluene (mg/kg)	trans-1,2- Dichloroethene (mg/kg)
Solid Aquifer Matrix			REL, SSLmod (mg/kg)																	
GP001	6-8	8/9/05	NA	<0.0054	<0.0054	NA	<0.0054	<0.0054	NA	NA	<0.0054	NA	NA	NA	<0.0054	<0.0054	NA	<0.0054	<0.0054	NA
GP002	4-6	8/9/05	NA	<0.0049	<0.0049	NA	<0.0049	<0.0049	NA	NA	<0.0049	NA	NA	NA	<0.0049	<0.0049	NA	<0.0049	<0.0049	NA
GP003	2-4	8/9/05	NA	<0.0048	<0.0048	NA	<0.0048	<0.0048	NA	NA	<0.0048	NA	NA	NA	<0.0048	<0.0048	NA	<0.0048	<0.0048	NA
GP004	4-6	8/9/05	NA	<0.004	<0.004	NA	<0.004	<0.004	NA	NA	<0.004	NA	NA	NA	<0.004	<0.004	NA	<0.004	<0.004	NA
GP005	4-6	8/9/05	NA	<0.0045	<0.0045	NA	<0.0045	<0.0045	NA	NA	<0.0045	NA	NA	NA	<0.0045	<0.0045	NA	<0.0045	<0.0045	NA
GP006	2-4	8/9/05	NA	<0.0046	<0.0046	NA	<0.0046	<0.0046	NA	NA	<0.0046	NA	NA	NA	<0.0046	<0.0046	NA	<0.0046	<0.0046	NA
GP009	2-4	8/10/05	NA	<0.0043	<0.0043	NA	<0.0043	<0.0043	NA	NA	<0.0043	NA	NA	NA	<0.0043	<0.0043	NA	<0.0043	<0.0043	NA
GP010	4-6	8/10/05	NA	<0.067	0.093	NA	<0.067	<0.067	NA	NA	<0.067	NA	NA	NA	<0.067	<0.067	NA	<0.067	<0.067	NA
GP011	2-4	8/10/05	NA	0.064	0.099	NA	<0.061	<0.061	NA	NA	<0.061	NA	NA	NA	<0.061	<0.061	NA	<0.061	<0.061	NA
GP012	4-6	8/10/05	NA	0.29	0.72	NA	0.29	<0.063	NA	NA	<0.063	NA	NA	NA	<0.063	<0.063	NA	<0.063	<0.063	NA
GP013	4-6	8/10/05	NA	<0.0052	<0.0052	NA	<0.0052	<0.0052	NA	NA	<0.0052	NA	NA	NA	<0.0052	<0.0052	NA	<0.0052	<0.0052	NA
IW2	1	1/20/14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
IW2	2	1/20/14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
IW2	3	1/20/14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MIP-1	2	10/16/08	<0.006	0.73	NA	<0.006	<0.006	<0.006	<0.006	<0.012	<0.006	<0.012	<0.006	0.0094	NA	NA	<0.006	NA	0.027	0.055
MIP-1	5	10/16/08	<0.0067	<0.0067	NA	<0.0067	<0.0067	<0.0067	<0.0067	<0.013	<0.0067	<0.013	<0.0067	<0.0067	NA	NA	<0.0067	NA	<0.0067	<0.0067
MIP-1	9	10/16/08	<0.0029	<0.0029	NA	<0.0029	<0.0029	<0.0029	<0.0029	<0.0058	<0.0029	<0.0058	<0.0029	<0.0029	NA	NA	<0.0029	NA	<0.0029	<0.0029
MIP-5	3	10/16/08	<0.0022	<0.0022	NA	<0.0022	<0.0022	<0.0022	<0.0022	<0.0045	<0.0022	<0.0045	<0.0022	<0.0022	NA	NA	<0.0022	NA	<0.0022	<0.0022
MIP-6	6	10/16/08	<0.008	<0.008	NA	<0.008	<0.008	<0.008	<0.008	<0.016	<0.008	<0.016	<0.008	<0.008	NA	NA	<0.008	NA	<0.008	<0.008
MIP-8	2	10/16/08	<0.0013	0.069	NA	<0.0013	0.11	<0.0013	<0.0013	<0.0026	<0.0013	<0.0026	<0.0013	0.015	NA	NA	<0.0013	NA	0.006	0.014
MIP-8	4	10/16/08	<0.007	<0.007	NA	<0.007	<0.007	<0.007	<0.007	<0.014	<0.007	<0.014	<0.007	<0.007	NA	NA	<0.007	NA	0.0076	<0.007
MIP-12	12	10/16/08	<0.0019	0.12	NA	<0.0019	<0.0019	<0.0019	0.0027	<0.0038	<0.0019	<0.0038	<0.0019	<0.0019	NA	NA	<0.0019	NA	<0.0019	0.0077
MIP-12	4	10/16/08	<0.0069	<0.0069	NA	<0.0069	<0.0069	<0.0069	<0.0069	<0.014	<0.0069	<0.014	<0.0069	<0.0069	NA	NA	<0.0069	NA	<0.0069	<0.0069
MIP-12	6	10/16/08	<0.0076	<0.0076	NA	<0.0076	<0.0076	<0.0076	<0.0076	<0.015	<0.0076	<0.015	<0.0076	<0.0076	NA	NA	<0.0076	NA	<0.0076	<0.0076
MIP-13	1	10/16/08	<0.0038	<0.0038	NA	0.014	0.12	<0.0038	<0.0038	0.073	<0.0038	<0.0076	<0.0038	0.18	NA	NA	<0.0038	NA	0.096	0.02
MIP-13	3	10/16/08	<0.0027	0.029	NA	<0.0027	0.067	<0.0027	<0.0027	<0.0053	<0.0027	<0.0053	<0.0027	0.031	NA	NA	<0.0027	NA	0.02	0.011
MIP-13	6	10/16/08	<0.0027	1.4	NA	<0.0027	1.9	<0.0027	0.0067	<0.0054	<0.0027	<0.0054	<0.0027	0.013	NA	NA	<0.0027	NA	0.017	0.058
MIP-19	1	10/16/08	<0.0059	<0.0059	NA	<0.0059	<0.0059	<0.0059	<0.0059	<0.012	<0.0059	<0.012	<0.0059	<0.0059	NA	NA	<0.0059	NA	<0.0059	<0.0059
MIP-19	3	10/16/08	<0.0071	<0.0071	NA	<0.0071	<0.0071	<0.0071	<0.0071	<0.014	<0.0071	<0.014	<0.0071	<0.0071	NA	NA	<0.0071	NA	<0.0071	<0.0071
MW-1D	8-10	7/13/04	<0.0019	<0.0019	<0.0019	NA	<0.0046	<0.0019	<0.0019	NA	<0.00184	NA	NA	NA	<0.00461	<0.00184	NA	<0.00184	<0.0019	<0.0019
MW-2D	8-10	7/13/04	<0.0017	<0.0017	<0.0017	NA	<0.0043	<0.0017	<0.0017	NA	<0.00171	NA	NA	NA	<0.00428	<0.00171	NA	<0.00171	0.0026	<0.0017
MW-3	8-10	7/14/04	<0.0018	0.0078	0.0025	NA	<0.0045	<0.0018	<0.0018	NA	<0.0018	NA	NA	NA	<0.0048	<0.0018	NA	<0.0018	<0.0018	<0.0018
MW-3D	13-15	7/14/04	<0.134	<0.134	<0.134	NA	<0.336	<0.134	<0.134	NA	<0.134	NA	NA	NA	<0.366	<0.134	NA	<0.134	<0.134	<0.134
MW-8	8-10	6/27/06	<0.005	<0.005	<0.005	NA	<0.005	<0.005	<0.005	NA	<0.005	<0.01	NA	NA	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
MW-9	8-10	6/27/06	<0.005	<0.005	<0.005	NA	<0.005	<0.005	<0.005	NA	<0.005	<0.01	NA	NA	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
MW-10	5-10	7/7/06	<0.005	<0.005	<0.005	NA	<0.005	<0.005	<0.005	NA	<0.005	<0.01	NA	NA	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
MW-11	5-10	7/6/06	<0.005	<0.005	<0.005	NA	<0.005	<0.005	<0.005	NA	<0.005	<0.01	NA	NA	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
MW-12	5-10	7/6/06	<0.005	<0.005	<0.005	NA	<0.005	<0.005	<0.005	NA	<0.005	<0.01	NA	NA	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
MW-13	13-15	6/27/06	<0.005	<0.005	<0.005	NA	<0.005	<0.005	<0.005	NA	<0.005	<0.01	NA	NA	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
MW-14	13-15	6/27/06	<0.005	<0.005	<0.005	NA	<0.005	<0.005	<0.005	NA	<0.005	<0.01	NA	NA	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
MW-15	8-10	6/28/06	<0.005	<0.005	<0.005	NA	<0.005	0.022	<0.005	NA	0.005	0.085	NA	NA	0.14	0.026	0.055	0.005	0.027	<0.005
MW-16	8-10	6/27/06	<0.005	<0.005	<0.005	NA	<0.005	<0.005	<0.005	NA	<0.005	<0.01	NA	NA	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
SB-1	1	2/20/13	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SB-1 (Dup)	1	2/20/13	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SB-1	2	2/20/13	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SB-1	4	2/20/13	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SB-2	1	2/20/13	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SB-2	2	2/20/13	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SB-2	4	2/20/13	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SB-3	1	2/20/13	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SB-3	2	2/20/13	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SB-3	4	2/20/13	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SB-4	1	2/20/13	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SB-4	2	2/20/13	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SB-4	4	2/20/13	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SB-5	1	2/20/13	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Capitol Adhesives
Table 1. Analytical Results for Constituents Detected in Subsurface Solids (mg/kg)

Sample ID	Depth (ft bgs)	Date Sampled	Tetrachloroethene (mg/kg)	Trichloroethene (mg/kg)	cis-1,2- Dichloroethene (mg/kg)	Vinyl chloride (mg/kg)	Total Chlorinated Ethenes (mg/kg)	1,1,1-Trichloroethane (mg/kg)	1,1-Dichloroethane (mg/kg)	Chloroethane (mg/kg)	Total Chlorinated Ethanes (mg/kg)	1,1,2-Trichloroethane (mg/kg)	1,1-Dichloroethene (mg/kg)	1,2,4- Trimethylbenzene (mg/kg)	1,2-Dibromoethane (mg/kg)	1,2-Dichlorobenzene (mg/kg)	1,2-Dichloroethane (mg/kg)	1,2-Dichloropropane (mg/kg)	1,3,5- Trimethylbenzene (mg/kg)	1,4-Dioxane (mg/kg)	2-Butanone (MEK) (mg/kg)	4-Methyl-2-pentanone (mg/kg)	Acetone (mg/kg)	Benzene (mg/kg)	Carbon disulfide (mg/kg)	Carbon tetra chloride (mg/kg)
SB-5	2	2/20/13	1.1	0.6	NA	NA	1.7	0.009	NA	NA	0.009	<0.0026	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SB-5	4	2/20/13	0.99	0.63	NA	NA	1.62	0.024	NA	NA	0.024	<0.003	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SB-6	1	2/20/13	<0.0031	<0.0031	NA	NA	ND	<0.0031	NA	NA	ND	<0.0031	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SB-6	2	2/20/13	<0.0038	<0.0038	NA	NA	ND	<0.0038	NA	NA	ND	<0.0038	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SB-6	4	2/20/13	<0.004	<0.004	NA	NA	ND	<0.004	NA	NA	ND	<0.004	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SB-7	1	2/20/13	0.009	<0.0037	NA	NA	0.009	<0.0037	NA	NA	ND	<0.0037	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SB-7	2	2/20/13	<0.0065	<0.0065	NA	NA	ND	<0.0065	NA	NA	ND	<0.0065	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SB-7	4	2/20/13	<0.0036	<0.0036	NA	NA	ND	<0.0036	NA	NA	ND	<0.0036	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SB-8	1	2/20/13	0.021	0.071	NA	NA	0.092	<0.0025	NA	NA	ND	<0.0025	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SB-8	2	2/20/13	0.023	0.18	NA	NA	0.203	<0.0028	NA	NA	ND	<0.0028	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SB-8	4	2/20/13	<0.18	0.51	NA	NA	0.51	<0.18	NA	NA	ND	<0.18	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SB-9	1	2/20/13	0.0051	0.016	NA	NA	0.0211	<0.0036	NA	NA	ND	<0.0036	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SB-9	2	2/20/13	0.017	0.065	NA	NA	0.092	<0.0048	NA	NA	ND	<0.0048	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SB-9	4	2/20/13	0.0074	0.03	NA	NA	0.092	<0.0043	NA	NA	ND	<0.0043	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SO-2	1	3/10/09	<0.0029	<0.0029	0.003	0.33	0.333	<0.0029	0.42	0.023	0.443	<0.0029	<0.0029	NA	<0.0029	<0.0029	0.0069	<0.0029	NA	NA	<0.029	<0.0059	<0.059	<0.0029	<0.0059	<0.0029
SO-2	3	3/10/09	0.098	0.11	1.1	0.57	1.878	0.0064	0.78	<0.0059	0.7864	<0.0029	0.23	NA	<0.0029	<0.0029	0.18	<0.0029	NA	NA	<0.029	<0.0059	<0.059	<0.0029	<0.0059	<0.0029
SO-3	1	3/10/09	2700	62	7.6	<5.7	2769.6	5.3	<2.8	<5.7	5.3	<2.8	<2.8	NA	<2.8	<2.8	<2.8	<2.8	NA	NA	<28	<5.7	<57	<2.8	<5.7	<2.8
SO-3	3	3/10/09	23	4.9	12	<4.8	39.9	<2.4	<2.4	<4.8	ND	<2.4	<2.4	NA	<2.4	<2.4	<2.4	<2.4	NA	NA	<24	<4.8	<48	<2.4	<4.8	<2.4
SO-3R	1	3/25/14	6.5	3	NA	NA	9.5	0.0056	NA	NA	0.0056	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SO-3R	4	3/25/14	2.3	1.4	NA	NA	3.7	0.0051	NA	NA	0.0051	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SO-3R	5	3/25/14	4.1	3.2	NA	NA	7.3	0.014	NA	NA	0.014	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SO-4	1	3/10/09	0.74	1.2	0.48	<0.0063	2.42	<0.0032	0.035	<0.0063	0.035	0.0033	0.44	NA	<0.0032	<0.0032	0.042	<0.0032	NA	NA	<0.032	<0.0063	<0.063	<0.0032	<0.0063	<0.0032
SO-4	3	3/10/09	0.93	1.6	0.7	<0.23	3.23	<0.11	<0.11	<0.23	ND	<0.11	0.63	NA	<0.11	<0.11	<0.11	<0.11	NA	NA	<1.1	<0.23	<2.3	<0.11	<0.23	<0.11
SO-5	5	3/10/09	0.39	0.35	0.035	<0.006	0.775	0.07	0.02	<0.006	0.09	<0.003	0.21	NA	<0.003	<0.003	0.053	<0.003	NA	NA	<0.03	<0.006	<0.06	<0.003	<0.006	0.004
SO-5	9	3/10/09	<0.0062	<0.0062	<0.0062	<0.012	ND	<0.0062	<0.0062	<0.012	ND	<0.0062	<0.0062	NA	<0.0062	<0.0062	<0.0062	<0.0062	NA	NA	<0.062	<0.012	<0.12	<0.0062	<0.012	<0.0062
SO-6	5	3/10/09	0.066	0.089	0.48	0.16	0.795	0.01	0.087	<0.0052	0.097	<0.0026	0.19	NA	<0.0026	<0.0026	0.077	<0.0026	NA	NA	<0.026	<0.0052	<0.052	<0.0026	<0.0052	<0.0026
SO-7	3	3/10/09	1.9	2.4	0.015	<0.01	4.315	0.072	0.18	<0.01	0.252	0.0072	0.89	NA	<0.0052	<0.0052	0.13	<0.0052	NA	NA	<0.052	<0.01	<0.1	<0.0052	<0.01	<0.0052
SO-10	1	10/12/10	43	16	7.8	<0.241	66.8	7.2	4.2	<0.241	0.252	<0.121	0.63	NA	<0.121	<0.121	3.4	<0.121	NA	<1.21	<1.21	<0.241	<2.41	<0.121	<0.241	<0.121
SS-AST-1	1	1/12/09	7.09	0.159	0.0768	0.0207	7.3465	0.0805	0.0663	<0.00632	0.1468	<0.00316	0.107	NA	<0.00316	<0.00316	0.0407	<0.00316	NA	NA	<0.0316	<0.00632	<0.0632	<0.00316	<0.00632	<0.00316
SS-AST-2	1	1/12/09	12.2	7.75	5.95	0.0331	25.9331	1.11	3.45	<0.00532	4.56	0.197	0.59	NA	<0.00266	0.00713	1.69	<0.00266	NA	NA	<0.0266	0.0476	0.739	0.0147	0.0121	<0.00266
SS-AST-3	1	7/23/12	0.11	0.058	3.6	0.042	3.81	<0.003	0.05	<0.0061	0.05	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SS-AST-3	2	7/23/12	0.35	0.18	3.3	0.081	3.911	<0.0032	0.075	<0.0064	0.075	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SS-AST-4	1	7/23/12	0.0047	<0.0028	0.0031	<0.0056	0.0078	<0.0028	<0.0028	<0.0056	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SS-AST-4	2	7/23/12	0.0042	<0.0033	<0.0033	<0.0066	0.0042	<0.0033	<0.0033	<0.0066	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SS-AST-5	1	7/23/12	0.0039	<0.0027	<0.0027	<0.0055	0.0039	<0.0027	<0.0027	<0.0055	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SS-AST-5	2	7/23/12	0.011	<0.0032	0.0083	<0.0064	0.0193	<0.0032	<0.0032	<0.0064	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SS-AST-6	1	7/23/12	0.039	0.0088	0.011	<0.0057	0.0588	0.0035	<0.0028	<0.0057	0.0035	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SS-AST-6	2	7/23/12	0.047	0.011	0.0077	<0.0066	0.0657	<0.0033	<0.0033	<0.0066	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SS-AST-7	1	7/23/12	0.013	0.0096	1.9	0.24	2.1626	<0.003	0.62	0.07	0.69	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SS-AST-7	2	7/23/12	0.014	0.0086	2	0.31	2.3326	<0.0031	1.2	0.037	1.237	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SS-AST-8	1	7/23/12	64	58	11	<3.4	133	66	6.8	<3.4	72.8	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SS-AST-8	2	7/23/12	6.5	13	6.2	<3.2	25.7	4.7	8.7	<3.2	13.4	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SS-AST-9	1	7/23/12	380	34	66	<3	480	2.1	1.5	<3	3.6	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SS-AST-9	2	7/23/12	660	97	55	<3.7	812	15	2.1	<3.7	17.1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Area C	3	10/4/14	1800	230	NA	NA	2030	43	NA	NA	43	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SS-AST-10	1	7/23/12	0.0054	<0.0029	0.004	<0.0057	0.0094	<0.0029	<0.0029	<0.0057	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SS-AST-10	2	7/23/12	0.02	0.01	0.013	<0.0067	0.043	<0.0033	<0.0033	<0.0067	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SS-AST-10 (Dup)	1	7/23/12	0.058	0.018	0.016	<0.0074	0.092	0.0043	<0.0037	<0.0074	0.0043	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SS-AST-11	1	7/23/12	0.0095	0.0061	0.0066	<0.0057	0.0222	<0.0028	0.0043	<0.0057	0.0043	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SS-AST-11	2	7/23/12	0.013	0.008	0.0091	<0.0067	0.0301	<0.0034	<0.0034	<0.0067	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SS-BLDG-1	1	1/12/09	<0.0024	<0.0024	0.0061	<0.0048	0.0061	<0.0024	<0.0024	<0.0048	ND	<0.0024	<0.0024	NA	<0.0024	<0.0024	<0.0024	<0.0024	NA	NA	<0.024	<0.0048	<0.048	<0.0024	<0.0048	<0.0024
SS-BLDG-1	5	1/12/09	<0.00284	<0.00284	0.00409	<0.00568	0.00409	<0.00284	<0.00284	<0.00568	ND	<0.00284	<0.00284	NA	<0.00284	<0.00284	<0.00284	<0.00284	NA	NA	<0.0284	<0.00568	<			

Capitol Adhesives
Table 1. Analytical Results for Constituents Detected in Subsurface Solids (mg/kg)

Sample ID	Depth (ft bgs)	Date Sampled	Chlorobenzene (mg/kg)	Chloroform (mg/kg)	cis/trans 1,2- Dichloroethene (mg/kg)	Cyclohexane (mg/kg)	Dichloro methane (Methylene chloride) (mg/kg)	Ethyl benzene (mg/kg)	Freon-11 (mg/kg)	Freon-113 (mg/kg)	Isopropyl benzene (mg/kg)	m&p-Xylene (mg/kg)	Methyl acetate (mg/kg)	Methyl cyclohexane (mg/kg)	Naphthalene (mg/kg)	n-Propyl benzene (mg/kg)	o-Xylene (mg/kg)	sec-Butyl benzene (mg/kg)	Toluene (mg/kg)	trans-1,2- Dichloroethene (mg/kg)
SB-5	2	2/20/13	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SB-5	4	2/20/13	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SB-6	1	2/20/13	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SB-6	2	2/20/13	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SB-6	4	2/20/13	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SB-7	1	2/20/13	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SB-7	2	2/20/13	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SB-7	4	2/20/13	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SB-8	1	2/20/13	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SB-8	2	2/20/13	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SB-8	4	2/20/13	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SB-9	1	2/20/13	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SB-9	2	2/20/13	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SB-9	4	2/20/13	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SO-2	1	3/10/09	<0.0029	<0.0029	NA	0.0036	<0.0029	<0.0029	<0.0029	<0.0059	<0.0029	<0.0059	<0.0029	<0.0029	NA	NA	<0.0029	NA	0.051	0.0047
SO-2	3	3/10/09	<0.0029	0.04	NA	0.14	<0.0029	<0.0029	<0.0029	<0.0059	<0.0029	<0.0059	<0.0029	0.087	NA	NA	<0.0029	NA	0.05	0.026
SO-3	1	3/10/09	<2.8	<2.8	NA	8	<2.8	<2.8	<2.8	<5.7	<2.8	<5.7	<2.8	130	NA	NA	<2.8	NA	3.3	<2.8
SO-3	3	3/10/09	<2.4	2.5	NA	<2.4	4.5	<2.4	<2.4	<4.8	<2.4	<4.8	<2.4	<2.4	NA	NA	<2.4	NA	<2.4	<2.4
SO-3R	1	3/25/14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SO-3R	4	3/25/14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SO-3R	5	3/25/14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SO-4	1	3/10/09	<0.0032	0.06	NA	<0.0032	<0.0032	<0.0032	<0.0032	<0.0063	<0.0032	<0.0063	<0.0032	0.032	NA	NA	<0.0032	NA	<0.0032	0.0055
SO-4	3	3/10/09	<0.11	0.13	NA	<0.11	<0.11	<0.11	<0.11	<0.23	<0.11	<0.23	<0.11	<0.11	NA	NA	<0.11	NA	<0.11	<0.11
SO-5	5	3/10/09	<0.003	0.12	NA	<0.003	<0.003	<0.003	<0.003	<0.006	<0.003	<0.006	<0.003	<0.003	NA	NA	<0.003	NA	<0.003	0.015
SO-5	9	3/10/09	<0.0062	<0.0062	NA	<0.0062	<0.0062	<0.0062	<0.0062	<0.012	<0.0062	<0.012	<0.0062	<0.0062	NA	NA	<0.0062	NA	<0.0062	<0.0062
SO-6	5	3/10/09	<0.0026	0.084	NA	<0.0026	<0.0026	<0.0026	<0.0026	<0.0052	<0.0026	<0.0052	<0.0026	<0.0026	NA	NA	<0.0026	NA	<0.0026	0.017
SO-7	3	3/10/09	<0.0052	0.17	NA	<0.0052	0.049	<0.0052	<0.0052	<0.01	<0.0052	<0.01	<0.0052	<0.0052	NA	NA	<0.0052	NA	<0.0052	0.025
SO-10	1	10/12/10	<0.121	3.1	NA	<0.121	5.9	<0.121	<0.121	<0.241	<0.121	0.34	0.13	0.26	NA	NA	0.16	NA	1.1	0.17
SS-AST-1	1	1/12/09	<0.00316	0.0397	NA	0.0178	<0.00316	<0.00316	<0.00316	0.155	<0.00316	0.0156	<0.00316	0.0494	NA	NA	<0.00316	NA	0.0105	0.00856
SS-AST-2	1	1/12/09	0.00319	1.31	NA	0.00707	3.8	0.012	<0.00266	<0.00532	<0.00266	0.0534	<0.00266	0.0123	NA	NA	0.021	NA	2.17	0.187
SS-AST-3	1	7/23/12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SS-AST-3	2	7/23/12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SS-AST-4	1	7/23/12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SS-AST-4	2	7/23/12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SS-AST-5	1	7/23/12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SS-AST-5	2	7/23/12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SS-AST-6	1	7/23/12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SS-AST-6	2	7/23/12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SS-AST-7	1	7/23/12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SS-AST-7	2	7/23/12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SS-AST-8	1	7/23/12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SS-AST-8	2	7/23/12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SS-AST-9	1	7/23/12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SS-AST-9	2	7/23/12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Area C	3	10/4/14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SS-AST-10	1	7/23/12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SS-AST-10	2	7/23/12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SS-AST-10 (Dup)	1	7/23/12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SS-AST-11	1	7/23/12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SS-AST-11	2	7/23/12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SS-BLDG-1	1	1/12/09	<0.0024	<0.0024	NA	<0.0024	<0.0024	<0.0024	<0.0024	0.012	<0.0024	<0.0048	<0.0024	<0.0024	NA	NA	<0.0024	NA	<0.0024	<0.0024
SS-BLDG-1	5	1/12/09	<0.00284	<0.00284	NA	<0.00284	<0.00284	<0.00284	<0.00284	0.0615	<0.00284	<0.00568	<0.00284	0.00426	NA	NA	<0.00284	NA	<0.00284	<0.00284
SS-BLDG-2	5	1/12/09	<0.00349	<0.00349	NA	<0.00349	<0.00349	<0.00349	<0.00349	<0.00697	<0.00349	<0.00697	<0.00349	<0.00349	NA	NA	<0.00349	NA	<0.00349	<0.00349
SS-BLDG-5	1	1/12/09	<0.00247	<0.00247	NA	<0.00247	<0.00247	<0.00247	<0.00247	<0.00495	<0.00247	<0.00495	<0.00247	<0.00247	NA	NA	<0.00247	NA	<0.00247	<0.00247
SS-BLDG-6	1	1/12/09	<0.00246	<0.00246	NA	<0.00246	<0.00246	<0.00246	<0.00246	<0.00493	<0.00246	<0.00493	<0.00246	<0.00246	NA	NA	<0.00246	NA	<0.00246	<0.00246
SS-HA-1	1	1/12/09	<0.00284	<0.00284	NA	<0.00284	<0.00284	<0.00284	<0.00284	<0.00569	<0.00284	<0.00569	<0.00284	0.00657	NA	NA	<0.00284	NA	0.00674	<0.00284
SS-HA-2	1	1/12/09	<0.00325	<0.00325	NA	0.00716	<0.00325	<0.00325	<0.00325	<0.0065	<0.00325	<0.0065	<0.00325	0.178	NA	NA	<0.00325	NA	0.00473	<0.00325

Capitol Adhesives																										
Table 1. Analytical Results for Constituents Detected in Subsurface Solids (mg/kg)																										
Sample ID	Depth (ft bgs)	Date Sampled	Tetrachloroethene (mg/kg)	Trichloroethene (mg/kg)	cis-1,2- Dichloroethene (mg/kg)	Vinyl chloride (mg/kg)	Total Chlorinated Ethenes (mg/kg)	1,1,1-Trichloroethane (mg/kg)	1,1-Dichloroethane (mg/kg)	Chloroethane (mg/kg)	Total Chlorinated Ethanes (mg/kg)	1,1,2-Trichloroethane (mg/kg)	1,1-Dichloroethene (mg/kg)	1,2,4- Trimethylbenzene (mg/kg)	1,2-Dibromoethane (mg/kg)	1,2-Dichlorobenzene (mg/kg)	1,2-Dichloroethane (mg/kg)	1,2-Dichloropropane (mg/kg)	1,3,5- Trimethylbenzene (mg/kg)	1,4-Dioxane (mg/kg)	2-Butanone (MEK) (mg/kg)	4-Methyl-2-pentanone (mg/kg)	Acetone (mg/kg)	Benzene (mg/kg)	Carbon disulfide (mg/kg)	Carbon tetra chloride (mg/kg)
Vadose Zone Soil			Type 1 RRS (mg/kg)																							
			0.5	200	0.53	0.2		20	0.7	0.17		0.5	400	0.5	0.5	0.5	0.5	7	200	400	0.5					
GP007	2-4	8/9/05	<0.0045	<0.0045	<0.0045	NA	ND	<0.0045	NA	NA	ND	NA	<0.0045	<0.0045	NA	NA	<0.0045	<4.5	<0.0045	NA	NA	NA	NA	NA	NA	NA
GP008	2-4	8/9/05	<0.0054	<0.0054	<0.0054	NA	ND	<0.0054	NA	NA	ND	NA	<0.0054	<0.0054	NA	NA	<0.0054	<5.4	<0.0054	NA	NA	NA	NA	NA	NA	NA
SS-BLDG-2	1	1/12/09	<0.00268	<0.00268	<0.00268	<0.00536	ND	<0.00268	<0.00268	<0.00536	ND	<0.00268	<0.00268	NA	<0.00268	<0.00268	<0.00268	<0.00268	NA	NA	<0.0268	<0.00536	<0.0536	<0.00268	<0.00536	<0.00268
SS-BLDG-3	1	1/12/09	<0.00301	<0.00301	<0.00301	<0.00602	ND	<0.00301	<0.00301	<0.00602	ND	<0.00301	<0.00301	NA	<0.00301	<0.00301	<0.00301	<0.00301	NA	NA	<0.0301	<0.00602	<0.0602	<0.00301	<0.00602	<0.00301
SS-BLDG-4	1	1/12/09	<0.00299	0.161	<0.00299	<0.00598	0.161	<0.00299	<0.00299	<0.00598	ND	<0.00299	<0.00299	NA	<0.00299	<0.00299	<0.00299	<0.00299	NA	NA	<0.0299	<0.00598	<0.0598	<0.00299	<0.00598	<0.00299
Other (sediment)																										
South Ditch	0-2	6/19/04	<0.0064	0.012	0.016	NA	0.028	<0.0064	NA	NA	ND	NA	<0.0064	NA	NA	NA	<0.0064	<6.4	NA	NA	NA	NA	NA	NA	NA	NA
			NA: Not analyzed		ND: Not detected		Matrix:		Vadose Zone Soil - sample collected above or at the high water table mark				Solid Aquifer Matrix - sample collected below the high water table mark										NA: Not analyzed			
			Not representative of current condition (i.e., excavated or collected prior to oxidant addition)																							

Capitol Adhesives
Table 1. Analytical Results for Constituents Detected in Subsurface Solids (mg/kg)

Sample ID	Depth (ft bgs)	Date Sampled	Chlorobenzene (mg/kg)	Chloroform (mg/kg)	cis/trans 1,2- Dichloroethene (mg/kg)	Cyclohexane (mg/kg)	Dichloro methane (Methylene chloride) (mg/kg)	Ethyl benzene (mg/kg)	Freon-11 (mg/kg)	Freon-113 (mg/kg)	Isopropyl benzene (mg/kg)	m&p-Xylene (mg/kg)	Methyl acetate (mg/kg)	Methyl cyclohexane (mg/kg)	Naphthalene (mg/kg)	n-Propyl benzene (mg/kg)	o-Xylene (mg/kg)	sec-Butyl benzene (mg/kg)	Toluene (mg/kg)	trans-1,2- Dichloroethene (mg/kg)
Vadose Zone Soil			Type 1 RRS (mg/kg)																	
			3.9		6466		0.5	70	200	24,039									100	10
GP007	2-4	8/9/05	NA	<0.0045	<0.0045	NA	<0.0045	<0.0045	NA	NA	<0.0045	NA	NA	NA	<0.0045	<0.0045	NA	<0.0045	<0.0045	NA
GP008	2-4	8/9/05	NA	<0.0054	<0.0054	NA	<0.0054	<0.0054	NA	NA	<0.0054	NA	NA	NA	<0.0054	<0.0054	NA	<0.0054	<0.0054	NA
SS-BLDG-2	1	1/12/09	<0.00268	<0.00268	NA	<0.00268	<0.00268	<0.00268	<0.00268	<0.00536	<0.00268	<0.00536	<0.00268	<0.00268	NA	NA	<0.00268	NA	<0.00268	<0.00268
SS-BLDG-3	1	1/12/09	<0.00301	<0.00301	NA	<0.00301	<0.00301	<0.00301	<0.00301	<0.00602	<0.00301	<0.00602	<0.00301	<0.00301	NA	NA	<0.00301	NA	<0.00301	<0.00301
SS-BLDG-4	1	1/12/09	<0.00299	<0.00299	NA	<0.00299	<0.00299	<0.00299	<0.00299	<0.00598	<0.00299	<0.00598	<0.00299	<0.00299	NA	NA	<0.00299	NA	<0.00299	<0.00299
Other (sediment)																				
South Ditch	0-2	6/19/04	NA	<0.0064	<0.0064	NA	0.0082	<0.0064	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

ND: Not detected Vadose Zone Soil - sample collected above or at the high water table mark Solid Aquifer Matrix - sample collected below the high water table mark

Capitol Adhesives

Table 2. Groundwater Analytical Results, November 2014 (mg/L)

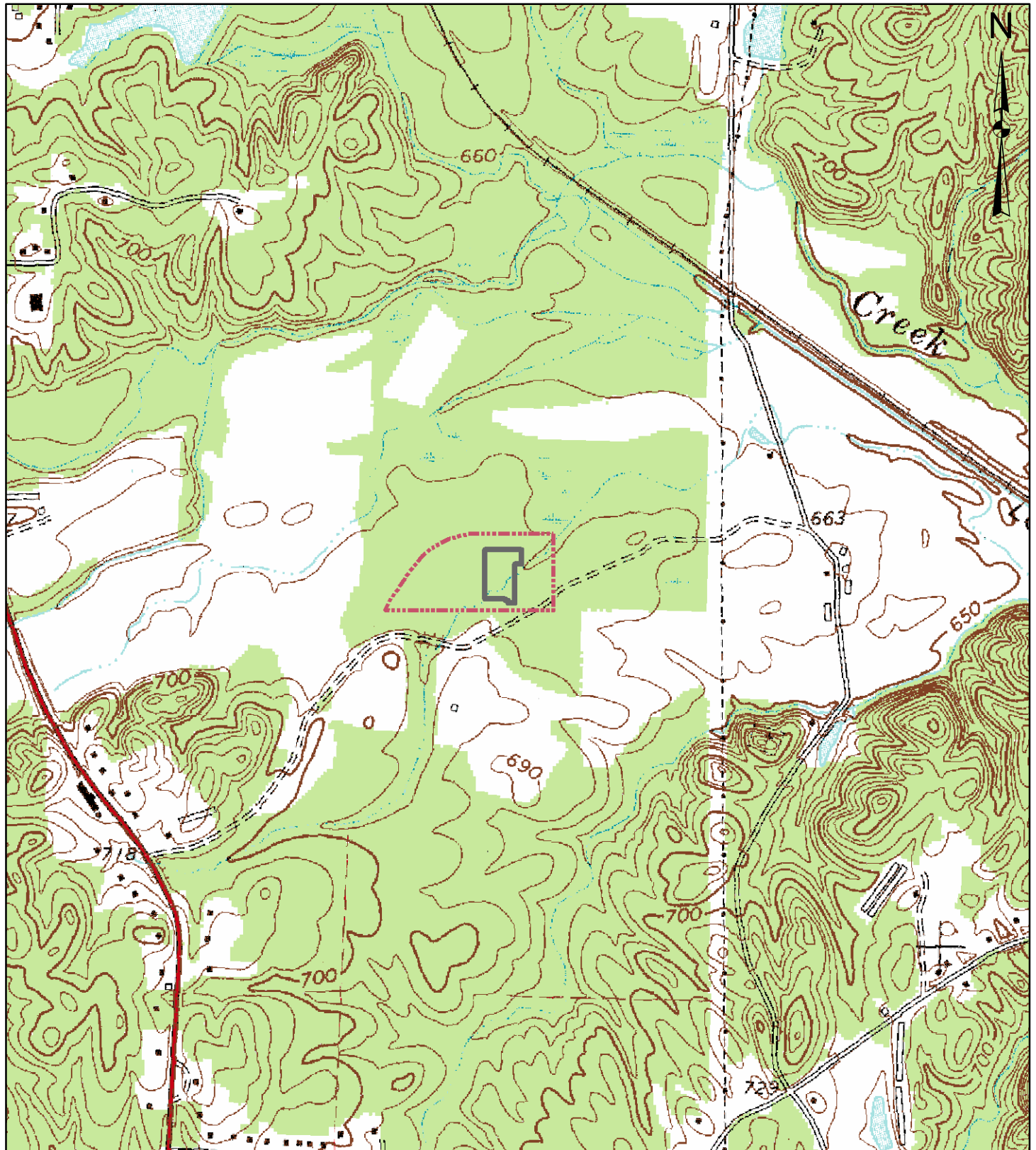
Well	Date Sampled	Tetrachloroethene (mg/L)	Trichloroethene (mg/L)	cis-1,2- Dichloroethene (mg/L)	Vinyl chloride (mg/L)	Total Chlorinated Ethenes (mg/L)	1,1,1- Trichloroethane (mg/L)	1,1-Dichloroethane (mg/L)	Chloroethane (mg/L)	Total Chlorinated Ethanes (mg/L)
Type 1 RRS or DL		0.005	0.005	0.07	0.002		0.2	4	DL	
MW-1R	11/10/2014	<0.005	<0.005	<0.005	<0.002	ND	<0.005	<0.005	<0.01	ND
MW-15	11/10/2014	<0.005	0.017	0.022	0.0048	0.0438	<0.005	<0.005	<0.01	ND
MW-16	11/10/2014	<0.005	<0.005	<0.005	<0.002	ND	<0.005	<0.005	<0.01	ND
MW-3	11/11/2014	2.7	5	2.8	0.39	10.89	0.45	0.45	<0.01	0.905
MW-3 (Dup)	11/11/2014	2.8	5.1	2.7	0.31	10.91	0.4	0.41	<0.01	0.815
MW-3D	11/11/2014	1.80	3.4	2.8	0.4	8.40	0.38	0.29	<0.01	0.675
MW-4	11/11/2014	<0.005	<0.005	<0.005	<0.002	ND	<0.005	<0.005	<0.01	ND
MW-5	11/11/2014	0.0064	0.04	0.3	0.33	0.6764	<0.005	0.14	0.032	0.175

ND: Not detected

Bold: Result greater than RRS, or DL if no RRS

FIGURES

Capitol Adhesives Topographic Map



Source: USGS Quadrangle Dalton South, Georgia 1982

Legend

-  Building
-  Property Boundary

Capitol Adhesives Aerial of Property and Site Features



0 100 200
Feet

Legend

- AST Containment Area
- Location of Spill (approx)

- Storm Water Outfall
- Open Drains
- Subgrade Storm/Drain Lines
- Drainage Ditch
- Approximate Property Boundary

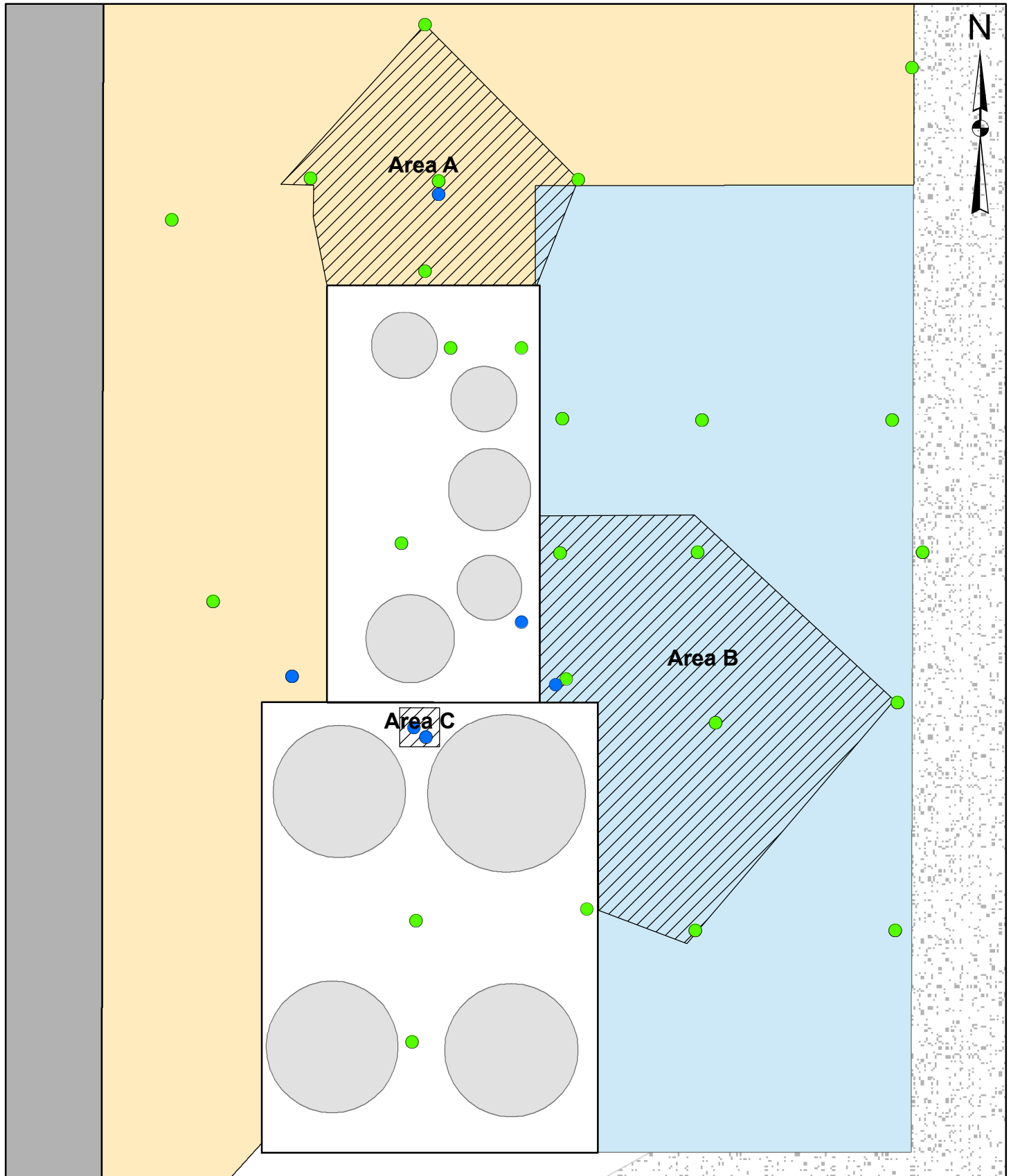
Figure 3
Projected Milestone Schedule

ID	Task Name	2011	2012				2013				2014				2015			
		Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
1	Project Mangement																	
	Financial Assurance with cost estimate	Nov 1																
	Semiannual Progress Reports			Apr 3		Oct 3		Apr 3		Oct 3		May 19		Oct 3		Apr 3		
	Horizontal and vertical delineation, final remediation plan, cost estimate for remediation									Oct 3 Delin.		Final Remediation Plan						
	CSR / UEC																	Oct 3*
2	Well Installation																	
3	Groundwater Sampling		Annual		Semi-Annual		Annual		Semi-Annual					Semi-Annual				
4	Source Area Evaluation and Remedial Action							Prelim Remediation Plan					Remedial Action					
	Pilot Scale ISCO Treatment																	
	Source Area Remedial Action										Pre-Rem Sampling							
5	Human Health Risk Evaluation											Risk Evaluation		Refined				

Complete
 EPD Deadline
 Internal Deadline

* Note the CSR is not officially due until October 3, 2016. However, it is our intent submit the CSR by the end of this year in lieu of the Oct 3, 2015 Progress Report.

Capitol Adhesives Remediation Areas



0 5 10
Feet

PCE (mg/kg)
● < 7.5 mg/kg (REL)
● > 7.5 mg/kg
 Excavation Areas

AST Containment Area
 Building
 Concrete Pad
 New Concrete Pad (Nov 2014)
 Packed Gravel Drive/Parking

PCE (mg/kg)

- < 0.5 mg/kg
- < 7.5 mg/kg (REL)
- > 7.5 mg/kg

Legend:

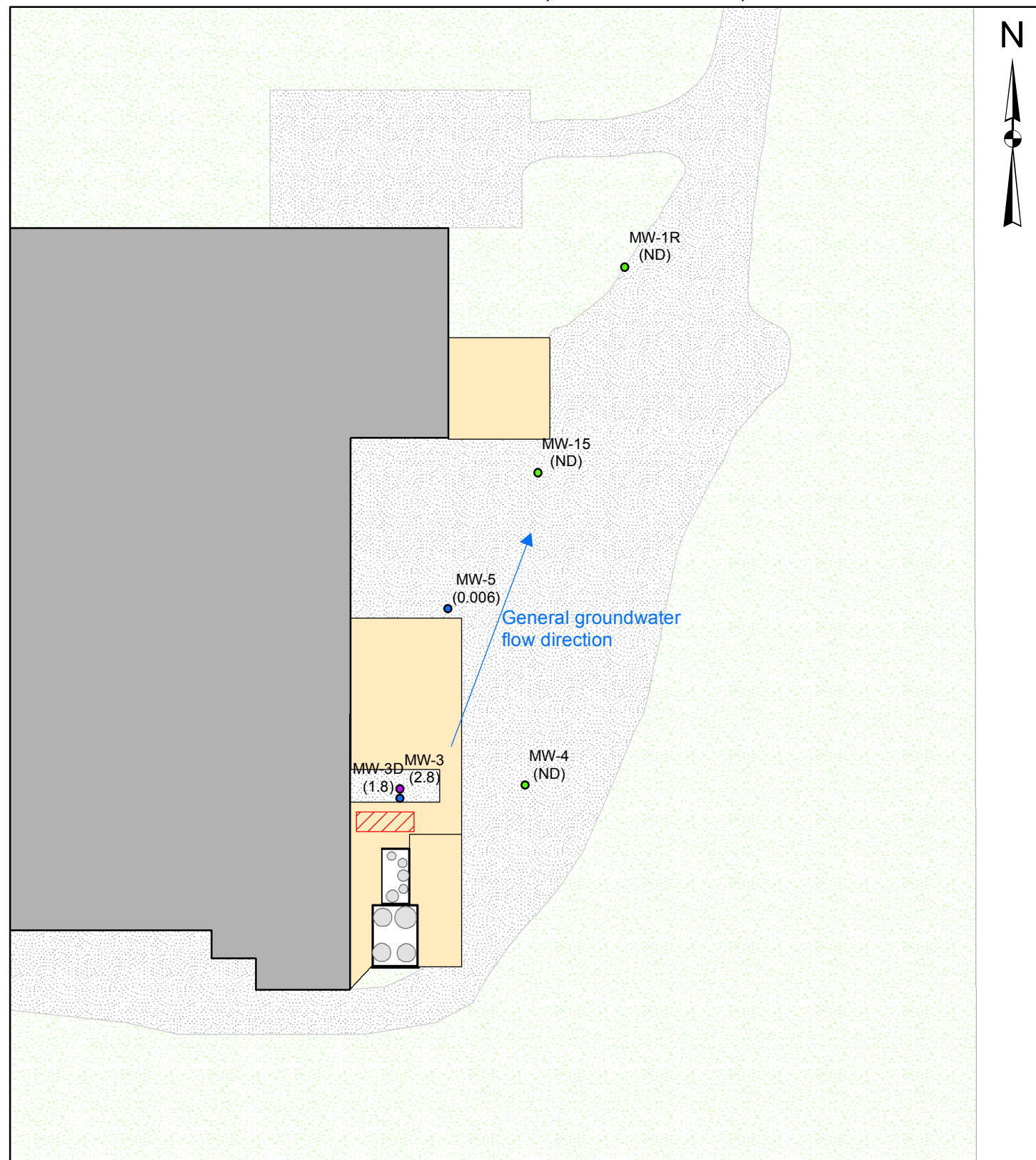
- AST Containment Area
- Building
- Concrete Pad
- Packed Gravel Drive/Parking

Scale: 0, 12.5, 25 Feet

Monitoring Points and Data:

Point ID	Depth (ft)	PCE (mg/kg)	Area
MW-11	5-10ft	ND	Concrete Pad
MW-10	5-10ft	ND	Concrete Pad
GP013	4-6ft	ND	Concrete Pad
SS-BLDG-5	1ft	ND	Concrete Pad
SS-BLDG-6	1ft	0.0037	Concrete Pad
SS-BLDG-1	1ft ND, 5ft ND	ND	Concrete Pad
SS-AST-4	1ft 0.0047, 2ft 0.0042	0.0047	AST Containment Area
SS-AST-3	1ft 0.11, 2ft 0.35	0.11	AST Containment Area
SS-AST-7	1ft 0.013, 2ft 0.014	0.013	AST Containment Area
SS-AST-8	1ft 64, 2ft 6.5	64	AST Containment Area
SS-AST-2	1ft 12.2	12.2	AST Containment Area
SS-AST-10	1ft 0.0054, 2ft 0.02	0.0054	AST Containment Area
SS-AST-11	1ft 0.0095, 2ft 0.013	0.0095	AST Containment Area
SS-AST-1	1ft 7.09	7.09	AST Containment Area
SS-AST-2	1ft 12.2	12.2	AST Containment Area
SS-AST-8	1ft 64, 2ft 6.5	64	AST Containment Area
SS-AST-7	1ft 0.013, 2ft 0.014	0.013	AST Containment Area
SS-AST-4	1ft 0.0047, 2ft 0.0042	0.0047	AST Containment Area
SS-AST-3	1ft 0.11, 2ft 0.35	0.11	AST Containment Area
SS-AST-2	1ft 12.2	12.2	AST Containment Area
SS-AST-1	1ft 7.09	7.09	AST Containment Area
SS-AST-10	1ft 0.0054, 2ft 0.02	0.0054	AST Containment Area
SS-AST-11	1ft 0.0095, 2ft 0.013	0.0095	AST Containment Area
SS-AST-8	1ft 64, 2ft 6.5	64	AST Containment Area
SS-AST-7	1ft 0.013, 2ft 0.014	0.013	AST Containment Area
SS-AST-4	1ft 0.0047, 2ft 0.0042	0.0047	AST Containment Area
SS-AST-3	1ft 0.11, 2ft 0.35	0.11	AST Containment Area
SS-AST-2	1ft 12.2	12.2	AST Containment Area
SS-AST-1	1ft 7.09	7.09	AST Containment Area
SS-AST-10	1ft 0.0054, 2ft 0.02	0.0054	AST Containment Area
SS-AST-11	1ft 0.0095, 2ft 0.013	0.0095	AST Containment Area
SS-AST-8	1ft 64, 2ft 6.5	64	AST Containment Area
SS-AST-7	1ft 0.013, 2ft 0.014	0.013	AST Containment Area
SS-AST-4	1ft 0.0047, 2ft 0.0042	0.0047	AST Containment Area
SS-AST-3	1ft 0.11, 2ft 0.35	0.11	AST Containment Area
SS-AST-2	1ft 12.2	12.2	AST Containment Area
SS-AST-1	1ft 7.09	7.09	AST Containment Area
SS-AST-10	1ft 0.0054, 2ft 0.02	0.0054	AST Containment Area
SS-AST-11	1ft 0.0095, 2ft 0.013	0.0095	AST Containment Area
SS-AST-8	1ft 64, 2ft 6.5	64	AST Containment Area
SS-AST-7	1ft 0.013, 2ft 0.014	0.013	AST Containment Area
SS-AST-4	1ft 0.0047, 2ft 0.0042	0.0047	AST Containment Area
SS-AST-3	1ft 0.11, 2ft 0.35	0.11	AST Containment Area
SS-AST-2	1ft 12.2	12.2	AST Containment Area
SS-AST-1	1ft 7.09	7.09	AST Containment Area
SS-AST-10	1ft 0.0054, 2ft 0.02	0.0054	AST Containment Area
SS-AST-11	1ft 0.0095, 2ft 0.013	0.0095	AST Containment Area
SS-AST-8	1ft 64, 2ft 6.5	64	AST Containment Area
SS-AST-7	1ft 0.013, 2ft 0.014	0.013	AST Containment Area
SS-AST-4	1ft 0.0047, 2ft 0.0042	0.0047	AST Containment Area
SS-AST-3	1ft 0.11, 2ft 0.35	0.11	AST Containment Area
SS-AST-2	1ft 12.2	12.2	AST Containment Area
SS-AST-1	1ft 7.09	7.09	AST Containment Area
SS-AST-10	1ft 0.0054, 2ft 0.02	0.0054	AST Containment Area
SS-AST-11	1ft 0.0095, 2ft 0.013	0.0095	AST Containment Area
SS-AST-8	1ft 64, 2ft 6.5	64	AST Containment Area
SS-AST-7	1ft 0.013, 2ft 0.014	0.013	AST Containment Area
SS-AST-4	1ft 0.0047, 2ft 0.0042	0.0047	AST Containment Area
SS-AST-3	1ft 0.11, 2ft 0.35	0.11	AST Containment Area
SS-AST-2	1ft 12.2	12.2	AST Containment Area
SS-AST-1	1ft 7.09	7.09	AST Containment Area
SS-AST-10	1ft 0.0054, 2ft 0.02	0.0054	AST Containment Area
SS-AST-11	1ft 0.0095, 2ft 0.013	0.0095	AST Containment Area
SS-AST-8	1ft 64, 2ft 6.5	64	AST Containment Area
SS-AST-7	1ft 0.013, 2ft 0.014	0.013	AST Containment Area
SS-AST-4	1ft 0.0047, 2ft 0.0042		

Capitol Adhesives Groundwater PCE (November 2014)



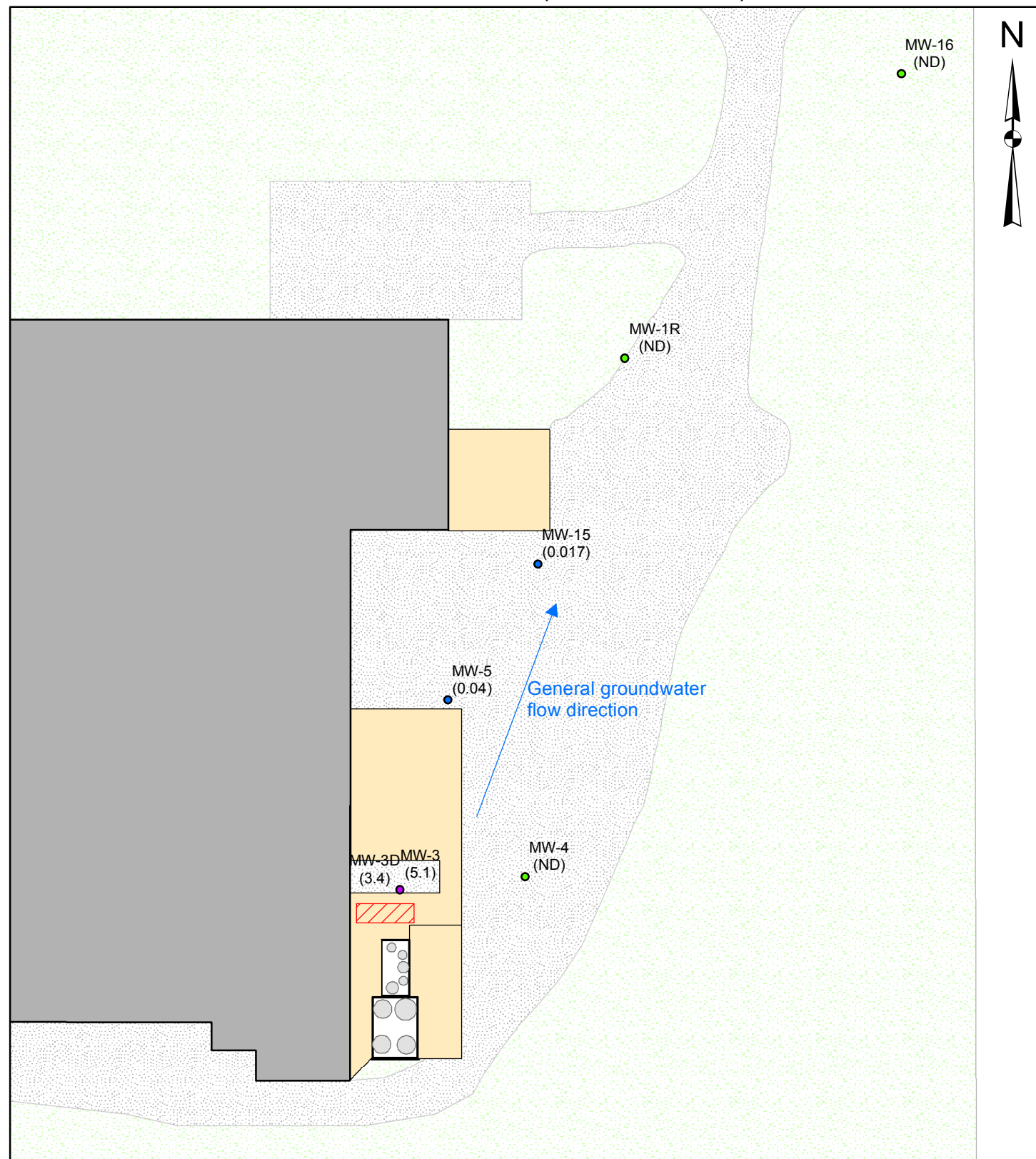
0 50 100
Feet

PCE (mg/L)

- Non-detect
- < 0.005 (Type 1 RRS)
- 0.005 - 2
- > 2

- Location of 1995 Spill (approx)
- Building
- Concrete Pad
- AST Containment Area
- Packed Gravel Drive/Parking
- Grass

Capitol Adhesives Groundwater TCE (November 2014)



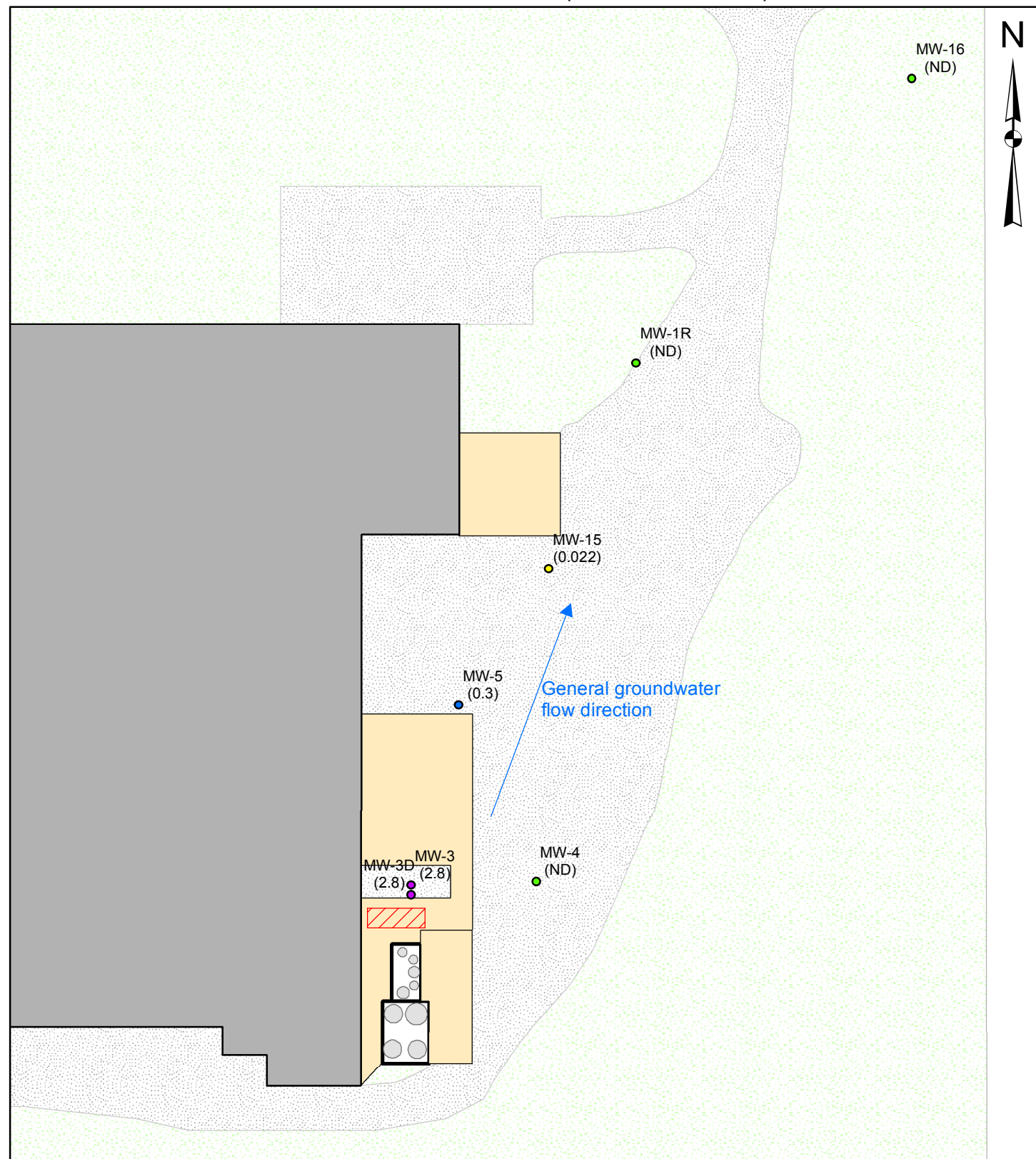
0 50 100
Feet

TCE (mg/L)

- Non-detect
- < 0.005 (Type 1 RRS)
- 0.005 - 2
- > 2

- Location of 1995 Spill (approx)
- Building
- Concrete Pad
- AST Containment Area
- Packed Gravel Drive/Parking
- Grass

Capitol Adhesives Groundwater cis-DCE (November 2014)



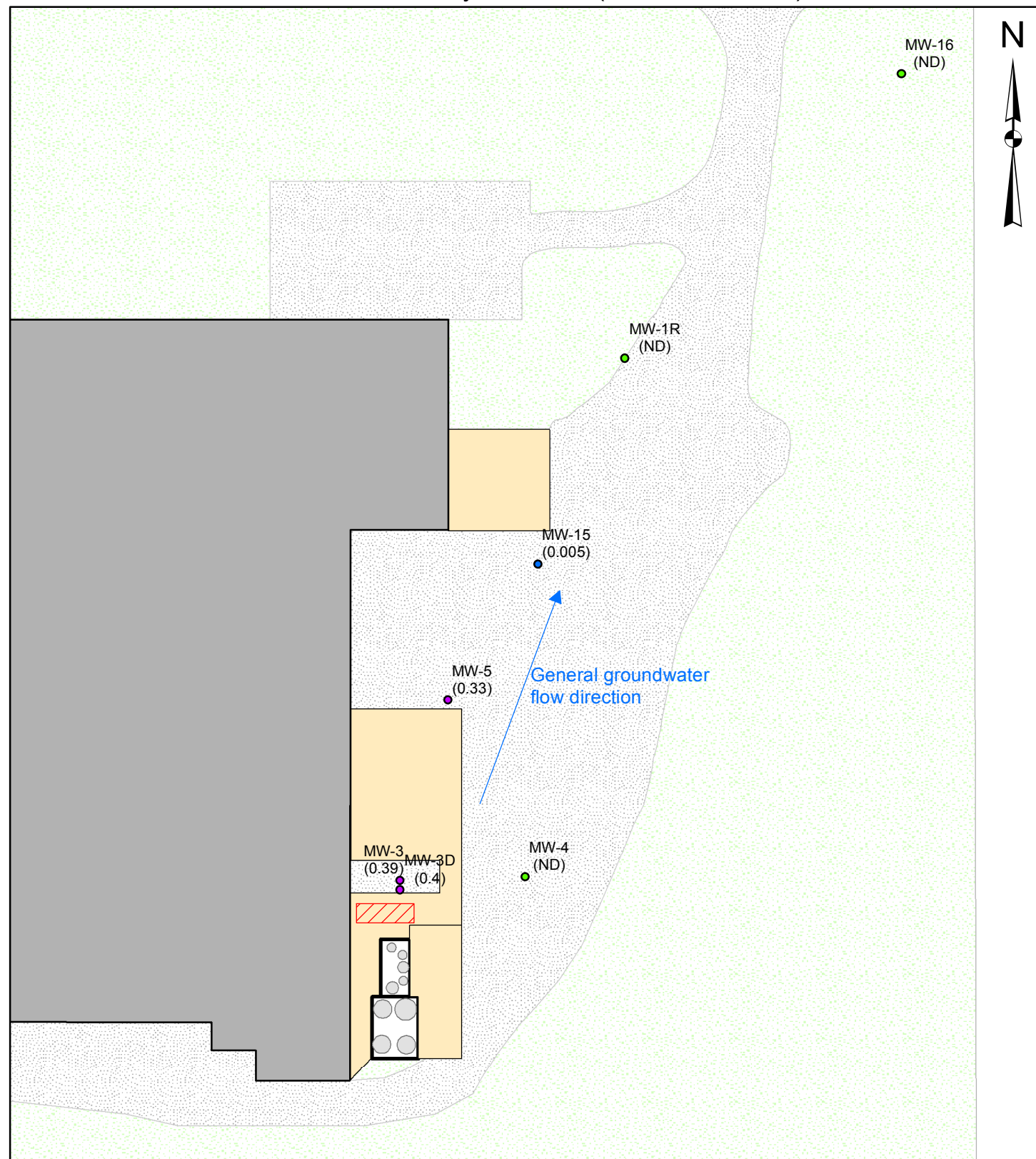
0 50 100
Feet

DCE (mg/L)

- Non-detect
- < 0.07 (Type 1 RRS)
- 0.07 - 2
- > 2

- Location of 1995 Spill (approx)
- AST Containment Area
- Building
- Concrete Pad
- Packed Gravel Drive/Parking
- Grass

Capitol Adhesives Groundwater Vinyl Chloride (November 2014)



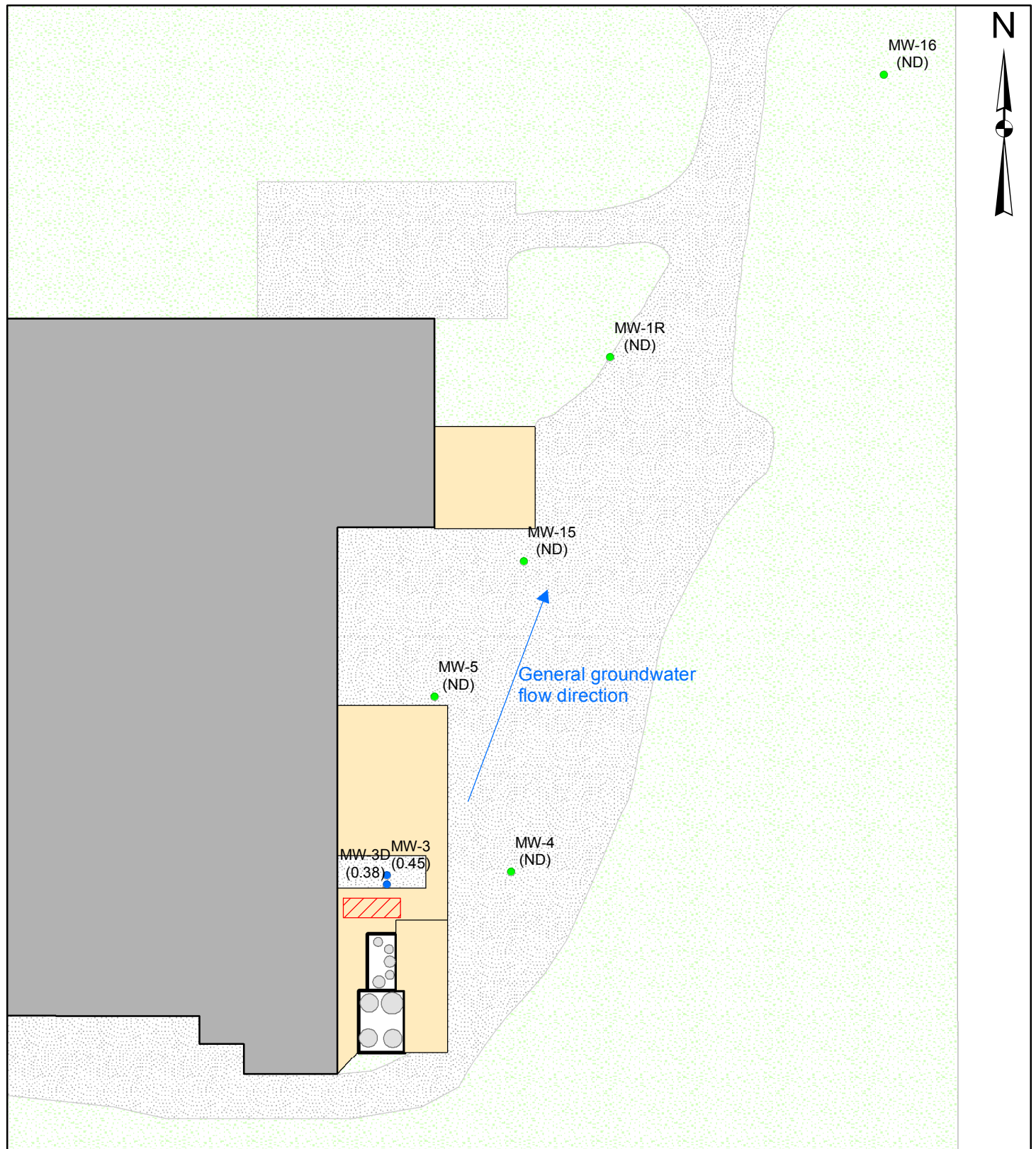
0 50 100
Feet

calcval

- Non-detect
- < 0.002 (Type 1 RRS)
- 0.002 - 0.1
- > 0.1

- Location of 1995 Spill (approx)
- AST Containment Area
- Building
- Concrete Pad
- Packed Gravel Drive/Parking
- Grass

Capitol Adhesives Groundwater 1,1,1-TCA (November 2014)



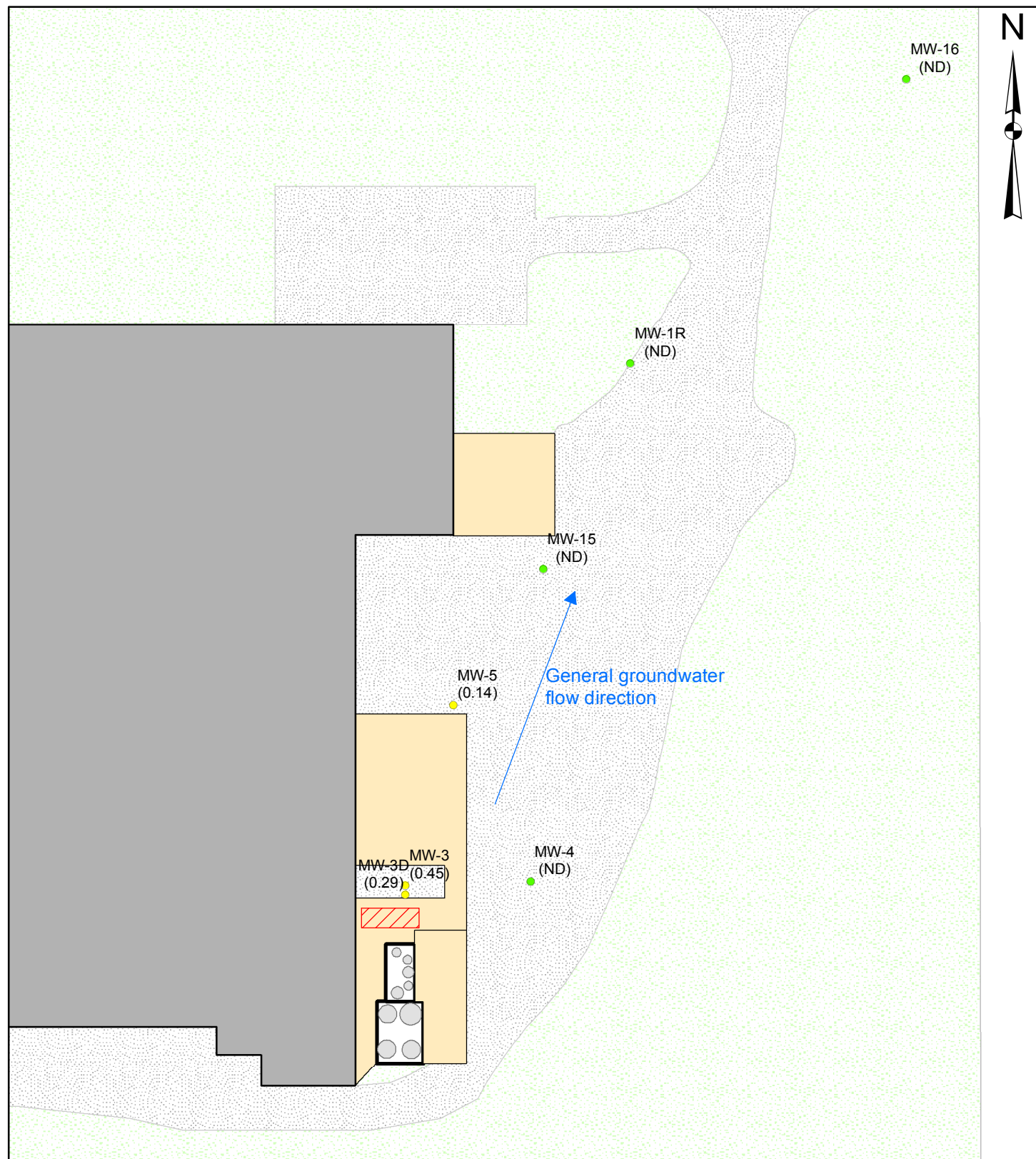
0 50 100
Feet

1,1,1-TCA (mg/L)

- Non-detect
- < 0.2 (Type 1 RRS)
- 0.2 - 0.5
- > 0.5

- Location of 1995 Spill (approx)
- AST Containment Area
- Building
- Concrete Pad
- Packed Gravel Drive/Parking
- Grass

Capitol Adhesives Groundwater 1,1-DCA (November 2014)



0 50 100
Feet

DCA (mg/L)

- Non-detect
- <4 (Type 1 RRS)
- > 4

Location of 1995 Spill (approx)

AST Containment Area

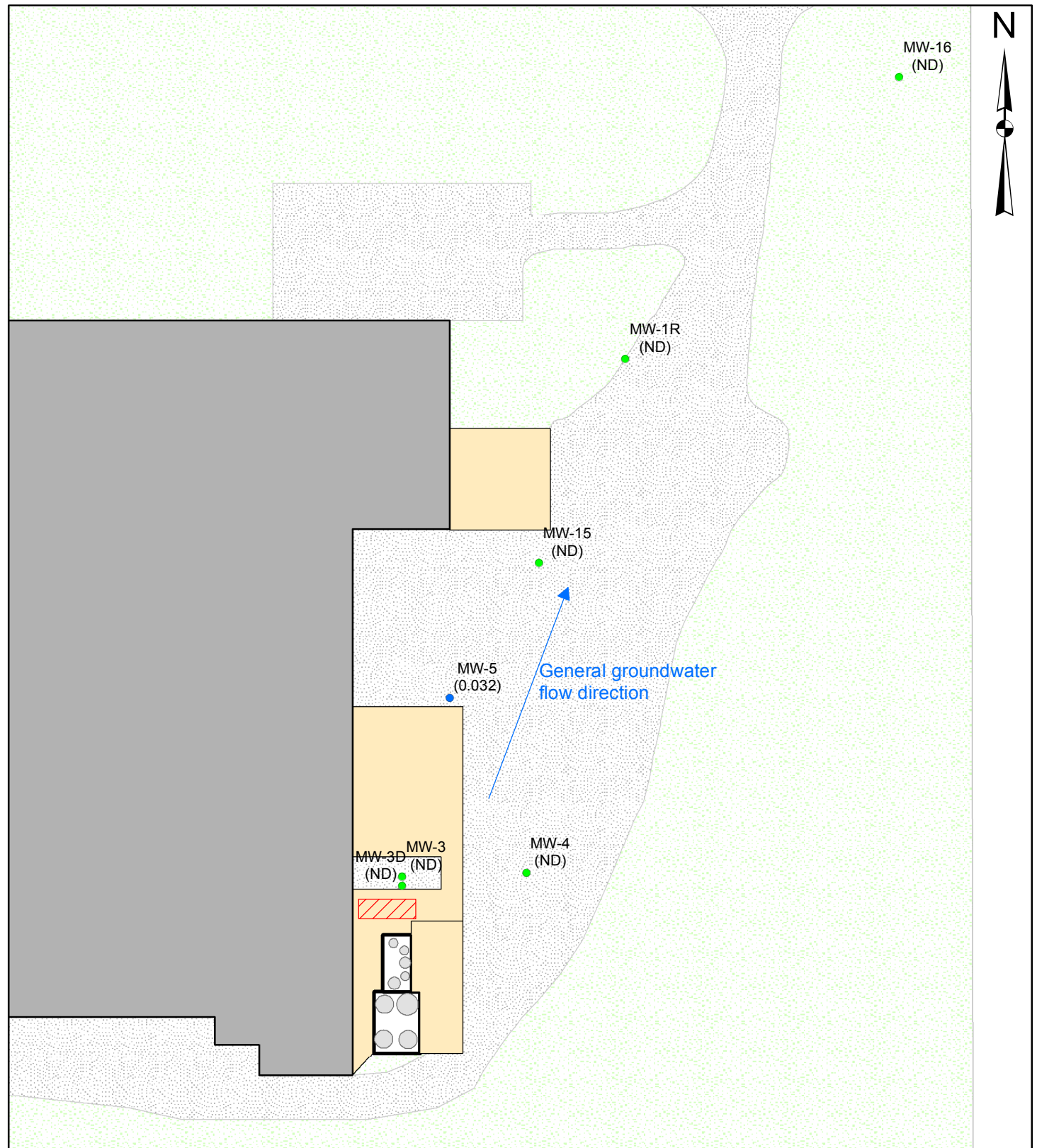
Building

Concrete Pad

Packed Gravel Drive/Parking

Grass

Capitol Adhesives Groundwater CA (November 2014)



0 50 100
Feet

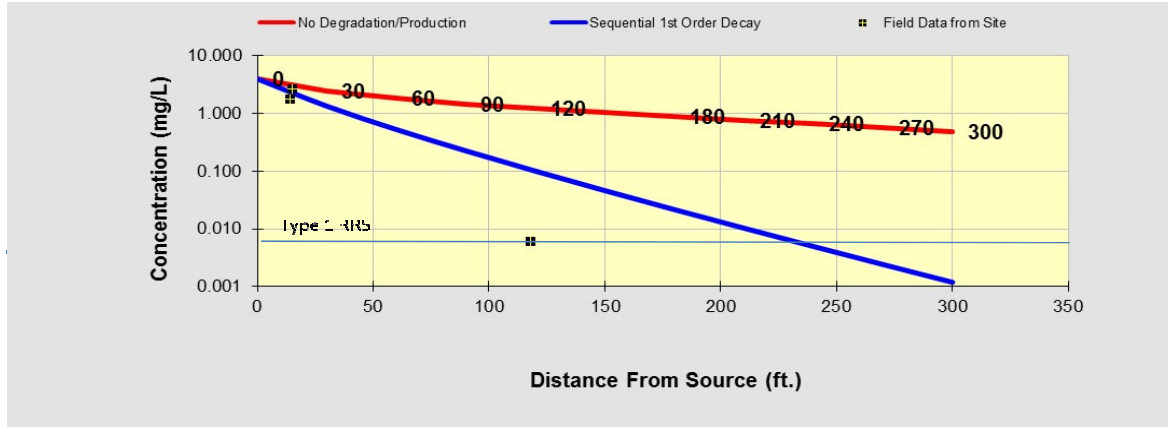
CA (mg/L)

- Non-detect (Type 1 RRS)
- Detect

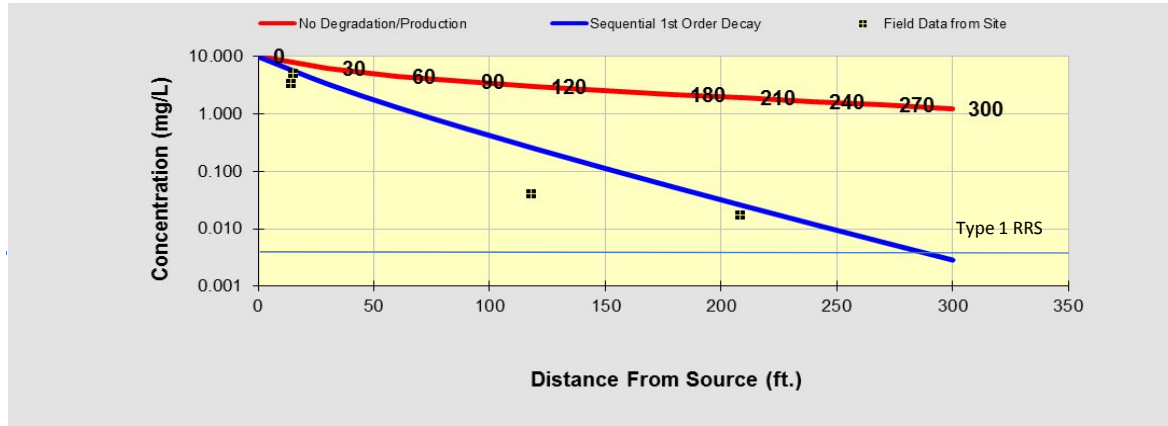
- Location of 1995 Spill (approx)
- AST Containment Area
- Building
- Concrete Pad
- Packed Gravel Drive/Parking
- Grass

Figure 8. Chlorinated Ethene Modeling Results (November 2014)
Modeled Dissolved Chlorinated Ethene Concentrations Along Plume Centerline

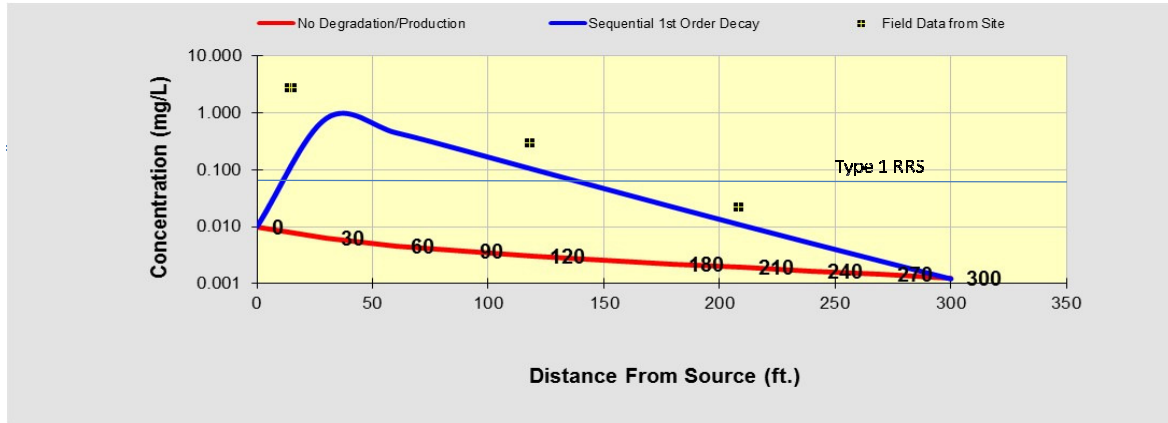
Tetrachloroethene



Trichloroethene



cis-1,2-Dichloroethene



Vinyl chloride

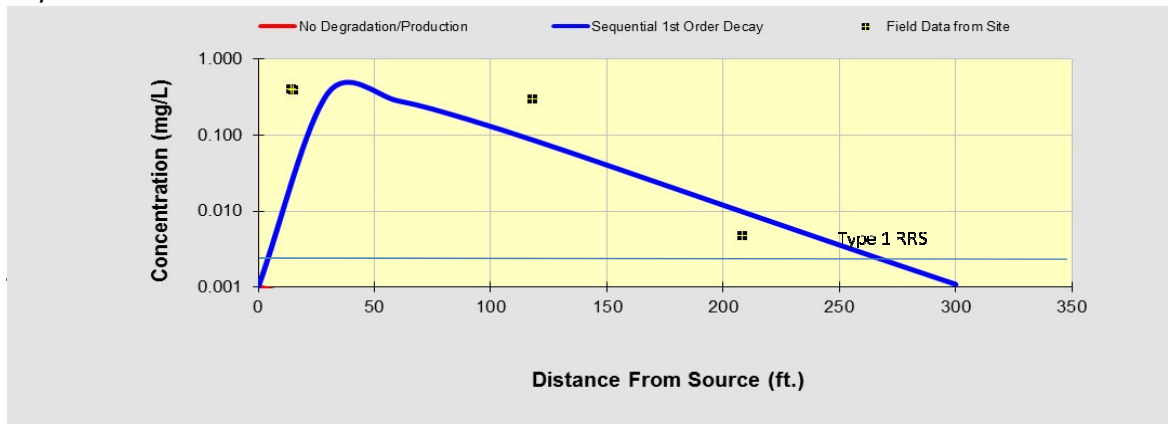
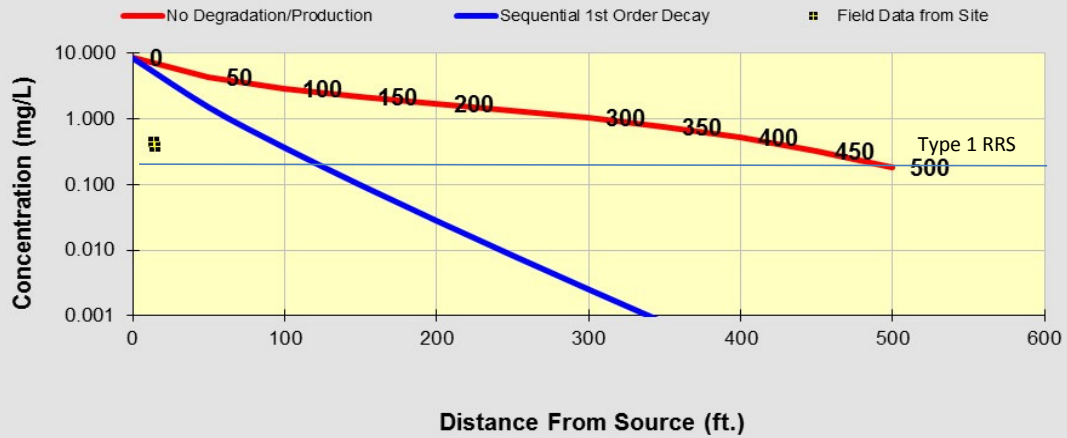
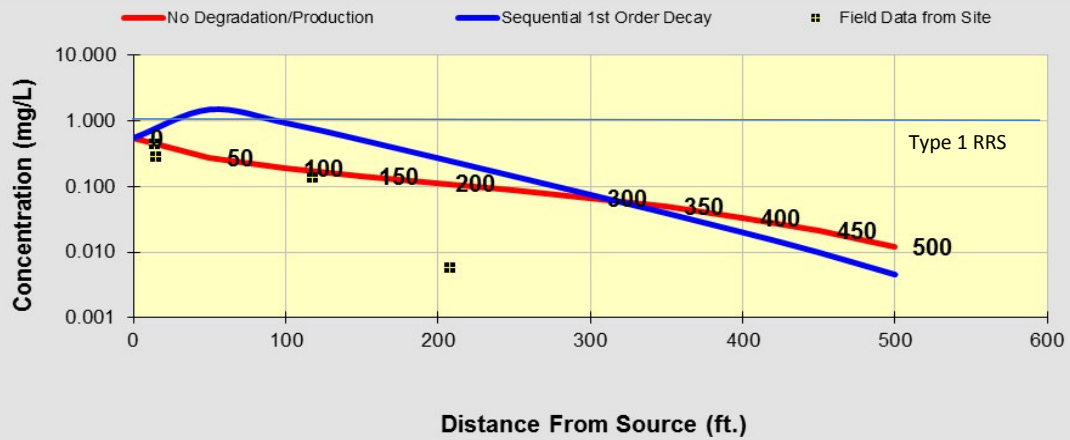


Figure 9. Chlorinated Ethane Modeling Results (November 2014)
Modeled Dissolved Chlorinated Ethane Concentrations Along Plume Centerline

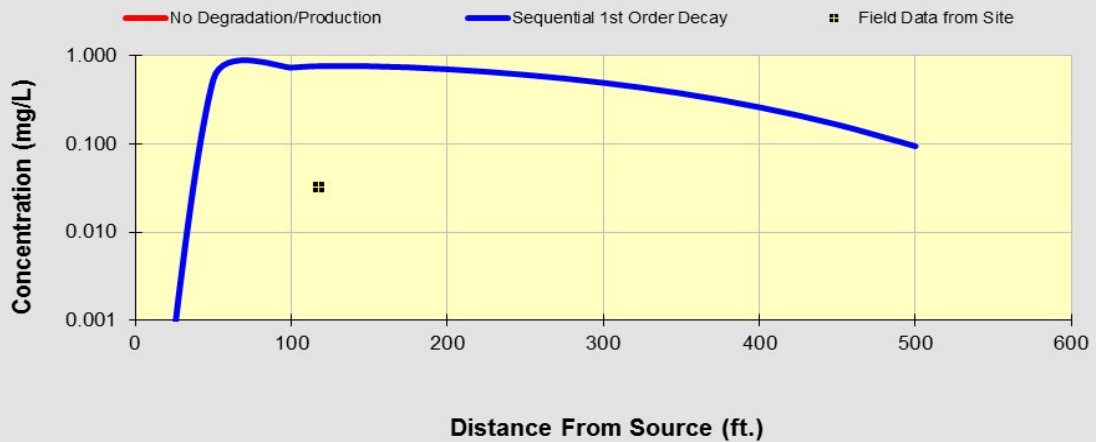
1,1,1-Trichloroethane



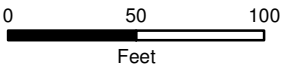
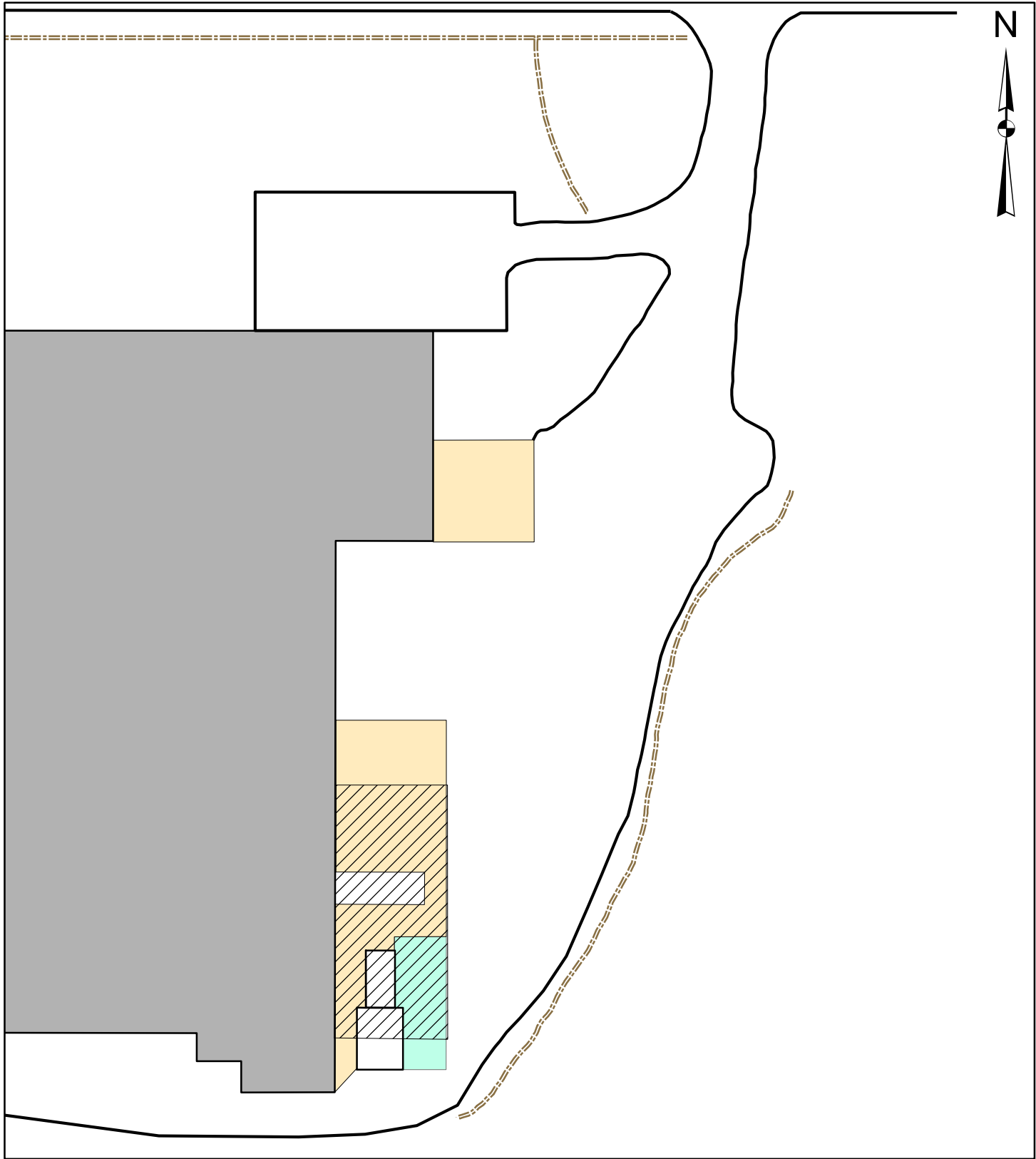
1,1-Dichloroethane



Chloroethane



Capitol Adhesives
Environmental Covenant Restricted Area



Legend

-  Environmental Covenant Restricted Area
-  Building
-  Concrete Pad
-  New Concrete Pad (Nov 2014)

APPENDIX A

PROFESSIONAL GEOLOGIST
SUMMARY OF HOURS

APPENDIX A
Environmental Planning Specialists, Inc.
PG Hours
October 2014 through April 2015

	Oct 14	Nov 14	Dec 14	Jan 15	Feb 15	Mar 15	Apr 15	TOTAL
River Associates:Dalton Adhesives:Progress Reports								
SP-Senior Principal:SP-Document Review	0.00	0.00	3.50	0.00	0.00	3.00	0.00	6.50
Total River Associates:Dalton Adhesives:Progress Reports	0.00	0.00	3.50	0.00	0.00	3.00	0.00	6.50
River Associates:Dalton Adhesives:Project Management								
SP-Senior Principal:SP-Project Support	0.00	0.00	1.00	0.00	0.00	4.00	0.00	5.00
Total River Associates:Dalton Adhesives:Project Management	0.00	0.00	1.00	0.00	0.00	4.00	0.00	5.00
TOTAL	0.00	0.00	4.50	0.00	0.00	7.00	0.00	11.50

APPENDIX B

CONCEPTUAL SITE MODEL

APPENDIX B **CONCEPTUAL SITE MODEL**

April 2015

TABLE OF CONTENTS

B1	CONCEPTUAL SITE MODEL	1
B1.1	Overview	1
B1.2	Ground Surface Features	1
B1.3	Subsurface Features	1
B1.3.1	Geological Setting	1
B1.3.2	Hydrogeological Setting.....	2
B1.4	Extent of Contamination (Delineation)	4
B1.4.1	Groundwater Conditions.....	4
B1.4.2	Solid Aquifer Matrix and Vadose Zone Soil	5
B1.5	Fate and Transport Summary	9
B1.5.1	Physical Fate and Transport.....	9
B1.5.2	Biological Degradation.....	10
B1.6	Potential Receptors and Exposure Pathways	12
B1.6.1	Setting	12
B1.6.2	Human Health	12
B1.6.3	Ecological	14

TABLES

FIGURES

B1 CONCEPTUAL SITE MODEL

B1.1 Overview

The Conceptual Site Model (CSM) is intended to establish a common knowledge base about the Site and its environmental condition. This section describes the surface and subsurface features at the Site, discusses the fate and transport of chlorinated solvents, and discusses the potential receptors and exposure pathways associated with the Site. The figures are plan view and profile diagrams depicting the extent of chlorinated solvents in the subsurface. Viewed in total, these figures give a three-dimensional representation of the site conditions.

B1.2 Ground Surface Features

The Site consists of one steel frame building (approximately 100,000 sf) with concrete masonry walls and slab on grade concrete floor with a metal roof. Parking lots are located to the north and east of the building and a hard-packed gravel road/driveway runs along the eastern and southern sides of the building. Ten loading docks are located on the east wall of the facility; here the driving surface is paved in concrete. Several lean-to structures are on the south and west sides of the building. There is limited grassy terrain on the eastern and northern side of the facility. The topography of the Site gently slopes from the south to northeast. A shallow drainage ditch is located around the southern and eastern side of the Site and conveys runoff toward Cross Plains Boulevard. Samples collected from the southern drainage ditch did not contain concentrations of volatile organic compounds (VOCs) above HSRA Notification Concentrations (WRS, 2006). A subgrade storm drain system runs from the southeastern side of the building, across the spill area and then north to the ditch along Cross Plains Boulevard. There are no stream features on or adjacent to the Site. These Site features are shown on Figure 2 of the Progress Report.

B1.3 Subsurface Features

B1.3.1 Geological Setting

The Site occurs within the Valley and Ridge Physiographic Province of northwest Georgia. The province is dominated by a northward-trending valleys separated by low, rounded ridges and by high, steep-sided ridges (Cressler, 1974). The stratigraphic units below the Site are within the Conasauga Formation of the middle and late Cambrian system, which is underlain by the Rome Formation. Cressler (1974) describes the Conasauga Formation as follows:

Thickness: 3,000-5,000 feet (maximum thickness unknown)

Lithology: The formation consists of alternating units of shale and limestone that vary in thickness and relative proportion from place to place. In some areas the formation is mainly shale.

The middle unit of the Conasauga Formation is composed of approximately 1,000 feet of light green and yellowish clay shale containing small lenses of blue limestone. Some silty shale is also present, but in smaller quantities than in the lower unit.

A cross section location map is included as Figure B-1, and cross sections are shown on Figures B-2 and B-3. As depicted on these figures, the shallow stratigraphic profile at the Site consists of 4 to 6 feet of fill material placed during construction of the facility, followed by 10 to 15 feet of unconsolidated soil (clayey sand or sandy clay or shaley clay, but predominantly sandy clay) grading to weathered shale approximately to 15 to 30 feet bgs. Competent shale has been observed from 31 to 41 feet bgs and a harder rock (possibly limestone) has been observed below 41 feet bgs.

B1.3.2 Hydrogeological Setting

Cressler (1974) describes the hydrologic properties of the Conasauga Formation as follows:

Wells in shale yield up to 5 gpm, or in some locations 17 gpm; and dry wells also occur. Wells in limestone normally supply between 5 and 25 gpm and ones properly located with respect to the drainage will furnish up to 300 gpm. Most wells are less than 300 feet deep, though some extend to a depth of 500 feet. Wells penetrating shale and limestone mixed generally supply from about 2 to 20 gpm, but some yield up to 100 gpm if they are near a source of recharge. The well water varies from soft to hard and has a low to moderate iron content. Some large springs have openings in the Conasauga, but discharge water from the Knox Group.

The water table at the Site fluctuates on the scale of 5 to 8 feet at a given location, with many locations exhibiting a high water table mark at the ground surface (i.e., artesian conditions). Although the water table intersects the ground surface, the conditions are such that there is no or minimal pooling of water on the ground surface (owing to evaporation). In the spring of 2011 a weekly groundwater measurement program was implemented for three consecutive weeks to better define the high water table conditions. Depth to groundwater measurements were made at all the existing wells at the Site on three consecutive weekly site visits. The results are presented in Table B-1 along with the results from sampling events since 2011. This information was combined with the historical groundwater measurements to determine the historical high water table elevations, which can be seen on the cross-sections (Figures B-2 and B-3). The table below shows the high watertable mark for the shallow wells. Ten of the shallow wells have exhibited conditions where the groundwater table intersects the ground surface. The only wells that have consistently shown groundwater deeper than two feet bgs are MW-6, MW-11, MW-12 and MW-13. Figure B-4 shows the locations of the wells and their high water table marks. The overall groundwater flow direction is to the northeast (as shown on Figure B-5).

Well	High Water Table Mark: Depth Below Ground Surface (ft)
MW-1	0
MW-2	0
MW-3	0
MW-4	0
MW-5	0
MW-6	2.78
MW-7	0
MW-8	0
MW-9	0
MW-10	0.59
MW-11	2.09
MW-12	3.29
MW-13	2.16
MW-14	0
MW-15	0
MW-16	0.67
MW-17	0.72*

* Flush-mount-well, depth below top of casing shown

The topographic map (Figure 1 of the Progress Report) is dated 1982, prior to the construction of the facility. This map shows that the facility is located in a low topographic relief (valley) area. This figure (which shows the approximate location of the facility) also shows that an intermittent stream ran through where the southeastern corner of the building now stands. This stream ran in a northeasterly direction across where the Site now exists. This is the same direction as the groundwater flow seen currently at the Site. As mentioned previously, there is 4 to 6 feet of fill material that was placed in this low topographic area during construction of the facility. The high water table conditions are explained by this original topographic setting. The valley bottom pitches from the south to the north creating artesian pressure when the water table is high.

Figure B-4 was used to define soil zones on the Property based on the high water table marks. The fully saturated zone is the area where the subsurface is fully saturated due to the water table intersecting the ground surface. The fully saturated zone shown on Figure B-4 was conservatively assumed to be the area between the wells where the groundwater table intersects the ground surface. It is likely that the actual fully saturated zone is larger than this area. In the fully saturated zone there is no vadose zone. The approximate depths of the vadose zone in other areas of the Property shown on Figure B-4 are based on the depth to groundwater measurements. It is reasonable to infer that the fully saturated zone is located where the intermittent stream formerly ran.

Hydraulic gradients, hydraulic conductivity and transmissivity calculations¹ were presented in the CAP (WRS, 2006). Horizontal hydraulic gradients range from 0.0083 to 0.0125 ft/ft. The hydraulic conductivity ranges from 2.63 to 8.09 ft/day with an average and geometric mean of 5.3 and 4.5 ft/day. The transmissivity ranges from 244.61 to 1,452 gallons per day per foot (gpd/ft). Ranges of groundwater flow velocities were estimated using the modified Darcy equation:

$$V = Ki/n_e$$

where: V = average linear velocity
 K = hydraulic conductivity
 i = hydraulic gradient
 n_e = effective porosity

Groundwater flow velocities were estimated using the average hydraulic conductivity 5.3 ft/day and an estimated effective porosity (n_e) for Site soils of 0.3. Using the range of hydraulic gradients (0.0083 to 0.0125 feet/ft), the range of groundwater flow velocities was calculated to be approximately 53 to 80 ft/year.

B1.4 Extent of Contamination (Delineation)

B1.4.1 Groundwater Conditions

Twenty groundwater monitoring wells at the Site have been sampled over time (boring logs and well construction diagrams are presented in Appendix F and Appendix G of the VIRP, respectively) and two new wells were installed in 2012. Additionally, nine direct push-point water samples were collected in March 2009. A summary of the historical analytical results for constituents detected in the recent sampling event is presented in Table B-2.

Chlorinated ethenes and ethanes are the constituent groups of interest at the Site, associated with the 1995 spill event. 1,1,1-TCA, PCE, and TCE have been consistently detected in groundwater above RRSs. These chlorinated solvents can degrade biologically in the subsurface. Through reductive dechlorination, parent compounds (i.e., 1,1,1-TCA and PCE/TCE) can be degraded biologically into daughter products. 1,1,1-TCA can be degraded into 1,1-DCA and then CA. Similarly, PCE can be degraded into TCE, cis-DCE and VC. Groundwater concentrations of total chlorinated ethenes (PCE, TCE, cis-DCE and VC) in February 2013 (the last event when all wells were sampled) are shown in Figure B-6. Similarly, groundwater concentrations of total chlorinated ethanes (1,1,1-TCA, 1,1-DCA and CA) are shown in Figure B-7. The spatial distribution of constituents in groundwater is consistent with the pattern observed in the subsurface solid matrix with groundwater exhibiting the highest concentrations at the location of the tanker truck spill. The primary direction of the groundwater plumes are to north and northeast of the spill area, consistent with the direction of groundwater flow.

¹ Hydraulic conductivity and transmissivity were determined by slug tests on four monitoring wells using the Bouwer and Rice method.

The distribution of parent compounds and daughter products demonstrate degradation has occurred over the Site's history, with degradation products having a tendency to exhibit a greater spatial distribution in the down-gradient direction compared to the parent compounds.

Figures B-8 and B-9 show time series graphs for monitoring well MW-5 (which is in the plume, down-gradient from the tanker truck spill area) for the PCE and 1,1,1-TCA degradation parameters, respectively. These figures demonstrate that biodegradation is occurring in the plume. The figures clearly show that the peak for the parent compounds (TCE and 1,1,1-TCA) appears first followed by the next degradation parameters (cis-DCE and 1,1-DCA) then the final degradation parameters (VC and CA). (There were only very small concentrations of PCE, likely due to biodegradation occurring prior to reaching MW-5.)

The plume has been characterized and delineated horizontally (see Figures B-6 and B-7 that show total chlorinated ethenes and total chlorinated ethanes from 2013) with MW-16 (the POE well) and MW-1R to the north, MW-14 to the east, MW-8 to the south and MW-17 to the west all being non-detect. Table B-2 shows groundwater results compared to the delineation criteria (Type 1 RRS). Table B-2 and Figures B-6 and B-7 demonstrate horizontal delineation of groundwater in all directions, most importantly with MW-1R and MW-16 in the direction of groundwater flow.

Two monitoring well clusters are available to evaluate vertical delineation (MW-2/MW-2D and MW-3/MW-3D/MW-3B). A review of data from the MW-2 and MW-3 well clusters identified VOCs in both the shallow and deeper wells, but both the number of constituents and concentrations are lower in the deepest well of each cluster. Thus, the concentrations of constituents decrease with depth.

Additionally, there is an upward vertical migration of groundwater as demonstrated in the Fourth Progress Report (EPS, 2013b) using the EPA's online vertical gradient calculator². Therefore, vertical delineation of groundwater has been addressed based on the upward vertical migration of groundwater, the decreasing concentrations with depth, and because source material has been being addressed at the Site and the vertical groundwater condition does not affect the BIOCHLOR model predictions. In a letter dated February 3, 2014, the EPD agreed that the concentrations are decreasing with increasing depth and did not require the installation of an additional deep well for vertical delineation.

B1.4.2 Solid Aquifer Matrix and Vadose Zone Soil

B1.4.2.1 Subsurface Investigations and Matrix Classification

Although the solid aquifer matrix and vadose zone soil was considered separately in terms of potential corrective action, for ease of presentation and delineation both matrices will be discussed together. Several subsurface investigations have been completed to date at the Site. A brief summary of the historical investigations is provided below. Solid-matrix samples were collected and analyzed for VOCs during these investigations both from the zone of the water table fluctuation and from beneath the low water table mark, for the purpose of helping to describe/define the groundwater conditions from a perspective of source area(s) that might warrant

² <http://www.epa.gov/athens/learn2model/part-two/onsite/vgradient.html>

a different remedial action approach to that for the dissolved-phase plume. A summary of the analytical results is presented in Table B-3 and the sample locations are shown on Figure B-10. Available boring logs are presented in Appendix F of the VIRP.

Figure B-10 also shows the high water table zones. This figure was used to classify each sample collected as either vadose zone soil or being in the solid aquifer matrix by determining whether the sample collected was above or below the estimated high water table mark at that location and depth. Thus, Table B-3 indicates whether each sample is in the solid aquifer matrix or vadose zone soil.

July 2004 Subsurface Investigation. In July 2004, four solid matrix samples were collected during the installation of MW-1D, MW-2D, MW-3 and MW-3D. Sample collection depth ranged from 8 to 15 ft bgs. Chlorinated ethenes, ethanes and a single detection of toluene (at MW-2D) were detected in these solid matrix samples. Note that the high water table mark for these wells is less than 1 ft bgs (with all but MW-3D having a groundwater level at the ground surface), indicating that all of these solid matrix samples were collected from below the high water table mark.

August 2005 Subsurface Investigation. In August 2005, 13 solid matrix samples were collected from direct-push cores to the east of the main facility building (identified as the GP samples in Figure B-10). Samples were collected at depths from 2 to 8 ft bgs. The only sample locations that are in the greater than 2 ft high water table zone are GP007 and GP008. These two samples will be considered as representing the vadose zone while the remaining samples are in the solid aquifer matrix. Consistent with the July 2004 investigation, chlorinated ethenes and ethanes were detected in these samples.

June 2006 Subsurface Investigation. In June and July 2006, nine solid matrix samples were collected during the installation of additional site monitoring wells (MW-8 to MW-16 in Figure B-10). Samples were collected at depths from 5 to 15 ft bgs. The high water table mark for all of these locations is less than 5 feet, thus all of these samples are in the solid aquifer matrix. Only two sample locations exhibited chlorinated ethenes (MW-10 and MW-11) and one location (MW-15) exhibited compounds characteristic of petroleum hydrocarbons (benzene, toluene, ethyl benzene and/or xylene).

MIP Profiling and Associated Core Sampling. Subsurface investigations were performed in October, 2008 to delineate conditions beneath the AST containment basin, beneath the nearby facility structure and areas hydraulically down-gradient. These investigations were completed with a combination of both traditional direct-push core sampling and membrane interface probe (MIP) profiling. The MIP profiling, unlike tradition core sampling, yields nearly continuous measurements of total VOCs in the subsurface as it is advanced, providing a more continuous screening-level characterization of the subsurface conditions. Appendix I of the VIRP contains excerpts of the MIP data originally provided in the *Source Area Investigation Report* (EPS, 2008). Interpretation of the MIP profiles indicate that residual VOC product (if present) is entrained in the upper surficial deposits and has not been released in sufficient quantities to remain mobile and transport to deep depths. The MIP profiles also suggest the presence of a dissolved-phase plume.

After completion of the MIP field screening, six core samples were collected at offsets (1 to 2 ft) to the completed MIP borings to quantify VOCs and their respective concentrations (MIP sample series on Figure B-10). Solid media samples were collected to characterize a range of electron capture detector (ECD) responses from the MIP both above and below the measured water table during this point in time. A comparison of the core sample and MIP result are presented in Appendix I of the VIRP. All but two (MIP-6 and MIP-12) of these sample locations fall in the fully saturated zone, and are, therefore, classified as being in the solid aquifer matrix. MIP-6 and MIP-12 fall in the 0-1ft high water table zone. However, all of the samples collected at these locations were at depths greater than 1 ft bgs. Therefore, these samples are also classified as being in the solid aquifer matrix.

AST and Facility Subsurface Samples. On 12 January 2009, subsurface solid matrix samples (designated as “SS” samples on Figure B-10) were collected from multiple locations beneath the facility foundation slab, from beneath the AST containment basin slab, and one sample adjacent to the subgrade site storm drain. Concrete cores were removed from the facility foundation prior to the collection of direct-push cores. Samples from beneath the AST containment basin were collected by first hand-excavating a trench adjacent to the containment basin wall to allow access under the basin slab with a hand auger. A hand auger was then advanced at an angle horizontally underneath the AST containment basin slab (a few feet to the basin interior from the outer wall) to a depth of 1.5 to 2 ft. Seven of the locations (SS-BLDG-1, SS-BLDG-5, SS-BLDG-6, SS-AST-1, SS-AST-2, SS-HA-1, and SS-HA-2) sampled are within the fully saturated zones, and are thus in the solid aquifer matrix. Two of the locations (SS-BLDG-2 and SS-BLDG-4) are in the 0-1 ft high water table zone. Samples were collected at 1 ft bgs at each of these locations. Thus, these two samples are considered to be at the high water table, and, thus, are being considered vadose zone soil. However, another sample was collected below 1 ft bgs at location SS-BLDG-2 and is, thus, considered to be in the solid aquifer matrix. The remaining sample (SS-BLDG-3) is in the 1-2 ft high water table zone. The sample collected from this location was collected at 1 ft bgs and is, thus, considered a vadose zone soil.

Supplemental Subsurface and Groundwater Samples. On March 10, 2009, 10 subsurface solid matrix samples were collected from the area north of the AST containment basin and at the furthest known extent of the VOC groundwater plume. The highest concentrations were observed in SO-3, which was collected in the truck spill area, just north of the AST containment area. With the exception of SO-5, all of these sample locations were within the fully saturated zone. Therefore, the samples collected from these locations are considered to be in the solid aquifer matrix. SO-5 is in the 0-1 ft high water table zone; however, the sample collected at this location was at 5 ft bgs and is, thus, also in the solid aquifer matrix. In 2010, three soil samples were collected for estimating the permanganate natural oxidant demand. VOCs were also analyzed from one of these locations (SO-10), which was located next to the AST containment area.

AST Subgrade Investigation 2012. In July 2012, five locations in the AST containment area and four locations north of the AST containment area were sampled. Two samples were collected from each location at 1 and 2-ft bgs. All sample locations were within the fully saturated zone, and thus are classified as solid matrix samples.

Solid Matrix Investigation February 2013. In February 2013, nine locations east of the AST containment area were sampled. Three samples were collected from each location at 1-ft, 2-ft, and 4-ft bgs. All sample locations were within the fully saturated zone, and thus are classified as solid matrix samples.

Remediation Sampling in 2014. In a meeting conducted on March 18, 2014, the EPD indicated that their request for confirmation sampling could be satisfied using data collected prior to remedial action. As described more fully in the final remediation plan (Section 6 of the Fifth Progress Report, EPS, 2014), CEA used existing data to define the extents of the remediation outside the AST containment area. CEA conducted some additional sampling in March 2014 to provide the information needed to confirm the extents of the remediation. On March 25, 2014 additional solid-aquifer matrix samples were collected from a boring (SO-3R; see Figure B-10) located adjacent to historical boring (SO-3), where the highest concentrations of PCE have been observed. The boring was advanced to 6 feet using a direct-push rig. There was not an adequate prior understanding of the vertical profile of PCE and TCE at this location. Accordingly, samples were collected at 1ft, 4ft, 5ft, and 6ft below the ground surface. The samples from the 1ft, 4ft and 5ft samples were analyzed for PCE, TCE and 1,1,1-1,1,1-TCA. All results were below SSL_{mod}. TCLP-volatile samples were also collected from 1ft and 4ft and the results were all non-detect. As described more fully in the Seventh Progress Report, one sample was collected on October 4, 2014 during the remediation activities in Area C at the base of the excavation prior to addition of an oxidant. The sample was analyzed for PCE, TCE and 1,1,1-TCA.

B1.4.2.2 Extent of Chlorinated Solvents

Figures B-11 and B-12 show the extent of total chlorinated ethenes and ethanes in these solid matrix samples, respectively. Where more than one sample was taken at a location, the highest total result is shown. The spatial distribution of chlorinated ethenes in the solid subsurface matrix exhibits a clear concentration gradient with the highest values occurring adjacent to the tanker truck spill location at the north end of the AST containment and the second highest concentrations toward the center of the AST containment area. The highest concentrations of chlorinated ethanes have been found in the AST containment area. Chlorinated solvent concentrations lessen with distance from the AST containment area. These areas of high concentrations are in the fully saturated zone indicating that it is comprised of the solid aquifer matrix (without any vadose zone soil).

B1.4.2.3 Delineation

Delineation is only appropriate for the vadose zone soils. However, because much of the area of interest on the Site does not have vadose zone soils, the solid aquifer matrix is included on the delineation figures to aid in demonstrating delineation for the vadose zone soils. Figures B-11 and B-12 show that the solid matrix has been delineated to background in all directions, except for MW-10 and MW-11 on the west side. Table B-4 shows the analytical results (for constituents with Type 1 RRSs) for the vadose zone soil samples and the soil aquifer matrix samples that are the furthest laterally in each direction. This table shows all the results are below the delineation criteria, and the majority of the results are non-detect. The only constituents detected at MS-10 or

MW-11 are TCE and cis-DCE at concentrations well below their Type 1 RRSs. Thus, the solid matrix material has been delineated to the Type 1 RRS in all directions.

B1.5 Fate and Transport Summary

B1.5.1 Physical Fate and Transport

The primary constituents of interest at this Site are parent compounds 1,1,1-TCA, PCE, TCE and their breakdown products. In their product state, 1,1,1-TCA, PCE and TCE are dense nonaqueous phase liquids (DNAPLs), which can be classified as either mobile or immobile. In the groundwater, they are found in a dissolved state. Thus, there are three states of interest: mobile DNAPL, immobile DNAPL and dissolved-phase. Following release at the surface, DNAPLs actively spread primarily due to gravity. Vertical migration continues through the vadose zone and aquifer until the released DNAPL either loses continuity and becomes dispersed into isolated bodies (referred to as ganglia or globules) or reaches a less permeable layer where it either accumulates in a pool or flows semi-laterally along the layer. During downward migration, a globule trail of residual product and sorbed-phase contamination is left. The DNAPLs in this trail are incapable of further migration. Eventually, the entire DNAPL mass becomes immobile as the gravity head is lost.

When the groundwater comes in contact with a DNAPL, an aqueous phase plume is created and slowly fed by the sorbed, residual or pooled DNAPL. A residual-phase DNAPL source offers a large surface contact area (as compared to a pooled DNAPL) for contact with the groundwater, which results in a higher flux from the DNAPL state to the dissolved phase. This in turn results in an accelerated rate of DNAPL depletion. Once in the dissolved-phase, the solvents are transported in the water primarily along in the direction of the groundwater flow, but also horizontally (cross- or up-gradient) due to dispersion and diffusion. The aqueous phase plumes become elongated in the hydraulically down-gradient direction and are subject to attenuation process such as dispersion, sorption, matrix diffusion and biodegradation (discussed in the next section). All aqueous plumes will eventually reach a steady-state condition where the leading edge and side edges no longer expand. For this Site, the predominant groundwater flow is laterally down-gradient (to the northeast). Additionally, the rapid rise and fall of the water table gives evidence that the groundwater provides for transport of dissolved phase chlorinated solvents to the ground surface (upward migration) through artesian flow and very shallow water table conditions. The water table fluctuation brings dissolved phase contaminants into contact with the solid matrix, resulting in the contaminant becoming entrained and sorbed in the solid matrix. Thus, the fluctuating groundwater table is another transport mechanism occurring at the Site. The groundwater could carry the solvents both horizontally and upwards toward the surface. This creates another potential exposure pathway (exposure to groundwater at the ground surface) that will be evaluated.

PCE has been measured as high as 3.9 mg/L at MW-3, which is next to the location of the spill. This concentration represents approximately 3.2% of the aqueous solubility. According to Cherry and Feenstra (1991), concentrations exceeding 1% of the compound's aqueous solubility indicates

the possible presence of DNAPL. Thus, there may be a continuing flushing of PCE from the aquifer matrix near the spill site. An evaluation of the site conditions indicates that at this Site any DNAPLs have remained as a residual smearing in the upper portions of the subsurface and are not present as mobile “pools” of NAPL.

Data collected from groundwater and solid matrix samples at the Site support the lateral movement of dissolved-phase solvents by groundwater. Concentrations in the shallow solid matrix samples outside the vicinity of the AST containment area are attributable to the migration of the contaminants in the shallow fluctuating groundwater. The analytical results of the down-gradient wells indicate that the plume has migrated to the northeast (in the direction of groundwater flow). The dissolved plume has been delineated in the down-gradient direction and has not migrated off the Site.

B1.5.2 Biological Degradation

Chlorinated solvents can also degrade biologically in the subsurface through reductive dechlorination. As mentioned previously, parent compounds (i.e., 1,1,1-TCA and PCE) can be degraded biologically into daughter products (1,1-DCA, CA, TCE, cis-DCE and VC). Four lines of evidence are presented in this section to demonstrate that reductive dechlorination is occurring.

B1.5.2.1 Daughter Products and Time Series Graphs

The presence of the daughter products at the Site indicates that biological degradation is occurring. Additionally, time series figures (Figures B-8 and B-10) show the decrease of parent products and subsequent increase in daughter products over time.

B1.5.2.2 MNA Parameters and Screening Method

Other parameters can also be used to indicate that biodegradation is occurring. During the October 2010 sampling event, additional analyses were conducted to provide evidence as to whether or not reductive dechlorination is occurring at the Site. Monitored Natural Attenuation (MNA) parameters were analyzed in samples collected from MW-3, MW-3D, MW-4, MW-5 and MW-8. The following parameters were analyzed by AES for each of these wells: alkalinity, sulfide, methane/ethane/ethene, chloride, ferrous iron, nitrate, nitrite, sulfate, and total organic carbon. These laboratory data sheets are presented in Appendix H of the VIRP. Parameters measured in the field during sample collection included: dissolved oxygen, temperature, pH and Redox potential. As a part of the microbial testing conducted by Microbe Inotech Laboratories, certain MNA parameters (pH, iron, ammonia, nitrite, nitrate, orthophosphate, sulfate and total organic carbon) were also analyzed for MW-3, MW-3D, MW-4 and MW-5.

As part of the process for determining whether anaerobic biodegradation is occurring, the Environmental Protection Agency (EPA) guidance document “*Technical Protocol for Evaluating Natural Attenuation of Chlorinated Solvents in Groundwater*” (EPA, 1998) includes a scoring process using indicator parameters. Table B-5 shows the results of this screening at the Site using data collected during the October 2010 sampling event. Results are shown for the primary wells within the plume (MW-3/3D, MW-4, and MW-5), two side-gradient wells (MW-12 and MW-14), and an up-gradient well (MW-8) and down-gradient well (MW-16). Based on the October 2010

results, the wells within the plume show strong evidence that reductive dechlorination is occurring, while the wells up-, side- or down-gradient of the plume show limited or inadequate evidence that reductive dechlorination is occurring, which is not unexpected since there are low to non-detectable concentrations of chlorinated solvents in these wells. Results of MNA testing from the February 2012 sampling event continue to show that reductive dechlorination is occurring (see Table 4 of the First Progress Report; EPS, 2012).

B1.5.2.3 Microbial Testing

Tables B-6 and B-7 show the results of microbial testing at two different laboratories. Microbe Inotech Laboratories performed the first type of testing, which was based on doing anaerobic (Table B-6) and aerobic (Table B-7) cultures using plate counting techniques. The laboratory data report can be found in Appendix H of the VIRP. The first column shows the density (number of colony forming units per mL) of anaerobic or aerobic organisms from each well. The next several columns show the percent of different strains of organisms that were seen in the culture from each well. After identification of the strains, an endpoint assay was conducted on each strain. The strains were individually cultured with either 1,1,1-TCA or TCE as the carbon source. The endpoint assay results (shown at the bottom of each table) show that the microorganisms present in MW-3D and MW-5 grow very well on 1,1,1-TCA and TCE. Interestingly, the aerobic assay shows that the microorganisms in MW-5 also grow very well on 1,1,1-TCA or TCE. This indicates the potential for multiple types of mechanisms to occur at the Site. This testing shows that degradation of 1,1,1-TCA and TCE is favorable in MW-5 and to a lesser extent in MW-3D. One drawback of the plate counting technique is that it does not account for viable (live) cells and cultivation techniques can underestimate the total population.

Microbial Insights performed the second microbial testing technique, which is called CENSUS. The laboratory data report is presented in Appendix H of the VIRP. DNA is extracted from the groundwater samples and quantitative real-time polymerase chain reaction analysis is used to detect and quantify specific targets of interest (e.g., a specific microbial species). Samples from MW-3 and MW-5 were analyzed for *Dehalococcoides spp* and *Dehalobacter spp*, both of which are common dechlorinating bacteria. *Dehalococcoides spp* is the only known group of bacteria capable of completely degrading PCE to ethene. *Dehalobacter spp* is capable of dechlorinating PCE to cis-DCE and 1,1,1-TCA to CA. Thus, the presence of these species indicates that reductive dechlorination of PCE/TCE and 1,1,1-TCA is favorable and likely occurring. The functional genes for *Dehalococcoides spp* were also analyzed to determine if the genes are present that are necessary for the different steps in the dechlorination chain. *tceA* reductase is the gene responsible for reducing TCE to cis-DCE. Vinyl chloride reductase is the gene responsible for reducing VC to ethene in multiple strains. Similarly, *bvcA* reductase is the gene responsible for VC reducing to ethene, but only for a specific strain (BAV1) of *Dehalococcoides spp*. The absence of VC reductase and *bvcA* reductase would indicate that VC would accumulate instead of further degrading to ethene. The results (Table B-6) show that these organisms and genes are present in both wells, but are significantly higher in MW-5. This indicates that the conditions are favorable and most likely occurring for reductive dechlorination of PCE to ethene and 1,1,1-TCA to CA in both of these wells, but is much more likely in MW-5.

Based on these results, conditions are favorable at the Site for reductive dechlorination, especially in the direction of MW-3 to MW-5.

B1.5.2.4 Modeling

Computer modeling using BIOCHLOR (see Appendix J of the VIRP) provides further evidence that reductive dechlorination is occurring. BIOCHLOR is a computer model that simulates natural attenuation of dissolved chlorinated solvents. In an effort to conservatively model site conditions, the model was calibrated using the empirical data collected from 2004 through 2007, prior to the EHC[®] injections. Therefore, the model assumes that there is no impact from the injections. Model simulations were conducted through 2030 to determine estimated concentrations at different wells throughout and beyond the plume (see Figures B-13 and B-14). These figures show the location of the monitoring well MW-16. MW-16 is the POE for a hypothetical POE as MW-16 is at the property boundary and is less than 1000 feet from the edge of the plume. (MW-16 is approximately 528 feet down-gradient from the location of the spill and 230 feet down-gradient from the edge of the plume.) Thus, the model predicts that groundwater concentrations at the POE will not exceed Type 1 RRSs. Please refer to Appendix J of the VIRP for more information.

B1.6 Potential Receptors and Exposure Pathways

B1.6.1 Setting

The Site includes a single-story manufacturing building, parking lots located to the east and north of the building, loading docks on the east side of the building, a gravel driveway to the east and south of the building and small grassy areas on the eastern and northern portions of the Site.

The adjoining properties are used for commercial purposes or are currently vacant. Properties immediately adjacent to the Site include the Parish Towing Company to the north, the Anderson Company to the east and vacant wooded properties to the South and West. The area surrounding the Site is zoned for heavy manufacturing, with some general agricultural zoned areas beyond the manufacturing zoning.

B1.6.2 Human Health

B1.6.2.1 Introduction

The nearest residence is greater than 2000 feet northwest of the Site. The Site and surrounding area are serviced by public drinking water system provided by Dalton Utilities. According to a representative at Dalton Utilities, all of Whitfield County is served by the utility. The closest drinking water well is located 1.125 miles from the Site. In addition, as described in the Release Notification (Tri-State, 2004b): a) groundwater flow at the Site is to the northeast and this well is to the north-northwest, b) the Site and the well are approximately at the same elevation resulting in no head difference to drive groundwater toward the well, c) based on surface water drainages the Site and the well are cross-gradient, and d) there are multiple groundwater divides between the Site and the well that would prevent groundwater migration from the Site to the well. Thus, the well is not directly down-gradient of the Site and the well is located in an area where public water

is available. As the Site and surrounding areas are on public water, ingestion of groundwater is not a complete exposure pathway.

The other potential exposure pathways include exposure to vadose zone soil, source material in the solid aquifer matrix, dermal contact with groundwater and vapor intrusion. The potential human receptors include an industrial worker and construction/utility worker. The Fifth Progress Report (EPS, 2014) contains a detailed evaluation of the potential risk to these receptors. A summary of these risk evaluation is presented below.

B1.6.2.2 Industrial Worker (Vapor Intrusion Pathway)

As the area impacted by the release is mostly covered by concrete and/or gravel, exposure to vadose zone soil and solid aquifer matrix is not a complete exposure pathway for the industrial worker. However, some chlorinated compounds have been detected in wells inside the manufacturing building. Thus, there is a potential for a vapor intrusion pathway. A vapor intrusion assessment was conducted (as documented in the Fifth Progress Report; EPS, 2014) following the procedures recommended in the recently released OSWER Final Guidance for Assessing and Mitigating the Vapor Intrusion Pathway from Subsurface Sources to Indoor Air (EPA, 2013a) and the modeling approach in the Vapor Intrusion Screening Level Calculator (VISL; EPA, 2013b). Five constituents (1,2-dichloroethane, chloroform, PCE, TCE, and VC) were identified as vapor intrusion constituents of potential concern. These five constituents were further assessed in the VISL calculator to model potential risk to human receptors. The model indicated that two constituents (TCE and PCE) are possible concerns for the Site.

The company operating at the Site (QEP) uses a large number of chemicals and the facility falls under OSHA requirements and associated HAZCOM program. For example, as part of the HAZCOM program the facility periodically has industrial hygiene studies conducted by third parties. In 2011, a hygiene study was conducted that included the evaluation of solvent exposures at the Site. This study included collection of air samples for solvents using 3M passive organic vapor monitors for two workers who work with solvents at the facility (thus, this is the area of highest potential exposure). The air sample monitors collected from these two workers were analyzed for TCE (among other solvents). The results for both workers were non-detect (<0.27 ppm). These results are far below the OSHA permissible exposure limit of 10 ppm and the ACGIH threshold limit value of 100 ppm. OSHA requirements are the appropriate standards for the facility.

B1.6.2.3 Construction and Utility Workers (Direct Contact)

The current and/or potential future human receptors are construction and utility workers. No construction or utility activities are currently planned at the Site; however, it is possible that additional buildings could be constructed on the Site in the future. Construction or utility workers may be exposed by physical contact with contaminated groundwater, vadose zone soils and/or the solid aquifer matrix. The Seventh Progress Report contains an evaluation of whether there is a potential risk or hazard to receptors at the Site in order to better inform what is needed in a restrictive environmental covenant for the Site. The evaluation indicated that unrestrictive access to the subsurface is not protective of human health due to potential contact with groundwater. It also showed the importance of creating a project-specific Health and Safety Plan that addresses

the concerns specific to the actual anticipated exposure of construction or utility workers to the subsurface. This Health and Safety Plan should include air monitoring and PPE (as needed) that will manage the exposure of the workers. Accordingly, the restrictive environmental covenant will specify the following:

- The property shall only be used for non-residential purposes.
- If intrusive activities are performed, personnel must perform the work in accordance with a Health and Safety Plan prepared by a qualified safety professional.

The restriction against performing intrusive activities applies only to a portion of the Site (Figure 10 of the Progress Report).

B1.6.3 Ecological

The area impacted by the release is mostly covered by concrete and/or gravel. There is continual traffic over this area and unloading operations. The area does not represent quality habitat as it lacks natural vegetative cover, structure, and diversity and is unlikely to ever have substantial vegetative cover due to ongoing maintenance activities. Disturbances from vehicles and facility operations have and will continue to disturb wildlife and cause animals to seek less frequently disturbed areas off the Site.

TABLES

Capitol Adhesives

Table B-1. Depth to Groundwater Measurements 2011-2014

		TOC Elevation (ft msl)	Ground Elevation (ft msl)	Depth to Water (ft btoc)	Potentiometric Elevation (ft msl)	Depth to GW from Ground Surface (ft)
MW-1R	8/23/2012	672.01	NM	3.78	668.23	
	2/4/2013			0.9	671.11	
	8/5/2013			2.32	669.69	
	11/10/2014			3.68	668.33	
MW-2	4/22/2011	675.33	675.51	0	Artesian	0
	4/29/2011			0	Artesian	0
	5/6/2011			0	Artesian	0
	2/7/2012			0	Artesian	0
	8/23/2012			6.65	668.68	6.83
	2/4/2013			0	Artesian	0
	8/5/2013			3.28	672.05	3.46
	11/10/2014			5.95	669.38	6.13
MW-2D	4/22/2011	674.79	675.36	0	Artesian	0
	4/29/2011			0	Artesian	0
	5/6/2011			6.00	668.79	6.57
	2/7/2012			0	Artesian	0
	8/23/2012			6.04	668.75	6.61
	2/4/2013			0	Artesian	0
	8/5/2013			3	672.22	3
	11/10/2014			5.33	669.46	6
MW-3	4/22/2011	673.83	673.87	0	Artesian	0
	4/29/2011			0.51	673.32	0.55
	5/6/2011			0.71	673.12	0.75
	2/7/2012			1.29	672.54	1.33
	8/23/2012			5.40	668.43	5.44
	2/4/2013			0.98	672.85	1.02
	8/5/2013			2.58	671.25	2.62
	11/10/2014			4.32	669.51	4.36
MW-3D	4/22/2011	673.87	674.14	0.58	673.29	0.85
	4/29/2011			0.52	673.35	0.79
	5/6/2011			0.74	673.13	1.01
	2/7/2012			0.4	673.47	0.67
	8/23/2012			5.25	668.62	5.52
	2/4/2013			0.75	673.12	1.02
	8/5/2013			2.73	671.14	3.00
	11/10/2014			4.91	668.96	5.18
MW-3B	8/24/2012	674.32	NM	5.29	669.03	
	2/4/2013			0.25	674.07	
	8/5/2013			2.45	671.87	

Capitol Adhesives

Table B-1. Depth to Groundwater Measurements 2011-2014

		TOC Elevation (ft msl)	Ground Elevation (ft msl)	Depth to Water (ft btoc)	Potentiometric Elevation (ft msl)	Depth to GW from Ground Surface (ft)
MW-4	4/22/2011	671.38	671.85	0	Artesian	0
	4/29/2011			0	Artesian	0
	5/6/2011			0	Artesian	0
	2/7/2012			0	Artesian	0
	8/23/2012	671.93	¹	2.62	669.31	2.54
	2/4/2013			0	Artesian	0
	8/5/2013			0.23	671.7	0.15
	11/10/2014			2.85	669.08	2.77
MW-5	4/22/2011	670.88	670.13	0	Artesian	0
	4/29/2011			0	Artesian	0
	5/6/2011			0	Artesian	0
	2/7/2012			0	Artesian	0
	8/23/2012			2.47	668.41	1.72
	2/4/2013			0	Artesian	0
	8/5/2013			0	670.52	0
	11/10/2014			2.26	668.62	2
MW-6	4/22/2011	674.92	675.28	2.42	672.50	2.78
	4/29/2011			3.82	671.10	4.18
	5/6/2011			3.01	671.91	3.37
	2/7/2012			2.72	672.20	3.08
	8/23/2012			6.36	668.56	6.72
	2/4/2013			2.93	671.99	3.29
	8/5/2013			4.31	670.61	4.67
	11/10/2014			6.12	668.80	6.48
MW-7	4/22/2011	675.63	674.71	0	Artesian	0
	4/29/2011			0.32	675.31	-0.60
	5/6/2011			0.87	674.76	-0.05
	2/7/2012			0	Artesian	0
	8/23/2012			6.79	668.84	5.87
	2/4/2013			0.25	675.38	-0.67
	8/5/2013			3.58	672.05	2.66
	11/10/2014			6.13	669.50	5.21
MW-8	4/22/2011	674.52	674.99	0	Artesian	0
	4/29/2011			0	Artesian	0
	5/6/2011			0	Artesian	0
	2/7/2012			0	Artesian	0
	8/23/2012			5.82	668.70	6.29
	2/4/2013			0	Artesian	0
	8/5/2013			2	672.23	3
	11/10/2014			5.07	669.45	6

Capitol Adhesives

Table B-1. Depth to Groundwater Measurements 2011-2014

		TOC Elevation (ft msl)	Ground Elevation (ft msl)	Depth to Water (ft btoc)	Potentiometric Elevation (ft msl)	Depth to GW from Ground Surface (ft)
MW-9	4/22/2011	675.44	675.80	0	Artesian	0
	4/29/2011			0	Artesian	0
	5/6/2011			0.51	674.93	0.87
	2/7/2012			0	Artesian	0
	8/23/2012			6.48	668.96	6.84
	2/4/2013			0	Artesian	0
	8/5/2013			3	672.39	3
	11/10/2014			5.83	669.61	6
MW-10	4/22/2011	675.54	675.70	0.43	675.11	0.59
	4/29/2011			0.80	674.74	0.96
	5/6/2011			1.35	674.19	1.51
	2/7/2012			0.7	674.84	0.86
	8/23/2012			6.33	669.21	6.49
	2/4/2013			0.96	674.58	1.12
	8/5/2013			3	672.23	3
	11/10/2014			5.45	670.09	5.61
MW-11	4/22/2011	675.31	675.80	1.60	673.71	2.09
	4/29/2011			2.08	673.23	2.57
	5/6/2011			2.42	672.89	2.91
	2/7/2012			1.92	673.39	2.41
	8/23/2012			--	Artesian	
	2/4/2013			2.18	673.13	2.67
	8/5/2013			4	671.31	4
	11/10/2014			6.20	669.11	6.69
MW-12	4/22/2011	675.76	675.76	3.32	672.44	3.32
	4/29/2011			3.29	672.47	3.29
	5/6/2011			3.53	672.23	3.53
	2/7/2012			3.36	672.40	3.36
	8/23/2012			6.92	668.84	6.92
	2/4/2013			3.51	672.25	3.51
	8/5/2013			4.85	670.91	4.85
	11/10/2014			6.69	669.07	6.69
MW-13	4/22/2011	676.70	677.06	1.80	674.90	2.16
	4/29/2011			2.53	674.17	2.89
	5/6/2011			3.23	673.47	3.59
	2/7/2012			2.24	674.46	2.60
	8/23/2012			8.53	668.17	8.89
	2/4/2013			2.35	674.35	2.71
	8/5/2013			5.65	671.05	6.01
	11/10/2014			8.05	668.65	8.41

Capitol Adhesives

Table B-1. Depth to Groundwater Measurements 2011-2014

		TOC Elevation (ft msl)	Ground Elevation (ft msl)	Depth to Water (ft btoc)	Potentiometric Elevation (ft msl)	Depth to GW from Ground Surface (ft)
MW-14	4/22/2011	673.05	673.36	0	Artesian	0
	4/29/2011			0.45	672.60	0.76
	5/6/2011			0.75	672.30	1.06
	2/7/2012			0	Artesian	0
	8/23/2012			5.00	668.05	5.31
	2/4/2013			0.25	672.80	0.56
	8/5/2013			2.71	670.34	3.02
	11/10/2014			4.85	668.20	5.16
MW-15	4/22/2011	670.91	671.33	0	Artesian	0
	4/29/2011			0	Artesian	0
	5/6/2011			0	Artesian	0
	2/7/2012			0	Artesian	0
	8/23/2012			3.07	667.84	3.49
	2/4/2013			0	Artesian	0
	8/5/2013			1.34	669.57	1.76
	11/10/2014			2.92	667.99	3.34
MW-16	4/22/2011	669.70	670.24	0.13	669.58	0.66
	4/29/2011			0.45	669.25	0.99
	5/6/2011			0.69	669.01	1.23
	2/7/2012			0.3	669.40	0.84
	8/23/2012			2.62	667.08	3.16
	2/4/2013			0.25	669.45	0.79
	8/5/2013			2.07	667.63	2.61
	11/10/2014			2.64	667.06	3.18
MW-17	4/22/2011	676.26	NM	0.72	675.54	
	4/29/2011			1.18	675.08	
	5/6/2011			1.50	674.76	
	2/7/2012			0.88	675.38	
	8/23/2012			--	Artesian	
	2/4/2013			1.24	675.02	
	8/5/2013			3.29	672.97	
	11/10/2014			6	670.63	

NM - not measured

1) Top of casing re-surveyed after the well was repaired.

Capitol Adhesives
Table B-2. Analytical Results for Constituents Detected in Groundwater (mg/L)

Well	Date Sampled	Tetrachloroethene (mg/L)	Trichloroethene (mg/L)	cis-1,2- Dichloroethene (mg/L)	Vinyl chloride (mg/L)	Total Chlorinated Ethenes (mg/L)	1,1,1- Trichloroethane (mg/L)	1,1-Dichloroethane (mg/L)	Chloroethane (mg/L)	Total Chlorinated Ethanes (mg/L)	1,1,2- Trichloroethane (mg/L)	1,1-Dichloroethene (mg/L)	1,2-Dichloroethane (mg/L)	Acetone (mg/L)	Benzene (mg/L)	Chloroform (mg/L)	Cyclo hexane (mg/L)	Dichloromethane (mg/L)	Freon-11 (mg/L)	Freon-113 (mg/L)	Methylcyclohexane (mg/L)	o-Xylene (mg/L)	Toluene (mg/L)	trans-1,2- Dichloroethene (mg/L)
Type 1 RRS or DL		0.005	0.005	0.07	0.002		0.2	4	DL		0.005	0.007	0.005	4	0.005	0.08	DL	0.005	2	1000	DL	10	1	0.1
DPGW-1	3/10/09	0.24	0.25	0.058	0.016	0.564	0.08	0.038	<0.01	0.118	<0.005	0.077	0.04	<0.05	<0.005	0.061	<0.005	0.063	<0.005	<0.01	0.0055	<0.005	<0.005	0.0072
DPGW-2	3/10/09	0.0085	0.044	0.97	1.3	2.3225	0.03	0.24	0.61	0.88	<0.005	0.22	0.33	1.8	<0.005	0.029	<0.005	0.077	<0.005	0.064	<0.005	<0.005	<0.005	0.085
DPGW-3	3/10/09	<0.005	<0.005	<0.005	<0.002	ND	<0.005	<0.005	<0.01	ND	<0.005	<0.005	<0.005	<0.05	<0.005	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005	<0.005	<0.005	<0.005
DPGW-4	3/10/09	<0.005	0.0074	<0.005	<0.002	0.0074	<0.005	<0.005	<0.01	ND	<0.005	<0.005	<0.005	<0.05	<0.005	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005	<0.005	<0.005	<0.005
DPGW-5	3/10/09	<0.005	<0.005	<0.005	<0.002	ND	<0.005	<0.005	<0.01	ND	<0.005	<0.005	<0.005	<0.05	<0.005	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005	<0.005	<0.005	<0.005
DPGW-6	3/10/09	<0.005	<0.005	<0.005	<0.002	ND	<0.005	<0.005	<0.01	ND	<0.005	<0.005	<0.005	<0.05	<0.005	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005	<0.005	<0.005	<0.005
DPGW-7	3/10/09	<0.005	<0.005	<0.005	<0.002	ND	<0.005	<0.005	<0.01	ND	<0.005	<0.005	<0.005	<0.05	<0.005	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005	<0.005	<0.005	<0.005
DPGW-8	3/10/09	<0.005	<0.005	<0.005	<0.002	ND	<0.005	<0.005	<0.01	ND	<0.005	<0.005	<0.005	<0.05	<0.005	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005	<0.005	<0.005	<0.005
MW-1R	8/23/2012	<0.005	<0.005	<0.005	<0.002	ND	<0.005	<0.005	<0.01	<0.005	<0.005	<0.005	<0.005	<0.05	<0.005	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005	<0.005	<0.005	<0.005
MW-1R	2/5/2013	<0.005	<0.005	<0.005	<0.002	ND	<0.005	<0.005	<0.01	ND	<0.005	<0.005	<0.005	<0.05	<0.005	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005	<0.005	<0.005	<0.005
MW-1R	11/10/2014	<0.005	<0.005	<0.005	<0.002	ND	<0.005	<0.005	<0.01	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MW-2	7/15/04	0.0424	0.0089	ND	ND	0.0513	0.0039	ND	ND	0.0039	<0.005	ND	ND	<0.1	ND	ND	NA	ND	ND	NA	NA	NA	ND	ND
MW-2	8/10/05	0.19	0.057	0.0082	0.003	0.2582	0.0017	0.017	<0.001	0.0187	<0.001	0.004	<0.001	<0.1	<0.001	<0.001	NA	<0.001	<0.001	NA	NA	NA	<0.001	<0.001
MW-2	6/28/06	0.065	0.01	<0.005	<0.002	0.075	<0.005	0.004 J	<0.005	0.004	<0.005	<0.005	<0.005	<0.1	<0.005	<0.005	NA	<0.005	<0.005	NA	NA	NA	<0.005	<0.005
MW-2	3/7/07	<0.005	<0.005	0.02	<0.002	0.02	<0.005	<0.005	<0.005	ND	<0.005	<0.005	<0.005	4.23	<0.005	<0.005	NA	<0.005	<0.005	NA	NA	<0.005	<0.005	<0.005
MW-2	6/25/07	<0.005	<0.005	0.004 J	0.061	0.065	<0.005	<0.005	<0.005	ND	<0.005	<0.005	<0.005	0.934	<0.005	<0.005	NA	<0.005	<0.005	NA	NA	NA	0.005	<0.005
MW-2	9/13/07	ND	ND	ND	0.022	0.022	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	ND	ND	NA	NA	NA	0.005	ND
MW-2	4/8/08	ND	ND	ND	0.008	0.008	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	ND	ND	NA	NA	NA	1.09	ND
MW-2	10/14/08	0.083	0.061	0.034	0.17	0.348	<0.005	<0.005	<0.01	ND	<0.005	<0.005	<0.005	0.71	<0.005	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005	<0.005	0.41	<0.005
MW-2	6/22/09	<0.005	<0.005	<0.005	0.0037	0.0037	<0.005	<0.005	<0.01	ND	<0.005	<0.005	<0.005	0.11	<0.005	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005	<0.005	<0.005	<0.005
MW-2	10/8/10	0.069	0.096	0.033	0.0075	0.2055	<0.005	<0.005	<0.01	ND	<0.005	<0.005	<0.005	<0.05	<0.005	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005	<0.005	<0.005	<0.005
MW-2	2/8/2012	<0.005	<0.005	0.0061	0.0025	0.0086	<0.005	<0.005	<0.01	ND	<0.005	<0.005	<0.005	0.38	<0.005	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005	<0.005	<0.005	<0.005
MW-2	2/5/2013	<0.005	<0.005	<0.005	<0.002	ND	<0.005	<0.005	<0.01	ND	<0.005	<0.005	<0.005	0.2	<0.005	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005	<0.005	<0.005	<0.005
MW-2D	7/19/04	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	<0.1	ND	ND	NA	ND	ND	NA	NA	NA	0.0041	ND
MW-2D	8/10/05	0.0037	0.018	<0.001	<0.001	0.0217	0.0024	<0.001	<0.001	0.0024	<0.001	<0.001	<0.001	<0.1	<0.001	<0.001	NA	<0.001	<0.001	NA	NA	NA	<0.001	<0.001
MW-2D	6/28/06	<0.005	<0.005	<0.005	<0.002	ND	<0.005	<0.005	<0.005	ND	<0.005	<0.005	<0.005	<0.1	<0.005	<0.005	NA	<0.005	<0.005	NA	NA	NA	<0.005	<0.005
MW-2D	3/7/07	<0.005	<0.005	<0.005	<0.002	ND	<0.005	<0.005	<0.01	ND	<0.005	<0.005	<0.005	0.138	<0.005	<0.005	NA	<0.005	<0.005	NA	NA	NA	<0.005	<0.005
MW-2D	6/25/07	<0.005	<0.005	<0.005	<0.002	ND	<0.005	<0.005	<0.01	ND	<0.005	<0.005	<0.005	<0.1	<0.005	<0.005	NA	<0.005	<0.005	NA	NA	NA	<0.005	<0.005
MW-2D	9/13/07	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	ND	ND	NA	NA	NA	ND	ND
MW-2D	10/14/08	<0.005	<0.005	<0.005	<0.002	ND	<0.005	<0.005	<0.01	ND	<0.005	<0.005	<0.005	<0.05	<0.005	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005	<0.005	<0.005	<0.005
MW-2D	6/22/09	<0.005	<0.005	<0.005	<0.002	ND	<0.005	<0.005	<0.01	ND	<0.005	<0.005	<0.005	17	<0.005	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005	<0.005	<0.005	<0.005
MW-2D	10/8/10	<0.005	<0.005	<0.005	<0.002	ND	<0.005	<0.005	<0.01	ND	<0.005	<0.005	<0.005	<0.05	<0.005	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005	<0.005	<0.005	<0.005
MW-2D	2/8/2012	<0.005	<0.005	<0.005	<0.002	ND	<0.005	<0.005	<0.01	ND	<0.005	<0.005	<0.005	0.071	<0.005	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005	<0.005	<0.005	<0.005
MW-2D	2/5/2013	<0.005	<0.005	<0.005	<0.002	ND	<0.005	<0.005	<0.01	ND	<0.005	<0.005	<0.005	0.31	<0.005	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005	<0.005	<0.005	<0.005
MW-3	7/15/04	1.86	6.15	0.123	0.0204	8.1534	3.26	0.725	ND	3.985	0.0217	2.19	0.86	<0.1	0.0073	1.2	NA	0.435	ND	NA	NA	NA	0.0038	0.116
MW-3	8/10/05	2.6	5.2	0.14	<0.005	7.94	2.6	0.41	<0.005	3.01	<0.005	1.7	0.45	<0.1	<0.05	0.64	NA	0.45	<0.05	NA	NA	NA	<0.005	0.093
MW-3	6/26/06	2.92	4.71	0.197	0.004	7.831	1.85	0.349	<0.005	2.199	0.016	1.67	0.495	<0.1	<0.005	0.643	NA	0.494	0.01	NA	NA	NA	<0.005	0.1
MW-3	3/7/07	2.9	5.83	0.378	0.002	9.11	2.27	0.352	<0.01	2.622	0.018	1.99	1.15	<0.1	0.006	1.06	NA	0.438	0.014	NA	NA	NA	<0.005	0.104
MW-3	6/25/07	2.62	5.53	0.59	0.005	8.745	1.72	0.433	<0.01	2.153	0.024	3.06	0.771	<0.1	0.008	1.14	NA	0.725	0.019	NA	NA	NA	<0.005	0.185
MW-3	9/14/07	2.88	5.87	0.58	0.003	9.333	1.43	0.38	ND	1.81	0.023	2.55	0.781	ND	0.007	0.964	NA	0.183	ND	NA	NA	NA	ND	0.139
MW-3	4/9/08	2.41	4.1	0.636	0.011	7.157	0.7590001	0.333	ND	1.0920001	0.021	1.78	0.781	ND	0.006	0.758	NA	0.172	ND	NA	NA	NA	ND	0.113
MW-3	10/16/08	3.9	5.9	1.1	0.032	10.93	0.9300001	0.46	<0.01	1.39	0.021	3.1	0.7600001	<0.05	0.0074	1.1	0.014	0.024	0.02	0.49	0.0089	<0.005	<0.005	0.099
MW-3	6/23/09	3.2	4.6	0.84	0.05	8.69	0.79	0.31	<0.01	1.1	0.021	2.4	0.77	<0.05	<0.005	0.99	<0.005	0.066	0.01	0.31	0.0064	<0.005	<0.005	0.14
MW-3	10/7/10	3	4.5	1	0.11	8.61	0.59	0.31	<0.01	0.9	0.023	1.7	0.74	<0.05	0.0068	0.88	0.012	0.041	0.0057	0.22	0.0078	<0.005	<0.005	0.12
MW-3	2/9/12	3 E	4.2 E	1.9 E	0.24 E	9.34	0.59 E	0.49 E	<0.01	1.08	0.024	2.6 E	1 E	<0.05	0.0076	1.1 E	0.024	0.066	0.0096	0.24 E	0.012	<0.005	0.0052	0.17
MW-3	8/24/2012	3.4	6.1	2.9	0.23	12.63	0.52	0.54	<0.01	1.06	0.047	3	1.3	<0.05	0.013	1.8	<0.005	0.045	<0.005	<0.01	0.0068	0.005		

Capitol Adhesives
Table B-2. Analytical Results for Constituents Detected in Groundwater (mg/L)

Well	Date Sampled	Tetrachloroethene (mg/L)	Trichloroethene (mg/L)	cis-1,2- Dichloroethene (mg/L)	Vinyl chloride (mg/L)	Total Chlorinated Ethenes (mg/L)	1,1,1- Trichloroethane (mg/L)	1,1-Dichloroethane (mg/L)	Chloroethane (mg/L)	Total Chlorinated Ethanes (mg/L)	1,1,2- Trichloroethane (mg/L)	1,1-Dichloroethene (mg/L)	1,2-Dichloroethane (mg/L)	Acetone (mg/L)	Benzene (mg/L)	Chloroform (mg/L)	Cyclo hexane (mg/L)	Dichloromethane (mg/L)	Freon-11 (mg/L)	Freon-113 (mg/L)	Methylcyclohexane (mg/L)	o-Xylene (mg/L)	Toluene (mg/L)	trans-1,2- Dichloroethene (mg/L)
Type 1 RRS or DL		0.005	0.005	0.07	0.002		0.2	4	DL		0.005	0.007	0.005	4	0.005	0.08	DL	0.005	2	1000	DL	10	1	0.1
MW-3D	4/9/08	0.751	0.886	0.175	0.029	1.841	0.762	0.161	ND	0.923	ND	0.239	0.123	ND	ND	0.095	NA	ND	ND	NA	NA	NA	ND	0.018
MW-3D	10/16/08	1.1	1.3	0.37	0.12	2.89	0.8	0.2	<0.01	1	<0.005	0.59	0.13	<0.05	<0.005	0.13	<0.005	<0.005	<0.005	0.097	<0.005	<0.005	<0.005	0.033
MW-3D (Dup)	10/16/08	0.6	0.67	0.26	0.034	1.564	0.37	0.081	<0.01	0.451	<0.005	0.19	0.051	<0.05	<0.005	0.05	<0.005	<0.005	<0.005	0.032	<0.005	<0.005	<0.005	0.017
MW-3D	6/23/09	0.93	0.94	0.18	0.047	2.10	0.55	0.12	<0.01	0.67	<0.005	0.31	0.12	<0.05	<0.005	0.13	<0.005	<0.005	<0.005	0.08400001	<0.005	<0.005	<0.005	0.022
MW-3D (Dup)	6/23/09	0.86	0.86	0.19	0.058	1.97	0.53	0.13	<0.01	0.66	<0.005	0.29	0.13	<0.05	<0.005	0.13	<0.005	<0.005	<0.005	0.098	<0.005	<0.005	<0.005	0.023
MW-3D	10/7/10	1.1	1.3	0.3	0.077	2.78	0.53	0.15	<0.01	0.68	0.0065	0.52	0.2	<0.05	<0.005	0.21	<0.005	<0.005	<0.005	0.07	<0.005	<0.005	<0.005	0.031
MW-3D	2/8/12	0.93	1	0.41	0.12	2.46	0.46	0.19	<0.01	0.65	<0.005	0.55	0.16	<0.05	<0.005	0.15	<0.005	<0.005	<0.005	0.082	0.005	<0.005	<0.005	0.034
MW-3D (Dup)	2/8/12	0.99	1.1	0.46	0.12	2.67	0.48	0.19	<0.01	0.67	0.0056	0.6	0.16	<0.05	<0.005	0.18	<0.005	<0.005	<0.005	0.08000001	0.0055	<0.005	<0.005	0.034
MW-3D	8/24/12	0.88	1.1	0.51	0.1	2.59	0.3	0.18	<0.01	0.48	0.0079	0.46	0.24	<0.05	<0.005	0.23	<0.005	0.014	<0.005	<0.01	<0.005	<0.005	<0.005	0.033
MW-3D (Dup)	8/24/2012	0.9	1.1	0.45	0.11	2.56	0.25	0.18	<0.01	0.43	0.0075	0.49	0.19	<0.05	<0.005	0.23	<0.005	0.014	<0.005	<0.01	<0.005	<0.005	<0.005	0.032
MW-3D	2/6/2013	2.00	1.7	0.97	0.15	4.82	0.45	0.14	<0.01	0.59	<0.005	0.5700001	0.19	0.62	<0.005	0.15	0.0061	0.017	<0.005	0.04	0.013	<0.005	<0.005	0.028
MW-3D	8/6/2013	2.9	4.8	2.9	0.28	10.88	0.53	0.28	0.011	0.8	0.017	0.8700001	0.41	0.1	<0.005	0.36	<0.005	0.027	<0.005	0.13	0.051	0.02	0.063	0.0073
MW-3D	11/11/2014	1.80	3.4	2.8	0.4	8.40	0.38	0.29	<0.01	0.675	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MW-3B	8/24/2012	0.52	0.37	0.15	0.061	1.10	0.04	0.075	<0.01	0.115	<0.005	0.17	0.04	<0.05	<0.005	0.02	<0.005	<0.005	<0.005	<0.01	<0.005	<0.005	<0.005	0.0089
MW-3B	2/6/2013	0.82	0.36	0.17	0.071	1.42	0.052	0.064	<0.01	0.116	<0.005	0.2	0.032	<0.05	<0.005	0.031	<0.005	<0.005	<0.005	0.03	<0.005	<0.005	<0.005	0.0086
MW-4	8/10/05	0.064	0.52	<0.005	<0.005	0.584	0.028	<0.005	<0.005	0.028	<0.005	0.0078	<0.005	<0.1	<0.005	0.0056	NA	<0.005	<0.005	NA	NA	NA	<0.005	<0.005
MW-4	6/27/06	0.157	0.615	<0.005	<0.002	0.772	0.024	<0.005	<0.005	0.024	<0.005	0.017	<0.005	<0.1	<0.005	0.005	NA	<0.005	<0.005	NA	NA	NA	<0.005	<0.005
MW-4	3/7/07	0.049	0.138	0.139	<0.002	0.326	<0.005	<0.005	<0.01	ND	<0.005	0.006	<0.005	6.3	<0.005	<0.005	NA	<0.005	<0.005	NA	NA	NA	<0.005	<0.005
MW-4	6/25/07	<0.005	<0.005	0.832	0.003	0.835	<0.005	0.008	<0.01	0.008	<0.005	0.016	<0.005	2.74	<0.005	<0.005	NA	<0.005	<0.005	NA	NA	NA	<0.005	<0.005
MW-4	9/14/07	ND	0.005	0.846	0.055	0.906	ND	0.014	ND	0.014	ND	0.034	0.009	ND	ND	ND	NA	ND	ND	NA	NA	NA	ND	ND
MW-4	4/8/08	0.01	0.018	0.244	0.022	0.294	ND	ND	ND	ND	ND	0.006	ND	ND	ND	ND	NA	ND	ND	NA	NA	NA	ND	ND
MW-4	10/15/08	0.013	0.034	0.76	0.3	1.11	<0.005	0.011	<0.01	0.011	<0.005	0.022	0.0069	<0.05	<0.005	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005	<0.005	<0.005	<0.005
MW-4	6/23/09	0.03	0.064	0.12	0.12	0.334	<0.005	<0.005	<0.01	ND	<0.005	0.0054	<0.005	<0.05	<0.005	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005	<0.005	<0.005	<0.005
MW-4	10/12/10	0.019	0.086	0.057	0.059	0.221	<0.005	0.0062	<0.01	0.0062	<0.005	<0.005	<0.005	<0.05	<0.005	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005	<0.005	<0.005	<0.005
MW-4	2/8/12	0.017	0.041	0.033	0.011	0.102	<0.005	<0.005	<0.01	ND	<0.005	<0.005	<0.005	<0.05	<0.005	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005	<0.005	<0.005	<0.005
MW-4	8/23/12	<0.005	0.013	0.012	0.0058	0.0308	<0.005	<0.005	<0.01	ND	<0.005	<0.005	<0.005	<0.05	<0.005	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005	<0.005	<0.005	<0.005
MW-4	2/5/13	<0.005	0.0066	<0.005	<0.002	0.0066	<0.005	<0.005	<0.01	ND	<0.005	<0.005	<0.005	<0.05	<0.005	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005	<0.005	<0.005	<0.005
MW-4	8/5/13	<0.005	<0.005	<0.005	<0.002	ND	<0.005	<0.005	<0.01	ND	<0.005	<0.005	<0.005	<0.05	<0.005	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005	<0.005	<0.005	<0.005
MW-4	11/11/2014	<0.005	<0.005	<0.005	<0.002	ND	<0.005	<0.005	<0.01	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MW-5	8/10/05	0.016	0.56	0.093	<0.005	0.669	0.44	0.34	<0.005	0.78	0.0082	0.85	0.32	<0.01	<0.005	0.34	NA	<0.005	<0.005	NA	NA	NA	<0.005	0.051
MW-5	6/27/06	0.077	1.37	0.141	0.008	1.596	0.511	0.485	<0.005	0.996	0.012	1.3	0.388	<0.01	0.005	0.361	NA	<0.005	<0.005	NA	NA	NA	<0.005	0.086
MW-5	3/6/07	0.085	1.07	1	0.004	2.159	<0.005	0.58	<0.01	0.58	0.012	1.87	0.781	<0.01	0.005	0.527	NA	<0.005	<0.005	NA	NA	NA	<0.005	0.084
MW-5	6/25/07	0.015	0.325	2.32	0.007	2.667	0.309	0.483	<0.01	0.792	0.011	1.5	0.355	<0.01	0.006	0.332	NA	<0.005	<0.005	NA	NA	NA	<0.005	0.11
MW-5	9/13/07	ND	0.066	2.78	0.005	2.851	0.232	0.587	ND	0.819	0.011	1.72	0.502	ND	0.005	0.252	NA	0.009	ND	NA	NA	NA	ND	0.097
MW-5	4/8/08	0.008	0.079	2.69	0.93	3.708	0.043	0.182	0.358	0.583	ND	0.84	0.495	ND	0.005	0.252	NA	0.048	ND	NA	NA	NA	ND	0.076
MW-5	10/15/08	0.011	0.05	0.28	0.41	0.751	0.037	0.15	0.56	0.747	<0.005	0.19	0.34	0.53	0.006	0.039	<0.005	0.05	<0.005	0.07600001	<0.005	<0.005	<0.005	0.1
MW-5	6/22/09	<0.005	<0.005	<0.005	0.026	0.026	<0.005	0.017	0.25	0.267	<0.005	<0.005	0.085	0.48	<0.005	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005	<0.005	<0.005	0.041
MW-5	10/7/10	<0.005	<0.005	<0.005	0.011	0.011	<0.005	0.0051	0.24	0.2451	<0.005	<0.005	0.016	<0.05	<0.005	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005	<0.005	<0.005	0.018
MW-5	2/9/12	<0.005	<0.005	<0.005	0.011	0.011	<0.005	0.023	0.2	0.223	<0.005	<0.005	0.017	<0.05	<0.005	<0.005	<0.005	<0.005	0.0095	<0.005	<0.01	<0.005	<0.005	0.024
MW-5	8/23/2012	<0.005	<0.005	<0.005	0.0044	0.0044	<0.005	0.025	0.17	0.195	<0.005	<0.005	0.0085	<0.05	<0.005	<0.005	<0.005	<0.005	0.0061	<0.005	<0.01	<0.005	<0.005	0.014
MW-5	2/6/2013	<0.005	<0.005	<0.005	0.0064	0.0064	<0.005	0.029	0.18	0.209	<0.005	<0.005	0.013	<0.05	<0.005	<0.005	<0.005	<0.005	0.0082	<0.005	<0.01	<0.005	<0.005	0.024
MW-5	8/6/2013	<0.005	0.0052	0.11	0.14	0.2552	0.0068	0.081	0.062	0.405	<0.005	0.013	0.047	<0.05	<0.005	0.006	<0.005	<0.005	<0.005	<0.01	<0.005	<0.005	0.018	<0.005
MW-5	11/11/2014	0.0064	0.04	0.3	0.33	0.6764	<0.005	0.14	0.032	0.175	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MW-6	8/10/05	0.004	0.017	<0.001	<0.001	0.021	0.13	0.022	<0.001	0.152	<0.001	0.076	0.02	<0.01	<0.001	<0.001	NA	0.0017	0.0012	NA	NA	NA	<0.001	0.0014
MW-6	6/27/06	<0.005	<0.005	<0.005	<0.002	ND	0.118	0.024	<0.005	0.142	<0.005	0.113	0.023	<0.01	<0.005	0.057	NA	<0.005	<0.005	NA	NA	NA	<0.005	<0.005
MW-6	3/6/07	<0.005	<0.005	<0.005	<0.002	ND	0.181	0.043	<0.01	0.224	<0.005	0.174	0.058	<0.01	<0.005	0.107	NA	<0.005	<0.005					

Capitol Adhesives
Table B-2. Analytical Results for Constituents Detected in Groundwater (mg/L)

Well	Date Sampled	Tetrachloroethene (mg/L)	Trichloroethene (mg/L)	cis-1,2- Dichloroethene (mg/L)	Vinyl chloride (mg/L)	Total Chlorinated Ethenes (mg/L)	1,1,1- Trichloroethane (mg/L)	1,1-Dichloroethane (mg/L)	Chloroethane (mg/L)	Total Chlorinated Ethanes (mg/L)	1,1,2- Trichloroethane (mg/L)	1,1-Dichloroethene (mg/L)	1,2-Dichloroethane (mg/L)	Acetone (mg/L)	Benzene (mg/L)	Chloroform (mg/L)	Cyclo hexane (mg/L)	Dichloromethane (mg/L)	Freon-11 (mg/L)	Freon-113 (mg/L)	Methylcyclohexane (mg/L)	o-Xylene (mg/L)	Toluene (mg/L)	trans-1,2- Dichloroethene (mg/L)
Type 1 RRS or DL		0.005	0.005	0.07	0.002		0.2	4	DL		0.005	0.007	0.005	4	0.005	0.08	DL	0.005	2	1000	DL	10	1	0.1
MW-7	4/8/08	1.06	0.226	0.335	0.104	1.725	0.039	0.024	ND	0.063	ND	0.108	0.034	ND	ND	0.067	NA	0.007	ND	NA	NA	NA	ND	0.009
MW-7	10/15/08	2	0.67	0.52	0.27	3.46	0.18	0.095	<0.01	0.275	<0.005	0.47	0.078	<0.05	<0.005	0.17	<0.005	0.026	<0.005	0.13	<0.005	<0.005	<0.005	0.02
MW-7	6/23/09	1.3	0.19	0.28	0.21	1.98	0.01	0.019	<0.01	0.029	<0.005	0.048	0.0091	0.15	<0.005	0.021	<0.005	<0.005	<0.005	<0.01	<0.005	<0.005	<0.005	<0.005
MW-7	10/8/10	1.9	0.26	0.24	0.083	2.483	0.016	0.032	<0.01	0.048	<0.005	0.042	0.016	<0.05	<0.005	0.025	<0.005	<0.005	<0.005	<0.01	<0.005	<0.005	<0.005	<0.005
MW-7 (Dup)	10/8/10	2.2	0.19	0.22	0.13	2.74	<0.005	0.02	<0.01	0.02	<0.005	0.014	<0.005	<0.05	<0.005	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005	<0.005	<0.005	<0.005
MW-7	2/9/2012	1.7	0.23	0.32	0.15	2.4	<0.005	0.016	<0.01	0.016	<0.005	0.034	<0.005	<0.05	<0.005	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005	<0.005	<0.005	<0.005
MW-7	2/6/2013	2	0.27	0.22	0.15	2.64	<0.005	0.017	<0.01	0.017	<0.005	0.031	<0.005	<0.05	<0.005	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005	<0.005	<0.005	<0.005
MW-8	6/28/06	<0.005	<0.005	<0.005	<0.002	ND	<0.005	<0.005	<0.005	ND	<0.005	<0.005	<0.005	<0.01	<0.005	<0.005	NA	<0.005	<0.005	NA	NA	NA	<0.005	<0.005
MW-8	3/6/07	<0.005	<0.005	<0.005	<0.002	ND	<0.005	<0.005	<0.01	ND	<0.005	<0.005	<0.005	<0.01	<0.005	<0.005	NA	<0.005	<0.005	NA	NA	NA	<0.005	<0.005
MW-8	6/25/07	<0.005	<0.005	<0.005	<0.002	ND	<0.005	<0.005	<0.01	ND	<0.005	<0.005	<0.005	<0.01	<0.005	<0.005	NA	<0.005	<0.005	NA	NA	NA	<0.005	<0.005
MW-8	9/13/07	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	ND	ND	NA	NA	NA	ND	ND
MW-8	4/8/08	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	ND	ND	NA	NA	NA	ND	ND
MW-8	10/14/08	<0.005	<0.005	<0.005	<0.002	ND	<0.005	<0.005	<0.01	ND	<0.005	<0.005	<0.005	<0.05	<0.005	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005	<0.005	<0.005	<0.005
MW-8	6/22/09	<0.005	<0.005	<0.005	<0.002	ND	<0.005	<0.005	<0.01	ND	<0.005	<0.005	<0.005	0.19	<0.005	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005	<0.005	<0.005	<0.005
MW-8	10/7/10	<0.005	<0.005	<0.005	<0.002	ND	<0.005	<0.005	<0.01	ND	<0.005	<0.005	<0.005	<0.05	<0.005	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005	<0.005	<0.005	<0.005
MW-8	2/8/2012	<0.005	<0.005	<0.005	<0.002	ND	<0.005	<0.005	<0.01	ND	<0.005	<0.005	<0.005	<0.05	<0.005	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005	<0.005	<0.005	<0.005
MW-8	2/5/2013	<0.005	<0.005	<0.005	<0.002	ND	<0.005	<0.005	<0.01	ND	<0.005	<0.005	<0.005	<0.05	<0.005	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005	<0.005	<0.005	<0.005
MW-9	6/29/2006	<0.005	<0.005	<0.005	<0.002	ND	<0.005	<0.005	<0.01	ND	<0.005	<0.005	<0.005	<0.01	<0.005	<0.005	NA	<0.005	<0.005	NA	NA	NA	<0.005	<0.005
MW-9	3/6/07	<0.005	<0.005	<0.005	<0.002	ND	<0.005	<0.005	<0.01	ND	<0.005	<0.005	<0.005	<0.01	<0.005	<0.005	NA	<0.005	<0.005	NA	NA	NA	<0.005	<0.005
MW-9	6/25/07	<0.005	<0.005	<0.005	<0.002	ND	<0.005	<0.005	<0.01	ND	<0.005	<0.005	<0.005	<0.01	<0.005	<0.005	NA	<0.005	<0.005	NA	NA	NA	<0.005	<0.005
MW-9	6/29/07	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	ND	ND	NA	NA	NA	ND	ND
MW-9	9/13/07	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	ND	ND	NA	NA	NA	ND	ND
MW-9	4/8/08	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	ND	ND	NA	NA	NA	ND	ND
MW-9	10/15/08	<0.005	<0.005	<0.005	<0.002	ND	<0.005	<0.005	<0.01	ND	<0.005	<0.005	<0.005	<0.05	<0.005	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005	<0.005	<0.005	<0.005
MW-9	6/22/09	<0.005	<0.005	<0.005	<0.002	ND	<0.005	<0.005	<0.01	ND	<0.005	<0.005	<0.005	<0.05	<0.005	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005	<0.005	<0.005	<0.005
MW-9	10/7/10	<0.005	<0.005	<0.005	<0.002	ND	<0.005	<0.005	<0.01	ND	<0.005	<0.005	<0.005	<0.05	<0.005	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005	<0.005	<0.005	<0.005
MW-9	2/8/2012	<0.005	<0.005	<0.005	<0.002	ND	<0.005	<0.005	<0.01	ND	<0.005	<0.005	<0.005	<0.05	<0.005	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005	<0.005	<0.005	<0.005
MW-9	2/5/2013	<0.005	<0.005	<0.005	<0.002	ND	<0.005	<0.005	<0.01	ND	<0.005	<0.005	<0.005	<0.05	<0.005	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005	<0.005	<0.005	<0.005
MW-10	7/8/06	<0.005	0.025	0.008	<0.002	0.033	0.004 J	<0.005	<0.01	0.004	<0.005	<0.005	0.004 J	<0.1	<0.005	<0.005	NA	<0.005	<0.005	NA	NA	NA	<0.005	<0.005
MW-10	3/6/07	<0.005	0.031	0.008	<0.002	0.039	<0.005	<0.005	<0.01	ND	<0.005	<0.005	<0.005	<0.1	<0.005	<0.005	NA	<0.005	<0.005	NA	NA	NA	<0.005	<0.005
MW-10	6/26/07	<0.005	0.058	0.015	<0.002	0.073	<0.005	<0.005	<0.01	ND	<0.005	<0.005	<0.005	<0.1	<0.005	<0.005	NA	<0.005	<0.005	NA	NA	NA	<0.005	<0.005
MW-10	9/14/07	ND	0.064	0.015	ND	0.079	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	ND	ND	NA	NA	NA	ND	ND
MW-10	4/9/08	ND	0.039	0.013	ND	0.052	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	ND	ND	NA	NA	NA	ND	ND
MW-10	10/16/08	<0.005	0.06	0.021	0.0024	0.0834	<0.005	<0.005	<0.01	ND	<0.005	<0.005	<0.005	<0.05	<0.005	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005	<0.005	<0.005	<0.005
MW-10	6/23/09	<0.005	0.05	0.013	<0.002	0.063	<0.005	<0.005	<0.01	ND	<0.005	<0.005	<0.005	<0.05	<0.005	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005	<0.005	<0.005	<0.005
MW-10	10/8/10	<0.005	0.093	0.016	<0.002	0.109	<0.005	<0.005	<0.01	ND	<0.005	<0.005	<0.005	<0.05	<0.005	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005	<0.005	<0.005	<0.005
MW-10	2/7/2012	<0.005	0.049	0.016	<0.002	0.065	<0.005	<0.005	<0.01	ND	<0.005	<0.005	<0.005	<0.05	<0.005	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005	<0.005	<0.005	<0.005
MW-10	2/6/2013	<0.005	0.051	0.012	<0.002	0.063	<0.005	<0.005	<0.01	ND	<0.005	<0.005	<0.005	<0.05	<0.005	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005	<0.005	<0.005	<0.005
MW-11	7/8/06	<0.005	0.005	0.007	<0.002	0.012	<0.005	<0.005	<0.01	ND	<0.005	<0.005	<0.005	<0.1	<0.005	<0.005	NA	<0.005	<0.005	NA	NA	NA	<0.005	<0.005
MW-11	3/7/07	<0.005	0.006	0.005	<0.002	0.011	<0.005	<0.005	<0.01	ND	<0.005	<0.005	<0.005	<0.1	<0.005	<0.005	NA	<0.005	<0.005	NA	NA	NA	<0.005	<0.005
MW-11	6/26/07	<0.005	<0.005	0.005	<0.002	0.005	<0.005	<0.005	<0.01	ND	<0.005	<0.005	<0.005	<0.1	<0.005	<0.005	NA	<0.005	<0.005	NA	NA	NA	<0.005	<0.005
MW-11	9/14/07	ND	ND	0.005	ND	0.005	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	ND	ND	NA	NA	NA	ND	ND
MW-11	4/9/08	ND	ND	0.006	ND	0.006	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	ND	ND	NA	NA	NA	ND	ND
MW-11	10/16/08	<0.005	0.0054	0.008300001	<0.002	0.014	<0.005	<0.005	<0.01	ND	<0.005	<0.005	<0.005	<0.05	<0.005	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005	<0.005	<0.005	<0.005
MW-11 (Dup)	10/16/08	<0.005	0.0056	0.0077	<0.002	0.013	<0.005	<0.005	<0.01	ND	<0.005	<0.005	<0.005	<0.05	<0.005	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005	<0.005	<0.005	<0.005
MW-11	6/23/09	<0.005	0.006	0.009500001	<0.002	0.016	<0.005	<0.005	<0.01	ND	<0.005	<0.005	<0.005	<0.05	<0.005	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005	<0.005	<0.005	<0.005
MW-11	10/8/10	<0.005	<0.0																					

Capitol Adhesives

Capitol Adhesives

Table B-2. Analytical Results for Constituents Detected in Groundwater (mg/L)

Well	Date Sampled	Tetrachloroethene (mg/L)	Trichloroethene (mg/L)	cis-1,2-Dichloroethene (mg/L)	Vinyl chloride (mg/L)	Total Chlorinated Ethenes (mg/L)	1,1,1-Trichloroethane (mg/L)	1,1-Dichloroethane (mg/L)	Chloroethane (mg/L)	Total Chlorinated Ethanes (mg/L)	1,1,2-Trichloroethane (mg/L)	1,1-Dichloroethene (mg/L)	1,2-Dichloroethane (mg/L)	Acetone (mg/L)	Benzene (mg/L)	Chloroform (mg/L)	Cyclohexane (mg/L)	Dichloromethane (mg/L)	Freon-11 (mg/L)	Freon-113 (mg/L)	Methylcyclohexane (mg/L)	o-Xylene (mg/L)	Toluene (mg/L)	trans-1,2-Dichloroethene (mg/L)
Type 1 RRS or DL		0.005	0.005	0.07	0.002		0.2	4	DL		0.005	0.007	0.005	4	0.005	0.08	DL	0.005	2	1000	DL	10	1	0.1
MW-17	2/7/2012	<0.005	<0.005	<0.005	<0.002	ND	<0.005	<0.005	<0.01	ND	<0.005	<0.005	<0.005	<0.05	<0.005	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005	<0.005	<0.005	<0.005
MW-17	2/5/2013	<0.005	<0.005	<0.005	<0.002	ND	<0.005	<0.005	<0.01	ND	<0.005	<0.005	<0.005	<0.05	<0.005	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005	<0.005	<0.005	<0.005

ND: Not detected
NA: Not analyzed
DL: Detection limit

Note: Detection Limits from September 2007 and April 2008 are not available. If obtained, they will be added in a future report.
Bold: Result greater than RRS, or DL if no RRS



Capitol Adhesives
Table B-3. Analytical Results for Constituents Detected in Subsurface Solids (mg/kg)

Sample ID	Depth (ft bgs)	Date Sampled	Chlorobenzene (mg/kg)	Chloroform (mg/kg)	cis/trans 1,2- Dichloroethene (mg/kg)	Cyclohexane (mg/kg)	Dichloro methane (Methylene chloride) (mg/kg)	Ethyl benzene (mg/kg)	Freon-11 (mg/kg)	Freon-113 (mg/kg)	Isopropyl benzene (mg/kg)	m&p-Xylene (mg/kg)	Methyl acetate (mg/kg)	Methyl cyclohexane (mg/kg)	Naphthalene (mg/kg)	n-Propyl benzene (mg/kg)	o-Xylene (mg/kg)	sec-Butyl benzene (mg/kg)	Toluene (mg/kg)	trans-1,2- Dichloroethene (mg/kg)
Solid Aquifer Matrix			REL (mg/kg)																	
GP001	6-8	8/9/05	NA	<0.0054	<0.0054	NA	<0.0054	<0.0054	NA	NA	<0.0054	NA	NA	NA	<0.0054	<0.0054	NA	<0.0054	<0.0054	NA
GP002	4-6	8/9/05	NA	<0.0049	<0.0049	NA	<0.0049	<0.0049	NA	NA	<0.0049	NA	NA	NA	<0.0049	<0.0049	NA	<0.0049	<0.0049	NA
GP003	2-4	8/9/05	NA	<0.0048	<0.0048	NA	<0.0048	<0.0048	NA	NA	<0.0048	NA	NA	NA	<0.0048	<0.0048	NA	<0.0048	<0.0048	NA
GP004	4-6	8/9/05	NA	<0.004	<0.004	NA	<0.004	<0.004	NA	NA	<0.004	NA	NA	NA	<0.004	<0.004	NA	<0.004	<0.004	NA
GP005	4-6	8/9/05	NA	<0.0045	<0.0045	NA	<0.0045	<0.0045	NA	NA	<0.0045	NA	NA	NA	<0.0045	<0.0045	NA	<0.0045	<0.0045	NA
GP006	2-4	8/9/05	NA	<0.0046	<0.0046	NA	<0.0046	<0.0046	NA	NA	<0.0046	NA	NA	NA	<0.0046	<0.0046	NA	<0.0046	<0.0046	NA
GP009	2-4	8/10/05	NA	<0.0043	<0.0043	NA	<0.0043	<0.0043	NA	NA	<0.0043	NA	NA	NA	<0.0043	<0.0043	NA	<0.0043	<0.0043	NA
GP010	4-6	8/10/05	NA	<0.067	0.093	NA	<0.067	<0.067	NA	NA	<0.067	NA	NA	NA	<0.067	<0.067	NA	<0.067	<0.067	NA
GP011	2-4	8/10/05	NA	0.064	0.099	NA	<0.061	<0.061	NA	NA	<0.061	NA	NA	NA	<0.061	<0.061	NA	<0.061	<0.061	NA
GP012	4-6	8/10/05	NA	0.29	0.72	NA	0.29	<0.063	NA	NA	<0.063	NA	NA	NA	<0.063	<0.063	NA	<0.063	<0.063	NA
GP013	4-6	8/10/05	NA	<0.0052	<0.0052	NA	<0.0052	<0.0052	NA	NA	<0.0052	NA	NA	NA	<0.0052	<0.0052	NA	<0.0052	<0.0052	NA
IW2	1	1/20/14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
IW2	2	1/20/14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
IW2	3	1/20/14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MIP-1	2	10/16/08	<0.006	0.73	NA	<0.006	<0.006	<0.006	<0.006	<0.012	<0.006	<0.012	<0.006	0.0094	NA	NA	<0.006	NA	0.027	0.055
MIP-1	5	10/16/08	<0.0067	<0.0067	NA	<0.0067	<0.0067	<0.0067	<0.0067	<0.013	<0.0067	<0.013	<0.0067	<0.0067	NA	NA	<0.0067	NA	<0.0067	<0.0067
MIP-1	9	10/16/08	<0.0029	<0.0029	NA	<0.0029	<0.0029	<0.0029	<0.0029	<0.0058	<0.0029	<0.0058	<0.0029	<0.0029	NA	NA	<0.0029	NA	<0.0029	<0.0029
MIP-5	3	10/16/08	<0.0022	<0.0022	NA	<0.0022	<0.0022	<0.0022	<0.0022	<0.0045	<0.0022	<0.0045	<0.0022	<0.0022	NA	NA	<0.0022	NA	<0.0022	<0.0022
MIP-6	6	10/16/08	<0.008	<0.008	NA	<0.008	<0.008	<0.008	<0.008	<0.016	<0.008	<0.016	<0.008	<0.008	NA	NA	<0.008	NA	<0.008	<0.008
MIP-8	2	10/16/08	<0.0013	0.069	NA	<0.0013	0.11	<0.0013	<0.0013	<0.0026	<0.0013	<0.0026	<0.0013	0.015	NA	NA	<0.0013	NA	0.006	0.014
MIP-8	4	10/16/08	<0.007	<0.007	NA	<0.007	<0.007	<0.007	<0.007	<0.014	<0.007	<0.014	<0.007	<0.007	NA	NA	<0.007	NA	0.0076	<0.007
MIP-12	12	10/16/08	<0.0019	0.12	NA	<0.0019	<0.0019	<0.0019	0.0027	<0.0038	<0.0019	<0.0038	<0.0019	<0.0019	NA	NA	<0.0019	NA	<0.0019	0.0077
MIP-12	4	10/16/08	<0.0069	<0.0069	NA	<0.0069	<0.0069	<0.0069	<0.0069	<0.014	<0.0069	<0.014	<0.0069	<0.0069	NA	NA	<0.0069	NA	<0.0069	<0.0069
MIP-12	6	10/16/08	<0.0076	<0.0076	NA	<0.0076	<0.0076	<0.0076	<0.0076	<0.015	<0.0076	<0.015	<0.0076	<0.0076	NA	NA	<0.0076	NA	<0.0076	<0.0076
MIP-13	1	10/16/08	<0.0038	<0.0038	NA	0.014	0.12	<0.0038	<0.0038	0.073	<0.0038	<0.0076	<0.0038	0.18	NA	NA	<0.0038	NA	0.096	0.02
MIP-13	3	10/16/08	<0.0027	0.029	NA	<0.0027	0.067	<0.0027	<0.0027	<0.0053	<0.0027	<0.0053	<0.0027	0.031	NA	NA	<0.0027	NA	0.02	0.011
MIP-13	6	10/16/08	<0.0027	1.4	NA	<0.0027	1.9	<0.0027	0.0067	<0.0054	<0.0027	<0.0054	<0.0027	0.013	NA	NA	<0.0027	NA	0.017	0.058
MIP-19	1	10/16/08	<0.0059	<0.0059	NA	<0.0059	<0.0059	<0.0059	<0.0059	<0.012	<0.0059	<0.012	<0.0059	<0.0059	NA	NA	<0.0059	NA	<0.0059	<0.0059
MIP-19	3	10/16/08	<0.0071	<0.0071	NA	<0.0071	<0.0071	<0.0071	<0.0071	<0.014	<0.0071	<0.014	<0.0071	<0.0071	NA	NA	<0.0071	NA	<0.0071	<0.0071
MW-1D	8-10	7/13/04	<0.0019	<0.0019	<0.0019	NA	<0.0046	<0.0019	<0.0019	NA	<0.00184	NA	NA	NA	<0.00461	<0.00184	NA	<0.00184	<0.0019	<0.0019
MW-2D	8-10	7/13/04	<0.0017	<0.0017	<0.0017	NA	<0.0043	<0.0017	<0.0017	NA	<0.00171	NA	NA	NA	<0.00428	<0.00171	NA	<0.00171	0.0026	<0.0017
MW-3	8-10	7/14/04	<0.0018	0.0078	0.0025	NA	<0.0045	<0.0018	<0.0018	NA	<0.0018	NA	NA	NA	<0.0048	<0.0018	NA	<0.0018	<0.0018	<0.0018
MW-3D	13-15	7/14/04	<0.134	<0.134	<0.134	NA	<0.336	<0.134	<0.134	NA	<0.134	NA	NA	NA	<0.366	<0.134	NA	<0.134	<0.134	<0.134
MW-8	8-10	6/27/06	<0.005	<0.005	<0.005	NA	<0.005	<0.005	<0.005	NA	<0.005	<0.01	NA	NA	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
MW-9	8-10	6/27/06	<0.005	<0.005	<0.005	NA	<0.005	<0.005	<0.005	NA	<0.005	<0.01	NA	NA	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
MW-10	5-10	7/7/06	<0.005	<0.005	<0.005	NA	<0.005	<0.005	<0.005	NA	<0.005	<0.01	NA	NA	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
MW-11	5-10	7/6/06	<0.005	<0.005	<0.005	NA	<0.005	<0.005	<0.005	NA	<0.005	<0.01	NA	NA	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
MW-12	5-10	7/6/06	<0.005	<0.005	<0.005	NA	<0.005	<0.005	<0.005	NA	<0.005	<0.01	NA	NA	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
MW-13	13-15	6/27/06	<0.005	<0.005	<0.005	NA	<0.005	<0.005	<0.005	NA	<0.005	<0.01	NA	NA	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
MW-14	13-15	6/27/06	<0.005	<0.005	<0.005	NA	<0.005	<0.005	<0.005	NA	<0.005	<0.01	NA	NA	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
MW-15	8-10	6/28/06	<0.005	<0.005	<0.005	NA	<0.005	0.022	<0.005	NA	0.005	0.085	NA	NA	0.14	0.026	0.055	0.005	0.027	<0.005
MW-16	8-10	6/27/06	<0.005	<0.005	<0.005	NA	<0.005	<0.005	<0.005	NA	<0.005	<0.01	NA	NA	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
SB-1	1	2/20/13	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SB-1 (Dup)	1	2/20/13	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SB-1	2	2/20/13	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SB-1	4	2/20/13	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SB-2	1	2/20/13	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SB-2	2	2/20/13	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SB-2	4	2/20/13	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SB-3	1	2/20/13	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SB-3	2	2/20/13	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SB-3	4	2/20/13	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SB-4	1	2/20/13	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SB-4	2	2/20/13	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SB-4	4	2/20/13	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SB-5	1	2/20/13	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Capitol Adhesives
Table B-3. Analytical Results for Constituents Detected in Subsurface Solids (mg/kg)

Sample ID	Depth (ft bgs)	Date Sampled	Tetrachloroethene (mg/kg)	Trichloroethene (mg/kg)	cis-1,2- Dichloroethene (mg/kg)	Vinyl chloride (mg/kg)	Total Chlorinated Ethenes (mg/kg)	1,1,1-Trichloroethane (mg/kg)	1,1-Dichloroethane (mg/kg)	Chloroethane (mg/kg)	Total Chlorinated Ethanes (mg/kg)	1,1,2-Trichloroethane (mg/kg)	1,1-Dichloroethene (mg/kg)	1,2,4- Trimethylbenzene (mg/kg)	1,2-Dibromoethane (mg/kg)	1,2-Dichlorobenzene (mg/kg)	1,2-Dichloroethane (mg/kg)	1,2-Dichloropropane (mg/kg)	1,3,5- Trimethylbenzene (mg/kg)	1,4-Dioxane (mg/kg)	2-Butanone (MEK) (mg/kg)	4-Methyl-2-pentanone (mg/kg)	Acetone (mg/kg)	Benzene (mg/kg)	Carbon disulfide (mg/kg)	Carbon tetra chloride (mg/kg)
SB-5	2	2/20/13	1.1	0.6	NA	NA	1.7	0.009	NA	NA	0.009	<0.0026	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SB-5	4	2/20/13	0.99	0.63	NA	NA	1.62	0.024	NA	NA	0.024	<0.003	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SB-6	1	2/20/13	<0.0031	<0.0031	NA	NA	ND	<0.0031	NA	NA	ND	<0.0031	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SB-6	2	2/20/13	<0.0038	<0.0038	NA	NA	ND	<0.0038	NA	NA	ND	<0.0038	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SB-6	4	2/20/13	<0.004	<0.004	NA	NA	ND	<0.004	NA	NA	ND	<0.004	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SB-7	1	2/20/13	0.009	<0.0037	NA	NA	0.009	<0.0037	NA	NA	ND	<0.0037	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SB-7	2	2/20/13	<0.0065	<0.0065	NA	NA	ND	<0.0065	NA	NA	ND	<0.0065	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SB-7	4	2/20/13	<0.0036	<0.0036	NA	NA	ND	<0.0036	NA	NA	ND	<0.0036	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SB-8	1	2/20/13	0.021	0.071	NA	NA	0.092	<0.0025	NA	NA	ND	<0.0025	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SB-8	2	2/20/13	0.023	0.18	NA	NA	0.203	<0.0028	NA	NA	ND	<0.0028	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SB-8	4	2/20/13	<0.18	0.51	NA	NA	0.51	<0.18	NA	NA	ND	<0.18	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SB-9	1	2/20/13	0.0051	0.016	NA	NA	0.0211	<0.0036	NA	NA	ND	<0.0036	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SB-9	2	2/20/13	0.017	0.065	NA	NA	0.092	<0.0048	NA	NA	ND	<0.0048	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SB-9	4	2/20/13	0.0074	0.03	NA	NA	0.092	<0.0043	NA	NA	ND	<0.0043	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SO-2	1	3/10/09	<0.0029	<0.0029	0.003	0.33	0.333	<0.0029	0.42	0.023	0.443	<0.0029	<0.0029	NA	<0.0029	<0.0029	0.0069	<0.0029	NA	NA	<0.029	<0.0059	<0.059	<0.0029	<0.0059	<0.0029
SO-2	3	3/10/09	0.098	0.11	1.1	0.57	1.878	0.0064	0.78	<0.0059	0.7864	<0.0029	0.23	NA	<0.0029	<0.0029	0.18	<0.0029	NA	NA	<0.029	<0.0059	<0.059	<0.0029	<0.0059	<0.0029
SO-3	1	3/10/09	2700	62	7.6	<5.7	2769.6	5.3	<2.8	<5.7	5.3	<2.8	<2.8	NA	<2.8	<2.8	<2.8	<2.8	NA	NA	<28	<5.7	<57	<2.8	<5.7	<2.8
SO-3	3	3/10/09	23	4.9	12	<4.8	39.9	<2.4	<2.4	<4.8	ND	<2.4	<2.4	NA	<2.4	<2.4	<2.4	<2.4	NA	NA	<24	<4.8	<48	<2.4	<4.8	<2.4
SO-3R	1	3/25/14	6.5	3	NA	NA	9.5	0.0056	NA	NA	0.0056	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SO-3R	4	3/25/14	2.3	1.4	NA	NA	3.7	0.0051	NA	NA	0.0051	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SO-3R	5	3/25/14	4.1	3.2	NA	NA	7.3	0.014	NA	NA	0.014	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SO-4	1	3/10/09	0.74	1.2	0.48	<0.0063	2.42	<0.0032	0.035	<0.0063	0.035	0.0033	0.44	NA	<0.0032	<0.0032	0.042	<0.0032	NA	NA	<0.032	<0.0063	<0.063	<0.0032	<0.0063	<0.0032
SO-4	3	3/10/09	0.93	1.6	0.7	<0.23	3.23	<0.11	<0.11	<0.23	ND	<0.11	0.63	NA	<0.11	<0.11	<0.11	<0.11	NA	NA	<1.1	<0.23	<2.3	<0.11	<0.23	<0.11
SO-5	5	3/10/09	0.39	0.35	0.035	<0.006	0.775	0.07	0.02	<0.006	0.09	<0.003	0.21	NA	<0.003	<0.003	0.053	<0.003	NA	NA	<0.03	<0.006	<0.06	<0.003	<0.006	0.004
SO-5	9	3/10/09	<0.0062	<0.0062	<0.0062	<0.012	ND	<0.0062	<0.0062	<0.012	ND	<0.0062	<0.0062	NA	<0.0062	<0.0062	<0.0062	<0.0062	NA	NA	<0.062	<0.012	<0.12	<0.0062	<0.012	<0.0062
SO-6	5	3/10/09	0.066	0.089	0.48	0.16	0.795	0.01	0.087	<0.0052	0.097	<0.0026	0.19	NA	<0.0026	<0.0026	0.077	<0.0026	NA	NA	<0.026	<0.0052	<0.052	<0.0026	<0.0052	<0.0026
SO-7	3	3/10/09	1.9	2.4	0.015	<0.01	4.315	0.072	0.18	<0.01	0.252	0.0072	0.89	NA	<0.0052	<0.0052	0.13	<0.0052	NA	NA	<0.052	<0.01	<0.1	<0.0052	<0.01	<0.0052
SO-10	1	10/12/10	43	16	7.8	<0.241	66.8	7.2	4.2	<0.241	0.252	<0.121	0.63	NA	<0.121	<0.121	3.4	<0.121	NA	<1.21	<1.21	<0.241	<2.41	<0.121	<0.241	<0.121
SS-AST-1	1	1/12/09	7.09	0.159	0.0768	0.0207	7.3465	0.0805	0.0663	<0.00632	0.1468	<0.00316	0.107	NA	<0.00316	<0.00316	0.0407	<0.00316	NA	NA	<0.0316	<0.00632	<0.0632	<0.00316	<0.00632	<0.00316
SS-AST-2	1	1/12/09	12.2	7.75	5.95	0.0331	25.9331	1.11	3.45	<0.00532	4.56	0.197	0.59	NA	<0.00266	0.00713	1.69	<0.00266	NA	NA	<0.0266	0.0476	0.739	0.0147	0.0121	<0.00266
SS-AST-3	1	7/23/12	0.11	0.058	3.6	0.042	3.81	<0.003	0.05	<0.0061	0.05	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SS-AST-3	2	7/23/12	0.35	0.18	3.3	0.081	3.911	<0.0032	0.075	<0.0064	0.075	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SS-AST-4	1	7/23/12	0.0047	<0.0028	0.0031	<0.0056	0.0078	<0.0028	<0.0028	<0.0056	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SS-AST-4	2	7/23/12	0.0042	<0.0033	<0.0033	<0.0066	0.0042	<0.0033	<0.0033	<0.0066	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SS-AST-5	1	7/23/12	0.0039	<0.0027	<0.0027	<0.0055	0.0039	<0.0027	<0.0027	<0.0055	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SS-AST-5	2	7/23/12	0.011	<0.0032	0.0083	<0.0064	0.0193	<0.0032	<0.0032	<0.0064	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SS-AST-6	1	7/23/12	0.039	0.0088	0.011	<0.0057	0.0588	0.0035	<0.0028	<0.0057	0.0035	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SS-AST-6	2	7/23/12	0.047	0.011	0.0077	<0.0066	0.0657	<0.0033	<0.0033	<0.0066	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SS-AST-7	1	7/23/12	0.013	0.0096	1.9	0.24	2.1626	<0.003	0.62	0.07	0.69	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SS-AST-7	2	7/23/12	0.014	0.0086	2	0.31	2.3326	<0.0031	1.2	0.037	1.237	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SS-AST-8	1	7/23/12	64	58	11	<3.4	133	66	6.8	<3.4	72.8	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SS-AST-8	2	7/23/12	6.5	13	6.2	<3.2	25.7	4.7	8.7	<3.2	13.4	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SS-AST-9	1	7/23/12	380	34	66	<3	480	2.1	1.5	<3	3.6	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SS-AST-9	2	7/23/12	660	97	55	<3.7	812	15	2.1	<3.7	17.1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Area C	3	10/4/14	1800	230	NA	NA	2030	43	NA	NA	43	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SS-AST-10	1	7/23/12	0.0054	<0.0029	0.004	<0.0057	0.0094	<0.0029	<0.0029	<0.0057	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SS-AST-10	2	7/23/12	0.02	0.01	0.013	<0.0067	0.043	<0.0033	<0.0033	<0.0067	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SS-AST-10 (Dup)	1	7/23/12	0.058	0.018	0.016	<0.0074	0.092	0.0043	<0.0037	<0.0074	0.0043	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SS-AST-11	1	7/23/12	0.0095	0.0061	0.0066	<0.0057	0.0222	<0.0028	0.0043	<0.0057	0.0043	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SS-AST-11	2	7/23/12	0.013	0.008	0.0091	<0.0067	0.0301	<0.0034	<0.0034	<0.0067	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SS-BLDG-1	1	1/12/09	<0.0024	<0.0024	0.0061	<0.0048	0.0061	<0.0024	<0.0024	<0.0048	ND	<0.0024	<0.0024	NA	<0.0024	<0.0024	<0.0024	<0.0024	NA	NA	<0.024	<0.0048	<0.048	<0.0024	<0.0048	<0.0024
SS-BLDG-1	5	1/12/09	<0.00284	<0.00284	0.00409	<0.00568	0.00409	<0.00284	<0.00284	<0.00568	ND	<0.00284	<0.00284	NA	<0.00284	<0.00284	<0.00284	<0.00284	NA	NA	<0.0284	<0.00568	&			

Capitol Adhesives
Table B-3. Analytical Results for Constituents Detected in Subsurface Solids (mg/kg)

Sample ID	Depth (ft bgs)	Date Sampled	Chlorobenzene (mg/kg)	Chloroform (mg/kg)	cis/trans 1,2- Dichloroethene (mg/kg)	Cyclohexane (mg/kg)	Dichloro methane (Methylene chloride) (mg/kg)	Ethyl benzene (mg/kg)	Freon-11 (mg/kg)	Freon-113 (mg/kg)	Isopropyl benzene (mg/kg)	m&p-Xylene (mg/kg)	Methyl acetate (mg/kg)	Methyl cyclohexane (mg/kg)	Naphthalene (mg/kg)	n-Propyl benzene (mg/kg)	o-Xylene (mg/kg)	sec-Butyl benzene (mg/kg)	Toluene (mg/kg)	trans-1,2- Dichloroethene (mg/kg)
SB-5	2	2/20/13	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SB-5	4	2/20/13	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SB-6	1	2/20/13	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SB-6	2	2/20/13	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SB-6	4	2/20/13	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SB-7	1	2/20/13	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SB-7	2	2/20/13	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SB-7	4	2/20/13	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SB-8	1	2/20/13	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SB-8	2	2/20/13	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SB-8	4	2/20/13	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SB-9	1	2/20/13	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SB-9	2	2/20/13	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SB-9	4	2/20/13	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SO-2	1	3/10/09	<0.0029	<0.0029	NA	0.0036	<0.0029	<0.0029	<0.0029	<0.0059	<0.0029	<0.0059	<0.0029	<0.0029	NA	NA	<0.0029	NA	0.051	0.0047
SO-2	3	3/10/09	<0.0029	0.04	NA	0.14	<0.0029	<0.0029	<0.0029	<0.0059	<0.0029	<0.0059	<0.0029	0.087	NA	NA	<0.0029	NA	0.05	0.026
SO-3	1	3/10/09	<2.8	<2.8	NA	8	<2.8	<2.8	<2.8	<5.7	<2.8	<5.7	<2.8	130	NA	NA	<2.8	NA	3.3	<2.8
SO-3	3	3/10/09	<2.4	2.5	NA	<2.4	4.5	<2.4	<2.4	<4.8	<2.4	<4.8	<2.4	<2.4	NA	NA	<2.4	NA	<2.4	<2.4
SO-3R	1	3/25/14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SO-3R	4	3/25/14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SO-3R	5	3/25/14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SO-4	1	3/10/09	<0.0032	0.06	NA	<0.0032	<0.0032	<0.0032	<0.0032	<0.0063	<0.0032	<0.0063	<0.0032	0.032	NA	NA	<0.0032	NA	<0.0032	0.0055
SO-4	3	3/10/09	<0.11	0.13	NA	<0.11	<0.11	<0.11	<0.11	<0.23	<0.11	<0.23	<0.11	<0.11	NA	NA	<0.11	NA	<0.11	<0.11
SO-5	5	3/10/09	<0.003	0.12	NA	<0.003	<0.003	<0.003	<0.003	<0.006	<0.003	<0.006	<0.003	<0.003	NA	NA	<0.003	NA	<0.003	0.015
SO-5	9	3/10/09	<0.0062	<0.0062	NA	<0.0062	<0.0062	<0.0062	<0.0062	<0.012	<0.0062	<0.012	<0.0062	<0.0062	NA	NA	<0.0062	NA	<0.0062	<0.0062
SO-6	5	3/10/09	<0.0026	0.084	NA	<0.0026	<0.0026	<0.0026	<0.0026	<0.0052	<0.0026	<0.0052	<0.0026	<0.0026	NA	NA	<0.0026	NA	<0.0026	0.017
SO-7	3	3/10/09	<0.0052	0.17	NA	<0.0052	0.049	<0.0052	<0.0052	<0.01	<0.0052	<0.01	<0.0052	<0.0052	NA	NA	<0.0052	NA	<0.0052	0.025
SO-10	1	10/12/10	<0.121	3.1	NA	<0.121	5.9	<0.121	<0.121	<0.241	<0.121	0.34	0.13	0.26	NA	NA	0.16	NA	1.1	0.17
SS-AST-1	1	1/12/09	<0.00316	0.0397	NA	0.0178	<0.00316	<0.00316	<0.00316	0.155	<0.00316	0.0156	<0.00316	0.0494	NA	NA	<0.00316	NA	0.0105	0.00856
SS-AST-2	1	1/12/09	0.00319	1.31	NA	0.00707	3.8	0.012	<0.00266	<0.00532	<0.00266	0.0534	<0.00266	0.0123	NA	NA	0.021	NA	2.17	0.187
SS-AST-3	1	7/23/12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SS-AST-3	2	7/23/12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SS-AST-4	1	7/23/12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SS-AST-4	2	7/23/12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SS-AST-5	1	7/23/12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SS-AST-5	2	7/23/12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SS-AST-6	1	7/23/12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SS-AST-6	2	7/23/12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SS-AST-7	1	7/23/12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SS-AST-7	2	7/23/12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SS-AST-8	1	7/23/12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SS-AST-8	2	7/23/12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SS-AST-9	1	7/23/12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SS-AST-9	2	7/23/12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Area C	3	10/4/14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SS-AST-10	1	7/23/12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SS-AST-10	2	7/23/12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SS-AST-10 (Dup)	1	7/23/12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SS-AST-11	1	7/23/12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SS-AST-11	2	7/23/12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SS-BLDG-1	1	1/12/09	<0.0024	<0.0024	NA	<0.0024	<0.0024	<0.0024	<0.0024	0.012	<0.0024	<0.0048	<0.0024	<0.0024	NA	NA	<0.0024	NA	<0.0024	<0.0024
SS-BLDG-1	5	1/12/09	<0.00284	<0.00284	NA	<0.00284	<0.00284	<0.00284	<0.00284	0.0615	<0.00284	<0.00568	<0.00284	0.00426	NA	NA	<0.00284	NA	<0.00284	<0.00284
SS-BLDG-2	5	1/12/09	<0.00349	<0.00349	NA	<0.00349	<0.00349	<0.00349	<0.00349	<0.00697	<0.00349	<0.00697	<0.00349	<0.00349	NA	NA	<0.00349	NA	<0.00349	<0.00349
SS-BLDG-5	1	1/12/09	<0.00247	<0.00247	NA	<0.00247	<0.00247	<0.00247	<0.00247	<0.00495	<0.00247	<0.00495	<0.00247	<0.00247	NA	NA	<0.00247	NA	<0.00247	<0.00247
SS-BLDG-6	1	1/12/09	<0.00246	<0.00246	NA	<0.00246	<0.00246	<0.00246	<0.00246	<0.00493	<0.00246	<0.00493	<0.00246	<0.00246	NA	NA	<0.00246	NA	<0.00246	<0.00246
SS-HA-1	1	1/12/09	<0.00284	<0.00284	NA	<0.00284	<0.00284	<0.00284	<0.00284	<0.00569	<0.00284	<0.00569	<0.00284	0.00657	NA	NA	<0.00284	NA	0.00674	<0.00284
SS-HA-2	1	1/12/09	<0.00325	<0.00325	NA	0.00716	<0.00325	<0.00325	<0.00325	<0.0065	<0.00325	<0.0065	<0.00325	0.178	NA	NA	<0.00325	NA	0.00473	<0.00325

Capitol Adhesives																										
Table B-3. Analytical Results for Constituents Detected in Subsurface Solids (mg/kg)																										
Sample ID	Depth (ft bgs)	Date Sampled	Tetrachloroethene (mg/kg)	Trichloroethene (mg/kg)	cis-1,2- Dichloroethene (mg/kg)	Vinyl chloride (mg/kg)	Total Chlorinated Ethenes (mg/kg)	1,1,1-Trichloroethane (mg/kg)	1,1-Dichloroethane (mg/kg)	Chloroethane (mg/kg)	Total Chlorinated Ethanes (mg/kg)	1,1,2-Trichloroethane (mg/kg)	1,1-Dichloroethene (mg/kg)	1,2,4- Trimethylbenzene (mg/kg)	1,2-Dibromoethane (mg/kg)	1,2-Dichlorobenzene (mg/kg)	1,2-Dichloroethane (mg/kg)	1,2-Dichloropropane (mg/kg)	1,3,5- Trimethylbenzene (mg/kg)	1,4-Dioxane (mg/kg)	2-Butanone (MEK) (mg/kg)	4-Methyl-2-pentanone (mg/kg)	Acetone (mg/kg)	Benzene (mg/kg)	Carbon disulfide (mg/kg)	Carbon tetra chloride (mg/kg)
Vadose Zone Soil			Type 1 RRS (mg/kg)																							
			0.5	200	0.53	0.2		20	0.7	0.17		0.5	400	0.5	0.5	0.5	7	200	400	0.5						
GP007	2-4	8/9/05	<0.0045	<0.0045	<0.0045	NA	ND	<0.0045	NA	NA	ND	NA	<0.0045	<0.0045	NA	NA	<0.0045	<4.5	<0.0045	NA	NA	NA	NA	NA	NA	NA
GP008	2-4	8/9/05	<0.0054	<0.0054	<0.0054	NA	ND	<0.0054	NA	NA	ND	NA	<0.0054	<0.0054	NA	NA	<0.0054	<5.4	<0.0054	NA	NA	NA	NA	NA	NA	NA
SS-BLDG-2	1	1/12/09	<0.00268	<0.00268	<0.00268	<0.00536	ND	<0.00268	<0.00268	<0.00536	ND	<0.00268	<0.00268	NA	<0.00268	<0.00268	<0.00268	<0.00268	NA	NA	<0.0268	<0.00536	<0.0536	<0.00268	<0.00536	<0.00268
SS-BLDG-3	1	1/12/09	<0.00301	<0.00301	<0.00301	<0.00602	ND	<0.00301	<0.00301	<0.00602	ND	<0.00301	<0.00301	NA	<0.00301	<0.00301	<0.00301	<0.00301	NA	NA	<0.0301	<0.00602	<0.0602	<0.00301	<0.00602	<0.00301
SS-BLDG-4	1	1/12/09	<0.00299	0.161	<0.00299	<0.00598	0.161	<0.00299	<0.00299	<0.00598	ND	<0.00299	<0.00299	NA	<0.00299	<0.00299	<0.00299	<0.00299	NA	NA	<0.0299	<0.00598	<0.0598	<0.00299	<0.00598	<0.00299
Other (sediment)																										
South Ditch	0-2	6/19/04	<0.0064	0.012	0.016	NA	0.028	<0.0064	NA	NA	ND	NA	<0.0064	NA	NA	NA	<0.0064	<6.4	NA	NA	NA	NA	NA	NA	NA	NA
NA: Not analyzed ND: Not detected Matrix: Vadose Zone Soil - sample collected above or at the high water table mark Solid Aquifer Matrix - sample collected below the high water table mark NA: Not analyzed																										
Not representative of current condition (i.e., excavated or collected prior to oxidant addition)																										

Capitol Adhesives
Table B-3. Analytical Results for Constituents Detected in Subsurface Solids (mg/kg)

Sample ID	Depth (ft bgs)	Date Sampled	Chlorobenzene (mg/kg)	Chloroform (mg/kg)	cis/trans 1,2- Dichloroethene (mg/kg)	Cyclohexane (mg/kg)	Dichloro methane (Methylene chloride) (mg/kg)	Ethyl benzene (mg/kg)	Freon-11 (mg/kg)	Freon-113 (mg/kg)	Isopropyl benzene (mg/kg)	m&p-Xylene (mg/kg)	Methyl acetate (mg/kg)	Methyl cyclohexane (mg/kg)	Naphthalene (mg/kg)	n-Propyl benzene (mg/kg)	o-Xylene (mg/kg)	sec-Butyl benzene (mg/kg)	Toluene (mg/kg)	trans-1,2- Dichloroethene (mg/kg)
Vadose Zone Soil																				
Type 1 RRS (mg/kg)			3.9 6466 0.5 70 200 24,039 100 10																	
GP007	2-4	8/9/05	NA	<0.0045	<0.0045	NA	<0.0045	<0.0045	NA	NA	<0.0045	NA	NA	NA	<0.0045	<0.0045	NA	<0.0045	<0.0045	NA
GP008	2-4	8/9/05	NA	<0.0054	<0.0054	NA	<0.0054	<0.0054	NA	NA	<0.0054	NA	NA	NA	<0.0054	<0.0054	NA	<0.0054	<0.0054	NA
SS-BLDG-2	1	1/12/09	<0.00268	<0.00268	NA	<0.00268	<0.00268	<0.00268	<0.00268	<0.00536	<0.00268	<0.00536	<0.00268	<0.00268	NA	NA	<0.00268	NA	<0.00268	<0.00268
SS-BLDG-3	1	1/12/09	<0.00301	<0.00301	NA	<0.00301	<0.00301	<0.00301	<0.00301	<0.00602	<0.00301	<0.00602	<0.00301	<0.00301	NA	NA	<0.00301	NA	<0.00301	<0.00301
SS-BLDG-4	1	1/12/09	<0.00299	<0.00299	NA	<0.00299	<0.00299	<0.00299	<0.00299	<0.00598	<0.00299	<0.00598	<0.00299	<0.00299	NA	NA	<0.00299	NA	<0.00299	<0.00299
Other (sediment)																				
South Ditch	0-2	6/19/04	NA	<0.0064	<0.0064	NA	0.0082	<0.0064	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

ND: Not detected Vadose Zone Soil - sample collected above or at the high water table mark Solid Aquifer Matrix - sample collected below the high water table mark

Capitol Adhesives
Table B-4. Vadose Zone Soil Delineation

Sample ID	Depth (ft bgs)	Date Sampled	Tetrachloro ethene (mg/kg)	Trichloro ethene (mg/kg)	cis-1,2- Dichloro ethene (mg/kg)	Vinyl chloride (mg/kg)	1,1,1- Trichloro ethane (mg/kg)	1,1- Dichloro ethane (mg/kg)	Chloro ethane (mg/kg)	1,1,2- Trichloro ethane (mg/kg)	1,1- Dichloro ethene (mg/kg)	1,2- Dichloro ethane (mg/kg)	1,2- Dichloro propane (mg/kg)	1,4- Dioxane (mg/kg)
Delineation Criteria (Type 1 RRS)			0.5	0.5	7	0.2	20	0.7	0.17	0.5	400	0.5	0.5	7
Maximum Detected Conc			ND	0.161	0.005	ND	ND	ND	ND	ND	ND	ND	ND	ND
Vadose Zone Soil														
GP007	2-4	8/9/05	<0.0045	<0.0045	<0.0045		<0.0045				<0.0045	<0.0045	<4.5	
GP008	2-4	8/9/05	<0.0054	<0.0054	<0.0054		<0.0054				<0.0054	<0.0054	<5.4	
SS-BLDG-2	1	1/12/09	<0.00268	<0.00268	<0.00268	<0.00536	<0.00268	<0.00268	<0.00536	<0.00268	<0.00268	<0.00268	<0.00268	NA
SS-BLDG-3	1	1/12/09	<0.00301	<0.00301	<0.00301	<0.00602	<0.00301	<0.00301	<0.00602	<0.00301	<0.00301	<0.00301	<0.00301	NA
SS-BLDG-4	1	1/12/09	<0.00299	0.161	<0.00299	<0.00598	<0.00299	<0.00299	<0.00598	<0.00299	<0.00299	<0.00299	<0.00299	NA
Solid Aquifer Matrix														
GP001	6-8	8/9/05	<0.0054	<0.0054	<0.0054		<0.0054				<0.0054	<0.0054	<5.4	
GP002	4-6	8/9/05	<0.0049	<0.0049	<0.0049		<0.0049				<0.0049	<0.0049	<4.9	
GP003	2-4	8/9/05	<0.0048	<0.0048	<0.0048		<0.0048				<0.0048	<0.0048	<4.8	
GP004	4-6	8/9/05	<0.004	<0.004	<0.004		<0.004				<0.004	<0.004	<4	
GP005	4-6	8/9/05	<0.0045	<0.0045	<0.0045		<0.0045				<0.0045	<0.0045	<4.5	
GP006	2-4	8/9/05	<0.0046	<0.0046	<0.0046		<0.0046				<0.0046	<0.0046	<4.6	
GP013	4-6	8/10/05	<0.0052	<0.0052	<0.0052		<0.0052				<0.0052	<0.0052	<5.2	
MIP-5	3	10/16/08	<0.0022	<0.0022	<0.0022	<0.0045	<0.0022	<0.0022	<0.0045	<0.0022	<0.0022	<0.0022	<0.0022	<0.067
MW-10	5-10	7/7/06	<0.005	0.006	<0.005	<0.01	<0.005	<0.005	<0.01	<0.005	<0.005	<0.005	<5	NA
MW-11	5-10	7/6/06	<0.005	0.008	0.005	<0.01	<0.005	<0.005	<0.01	<0.005	<0.005	<0.005	<5	NA
MW-12	5-10	7/6/06	<0.005	<0.005	<0.005	<0.01	<0.005	<0.005	<0.01	<0.005	<0.005	<0.005	<5	NA
MW-13	13-15	6/27/06	<0.005	<0.005	<0.005	<0.01	<0.005	<0.005	<0.01	<0.005	<0.005	<0.005	<5	NA
MW-16	8-10	6/27/06	<0.005	<0.005	<0.005	<0.01	<0.005	<0.005	<0.01	<0.005	<0.005	<0.005	<5	NA
MW-8	8-10	6/27/06	<0.005	<0.005	<0.005	<0.01	<0.005	<0.005	<0.01	<0.005	<0.005	<0.005	<5	NA
MW-9	8-10	6/27/06	<0.005	<0.005	<0.005	<0.01	<0.005	<0.005	<0.01	<0.005	<0.005	<0.005	<5	NA

NA: Not analyzed

ND: Not detected

Matrix: Vadose Zone Soil - sample collected above or at the high water table mark
 Solid Aquifer Matrix - sample collected below the high water table mark

Capitol Adhesives
Table B-4. Vadose Zone Soil Delineation

Sample ID	Depth (ft bgs)	Date Sampled	2-Butanone (MEK) (mg/kg)	Acetone (mg/kg)	Benzene (mg/kg)	Chloroform (mg/kg)	Cyclo hexane (mg/kg)	Dichloro methane (Methylene chloride) (mg/kg)	Ethyl benzene (mg/kg)	Freon-11 (Trichlorof luorometha ne (mg/kg)	Freon-113 (mg/kg)	Toluene (mg/kg)	trans-1,2- Dichloro ethene (mg/kg)
Delineation Criteria (Type 1 RRS)			200	400	0.5	3.9	20	0.5	70	200	24,039	100	10
Maximum Detected Conc			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Vadose Zone Soil													
GP007	2-4	8/9/05				<0.0045		<0.0045	<0.0045			<0.0045	
GP008	2-4	8/9/05				<0.0054		<0.0054	<0.0054			<0.0054	
SS-BLDG-2	1	1/12/09	<0.0268	<0.0536	<0.00268	<0.00268	<0.00268	<0.00268	<0.00268	<0.00268	<0.00536	<0.00268	<0.00268
SS-BLDG-3	1	1/12/09	<0.0301	<0.0602	<0.00301	<0.00301	<0.00301	<0.00301	<0.00301	<0.00301	<0.00602	<0.00301	<0.00301
SS-BLDG-4	1	1/12/09	<0.0299	<0.0598	<0.00299	<0.00299	<0.00299	<0.00299	<0.00299	<0.00299	<0.00598	<0.00299	<0.00299
Solid Aquifer Matrix													
GP001	6-8	8/9/05				<0.0054		<0.0054	<0.0054			<0.0054	
GP002	4-6	8/9/05				<0.0049		<0.0049	<0.0049			<0.0049	
GP003	2-4	8/9/05				<0.0048		<0.0048	<0.0048			<0.0048	
GP004	4-6	8/9/05				<0.004		<0.004	<0.004			<0.004	
GP005	4-6	8/9/05				<0.0045		<0.0045	<0.0045			<0.0045	
GP006	2-4	8/9/05				<0.0046		<0.0046	<0.0046			<0.0046	
GP013	4-6	8/10/05				<0.0052		<0.0052	<0.0052			<0.0052	
MIP-5	3	10/16/08	<0.022	<0.045	<0.0022	<0.0022	<0.0022	<0.0022	<0.0022	<0.0022	<0.0045	<0.0022	<0.0022
MW-10	5-10	7/7/06	<0.1	<0.1	<0.005	<0.005	NA	<0.005	<0.005	<0.005	NA	<0.005	<0.005
MW-11	5-10	7/6/06	<0.1	<0.1	<0.005	<0.005	NA	<0.005	<0.005	<0.005	NA	<0.005	<0.005
MW-12	5-10	7/6/06	<0.1	<0.1	<0.005	<0.005	NA	<0.005	<0.005	<0.005	NA	<0.005	<0.005
MW-13	13-15	6/27/06	<0.1	<0.1	<0.005	<0.005	NA	<0.005	<0.005	<0.005	NA	<0.005	<0.005
MW-16	8-10	6/27/06	<0.1	<0.1	<0.005	<0.005	NA	<0.005	<0.005	<0.005	NA	<0.005	<0.005
MW-8	8-10	6/27/06	<0.1	<0.1	<0.005	<0.005	NA	<0.005	<0.005	<0.005	NA	<0.005	<0.005
MW-9	8-10	6/27/06	<0.1	<0.1	<0.005	<0.005	NA	<0.005	<0.005	<0.005	NA	<0.005	<0.005

NA: Not analyzed

ND: Not detected

Matrix: Vadose Zone Soil - sample collected above or at the high water table mark
Solid Aquifer Matrix - sample collected below the high water table mark

Capitol Adhesives

Table B-5. Anaerobic Biodegradation Preliminary Screening

Indicator Parameter	Criterion	Scoring Value	Plume				Sidegradient		Downgradient	Upgradient
			MW-3	MW-3D	MW-4	MW-5	MW-12	MW-14	MW-16	MW-8
Oxygen	< 0.5 mg/L	3	0.44	0.53	0.41	0.26	0.3	0.69	0.37	0.62
Nitrate	< 1 mg/L	2	0.019	0.017	0.016	0.015				1
Iron II	> 1 mg/L	3	0.1	0.6	0.5	3.4				
Total Iron	>10		0.791	0.549	7.15	7.46				
Sulfate	< 20 mg/L	2	11	8	5	5				6
Sulfide	> 1 mg/L	3	ND	ND	ND	ND				ND
Methane	<0.5 mg/L	0	1.5	0.27	4.3	8.1				0.004
	>0.5 mg/L	3								
ORP	< 50 mV	1	-54	-109	-57	-147	160	76	137	98
	< -100 mV	2								
pH	5-9	0	6.71	7.07	6.73	6.9	6.66	7.39	6.48	6.82
	<5 or >9	-2								
TOC	> 20 mg/L	2	1.3	0.5	0.7	5.9				< 5
Phosphorus			0.028	<0.02	0.049	0.115				
Temp	> 20 C	1	23.67	21.24	22.88	28.7	21.44	18.77	20.72	20.63
Alkalinity	> 2 x Bkg	1	181	160	233	915				126
Chloride	> 2 x Bkg	2	34	15	9.7	33				6.5
TCE		2	4.5	1.3	0.086	<0.005	0.0068	<0.005	<0.005	<0.005
DCE		2	1	0.3	0.057	<0.005	0.0076	<0.005	<0.005	<0.005
VC		2	0.11	0.077	0.059	0.011	<0.002	<0.002	<0.002	<0.002
DCA		2	0.31	0.15	0.0062	0.0051	<0.005	<0.005	<0.005	<0.005
Chloroethane		2	<0.01	<0.01	<0.01	0.24	<0.01	<0.01	<0.01	<0.01
Ethene/Ethane	> 0.01 mg/L	2	0.055	ND	0.048	0.31				ND
	> 0.1 mg/L	3								
Score			28	24.5	26	31	12	7.5	8	12.5
Evidence for reductive dechlorination			Strong	Strong	Strong	Strong	Limited	Limited	Limited	Limited

Strong (>20) = Strong evidence for reductive dechlorination

Adequate (15-20) = Adequate evidence for reductive dechlorination

Limited (6-14) = Limited evidence for reductive dechlorination

Inadequate (0-5) = Inadequate evidence for reductive dechlorination

Data from October 2010

Meets criterion

Capitol Adhesives
Table B-6. Anaerobic Microbial Testing Results (October, 2010)

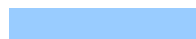
Test 1: Plate Counting						Test 2: CENSUS				
	Anaerobic CFU/mL at 48 hrs	% Strain 1A (low discrimination)	% Strain 5A (<i>Achromobacter denitrificans</i>)	% Strain 6 (<i>Kocuria kristinae</i>)	% Strain 7 (low discrimination)	<i>Dehalococcoid</i> <i>es spp.</i> (cells/mL)	tceA Reductase	vinyl chloride reductase	bva Reductase	<i>Dehaloba cter spp.</i>
Groundwater Testing										
MW-3	70		10%	90%		93.9	42.2	5.6	<0.4	1600
MW-3D	20	34%		33%	33%					
MW-5	30		100%			64,800	3,860	37,300	<0.8	7340
MW-4	<10									
Endpoint Assay										
111-TCA		Excellent	Excellent	No Effect	Inhibited					
TCE		Excellent	Excellent	Inhibited	Good					

10-1,000 potential if VC Rdases present
>10,000 good if RDases present

Table B-7. Aerobic Microbial Testing Results (October, 2010)

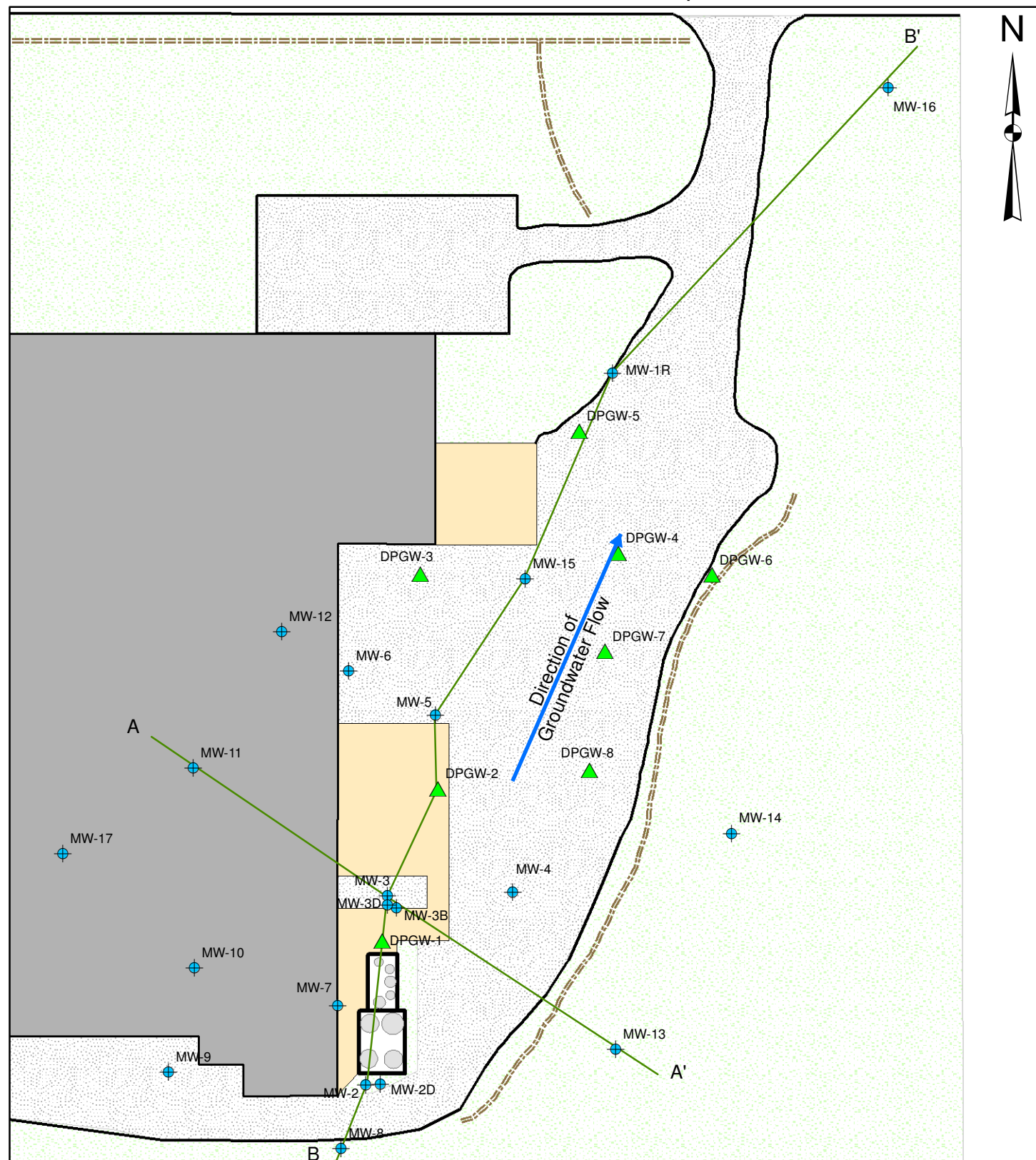
Test 1: Plate Counting						
	Aerobic CFU/mL at 48 hrs	% Strain 1 (<i>Kocuria kristinae</i>)	% Strain 2 (<i>Micrococcus luteus / lylae</i>)	% Strain 3 (<i>Pseudomonas aeruginosa</i>)	% Strain 4 (<i>Pseudomonas aeruginosa</i>)	% Strain 5 (unidentified)
Groundwater Testing						
MW-3	100	95%	5%			
MW-3D	<10					
MW-5	250			98%	2%	
MW-4	70					100%
Endpoing Assay						
111-TCA		Minimal	Inhibited	Excellent	Excellent	Fair
TCE		No Effect	Inhibited	Excellent	Excellent	Minimal

 Good indication of biodegradation

 Moderate indication of biodegradation

FIGURES

Capitol Adhesives Cross-Section Location Map



0 50 100
Feet

- MW Monitoring Well Location
- ▲ DPGW Direct-push Groundwater Sampling Location
- Surface Drainage Ditch

- Building
- Concrete Pad
- AST Containment Area
- Packed Gravel Drive/Parking
- Grass

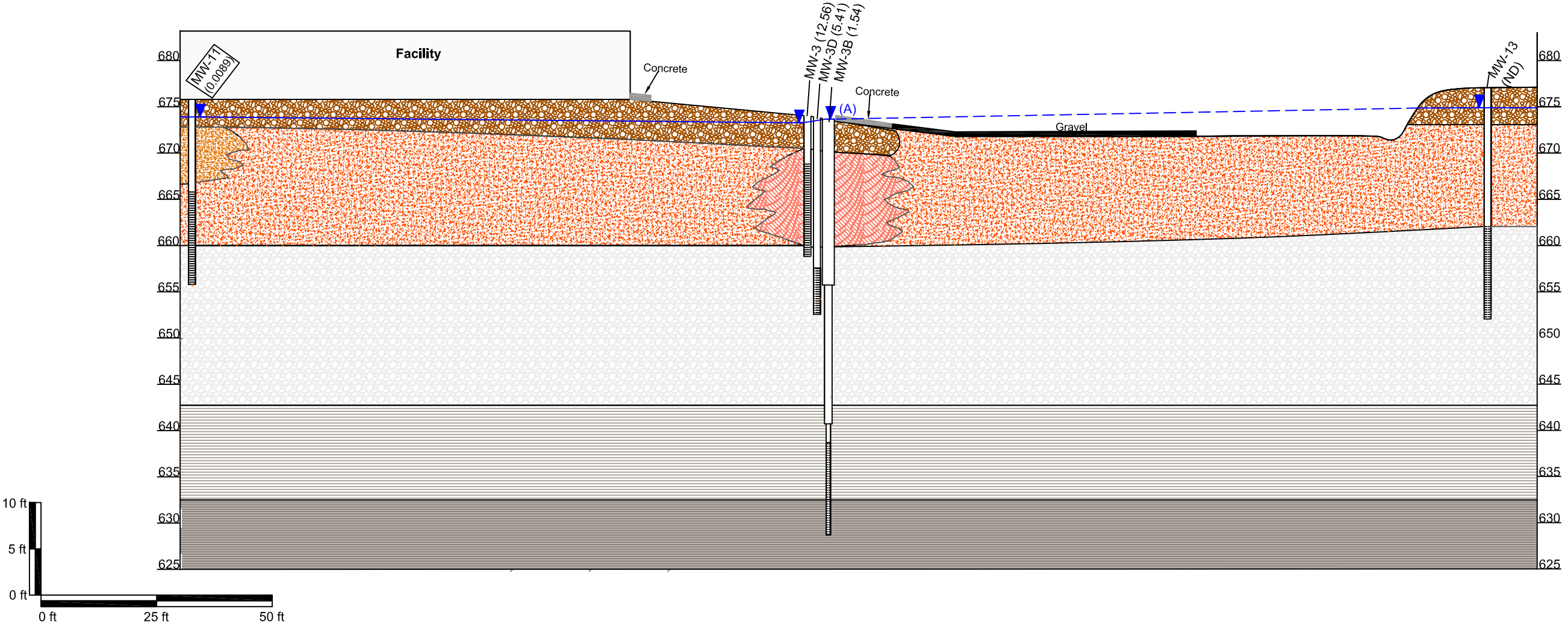
Lithological
Cross Section A-A'
(Profile)

West

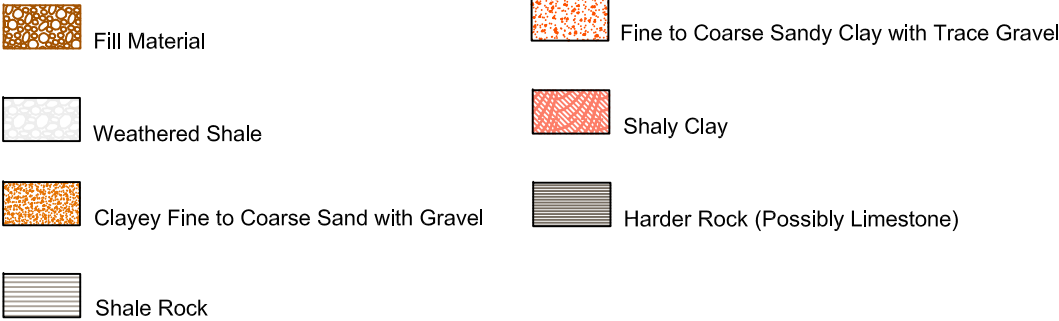
A

East

A'



Legend



(9.8) Total chlorinated ethanes and ethenes (mg/L) in Feb. 2013;
includes TCA, DCA, CA, PCE, TCE, DCE, VC;

▼ Historical "High" recorded water table
(A) Well was artesian at time of gauging



1050 Crown Pointe Parkway
Suite 550
Atlanta, GA 30338
Phone: (404) 315-9113

DES			DATE: October 2012
DRN	JD	10/10	
CHK			
REV	FR	9/12	
APP			
PROJ MGR	TB	10/10	
OPER			

Capitol Adhesives
300 Cross Plains Blvd.
Dalton, GA 30721

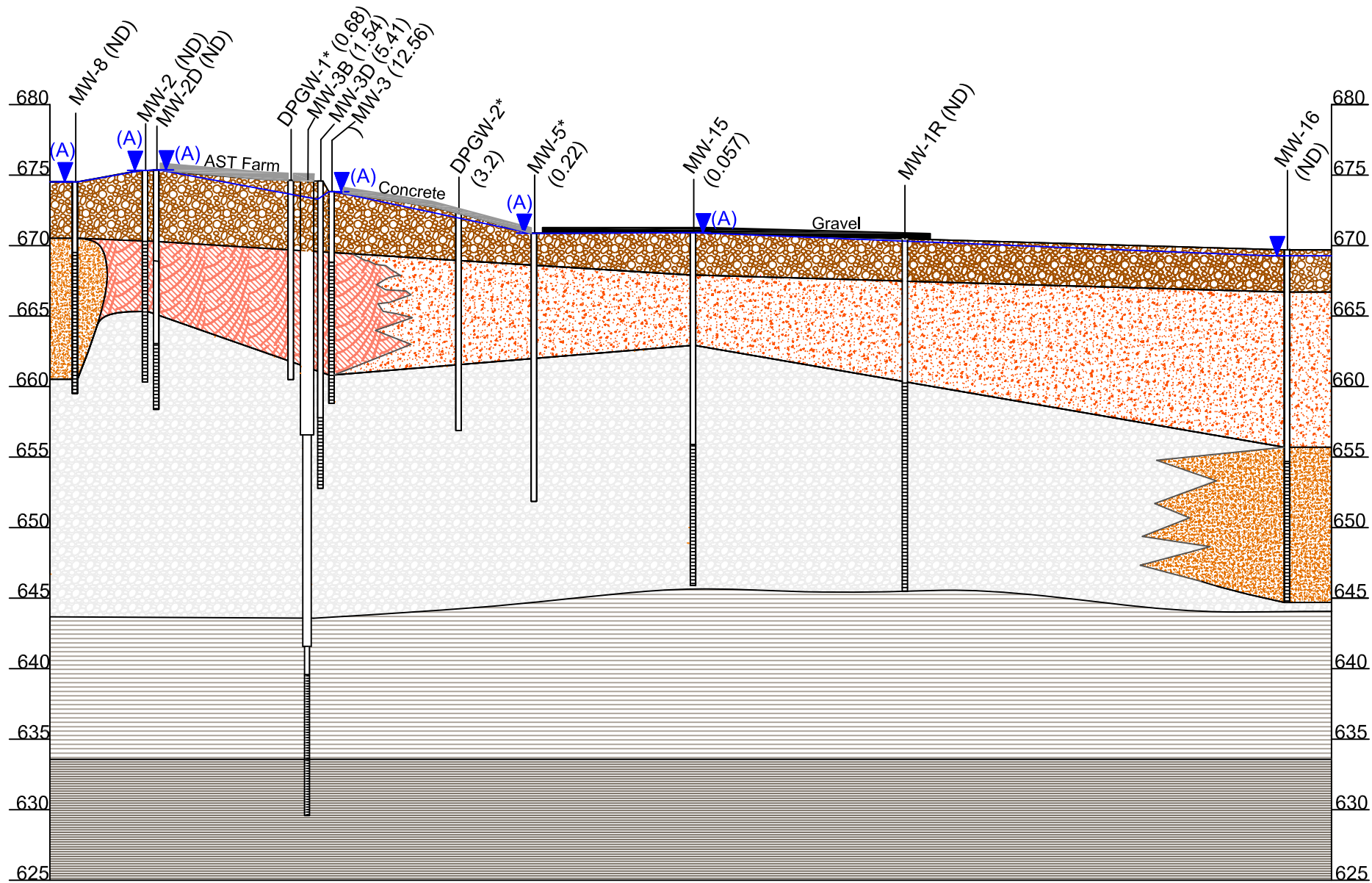
Lithological Cross-Section
A-A'

FIGURE
B-2

South
B

North
B'

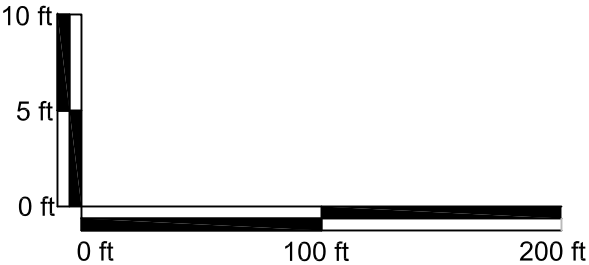
Lithological
Cross Section B-B'
(Profile)



Legend

- Fine to Coarse Sandy Clay with Trace Gravel
- Weathered Shale
- Clayey Fine to Coarse Sand with Gravel
- Fill Material
- Shale Rock
- Shaly Clay
- Harder Rock (Possibly Limestone)

- ▼ Historical "High" recorded water table
- (A) Well was artesian at time of gauging
- (3.2) Total chlorinated ethanes and ethenes (mg/L) in Feb. 2013 (DPGW samples from 2009); includes TCA, DCA, CA, PCE, TCE, DCE, VC;
- * No boring log available



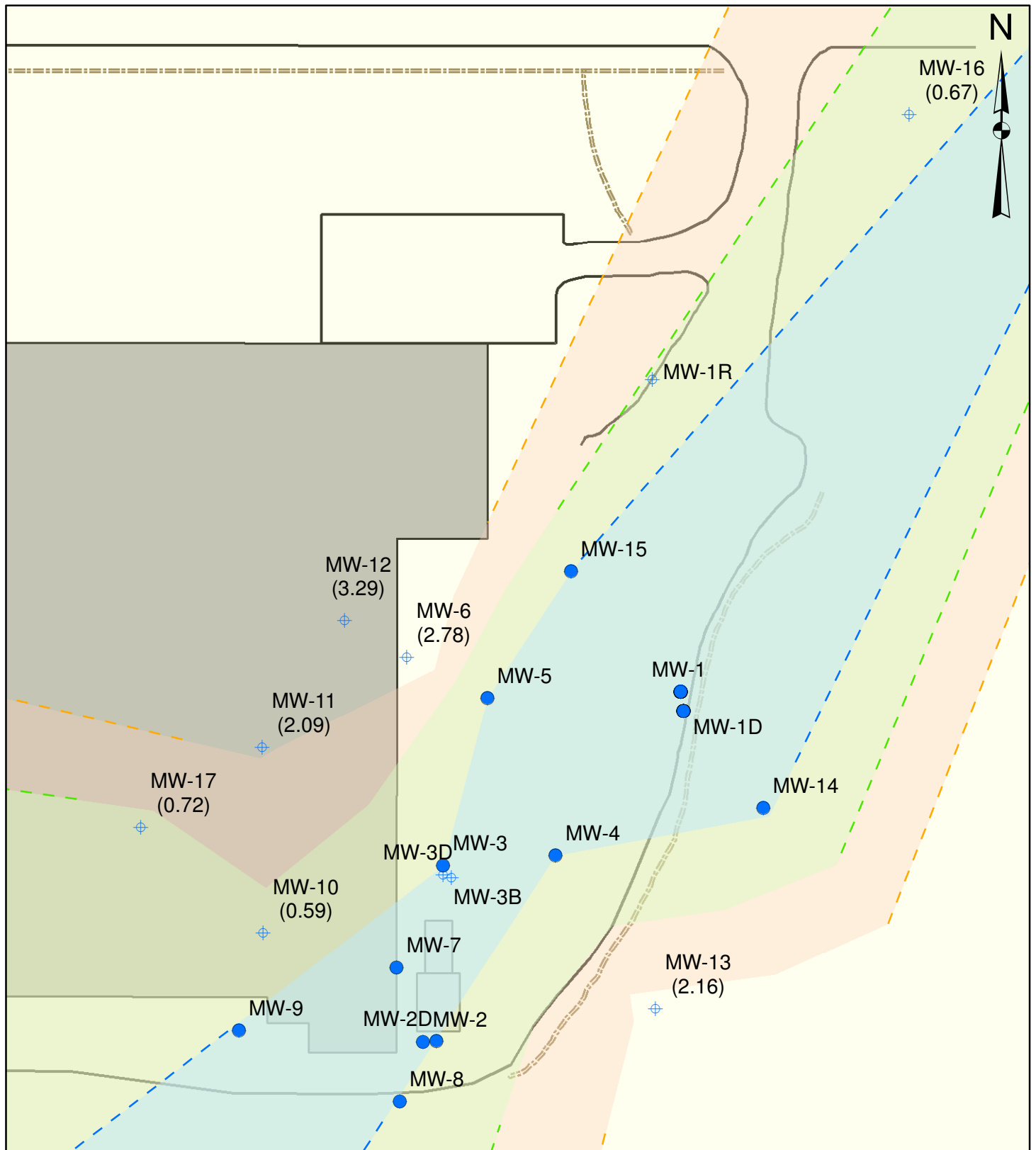
1050 Crown Pointe Parkway
Suite 550
Atlanta, GA 30338
Phone: (404) 315-9113

DES			DATE: October 2012
DRN	JD	10/10	Capitol Adhesives 300 Cross Plains Blvd. Dalton, GA 30721
CHK			
REV	FR	5/11	
APP			
PROJ MGR	TB	10/10	
OPER			

Lithological Cross-Section
B-B'

FIGURE
B-3

Capitol Adhesives Soil Zones Based on High Water Table Conditions



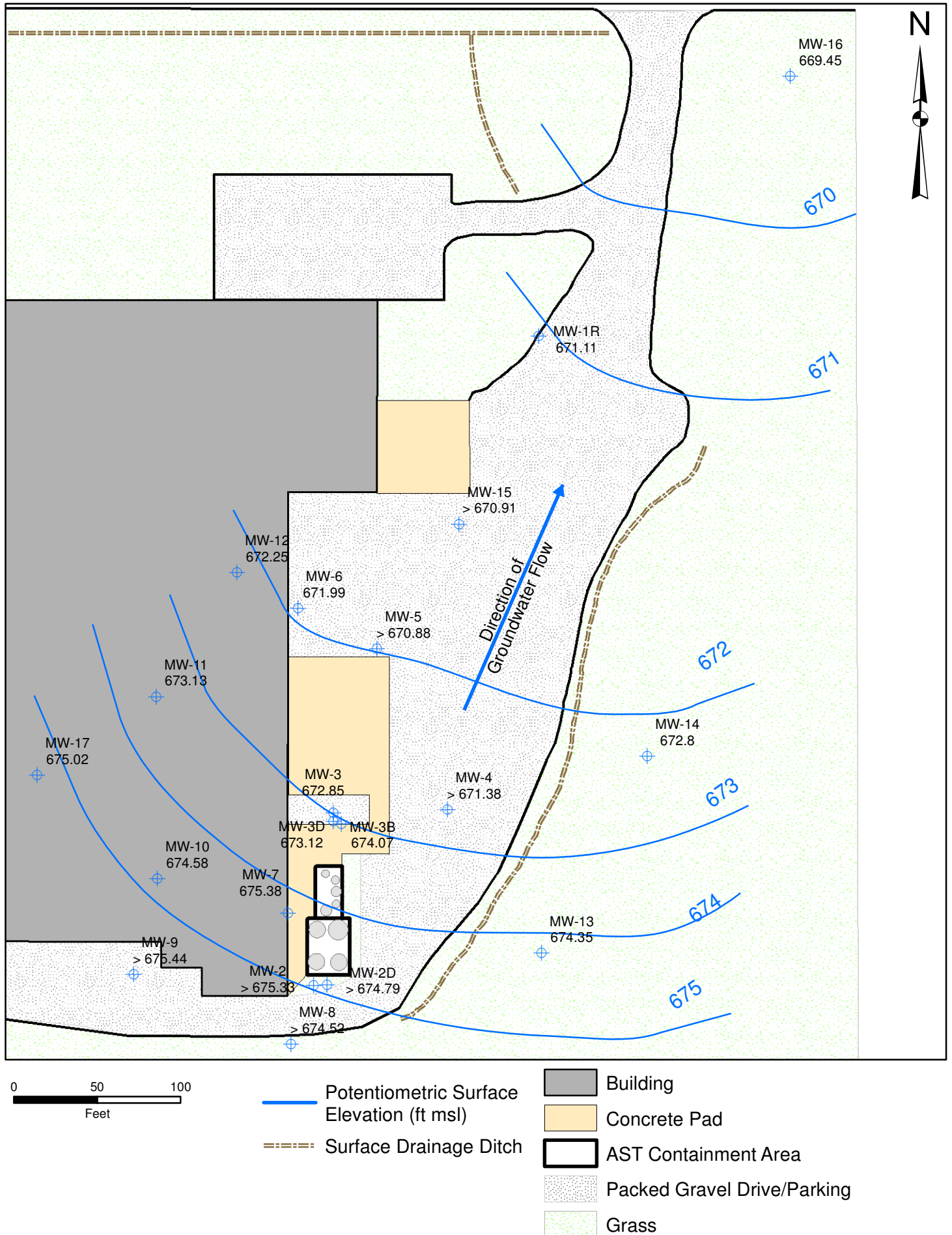
Legend

- Wells in Fully Saturated Zone
- ⊕ Monitoring Wells (depth to groundwater in feet)
- - - Dashed Lines Where Inferred

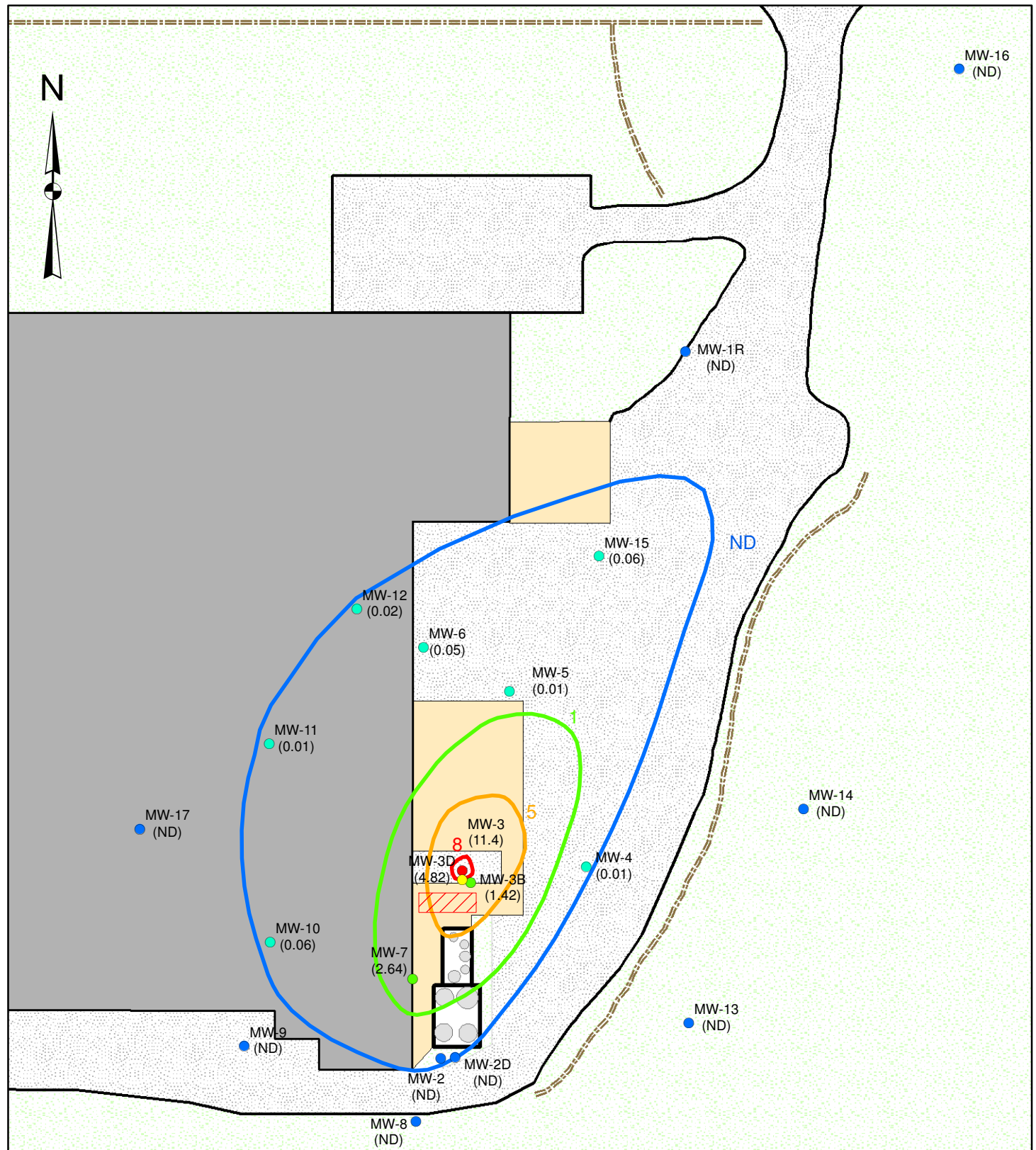
Soil Zones from High Water Tables

- Fully Saturated Zone
- 0-1' Vadose Zone
- 1-2' Vadose Zone
- >2' Vadose Zone

Capitol Adhesives Potentiometric Surface Map of Surficial Aquifer (February 2013)



Capitol Adhesives Groundwater Total Chlorinated Ethenes* (February 2013)

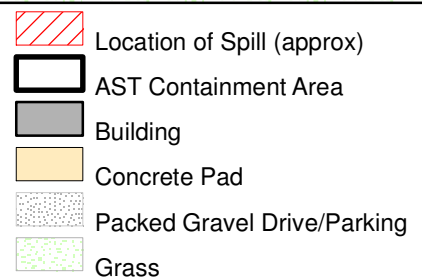


0 50 100
Feet

Total VOCs* (mg/L)



Isopleth



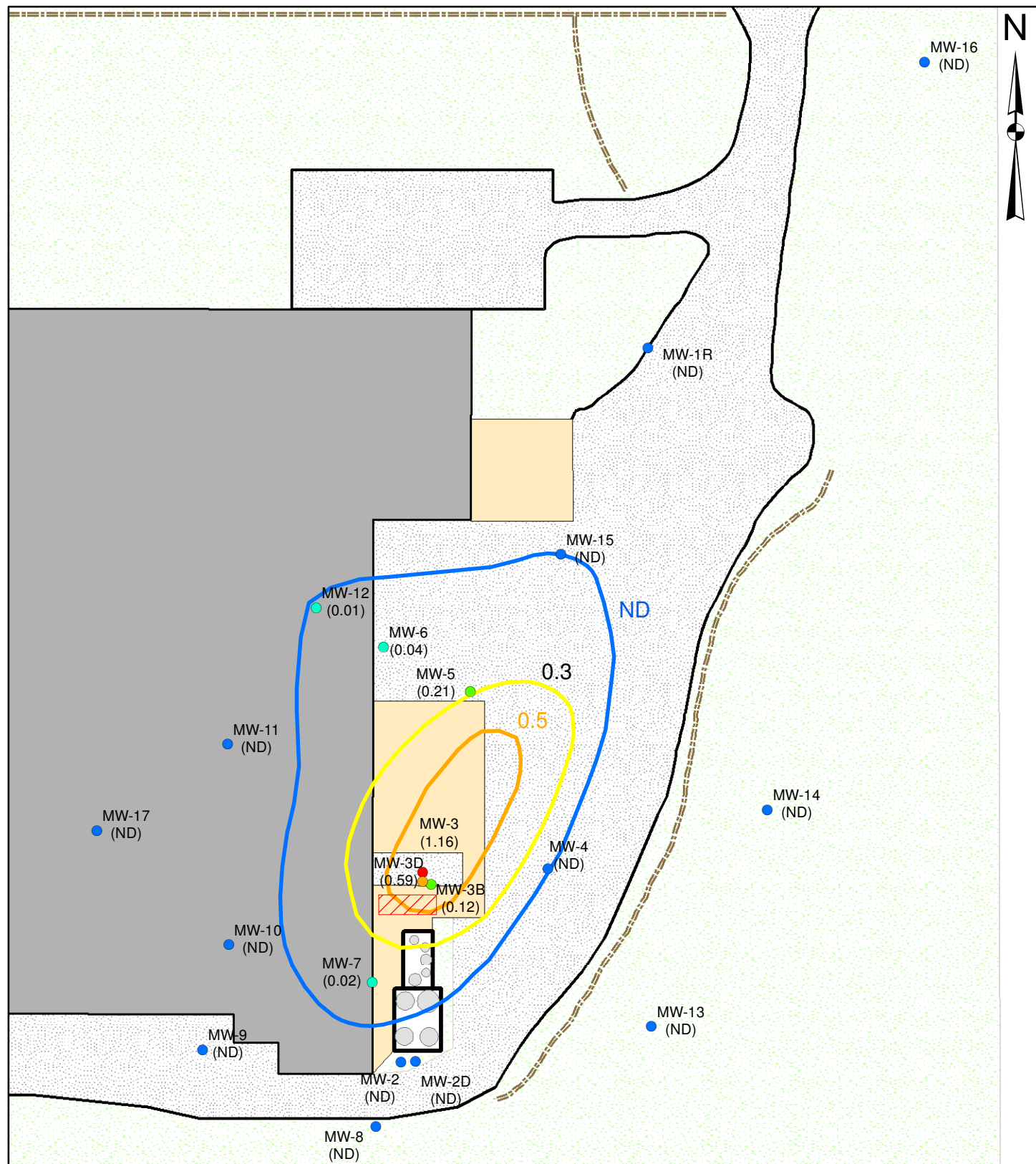
* Chlorinated ethenes – PCE, TCE, cis-DCE, and VC

EP S

G:\River Associates\Capitol Adhesives\VRP Program\GIS\CSR\Fig8_GWPCE.mxd

Figure No.B-6

Capitol Adhesives Groundwater Total Chlorinated Ethanes* (February 2013)



0 50 100
Feet

Total VOCs* (mg/L)

- | | |
|---------|---------|
| ● ND | ● 3 - 5 |
| ● < 1 | ● 5 - 8 |
| ● 1 - 3 | ● > 8 |

— Isopleth

- Location of Spill (approx)
- AST Containment Area
- Building
- Concrete Pad
- Packed Gravel Drive/Parking
- Grass

* Chlorinated ethanes = 1,1,1-TCA, 1,1-DCA, and CA

EPS

G:\River Associates\Capitol Adhesives\VRP Program\GIS\CSR\Fig9_GWTCA.mxd

Figure No.B-7

Figure B-8. MW-5 PCE Degradation Time Series

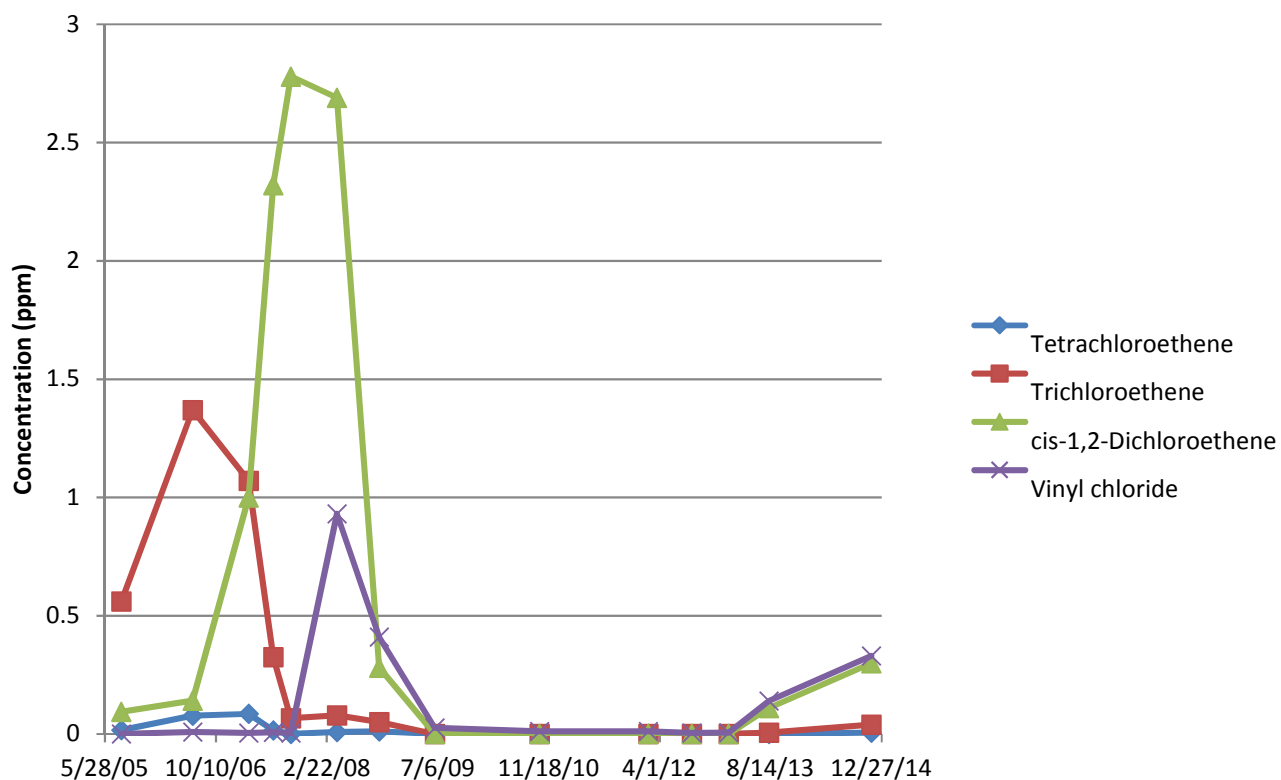
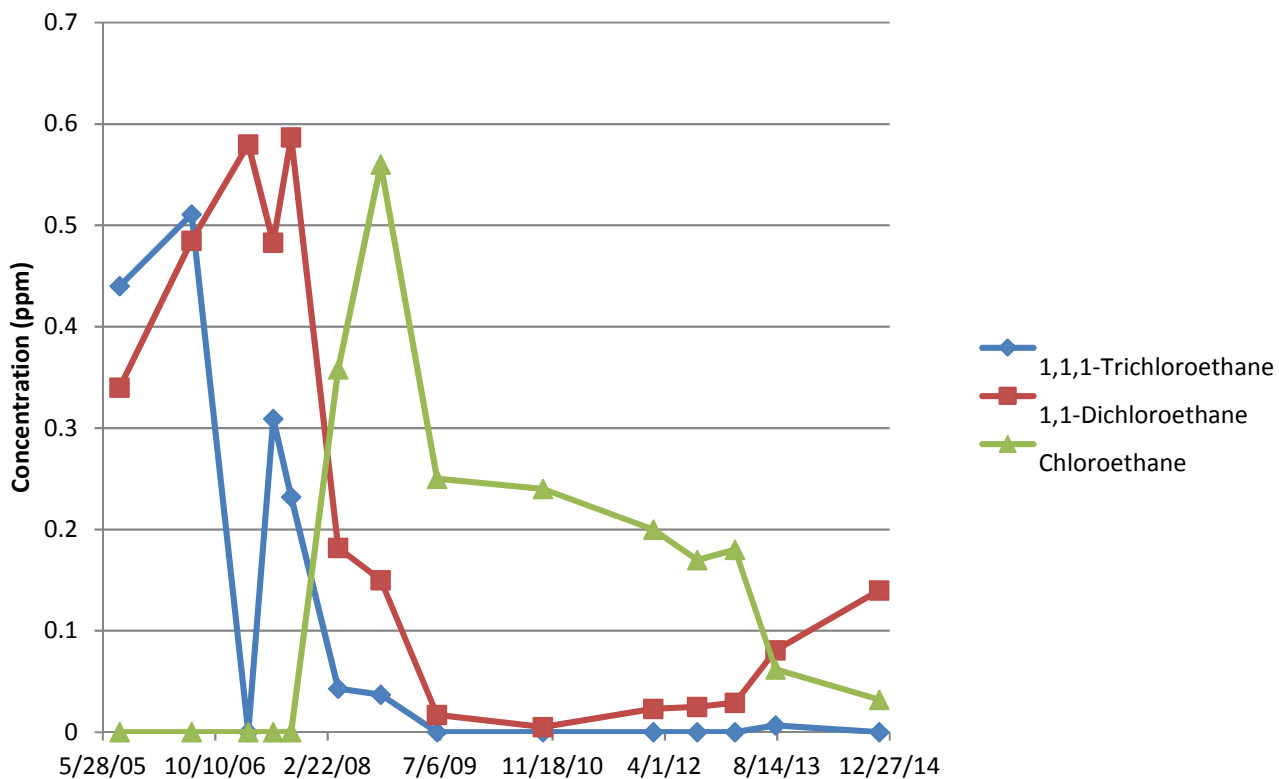
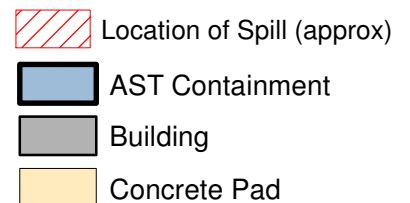


Figure B-9. MW-5 TCA Degradation Time Series

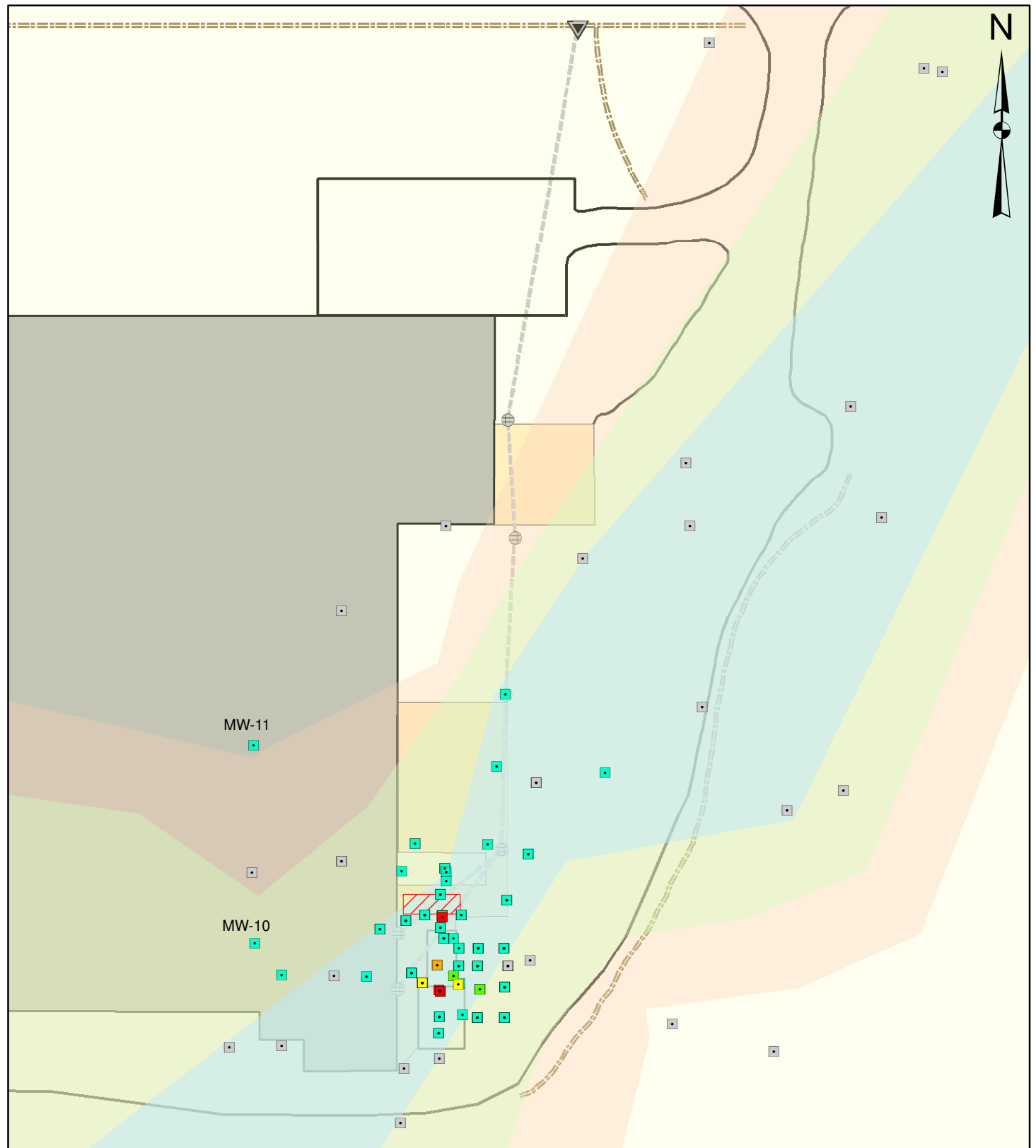


The map displays the study area with various monitoring points and geological features. A north arrow is located in the top right corner. The map is divided into several colored regions: a large yellow area in the top left, a grey area in the middle left, a light blue area in the bottom left, and a light green area in the bottom right. A red rectangle highlights a specific area in the bottom left, containing several monitoring points. The monitoring points are labeled as follows:

- GP001, GP002, GP003, GP004, GP005, GP006, GP007, GP008, GP009, GP010, GP011, GP012, GP013, GP014, GP015, GP016, GP017, GP018, GP019, GP020, GP021, GP022, GP023, GP024, GP025, GP026, GP027, GP028, GP029, GP030, GP031, GP032, GP033, GP034, GP035, GP036, GP037, GP038, GP039, GP040, GP041, GP042, GP043, GP044, GP045, GP046, GP047, GP048, GP049, GP050, GP051, GP052, GP053, GP054, GP055, GP056, GP057, GP058, GP059, GP060, GP061, GP062, GP063, GP064, GP065, GP066, GP067, GP068, GP069, GP070, GP071, GP072, GP073, GP074, GP075, GP076, GP077, GP078, GP079, GP080, GP081, GP082, GP083, GP084, GP085, GP086, GP087, GP088, GP089, GP090, GP091, GP092, GP093, GP094, GP095, GP096, GP097, GP098, GP099, GP100, GP101, GP102, GP103, GP104, GP105, GP106, GP107, GP108, GP109, GP110, GP111, GP112, GP113, GP114, GP115, GP116, GP117, GP118, GP119, GP120, GP121, GP122, GP123, GP124, GP125, GP126, GP127, GP128, GP129, GP130, GP131, GP132, GP133, GP134, GP135, GP136, GP137, GP138, GP139, GP140, GP141, GP142, GP143, GP144, GP145, GP146, GP147, GP148, GP149, GP150, GP151, GP152, GP153, GP154, GP155, GP156, GP157, GP158, GP159, GP160, GP161, GP162, GP163, GP164, GP165, GP166, GP167, GP168, GP169, GP170, GP171, GP172, GP173, GP174, GP175, GP176, GP177, GP178, GP179, GP180, GP181, GP182, GP183, GP184, GP185, GP186, GP187, GP188, GP189, GP190, GP191, GP192, GP193, GP194, GP195, GP196, GP197, GP198, GP199, GP200, GP201, GP202, GP203, GP204, GP205, GP206, GP207, GP208, GP209, GP210, GP211, GP212, GP213, GP214, GP215, GP216, GP217, GP218, GP219, GP220, GP221, GP222, GP223, GP224, GP225, GP226, GP227, GP228, GP229, GP230, GP231, GP232, GP233, GP234, GP235, GP236, GP237, GP238, GP239, GP240, GP241, GP242, GP243, GP244, GP245, GP246, GP247, GP248, GP249, GP250, GP251, GP252, GP253, GP254, GP255, GP256, GP257, GP258, GP259, GP260, GP261, GP262, GP263, GP264, GP265, GP266, GP267, GP268, GP269, GP270, GP271, GP272, GP273, GP274, GP275, GP276, GP277, GP278, GP279, GP280, GP281, GP282, GP283, GP284, GP285, GP286, GP287, GP288, GP289, GP290, GP291, GP292, GP293, GP294, GP295, GP296, GP297, GP298, GP299, GP300, GP301, GP302, GP303, GP304, GP305, GP306, GP307, GP308, GP309, GP310, GP311, GP312, GP313, GP314, GP315, GP316, GP317, GP318, GP319, GP320, GP321, GP322, GP323, GP324, GP325, GP326, GP327, GP328, GP329, GP330, GP331, GP332, GP333, GP334, GP335, GP336, GP337, GP338, GP339, GP340, GP341, GP342, GP343, GP344, GP345, GP346, GP347, GP348, GP349, GP350, GP351, GP352, GP353, GP354, GP355, GP356, GP357, GP358, GP359, GP360, GP361, GP362, GP363, GP364, GP365, GP366, GP367, GP368, GP369, GP370, GP371, GP372, GP373, GP374, GP375, GP376, GP377, GP378, GP379, GP380, GP381, GP382, GP383, GP384, GP385, GP386, GP387, GP388, GP389, GP390, GP391, GP392, GP393, GP394, GP395, GP396, GP397, GP398, GP399, GP400, GP401, GP402, GP403, GP404, GP405, GP406, GP407, GP408, GP409, GP410, GP411, GP412, GP413, GP414, GP415, GP416, GP417, GP418, GP419, GP420, GP421, GP422, GP423, GP424, GP425, GP426, GP427, GP428, GP429, GP430, GP431, GP432, GP433, GP434, GP435, GP436, GP437, GP438, GP439, GP440, GP441, GP442, GP443, GP444, GP445, GP446, GP447, GP448, GP449, GP450, GP451, GP452, GP453, GP454, GP455, GP456, GP457, GP458, GP459, GP460, GP461, GP462, GP463, GP464, GP465, GP466, GP467, GP468, GP469, GP470, GP471, GP472, GP473, GP474, GP475, GP476, GP477, GP478, GP479, GP480, GP481, GP482, GP483, GP484, GP485, GP486, GP487, GP488, GP489, GP490, GP491, GP492, GP493, GP494, GP495, GP496, GP497, GP498, GP499, GP500, GP501, GP502, GP503, GP504, GP505, GP506, GP507, GP508, GP509, GP510, GP511, GP512, GP513, GP514, GP515, GP516, GP517, GP518, GP519, GP520, GP521, GP522, GP523, GP524, GP525, GP526, GP527, GP528, GP529, GP530, GP531, GP532, GP533, GP534, GP535, GP536, GP537, GP538, GP539, GP540, GP541, GP542, GP543, GP544, GP545, GP546, GP547, GP548, GP549, GP550, GP551, GP552, GP553, GP554, GP555, GP556, GP557, GP558, GP559, GP560, GP561, GP562, GP563, GP564, GP565, GP566, GP567, GP568, GP569, GP570, GP571, GP572, GP573, GP574, GP575, GP576, GP577, GP578, GP579, GP580, GP581, GP582, GP583, GP584, GP585, GP586, GP587, GP588, GP589, GP590, GP591, GP592, GP593, GP594, GP595, GP596, GP597, GP598, GP599, GP600, GP601, GP602, GP603, GP604, GP605, GP606, GP607, GP608, GP609, GP610, GP611, GP612, GP613, GP614, GP615, GP616, GP617, GP618, GP619, GP620, GP621, GP622, GP623, GP624, GP625, GP626, GP627, GP628, GP629, GP630, GP631, GP632, GP633, GP634, GP635, GP636, GP637, GP638, GP639, GP640, GP641, GP642, GP643, GP644, GP645, GP646, GP647, GP648, GP649, GP650, GP651, GP652, GP653, GP654, GP655, GP656, GP657, GP658, GP659, GP660, GP661, GP662, GP663, GP664, GP665, GP666, GP667, GP668, GP669, GP670, GP671, GP672, GP673, GP674, GP675, GP676, GP677, GP678, GP679, GP680, GP681, GP682, GP683, GP684, GP685, GP686, GP687, GP688, GP689, GP690, GP691, GP692, GP693, GP694, GP695, GP696, GP697, GP698, GP699, GP700, GP701, GP702, GP703, GP704, GP705, GP706, GP707, GP708, GP709, GP710, GP711, GP712, GP713, GP714, GP715, GP716, GP717, GP718, GP719, GP720, GP721, GP722, GP723, GP724, GP725, GP726, GP727, GP728, GP729, GP730, GP731, GP732, GP733, GP734, GP735, GP736, GP737, GP738, GP739, GP740, GP741, GP742, GP743, GP744, GP745, GP746, GP747, GP748, GP749, GP750, GP751, GP752, GP753, GP754, GP755, GP756, GP757, GP758, GP759, GP760, GP761, GP762, GP763, GP764, GP765, GP766, GP767, GP768, GP769, GP770, GP771, GP772, GP773, GP774, GP775, GP776, GP777, GP778, GP779, GP780, GP781, GP782, GP783, GP784, GP785, GP786, GP787, GP788, GP789, GP790, GP791, GP792, GP793, GP794, GP795



Capitol Adhesives Total Chlorinated Ethenes* in Subsurface Solids



0 50 100
Feet

Total VOCs* (mg/kg)

- ND
- < 15
- 15 - 30
- 30 - 75
- 75 - 150
- > 150
- ▨ Location of 1995 Spill (approx)

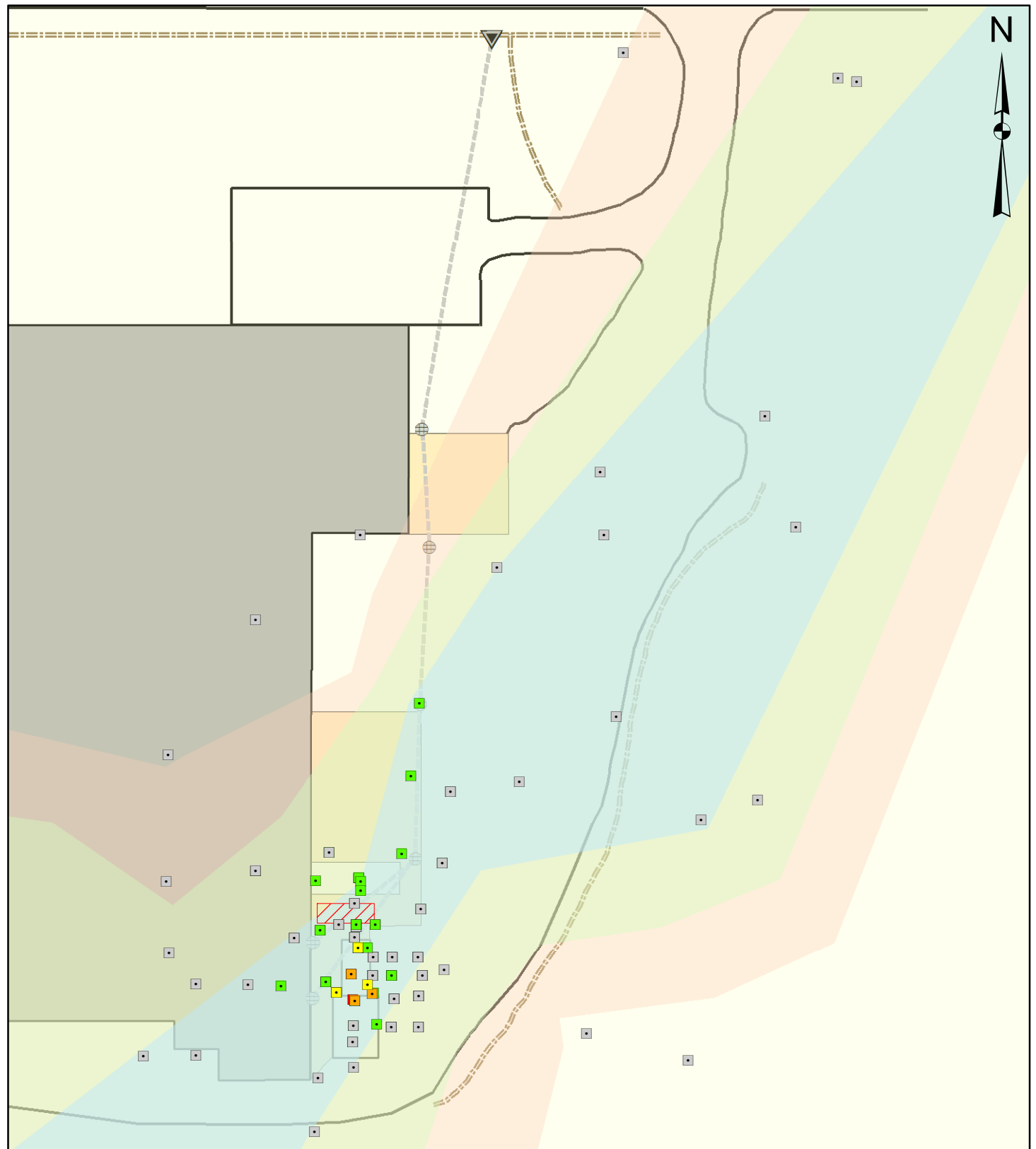
Soil Zones

- Fully Saturated Zone
- 0-1' Vadose Zone
- 1-2' Vadose Zone
- >2' Vadose Zone

* Where multiple samples were collected, the maximum total VOC value is shown. Chlorinated ethenes = PCE, TCE, cis-DCE, and VC

EP S

Capitol Adhesives Total Chlorinated Ethanes* in Subsurface Solids



0 50 100
Feet

Total VOCs* (mg/kg)

- ND
- < 1
- 1 - 5
- 5 - 20
- > 20
- ▨ Location of 1995 Spill (approx)

Soil Zones

- Fully Saturated Zone
- 0-1' Vadose Zone
- 1-2' Vadose Zone
- >2' Vadose Zone

* Where multiple samples were collected, the maximum total VOC value is shown. Chlorinated ethanes = 1,1,1-TCA, 1,1-DCA and CA

EP S

Figure B-13
Future Modeled Chlorinated Ethene Degradation

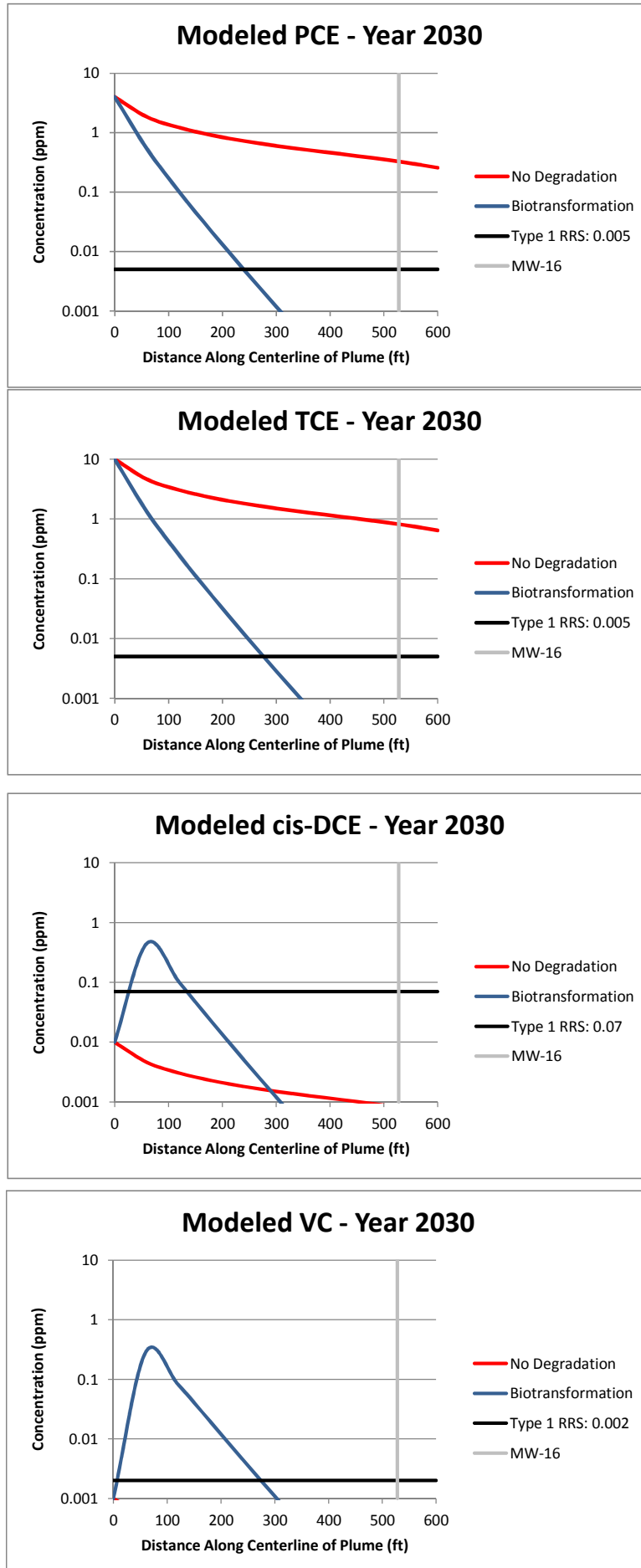
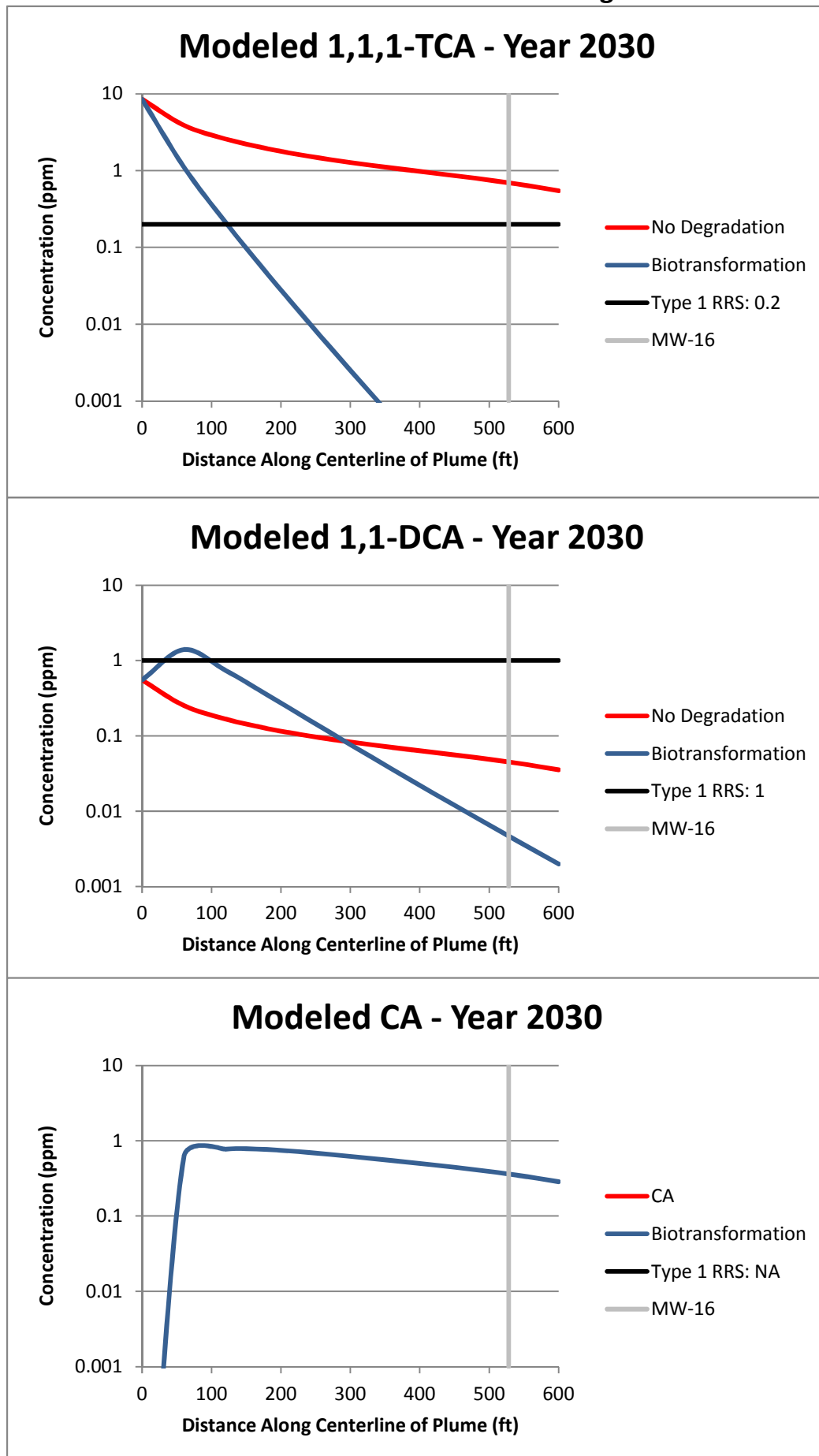


Figure B-14
Future Modeled Chlorinated Ethane Degradation



APPENDIX C

PHOTOLOG



Photo 1

Area A facing south.



Photo 2

Area A facing east.



Photo 3

Area A facing south with fill material.



Photo 4

Area A facility facing southeast with concrete.



Photo 5

Area B facing north.



Photo 6

Area B facing south with fill material.



Photo 7

Area B facing west with concrete.



Photo 8

Area C facing west with concrete removed.



Photo 9

Area C with reactant added.



Photo 10

Area C with oxidant added.



Photo 11

Area C facing west with concrete.

APPENDIX D

FILL MATERIAL LABORATORY DATA REPORT



ANALYTICAL ENVIRONMENTAL SERVICES, INC.

September 26, 2014

Roger Dyer
Spur Environmental Services
2985 Gordy Parkway
Marietta GA 30066

TEL: (770) 619-0600
FAX: (770) 645-5481

RE: Capitol Adhesives

Dear Roger Dyer:

Order No: 1409J14

Analytical Environmental Services, Inc. received 1 samples on 9/19/2014 4:48:00 PM for the analyses presented in following report.

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

AES' certifications are as follows:

- NELAC/Florida Certification number E87582 for analysis of Environmental Water, soil/hazardous waste, and Drinking Water Microbiology, effective 07/01/14-06/30/15.
- AIHA-LAP, LLC Laboratory ID: 100671 for Industrial Hygiene samples (Organics, Inorganics), Environmental Lead (Paint, Soil, Dust Wipes, Air), and Environmental Microbiology (Fungal) Direct Examination, effective until 09/01/15.

These results relate only to the items tested. This report may only be reproduced in full.

If you have any questions regarding these test results, please feel free to call.

Tara Esbeck
Project Manager



ANALYTICAL ENVIRONMENTAL SERVICES, INC

3080 Presidential Drive, Atlanta GA 30340-3704

AES

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

CHAIN OF CUSTODY

Work Order: 1409714

Date:

Page

of

COMPANY: SPUR ENVIRONMENTAL SERVICES		ADDRESS: 2985 GORDY PARKWAY MARIETTA, GA 30066		ANALYSIS REQUESTED										Visit our website www.aesatlanta.com to check on the status of your results, place bottle orders, etc.		No # of Containers	
PHONE: 770-619-0600		E-MAIL: RDYER@AES.COM		VOCs SVOCs PCPA Metals													
SAMPLED BY: Roger Dyer		SIGNATURE: <i>[Signature]</i>		PRESERVATION (See codes)										REMARKS			
#	SAMPLE ID	DATE	TIME	Grab	Composite	Matrix (See codes)											
1	SS-1	09-18-14	1:35 PM			Soil	X	X	X								
2	SS-2	"	1:40 PM			"	X	X	X								
3	SS-3	"	1:45 PM			"											
4	SS-4	"	1:48 PM			"											
5	SS-5	"	1:50 PM			"											
6																	
7																	
8																	
9																	
10																	
11																	
12																	
13																	
14																	

RELINQUISHED BY: <i>[Signature]</i>		DATE/TIME: 09-18-14		RECEIVED BY: <i>[Signature]</i>		DATE/TIME: 9/18/14		PROJECT INFORMATION				RECEIPT	
1: <i>[Signature]</i>		2: 4:48 PM		3:		PROJECT NAME: CAPITOL ADHESIVES				Total # of Containers			
2:		3:		PROJECT #:				Turnaround Time Request					
3:		3:		SITE ADDRESS: 300 CROSS PLAINS BLVD DALTON, GA 30721				☐ Standard 5 Business Days ☐ 2 Business Day Rush ☐ Next Business Day Rush ☐ Same Day Rush (auth req.) ☒ Other 3 DAY RUSH					
SPECIAL INSTRUCTIONS/COMMENTS: 3 DAY RUSH				SHIPMENT METHOD: OUT / / VIA: IN <i>[Signature]</i> VIA: CLIENT FedEx UPS MAIL COURIER GREYHOUND OTHER				INVOICE TO: (IF DIFFERENT FROM ABOVE) SPUR ENVIRONMENTAL 2985 GORDY PARKWAY MARIETTA, GA 30066				STATE PROGRAM (if any):	
				QUOTE #:				PO#:				E-mail? Y/N; Fax? Y/N	
								DATA PACKAGE: I II III IV					

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

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

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

White Copy - Original; Yellow Copy - Client

Page 2 of 20

Client: Spur Environmental Services
Project: Capitol Adhesives
Lab ID: 1409J14

Case Narrative

Semi-Volatile Organics Analysis by 8270D:

QC sample 1409J17-014A MSD is reported with target analytes recoveries and RPD values outside control limits due to a suspected error during extraction/ concentration. Recoveries are demonstrated by the LCS and MS and no analytical samples were affected.

Analytical Environmental Services, Inc
Date: 26-Sep-14

Client: Spur Environmental Services
Project Name: Capitol Adhesives
Lab ID: 1409J14-001

Client Sample ID: SS-1-5
Collection Date: 9/18/2014 1:50:00 PM
Matrix: Soil

Analyses	Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed	Analyst
TOTAL MERCURY SW7471B		(SW7471B)						
Mercury	BRL	0.123		mg/Kg-dry	196671	1	09/23/2014 12:15	CG
TCL-SEMIVOLATILE ORGANICS SW8270D		(SW3550C)						
1,1'-Biphenyl	BRL	410		ug/Kg-dry	196710	1	09/24/2014 21:56	YH
2,4,5-Trichlorophenol	BRL	2100		ug/Kg-dry	196710	1	09/24/2014 21:56	YH
2,4,6-Trichlorophenol	BRL	410		ug/Kg-dry	196710	1	09/24/2014 21:56	YH
2,4-Dichlorophenol	BRL	410		ug/Kg-dry	196710	1	09/24/2014 21:56	YH
2,4-Dimethylphenol	BRL	410		ug/Kg-dry	196710	1	09/24/2014 21:56	YH
2,4-Dinitrophenol	BRL	2100		ug/Kg-dry	196710	1	09/24/2014 21:56	YH
2,4-Dinitrotoluene	BRL	410		ug/Kg-dry	196710	1	09/24/2014 21:56	YH
2,6-Dinitrotoluene	BRL	410		ug/Kg-dry	196710	1	09/24/2014 21:56	YH
2-Chloronaphthalene	BRL	410		ug/Kg-dry	196710	1	09/24/2014 21:56	YH
2-Chlorophenol	BRL	410		ug/Kg-dry	196710	1	09/24/2014 21:56	YH
2-Methylnaphthalene	BRL	410		ug/Kg-dry	196710	1	09/24/2014 21:56	YH
2-Methylphenol	BRL	410		ug/Kg-dry	196710	1	09/24/2014 21:56	YH
2-Nitroaniline	BRL	2100		ug/Kg-dry	196710	1	09/24/2014 21:56	YH
2-Nitrophenol	BRL	410		ug/Kg-dry	196710	1	09/24/2014 21:56	YH
3,3'-Dichlorobenzidine	BRL	840		ug/Kg-dry	196710	1	09/24/2014 21:56	YH
3-Nitroaniline	BRL	2100		ug/Kg-dry	196710	1	09/24/2014 21:56	YH
4,6-Dinitro-2-methylphenol	BRL	2100		ug/Kg-dry	196710	1	09/24/2014 21:56	YH
4-Bromophenyl phenyl ether	BRL	410		ug/Kg-dry	196710	1	09/24/2014 21:56	YH
4-Chloro-3-methylphenol	BRL	410		ug/Kg-dry	196710	1	09/24/2014 21:56	YH
4-Chloroaniline	BRL	410		ug/Kg-dry	196710	1	09/24/2014 21:56	YH
4-Chlorophenyl phenyl ether	BRL	410		ug/Kg-dry	196710	1	09/24/2014 21:56	YH
4-Methylphenol	BRL	410		ug/Kg-dry	196710	1	09/24/2014 21:56	YH
4-Nitroaniline	BRL	2100		ug/Kg-dry	196710	1	09/24/2014 21:56	YH
4-Nitrophenol	BRL	2100		ug/Kg-dry	196710	1	09/24/2014 21:56	YH
Acenaphthene	BRL	410		ug/Kg-dry	196710	1	09/24/2014 21:56	YH
Acenaphthylene	BRL	410		ug/Kg-dry	196710	1	09/24/2014 21:56	YH
Acetophenone	BRL	410		ug/Kg-dry	196710	1	09/24/2014 21:56	YH
Anthracene	BRL	410		ug/Kg-dry	196710	1	09/24/2014 21:56	YH
Atrazine	BRL	410		ug/Kg-dry	196710	1	09/24/2014 21:56	YH
Benz(a)anthracene	BRL	410		ug/Kg-dry	196710	1	09/24/2014 21:56	YH
Benzaldehyde	BRL	410		ug/Kg-dry	196710	1	09/24/2014 21:56	YH
Benzo(a)pyrene	BRL	410		ug/Kg-dry	196710	1	09/24/2014 21:56	YH
Benzo(b)fluoranthene	BRL	410		ug/Kg-dry	196710	1	09/24/2014 21:56	YH
Benzo(g,h,i)perylene	BRL	410		ug/Kg-dry	196710	1	09/24/2014 21:56	YH
Benzo(k)fluoranthene	BRL	410		ug/Kg-dry	196710	1	09/24/2014 21:56	YH
Bis(2-chloroethoxy)methane	BRL	410		ug/Kg-dry	196710	1	09/24/2014 21:56	YH
Bis(2-chloroethyl)ether	BRL	410		ug/Kg-dry	196710	1	09/24/2014 21:56	YH
Bis(2-chloroisopropyl)ether	BRL	410		ug/Kg-dry	196710	1	09/24/2014 21:56	YH

Qualifiers: * Value exceeds maximum contaminant level
 BRL Below reporting limit
 H Holding times for preparation or analysis exceeded
 N Analyte not NELAC certified
 B Analyte detected in the associated method blank
 > Greater than Result value

E Estimated (value above quantitation range)
 S Spike Recovery outside limits due to matrix
 Narr See case narrative
 NC Not confirmed
 < Less than Result value
 J Estimated value detected below Reporting Limit

Analytical Environmental Services, Inc
Date: 26-Sep-14

Client: Spur Environmental Services
Project Name: Capitol Adhesives
Lab ID: 1409J14-001

Client Sample ID: SS-1-5
Collection Date: 9/18/2014 1:50:00 PM
Matrix: Soil

Analyses	Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed	Analyst
TCL-SEMIVOLATILE ORGANICS SW8270D		(SW3550C)						
Bis(2-ethylhexyl)phthalate	BRL	410		ug/Kg-dry	196710	1	09/24/2014 21:56	YH
Butyl benzyl phthalate	BRL	410		ug/Kg-dry	196710	1	09/24/2014 21:56	YH
Caprolactam	BRL	410		ug/Kg-dry	196710	1	09/24/2014 21:56	YH
Carbazole	BRL	410		ug/Kg-dry	196710	1	09/24/2014 21:56	YH
Chrysene	BRL	410		ug/Kg-dry	196710	1	09/24/2014 21:56	YH
Di-n-butyl phthalate	BRL	410		ug/Kg-dry	196710	1	09/24/2014 21:56	YH
Di-n-octyl phthalate	BRL	410		ug/Kg-dry	196710	1	09/24/2014 21:56	YH
Dibenz(a,h)anthracene	BRL	410		ug/Kg-dry	196710	1	09/24/2014 21:56	YH
Dibenzofuran	BRL	410		ug/Kg-dry	196710	1	09/24/2014 21:56	YH
Diethyl phthalate	BRL	410		ug/Kg-dry	196710	1	09/24/2014 21:56	YH
Dimethyl phthalate	BRL	410		ug/Kg-dry	196710	1	09/24/2014 21:56	YH
Fluoranthene	BRL	410		ug/Kg-dry	196710	1	09/24/2014 21:56	YH
Fluorene	BRL	410		ug/Kg-dry	196710	1	09/24/2014 21:56	YH
Hexachlorobenzene	BRL	410		ug/Kg-dry	196710	1	09/24/2014 21:56	YH
Hexachlorobutadiene	BRL	410		ug/Kg-dry	196710	1	09/24/2014 21:56	YH
Hexachlorocyclopentadiene	BRL	830		ug/Kg-dry	196710	1	09/24/2014 21:56	YH
Hexachloroethane	BRL	410		ug/Kg-dry	196710	1	09/24/2014 21:56	YH
Indeno(1,2,3-cd)pyrene	BRL	410		ug/Kg-dry	196710	1	09/24/2014 21:56	YH
Isophorone	BRL	410		ug/Kg-dry	196710	1	09/24/2014 21:56	YH
N-Nitrosodi-n-propylamine	BRL	410		ug/Kg-dry	196710	1	09/24/2014 21:56	YH
N-Nitrosodiphenylamine	BRL	410		ug/Kg-dry	196710	1	09/24/2014 21:56	YH
Naphthalene	BRL	410		ug/Kg-dry	196710	1	09/24/2014 21:56	YH
Nitrobenzene	BRL	410		ug/Kg-dry	196710	1	09/24/2014 21:56	YH
Pentachlorophenol	BRL	2100		ug/Kg-dry	196710	1	09/24/2014 21:56	YH
Phenanthrene	BRL	410		ug/Kg-dry	196710	1	09/24/2014 21:56	YH
Phenol	BRL	410		ug/Kg-dry	196710	1	09/24/2014 21:56	YH
Pyrene	BRL	410		ug/Kg-dry	196710	1	09/24/2014 21:56	YH
Surr: 2,4,6-Tribromophenol	77.2	40.2-120		%REC	196710	1	09/24/2014 21:56	YH
Surr: 2-Fluorobiphenyl	77.3	45.6-120		%REC	196710	1	09/24/2014 21:56	YH
Surr: 2-Fluorophenol	83.1	35.2-120		%REC	196710	1	09/24/2014 21:56	YH
Surr: 4-Terphenyl-d14	90.7	51-121		%REC	196710	1	09/24/2014 21:56	YH
Surr: Nitrobenzene-d5	79.2	37.8-120		%REC	196710	1	09/24/2014 21:56	YH
Surr: Phenol-d5	84.9	39.9-120		%REC	196710	1	09/24/2014 21:56	YH
TCL VOLATILE ORGANICS SW8260B		(SW5035)						
1,1,1-Trichloroethane	BRL	6.4		ug/Kg-dry	196807	1	09/25/2014 00:09	MD
1,1,2,2-Tetrachloroethane	BRL	6.4		ug/Kg-dry	196807	1	09/25/2014 00:09	MD
1,1,2-Trichloroethane	BRL	6.4		ug/Kg-dry	196807	1	09/25/2014 00:09	MD
1,1-Dichloroethane	BRL	6.4		ug/Kg-dry	196807	1	09/25/2014 00:09	MD
1,1-Dichloroethene	BRL	6.4		ug/Kg-dry	196807	1	09/25/2014 00:09	MD
1,2,4-Trichlorobenzene	BRL	6.4		ug/Kg-dry	196807	1	09/25/2014 00:09	MD

Qualifiers:

- * Value exceeds maximum contaminant level
- BRL Below reporting limit
- H Holding times for preparation or analysis exceeded
- N Analyte not NELAC certified
- B Analyte detected in the associated method blank
- > Greater than Result value

- E Estimated (value above quantitation range)
- S Spike Recovery outside limits due to matrix
- Narr See case narrative
- NC Not confirmed
- < Less than Result value
- J Estimated value detected below Reporting Limit

Analytical Environmental Services, Inc
Date: 26-Sep-14

Client: Spur Environmental Services
Project Name: Capitol Adhesives
Lab ID: 1409J14-001

Client Sample ID: SS-1-5
Collection Date: 9/18/2014 1:50:00 PM
Matrix: Soil

Analyses	Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed	Analyst
TCL VOLATILE ORGANICS SW8260B				(SW5035)				
1,2-Dibromo-3-chloropropane	BRL	6.4		ug/Kg-dry	196807	1	09/25/2014 00:09	MD
1,2-Dibromoethane	BRL	6.4		ug/Kg-dry	196807	1	09/25/2014 00:09	MD
1,2-Dichlorobenzene	BRL	6.4		ug/Kg-dry	196807	1	09/25/2014 00:09	MD
1,2-Dichloroethane	BRL	6.4		ug/Kg-dry	196807	1	09/25/2014 00:09	MD
1,2-Dichloropropane	BRL	6.4		ug/Kg-dry	196807	1	09/25/2014 00:09	MD
1,3-Dichlorobenzene	BRL	6.4		ug/Kg-dry	196807	1	09/25/2014 00:09	MD
1,4-Dichlorobenzene	BRL	6.4		ug/Kg-dry	196807	1	09/25/2014 00:09	MD
2-Butanone	BRL	64		ug/Kg-dry	196807	1	09/25/2014 00:09	MD
2-Hexanone	BRL	13		ug/Kg-dry	196807	1	09/25/2014 00:09	MD
4-Methyl-2-pentanone	BRL	13		ug/Kg-dry	196807	1	09/25/2014 00:09	MD
Acetone	BRL	130		ug/Kg-dry	196807	1	09/25/2014 00:09	MD
Benzene	BRL	6.4		ug/Kg-dry	196807	1	09/25/2014 00:09	MD
Bromodichloromethane	BRL	6.4		ug/Kg-dry	196807	1	09/25/2014 00:09	MD
Bromoform	BRL	6.4		ug/Kg-dry	196807	1	09/25/2014 00:09	MD
Bromomethane	BRL	6.4		ug/Kg-dry	196807	1	09/25/2014 00:09	MD
Carbon disulfide	BRL	13		ug/Kg-dry	196807	1	09/25/2014 00:09	MD
Carbon tetrachloride	BRL	6.4		ug/Kg-dry	196807	1	09/25/2014 00:09	MD
Chlorobenzene	BRL	6.4		ug/Kg-dry	196807	1	09/25/2014 00:09	MD
Chloroethane	BRL	13		ug/Kg-dry	196807	1	09/25/2014 00:09	MD
Chloroform	BRL	6.4		ug/Kg-dry	196807	1	09/25/2014 00:09	MD
Chloromethane	BRL	13		ug/Kg-dry	196807	1	09/25/2014 00:09	MD
cis-1,2-Dichloroethene	BRL	6.4		ug/Kg-dry	196807	1	09/25/2014 00:09	MD
cis-1,3-Dichloropropene	BRL	6.4		ug/Kg-dry	196807	1	09/25/2014 00:09	MD
Cyclohexane	BRL	6.4		ug/Kg-dry	196807	1	09/25/2014 00:09	MD
Dibromochloromethane	BRL	6.4		ug/Kg-dry	196807	1	09/25/2014 00:09	MD
Dichlorodifluoromethane	BRL	13		ug/Kg-dry	196807	1	09/25/2014 00:09	MD
Ethylbenzene	BRL	6.4		ug/Kg-dry	196807	1	09/25/2014 00:09	MD
Freon-113	BRL	13		ug/Kg-dry	196807	1	09/25/2014 00:09	MD
Isopropylbenzene	BRL	6.4		ug/Kg-dry	196807	1	09/25/2014 00:09	MD
m,p-Xylene	BRL	6.4		ug/Kg-dry	196807	1	09/25/2014 00:09	MD
Methyl acetate	BRL	6.4		ug/Kg-dry	196807	1	09/25/2014 00:09	MD
Methyl tert-butyl ether	BRL	6.4		ug/Kg-dry	196807	1	09/25/2014 00:09	MD
Methylcyclohexane	BRL	6.4		ug/Kg-dry	196807	1	09/25/2014 00:09	MD
Methylene chloride	BRL	25		ug/Kg-dry	196807	1	09/25/2014 00:09	MD
o-Xylene	BRL	6.4		ug/Kg-dry	196807	1	09/25/2014 00:09	MD
Styrene	BRL	6.4		ug/Kg-dry	196807	1	09/25/2014 00:09	MD
Tetrachloroethene	BRL	6.4		ug/Kg-dry	196807	1	09/25/2014 00:09	MD
Toluene	BRL	6.4		ug/Kg-dry	196807	1	09/25/2014 00:09	MD
trans-1,2-Dichloroethene	BRL	6.4		ug/Kg-dry	196807	1	09/25/2014 00:09	MD
trans-1,3-Dichloropropene	BRL	6.4		ug/Kg-dry	196807	1	09/25/2014 00:09	MD
Trichloroethene	BRL	6.4		ug/Kg-dry	196807	1	09/25/2014 00:09	MD

Qualifiers:

- * Value exceeds maximum contaminant level
- BRL Below reporting limit
- H Holding times for preparation or analysis exceeded
- N Analyte not NELAC certified
- B Analyte detected in the associated method blank
- > Greater than Result value

- E Estimated (value above quantitation range)
- S Spike Recovery outside limits due to matrix
- Narr See case narrative
- NC Not confirmed
- < Less than Result value
- J Estimated value detected below Reporting Limit

Analytical Environmental Services, Inc

Date: 26-Sep-14

Client: Spur Environmental Services
 Project Name: Capitol Adhesives
 Lab ID: 1409J14-001

Client Sample ID: SS-1-5
 Collection Date: 9/18/2014 1:50:00 PM
 Matrix: Soil

Analyses	Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed	Analyst
TCL VOLATILE ORGANICS SW8260B				(SW5035)				
Trichlorofluoromethane	BRL	6.4		ug/Kg-dry	196807	1	09/25/2014 00:09	MD
Vinyl chloride	BRL	13		ug/Kg-dry	196807	1	09/25/2014 00:09	MD
Surr: 4-Bromofluorobenzene	91.4	70-128		%REC	196807	1	09/25/2014 00:09	MD
Surr: Dibromofluoromethane	93.5	78.2-128		%REC	196807	1	09/25/2014 00:09	MD
Surr: Toluene-d8	93.6	76.5-116		%REC	196807	1	09/25/2014 00:09	MD
METALS, TOTAL SW6010C				(SW3050B)				
Arsenic	6.78	4.90		mg/Kg-dry	196626	1	09/25/2014 12:52	TA
Barium	30.3	4.90		mg/Kg-dry	196626	1	09/25/2014 12:52	TA
Cadmium	BRL	2.45		mg/Kg-dry	196626	1	09/25/2014 12:52	TA
Chromium	19.9	2.45		mg/Kg-dry	196626	1	09/25/2014 12:52	TA
Lead	8.88	4.90		mg/Kg-dry	196626	1	09/25/2014 12:52	TA
Selenium	BRL	4.90		mg/Kg-dry	196626	1	09/25/2014 12:52	TA
Silver	BRL	2.45		mg/Kg-dry	196626	1	09/25/2014 12:52	TA
PERCENT MOISTURE D2216								
Percent Moisture	20.2	0		wt%	R276533	1	09/25/2014 10:00	SG

Qualifiers:

- * Value exceeds maximum contaminant level
- BRL Below reporting limit
- H Holding times for preparation or analysis exceeded
- N Analyte not NELAC certified
- B Analyte detected in the associated method blank
- > Greater than Result value

- E Estimated (value above quantitation range)
- S Spike Recovery outside limits due to matrix
- Narr See case narrative
- NC Not confirmed
- < Less than Result value
- J Estimated value detected below Reporting Limit

Analytical Environmental Services, Inc.

Sample/Cooler Receipt Checklist

Client Spur Environmental Work Order Number 1409714
Checklist completed by Jana Pacurar Date 9/19/14
Signature Date

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

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

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

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

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

Cooler #1 3.2°C Cooler #2 ☐ Cooler #3 ☐ Cooler #4 ☐ Cooler #5 ☐ Cooler #6 ☐

Chain of custody present? Yes ☒ No ☐

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

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

Samples in proper container/bottle? Yes ☒ No ☐

Sample containers intact? Yes ☒ No ☐

Sufficient sample volume for indicated test? Yes ☒ No ☐

All samples received within holding time? Yes ☒ No ☐

Was TAT marked on the COC? Yes ☒ No ☐

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

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

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

Adjusted? ☐ Checked by ☐

Sample Condition: Good ☒ Other(Explain) ☐

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

See Case Narrative for resolution of the Non-Conformance.

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

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

Client: Spur Environmental Services
 Project Name: Capitol Adhesives
 Workorder: 1409J14

ANALYTICAL QC SUMMARY REPORT

BatchID: 196626

Sample ID: MB-196626	Client ID:					Units: mg/Kg	Prep Date: 09/23/2014	Run No: 276307			
SampleType: MBLK	TestCode: METALS, TOTAL	SW6010C				BatchID: 196626	Analysis Date: 09/23/2014	Seq No: 5835257			
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual

Arsenic BRL 5.00
 Barium BRL 5.00
 Cadmium BRL 2.50
 Chromium BRL 2.50
 Lead BRL 5.00
 Selenium BRL 5.00
 Silver BRL 2.50

Sample ID: LCS-196626	Client ID:					Units: mg/Kg	Prep Date: 09/23/2014	Run No: 276307			
SampleType: LCS	TestCode: METALS, TOTAL	SW6010C	BatchID: 196626				Analysis Date: 09/23/2014	Seq No: 5835256			
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual

Arsenic 51.25 5.00 50.00 102 80 120
 Barium 52.54 5.00 50.00 105 80 120
 Cadmium 49.75 2.50 50.00 99.5 80 120
 Chromium 52.36 2.50 50.00 105 80 120
 Lead 51.11 5.00 50.00 102 80 120
 Selenium 50.76 5.00 50.00 102 80 120
 Silver 4.923 2.50 5.000 98.5 80 120

Sample ID: 1409K38-002CMS	Client ID:					Units: mg/Kg-dry	Prep Date: 09/23/2014	Run No: 276307			
SampleType: MS	TestCode: METALS, TOTAL	SW6010C	BatchID: 196626				Analysis Date: 09/23/2014	Seq No: 5835259			
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual

Arsenic 62.76 6.32 63.22 0.2404 98.9 75 125
 Barium 137.7 6.32 63.22 91.97 72.4 75 125 S
 Cadmium 60.28 3.16 63.22 95.4 75 125
 Chromium 65.32 3.16 63.22 3.423 97.9 75 125

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

Client: Spur Environmental Services
Project Name: Capitol Adhesives
Workorder: 1409J14

ANALYTICAL QC SUMMARY REPORT

BatchID: 196626

Sample ID: 1409K38-002CMS	Client ID:					Units: mg/Kg-dry	Prep Date: 09/23/2014	Run No: 276307			
SampleType: MS	TestCode: METALS, TOTAL SW6010C					BatchID: 196626	Analysis Date: 09/23/2014	Seq No: 5835259			
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual

Lead	64.30	6.32	63.22	10.28	85.4	75	125
Selenium	62.76	6.32	63.22	0.7762	98.0	75	125
Silver	6.109	3.16	6.322		96.6	75	125

Sample ID: 1409K38-002CMSD	Client ID:					Units: mg/Kg-dry	Prep Date: 09/23/2014	Run No: 276307			
SampleType: MSD	TestCode: METALS, TOTAL SW6010C					BatchID: 196626	Analysis Date: 09/23/2014	Seq No: 5835260			
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual

Arsenic	61.79	6.34	63.45	0.2404	97.0	75	125	62.76	1.55	20	
Barium	137.4	6.34	63.45	91.97	71.7	75	125	137.7	0.217	20	S
Cadmium	59.40	3.17	63.45		93.6	75	125	60.28	1.48	20	
Chromium	64.39	3.17	63.45	3.423	96.1	75	125	65.32	1.44	20	
Lead	64.79	6.34	63.45	10.28	85.9	75	125	64.30	0.761	20	
Selenium	61.37	6.34	63.45	0.7762	95.5	75	125	62.76	2.24	20	
Silver	5.947	3.17	6.345		93.7	75	125	6.109	2.68	20	

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

Client: Spur Environmental Services
 Project Name: Capitol Adhesives
 Workorder: 1409J14

ANALYTICAL QC SUMMARY REPORT

BatchID: 196671

Sample ID: MB-196671	Client ID:				Units: mg/Kg	Prep Date: 09/23/2014	Run No: 276241				
SampleType: MBLK	TestCode: TOTAL MERCURY	SW7471B	BatchID: 196671			Analysis Date: 09/23/2014	Seq No: 5834363				
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual

Mercury BRL 0.100

Sample ID: LCS-196671	Client ID:				Units: mg/Kg	Prep Date: 09/23/2014	Run No: 276241				
SampleType: LCS	TestCode: TOTAL MERCURY SW7471B				BatchID: 196671	Analysis Date: 09/23/2014	Seq No: 5834365				
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual

Mercury 0.3961 0.100 0.4000 99.0 80 120

Sample ID: 1409I95-001AMS	Client ID:					Units: mg/Kg-dry	Prep Date: 09/23/2014	Run No: 276241			
SampleType: MS	TestCode: TOTAL MERCURY	SW7471B	BatchID: 196671				Analysis Date: 09/23/2014	Seq No: 5834368			
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual

Mercury 0.5093 0.116 0.4627 0.08201 92.3 70 130

Sample ID: 1409I95-001AMSD	Client ID:					Units: mg/Kg-dry	Prep Date: 09/23/2014	Run No: 276241			
SampleType: MSD	TestCode: TOTAL MERCURY	SW7471B	BatchID: 196671				Analysis Date: 09/23/2014	Seq No: 5834369			
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual

Mercury 0.5031 0.116 0.4627 0.08201 91.0 70 130 0.5093 1.21 30

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

Client: Spur Environmental Services
 Project Name: Capitol Adhesives
 Workorder: 1409J14

ANALYTICAL QC SUMMARY REPORT

BatchID: 196710

Sample ID: MB-196710	Client ID:					Units: ug/Kg	Prep Date: 09/24/2014	Run No: 276478			
SampleType: MBLK	TestCode: TCL-SEMIVOLATILE ORGANICS SW8270D					BatchID: 196710	Analysis Date: 09/24/2014	Seq No: 5839165			
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual

1,1'-Biphenyl	BRL	330									
2,4,5-Trichlorophenol	BRL	1700									
2,4,6-Trichlorophenol	BRL	330									
2,4-Dichlorophenol	BRL	330									
2,4-Dimethylphenol	BRL	330									
2,4-Dinitrophenol	BRL	1700									
2,4-Dinitrotoluene	BRL	330									
2,6-Dinitrotoluene	BRL	330									
2-Chloronaphthalene	BRL	330									
2-Chlorophenol	BRL	330									
2-Methylnaphthalene	BRL	330									
2-Methylphenol	BRL	330									
2-Nitroaniline	BRL	1700									
2-Nitrophenol	BRL	330									
3,3'-Dichlorobenzidine	BRL	670									
3-Nitroaniline	BRL	1700									
4,6-Dinitro-2-methylphenol	BRL	1700									
4-Bromophenyl phenyl ether	BRL	330									
4-Chloro-3-methylphenol	BRL	330									
4-Chloroaniline	BRL	330									
4-Chlorophenyl phenyl ether	BRL	330									
4-Methylphenol	BRL	330									
4-Nitroaniline	BRL	1700									
4-Nitrophenol	BRL	1700									
Acenaphthene	BRL	330									
Acenaphthylene	BRL	330									
Acetophenone	BRL	330									

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

Client: Spur Environmental Services
 Project Name: Capitol Adhesives
 Workorder: 1409J14

ANALYTICAL QC SUMMARY REPORT

BatchID: 196710

Sample ID: MB-196710	Client ID:				Units: ug/Kg	Prep Date: 09/24/2014	Run No: 276478				
SampleType: MBLK	TestCode: TCL-SEMIVOLATILE ORGANICS SW8270D				BatchID: 196710	Analysis Date: 09/24/2014	Seq No: 5839165				
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual

Anthracene	BRL	330									
Atrazine	BRL	330									
Benz(a)anthracene	BRL	330									
Benzaldehyde	BRL	330									
Benzo(a)pyrene	BRL	330									
Benzo(b)fluoranthene	BRL	330									
Benzo(g,h,i)perylene	BRL	330									
Benzo(k)fluoranthene	BRL	330									
Bis(2-chloroethoxy)methane	BRL	330									
Bis(2-chloroethyl)ether	BRL	330									
Bis(2-chloroisopropyl)ether	BRL	330									
Bis(2-ethylhexyl)phthalate	BRL	330									
Butyl benzyl phthalate	BRL	330									
Caprolactam	BRL	330									
Carbazole	BRL	330									
Chrysene	BRL	330									
Di-n-butyl phthalate	BRL	330									
Di-n-octyl phthalate	BRL	330									
Dibenz(a,h)anthracene	BRL	330									
Dibenzofuran	BRL	330									
Diethyl phthalate	BRL	330									
Dimethyl phthalate	BRL	330									
Fluoranthene	BRL	330									
Fluorene	BRL	330									
Hexachlorobenzene	BRL	330									
Hexachlorobutadiene	BRL	330									
Hexachlorocyclopentadiene	BRL	660									

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

Client: Spur Environmental Services
Project Name: Capitol Adhesives
Workorder: 1409J14

ANALYTICAL QC SUMMARY REPORT**BatchID: 196710**

Sample ID: MB-196710	Client ID:				Units: ug/Kg	Prep Date: 09/24/2014	Run No: 276478				
SampleType: MBLK	TestCode: TCL-SEMIVOLATILE ORGANICS SW8270D				BatchID: 196710	Analysis Date: 09/24/2014	Seq No: 5839165				
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual

Hexachloroethane	BRL	330									
Indeno(1,2,3-cd)pyrene	BRL	330									
Isophorone	BRL	330									
N-Nitrosodi-n-propylamine	BRL	330									
N-Nitrosodiphenylamine	BRL	330									
Naphthalene	BRL	330									
Nitrobenzene	BRL	330									
Pentachlorophenol	BRL	1700									
Phenanthrene	BRL	330									
Phenol	BRL	330									
Pyrene	BRL	330									
Surr: 2,4,6-Tribromophenol	3234	0	3333		97.0	40.2	120				
Surr: 2-Fluorobiphenyl	1477	0	1667		88.6	45.6	120				
Surr: 2-Fluorophenol	2722	0	3333		81.7	35.2	120				
Surr: 4-Terphenyl-d14	1727	0	1667		104	51	121				
Surr: Nitrobenzene-d5	1389	0	1667		83.3	37.8	120				
Surr: Phenol-d5	3185	0	3333		95.5	39.9	120				

Sample ID: LCS-196710	Client ID:					Units: ug/Kg	Prep Date: 09/24/2014	Run No: 276478			
SampleType: LCS	TestCode: TCL-SEMIVOLATILE ORGANICS SW8270D					BatchID: 196710	Analysis Date: 09/24/2014	Seq No: 5839168			
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual

2,4-Dinitrotoluene	3332	330	3333		100.0	53.4	120				
2-Chlorophenol	3541	330	3333		106	50.3	120				
4-Chloro-3-methylphenol	3578	330	3333		107	55.4	120				
4-Nitrophenol	3077	1700	3333		92.3	40.6	120				
Acenaphthene	3602	330	3333		108	58.9	120				
N-Nitrosodi-n-propylamine	3743	330	3333		112	52.2	119				

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

Client: Spur Environmental Services
Project Name: Capitol Adhesives
Workorder: 1409J14

ANALYTICAL QC SUMMARY REPORT**BatchID: 196710**

Sample ID: LCS-196710	Client ID:					Units: ug/Kg	Prep Date: 09/24/2014	Run No: 276478			
SampleType: LCS	TestCode: TCL-SEMIVOLATILE ORGANICS SW8270D					BatchID: 196710	Analysis Date: 09/24/2014	Seq No: 5839168			
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual

Pentachlorophenol	3552	1700	3333		107	40.9	129				
Phenol	3691	330	3333		111	50.2	118				
Pyrene	3184	330	3333		95.5	60.5	120				
Surr: 2,4,6-Tribromophenol	3795	0	3333		114	40.2	120				
Surr: 2-Fluorobiphenyl	1800	0	1667		108	45.6	120				
Surr: 2-Fluorophenol	3202	0	3333		96.1	35.2	120				
Surr: 4-Terphenyl-d14	2041	0	1667		122	51	121				S
Surr: Nitrobenzene-d5	1634	0	1667		98.0	37.8	120				
Surr: Phenol-d5	3894	0	3333		117	39.9	120				

Sample ID: 1409J17-014AMS	Client ID:					Units: ug/Kg-dry	Prep Date: 09/24/2014	Run No: 276519			
SampleType: MS	TestCode: TCL-SEMIVOLATILE ORGANICS SW8270D					BatchID: 196710	Analysis Date: 09/25/2014	Seq No: 5840079			
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual

2,4-Dinitrotoluene	2608	370	3687		70.7	40.3	120	1318			
2-Chlorophenol	2566	370	3687		69.6	44.2	120	1356			
4-Chloro-3-methylphenol	2966	370	3687		80.4	42.1	120	1515			
4-Nitrophenol	2796	1900	3687		75.8	30.8	120	1394			
Acenaphthene	2594	370	3687		70.4	51.1	120	1442			
N-Nitrosodi-n-propylamine	2815	370	3687		76.4	50.4	120	1605			
Pentachlorophenol	2335	1900	3687		63.3	38.1	120	1162			
Phenol	2625	370	3687		71.2	43.1	120	1461			
Pyrene	2947	370	3687	448.4	67.8	45.3	120	1676			
Surr: 2,4,6-Tribromophenol	2799	0	3687		75.9	40.2	120	1481			
Surr: 2-Fluorobiphenyl	1320	0	1844		71.6	45.6	120	709.8			
Surr: 2-Fluorophenol	2527	0	3687		68.5	35.2	120	1216			
Surr: 4-Terphenyl-d14	1422	0	1844		77.1	51	121	792.7			
Surr: Nitrobenzene-d5	1278	0	1844		69.3	37.8	120	627.9			

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

Client: Spur Environmental Services
Project Name: Capitol Adhesives
Workorder: 1409J14

ANALYTICAL QC SUMMARY REPORT**BatchID: 196710**

Sample ID: 1409J17-014AMS	Client ID:					Units: ug/Kg-dry	Prep Date: 09/24/2014	Run No: 276519			
SampleType: MS	TestCode: TCL-SEMIVOLATILE ORGANICS SW8270D					BatchID: 196710	Analysis Date: 09/25/2014	Seq No: 5840079			
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual

Surr: Phenol-d5 2595 0 3687 70.4 39.9 120 1332

Sample ID: 1409J17-014AMSD	Client ID:					Units: ug/Kg-dry	Prep Date: 09/24/2014	Run No: 276519			
SampleType: MSD	TestCode: TCL-SEMIVOLATILE ORGANICS SW8270D					BatchID: 196710	Analysis Date: 09/25/2014	Seq No: 5840076			
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual

2,4-Dinitrotoluene	1318	370	3687		35.8	40.3	120	2608	65.7	38.7	SR
2-Chlorophenol	1356	370	3687		36.8	44.2	120	2566	61.7	32.9	SR
4-Chloro-3-methylphenol	1515	370	3687		41.1	42.1	120	2966	64.8	33.2	SR
4-Nitrophenol	BRL	1900	3687		37.8	30.8	120	2796	0	34	
Acenaphthene	1442	370	3687		39.1	51.1	120	2594	57.1	30.5	SR
N-Nitrosodi-n-propylamine	1605	370	3687		43.5	50.4	120	2815	54.7	34.6	SR
Pentachlorophenol	BRL	1900	3687		31.5	38.1	120	2335	0	33	S
Phenol	1461	370	3687		39.6	43.1	120	2625	57.0	37.4	SR
Pyrene	1676	370	3687	448.4	33.3	45.3	120	2947	55.0	32.8	SR
Surr: 2,4,6-Tribromophenol	1481	0	3687		40.2	40.2	120	2799	0	0	S
Surr: 2-Fluorobiphenyl	709.8	0	1844		38.5	45.6	120	1320	0	0	S
Surr: 2-Fluorophenol	1216	0	3687		33.0	35.2	120	2527	0	0	S
Surr: 4-Terphenyl-d14	792.7	0	1844		43.0	51	121	1422	0	0	S
Surr: Nitrobenzene-d5	627.9	0	1844		34.1	37.8	120	1278	0	0	S
Surr: Phenol-d5	1332	0	3687		36.1	39.9	120	2595	0	0	S

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

Client: Spur Environmental Services
Project Name: Capitol Adhesives
Workorder: 1409J14

ANALYTICAL QC SUMMARY REPORT

BatchID: 196807

Sample ID: MB-196807	Client ID:	Units: ug/Kg				Prep Date: 09/24/2014	Run No: 276450				
SampleType: MBLK	TestCode: TCL VOLATILE ORGANICS SW8260B	BatchID: 196807				Analysis Date: 09/24/2014	Seq No: 5839117				
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	BRL	5.0									
1,1,2,2-Tetrachloroethane	BRL	5.0									
1,1,2-Trichloroethane	BRL	5.0									
1,1-Dichloroethane	BRL	5.0									
1,1-Dichloroethene	BRL	5.0									
1,2,4-Trichlorobenzene	BRL	5.0									
1,2-Dibromo-3-chloropropane	BRL	5.0									
1,2-Dibromoethane	BRL	5.0									
1,2-Dichlorobenzene	BRL	5.0									
1,2-Dichloroethane	BRL	5.0									
1,2-Dichloropropane	BRL	5.0									
1,3-Dichlorobenzene	BRL	5.0									
1,4-Dichlorobenzene	BRL	5.0									
2-Butanone	BRL	50									
2-Hexanone	BRL	10									
4-Methyl-2-pentanone	BRL	10									
Acetone	BRL	100									
Benzene	BRL	5.0									
Bromodichloromethane	BRL	5.0									
Bromoform	BRL	5.0									
Bromomethane	BRL	5.0									
Carbon disulfide	BRL	10									
Carbon tetrachloride	BRL	5.0									
Chlorobenzene	BRL	5.0									
Chloroethane	BRL	10									
Chloroform	BRL	5.0									
Chloromethane	BRL	10									

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

Client: Spur Environmental Services
Project Name: Capitol Adhesives
Workorder: 1409J14

ANALYTICAL QC SUMMARY REPORT

BatchID: 196807

Sample ID: MB-196807	Client ID:				Units: ug/Kg			Prep Date: 09/24/2014	Run No: 276450		
SampleType: MBLK	TestCode: TCL VOLATILE ORGANICS	SW8260B			BatchID: 196807			Analysis Date: 09/24/2014	Seq No: 5839117		
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
cis-1,2-Dichloroethene	BRL	5.0									
cis-1,3-Dichloropropene	BRL	5.0									
Cyclohexane	BRL	5.0									
Dibromochloromethane	BRL	5.0									
Dichlorodifluoromethane	BRL	10									
Ethylbenzene	BRL	5.0									
Freon-113	BRL	10									
Isopropylbenzene	BRL	5.0									
m,p-Xylene	BRL	5.0									
Methyl acetate	BRL	5.0									
Methyl tert-butyl ether	BRL	5.0									
Methylcyclohexane	BRL	5.0									
Methylene chloride	BRL	20									
o-Xylene	BRL	5.0									
Styrene	BRL	5.0									
Tetrachloroethene	BRL	5.0									
Toluene	BRL	5.0									
trans-1,2-Dichloroethene	BRL	5.0									
trans-1,3-Dichloropropene	BRL	5.0									
Trichloroethene	BRL	5.0									
Trichlorofluoromethane	BRL	5.0									
Vinyl chloride	BRL	10									
Surr: 4-Bromofluorobenzene	43.97	0	50.00		87.9	70	128				
Surr: Dibromofluoromethane	49.23	0	50.00		98.5	78.2	128				
Surr: Toluene-d8	46.28	0	50.00		92.6	76.5	116				

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

Client: Spur Environmental Services
Project Name: Capitol Adhesives
Workorder: 1409J14

ANALYTICAL QC SUMMARY REPORT**BatchID: 196807**

Sample ID: LCS-196807	Client ID:					Units: ug/Kg	Prep Date: 09/24/2014	Run No: 276450			
SampleType: LCS	TestCode: TCL VOLATILE ORGANICS SW8260B					BatchID: 196807	Analysis Date: 09/24/2014	Seq No: 5839109			
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual

1,1-Dichloroethene	46.01	5.0	50.00		92.0	69.9	145				
Benzene	42.19	5.0	50.00		84.4	72.3	130				
Chlorobenzene	40.09	5.0	50.00		80.2	69	130				
Toluene	40.34	5.0	50.00		80.7	71.1	130				
Trichloroethene	41.44	5.0	50.00		82.9	71.7	136				
Surr: 4-Bromofluorobenzene	44.25	0	50.00		88.5	70	128				
Surr: Dibromofluoromethane	48.59	0	50.00		97.2	78.2	128				
Surr: Toluene-d8	45.03	0	50.00		90.1	76.5	116				

Sample ID: 1409J14-001AMS	Client ID: SS-1-5				Units: ug/Kg-dry	Prep Date: 09/24/2014	Run No: 276450				
SampleType: MS	TestCode: TCL VOLATILE ORGANICS SW8260B				BatchID: 196807	Analysis Date: 09/24/2014	Seq No: 5839112				
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual

1,1-Dichloroethene	64.32	6.3	62.63		103	56.6	151				
Benzene	61.29	6.3	62.63		97.9	70.4	130				
Chlorobenzene	58.43	6.3	62.63		93.3	67.5	132				
Toluene	57.79	6.3	62.63		92.3	70.4	130				
Trichloroethene	60.08	6.3	62.63		95.9	70.1	137				
Surr: 4-Bromofluorobenzene	55.05	0	62.63		87.9	70	128				
Surr: Dibromofluoromethane	59.57	0	62.63		95.1	78.2	128				
Surr: Toluene-d8	56.65	0	62.63		90.5	76.5	116				

Sample ID: 1409J14-001AMSD	Client ID: SS-1-5				Units: ug/Kg-dry	Prep Date: 09/24/2014	Run No: 276450				
SampleType: MSD	TestCode: TCL VOLATILE ORGANICS SW8260B				BatchID: 196807	Analysis Date: 09/24/2014	Seq No: 5839115				
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual

1,1-Dichloroethene	73.67	6.3	62.63		118	56.6	151	64.32	13.6	20.4	
Benzene	64.55	6.3	62.63		103	70.4	130	61.29	5.20	16.9	

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

Client: Spur Environmental Services
Project Name: Capitol Adhesives
Workorder: 1409J14

ANALYTICAL QC SUMMARY REPORT

BatchID: 196807

Sample ID: 1409J14-001AMSD	Client ID: SS-1-5	Units: ug/Kg-dry	Prep Date: 09/24/2014	Run No: 276450							
SampleType: MSD	TestCode: TCL VOLATILE ORGANICS SW8260B	BatchID: 196807	Analysis Date: 09/24/2014	Seq No: 5839115							
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual

Chlorobenzene	61.40	6.3	62.63		98.0	67.5	132	58.43	4.95	14.6	
Toluene	61.26	6.3	62.63		97.8	70.4	130	57.79	5.83	16.6	
Trichloroethene	64.12	6.3	62.63		102	70.1	137	60.08	6.49	17	
Surr: 4-Bromofluorobenzene	55.72	0	62.63		89.0	70	128	55.05	0	0	
Surr: Dibromofluoromethane	61.25	0	62.63		97.8	78.2	128	59.57	0	0	
Surr: Toluene-d8	55.55	0	62.63		88.7	76.5	116	56.65	0	0	

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

APPENDIX E

SOLID MATRIX LABORATORY DATA REPORT



ANALYTICAL ENVIRONMENTAL SERVICES, INC.

October 15, 2014

Timmerly Bullman
Environmental Planning Specialists, Inc.
1050 Crown Pointe Parkway
Atlanta GA 30338

TEL: (404) 315-9113
FAX: (404) 315-8509

RE: Capitol Adhesives

Dear Timmerly Bullman:

Order No: 1410475

Analytical Environmental Services, Inc. received 1 samples on 10/6/2014 8:00:00 AM for the analyses presented in following report.

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

AES' certifications are as follows:

- NELAC/Florida Certification number E87582 for analysis of Environmental Water, soil/hazardous waste, and Drinking Water Microbiology, effective 07/01/14-06/30/15.
- AIHA-LAP, LLC Laboratory ID: 100671 for Industrial Hygiene samples (Organics, Inorganics), Environmental Lead (Paint, Soil, Dust Wipes, Air), and Environmental Microbiology (Fungal) Direct Examination, effective until 09/01/15.

These results relate only to the items tested. This report may only be reproduced in full.

If you have any questions regarding these test results, please feel free to call.

James Forrest
Project Manager

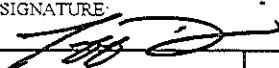
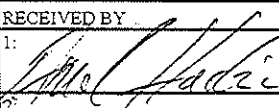


TEL.: (770) 457-8177 / TOLL-FREE (800) 972-4889 / FAX: (770) 457-8188

CHAIN OF CUSTODY

Work Order: 1410475

Date: 10-5-14 Page 1 of 1

COMPANY: EPS, Inc.		ADDRESS: 1050 Crown Pointe Pkwy Ste 550 Atlanta, GA 30338		ANALYSIS REQUESTED												Visit our website www.aesatlanta.com to check on the status of your results, place bottle orders, etc.		No # of Containers			
PHONE: (404) 315-9113		FAX:		VOC List PRESERVATION (See codes)												REMARKS					
SAMPLED BY: Jeff Dennis		SIGNATURE: 																			
#	SAMPLE ID	SAMPLED		Grab	Composite	Matrix (See codes)															
		DATE	TIME																		
1	14277- Area C	10-4-14	1745	X		SO															
2																					
3																					
4																					
5																					
6																					
7																					
8																					
9																					
10																					
11																					
12																					
13																					
14																					
RELINQUISHED BY		DATE/TIME		RECEIVED BY		DATE/TIME		PROJECT INFORMATION												RECEIPT	
1: 		10-5-14 18:00		1: 		10/6/14 8:00		PROJECT NAME: Capitol Adhesives												Total # of Containers 4	
2:				2:				PROJECT #:												Turnaround Time Request ☒ Standard 5 Business Days ☐ 2 Business Day Rush ☐ Next Business Day Rush ☐ Same Day Rush (auth req.) ☐ Other _____	
3:				3:				SITE ADDRESS: Dalton, Ga													
4:				4:				SEND REPORT TO: t.bullman@envplanning.com													
SPECIAL INSTRUCTIONS/COMMENTS: List to analyze: PCE, TCE, 1,1,1-TCA				SHIPMENT METHOD OUT ☒ IN ☐		VIA: FedEx UPS MAIL COURIER GREYHOUND OTHER _____		INVOICE TO: (IF DIFFERENT FROM ABOVE)												STATE PROGRAM (if any): _____ E-mail? Y/N; Fax? Y/N DATA PACKAGE: I II III IV	
SAMPLES RECEIVED AFTER 3PM OR ON SATURDAY ARE CONSIDERED RECEIVED THE NEXT BUSINESS DAY. IF TURNAROUND TIME IS NOT INDICATED, AES WILL PROCEED WITH STANDARD TAT OF SAMPLES. SAMPLES ARE DISPOSED 30 DAYS AFTER REPORT COMPLETION UNLESS OTHER ARRANGEMENTS ARE MADE.																					

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

White Copy - Original; Yellow Copy - Client

Analytical Environmental Services, Inc

Date: 15-Oct-14

Client: Environmental Planning Specialists, Inc.
Project Name: Capitol Adhesives
Lab ID: 1410475-001

Client Sample ID: 14277-AREA C
Collection Date: 10/4/2014 5:45:00 PM
Matrix: Soil

Analyses	Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed	Analyst
TCL VOLATILE ORGANICS SW8260B				(SW5035)				
1,1,1-Trichloroethane	43	1.7		mg/Kg	197274	500	10/08/2014 08:06	NP
Tetrachloroethene	1800	170		mg/Kg	197274	50000	10/14/2014 09:58	GK
Trichloroethene	230	170		mg/Kg	197274	50000	10/14/2014 09:58	GK
Surr: 4-Bromofluorobenzene	91.3	70-128		%REC	197274	50000	10/14/2014 09:58	GK
Surr: 4-Bromofluorobenzene	115	70-128		%REC	197274	500	10/08/2014 08:06	NP
Surr: Dibromofluoromethane	94.1	78.2-128		%REC	197274	500	10/08/2014 08:06	NP
Surr: Dibromofluoromethane	97.6	78.2-128		%REC	197274	50000	10/14/2014 09:58	GK
Surr: Toluene-d8	98.2	76.5-116		%REC	197274	50000	10/14/2014 09:58	GK
Surr: Toluene-d8	102	76.5-116		%REC	197274	500	10/08/2014 08:06	NP
PERCENT MOISTURE D2216								
Percent Moisture	17.7	0		wt%	R277617	1	10/10/2014 12:00	SG

Qualifiers:

- * Value exceeds maximum contaminant level
- BRL Below reporting limit
- H Holding times for preparation or analysis exceeded
- N Analyte not NELAC certified
- B Analyte detected in the associated method blank
- > Greater than Result value

- E Estimated (value above quantitation range)
- S Spike Recovery outside limits due to matrix
- Narr See case narrative
- NC Not confirmed
- < Less than Result value
- J Estimated value detected below Reporting Limit

Analytical Environmental Services, Inc.

Sample/Cooler Receipt Checklist

Client EPS

Work Order Number 1410475

Checklist completed by [Signature] Date 10/6/14

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

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

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

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

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

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

Chain of custody present? Yes ☒ No ☐

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

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

Samples in proper container/bottle? Yes ☒ No ☐

Sample containers intact? Yes ☒ No ☐

Sufficient sample volume for indicated test? Yes ☒ No ☐

All samples received within holding time? Yes ☒ No ☐

Was TAT marked on the COC? Yes ☒ No ☐

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

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

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

Adjusted? ☐ Checked by ☐

Sample Condition: Good ☒ Other(Explain) ☐

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

See Case Narrative for resolution of the Non-Conformance.

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

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

Client: Environmental Planning Specialists, Inc.
Project Name: Capitol Adhesives
Workorder: 1410475

ANALYTICAL QC SUMMARY REPORT**BatchID: 197274**

Sample ID: MB-197274	Client ID:				Units: ug/Kg	Prep Date: 10/06/2014	Run No: 277212				
SampleType: MBLK	TestCode: TCL VOLATILE ORGANICS SW8260B				BatchID: 197274	Analysis Date: 10/06/2014	Seq No: 5856912				
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual

1,1,1-Trichloroethane	BRL	250									
Tetrachloroethene	BRL	250									
Trichloroethene	BRL	250									
Surr: 4-Bromofluorobenzene	2319	0	2500		92.8	70	128				
Surr: Dibromofluoromethane	2588	0	2500		104	78.2	128				
Surr: Toluene-d8	2410	0	2500		96.4	76.5	116				

Sample ID: LCS-197274	Client ID:					Units: ug/Kg	Prep Date: 10/06/2014	Run No: 277212			
SampleType: LCS	TestCode: TCL VOLATILE ORGANICS SW8260B					BatchID: 197274	Analysis Date: 10/06/2014	Seq No: 5856910			
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual

Trichloroethene	2098	250	2500		83.9	71.7	136				
Surr: 4-Bromofluorobenzene	2386	0	2500		95.4	70	128				
Surr: Dibromofluoromethane	2390	0	2500		95.6	78.2	128				
Surr: Toluene-d8	2509	0	2500		100	76.5	116				

Sample ID: 1409P29-003AMS	Client ID:					Units: ug/Kg-dry	Prep Date: 10/06/2014	Run No: 277236			
SampleType: MS	TestCode: TCL VOLATILE ORGANICS SW8260B					BatchID: 197274	Analysis Date: 10/07/2014	Seq No: 5857667			
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual

Trichloroethene	2857	300	2977		96.0	70.1	137				
Surr: 4-Bromofluorobenzene	2501	0	2977		84.0	70	128				
Surr: Dibromofluoromethane	3085	0	2977		104	78.2	128				
Surr: Toluene-d8	2752	0	2977		92.4	76.5	116				

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

Client: Environmental Planning Specialists, Inc.
Project Name: Capitol Adhesives
Workorder: 1410475

ANALYTICAL QC SUMMARY REPORT

BatchID: 197274

Sample ID: 1409P29-003AMSD	Client ID:					Units: ug/Kg-dry	Prep Date: 10/06/2014	Run No: 277236			
SampleType: MSD	TestCode: TCL VOLATILE ORGANICS SW8260B					BatchID: 197274	Analysis Date: 10/07/2014	Seq No: 5857668			
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual

Trichloroethene	3240	300	2977		109	70.1	137	2857	12.6	17	
Surr: 4-Bromofluorobenzene	2478	0	2977		83.2	70	128	2501	0	0	
Surr: Dibromofluoromethane	3055	0	2977		103	78.2	128	3085	0	0	
Surr: Toluene-d8	2754	0	2977		92.5	76.5	116	2752	0	0	

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

APPENDIX F

**MANIFESTS AND TCLP LABORATORY DATA
REPORT**



RESTRICTED/SPECIAL WASTE MANIFEST FORM
Dalton-Whitfield Regional Solid Waste Management Authority
4189 Old Dixie Highway
Dalton, GA 30721
Phone: (706) 277-2545 Fax: (706) 277-2546

Part I - Generator Information

Generator Name (NOT Contractor or Consultant) CEA, LLC	Technical Contact W.Craig Baker	
Street Address 1640 Republic Center, 633 Chestnut St.	Phone 423-755-0888	
City/Town Chattanooga	State TN	Zip Code 37450
Site Name Capital Adhesive	Address 300 Cross Plains Blvd. - Dalton, GA 30721	

Waste Material Name / Description of Waste Excavated soil			
Physical Description			
Color Gray to Tan	Odor None	QTY ~200 Tons	Container Roll-Off

I herby certify that the above referenced materials are not hazardous wastes as defined by 40 CFR Part 261 or any applicable State Law, have been accurately described, all known or suspected hazards have been disclosed, and have been pre-approved for disposal by the Dalton-Whitfield Regional Solid Waste Management Authority.

<u>CRAIG BAKER</u> Generator Authorized Agent Name (Print)	<u>[Signature]</u> Signature	<u>10/9/14</u> Date
<u>Roger I. Dyer</u> Generator Personnel who Releases Load (Print)	<u>[Signature]</u> Signature	<u>10-10-14</u> Load Release Date

Part II - Transporter Information

Transporter Name SPUR Environmental Svc.	Driver Name (Print) WARR ROW OFF	
Street Address 2985 Gordy Pkwy.	Truck Number David Holt 03	
City/Town Marietta	State GA	Zip Code 30066

I herby acknowledge picking up the above referenced materials for transport from the generator site listed above and that this material has been transported without incident to the disposal facility referenced below.

Driver's Signature

Delivery Date

Part III - Disposal Facility Information (To be completed by landfill personnel)

Disposal Facility Old Dixie Sanitary Landfill (DWRSWMA)	Disposal Location Permit No: 155-047D(SL) Phase 6
Ticket Number 272929	Received By SM
Checked By	Date 10-10-14



RESTRICTED/SPECIAL WASTE MANIFEST FORM
Dalton-Whitfield Regional Solid Waste Management Authority
4189 Old Dixie Highway
Dalton, GA 30721
Phone: (706) 277-2545 Fax: (706) 277-2546

Part I – Generator Information

Generator Name (NOT Contractor or Consultant) CEA, LLC		Technical Contact W.Craig Baker	
Street Address 1640 Republic Center, 633 Chestnut St.		Phone 423-755-0888	
City/Town Chattanooga	State TN	Zip Code 37450	
Site Name Capital Adhesive		Address 300 Cross Plains Blvd. - Dalton, GA 30721	

Waste Material Name / Description of Waste Excavated soil			
Physical Description			
Color Gray to Tan	Odor None	QTY ~200 Tons	Container Roll-Off

I herby certify that the above referenced materials are not hazardous wastes as defined by 40 CFR Part 261 or any applicable State Law, have been accurately described, all known or suspected hazards have been disclosed, and have been pre-approved for disposal by the Dalton-Whitfield Regional Solid Waste Management Authority.

<i>CRAIG BAKER</i> Generator Authorized Agent Name (Print)	<i>[Signature]</i> Signature	<i>10/9/14</i> Date
<i>Roger I. Dyer</i> Generator Personnel who Releases Load (Print)	<i>[Signature]</i> Signature	<i>10-10-14</i> Load Release Date

Part II – Transporter Information

Transporter Name SPUR Environmental Svc.	Driver Name (Print) <i>ALPHA SERVICES</i>	
Street Address 2985 Gordy Pkwy.	Truck Number <i>9 DAVIS</i>	
City/Town Marietta	State GA	Zip Code 30066

I herby acknowledge picking up the above referenced materials for transport from the generator site listed above and that this material has been transported without incident to the disposal facility referenced below.

Driver's Signature	Delivery Date
--------------------	---------------

Part III – Disposal Facility Information (To be completed by landfill personnel)

Disposal Facility Old Dixie Sanitary Landfill (DWRSWMA)	Disposal Location Permit No: 155-047D(SL) Phase 6
Ticket Number <i>282966</i>	Received By <i>[Signature]</i>
Checked By	Date <i>10/10/2014</i>

Waste Code: 100
Account Code: Credit Card



RESTRICTED/SPECIAL WASTE MANIFEST FORM
Dalton-Whitfield Regional Solid Waste Management Authority
4189 Old Dixie Highway
Dalton, GA 30721
Phone: (706) 277-2545 Fax: (706) 277-2546

Part I – Generator Information

Generator Name (NOT Contractor or Consultant) CEA, LLC		Technical Contact W.Craig Baker	
Street Address 1640 Republic Center, 633 Chestnut St.		Phone 423-755-0888	
City/Town Chattanooga	State TN	Zip Code 37450	
Site Name Capital Adhesive		Address 300 Cross Plains Blvd. - Dalton, GA 30721	

Waste Material Name / Description of Waste Excavated soil			
Physical Description			
Color Gray to Tan	Odor None	QTY ~200 Tons	Container Roll-Off

I hereby certify that the above referenced materials are not hazardous wastes as defined by 40 CFR Part 261 or any applicable State Law, have been accurately described, all known or suspected hazards have been disclosed, and have been pre-approved for disposal by the Dalton-Whitfield Regional Solid Waste Management Authority.

<i>CRAIG BAKER</i> Generator Authorized Agent Name (Print)	<i>[Signature]</i> Signature	<i>10/9/14</i> Date
<i>Roger E. Dyer</i> Generator Personnel who Releases Load (Print)	<i>[Signature]</i> Signature	<i>10-10-14</i> Load Release Date

Part II – Transporter Information

Transporter Name SPUR Environmental Svc.	Driver Name (Print) <i>Walter Roll Off</i>	
Street Address 2985 Gordy Pkwy.	Truck Number <i>David Holt 03</i>	
City/Town Marietta	State GA	Zip Code 30066

I hereby acknowledge picking up the above referenced materials for transport from the generator site listed above and that this material has been transported without incident to the disposal facility referenced below.

Driver's Signature

Delivery Date

Part III – Disposal Facility Information (To be completed by landfill personnel)

Disposal Facility Old Dixie Sanitary Landfill (DWRSWMA)	Disposal Location Permit No: 155-047D(SL) Phase 6
Ticket Number <i>282970</i>	Received By <i>SM</i>
Checked By	Date <i>10-10-14</i>

Expires: 10-24-2014

57280 in WT

Waste Code: 100
Account Code: Credit Card



RESTRICTED/SPECIAL WASTE MANIFEST FORM
Dalton-Whitfield Regional Solid Waste Management Authority
4189 Old Dixie Highway
Dalton, GA 30721
Phone: (706) 277-2545 Fax: (706) 277-2546

Part I - Generator Information

Generator Name (NOT Contractor or Consultant) CEA, LLC	Technical Contact W.Craig Baker	
Street Address 1640 Republic Center, 633 Chestnut St.	Phone 423-755-0888	
City/Town Chattanooga	State TN	Zip Code 37450
Site Name Capital Adhesive	Address 300 Cross Plains Blvd. - Dalton, GA 30721	

Waste Material Name / Description of Waste Excavated soil			
Physical Description			
Color Gray to Tan	Odor None	QTY ~200 Tons	Container Roll-Off

I hereby certify that the above referenced materials are not hazardous wastes as defined by 40 CFR Part 261 or any applicable State Law, have been accurately described, all known or suspected hazards have been disclosed, and have been pre-approved for disposal by the Dalton-Whitfield Regional Solid Waste Management Authority.

CRAIG BAKER 10/9/14
Generator Authorized Agent Name (Print) Signature Date

Roger Dyer 10-10-14
Generator Personnel who Releases Load (Print) Signature Load Release Date

Part II - Transporter Information

Transporter Name SPUR Environmental Svc.	Driver Name (Print) <u>WARD Roll-off</u>	
Street Address 2985 Gordy Pkwy.	Truck Number <u>David Holt</u> 03	
City/Town Marietta	State GA	Zip Code 30066

I hereby acknowledge picking up the above referenced materials for transport from the generator site listed above and that this material has been transported without incident to the disposal facility referenced below.

[Signature]
Driver's Signature Delivery Date

Part III - Disposal Facility Information (To be completed by landfill personnel)

Disposal Facility Old Dixie Sanitary Landfill (DWRSWMA)	Disposal Location Permit No: 155-047D(SL) Phase 6
Ticket Number 283156	Received By <u>[Signature]</u>
Checked By	Date 10-13-14

Expires: 10-24-2014



RESTRICTED/SPECIAL WASTE MANIFEST FORM
Dalton-Whitfield Regional Solid Waste Management Authority
4189 Old Dixie Highway
Dalton, GA 30721
Phone: (706) 277-2545 Fax: (706) 277-2546

Part I – Generator Information

Generator Name (<u>NOT</u> Contractor or Consultant) CEA, LLC	Technical Contact W.Craig Baker	
Street Address 1640 Republic Center, 633 Chestnut St.	Phone 423-755-0888	
City/Town Chattanooga	State TN	Zip Code 37450
Site Name Capital Adhesive	Address 300 Cross Plains Blvd. - Dalton, GA 30721	

Waste Material Name / Description of Waste Excavated soil			
Physical Description			
Color Gray to Tan	Odor None	QTY ~200 Tons	Container Roll-Off

I herby certify that the above referenced materials are not hazardous wastes as defined by 40 CFR Part 261 or any applicable State Law, have been accurately described, all known or suspected hazards have been disclosed, and have been pre-approved for disposal by the Dalton-Whitfield Regional Solid Waste Management Authority.

<i>CRAIG BAKER</i> Generator Authorized Agent Name (Print)	<i>[Signature]</i> Signature	<i>10/9/14</i> Date
<i>Roger I. Dyer</i> Generator Personnel who Releases Load (Print)	<i>[Signature]</i> Signature	<i>10-10-14</i> Load Release Date

Part II – Transporter Information

Transporter Name SPUR Environmental Svc.	Driver Name (Print) <i>WARD Roll Off</i>	
Street Address 2985 Gordy Pkwy.	Truck Number <i>David Holt 03</i>	
City/Town Marietta	State GA	Zip Code 30066

I herby acknowledge picking up the above referenced materials for transport from the generator site listed above and that this material has been transported without incident to the disposal facility referenced below.

Driver's Signature	Delivery Date
--------------------	---------------

Part III – Disposal Facility Information (To be completed by landfill personnel)

Disposal Facility Old Dixie Sanitary Landfill (DWRSWMA)	Disposal Location Permit No: 155-047D(SL) Phase 6
Ticket Number <i>282997</i>	Received By <i>SM</i>
Checked By	Date <i>10-10-14</i>

Waste Code: 100
Account Code: Credit Card



RESTRICTED/SPECIAL WASTE MANIFEST FORM
Dalton-Whitfield Regional Solid Waste Management Authority
4189 Old Dixie Highway
Dalton, GA 30721
Phone: (706) 277-2545 Fax: (706) 277-2546

Part I – Generator Information

Generator Name (NOT Contractor or Consultant) CEA, LLC		Technical Contact W.Craig Baker	
Street Address 1640 Republic Center, 633 Chestnut St.		Phone 423-755-0888	
City/Town Chattanooga	State TN	Zip Code 37450	
Site Name Capital Adhesive		Address 300 Cross Plains Blvd. - Dalton, GA 30721	

Waste Material Name / Description of Waste Excavated soil			
Physical Description			
Color Gray to Tan	Odor None	QTY ~200 Tons	Container Roll-Off

I hereby certify that the above referenced materials are not hazardous wastes as defined by 40 CFR Part 261 or any applicable State Law, have been accurately described, all known or suspected hazards have been disclosed, and have been pre-approved for disposal by the Dalton-Whitfield Regional Solid Waste Management Authority.

<i>CRAIG BAKER</i> Generator Authorized Agent Name (Print)	<i>[Signature]</i> Signature	<i>10/9/14</i> Date
<i>Roger T. Dyer</i> Generator Personnel who Releases Load (Print)	<i>[Signature]</i> Signature	<i>10-10-14</i> Load Release Date

Part II – Transporter Information

Transporter Name SPUR Environmental Svc.		Driver Name (Print) <i>Alpha Services</i>	
Street Address 2985 Gordy Pkwy.		Truck Number <i>9 David Ted</i>	
City/Town Marietta		State GA	Zip Code 30066

I hereby acknowledge picking up the above referenced materials for transport from the generator site listed above and that this material has been transported without incident to the disposal facility referenced below.

Driver's Signature	Delivery Date
--------------------	---------------

Part III – Disposal Facility Information (To be completed by landfill personnel)

Disposal Facility Old Dixie Sanitary Landfill (DWRSWMA)		Disposal Location Permit No: 155-047D(SL) Phase 6	
Ticket Number <i>272999</i>	Received By <i>SM</i>		
Checked By	Date <i>10-10-14</i>		

Expires: 10-24-2014

Waste Code: 100
Account Code: Credit Card



RESTRICTED/SPECIAL WASTE MANIFEST FORM
Dalton-Whitfield Regional Solid Waste Management Authority
4189 Old Dixie Highway
Dalton, GA 30721
Phone: (706) 277-2545 Fax: (706) 277-2546

Part I - Generator Information

Generator Name (NOT Contractor or Consultant) CEA, LLC		Technical Contact W.Craig Baker	
Street Address 1640 Republic Center, 633 Chestnut St.		Phone 423-755-0888	
City/Town Chattanooga	State TN	Zip Code 37450	
Site Name Capital Adhesive		Address 300 Cross Plains Blvd. - Dalton, GA 30721	

Waste Material Name / Description of Waste Excavated soil			
Physical Description			
Color Gray to Tan	Odor None	QTY ~200 Tons	Container Roll-Off

I hereby certify that the above referenced materials are not hazardous wastes as defined by 40 CFR Part 261 or any applicable State Law, have been accurately described, all known or suspected hazards have been disclosed, and have been pre-approved for disposal by the Dalton-Whitfield Regional Solid Waste Management Authority.

CRAIG BAKER [Signature] 10/9/14
Generator Authorized Agent Name (Print) Signature Date

Roger T. Dyer [Signature] 10-10-14
Generator Personnel who Releases Load (Print) Signature Load Release Date

Part II - Transporter Information

Transporter Name SPUR Environmental Svc.		Driver Name (Print) <u>WARD ROLL OFF</u>	
Street Address 2985 Gordy Pkwy.		Truck Number <u>David Holt 03</u>	
City/Town Marietta		State GA	Zip Code 30066

I hereby acknowledge picking up the above referenced materials for transport from the generator site listed above and that this material has been transported without incident to the disposal facility referenced below.

Driver's Signature

Delivery Date

Part III - Disposal Facility Information (To be completed by landfill personnel)

Disposal Facility Old Dixie Sanitary Landfill (DWRSWMA)		Disposal Location Permit No: 155-047D(SL) Phase 6	
Ticket Number <u>283014</u>		Received By <u>SM</u>	
Checked By		Date <u>10-10-14</u>	

Expires: 10-24-2014

Waste Code: 100
Account Code: Credit Card



RESTRICTED/SPECIAL WASTE MANIFEST FORM
Dalton-Whitfield Regional Solid Waste Management Authority
4189 Old Dixie Highway
Dalton, GA 30721
Phone: (706) 277-2545 Fax: (706) 277-2546

Part I - Generator Information

Generator Name (NOT Contractor or Consultant) CEA, LLC		Technical Contact W.Craig Baker	
Street Address 1640 Republic Center, 633 Chestnut St.		Phone 423-755-0888	
City/Town Chattanooga	State TN	Zip Code 37450	
Site Name Capital Adhesive		Address 300 Cross Plains Blvd. - Dalton, GA 30721	

Waste Material Name / Description of Waste Excavated soil			
Physical Description			
Color Gray to Tan	Odor None	QTY ~200 Tons	Container Roll-Off

I hereby certify that the above referenced materials are not hazardous wastes as defined by 40 CFR Part 261 or any applicable State Law, have been accurately described, all known or suspected hazards have been disclosed, and have been pre-approved for disposal by the Dalton-Whitfield Regional Solid Waste Management Authority.

<i>CRAIG BAKER</i> Generator Authorized Agent Name (Print)	<i>[Signature]</i> Signature	<i>10/9/14</i> Date
<i>Roger J. Dyer</i> Generator Personnel who Releases Load (Print)	<i>[Signature]</i> Signature	<i>10-10-14</i> Load Release Date

Part II - Transporter Information

Transporter Name SPUR Environmental Svc.		Driver Name (Print) <i>WARD Roll off</i>	
Street Address 2985 Gordy Pkwy.		Truck Number <i>David Holt 03</i>	
City/Town Marietta		State GA	Zip Code 30066

I hereby acknowledge picking up the above referenced materials for transport from the generator site listed above and that this material has been transported without incident to the disposal facility referenced below.

Driver's Signature _____ Delivery Date _____

Part III - Disposal Facility Information (To be completed by landfill personnel)

Disposal Facility Old Dixie Sanitary Landfill (DWRSWMA)		Disposal Location Permit No: 155-047D(SL) Phase 6	
Ticket Number <i>283029</i>		Received By <i>SM</i>	
Checked By .		Date <i>10/10/14</i>	

Expires: 10-24-2014



RESTRICTED/SPECIAL WASTE MANIFEST FORM
Dalton-Whitfield Regional Solid Waste Management Authority
4189 Old Dixie Highway
Dalton, GA 30721
Phone: (706) 277-2545 Fax: (706) 277-2546

Part I - Generator Information

Generator Name (NOT Contractor or Consultant) CEA, LLC	Technical Contact W.Craig Baker	
Street Address 1640 Republic Center, 633 Chestnut St.	Phone 423-755-0888	
City/Town Chattanooga	State TN	Zip Code 37450
Site Name Capital Adhesive	Address 300 Cross Plains Blvd. - Dalton, GA 30721	

Waste Material Name / Description of Waste Excavated soil			
Physical Description			
Color Gray to Tan	Odor None	QTY ~200 Tons	Container Roll-Off

I hereby certify that the above referenced materials are not hazardous wastes as defined by 40 CFR Part 261 or any applicable State Law, have been accurately described, all known or suspected hazards have been disclosed, and have been pre-approved for disposal by the Dalton-Whitfield Regional Solid Waste Management Authority.

CRAIG BAKER [Signature] 10/9/14
Generator Authorized Agent Name (Print) Signature Date

Roger T. Dyer [Signature] 10-10-14
Generator Personnel who Releases Load (Print) Signature Load Release Date

Part II - Transporter Information

Transporter Name SPUR Environmental Svc.	Driver Name (Print) <u>ALPHA SERVICES</u>	
Street Address 2985 Gordy Pkwy.	Truck Number <u>9 JARID TEE</u>	
City/Town Marietta	State GA	Zip Code 30066

I hereby acknowledge picking up the above referenced materials for transport from the generator site listed above and that this material has been transported without incident to the disposal facility referenced below.

[Signature] 10-12-14
Driver's Signature Delivery Date

Part III - Disposal Facility Information (To be completed by landfill personnel)

Disposal Facility Old Dixie Sanitary Landfill (DWRSWMA)	Disposal Location Permit No: 155-047D(SL) Phase 6
Ticket Number <u>283166</u>	Received By <u>[Signature]</u>
Checked By	Date <u>10.13</u>

Waste Code: 100
Account Code: Credit Card



RESTRICTED/SPECIAL WASTE MANIFEST FORM
Dalton-Whitfield Regional Solid Waste Management Authority
4189 Old Dixie Highway
Dalton, GA 30721
Phone: (706) 277-2545 Fax: (706) 277-2546

Part I - Generator Information

Generator Name (NOT Contractor or Consultant) CEA, LLC	Technical Contact W.Craig Baker	
Street Address 1640 Republic Center, 633 Chestnut St.	Phone 423-755-0888	
City/Town Chattanooga	State TN	Zip Code 37450
Site Name Capital Adhesive	Address 300 Cross Plains Blvd. - Dalton, GA 30721	

Waste Material Name / Description of Waste Excavated soil			
Physical Description			
Color Gray to Tan	Odor None	QTY ~200 Tons	Container Roll-Off

I herby certify that the above referenced materials are not hazardous wastes as defined by 40 CFR Part 261 or any applicable State Law, have been accurately described, all known or suspected hazards have been disclosed, and have been pre-approved for disposal by the Dalton-Whitfield Regional Solid Waste Management Authority.

CRAIG BAKER [Signature] 10/9/14
Generator Authorized Agent Name (Print) Signature Date

Roger F. Dyer [Signature] 10-10-14
Generator Personnel who Releases Load (Print) Signature Load Release Date

Part II - Transporter Information

Transporter Name SPUR Environmental Svc.	Driver Name (Print) <u>WARD ROLL OFF</u>	
Street Address 2985 Gordy Pkwy.	Truck Number <u>David Holt 03</u>	
City/Town Marietta	State GA	Zip Code 30066

I herby acknowledge picking up the above referenced materials for transport from the generator site listed above and that this material has been transported without incident to the disposal facility referenced below.

Driver's Signature

Delivery Date

Part III - Disposal Facility Information (To be completed by landfill personnel)

Disposal Facility Old Dixie Sanitary Landfill (DWRSWMA)	Disposal Location Permit No: 155-047D(SL) Phase 6
Ticket Number <u>283172</u>	Received By <u>TE</u>
Checked By	Date <u>10-13-14</u>

Expires: 10-24-2014



RESTRICTED/SPECIAL WASTE MANIFEST FORM
Dalton-Whitfield Regional Solid Waste Management Authority
4189 Old Dixie Highway
Dalton, GA 30721
Phone: (706) 277-2545 Fax: (706) 277-2546

Part I – Generator Information

Generator Name (NOT Contractor or Consultant) CEA, LLC	Technical Contact W.Craig Baker	
Street Address 1640 Republic Center, 633 Chestnut St.	Phone 423-755-0888	
City/Town Chattanooga	State TN	Zip Code 37450
Site Name Capital Adhesive	Address 300 Cross Plains Blvd. - Dalton, GA 30721	

Waste Material Name / Description of Waste Excavated soil			
Physical Description			
Color Gray to Tan	Odor None	QTY ~200 Tons	Container Roll-Off

I hereby certify that the above referenced materials are not hazardous wastes as defined by 40 CFR Part 261 or any applicable State Law, have been accurately described, all known or suspected hazards have been disclosed, and have been pre-approved for disposal by the Dalton-Whitfield Regional Solid Waste Management Authority.

CRAIG BAKER [Signature] 10/9/14
Generator Authorized Agent Name (Print) Signature Date

Roger T. Dyer [Signature] 10-10-14
Generator Personnel who Releases Load (Print) Signature Load Release Date

Part II – Transporter Information

Transporter Name SPUR Environmental Svc.	Driver Name (Print) <u>Alpha Services</u>	
Street Address 2985 Gordy Pkwy.	Truck Number <u>9 DAS-1001</u>	
City/Town Marietta	State GA	Zip Code 30066

I hereby acknowledge picking up the above referenced materials for transport from the generator site listed above and that this material has been transported without incident to the disposal facility referenced below.

[Signature] 10-13-14
Driver's Signature Delivery Date

Part III – Disposal Facility Information (To be completed by landfill personnel)

Disposal Facility Old Dixie Sanitary Landfill (DWRSWMA)	Disposal Location Permit No: 155-047D(SL) Phase 6
Ticket Number <u>28 3189</u>	Received By <u>[Signature]</u>
Checked By	Date <u>10-13-14</u>

Waste Code: 100
Account Code: Credit Card



RESTRICTED/SPECIAL WASTE MANIFEST FORM
Dalton-Whitfield Regional Solid Waste Management Authority
4189 Old Dixie Highway
Dalton, GA 30721
Phone: (706) 277-2545 Fax: (706) 277-2546

Part I - Generator Information

Generator Name (NOT Contractor or Consultant) CEA, LLC	Technical Contact W.Craig Baker	
Street Address 1640 Republic Center, 633 Chestnut St.	Phone 423-755-0888	
City/Town Chattanooga	State TN	Zip Code 37450
Site Name Capital Adhesive	Address 300 Cross Plains Blvd. - Dalton, GA 30721	

Waste Material Name / Description of Waste Excavated soil			
Physical Description			
Color Gray to Tan	Odor None	QTY ~200 Tons	Container Roll-Off

I hereby certify that the above referenced materials are not hazardous wastes as defined by 40 CFR Part 261 or any applicable State Law, have been accurately described, all known or suspected hazards have been disclosed, and have been pre-approved for disposal by the Dalton-Whitfield Regional Solid Waste Management Authority.

<u>CRAIG BAKER</u> Generator Authorized Agent Name (Print)	<u>[Signature]</u> Signature	<u>10/9/14</u> Date
---	---------------------------------	------------------------

<u>Roger L. Dyer</u> Generator Personnel who Releases Load (Print)	<u>[Signature]</u> Signature	<u>10-10-14</u> Load Release Date
---	---------------------------------	--------------------------------------

Part II - Transporter Information

Transporter Name SPUR Environmental Svc.	Driver Name (Print) <u>Alpha Services</u>	
Street Address 2985 Gordy Pkwy.	Truck Number <u>9</u>	
City/Town Marietta	State GA	Zip Code 30066

I hereby acknowledge picking up the above referenced materials for transport from the generator site listed above and that this material has been transported without incident to the disposal facility referenced below.

<u>[Signature]</u> Driver's Signature	<u>10-13-14</u> Delivery Date
--	----------------------------------

Part III - Disposal Facility Information (To be completed by landfill personnel)

Disposal Facility Old Dixie Sanitary Landfill (DWRSWMA)	Disposal Location Permit No: 155-047D(SL) Phase 6
Ticket Number <u>283004</u>	Received By <u>[Signature]</u>
Checked By	Date <u>10-13</u>

Expires: 10-24-2014

Waste Code: 100
Account Code: Credit Card



RESTRICTED/SPECIAL WASTE MANIFEST FORM
Dalton-Whitfield Regional Solid Waste Management Authority
4189 Old Dixie Highway
Dalton, GA 30721
Phone: (706) 277-2545 Fax: (706) 277-2546

Part I - Generator Information

Generator Name (<u>NOT</u> Contractor or Consultant) CEA, LLC		Technical Contact W.Craig Baker	
Street Address 1640 Republic Center, 633 Chestnut St.		Phone 423-755-0888	
City/Town Chattanooga	State TN	Zip Code 37450	
Site Name Capital Adhesive		Address 300 Cross Plains Blvd. - Dalton, GA 30721	

Waste Material Name / Description of Waste Excavated soil			
Physical Description			
Color Gray to Tan	Odor None	QTY ~200 Tons	Container Roll-Off

I hereby certify that the above referenced materials are not hazardous wastes as defined by 40 CFR Part 261 or any applicable State Law, have been accurately described, all known or suspected hazards have been disclosed, and have been pre-approved for disposal by the Dalton-Whitfield Regional Solid Waste Management Authority.

CRAIG BAKER [Signature] 10/9/14
Generator Authorized Agent Name (Print) Signature Date

Roger L. Dyer [Signature] 10-10-14
Generator Personnel who Releases Load (Print) Signature Load Release Date

Part II - Transporter Information

Transporter Name SPUR Environmental Svc.		Driver Name (Print) <u>Alpha Services</u>	
Street Address 2985 Gordy Pkwy.		Truck Number	
City/Town Marietta		State GA	Zip Code 30066

I hereby acknowledge picking up the above referenced materials for transport from the generator site listed above and that this material has been transported without incident to the disposal facility referenced below.

[Signature] [Signature]
Driver's Signature Delivery Date

Part III - Disposal Facility Information (To be completed by landfill personnel)

Disposal Facility Old Dixie Sanitary Landfill (DWRSWMA)		Disposal Location Permit No: 155-047D(SL) Phase 6	
Ticket Number <u>283040</u>	Received By <u>[Signature]</u>		
Checked By	Date <u>10-14-14</u>		

Expires: 10-24-2014



ANALYTICAL ENVIRONMENTAL SERVICES, INC.

October 09, 2014

Timmerly Bullman
Environmental Planning Specialists, Inc.
1050 Crown Pointe Parkway
Atlanta GA 30338

TEL: (404) 315-9113
FAX: (404) 315-8509

RE: Capitol Adhesives

Dear Timmerly Bullman:

Order No: 1410476

Analytical Environmental Services, Inc. received 1 samples on 10/6/2014 8:00:00 AM for the analyses presented in following report.

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

AES' certifications are as follows:

- NELAC/Florida Certification number E87582 for analysis of Environmental Water, soil/hazardous waste, and Drinking Water Microbiology, effective 07/01/14-06/30/15.
- AIHA-LAP, LLC Laboratory ID: 100671 for Industrial Hygiene samples (Organics, Inorganics), Environmental Lead (Paint, Soil, Dust Wipes, Air), and Environmental Microbiology (Fungal) Direct Examination, effective until 09/01/15.

These results relate only to the items tested. This report may only be reproduced in full.

If you have any questions regarding these test results, please feel free to call.

James Forrest
Project Manager



ANALYTICAL ENVIRONMENTAL SERVICES, INC.

3080 Presidential Drive, Atlanta GA 30340-3704

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

CHAIN OF CUSTODY

Work Order: 141047a

Date: 10-5-14 Page 1 of 1

COMPANY:		ADDRESS:		ANALYSIS REQUESTED		REMARKS		No # of Containers	
EPS, Inc.		1050 Crown Pointe Pkwy, Ste 550 Atlanta, GA 30338		Full TCLP		Visit our website www.aesatlanta.com to check on the status of your results, place bottle orders, etc.			
PHONE: (404) 315-9113		FAX:							
SAMPLED BY: Jeff Dennis		SIGNATURE: <i>[Signature]</i>							
#	SAMPLE ID	DATE	TIME	SAMPLED	Grab	Composite	Matrix (See codes)	PRESERVATION (See codes)	
1	14278-TCLP-1	10-5-14	930			X	SO	I	
2	14278-TCLP-2	10-5-14	935			X	SO	I	
3									
4									
5									
6									
7									
8									
9									
10									
11									
12									
13									
14									
RELINQUISHED BY: <i>[Signature]</i>		DATE/TIME: 10-5-14 18:00		RECEIVED BY: <i>[Signature]</i>		DATE/TIME: 10/6/14		PROJECT NAME: Capitol Adhesives	
SPECIAL INSTRUCTIONS/COMMENTS: Please Include: 1,1,1-TCA, TCE, PCE 1,1-dichloroethane, 1,2-dichloropropane 1,4-dioxane, toluene		SHIPMENT METHOD: OUT IN CLIENT FedEx UPS MAIL COURIER GREYHOUND OTHER		INVOICE TO: Dalton, GA SEND REPORT TO: tbulletan@earthlink.net		PROJECT ADDRESS: Dalton, GA		PROJECT INFORMATION: Total # of Containers	
								Turnaround Time Request: Standard 5 Business Days 2 Business Day Rush Next Business Day Rush Same Day Rush (auth req.) Other	
								STATE PROGRAM (if any): E-mail? Y/N, Fax? Y/N DATA PACKAGE: I II III IV	

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

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

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

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

White Copy - Original; Yellow Copy - Client

Client: Environmental Planning Specialists, Inc.
Project: Capitol Adhesives
Lab ID: 1410476

Case Narrative

Per Timmerly Bullman on 10/6/2014 via email, the samples were analyzed with a next business day rush turnaround.

Analytical Environmental Services, Inc
Date: 9-Oct-14

Client: Environmental Planning Specialists, Inc.
Project Name: Capitol Adhesives
Lab ID: 1410476-001

Client Sample ID: 14278-TCLP-1
Collection Date: 10/5/2014 9:30:00 AM
Matrix: Soil

Analyses	Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed	Analyst
VOLATILES, TCLP SW1311/8260B (SW1311)								
1,1-Dichloroethene	BRL	0.10		mg/L	197304	20	10/07/2014 13:48	NP
1,2-Dichloroethane	BRL	0.10		mg/L	197304	20	10/07/2014 13:48	NP
2-Butanone	BRL	0.20		mg/L	197304	20	10/07/2014 13:48	NP
Benzene	BRL	0.10		mg/L	197304	20	10/07/2014 13:48	NP
Carbon tetrachloride	BRL	0.10		mg/L	197304	20	10/07/2014 13:48	NP
Chlorobenzene	BRL	0.10		mg/L	197304	20	10/07/2014 13:48	NP
Chloroform	BRL	0.10		mg/L	197304	20	10/07/2014 13:48	NP
Tetrachloroethene	BRL	0.10		mg/L	197304	20	10/07/2014 13:48	NP
Trichloroethene	BRL	0.10		mg/L	197304	20	10/07/2014 13:48	NP
Vinyl chloride	BRL	0.040		mg/L	197304	20	10/07/2014 13:48	NP
Surr: 4-Bromofluorobenzene	95	67.9-128		%REC	197304	20	10/07/2014 13:48	NP
Surr: Dibromofluoromethane	98.9	77.2-124		%REC	197304	20	10/07/2014 13:48	NP
Surr: Toluene-d8	98.5	71.6-127		%REC	197304	20	10/07/2014 13:48	NP
Volatile Organic Compounds by GC/MS SW8260B (SW5030B)								
1,4-Dioxane	BRL	1000		ug/L	197304	20	10/07/2014 13:48	NP
1,1,1-Trichloroethane	BRL	100		ug/L	197304	20	10/07/2014 13:48	NP
1,2-Dichloropropane	BRL	100		ug/L	197304	20	10/07/2014 13:48	NP
Toluene	BRL	100		ug/L	197304	20	10/07/2014 13:48	NP
SEMIVOLATILES ORGANICS, TCLP SW1311/8270D (SW3510C)								
1,4-Dichlorobenzene	BRL	0.10		mg/L	197237	1	10/07/2014 17:03	YH
2,4,5-Trichlorophenol	BRL	0.10		mg/L	197237	1	10/07/2014 17:03	YH
2,4,6-Trichlorophenol	BRL	0.10		mg/L	197237	1	10/07/2014 17:03	YH
2,4-Dinitrotoluene	BRL	0.10		mg/L	197237	1	10/07/2014 17:03	YH
Hexachlorobenzene	BRL	0.10		mg/L	197237	1	10/07/2014 17:03	YH
Hexachlorobutadiene	BRL	0.10		mg/L	197237	1	10/07/2014 17:03	YH
Hexachloroethane	BRL	0.10		mg/L	197237	1	10/07/2014 17:03	YH
m,p-Cresol	BRL	0.10		mg/L	197237	1	10/07/2014 17:03	YH
Nitrobenzene	BRL	0.10		mg/L	197237	1	10/07/2014 17:03	YH
o-Cresol	BRL	0.10		mg/L	197237	1	10/07/2014 17:03	YH
Pentachlorophenol	BRL	0.50		mg/L	197237	1	10/07/2014 17:03	YH
Pyridine	BRL	0.10		mg/L	197237	1	10/07/2014 17:03	YH
Cresols, Total	BRL	0.10		mg/L	197237	1	10/07/2014 17:03	YH
Surr: 2,4,6-Tribromophenol	83.4	50.3-131		%REC	197237	1	10/07/2014 17:03	YH
Surr: 2-Fluorobiphenyl	76	55.4-125		%REC	197237	1	10/07/2014 17:03	YH
Surr: 2-Fluorophenol	75.7	45-126		%REC	197237	1	10/07/2014 17:03	YH
Surr: 4-Terphenyl-d14	96.1	57.6-138		%REC	197237	1	10/07/2014 17:03	YH
Surr: Nitrobenzene-d5	77.3	50-126		%REC	197237	1	10/07/2014 17:03	YH
Surr: Phenol-d5	64.7	40.4-119		%REC	197237	1	10/07/2014 17:03	YH

Qualifiers: * Value exceeds maximum contaminant level
 BRL Below reporting limit
 H Holding times for preparation or analysis exceeded
 N Analyte not NELAC certified
 B Analyte detected in the associated method blank
 > Greater than Result value

E Estimated (value above quantitation range)
 S Spike Recovery outside limits due to matrix
 Narr See case narrative
 NC Not confirmed
 < Less than Result value
 J Estimated value detected below Reporting Limit

Analytical Environmental Services, Inc

Date: 9-Oct-14

Client: Environmental Planning Specialists, Inc.
Project Name: Capitol Adhesives
Lab ID: 1410476-001

Client Sample ID: 14278-TCLP-1
Collection Date: 10/5/2014 9:30:00 AM
Matrix: Soil

Analyses	Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed	Analyst
PESTICIDES, TCLP SW1311/8081B				(SW3510C)				
Chlordane	BRL	0.0050		mg/L	197239	1	10/07/2014 12:58	BB
Endrin	BRL	0.0010		mg/L	197239	1	10/07/2014 12:58	BB
gamma-BHC	BRL	0.00050		mg/L	197239	1	10/07/2014 12:58	BB
Heptachlor	BRL	0.00050		mg/L	197239	1	10/07/2014 12:58	BB
Heptachlor epoxide	BRL	0.00050		mg/L	197239	1	10/07/2014 12:58	BB
Methoxychlor	BRL	0.0050		mg/L	197239	1	10/07/2014 12:58	BB
Toxaphene	BRL	0.050		mg/L	197239	1	10/07/2014 12:58	BB
Surr: Decachlorobiphenyl	55.9	30.7-121		%REC	197239	1	10/07/2014 12:58	BB
Surr: Tetrachloro-m-xylene	66.5	36.6-115		%REC	197239	1	10/07/2014 12:58	BB
MERCURY, TCLP SW1311/7470A				(SW7470A)				
Mercury	BRL	0.00400		mg/L	197256	1	10/07/2014 15:00	JG
ICP METALS, TCLP SW1311/6010C				(SW3010A)				
Arsenic	BRL	0.250		mg/L	197287	1	10/07/2014 15:03	JL
Barium	0.527	0.500		mg/L	197287	1	10/07/2014 15:03	JL
Cadmium	BRL	0.0250		mg/L	197287	1	10/07/2014 15:03	JL
Chromium	BRL	0.0500		mg/L	197287	1	10/07/2014 15:03	JL
Lead	BRL	0.0500		mg/L	197287	1	10/07/2014 15:03	JL
Selenium	BRL	0.100		mg/L	197287	1	10/07/2014 15:03	JL
Silver	BRL	0.0250		mg/L	197287	1	10/07/2014 15:03	JL
HERBICIDES, TCLP SW1311/8151A				(SW3510C)				
2,4,5-TP (Silvex)	BRL	0.20		mg/L	197184	1	10/07/2014 15:33	RF
2,4-D	BRL	0.20		mg/L	197184	1	10/07/2014 15:33	RF
Surr: DCAA	93.2	40.3-135		%REC	197184	1	10/07/2014 15:33	RF

Qualifiers:

- * Value exceeds maximum contaminant level
- BRL Below reporting limit
- H Holding times for preparation or analysis exceeded
- N Analyte not NELAC certified
- B Analyte detected in the associated method blank
- > Greater than Result value

- E Estimated (value above quantitation range)
- S Spike Recovery outside limits due to matrix
- Narr See case narrative
- NC Not confirmed
- < Less than Result value
- J Estimated value detected below Reporting Limit

Analytical Environmental Services, Inc.

Sample/Cooler Receipt Checklist

Client ERS

Work Order Number 1410476

Checklist completed by [Signature] Date 10/6/14

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

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

Custody seals intact on shipping container/cooler? Yes ☒ No ☐ Not Present ☒ JB 10/6/14

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

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

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

Chain of custody present? Yes ☒ No ☐

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

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

Samples in proper container/bottle? Yes ☒ No ☐

Sample containers intact? Yes ☒ No ☐

Sufficient sample volume for indicated test? Yes ☒ No ☐

All samples received within holding time? Yes ☒ No ☐

Was TAT marked on the COC? Yes ☒ No ☐

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

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

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

Adjusted? ☐ Checked by ☐

Sample Condition: Good ☒ Other(Explain) ☐

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

See Case Narrative for resolution of the Non-Conformance.

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

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

Client: Environmental Planning Specialists, Inc.
Project Name: Capitol Adhesives
Workorder: 1410476

ANALYTICAL QC SUMMARY REPORT**BatchID: 197184**

Sample ID: MB-197184	Client ID:				Units: mg/L	Prep Date: 10/06/2014	Run No: 277221				
SampleType: MBLK	TestCode: HERBICIDES, TCLP SW1311/8151A				BatchID: 197184	Analysis Date: 10/06/2014	Seq No: 5856847				
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual

2,4,5-TP (Silvex)

BRL

0.20

2,4-D

BRL

0.20

Surr: DCAA

0.4576

0

0.5000

91.5

40.3

135

Sample ID: LCS-197184	Client ID:				Units: mg/L	Prep Date: 10/06/2014	Run No: 277221				
SampleType: LCS	TestCode: HERBICIDES, TCLP SW1311/8151A				BatchID: 197184	Analysis Date: 10/06/2014	Seq No: 5856849				
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual

2,4,5-TP (Silvex)

0.4477

0.20

0.5000

89.5

55.2

125

2,4-D

0.4657

0.20

0.5000

93.1

49.8

128

Surr: DCAA

0.5820

0

0.5000

116

40.3

135

Sample ID: 1409Q63-001BMS	Client ID:					Units: mg/L	Prep Date: 10/06/2014	Run No: 277221			
SampleType: MS	TestCode: HERBICIDES, TCLP SW1311/8151A					BatchID: 197184	Analysis Date: 10/06/2014	Seq No: 5856851			
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual

2,4,5-TP (Silvex)

0.4670

0.20

0.5000

93.4

54

143

2,4-D

0.5097

0.20

0.5000

102

45

142

Surr: DCAA

0.5941

0

0.5000

119

40.3

135

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

Client: Environmental Planning Specialists, Inc.
Project Name: Capitol Adhesives
Workorder: 1410476

ANALYTICAL QC SUMMARY REPORT**BatchID: 197237**

Sample ID: MB-197237	Client ID:					Units: mg/L	Prep Date: 10/07/2014	Run No: 277283			
SampleType: MBLK	TestCode: SEMIVOLATILES ORGANICS, TCLP SW1311/8270D					BatchID: 197237	Analysis Date: 10/07/2014	Seq No: 5858045			
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual

1,4-Dichlorobenzene	BRL	0.10									
2,4,5-Trichlorophenol	BRL	0.10									
2,4,6-Trichlorophenol	BRL	0.10									
2,4-Dinitrotoluene	BRL	0.10									
Cresols, Total	BRL	0.10									
Hexachlorobenzene	BRL	0.10									
Hexachlorobutadiene	BRL	0.10									
Hexachloroethane	BRL	0.10									
m,p-Cresol	BRL	0.10									
Nitrobenzene	BRL	0.10									
o-Cresol	BRL	0.10									
Pentachlorophenol	BRL	0.50									
Pyridine	BRL	0.10									
Surr: 2,4,6-Tribromophenol	0.8028	0	1.000		80.3	50.3	131				
Surr: 2-Fluorobiphenyl	0.4424	0	0.5000		88.5	55.4	125				
Surr: 2-Fluorophenol	0.8492	0	1.000		84.9	45	126				
Surr: 4-Terphenyl-d14	0.4522	0	0.5000		90.4	57.6	138				
Surr: Nitrobenzene-d5	0.4194	0	0.5000		83.9	50	126				
Surr: Phenol-d5	0.8474	0	1.000		84.7	40.4	119				

Sample ID: LCS-197237	Client ID:					Units: mg/L	Prep Date: 10/07/2014	Run No: 277283			
SampleType: LCS	TestCode: SEMIVOLATILES ORGANICS, TCLP SW1311/8270D					BatchID: 197237	Analysis Date: 10/07/2014	Seq No: 5858050			
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual

1,4-Dichlorobenzene	0.7979	0.10	1.000		79.8	64.6	120				
2,4,5-Trichlorophenol	0.8470	0.10	1.000		84.7	71.3	130				
2,4,6-Trichlorophenol	0.8347	0.10	1.000		83.5	77	125				
2,4-Dinitrotoluene	0.7110	0.10	1.000		71.1	70.6	120				

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

Client: Environmental Planning Specialists, Inc.
Project Name: Capitol Adhesives
Workorder: 1410476

ANALYTICAL QC SUMMARY REPORT**BatchID: 197237**

Sample ID: LCS-197237	Client ID:					Units: mg/L	Prep Date: 10/07/2014	Run No: 277283			
SampleType: LCS	TestCode: SEMIVOLATILES ORGANICS, TCLP SW1311/8270D					BatchID: 197237	Analysis Date: 10/07/2014	Seq No: 5858050			
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual

Cresols, Total	2.508	0.10	3.000		83.6	63.7	138				
Hexachlorobenzene	0.8529	0.10	1.000		85.3	72.4	120				
Hexachlorobutadiene	0.8112	0.10	1.000		81.1	65.3	120				
Hexachloroethane	0.7868	0.10	1.000		78.7	56.3	126				
m,p-Cresol	1.682	0.10	2.000		84.1	62.1	140				
Nitrobenzene	0.8499	0.10	1.000		85.0	66.8	135				
o-Cresol	0.8253	0.10	1.000		82.5	65.6	137				
Pentachlorophenol	0.7823	0.50	1.000		78.2	55.9	145				
Pyridine	0.4454	0.10	1.000		44.5	10	120				
Surr: 2,4,6-Tribromophenol	0.8469	0	1.000		84.7	50.3	131				
Surr: 2-Fluorobiphenyl	0.4797	0	0.5000		95.9	55.4	125				
Surr: 2-Fluorophenol	0.8557	0	1.000		85.6	45	126				
Surr: 4-Terphenyl-d14	0.4868	0	0.5000		97.4	57.6	138				
Surr: Nitrobenzene-d5	0.4471	0	0.5000		89.4	50	126				
Surr: Phenol-d5	0.8878	0	1.000		88.8	40.4	119				

Sample ID: 1410032-019BMS	Client ID:				Units: mg/L		Prep Date: 10/07/2014		Run No: 277400		
SampleType: MS	TestCode: SEMIVOLATILES ORGANICS, TCLP SW1311/8270D				BatchID: 197237		Analysis Date: 10/08/2014		Seq No: 5860747		
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual

1,4-Dichlorobenzene	0.8828	0.10	1.000		88.3	61.5	120				
2,4,5-Trichlorophenol	0.9068	0.10	1.000		90.7	59.9	130				
2,4,6-Trichlorophenol	0.9847	0.10	1.000		98.5	65.2	125				
2,4-Dinitrotoluene	0.9066	0.10	1.000		90.7	57.9	120				
Cresols, Total	2.933	0.10	3.000		97.8	55.3	136				
Hexachlorobenzene	0.9026	0.10	1.000		90.3	59.6	120				
Hexachlorobutadiene	0.8921	0.10	1.000		89.2	52.2	120				
Hexachloroethane	0.8799	0.10	1.000		88.0	51.4	120				

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

Client: Environmental Planning Specialists, Inc.
Project Name: Capitol Adhesives
Workorder: 1410476

ANALYTICAL QC SUMMARY REPORT

BatchID: 197237

Sample ID: 1410032-019BMS	Client ID:				Units: mg/L	Prep Date: 10/07/2014	Run No: 277400				
SampleType: MS	TestCode: SEMIVOLATILES ORGANICS, TCLP SW1311/8270D				BatchID: 197237	Analysis Date: 10/08/2014	Seq No: 5860747				
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual

m,p-Cresol	1.968	0.10	2.000		98.4	51.2	139				
Nitrobenzene	0.9819	0.10	1.000		98.2	53.1	131				
o-Cresol	0.9645	0.10	1.000		96.4	56.8	133				
Pentachlorophenol	1.182	0.50	1.000		118	44.8	148				
Pyridine	0.3187	0.10	1.000		31.9	10	120				
Surr: 2,4,6-Tribromophenol	1.022	0	1.000		102	50.3	131				
Surr: 2-Fluorobiphenyl	0.4900	0	0.5000		98.0	55.4	125				
Surr: 2-Fluorophenol	0.9770	0	1.000		97.7	45	126				
Surr: 4-Terphenyl-d14	0.5067	0	0.5000		101	57.6	138				
Surr: Nitrobenzene-d5	0.5266	0	0.5000		105	50	126				
Surr: Phenol-d5	1.020	0	1.000		102	40.4	119				

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

Client: Environmental Planning Specialists, Inc.
Project Name: Capitol Adhesives
Workorder: 1410476

ANALYTICAL QC SUMMARY REPORT**BatchID: 197239**

Sample ID: MB-197239	Client ID:					Units: mg/L	Prep Date: 10/06/2014	Run No: 277256			
SampleType: MBLK	TestCode: PESTICIDES, TCLP SW1311/8081B					BatchID: 197239	Analysis Date: 10/07/2014	Seq No: 5857591			
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual

Chlordane	BRL	0.0050									
Endrin	BRL	0.0010									
gamma-BHC	BRL	0.00050									
Heptachlor	BRL	0.00050									
Heptachlor epoxide	BRL	0.00050									
Methoxychlor	BRL	0.0050									
Toxaphene	BRL	0.050									
Surr: Decachlorobiphenyl	0.003070	0	0.0050		61.4	30.7	121				
Surr: Tetrachloro-m-xylene	0.002261	0	0.0050		45.2	36.6	115				

Sample ID: LCS-1-197239	Client ID:					Units: mg/L	Prep Date: 10/06/2014	Run No: 277256			
SampleType: LCS	TestCode: PESTICIDES, TCLP SW1311/8081B					BatchID: 197239	Analysis Date: 10/07/2014	Seq No: 5857593			
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual

Endrin	0.01042	0.0010	0.0080		130	50.5	139				
gamma-BHC	0.007672	0.00050	0.0080		95.9	52.6	121				
Heptachlor	0.007120	0.00050	0.0080		89.0	53.1	125				
Heptachlor epoxide	0.009298	0.00050	0.0080		116	51.9	125				
Methoxychlor	0.02757	0.0050	0.0300		91.9	50.2	133				
Surr: Decachlorobiphenyl	0.003254	0	0.0050		65.1	30.7	121				
Surr: Tetrachloro-m-xylene	0.003180	0	0.0050		63.6	36.6	115				

Sample ID: LCS-2-197239	Client ID:					Units: mg/L	Prep Date: 10/06/2014	Run No: 277256			
SampleType: LCS	TestCode: PESTICIDES, TCLP SW1311/8081B					BatchID: 197239	Analysis Date: 10/07/2014	Seq No: 5857594			
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual

Chlordane	0.03383	0.0050	0.0400		84.6	55.2	136				
Toxaphene	0.08451	0.050	0.0800		106	52.8	137				

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

Client: Environmental Planning Specialists, Inc.
Project Name: Capitol Adhesives
Workorder: 1410476

ANALYTICAL QC SUMMARY REPORT**BatchID: 197239**

Sample ID: LCS-2-197239	Client ID:					Units: mg/L	Prep Date: 10/06/2014	Run No: 277256			
SampleType: LCS	TestCode: PESTICIDES, TCLP SW1311/8081B					BatchID: 197239	Analysis Date: 10/07/2014	Seq No: 5857594			
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual

Surr: Decachlorobiphenyl	0.003478	0	0.0050	69.6	30.7	121
Surr: Tetrachloro-m-xylene	0.002155	0	0.0050	43.1	36.6	115

Sample ID: 1410342-001CMS-1	Client ID:				Units: mg/L	Prep Date: 10/06/2014	Run No: 277256				
SampleType: MS	TestCode: PESTICIDES, TCLP SW1311/8081B				BatchID: 197239	Analysis Date: 10/07/2014	Seq No: 5857597				
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual

Endrin	0.009525	0.0010	0.0080	119	48	138
gamma-BHC	0.007010	0.00050	0.0080	87.6	46.5	123
Heptachlor	0.006556	0.00050	0.0080	82.0	47.8	124
Heptachlor epoxide	0.008331	0.00050	0.0080	104	51.1	120
Methoxychlor	0.02579	0.0050	0.0300	86.0	47.6	138
Surr: Decachlorobiphenyl	0.002136	0	0.0050	42.7	30.7	121
Surr: Tetrachloro-m-xylene	0.002379	0	0.0050	47.6	36.6	115

Sample ID: 1410342-001CMS-2	Client ID:					Units: mg/L	Prep Date: 10/06/2014	Run No: 277256			
SampleType: MS	TestCode: PESTICIDES, TCLP SW1311/8081B					BatchID: 197239	Analysis Date: 10/07/2014	Seq No: 5857599			
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual

Chlordane	0.03086	0.0050	0.0400	77.1	50.3	139
Surr: Decachlorobiphenyl	0.001976	0	0.0050	39.5	30.7	121
Surr: Tetrachloro-m-xylene	0.001914	0	0.0050	38.3	36.6	115

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

Client: Environmental Planning Specialists, Inc.
Project Name: Capitol Adhesives
Workorder: 1410476

ANALYTICAL QC SUMMARY REPORT**BatchID: 197256**

Sample ID: MB-197256	Client ID:					Units: mg/L	Prep Date: 10/07/2014	Run No: 277229			
SampleType: MBLK	TestCode: MERCURY, TCLP	SW1311/7470A				BatchID: 197256	Analysis Date: 10/07/2014	Seq No: 5858524			
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual

Mercury BRL 0.00400

Sample ID: LCS-197256	Client ID:				Units: mg/L	Prep Date: 10/07/2014	Run No: 277229				
SampleType: LCS	TestCode: MERCURY, TCLP SW1311/7470A				BatchID: 197256	Analysis Date: 10/07/2014	Seq No: 5858525				
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual

Mercury 0.04247 0.00400 0.0400 106 80 120

Sample ID: 1410032-024BMS	Client ID:				Units: mg/L	Prep Date: 10/07/2014	Run No: 277229				
SampleType: MS	TestCode: MERCURY, TCLP SW1311/7470A				BatchID: 197256	Analysis Date: 10/07/2014	Seq No: 5858527				
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual

Mercury 0.04156 0.00400 0.0400 104 80 120

Sample ID: 1410032-024BMSD	Client ID:				Units: mg/L	Prep Date: 10/07/2014	Run No: 277229				
SampleType: MSD	TestCode: MERCURY, TCLP SW1311/7470A				BatchID: 197256	Analysis Date: 10/07/2014	Seq No: 5858529				
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual

Mercury 0.04367 0.00400 0.0400 109 80 120 0.04156 4.94 20

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

Client: Environmental Planning Specialists, Inc.
Project Name: Capitol Adhesives
Workorder: 1410476

ANALYTICAL QC SUMMARY REPORT**BatchID: 197287**

Sample ID: MB-197287	Client ID:					Units: mg/L	Prep Date: 10/07/2014	Run No: 277276			
SampleType: MBLK	TestCode: ICP METALS, TCLP SW1311/6010C					BatchID: 197287	Analysis Date: 10/07/2014	Seq No: 5858066			
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual

Arsenic BRL 0.250
 Barium BRL 0.500
 Cadmium BRL 0.0250
 Chromium BRL 0.0500
 Lead BRL 0.0500
 Selenium BRL 0.100
 Silver BRL 0.0250

Sample ID: LCS-197287	Client ID:				Units: mg/L	Prep Date: 10/07/2014	Run No: 277276				
SampleType: LCS	TestCode: ICP METALS, TCLP SW1311/6010C				BatchID: 197287	Analysis Date: 10/07/2014	Seq No: 5858068				
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual

Arsenic 4.857 0.250 5.000 97.1 80 120
 Barium 4.648 0.500 5.000 93.0 80 120
 Cadmium 4.747 0.0250 5.000 94.9 80 120
 Chromium 4.682 0.0500 5.000 93.6 80 120
 Lead 4.582 0.0500 5.000 0.01186 91.4 80 120
 Selenium 4.924 0.100 5.000 98.5 80 120
 Silver 0.4740 0.0250 0.5000 94.8 80 120

Sample ID: 1410067-001AMS	Client ID:					Units: mg/L	Prep Date: 10/07/2014	Run No: 277276			
SampleType: MS	TestCode: ICP METALS, TCLP SW1311/6010C					BatchID: 197287	Analysis Date: 10/07/2014	Seq No: 5858070			
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual

Arsenic 4.904 0.250 5.000 98.1 50 150
 Barium 4.707 0.500 5.000 0.02679 93.6 50 150
 Cadmium 4.784 0.0250 5.000 95.7 50 150
 Chromium 4.713 0.0500 5.000 94.3 50 150

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

Client: Environmental Planning Specialists, Inc.
Project Name: Capitol Adhesives
Workorder: 1410476

ANALYTICAL QC SUMMARY REPORT

BatchID: 197287

Sample ID: 1410067-001AMS	Client ID:					Units: mg/L	Prep Date: 10/07/2014	Run No: 277276			
SampleType: MS	TestCode: ICP METALS, TCLP SW1311/6010C					BatchID: 197287	Analysis Date: 10/07/2014	Seq No: 5858070			
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual

Lead	4.689	0.0500	5.000	0.08377	92.1	50	150
Selenium	4.985	0.100	5.000	0.03651	99.0	50	150
Silver	0.4765	0.0250	0.5000		95.3	50	150

Sample ID: 1410067-001AMSD	Client ID:					Units: mg/L	Prep Date: 10/07/2014	Run No: 277276			
SampleType: MSD	TestCode: ICP METALS, TCLP SW1311/6010C					BatchID: 197287	Analysis Date: 10/07/2014	Seq No: 5858074			
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual

Arsenic	4.827	0.250	5.000		96.5	50	150	4.904	1.58	30
Barium	4.651	0.500	5.000	0.02679	92.5	50	150	4.707	1.20	30
Cadmium	4.715	0.0250	5.000		94.3	50	150	4.784	1.46	30
Chromium	4.652	0.0500	5.000		93.0	50	150	4.713	1.30	30
Lead	4.629	0.0500	5.000	0.08377	90.9	50	150	4.689	1.27	30
Selenium	4.951	0.100	5.000	0.03651	98.3	50	150	4.985	0.683	30
Silver	0.4700	0.0250	0.5000		94.0	50	150	0.4765	1.38	30

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

Client: Environmental Planning Specialists, Inc.
Project Name: Capitol Adhesives
Workorder: 1410476

ANALYTICAL QC SUMMARY REPORT**BatchID: 197304**

Sample ID: MB-197304	Client ID:					Units: mg/L	Prep Date: 10/07/2014	Run No: 277266			
SampleType: MBLK	TestCode: VOLATILES, TCLP SW1311/8260B					BatchID: 197304	Analysis Date: 10/07/2014	Seq No: 5857738			
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual

1,1-Dichloroethene	BRL	0.10									
1,2-Dichloroethane	BRL	0.10									
2-Butanone	BRL	0.20									
Benzene	BRL	0.10									
Carbon tetrachloride	BRL	0.10									
Chlorobenzene	BRL	0.10									
Chloroform	BRL	0.10									
Tetrachloroethene	BRL	0.10									
Trichloroethene	BRL	0.10									
Vinyl chloride	BRL	0.040									
Surr: 4-Bromofluorobenzene	0.9758	0	1.000		97.6	67.9	128				
Surr: Dibromofluoromethane	0.9870	0	1.000		98.7	77.2	124				
Surr: Toluene-d8	0.9980	0	1.000		99.8	71.6	127				

Sample ID: MB-197304	Client ID:					Units: ug/L	Prep Date: 10/07/2014	Run No: 277266			
SampleType: MBLK	TestCode: Volatile Organic Compounds by GC/MS SW8260B					BatchID: 197304	Analysis Date: 10/07/2014	Seq No: 5858101			
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual

1,1,1-Trichloroethane	BRL	100									
1,2-Dichloropropane	BRL	100									
1,4-Dioxane	BRL	3000									
Toluene	BRL	100									

Sample ID: LCS-197304	Client ID:					Units: mg/L	Prep Date: 10/07/2014	Run No: 277266			
SampleType: LCS	TestCode: VOLATILES, TCLP SW1311/8260B					BatchID: 197304	Analysis Date: 10/07/2014	Seq No: 5857735			
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual

1,1-Dichloroethene	0.9822	0.10	1.000		98.2	62.3	141				
--------------------	--------	------	-------	--	------	------	-----	--	--	--	--

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

Client: Environmental Planning Specialists, Inc.
Project Name: Capitol Adhesives
Workorder: 1410476

ANALYTICAL QC SUMMARY REPORT**BatchID: 197304**

Sample ID: LCS-197304	Client ID:					Units: mg/L	Prep Date: 10/07/2014	Run No: 277266			
SampleType: LCS	TestCode: VOLATILES, TCLP SW1311/8260B					BatchID: 197304	Analysis Date: 10/07/2014	Seq No: 5857735			
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual

1,2-Dichloroethane	1.041	0.10	1.000		104	74.1	127				
2-Butanone	2.737	0.20	2.000		137	45.5	137				
Benzene	0.9908	0.10	1.000		99.1	73.5	125				
Carbon tetrachloride	0.9694	0.10	1.000		96.9	55.1	144				
Chlorobenzene	0.9382	0.10	1.000		93.8	75.4	122				
Chloroform	1.065	0.10	1.000		107	68.2	127				
Tetrachloroethene	0.8436	0.10	1.000		84.4	70.3	132				
Trichloroethene	0.9346	0.10	1.000		93.5	70.5	128				
Vinyl chloride	0.9964	0.040	1.000		99.6	54.9	143				
Surr: 4-Bromofluorobenzene	1.128	0	1.000		113	67.9	128				
Surr: Dibromofluoromethane	1.007	0	1.000		101	77.2	124				
Surr: Toluene-d8	1.064	0	1.000		106	71.6	127				

Sample ID: LCS-197304	Client ID:						Units: ug/L	Prep Date: 10/07/2014	Run No: 277266		
SampleType: LCS	TestCode: Volatile Organic Compounds by GC/MS SW8260B						BatchID: 197304	Analysis Date: 10/07/2014	Seq No: 5858098		
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual

Toluene	984.6	100	1000		98.5	74.2	129				
---------	-------	-----	------	--	------	------	-----	--	--	--	--

Sample ID: 1410476-001AMS	Client ID: 14278-TCLP-1	Units: mg/L				Prep Date: 10/07/2014	Run No: 277266				
SampleType: MS	TestCode: VOLATILES, TCLP SW1311/8260B	BatchID: 197304				Analysis Date: 10/07/2014	Seq No: 5857806				
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual

1,1-Dichloroethene	1.086	0.10	1.000		109	62.3	154				
1,2-Dichloroethane	1.083	0.10	1.000		108	65.8	132				
2-Butanone	2.186	0.20	2.000		109	44.2	148				
Benzene	1.063	0.10	1.000		106	72.6	133				
Carbon tetrachloride	1.122	0.10	1.000		112	53.7	151				

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

Client: Environmental Planning Specialists, Inc.
Project Name: Capitol Adhesives
Workorder: 1410476

ANALYTICAL QC SUMMARY REPORT**BatchID: 197304**

Sample ID: 1410476-001AMS	Client ID: 14278-TCLP-1	Units: mg/L			Prep Date: 10/07/2014	Run No: 277266					
SampleType: MS	TestCode: VOLATILES, TCLP SW1311/8260B	BatchID: 197304			Analysis Date: 10/07/2014	Seq No: 5857806					
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual

Chlorobenzene	0.9744	0.10	1.000		97.4	72	130				
Chloroform	1.135	0.10	1.000		113	63.2	137				
Tetrachloroethene	0.9312	0.10	1.000		93.1	71.9	140				
Trichloroethene	1.026	0.10	1.000		103	68.3	146				
Vinyl chloride	1.145	0.040	1.000		114	54.5	151				
Surr: 4-Bromofluorobenzene	1.122	0	1.000		112	67.9	128				
Surr: Dibromofluoromethane	1.045	0	1.000		105	77.2	124				
Surr: Toluene-d8	1.086	0	1.000		109	71.6	127				

Sample ID: 1410476-001AMS	Client ID: 14278-TCLP-1	Units: ug/L			Prep Date: 10/07/2014	Run No: 277266					
SampleType: MS	TestCode: Volatile Organic Compounds by GC/MS SW8260B	BatchID: 197304			Analysis Date: 10/07/2014	Seq No: 5858121					
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual

Toluene	1053	100	1000		105	70	139				
---------	------	-----	------	--	-----	----	-----	--	--	--	--

Sample ID: 1410476-001ADUP	Client ID: 14278-TCLP-1	Units: mg/L				Prep Date: 10/07/2014	Run No: 277266				
SampleType: DUP	TestCode: VOLATILES, TCLP SW1311/8260B	BatchID: 197304				Analysis Date: 10/07/2014	Seq No: 5858083				
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual

1,1-Dichloroethene	BRL	0.10						0	0	30	
1,2-Dichloroethane	BRL	0.10						0	0	30	
2-Butanone	BRL	0.20						0	0	30	
Benzene	BRL	0.10						0	0	30	
Carbon tetrachloride	BRL	0.10						0	0	30	
Chlorobenzene	BRL	0.10						0	0	30	
Chloroform	BRL	0.10						0	0	30	
Tetrachloroethene	BRL	0.10						0	0	30	
Trichloroethene	BRL	0.10						0	0	30	

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

Client: Environmental Planning Specialists, Inc.
Project Name: Capitol Adhesives
Workorder: 1410476

ANALYTICAL QC SUMMARY REPORT

BatchID: 197304

Sample ID: 1410476-001ADUP	Client ID: 14278-TCLP-1	Units: mg/L	Prep Date: 10/07/2014	Run No: 277266							
SampleType: DUP	TestCode: VOLATILES, TCLP SW1311/8260B	BatchID: 197304	Analysis Date: 10/07/2014	Seq No: 5858083							
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual

Vinyl chloride	BRL	0.040						0	0	30	
Surr: 4-Bromofluorobenzene	0.9920	0	1.000		99.2	67.9	128	0.9498	0	0	
Surr: Dibromofluoromethane	1.021	0	1.000		102	77.2	124	0.9888	0	0	
Surr: Toluene-d8	0.9940	0	1.000		99.4	71.6	127	0.9852	0	0	

Sample ID: 1410476-001ADUP	Client ID: 14278-TCLP-1	Units: ug/L	Prep Date: 10/07/2014	Run No: 277266							
SampleType: DUP	TestCode: Volatile Organic Compounds by GC/MS SW8260B	BatchID: 197304	Analysis Date: 10/07/2014	Seq No: 5858219							
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual

1,1,1-Trichloroethane	BRL	100						0	0	30	
1,2-Dichloropropane	BRL	100						0	0	30	
1,4-Dioxane	BRL	3000						0	0	30	
Toluene	BRL	100						0	0	30	

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

APPENDIX G

**GROUNDWATER LABORATORY DATA REPORT AND
WELL FORMS**



ANALYTICAL ENVIRONMENTAL SERVICES, INC.

November 17, 2014

Timmerly Bullman
Environmental Planning Specialists, Inc.
1050 Crown Pointe Parkway
Atlanta GA 30338

TEL: (404) 315-9113
FAX: (404) 315-8509

RE: Capitol Adhesives

Dear Timmerly Bullman:

Order No: 1411876

Analytical Environmental Services, Inc. received 10 samples on 11/11/2014 2:30:00 PM for the analyses presented in following report.

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

AES' certifications are as follows:

- NELAC/Florida Certification number E87582 for analysis of Environmental Water, soil/hazardous waste, and Drinking Water Microbiology, effective 07/01/14-06/30/15.
- AIHA-LAP, LLC Laboratory ID: 100671 for Industrial Hygiene samples (Organics, Inorganics), Environmental Lead (Paint, Soil, Dust Wipes, Air), and Environmental Microbiology (Fungal) Direct Examination, effective until 09/01/15.

These results relate only to the items tested. This report may only be reproduced in full.

If you have any questions regarding these test results, please feel free to call.

James Forrest
Project Manager



3080 Presidential Drive, Atlanta GA 30340-3704

AES

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

CHAIN OF CUSTODY

Work Order: 141876

Date: 11/10/14 Page 1 of 1

[illegible]

White Copy - Original; Yellow Copy - Client
Page 2 of 15

Analytical Environmental Services, Inc

Date: 17-Nov-14

Client: Environmental Planning Specialists, Inc.
Project Name: Capitol Adhesives
Lab ID: 1411876-001

Client Sample ID: 14314-MW-16
Collection Date: 11/10/2014 4:22:00 PM
Matrix: Groundwater

Analyses	Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed	Analyst
TCL VOLATILE ORGANICS SW8260B				(SW5030B)				
1,1,1-Trichloroethane	BRL	5.0		ug/L	199085	1	11/14/2014 10:47	GK
1,1-Dichloroethane	BRL	5.0		ug/L	199085	1	11/14/2014 10:47	GK
Chloroethane	BRL	10		ug/L	199085	1	11/14/2014 10:47	GK
cis-1,2-Dichloroethene	BRL	5.0		ug/L	199085	1	11/14/2014 10:47	GK
Tetrachloroethene	BRL	5.0		ug/L	199085	1	11/14/2014 10:47	GK
Trichloroethene	BRL	5.0		ug/L	199085	1	11/14/2014 10:47	GK
Vinyl chloride	BRL	2.0		ug/L	199085	1	11/14/2014 10:47	GK
Surr: 4-Bromofluorobenzene	92.9	70.6-123		%REC	199085	1	11/14/2014 10:47	GK
Surr: Dibromofluoromethane	101	78.7-124		%REC	199085	1	11/14/2014 10:47	GK
Surr: Toluene-d8	96.8	81.3-120		%REC	199085	1	11/14/2014 10:47	GK

Qualifiers: * Value exceeds maximum contaminant level
 BRL Below reporting limit
 H Holding times for preparation or analysis exceeded
 N Analyte not NELAC certified
 B Analyte detected in the associated method blank
 > Greater than Result value

E Estimated (value above quantitation range)
 S Spike Recovery outside limits due to matrix
 Narr See case narrative
 NC Not confirmed
 < Less than Result value
 J Estimated value detected below Reporting Limit

Analytical Environmental Services, Inc
Date: 17-Nov-14

Client: Environmental Planning Specialists, Inc.
Project Name: Capitol Adhesives
Lab ID: 1411876-002

Client Sample ID: 14314-MW-1R
Collection Date: 11/10/2014 4:32:00 PM
Matrix: Groundwater

Analyses	Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed	Analyst
TCL VOLATILE ORGANICS SW8260B				(SW5030B)				
1,1,1-Trichloroethane	BRL	5.0		ug/L	199085	1	11/14/2014 12:15	GK
1,1-Dichloroethane	BRL	5.0		ug/L	199085	1	11/14/2014 12:15	GK
Chloroethane	BRL	10		ug/L	199085	1	11/14/2014 12:15	GK
cis-1,2-Dichloroethene	BRL	5.0		ug/L	199085	1	11/14/2014 12:15	GK
Tetrachloroethene	BRL	5.0		ug/L	199085	1	11/14/2014 12:15	GK
Trichloroethene	BRL	5.0		ug/L	199085	1	11/14/2014 12:15	GK
Vinyl chloride	BRL	2.0		ug/L	199085	1	11/14/2014 12:15	GK
Surr: 4-Bromofluorobenzene	90.6	70.6-123		%REC	199085	1	11/14/2014 12:15	GK
Surr: Dibromofluoromethane	99.5	78.7-124		%REC	199085	1	11/14/2014 12:15	GK
Surr: Toluene-d8	97.5	81.3-120		%REC	199085	1	11/14/2014 12:15	GK

Qualifiers: * Value exceeds maximum contaminant level
 BRL Below reporting limit
 H Holding times for preparation or analysis exceeded
 N Analyte not NELAC certified
 B Analyte detected in the associated method blank
 > Greater than Result value

E Estimated (value above quantitation range)
 S Spike Recovery outside limits due to matrix
 Narr See case narrative
 NC Not confirmed
 < Less than Result value
 J Estimated value detected below Reporting Limit

Analytical Environmental Services, Inc
Date: 17-Nov-14

Client: Environmental Planning Specialists, Inc.
Project Name: Capitol Adhesives
Lab ID: 1411876-003

Client Sample ID: 14314-MW-15
Collection Date: 11/10/2014 9:40:00 AM
Matrix: Groundwater

Analyses	Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed	Analyst
TCL VOLATILE ORGANICS SW8260B				(SW5030B)				
1,1,1-Trichloroethane	BRL	5.0		ug/L	199085	1	11/14/2014 12:44	GK
1,1-Dichloroethane	BRL	5.0		ug/L	199085	1	11/14/2014 12:44	GK
Chloroethane	BRL	10		ug/L	199085	1	11/14/2014 12:44	GK
cis-1,2-Dichloroethene	22	5.0		ug/L	199085	1	11/14/2014 12:44	GK
Tetrachloroethene	BRL	5.0		ug/L	199085	1	11/14/2014 12:44	GK
Trichloroethene	17	5.0		ug/L	199085	1	11/14/2014 12:44	GK
Vinyl chloride	4.8	2.0		ug/L	199085	1	11/14/2014 12:44	GK
Surr: 4-Bromofluorobenzene	94.5	70.6-123		%REC	199085	1	11/14/2014 12:44	GK
Surr: Dibromofluoromethane	98.9	78.7-124		%REC	199085	1	11/14/2014 12:44	GK
Surr: Toluene-d8	96.3	81.3-120		%REC	199085	1	11/14/2014 12:44	GK

Qualifiers: * Value exceeds maximum contaminant level
 BRL Below reporting limit
 H Holding times for preparation or analysis exceeded
 N Analyte not NELAC certified
 B Analyte detected in the associated method blank
 > Greater than Result value

E Estimated (value above quantitation range)
 S Spike Recovery outside limits due to matrix
 Narr See case narrative
 NC Not confirmed
 < Less than Result value
 J Estimated value detected below Reporting Limit

Analytical Environmental Services, Inc
Date: 17-Nov-14

Client: Environmental Planning Specialists, Inc.
Project Name: Capitol Adhesives
Lab ID: 1411876-004

Client Sample ID: 14315-MW-5
Collection Date: 11/11/2014 9:53:00 AM
Matrix: Groundwater

Analyses	Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed	Analyst
TCL VOLATILE ORGANICS SW8260B				(SW5030B)				
1,1,1-Trichloroethane	BRL	5.0		ug/L	199085	1	11/14/2014 13:13	GK
1,1-Dichloroethane	140	5.0		ug/L	199085	1	11/14/2014 13:13	GK
Chloroethane	32	10		ug/L	199085	1	11/14/2014 13:13	GK
cis-1,2-Dichloroethene	300	50		ug/L	199085	10	11/17/2014 10:58	GK
Tetrachloroethene	6.4	5.0		ug/L	199085	1	11/14/2014 13:13	GK
Trichloroethene	40	5.0		ug/L	199085	1	11/14/2014 13:13	GK
Vinyl chloride	330	20		ug/L	199085	10	11/17/2014 10:58	GK
Surr: 4-Bromofluorobenzene	91.1	70.6-123		%REC	199085	1	11/14/2014 13:13	GK
Surr: 4-Bromofluorobenzene	92.1	70.6-123		%REC	199085	10	11/17/2014 10:58	GK
Surr: Dibromofluoromethane	99.4	78.7-124		%REC	199085	10	11/17/2014 10:58	GK
Surr: Dibromofluoromethane	102	78.7-124		%REC	199085	1	11/14/2014 13:13	GK
Surr: Toluene-d8	97.4	81.3-120		%REC	199085	1	11/14/2014 13:13	GK
Surr: Toluene-d8	97.1	81.3-120		%REC	199085	10	11/17/2014 10:58	GK

Qualifiers: * Value exceeds maximum contaminant level
 BRL Below reporting limit
 H Holding times for preparation or analysis exceeded
 N Analyte not NELAC certified
 B Analyte detected in the associated method blank
 > Greater than Result value

E Estimated (value above quantitation range)
 S Spike Recovery outside limits due to matrix
 Narr See case narrative
 NC Not confirmed
 < Less than Result value
 J Estimated value detected below Reporting Limit

Analytical Environmental Services, Inc
Date: 17-Nov-14

Client: Environmental Planning Specialists, Inc.
Project Name: Capitol Adhesives
Lab ID: 1411876-005

Client Sample ID: 14315-MW-4
Collection Date: 11/11/2014 10:48:00 AM
Matrix: Groundwater

Analyses	Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed	Analyst
TCL VOLATILE ORGANICS SW8260B				(SW5030B)				
1,1,1-Trichloroethane	BRL	5.0		ug/L	199085	1	11/14/2014 13:42	GK
1,1-Dichloroethane	BRL	5.0		ug/L	199085	1	11/14/2014 13:42	GK
Chloroethane	BRL	10		ug/L	199085	1	11/14/2014 13:42	GK
cis-1,2-Dichloroethene	BRL	5.0		ug/L	199085	1	11/14/2014 13:42	GK
Tetrachloroethene	BRL	5.0		ug/L	199085	1	11/14/2014 13:42	GK
Trichloroethene	BRL	5.0		ug/L	199085	1	11/14/2014 13:42	GK
Vinyl chloride	BRL	2.0		ug/L	199085	1	11/14/2014 13:42	GK
Surr: 4-Bromofluorobenzene	91.7	70.6-123		%REC	199085	1	11/14/2014 13:42	GK
Surr: Dibromofluoromethane	97.2	78.7-124		%REC	199085	1	11/14/2014 13:42	GK
Surr: Toluene-d8	96.3	81.3-120		%REC	199085	1	11/14/2014 13:42	GK

Qualifiers: * Value exceeds maximum contaminant level
 BRL Below reporting limit
 H Holding times for preparation or analysis exceeded
 N Analyte not NELAC certified
 B Analyte detected in the associated method blank
 > Greater than Result value

E Estimated (value above quantitation range)
 S Spike Recovery outside limits due to matrix
 Narr See case narrative
 NC Not confirmed
 < Less than Result value
 J Estimated value detected below Reporting Limit

Analytical Environmental Services, Inc
Date: 17-Nov-14

Client: Environmental Planning Specialists, Inc.
Project Name: Capitol Adhesives
Lab ID: 1411876-006

Client Sample ID: 14315-MW-3D
Collection Date: 11/11/2014 12:20:00 PM
Matrix: Groundwater

Analyses	Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed	Analyst
TCL VOLATILE ORGANICS SW8260B				(SW5030B)				
1,1,1-Trichloroethane	380	250		ug/L	199085	50	11/13/2014 15:11	GK
1,1-Dichloroethane	290	250		ug/L	199085	50	11/13/2014 15:11	GK
Chloroethane	BRL	10		ug/L	199085	1	11/14/2014 15:11	GK
cis-1,2-Dichloroethene	2800	250		ug/L	199085	50	11/13/2014 15:11	GK
Tetrachloroethene	1800	250		ug/L	199085	50	11/13/2014 15:11	GK
Trichloroethene	3400	250		ug/L	199085	50	11/13/2014 15:11	GK
Vinyl chloride	400	100		ug/L	199085	50	11/13/2014 15:11	GK
Surr: 4-Bromofluorobenzene	93.8	70.6-123		%REC	199085	50	11/13/2014 15:11	GK
Surr: 4-Bromofluorobenzene	95.2	70.6-123		%REC	199085	1	11/14/2014 15:11	GK
Surr: Dibromofluoromethane	99.6	78.7-124		%REC	199085	50	11/13/2014 15:11	GK
Surr: Dibromofluoromethane	106	78.7-124		%REC	199085	1	11/14/2014 15:11	GK
Surr: Toluene-d8	97.6	81.3-120		%REC	199085	50	11/13/2014 15:11	GK
Surr: Toluene-d8	97.7	81.3-120		%REC	199085	1	11/14/2014 15:11	GK

Qualifiers: * Value exceeds maximum contaminant level
 BRL Below reporting limit
 H Holding times for preparation or analysis exceeded
 N Analyte not NELAC certified
 B Analyte detected in the associated method blank
 > Greater than Result value

E Estimated (value above quantitation range)
 S Spike Recovery outside limits due to matrix
 Narr See case narrative
 NC Not confirmed
 < Less than Result value
 J Estimated value detected below Reporting Limit

Analytical Environmental Services, Inc
Date: 17-Nov-14

Client: Environmental Planning Specialists, Inc.
Project Name: Capitol Adhesives
Lab ID: 1411876-007

Client Sample ID: 14315-MW-3
Collection Date: 11/11/2014 12:17:00 PM
Matrix: Groundwater

Analyses	Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed	Analyst
TCL VOLATILE ORGANICS SW8260B				(SW5030B)				
1,1,1-Trichloroethane	450	250		ug/L	199085	50	11/13/2014 15:40	GK
1,1-Dichloroethane	450	250		ug/L	199085	50	11/13/2014 15:40	GK
Chloroethane	BRL	10		ug/L	199085	1	11/14/2014 15:40	GK
cis-1,2-Dichloroethene	2800	250		ug/L	199085	50	11/13/2014 15:40	GK
Tetrachloroethene	2700	250		ug/L	199085	50	11/13/2014 15:40	GK
Trichloroethene	5000	250		ug/L	199085	50	11/13/2014 15:40	GK
Vinyl chloride	390	100		ug/L	199085	50	11/13/2014 15:40	GK
Surr: 4-Bromofluorobenzene	92.9	70.6-123		%REC	199085	50	11/13/2014 15:40	GK
Surr: 4-Bromofluorobenzene	93.4	70.6-123		%REC	199085	1	11/14/2014 15:40	GK
Surr: Dibromofluoromethane	101	78.7-124		%REC	199085	50	11/13/2014 15:40	GK
Surr: Dibromofluoromethane	107	78.7-124		%REC	199085	1	11/14/2014 15:40	GK
Surr: Toluene-d8	96.6	81.3-120		%REC	199085	50	11/13/2014 15:40	GK
Surr: Toluene-d8	98.5	81.3-120		%REC	199085	1	11/14/2014 15:40	GK

Qualifiers: * Value exceeds maximum contaminant level
 BRL Below reporting limit
 H Holding times for preparation or analysis exceeded
 N Analyte not NELAC certified
 B Analyte detected in the associated method blank
 > Greater than Result value

E Estimated (value above quantitation range)
 S Spike Recovery outside limits due to matrix
 Narr See case narrative
 NC Not confirmed
 < Less than Result value
 J Estimated value detected below Reporting Limit

Analytical Environmental Services, Inc
Date: 17-Nov-14

Client: Environmental Planning Specialists, Inc.
Project Name: Capitol Adhesives
Lab ID: 1411876-008

Client Sample ID: 14315-DUP
Collection Date: 11/11/2014
Matrix: Groundwater

Analyses	Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed	Analyst
TCL VOLATILE ORGANICS SW8260B				(SW5030B)				
1,1,1-Trichloroethane	400	250		ug/L	199085	50	11/17/2014 10:28	GK
1,1-Dichloroethane	410	250		ug/L	199085	50	11/17/2014 10:28	GK
Chloroethane	BRL	10		ug/L	199085	1	11/14/2014 14:12	GK
cis-1,2-Dichloroethene	2700	250		ug/L	199085	50	11/17/2014 10:28	GK
Tetrachloroethene	2800	250		ug/L	199085	50	11/17/2014 10:28	GK
Trichloroethene	5100	250		ug/L	199085	50	11/17/2014 10:28	GK
Vinyl chloride	310	100		ug/L	199085	50	11/17/2014 10:28	GK
Surr: 4-Bromofluorobenzene	92.9	70.6-123		%REC	199085	50	11/17/2014 10:28	GK
Surr: 4-Bromofluorobenzene	96	70.6-123		%REC	199085	1	11/14/2014 14:12	GK
Surr: Dibromofluoromethane	103	78.7-124		%REC	199085	50	11/17/2014 10:28	GK
Surr: Dibromofluoromethane	107	78.7-124		%REC	199085	1	11/14/2014 14:12	GK
Surr: Toluene-d8	99.2	81.3-120		%REC	199085	50	11/17/2014 10:28	GK
Surr: Toluene-d8	98.7	81.3-120		%REC	199085	1	11/14/2014 14:12	GK

Qualifiers: * Value exceeds maximum contaminant level
 BRL Below reporting limit
 H Holding times for preparation or analysis exceeded
 N Analyte not NELAC certified
 B Analyte detected in the associated method blank
 > Greater than Result value

E Estimated (value above quantitation range)
 S Spike Recovery outside limits due to matrix
 Narr See case narrative
 NC Not confirmed
 < Less than Result value
 J Estimated value detected below Reporting Limit

Analytical Environmental Services, Inc
Date: 17-Nov-14

Client: Environmental Planning Specialists, Inc.
Project Name: Capitol Adhesives
Lab ID: 1411876-009

Client Sample ID: 14315-RINSE
Collection Date: 11/11/2014 12:45:00 PM
Matrix: Groundwater

Analyses	Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed	Analyst
TCL VOLATILE ORGANICS SW8260B				(SW5030B)				
1,1,1-Trichloroethane	BRL	5.0		ug/L	199085	1	11/14/2014 14:41	GK
1,1-Dichloroethane	BRL	5.0		ug/L	199085	1	11/14/2014 14:41	GK
Chloroethane	BRL	10		ug/L	199085	1	11/14/2014 14:41	GK
cis-1,2-Dichloroethene	BRL	5.0		ug/L	199085	1	11/14/2014 14:41	GK
Tetrachloroethene	BRL	5.0		ug/L	199085	1	11/14/2014 14:41	GK
Trichloroethene	BRL	5.0		ug/L	199085	1	11/14/2014 14:41	GK
Vinyl chloride	BRL	2.0		ug/L	199085	1	11/14/2014 14:41	GK
Surr: 4-Bromofluorobenzene	91.6	70.6-123		%REC	199085	1	11/14/2014 14:41	GK
Surr: Dibromofluoromethane	98.2	78.7-124		%REC	199085	1	11/14/2014 14:41	GK
Surr: Toluene-d8	97.6	81.3-120		%REC	199085	1	11/14/2014 14:41	GK

Qualifiers: * Value exceeds maximum contaminant level
 BRL Below reporting limit
 H Holding times for preparation or analysis exceeded
 N Analyte not NELAC certified
 B Analyte detected in the associated method blank
 > Greater than Result value

E Estimated (value above quantitation range)
 S Spike Recovery outside limits due to matrix
 Narr See case narrative
 NC Not confirmed
 < Less than Result value
 J Estimated value detected below Reporting Limit

Analytical Environmental Services, Inc
Date: 17-Nov-14

Client: Environmental Planning Specialists, Inc.
Project Name: Capitol Adhesives
Lab ID: 1411876-010

Client Sample ID: TRIP BLANK
Collection Date: 11/11/2014
Matrix: Groundwater

Analyses	Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed	Analyst
TCL VOLATILE ORGANICS SW8260B				(SW5030B)				
1,1,1-Trichloroethane	BRL	5.0		ug/L	199085	1	11/14/2014 10:17	GK
1,1-Dichloroethane	BRL	5.0		ug/L	199085	1	11/14/2014 10:17	GK
Chloroethane	BRL	10		ug/L	199085	1	11/14/2014 10:17	GK
cis-1,2-Dichloroethene	BRL	5.0		ug/L	199085	1	11/14/2014 10:17	GK
Tetrachloroethene	BRL	5.0		ug/L	199085	1	11/14/2014 10:17	GK
Trichloroethene	BRL	5.0		ug/L	199085	1	11/14/2014 10:17	GK
Vinyl chloride	BRL	2.0		ug/L	199085	1	11/14/2014 10:17	GK
Surr: 4-Bromofluorobenzene	91.9	70.6-123		%REC	199085	1	11/14/2014 10:17	GK
Surr: Dibromofluoromethane	99	78.7-124		%REC	199085	1	11/14/2014 10:17	GK
Surr: Toluene-d8	97.8	81.3-120		%REC	199085	1	11/14/2014 10:17	GK

Qualifiers: * Value exceeds maximum contaminant level
 BRL Below reporting limit
 H Holding times for preparation or analysis exceeded
 N Analyte not NELAC certified
 B Analyte detected in the associated method blank
 > Greater than Result value

E Estimated (value above quantitation range)
 S Spike Recovery outside limits due to matrix
 Narr See case narrative
 NC Not confirmed
 < Less than Result value
 J Estimated value detected below Reporting Limit

Analytical Environmental Services, Inc.

Sample/Cooler Receipt Checklist

Client EPS

Work Order Number 1411876

Checklist completed by Jamie B 11/11/14
Signature Date

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

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

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

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

Container/Temp Blank temperature in compliance? ($4^{\circ}\text{C} \pm 2$)* Yes ☒ No ☐

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

Chain of custody present? Yes ☒ No ☐

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

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

Samples in proper container/bottle? Yes ☒ No ☐

Sample containers intact? Yes ☒ No ☐

Sufficient sample volume for indicated test? Yes ☒ No ☐

All samples received within holding time? Yes ☒ No ☐

Was TAT marked on the COC? Yes ☒ No ☐

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

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

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

Adjusted? ☐ Checked by ☐

Sample Condition: Good ☒ Other(Explain) ☐

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

See Case Narrative for resolution of the Non-Conformance.

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

Client: Environmental Planning Specialists, Inc.
Project Name: Capitol Adhesives
Workorder: 1411876

ANALYTICAL QC SUMMARY REPORT**BatchID: 199085**

Sample ID: MB-199085	Client ID:	Units: ug/L				Prep Date: 11/12/2014	Run No: 279800				
SampleType: MBLK	TestCode: TCL VOLATILE ORGANICS SW8260B	BatchID: 199085				Analysis Date: 11/12/2014	Seq No: 5915391				
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual

1,1,1-Trichloroethane	BRL	5.0									
1,1-Dichloroethane	BRL	5.0									
Chloroethane	BRL	10									
cis-1,2-Dichloroethene	BRL	5.0									
Tetrachloroethene	BRL	5.0									
Trichloroethene	BRL	5.0									
Vinyl chloride	BRL	2.0									
Surr: 4-Bromofluorobenzene	46.78	0	50.00		93.6	70.6	123				
Surr: Dibromofluoromethane	49.37	0	50.00		98.7	78.7	124				
Surr: Toluene-d8	49.04	0	50.00		98.1	81.3	120				

Sample ID: LCS-199085	Client ID:					Units: ug/L	Prep Date: 11/12/2014	Run No: 279800			
SampleType: LCS	TestCode: TCL VOLATILE ORGANICS SW8260B					BatchID: 199085	Analysis Date: 11/12/2014	Seq No: 5915319			
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual

Trichloroethene	48.47	5.0	50.00		96.9	71.2	135				
Surr: 4-Bromofluorobenzene	47.09	0	50.00		94.2	70.6	123				
Surr: Dibromofluoromethane	48.35	0	50.00		96.7	78.7	124				
Surr: Toluene-d8	49.42	0	50.00		98.8	81.3	120				

Sample ID: 1411823-001AMS	Client ID:				Units: ug/L	Prep Date: 11/12/2014	Run No: 279800				
SampleType: MS	TestCode: TCL VOLATILE ORGANICS SW8260B				BatchID: 199085	Analysis Date: 11/12/2014	Seq No: 5916176				
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual

Trichloroethene	53.57	5.0	50.00		107	70.1	144				
Surr: 4-Bromofluorobenzene	46.97	0	50.00		93.9	70.6	123				
Surr: Dibromofluoromethane	49.33	0	50.00		98.7	78.7	124				
Surr: Toluene-d8	50.01	0	50.00		100	81.3	120				

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

Client: Environmental Planning Specialists, Inc.
Project Name: Capitol Adhesives
Workorder: 1411876

ANALYTICAL QC SUMMARY REPORT

BatchID: 199085

Sample ID: 1411823-001AMSD		Client ID:				Units: ug/L		Prep Date: 11/12/2014		Run No: 279800	
SampleType: MSD		TestCode: TCL VOLATILE ORGANICS SW8260B				BatchID: 199085		Analysis Date: 11/12/2014		Seq No: 5916177	
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
Trichloroethene	53.53	5.0	50.00		107	70.1	144	53.57	0.075	20	
Surr: 4-Bromofluorobenzene	46.60	0	50.00		93.2	70.6	123	46.97	0	0	
Surr: Dibromofluoromethane	49.57	0	50.00		99.1	78.7	124	49.33	0	0	
Surr: Toluene-d8	49.21	0	50.00		98.4	81.3	120	50.01	0	0	

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

APPENDIX H

RISK EVALUATION CALCULATIONS

Table 1
Protective Soil Concentration - Construction Worker Exposed to the Subsurface

Parameter	RfDo (mg/kg/d)	SFo (mg/kg/d) ⁻¹	RfDi (mg/kg/d)	SFi (mg/kg/d)	Volatile?	VF m ³ /kg	Cs - Ingestion (mg/kg)		Cs - Inhalation (mg/kg)		Cs - Combined (mg/kg)		Selected Cs
							Hazard	Risk	Hazard	Risk	Hazard	Risk	
TCA	2		5		Y	1800	9,344,000		105,120		103,951		103,951
PCE	0.006	0.0021	0.0114	0.00091	Y	2639	28,032	1,557,333	351	23,709	347	23,353	347
TCE	0.0005	0.046	0.000571	0.01435	Y	2436	2,336	71,096	16	1,388	16	1,362	16

Source of toxicity values and Volatilization Factor (VF): EPA Regional Screening Level Tables (November 2013)

Parameter	Units	Value	Source	Comment
Concentration in Soil (Cs)	mg/kg	To be calculated		
Body Weight (BW)	kg	80	3	
Exposure Frequency (EF)	d/yr	125	4	
Exposure Duration (ED)	yr	1	2	
Soil Ingestion (IRs)	mg/d	50	1	
Water ingestion, Resident Adult (I	IRW_a	1	1	
Inhalation Rate (IRa)	m ³ /d	20	1	
Averaging Time - Noncancer (ATn)	d	365	1	Exposure Duration x 365 days
Averaging Time - Cancer (ATc)	d	25550	1	70 years
Target hazard index (THI)		1	1	
Target Risk (TR)		1.00E-05	1	for group A and B carcinogens
Particulate Emission Factor (PEF)	m ³ /kg	4.63E+09	1	

Notes:

Source 1 - GaEPD Reg 391-3-19 Appendix III, Table 3

Source 2 - Professional judgement based on commonly used values

Source 3 - EPA Memorandum, Human Health Evaluation Manual, Supplemental Guidance: Update of Standard Default Exposure Factors (Feb 2014)

Source 4 - EPD recommendation

Equations and Example Calculations for PCE

Ingestion NonCarcinogenic (Hazard)

$$C_{ing} = \frac{THI \times BW \times AT}{EF \times ED \times (1/RfDo \times 10^{-6} \times IRs)}$$

$$4672000 \times RfDo$$

$$C_{ing} = \frac{1 \times 80 \text{ kg} \times 365 \text{ d}}{125 \text{ d/yr} \times 1 \text{ yr} \times (1/0.006 \text{ mg/kg/d} \times 10^{-6} \times 50 \text{ mg/d})}$$

$$C_{ing} = 28032 \text{ mg/kg}$$

Ingestion Carcinogenic (Risk)

$$C_{ing} = \frac{TR \times BW \times AT}{EF \times ED \times (SFo \times 10^{-6} \times IRs)}$$

$$3270.4 / Sfo$$

$$C_{ing} = \frac{10^{-5} \times 80 \text{ kg} \times 25550 \text{ d}}{125 \text{ d/yr} \times 1 \text{ yr} \times 0.0021 \times 10^{-6} \times 50 \text{ mg/d}}$$

$$C_{ing} = 1557333 \text{ mg/kg}$$

Inhalation NonCarcinogenic (Hazard)

$$\text{Cinh} = \frac{\text{THI} \times \text{BW} \times \text{AT}}{\text{EF} \times \text{ED} \times [1/\text{RfDi} \times \text{IRa} \times (1/\text{VF} + 1/\text{PEF})]}$$

$$11.68 / ((1/\text{RfDi}) \times (1/\text{VF} + 1/\text{PEF}))$$

$$\text{Cinh} = \frac{1 \times 80 \text{ kg} \times 365 \text{ d}}{125 \text{ d/yr} \times 1 \text{ yr} \times [1/0.0114 \text{ mg/kg/d} \times 20 \text{ m}^3/\text{d} \times (1/2639 \text{ m}^3/\text{kg} + 1/4.63\text{E}9 \text{ m}^3/\text{kg})]}$$

$$\text{Cinh} = 351 \text{ mg/kg}$$

Inhalation Carcinogenic (Risk)

$$\text{Cinh} = \frac{\text{TR} \times \text{BW} \times \text{AT}}{\text{EF} \times \text{ED} \times [\text{Sfi} \times \text{IRa} \times (1/\text{VF} + 1/\text{PEF})]}$$

$$0.008176 / (\text{Sfi} \times (1/\text{VF} + 1/\text{PEF}))$$

$$\text{Cinh} = \frac{10^{-5} \times 80 \text{ kg} \times 25550 \text{ d}}{125 \text{ d/yr} \times 1 \text{ yr} \times [0.00091(\text{mg/kg/d})^{-1} \times 20 \text{ m}^3/\text{d} \times (1/2639 \text{ m}^3/\text{kg} + 1/4.63\text{E}9 \text{ m}^3/\text{kg})]}$$

$$\text{Cinh} = 23709 \text{ mg/kg}$$

Combined

$$\text{Cs} = \frac{1}{1/\text{Cing} + 1/\text{Cinh}}$$

$$\text{Cs} = \frac{1}{1/24528 + 1/307}$$

$$\text{Cs} = 347$$

$$\text{Cs} = \frac{1}{1/\text{Cing} + 1/\text{Cinh}}$$

$$\text{Cs} = \frac{1}{1/1362667 + 1/20747}$$

$$\text{Cs} = 23353$$

Selected Cs

Cs = Minimum of Cs carcinogenic and Cs non-carcinogenic
 = Minimum of 304 and 20,434
 347

Table 2A
Protective Groundwater Concentration Calculations - Construction Worker Exposed to Groundwater in the Subsurface (8 hr/d)

Parameter	RfDo (mg/kg/d)	RfC (mg/m ³)	SFo (mg/kg/d) ⁻¹	IUR (µg/m ³) ⁻¹	RfDd (mg/kg/d)	SFd (mg/kg/d) ⁻¹	DA_eventF (cm/event)	Cw - Ingestion (µg/L)		Cw - Dermal (µg/L)		Cw - Inhalation (µg/L)		Cw - Combined (µg/L)		Selected
								Hazard	Risk	Hazard	Risk	Hazard	Risk	Hazard	Risk	
TCA	2.0000	5.0E+00			2.0E+00		0.1115	4,672,000	--	1,207,364	--	87,600	--	80,271		80,271
PCE	0.006	4.0E-02	0.0021	2.6E-07	6.0E-03	2.1E-03	0.2999	14,016	778,667	1,347	74,834	701	47,169	446	27,896	446
DCE	0.0020				2.0E-03		0.0659	4,672	--	2,044	--	--	--	1,422		1,422
TCE	0.0005	2.0E-03	0.046	4.1E-06	5.0E-04	4.6E-02	0.1028	1,168	35,548	328	9,968	35	2,991	31	2,161	31
VC	0.0030	1.0E-01	0.72	4.4E-06	3.0E-03	7.2E-01	0.0468	7,008	2,271	4,320	1,400	1,752	2,787	1,058	661	661

Parameter	Units	Value	Source	Comment
Concentration in GW (Cw)	µg/L	chem-specific		
DA event Factor (DA_eventF)	cm/event	chem-specific		See Table 2B
Body Weight (BW)	kg	80	3	
Event Frequency (EvF)	events/day	1	2	
Time per Event (tev)	hr/event	8	2	
Exposure Frequency (EF)	days/year	125	4	
Exposure Duration (ED)	years	1	2	
Exposure Time (ET)	hr/day	8	2	
Conversion Factor (CF)	mg/ug	0.001		
Conversion Factor Derm (CF_Derm)	L*mg/cm ³ *µg	0.000001		
Conversion Factor Inh (CF_Inh)	dy/hr	0.0417		1 d / 24 hr
Water Ingestion Rate (IRw)	L/dy	0.1	3	
Skin Surface Area (SA)	cm ²	3,470	3	
Andleman Vol Factor (K)	L/m ³	0.5	5	
Averaging Time (non-cancer) (ATnc)	d	365		1 Exposure Duration x 365 days
Averaging Time - cancer (Atc)	d	25550		1 70 years
Target hazard index (THI)		1	1	
Target Risk (TR)		1E-05	1	

Notes:

Source 1 - GaEPD Reg 391-3-19 Appendix III, Table 3

Source 2 - Professional judgement based on commonly used values

Source 3 - EPA Memorandum, Human Health Evaluation Manual, Supplemental Guidance: Update of Standard Default Exposure Facotrs (Feb 2014)

Source 4 - EPD recommendation

Source 5 - Risk Assessment Guidance for Superfund: Volume I -- Human Health Evaluation Manual (Part B).

Equations and Example Calculations for PCE

Noncancer

Incidental Ingestion NonCarcinogenic (Hazard)

$$C_{ing} = \frac{THI \times BW \times AT_{nc} \times RfDo}{IRw \times CF \times EF \times ED}$$

$$C_{ing} = 2.34E+06 \times RfDo$$

$$C_{ing} = \frac{1 \times 80 \text{ kg} \times 365 \text{ d} \times 0.006 \text{ mg/kg/d}}{0.1 \text{ L/d} \times 0.001 \text{ mg/}\mu\text{g} \times 125 \text{ d/yr} \times 1 \text{ yr}}$$

$$C_{ing} = 14016 \text{ }\mu\text{g/L}$$

Incidental Ingestion Carcinogenic (Risk)

$$C_{ing} = \frac{TR \times BW \times AT_c}{IRw \times CF \times EF \times ED \times SFo}$$

$$C_{ing} = 1.64E+03 / SFo$$

$$C_{ing} = \frac{10^{-5} \times 80 \text{ kg} \times 25550 \text{ d}}{0.1 \text{ L/d} \times 0.001 \text{ mg/}\mu\text{g} \times 125 \text{ d/yr} \times 1 \text{ yr} \times 0.0021 \text{ (mg/kg/d)}^{-1}}$$

$$C_{ing} = 778667 \text{ }\mu\text{g/L}$$

Dermal NonCarcinogenic (Hazard)

$$C_{derm} = \frac{THI \times BW \times AT_{nc} \times RfDd}{DA_{evtF} \times SA \times EvF \times EF \times ED \times CF_{Derm}}$$

$$C_{derm} = 6.73E+04 \times RfDd / DA_{evtF}$$

Dermal Carcinogenic (Risk)

$$C_{derm} = \frac{TR \times BW \times AT_c}{DA_{evtF} \times SA \times EvF \times EF \times ED \times CF_{Derm} \times SFd}$$

$$C_{derm} = 4.71E+01 \times 1 / (SFd \times DA_{evtF})$$

$$C_{\text{derm}} = \frac{1 \times 80 \text{ kg} \times 365 \text{ d} \times 0.006 \text{ mg/kg/d}}{0.29986 \text{ cm}^2/\text{ev} \times 3470 \text{ cm}^2 \times 1 \text{ ev/d} \times 125 \text{ d/yr} \times 1 \text{ yr} \times 10^{-6} \text{ Lmg/cm}^3 \mu\text{g}}$$

$$C_{\text{derm}} = 1347 \mu\text{g/L}$$

$$C_{\text{derm}} = \frac{10^{-5} \times 80 \text{ kg} \times 25550 \text{ d}}{0.29986 \text{ cm}^2/\text{ev} \times 3470 \text{ cm}^2 \times 1 \text{ ev/d} \times 125 \text{ d/yr} \times 1 \text{ yr} \times 10^{-6} \text{ Lmg/cm}^3 \mu\text{g} \times 0.0021 (\text{mg/kg/d})^{-1}}$$

$$C_{\text{derm}} = 74834 \mu\text{g/L}$$

Inhalation NonCarcinogenic (Hazard)

$$C_{\text{inh}} = \frac{\text{THI} \times \text{AT}_{\text{nc}} \times \text{RfC}}{K \times \text{CF}_{\text{inh}} \times \text{CF} \times \text{EF} \times \text{ED} \times \text{ET}}$$

$$C_{\text{inh}} = 17520 \times \text{RfC}$$

$$C_{\text{inh}} = \frac{1 \times 365 \text{ d} \times 0.04 \text{ mg/m}^3}{0.5 \text{ L/m}^3 \times 1/24 \text{ d/hr} \times 0.001 \text{ mg}/\mu\text{g} \times 125 \text{ d/yr} \times 1 \text{ yr} \times 8 \text{ hr/d}}$$

$$C_{\text{inh}} = 701 \mu\text{g/L}$$

Inhalation Carcinogenic (Risk)

$$C_{\text{inh}} = \frac{\text{TR} \times \text{AT}_{\text{c}}}{K \times \text{CF}_{\text{inh}} \times \text{EF} \times \text{ED} \times \text{ET} \times \text{IUR}}$$

$$C_{\text{inh}} = 0.012 / \text{IUR}$$

$$C_{\text{inh}} = \frac{10^{-5} \times 25550 \text{ d}}{0.5 \text{ L/m}^3 \times 1/24 \text{ d/hr} \times 125 \text{ d/yr} \times 1 \text{ yr} \times 8 \text{ hr/d} \times 2.6 \text{ E-}7 \text{ m}^3/\mu\text{g}}$$

$$C_{\text{inh}} = 47169$$

Combined

$$C_{\text{w}} = \frac{1}{1/C_{\text{ing}} + 1/C_{\text{derm}} + 1/C_{\text{inh}}}$$

$$C_{\text{w}} = \frac{1}{1/14016 + 1/1347 + 1/701}$$

$$C_{\text{w}} = 446 \mu\text{g/L}$$

$$C_{\text{w}} = \frac{1}{1/C_{\text{ing}} + 1/C_{\text{derm}} + 1/C_{\text{inh}}}$$

$$C_{\text{w}} = \frac{1}{1/778667 + 1/74835 + 1/47169}$$

$$C_{\text{w}} = 27896 \mu\text{g/L}$$

Selected Cw

Cw = minimum of non-carcinogenic and carcinogenic values
 = minimum of 446 and 27,896
 = 446 $\mu\text{g/L}$

Table 2B
Construction Worker DA_event F Calculations (8 hr/d)

Analyte	MWT	logKow	Kp predicted (cm/hr)	B	log (Ds/lsc)	Dsc/lsc	Dsc	T event (hr/event)	FA	t*	DA_eventF Const Wkr (cm/event)
TCA	133.4	2.49	1.3E-02	0.056	-3.55	2.79E-04	2.8E-07	6.0E-01	1.0	1.43	0.1115
PCE	165.8	3.40	3.3E-02	0.166	-3.74	1.84E-04	1.8E-07	9.1E-01	1.0	2.18	0.2999
TCE	131.4	2.42	1.2E-02	0.051	-3.54	2.87E-04	2.9E-07	5.8E-01	1.0	1.39	0.1028
DCE	96.9	1.86	7.7E-03	0.029	-3.35	4.48E-04	4.5E-07	3.7E-01	1.0	0.89	0.0659
VC	62.5	1.36	5.6E-03	0.017	-3.16	6.99E-04	7.0E-07	2.4E-01	1.0	0.57	0.0468

Notes:

Source of parameters for DA_eventF: RAGS Part E Appendix
 trans-1,2-dichloroethene used as a surrogate for cis-1,2-dichloroethene as cis-1,2-dichloroethene was not available in the RAGS Part E Appendix

$$K_{\text{p predicted}} = 10^{(-2.805063 + 0.6645865 \times \log K_{\text{ow}} - 0.0056118 \times \text{MWT})}$$

$$B = K_{\text{p predicted}} \times (\text{MWT}^{0.5}) / 2.6$$

$$\log(D_{\text{s}}/I_{\text{sc}}) = (-2.805063 - 0.0056118 \times \text{MWT})$$

$$D_{\text{sc}}/I_{\text{sc}} = 10^{(\log(D_{\text{s}}/I_{\text{sc}}))}$$

$$D_{\text{SC}} = D_{\text{sc}}/I_{\text{sc}} \times I_{\text{sc}}$$

$$T_{\text{event}} = I_{\text{sc}}^2 / (6 \times D_{\text{sc}})$$

$$t^* = 2.4 \times T_{\text{event}}$$

$$I_{\text{sc}} = 1\text{E-}03$$

$$\text{tev Const Wkr} = 8.00 \text{ hr/event}$$

$$\text{DA}_{\text{eventF}}:$$

$$\text{if } \text{tev} \leq t^* \quad \text{DA}_{\text{eventF}} = 2 \times \text{FA} \times K_{\text{p}} \times ((6 \times T_{\text{event}} \times \text{tev}) / \pi)^{0.5}$$

$$\text{if } \text{tev} > t^* \quad \text{DA}_{\text{eventF}} = \text{FA} \times K_{\text{p}} \times [\text{tev} / (1+B) + 2 \times T_{\text{event}} \times ((1+3B + 3B^2) / (1+B)^2)]$$

Pre-Remediation 95% UCLs in Soil

Sample ID	Depth (ft bgs)	Date Sampled	Tetrachloroethene		
			(mg/kg)	Val	Detect
Area C	3	10/4/14	1800	1800	1
GP001	6-8	8/9/05	<0.0054	0.0054	0
GP002	4-6	8/9/05	<0.0049	0.0049	0
GP003	2-4	8/9/05	<0.0048	0.0048	0
GP004	4-6	8/9/05	<0.004	0.004	0
GP005	4-6	8/9/05	<0.0045	0.0045	0
GP006	2-4	8/9/05	<0.0046	0.0046	0
GP007	2-4	8/9/05	<0.0045	0.0045	0
GP008	2-4	8/9/05	<0.0054	0.0054	0
GP009	2-4	8/10/05	<0.0043	0.0043	0
GP010	4-6	8/10/05	0.13	0.13	1
GP011	2-4	8/10/05	0.13	0.13	1
GP012	4-6	8/10/05	1.5	1.5	1
GP013	4-6	8/10/05	<0.0052	0.0052	0
IW2	1	1/20/14	65	65	1
IW2	2	1/20/14	42	42	1
IW2	3	1/20/14	48	48	1
MIP-1	2	10/16/08	15	15	1
MIP-1	5	10/16/08	0.036	0.036	1
MIP-1	9	10/16/08	0.024	0.024	1
MIP-12	12	10/16/08	0.73	0.73	1
MIP-12	4	10/16/08	<0.0069	0.0069	0
MIP-12	6	10/16/08	<0.0076	0.0076	0
MIP-13	1	10/16/08	0.0087	0.0087	1
MIP-13	3	10/16/08	0.0069	0.0069	1
MIP-13	6	10/16/08	1.5	1.5	1
MIP-19	1	10/16/08	<0.0059	0.0059	0
MIP-19	3	10/16/08	<0.0071	0.0071	0
MIP-5	3	10/16/08	<0.0022	0.0022	0
MIP-6	6	10/16/08	<0.008	0.008	0
MIP-8	2	10/16/08	0.37	0.37	1
MIP-8	4	10/16/08	0.091	0.091	1
MW-10	5-10	7/7/06	<0.005	0.005	0
MW-11	5-10	7/6/06	<0.005	0.005	0
MW-12	5-10	7/6/06	<0.005	0.005	0
MW-13	13-15	6/27/06	<0.005	0.005	0
MW-14	13-15	6/27/06	<0.005	0.005	0
MW-15	8-10	6/28/06	<0.005	0.005	0
MW-16	8-10	6/27/06	<0.005	0.005	0
MW-1D	8-10	7/13/04	<0.0019	0.0019	0
MW-2D	8-10	7/13/04	<0.0017	0.0017	0
MW-3	8-10	7/14/04	0.0191	0.0191	1
MW-3D	13-15	7/14/04	2.44	2.44	1
MW-8	8-10	6/27/06	<0.005	0.005	0
MW-9	8-10	6/27/06	<0.005	0.005	0

Pre-Remediation 95% UCLs in Soil

SB-1	1	2/20/13	1.3	1.3	1
SB-1	2	2/20/13	0.053	0.053	1
SB-1	4	2/20/13	0.079	0.079	1
SB-2	1	2/20/13	0.05	0.05	1
SB-2	2	2/20/13	<0.0029	0.0029	0
SB-2	4	2/20/13	<0.0029	0.0029	0
SB-3	1	2/20/13	0.0042	0.0042	1
SB-3	2	2/20/13	0.0077	0.0077	1
SB-3	4	2/20/13	0.0065	0.0065	1
SB-4	1	2/20/13	1.3	1.3	1
SB-4	2	2/20/13	0.0085	0.0085	1
SB-4	4	2/20/13	<0.0036	0.0036	0
SB-5	1	2/20/13	0.84	0.84	1
SB-5	2	2/20/13	1.1	1.1	1
SB-5	4	2/20/13	0.99	0.99	1
SB-6	1	2/20/13	<0.0031	0.0031	0
SB-6	2	2/20/13	<0.0038	0.0038	0
SB-6	4	2/20/13	<0.004	0.004	0
SB-7	1	2/20/13	0.009	0.009	1
SB-7	2	2/20/13	<0.0065	0.0065	0
SB-7	4	2/20/13	<0.0036	0.0036	0
SB-8	1	2/20/13	0.021	0.021	1
SB-8	2	2/20/13	0.023	0.023	1
SB-8	4	2/20/13	<0.18	0.18	0
SB-9	1	2/20/13	0.0051	0.0051	1
SB-9	2	2/20/13	0.017	0.017	1
SB-9	4	2/20/13	0.0074	0.0074	1
SO-10	1	10/12/10	43	43	1
SO-2	1	3/10/09	<0.0029	0.0029	0
SO-2	3	3/10/09	0.098	0.098	1
SO-3	1	3/10/09	2700	2700	1
SO-3	3	3/10/09	23	23	1
SO-3R	1	3/25/14	6.5	6.5	1
SO-3R	4	3/25/14	2.3	2.3	1
SO-3R	5	3/25/14	4.1	4.1	1
SO-4	1	3/10/09	0.74	0.74	1
SO-4	3	3/10/09	0.93	0.93	1
SO-5	5	3/10/09	0.39	0.39	1
SO-5	9	3/10/09	<0.0062	0.0062	0
SO-6	5	3/10/09	0.066	0.066	1
SO-7	3	3/10/09	1.9	1.9	1
SS-AST-1	1	1/12/09	7.09	7.09	1
SS-AST-10	1	7/23/12	0.0054	0.0054	1
SS-AST-10	2	7/23/12	0.02	0.02	1
SS-AST-11	1	7/23/12	0.0095	0.0095	1
SS-AST-11	2	7/23/12	0.013	0.013	1
SS-AST-2	1	1/12/09	12.2	12.2	1
SS-AST-3	1	7/23/12	0.11	0.11	1

Pre-Remediation 95% UCLs in Soil

SS-AST-3	2	7/23/12	0.35	0.35	1
SS-AST-4	1	7/23/12	0.0047	0.0047	1
SS-AST-4	2	7/23/12	0.0042	0.0042	1
SS-AST-5	1	7/23/12	0.0039	0.0039	1
SS-AST-5	2	7/23/12	0.011	0.011	1
SS-AST-6	1	7/23/12	0.039	0.039	1
SS-AST-6	2	7/23/12	0.047	0.047	1
SS-AST-7	1	7/23/12	0.013	0.013	1
SS-AST-7	2	7/23/12	0.014	0.014	1
SS-AST-8	1	7/23/12	64	64	1
SS-AST-8	2	7/23/12	6.5	6.5	1
SS-AST-9	1	7/23/12	380	380	1
SS-AST-9	2	7/23/12	660	660	1
SS-BLDG-1	1	1/12/09	<0.0024	0.0024	0
SS-BLDG-1	5	1/12/09	<0.00284	0.00284	0
SS-BLDG-2	5	1/12/09	<0.00349	0.00349	0
SS-BLDG-2	1	1/12/09	<0.00268	0.00268	0
SS-BLDG-3	1	1/12/09	<0.00301	0.00301	0
SS-BLDG-4	1	1/12/09	<0.00299	0.00299	0
SS-BLDG-5	1	1/12/09	<0.00247	0.00247	0
SS-BLDG-6	1	1/12/09	0.0037	0.0037	1
SS-HA-1	1	1/12/09	0.0108	0.0108	1
SS-HA-2	1	1/12/09	0.0139	0.0139	1

UCL Statistics for Data Sets with Non-Detects

User Selected Options

Date/Time of Computation #####
 From File WorkSheet.xls
 Full Precision OFF
 Confidence Coefficient 95%
 Number of Bootstrap Operations 2000

PCE pre-remediation soil

General Statistics

Total Number of Observations	116	Number of Distinct Observations	93
Number of Detects	71	Number of Non-Detects	45
Number of Distinct Detects	65	Number of Distinct Non-Detects	31
Minimum Detect	0.0037	Minimum Non-Detect	0.0017
Maximum Detect	2700	Maximum Non-Detect	0.18
Variance Detects	151938	Percent Non-Detects	38.79%
Mean Detects	83.05	SD Detects	389.8
Median Detects	0.098	CV Detects	4.694
Skewness Detects	5.75	Kurtosis Detects	34.43
Mean of Logged Detects	-1.339	SD of Logged Detects	3.533

Normal GOF Test on Detects Only

Pre-Remediation 95% UCLs in Soil

Shapiro Wilk Test Statistic	0.242	Normal GOF Test on Detected Observations Only
5% Shapiro Wilk P Value	0	Detected Data Not Normal at 5% Significance Level
Lilliefors Test Statistic	0.462	Lilliefors GOF Test
5% Lilliefors Critical Value	0.105	Detected Data Not Normal at 5% Significance Level
Detected Data Not Normal at 5% Significance Level		

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

Mean	50.83	Standard Error of Mean	28.57
SD	305.5	95% KM (BCA) UCL	105.6
95% KM (t) UCL	98.2	95% KM (Percentile Bootstrap)	100.6
95% KM (z) UCL	97.82	95% KM Bootstrap t UCL	257.9
90% KM Chebyshev UCL	136.5	95% KM Chebyshev UCL	175.3
97.5% KM Chebyshev UCL	229.2	99% KM Chebyshev UCL	335.1

Gamma GOF Tests on Detected Observations Only

A-D Test Statistic	9	Anderson-Darling GOF Test
5% A-D Critical Value	0.979	Detected Data Not Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.271	Kolmogorov-Smirnov GOF
5% K-S Critical Value	0.12	Detected Data Not Gamma Distributed at 5% Significance Level
Detected Data Not Gamma Distributed at 5% Significance Level		

Gamma Statistics on Detected Data Only

k hat (MLE)	0.135	k star (bias corrected MLE)	0.139
Theta hat (MLE)	613.2	Theta star (bias corrected MLE)	597
nu hat (MLE)	19.23	nu star (bias corrected)	19.75
MLE Mean (bias corrected)	83.05	MLE Sd (bias corrected)	222.7

Gamma Kaplan-Meier (KM) Statistics

k hat (KM)	0.0277	nu hat (KM)	6.423
Approximate Chi Square Value (6.42, α	1.86	Adjusted Chi Square Value (6.42,	1.829
95% Gamma Approximate KM-UCL (u	175.6	95% Gamma Adjusted KM-UCL (u	178.5
Gamma (KM) may not be used when k hat (KM) is < 0.1			

Gamma ROS Statistics using Imputed Non-Detects

GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs

GROS may not be used when kstar of detected data is small such as < 0.1

For such situations, GROS method tends to yield inflated values of UCLs and BTVs

For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

Minimum	0.0037	Mean	50.83
Maximum	2700	Median	0.01
SD	306.8	CV	6.036
k hat (MLE)	0.121	k star (bias corrected MLE)	0.124
Theta hat (MLE)	419.4	Theta star (bias corrected MLE)	410.6
nu hat (MLE)	28.12	nu star (bias corrected)	28.72
MLE Mean (bias corrected)	50.83	MLE Sd (bias corrected)	144.5
		Adjusted Level of Significance (β)	0.0479
Approximate Chi Square Value (28.72,	17.49	Adjusted Chi Square Value (28.72	17.38
95% Gamma Approximate UCL (use v	83.47	95% Gamma Adjusted UCL (use	84

Pre-Remediation 95% UCLs in Soil

Lognormal GOF Test on Detected Observations Only

Lilliefors Test Statistic 0.131 Lilliefors GOF Test
 5% Lilliefors Critical Value 0.105 Detected Data Not Lognormal at 5% Significance Level
 Detected Data Not Lognormal at 5% Significance Level

Lognormal ROS Statistics Using Imputed Non-Detects

Mean in Original Scale	50.83	Mean in Log Scale	-4.47
SD in Original Scale	306.8	SD in Log Scale	4.898
95% t UCL (assumes normality of ROS)	98.07	95% Percentile Bootstrap UCL	105.2
95% BCA Bootstrap UCL	139.1	95% Bootstrap t UCL	259.8
95% H-UCL (Log ROS)	50303		

DL/2 Statistics

DL/2 Normal	DL/2 Log-Transformed
Mean in Original Scale	50.83 Mean in Log Scale
SD in Original Scale	306.8 SD in Log Scale
95% t UCL (Assumes normality)	98.07 95% H-Stat UCL
	194.1

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

Nonparametric Distribution Free UCL Statistics

Data do not follow a Discernible Distribution at 5% Significance Level

Suggested UCL to Use

97.5% KM (Chebyshev) UCL 229.2

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.

Recommendations are based upon data size, data distribution, and skewness.

These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).

However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.

Pre-Remediation 95% UCLs in Soil

Sample ID	Depth (ft bgs)	Date Sampled	Trichloroethene		
			(mg/kg)	Val	Detect
Area C	3	10/4/14	230	230	1
GP001	6-8	8/9/05	<0.0054	0.0054	0
GP002	4-6	8/9/05	<0.0049	0.0049	0
GP003	2-4	8/9/05	<0.0048	0.0048	0
GP004	4-6	8/9/05	<0.004	0.004	0
GP005	4-6	8/9/05	<0.0045	0.0045	0
GP006	2-4	8/9/05	<0.0046	0.0046	0
GP007	2-4	8/9/05	<0.0045	0.0045	0
GP008	2-4	8/9/05	<0.0054	0.0054	0
GP009	2-4	8/10/05	<0.0043	0.0043	0
GP010	4-6	8/10/05	0.33	0.33	1
GP011	2-4	8/10/05	0.63	0.63	1
GP012	4-6	8/10/05	1.8	1.8	1
GP013	4-6	8/10/05	<0.0052	0.0052	0
IW2	1	1/20/14	9.6	9.6	1
IW2	2	1/20/14	6.2	6.2	1
IW2	3	1/20/14	19	19	1
MIP-1	2	10/16/08	12	12	1
MIP-1	5	10/16/08	0.02	0.02	1
MIP-1	9	10/16/08	0.0052	0.0052	1
MIP-12	12	10/16/08	0.38	0.38	1
MIP-12	4	10/16/08	<0.0069	0.0069	0
MIP-12	6	10/16/08	<0.0076	0.0076	0
MIP-13	1	10/16/08	<0.0038	0.0038	0
MIP-13	3	10/16/08	0.0093	0.0093	1
MIP-13	6	10/16/08	2.6	2.6	1
MIP-19	1	10/16/08	<0.0059	0.0059	0
MIP-19	3	10/16/08	<0.0071	0.0071	0
MIP-5	3	10/16/08	<0.0022	0.0022	0
MIP-6	6	10/16/08	<0.008	0.008	0
MIP-8	2	10/16/08	2.4	2.4	1
MIP-8	4	10/16/08	0.2	0.2	1
MW-10	5-10	7/7/06	0.006	0.006	1
MW-11	5-10	7/6/06	0.008	0.008	1
MW-12	5-10	7/6/06	<0.005	0.005	0
MW-13	13-15	6/27/06	<0.005	0.005	0
MW-14	13-15	6/27/06	<0.005	0.005	0
MW-15	8-10	6/28/06	<0.005	0.005	0
MW-16	8-10	6/27/06	<0.005	0.005	0
MW-1D	8-10	7/13/04	<0.0019	0.0019	0
MW-2D	8-10	7/13/04	<0.0017	0.0017	0
MW-3	8-10	7/14/04	0.0138	0.0138	1
MW-3D	13-15	7/14/04	1.31	1.31	1
MW-8	8-10	6/27/06	<0.005	0.005	0
MW-9	8-10	6/27/06	<0.005	0.005	0

Pre-Remediation 95% UCLs in Soil

SB-1	1	2/20/13	0.02	0.02	1
SB-1	2	2/20/13	<0.006	0.006	0
SB-1	4	2/20/13	0.012	0.012	1
SB-2	1	2/20/13	<0.0029	0.0029	0
SB-2	2	2/20/13	0.011	0.011	1
SB-2	4	2/20/13	<0.0029	0.0029	0
SB-3	1	2/20/13	<0.0039	0.0039	0
SB-3	2	2/20/13	<0.0031	0.0031	0
SB-3	4	2/20/13	<0.004	0.004	0
SB-4	1	2/20/13	0.053	0.053	1
SB-4	2	2/20/13	<0.0034	0.0034	0
SB-4	4	2/20/13	<0.0036	0.0036	0
SB-5	1	2/20/13	0.63	0.63	1
SB-5	2	2/20/13	0.6	0.6	1
SB-5	4	2/20/13	0.63	0.63	1
SB-6	1	2/20/13	<0.0031	0.0031	0
SB-6	2	2/20/13	<0.0038	0.0038	0
SB-6	4	2/20/13	<0.004	0.004	0
SB-7	1	2/20/13	<0.0037	0.0037	0
SB-7	2	2/20/13	<0.0065	0.0065	0
SB-7	4	2/20/13	<0.0036	0.0036	0
SB-8	1	2/20/13	0.071	0.071	1
SB-8	2	2/20/13	0.18	0.18	1
SB-8	4	2/20/13	0.51	0.51	1
SB-9	1	2/20/13	0.016	0.016	1
SB-9	2	2/20/13	0.065	0.065	1
SB-9	4	2/20/13	0.03	0.03	1
SO-10	1	10/12/10	16	16	1
SO-2	1	3/10/09	<0.0029	0.0029	0
SO-2	3	3/10/09	0.11	0.11	1
SO-3	1	3/10/09	62	62	1
SO-3	3	3/10/09	4.9	4.9	1
SO-3R	1	3/25/14	3	3	1
SO-3R	4	3/25/14	1.4	1.4	1
SO-3R	5	3/25/14	3.2	3.2	1
SO-4	1	3/10/09	1.2	1.2	1
SO-4	3	3/10/09	1.6	1.6	1
SO-5	5	3/10/09	0.35	0.35	1
SO-5	9	3/10/09	<0.0062	0.0062	0
SO-6	5	3/10/09	0.089	0.089	1
SO-7	3	3/10/09	2.4	2.4	1
SS-AST-1	1	1/12/09	0.159	0.159	1
SS-AST-10	1	7/23/12	<0.0029	0.0029	0
SS-AST-10	2	7/23/12	0.01	0.01	1
SS-AST-11	1	7/23/12	0.0061	0.0061	1
SS-AST-11	2	7/23/12	0.008	0.008	1
SS-AST-2	1	1/12/09	7.75	7.75	1
SS-AST-3	1	7/23/12	0.058	0.058	1

Pre-Remediation 95% UCLs in Soil

SS-AST-3	2	7/23/12	0.18	0.18	1
SS-AST-4	1	7/23/12	<0.0028	0.0028	0
SS-AST-4	2	7/23/12	<0.0033	0.0033	0
SS-AST-5	1	7/23/12	<0.0027	0.0027	0
SS-AST-5	2	7/23/12	<0.0032	0.0032	0
SS-AST-6	1	7/23/12	0.0088	0.0088	1
SS-AST-6	2	7/23/12	0.011	0.011	1
SS-AST-7	1	7/23/12	0.0096	0.0096	1
SS-AST-7	2	7/23/12	0.0086	0.0086	1
SS-AST-8	1	7/23/12	58	58	1
SS-AST-8	2	7/23/12	13	13	1
SS-AST-9	1	7/23/12	34	34	1
SS-AST-9	2	7/23/12	97	97	1
SS-BLDG-1	1	1/12/09	<0.0024	0.0024	0
SS-BLDG-1	5	1/12/09	<0.00284	0.00284	0
SS-BLDG-2	5	1/12/09	<0.00349	0.00349	0
SS-BLDG-2	1	1/12/09	<0.00268	0.00268	0
SS-BLDG-3	1	1/12/09	<0.00301	0.00301	0
SS-BLDG-4	1	1/12/09	0.161	0.161	1
SS-BLDG-5	1	1/12/09	<0.00247	0.00247	0
SS-BLDG-6	1	1/12/09	0.00288	0.00288	1
SS-HA-1	1	1/12/09	<0.00284	0.00284	0
SS-HA-2	1	1/12/09	<0.00325	0.00325	0

UCL Statistics for Data Sets with Non-Detects

User Selected Options

Date/Time of Computation #####
 From File WorkSheet.xls
 Full Precision OFF
 Confidence Coefficient 95%
 Number of Bootstrap Operations 2000

TCE pre-remediation soil

General Statistics

Total Number of Observations	116	Number of Distinct Observations	89
Number of Detects	61	Number of Non-Detects	55
Number of Distinct Detects	54	Number of Distinct Non-Detects	38
Minimum Detect	0.00288	Minimum Non-Detect	0.0017
Maximum Detect	230	Maximum Non-Detect	0.008
Variance Detects	1101	Percent Non-Detects	47.41%
Mean Detects	9.77	SD Detects	33.18
Median Detects	0.33	CV Detects	3.396
Skewness Detects	5.462	Kurtosis Detects	33.69
Mean of Logged Detects	-1.16	SD of Logged Detects	2.987

Normal GOF Test on Detects Only

Pre-Remediation 95% UCLs in Soil

Shapiro Wilk Test Statistic	0.343	Normal GOF Test on Detected Observations Only
5% Shapiro Wilk P Value	0	Detected Data Not Normal at 5% Significance Level
Lilliefors Test Statistic	0.384	Lilliefors GOF Test
5% Lilliefors Critical Value	0.113	Detected Data Not Normal at 5% Significance Level
Detected Data Not Normal at 5% Significance Level		

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

Mean	5.138	Standard Error of Mean	2.28
SD	24.35	95% KM (BCA) UCL	9.05
95% KM (t) UCL	8.919	95% KM (Percentile Bootstrap)	9.585
95% KM (z) UCL	8.889	95% KM Bootstrap t UCL	14.81
90% KM Chebyshev UCL	11.98	95% KM Chebyshev UCL	15.08
97.5% KM Chebyshev UCL	19.38	99% KM Chebyshev UCL	27.82

Gamma GOF Tests on Detected Observations Only

A-D Test Statistic	3.574	Anderson-Darling GOF Test
5% A-D Critical Value	0.908	Detected Data Not Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.184	Kolmogorov-Smirnov GOF
5% K-S Critical Value	0.126	Detected Data Not Gamma Distributed at 5% Significance Level
Detected Data Not Gamma Distributed at 5% Significance Level		

Gamma Statistics on Detected Data Only

k hat (MLE)	0.212	k star (bias corrected MLE)	0.213
Theta hat (MLE)	46.08	Theta star (bias corrected MLE)	45.97
nu hat (MLE)	25.87	nu star (bias corrected)	25.93
MLE Mean (bias corrected)	9.77	MLE Sd (bias corrected)	21.19

Gamma Kaplan-Meier (KM) Statistics

k hat (KM)	0.0445	nu hat (KM)	10.33
Approximate Chi Square Value (10.33,	4.147	Adjusted Chi Square Value (10.33	4.098
95% Gamma Approximate KM-UCL (u	12.8	95% Gamma Adjusted KM-UCL (u	12.95
Gamma (KM) may not be used when k hat (KM) is < 0.1			

Gamma ROS Statistics using Imputed Non-Detects

GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs

GROS may not be used when kstar of detected data is small such as < 0.1

For such situations, GROS method tends to yield inflated values of UCLs and BTVs

For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

Minimum	0.00288	Mean	5.142
Maximum	230	Median	0.01
SD	24.46	CV	4.756
k hat (MLE)	0.17	k star (bias corrected MLE)	0.172
Theta hat (MLE)	30.21	Theta star (bias corrected MLE)	29.97
nu hat (MLE)	39.5	nu star (bias corrected)	39.81
MLE Mean (bias corrected)	5.142	MLE Sd (bias corrected)	12.41
		Adjusted Level of Significance (β)	0.0479
Approximate Chi Square Value (39.81,	26.35	Adjusted Chi Square Value (39.81	26.22
95% Gamma Approximate UCL (use v	7.768	95% Gamma Adjusted UCL (use	7.809

Pre-Remediation 95% UCLs in Soil

Lognormal GOF Test on Detected Observations Only

Lilliefors Test Statistic 0.117 Lilliefors GOF Test
 5% Lilliefors Critical Value 0.113 Detected Data Not Lognormal at 5% Significance Level
 Detected Data Not Lognormal at 5% Significance Level

Lognormal ROS Statistics Using Imputed Non-Detects

Mean in Original Scale	5.138	Mean in Log Scale	-4.673
SD in Original Scale	24.46	SD in Log Scale	4.377
95% t UCL (assumes normality of ROS)	8.904	95% Percentile Bootstrap UCL	9.296
95% BCA Bootstrap UCL	10.99	95% Bootstrap t UCL	14.48
95% H-UCL (Log ROS)	1915		

DL/2 Statistics

DL/2 Normal		DL/2 Log-Transformed	
Mean in Original Scale	5.139	Mean in Log Scale	-3.565
SD in Original Scale	24.46	SD in Log Scale	3.344
95% t UCL (Assumes normality)	8.905	95% H-Stat UCL	37.07

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

Nonparametric Distribution Free UCL Statistics

Data do not follow a Discernible Distribution at 5% Significance Level

Suggested UCL to Use

97.5% KM (Chebyshev) UCL 19.38

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.

Recommendations are based upon data size, data distribution, and skewness.

These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).

However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.

Pre-Remediation 95% UCLs in Soil

Sample ID	Depth (ft bgs)	Date Sampled	1,1,1-Trichloroethane		
			(mg/kg)	Val	Detect
Area C	3	10/4/14	43	43	1
GP001	6-8	8/9/05	<0.0054	0.0054	0
GP002	4-6	8/9/05	<0.0049	0.0049	0
GP003	2-4	8/9/05	<0.0048	0.0048	0
GP004	4-6	8/9/05	<0.004	0.004	0
GP005	4-6	8/9/05	<0.0045	0.0045	0
GP006	2-4	8/9/05	<0.0046	0.0046	0
GP007	2-4	8/9/05	<0.0045	0.0045	0
GP008	2-4	8/9/05	<0.0054	0.0054	0
GP009	2-4	8/10/05	<0.0043	0.0043	0
GP010	4-6	8/10/05	0.15	0.15	1
GP011	2-4	8/10/05	<0.061	0.061	0
GP012	4-6	8/10/05	0.41	0.41	1
GP013	4-6	8/10/05	<0.0052	0.0052	0
IW2	1	1/20/14	12	12	1
IW2	2	1/20/14	1.7	1.7	1
IW2	3	1/20/14	2.4	2.4	1
MIP-1	2	10/16/08	0.2	0.2	1
MIP-1	5	10/16/08	<0.0067	0.0067	0
MIP-1	9	10/16/08	<0.0029	0.0029	0
MIP-12	12	10/16/08	0.13	0.13	1
MIP-12	4	10/16/08	<0.0069	0.0069	0
MIP-12	6	10/16/08	<0.0076	0.0076	0
MIP-13	1	10/16/08	<0.0038	0.0038	0
MIP-13	3	10/16/08	0.0034	0.0034	1
MIP-13	6	10/16/08	0.42	0.42	1
MIP-19	1	10/16/08	<0.0059	0.0059	0
MIP-19	3	10/16/08	<0.0071	0.0071	0
MIP-5	3	10/16/08	<0.0022	0.0022	0
MIP-6	6	10/16/08	<0.008	0.008	0
MIP-8	2	10/16/08	0.014	0.014	1
MIP-8	4	10/16/08	<0.007	0.007	0
MW-10	5-10	7/7/06	<0.005	0.005	0
MW-11	5-10	7/6/06	<0.005	0.005	0
MW-12	5-10	7/6/06	<0.005	0.005	0
MW-13	13-15	6/27/06	<0.005	0.005	0
MW-14	13-15	6/27/06	<0.005	0.005	0
MW-15	8-10	6/28/06	<0.005	0.005	0
MW-16	8-10	6/27/06	<0.005	0.005	0
MW-1D	8-10	7/13/04	<0.0019	0.0019	0
MW-2D	8-10	7/13/04	<0.0017	0.0017	0
MW-3	8-10	7/14/04	0.0312	0.0312	1
MW-3D	13-15	7/14/04	0.416	0.416	1
MW-8	8-10	6/27/06	<0.005	0.005	0
MW-9	8-10	6/27/06	<0.005	0.005	0

Pre-Remediation 95% UCLs in Soil

SB-1	1	2/20/13	<0.0033	0.0033	0
SB-1	2	2/20/13	<0.006	0.006	0
SB-1	4	2/20/13	<0.0062	0.0062	0
SB-2	1	2/20/13	<0.0029	0.0029	0
SB-2	2	2/20/13	<0.0029	0.0029	0
SB-2	4	2/20/13	<0.0029	0.0029	0
SB-3	1	2/20/13	<0.0039	0.0039	0
SB-3	2	2/20/13	<0.0031	0.0031	0
SB-3	4	2/20/13	<0.004	0.004	0
SB-4	1	2/20/13	0.023	0.023	1
SB-4	2	2/20/13	<0.0034	0.0034	0
SB-4	4	2/20/13	<0.0036	0.0036	0
SB-5	1	2/20/13	0.0046	0.0046	1
SB-5	2	2/20/13	0.009	0.009	1
SB-5	4	2/20/13	0.024	0.024	1
SB-6	1	2/20/13	<0.0031	0.0031	0
SB-6	2	2/20/13	<0.0038	0.0038	0
SB-6	4	2/20/13	<0.004	0.004	0
SB-7	1	2/20/13	<0.0037	0.0037	0
SB-7	2	2/20/13	<0.0065	0.0065	0
SB-7	4	2/20/13	<0.0036	0.0036	0
SB-8	1	2/20/13	<0.0025	0.0025	0
SB-8	2	2/20/13	<0.0028	0.0028	0
SB-8	4	2/20/13	<0.18	0.18	0
SB-9	1	2/20/13	<0.0036	0.0036	0
SB-9	2	2/20/13	<0.0048	0.0048	0
SB-9	4	2/20/13	<0.0043	0.0043	0
SO-10	1	10/12/10	7.2	7.2	1
SO-2	1	3/10/09	<0.0029	0.0029	0
SO-2	3	3/10/09	0.0064	0.0064	1
SO-3	1	3/10/09	5.3	5.3	1
SO-3	3	3/10/09	<2.4	2.4	0
SO-3R	1	3/25/14	0.0056	0.0056	1
SO-3R	4	3/25/14	0.0051	0.0051	1
SO-3R	5	3/25/14	0.014	0.014	1
SO-4	1	3/10/09	<0.0032	0.0032	0
SO-4	3	3/10/09	<0.11	0.11	0
SO-5	5	3/10/09	0.07	0.07	1
SO-5	9	3/10/09	<0.0062	0.0062	0
SO-6	5	3/10/09	0.01	0.01	1
SO-7	3	3/10/09	0.072	0.072	1
SS-AST-1	1	1/12/09	0.0805	0.0805	1
SS-AST-10	1	7/23/12	<0.0029	0.0029	0
SS-AST-10	2	7/23/12	<0.0033	0.0033	0
SS-AST-11	1	7/23/12	<0.0028	0.0028	0
SS-AST-11	2	7/23/12	<0.0034	0.0034	0
SS-AST-2	1	1/12/09	1.11	1.11	1
SS-AST-3	1	7/23/12	<0.003	0.003	0

Pre-Remediation 95% UCLs in Soil

SS-AST-3	2	7/23/12	<0.0032	0.0032	0
SS-AST-4	1	7/23/12	<0.0028	0.0028	0
SS-AST-4	2	7/23/12	<0.0033	0.0033	0
SS-AST-5	1	7/23/12	<0.0027	0.0027	0
SS-AST-5	2	7/23/12	<0.0032	0.0032	0
SS-AST-6	1	7/23/12	0.0035	0.0035	1
SS-AST-6	2	7/23/12	<0.0033	0.0033	0
SS-AST-7	1	7/23/12	<0.003	0.003	0
SS-AST-7	2	7/23/12	<0.0031	0.0031	0
SS-AST-8	1	7/23/12	66	66	1
SS-AST-8	2	7/23/12	4.7	4.7	1
SS-AST-9	1	7/23/12	2.1	2.1	1
SS-AST-9	2	7/23/12	15	15	1
SS-BLDG-1	1	1/12/09	<0.0024	0.0024	0
SS-BLDG-1	5	1/12/09	<0.00284	0.00284	0
SS-BLDG-2	5	1/12/09	<0.00349	0.00349	0
SS-BLDG-2	1	1/12/09	<0.00268	0.00268	0
SS-BLDG-3	1	1/12/09	<0.00301	0.00301	0
SS-BLDG-4	1	1/12/09	<0.00299	0.00299	0
SS-BLDG-5	1	1/12/09	<0.00247	0.00247	0
SS-BLDG-6	1	1/12/09	<0.00246	0.00246	0
SS-HA-1	1	1/12/09	<0.00284	0.00284	0
SS-HA-2	1	1/12/09	<0.00325	0.00325	0

UCL Statistics for Data Sets with Non-Detects

User Selected Options

Date/Time of Computation #####
From File WorkSheet.xls
Full Precision OFF
Confidence Coefficient 95%
Number of Bootstrap Operations 2000

TCA pre-remediation soil

General Statistics

Total Number of Observations	116	Number of Distinct Observations	77
Number of Detects	33	Number of Non-Detects	83
Number of Distinct Detects	32	Number of Distinct Non-Detects	48
Minimum Detect	0.0034	Minimum Non-Detect	0.0017
Maximum Detect	66	Maximum Non-Detect	2.4
Variance Detects	184.1	Percent Non-Detects	71.55%
Mean Detects	4.928	SD Detects	13.57
Median Detects	0.13	CV Detects	2.753
Skewness Detects	3.754	Kurtosis Detects	14.55
Mean of Logged Detects	-1.711	SD of Logged Detects	2.989

Normal GOF Test on Detects Only

Pre-Remediation 95% UCLs in Soil

Shapiro Wilk Test Statistic	0.421	Shapiro Wilk GOF Test	
5% Shapiro Wilk Critical Value	0.931	Detected Data Not Normal at 5% Significance Level	
Lilliefors Test Statistic	0.362	Lilliefors GOF Test	
5% Lilliefors Critical Value	0.154	Detected Data Not Normal at 5% Significance Level	
Detected Data Not Normal at 5% Significance Level			

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

Mean	1.404	Standard Error of Mean	0.704
SD	7.464	95% KM (BCA) UCL	2.695
95% KM (t) UCL	2.571	95% KM (Percentile Bootstrap)	2.706
95% KM (z) UCL	2.561	95% KM Bootstrap t UCL	5.775
90% KM Chebyshev UCL	3.515	95% KM Chebyshev UCL	4.471
97.5% KM Chebyshev UCL	5.799	99% KM Chebyshev UCL	8.406

Gamma GOF Tests on Detected Observations Only

A-D Test Statistic	1.946	Anderson-Darling GOF Test	
5% A-D Critical Value	0.896	Detected Data Not Gamma Distributed at 5% Significance Level	
K-S Test Statistic	0.211	Kolmogorov-Smirnov GOF	
5% K-S Critical Value	0.169	Detected Data Not Gamma Distributed at 5% Significance Level	
Detected Data Not Gamma Distributed at 5% Significance Level			

Gamma Statistics on Detected Data Only

k hat (MLE)	0.219	k star (bias corrected MLE)	0.22
Theta hat (MLE)	22.46	Theta star (bias corrected MLE)	22.43
nu hat (MLE)	14.48	nu star (bias corrected)	14.5
MLE Mean (bias corrected)	4.928	MLE Sd (bias corrected)	10.51

Gamma Kaplan-Meier (KM) Statistics

k hat (KM)	0.0354	nu hat (KM)	8.206
Approximate Chi Square Value (8.21, α	2.855	Adjusted Chi Square Value (8.21,	2.815
95% Gamma Approximate KM-UCL (u	4.035	95% Gamma Adjusted KM-UCL (u	4.092
Gamma (KM) may not be used when k hat (KM) is < 0.1			

Gamma ROS Statistics using Imputed Non-Detects

GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs

GROS may not be used when kstar of detected data is small such as < 0.1

For such situations, GROS method tends to yield inflated values of UCLs and BTVs

For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

Minimum	0.0034	Mean	1.409
Maximum	66	Median	0.01
SD	7.495	CV	5.32
k hat (MLE)	0.181	k star (bias corrected MLE)	0.182
Theta hat (MLE)	7.777	Theta star (bias corrected MLE)	7.732
nu hat (MLE)	42.03	nu star (bias corrected)	42.28
MLE Mean (bias corrected)	1.409	MLE Sd (bias corrected)	3.301
		Adjusted Level of Significance (β)	0.0479
Approximate Chi Square Value (42.28,	28.37	Adjusted Chi Square Value (42.28	28.23
95% Gamma Approximate UCL (use v	2.1	95% Gamma Adjusted UCL (use	2.11

Pre-Remediation 95% UCLs in Soil

Lognormal GOF Test on Detected Observations Only

Shapiro Wilk Test Statistic	0.93	Shapiro Wilk GOF Test	
5% Shapiro Wilk Critical Value	0.931	Detected Data Not Lognormal at 5% Significance Level	
Lilliefors Test Statistic	0.116	Lilliefors GOF Test	
5% Lilliefors Critical Value	0.154	Detected Data appear Lognormal at 5% Significance Level	
Detected Data appear Approximate Lognormal at 5% Significance Level			

Lognormal ROS Statistics Using Imputed Non-Detects

Mean in Original Scale	1.402	Mean in Log Scale	-8.381
SD in Original Scale	7.497	SD in Log Scale	4.846
95% t UCL (assumes normality of ROS)	2.556	95% Percentile Bootstrap UCL	2.702
95% BCA Bootstrap UCL	3.495	95% Bootstrap t UCL	5.358
95% H-UCL (Log ROS)	731.4		

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

KM Mean (logged)	-5.012	95% H-UCL (KM -Log)	0.565
KM SD (logged)	2.621	95% Critical H Value (KM-Log)	4.121
KM Standard Error of Mean (logged)	0.248		

DL/2 Statistics

DL/2 Normal		DL/2 Log-Transformed	
Mean in Original Scale	1.415	Mean in Log Scale	-4.824
SD in Original Scale	7.495	SD in Log Scale	2.66
95% t UCL (Assumes normality)	2.569	95% H-Stat UCL	0.777

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

Nonparametric Distribution Free UCL Statistics

Detected Data appear Approximate Lognormal Distributed at 5% Significance Level

Suggested UCL to Use

97.5% KM (Chebyshev) UCL	5.799
--------------------------	-------

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.

Recommendations are based upon data size, data distribution, and skewness.

These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).

However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.

Post-Remediation 95% UCLs in Soil

PCE in Solid Aquifer Matrix Post-Excavation

Location	Date Sampled	D1	D2	Parameter	Resppm	ValUCL	detect
GP001	8/9/2005	6	8	Tetrachloroethene	<0.0054	0.0054	0
GP002	8/9/2005	4	6	Tetrachloroethene	<0.0049	0.0049	0
GP003	8/9/2005	2	4	Tetrachloroethene	<0.0048	0.0048	0
GP004	8/9/2005	4	6	Tetrachloroethene	<0.004	0.004	0
GP005	8/9/2005	4	6	Tetrachloroethene	<0.0045	0.0045	0
GP006	8/9/2005	2	4	Tetrachloroethene	<0.0046	0.0046	0
GP007	8/9/2005	2	4	Tetrachloroethene	<0.0045	0.0045	0
GP008	8/9/2005	2	4	Tetrachloroethene	<0.0054	0.0054	0
GP009	8/10/2005	2	4	Tetrachloroethene	<0.0043	0.0043	0
GP010	8/10/2005	4	6	Tetrachloroethene	0.13	0.13	1
GP011	8/10/2005	2	4	Tetrachloroethene	0.13	0.13	1
GP012	8/10/2005	4	6	Tetrachloroethene	1.5	1.5	1
GP013	8/10/2005	4	6	Tetrachloroethene	<0.0052	0.0052	0
MIP-1	10/16/2008	5	5	Tetrachloroethene	0.036	0.036	1
MIP-1	10/16/2008	9	9	Tetrachloroethene	0.024	0.024	1
MIP-12	10/16/2008	12	12	Tetrachloroethene	0.73	0.73	1
MIP-12	10/16/2008	4	4	Tetrachloroethene	<0.0069	0.0069	0
MIP-12	10/16/2008	6	6	Tetrachloroethene	<0.0076	0.0076	0
MIP-13	10/16/2008	1	1	Tetrachloroethene	0.0087	0.0087	1
MIP-13	10/16/2008	3	3	Tetrachloroethene	0.0069	0.0069	1
MIP-13	10/16/2008	6	6	Tetrachloroethene	1.5	1.5	1
MIP-19	10/16/2008	1	1	Tetrachloroethene	<0.0059	0.0059	0
MIP-19	10/16/2008	3	3	Tetrachloroethene	<0.0071	0.0071	0
MIP-5	10/16/2008	3	3	Tetrachloroethene	<0.0022	0.0022	0
MIP-6	10/16/2008	6	6	Tetrachloroethene	<0.008	0.008	0
MIP-8	10/16/2008	2	2	Tetrachloroethene	0.37	0.37	1
MIP-8	10/16/2008	4	4	Tetrachloroethene	0.091	0.091	1
MW-10	7/7/2006	5	10	Tetrachloroethene	<0.005	0.005	0
MW-11	7/6/2006	5	10	Tetrachloroethene	<0.005	0.005	0
MW-12	7/6/2006	5	10	Tetrachloroethene	<0.005	0.005	0
MW-13	6/27/2006	13	15	Tetrachloroethene	<0.005	0.005	0
MW-14	6/27/2006	13	15	Tetrachloroethene	<0.005	0.005	0
MW-15	6/28/2006	8	10	Tetrachloroethene	<0.005	0.005	0
MW-16	6/27/2006	8	10	Tetrachloroethene	<0.005	0.005	0
MW-1D	7/13/2004	8	10	Tetrachloroethene	<0.0019	0.0019	0
MW-2D	7/13/2004	8	10	Tetrachloroethene	<0.0017	0.0017	0
MW-3	7/14/2004	8	10	Tetrachloroethene	0.0191	0.0191	1
MW-3D	7/14/2004	13	15	Tetrachloroethene	2.44	2.44	1
MW-8	6/27/2006	8	10	Tetrachloroethene	<0.005	0.005	0
MW-9	6/27/2006	8	10	Tetrachloroethene	<0.005	0.005	0
SB-1	2/20/2013	1	1	Tetrachloroethene	1.3	1.3	1
SB-1	2/20/2013	2	2	Tetrachloroethene	0.053	0.053	1
SB-1	2/20/2013	4	4	Tetrachloroethene	0.079	0.079	1
SB-2	2/20/2013	1	1	Tetrachloroethene	0.05	0.05	1
SB-2	2/20/2013	2	2	Tetrachloroethene	<0.0029	0.0029	0
SB-2	2/20/2013	4	4	Tetrachloroethene	<0.0029	0.0029	0

Post-Remediation 95% UCLs in Soil

SB-3	2/20/2013	1	1	Tetrachloroethene	0.0042	0.0042	1
SB-3	2/20/2013	2	2	Tetrachloroethene	0.0077	0.0077	1
SB-3	2/20/2013	4	4	Tetrachloroethene	0.0065	0.0065	1
SB-6	2/20/2013	1	1	Tetrachloroethene	<0.0031	0.0031	0
SB-6	2/20/2013	2	2	Tetrachloroethene	<0.0038	0.0038	0
SB-6	2/20/2013	4	4	Tetrachloroethene	<0.004	0.004	0
SB-7	2/20/2013	1	1	Tetrachloroethene	0.009	0.009	1
SB-7	2/20/2013	2	2	Tetrachloroethene	<0.0065	0.0065	0
SB-7	2/20/2013	4	4	Tetrachloroethene	<0.0036	0.0036	0
SB-8	2/20/2013	1	1	Tetrachloroethene	0.021	0.021	1
SB-8	2/20/2013	2	2	Tetrachloroethene	0.023	0.023	1
SB-8	2/20/2013	4	4	Tetrachloroethene	<0.18	0.18	0
SB-9	2/20/2013	1	1	Tetrachloroethene	0.0051	0.0051	1
SB-9	2/20/2013	2	2	Tetrachloroethene	0.017	0.017	1
SB-9	2/20/2013	4	4	Tetrachloroethene	0.0074	0.0074	1
SO-2	3/10/2009	1	1	Tetrachloroethene	<0.0029	0.0029	0
SO-2	3/10/2009	3	3	Tetrachloroethene	0.098	0.098	1
SO-3R	3/25/2014	4	4	Tetrachloroethene	2.3	2.3	1
SO-3R	3/25/2014	5	5	Tetrachloroethene	4.1	4.1	1
SO-4	3/10/2009	1	1	Tetrachloroethene	0.74	0.74	1
SO-4	3/10/2009	3	3	Tetrachloroethene	0.93	0.93	1
SO-5	3/10/2009	5	5	Tetrachloroethene	0.39	0.39	1
SO-5	3/10/2009	9	9	Tetrachloroethene	<0.0062	0.0062	0
SO-6	3/10/2009	5	5	Tetrachloroethene	0.066	0.066	1
SO-7	3/10/2009	3	3	Tetrachloroethene	1.9	1.9	1
SS-AST-1	1/12/2009	1	1	Tetrachloroethene	7.09	7.09	1
SS-AST-10	7/23/2012	1	1	Tetrachloroethene	0.0054	0.0054	1
SS-AST-10	7/23/2012	2	2	Tetrachloroethene	0.02	0.02	1
SS-AST-11	7/23/2012	1	1	Tetrachloroethene	0.0095	0.0095	1
SS-AST-11	7/23/2012	2	2	Tetrachloroethene	0.013	0.013	1
SS-AST-2	1/12/2009	1	1	Tetrachloroethene	12.2	12.2	1
SS-AST-3	7/23/2012	1	1	Tetrachloroethene	0.11	0.11	1
SS-AST-3	7/23/2012	2	2	Tetrachloroethene	0.35	0.35	1
SS-AST-4	7/23/2012	1	1	Tetrachloroethene	0.0047	0.0047	1
SS-AST-4	7/23/2012	2	2	Tetrachloroethene	0.0042	0.0042	1
SS-AST-7	7/23/2012	1	1	Tetrachloroethene	0.013	0.013	1
SS-AST-7	7/23/2012	2	2	Tetrachloroethene	0.014	0.014	1
SS-AST-8	7/23/2012	1	1	Tetrachloroethene	64	64	1
SS-AST-8	7/23/2012	2	2	Tetrachloroethene	6.5	6.5	1
SS-BLDG-1	1/12/2009	1	1	Tetrachloroethene	<0.0024	0.0024	0
SS-BLDG-1	1/12/2009	5	5	Tetrachloroethene	<0.00284	0.00284	0
SS-BLDG-2	1/12/2009	1	1	Tetrachloroethene	<0.00349	0.00349	0
SS-BLDG-2	1/12/2009	5	5	Tetrachloroethene	<0.00268	0.00268	0
SS-BLDG-3	1/12/2009	1	1	Tetrachloroethene	<0.00301	0.00301	0
SS-BLDG-4	1/12/2009	1	1	Tetrachloroethene	<0.00299	0.00299	0
SS-BLDG-5	1/12/2009	1	1	Tetrachloroethene	<0.00247	0.00247	0
SS-BLDG-6	1/12/2009	1	1	Tetrachloroethene	0.0037	0.0037	1
SS-HA-1	1/12/2009	1	1	Tetrachloroethene	0.0108	0.0108	1

Post-Remediation 95% UCLs in Soil

SS-HA-2	1/12/2009	1	1	Tetrachloroethene	0.0139	0.0139	1
---------	-----------	---	---	-------------------	--------	--------	---

UCL Statistics for Data Sets with Non-Detects

User Selected Options

Date/Time of Computation	#####
From File	WorkSheet.xls
Full Precision	OFF
Confidence Coefficient	95%
Number of Bootstrap Operations	2000

PCE post-remediation soil

General Statistics

Total Number of Observations	95	Number of Distinct Observations	75
Number of Detects	51	Number of Non-Detects	44
Number of Distinct Detects	47	Number of Distinct Non-Detects	31
Minimum Detect	0.0037	Minimum Non-Detect	0.0017
Maximum Detect	64	Maximum Non-Detect	0.18
Variance Detects	82.85	Percent Non-Detects	46.32%
Mean Detects	2.146	SD Detects	9.102
Median Detects	0.05	CV Detects	4.241
Skewness Detects	6.556	Kurtosis Detects	44.93
Mean of Logged Detects	-2.455	SD of Logged Detects	2.539

Normal GOF Test on Detects Only

Shapiro Wilk Test Statistic	0.256	Normal GOF Test on Detected Observations Only
5% Shapiro Wilk P Value	0	Detected Data Not Normal at 5% Significance Level
Lilliefors Test Statistic	0.407	Lilliefors GOF Test
5% Lilliefors Critical Value	0.124	Detected Data Not Normal at 5% Significance Level
Detected Data Not Normal at 5% Significance Level		

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

Mean	1.153	Standard Error of Mean	0.693
SD	6.69	95% KM (BCA) UCL	2.564
95% KM (t) UCL	2.305	95% KM (Percentile Bootstrap) UCL	2.441
95% KM (z) UCL	2.293	95% KM Bootstrap t UCL	6.41
90% KM Chebyshev UCL	3.233	95% KM Chebyshev UCL	4.175
97.5% KM Chebyshev UCL	5.482	99% KM Chebyshev UCL	8.05

Gamma GOF Tests on Detected Observations Only

A-D Test Statistic	4.642	Anderson-Darling GOF Test
5% A-D Critical Value	0.9	Detected Data Not Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.25	Kolmogrov-Smirnoff GOF
5% K-S Critical Value	0.137	Detected Data Not Gamma Distributed at 5% Significance Level
Detected Data Not Gamma Distributed at 5% Significance Level		

Post-Remediation 95% UCLs in Soil

Gamma Statistics on Detected Data Only

k hat (MLE)	0.224	k star (bias corrected MLE)	0.224
Theta hat (MLE)	9.56	Theta star (bias corrected MLE)	9.566
nu hat (MLE)	22.9	nu star (bias corrected)	22.88
MLE Mean (bias corrected)	2.146	MLE Sd (bias corrected)	4.531

Gamma Kaplan-Meier (KM) Statistics

k hat (KM)	0.0297	nu hat (KM)	5.647
Approximate Chi Square Value (5.65, α)	1.462	Adjusted Chi Square Value (5.65, β)	1.43
95% Gamma Approximate KM-UCL (use when k hat (KM) is < 0.1)	4.454	95% Gamma Adjusted KM-UCL (use when k hat (KM) is < 0.1)	4.554

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

Gamma ROS Statistics using Imputed Non-Detects

GROS may not be used when data set has $> 50\%$ NDs with many tied observations at multiple DLs

GROS may not be used when kstar of detected data is small such as < 0.1

For such situations, GROS method tends to yield inflated values of UCLs and BTVs

For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

Minimum	0.0037	Mean	1.157
Maximum	64	Median	0.01
SD	6.724	CV	5.813
k hat (MLE)	0.204	k star (bias corrected MLE)	0.205
Theta hat (MLE)	5.671	Theta star (bias corrected MLE)	5.655
nu hat (MLE)	38.76	nu star (bias corrected)	38.87
MLE Mean (bias corrected)	1.157	MLE Sd (bias corrected)	2.558
		Adjusted Level of Significance (β)	0.0475
Approximate Chi Square Value (38.87, α)	25.59	Adjusted Chi Square Value (38.87, β)	25.42
95% Gamma Approximate UCL (use when n > 5)	1.757	95% Gamma Adjusted UCL (use when n < 5)	1.769

Lognormal GOF Test on Detected Observations Only

Lilliefors Test Statistic	0.163	Lilliefors GOF Test	
5% Lilliefors Critical Value	0.124	Detected Data Not Lognormal at 5% Significance Level	
		Detected Data Not Lognormal at 5% Significance Level	

Lognormal ROS Statistics Using Imputed Non-Detects

Mean in Original Scale	1.152	Mean in Log Scale	-5.267
SD in Original Scale	6.725	SD in Log Scale	3.645
95% t UCL (assumes normality of ROS)	2.299	95% Percentile Bootstrap UCL	2.435
95% BCA Bootstrap UCL	3.583	95% Bootstrap t UCL	6.731
95% H-UCL (Log ROS)	33.01		

DL/2 Statistics

DL/2 Normal		DL/2 Log-Transformed	
Mean in Original Scale	1.154	Mean in Log Scale	-4.141
SD in Original Scale	6.725	SD in Log Scale	2.64
95% t UCL (Assumes normality)	2.3	95% H-Stat UCL	1.65

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

Nonparametric Distribution Free UCL Statistics

Post-Remediation 95% UCLs in Soil

Data do not follow a Discernible Distribution at 5% Significance Level

Suggested UCL to Use

97.5% KM (Chebyshev) UCL	5.482
--------------------------	-------

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.

Recommendations are based upon data size, data distribution, and skewness.

These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).

However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.

Post-Remediation 95% UCLs in Soil

TCE in Solid Aquifer Matrix Post Excavation

Location	Date Sampled	D1	D2	Parameter	Resppm	ValUCL	detect
GP001	8/9/2005	6	8	Trichloroethene	<0.0054	0.0054	0
GP002	8/9/2005	4	6	Trichloroethene	<0.0049	0.0049	0
GP003	8/9/2005	2	4	Trichloroethene	<0.0048	0.0048	0
GP004	8/9/2005	4	6	Trichloroethene	<0.004	0.004	0
GP005	8/9/2005	4	6	Trichloroethene	<0.0045	0.0045	0
GP006	8/9/2005	2	4	Trichloroethene	<0.0046	0.0046	0
GP007	8/9/2005	2	4	Trichloroethene	<0.0045	0.0045	0
GP008	8/9/2005	2	4	Trichloroethene	<0.0054	0.0054	0
GP009	8/10/2005	2	4	Trichloroethene	<0.0043	0.0043	0
GP010	8/10/2005	4	6	Trichloroethene	0.33	0.33	1
GP011	8/10/2005	2	4	Trichloroethene	0.63	0.63	1
GP012	8/10/2005	4	6	Trichloroethene	1.8	1.8	1
GP013	8/10/2005	4	6	Trichloroethene	<0.0052	0.0052	0
MIP-1	10/16/2008	5	5	Trichloroethene	0.02	0.02	1
MIP-1	10/16/2008	9	9	Trichloroethene	0.0052	0.0052	1
MIP-12	10/16/2008	12	12	Trichloroethene	0.38	0.38	1
MIP-12	10/16/2008	4	4	Trichloroethene	<0.0069	0.0069	0
MIP-12	10/16/2008	6	6	Trichloroethene	<0.0076	0.0076	0
MIP-13	10/16/2008	1	1	Trichloroethene	<0.0038	0.0038	0
MIP-13	10/16/2008	3	3	Trichloroethene	0.0093	0.0093	1
MIP-13	10/16/2008	6	6	Trichloroethene	2.6	2.6	1
MIP-19	10/16/2008	1	1	Trichloroethene	<0.0059	0.0059	0
MIP-19	10/16/2008	3	3	Trichloroethene	<0.0071	0.0071	0
MIP-5	10/16/2008	3	3	Trichloroethene	<0.0022	0.0022	0
MIP-6	10/16/2008	6	6	Trichloroethene	<0.008	0.008	0
MIP-8	10/16/2008	2	2	Trichloroethene	2.4	2.4	1
MIP-8	10/16/2008	4	4	Trichloroethene	0.2	0.2	1
MW-10	7/7/2006	5	10	Trichloroethene	0.006	0.006	1
MW-11	7/6/2006	5	10	Trichloroethene	0.008	0.008	1
MW-12	7/6/2006	5	10	Trichloroethene	<0.005	0.005	0
MW-13	6/27/2006	13	15	Trichloroethene	<0.005	0.005	0
MW-14	6/27/2006	13	15	Trichloroethene	<0.005	0.005	0
MW-15	6/28/2006	8	10	Trichloroethene	<0.005	0.005	0
MW-16	6/27/2006	8	10	Trichloroethene	<0.005	0.005	0
MW-1D	7/13/2004	8	10	Trichloroethene	<0.0019	0.0019	0
MW-2D	7/13/2004	8	10	Trichloroethene	<0.0017	0.0017	0
MW-3	7/14/2004	8	10	Trichloroethene	0.0138	0.0138	1
MW-3D	7/14/2004	13	15	Trichloroethene	1.31	1.31	1
MW-8	6/27/2006	8	10	Trichloroethene	<0.005	0.005	0
MW-9	6/27/2006	8	10	Trichloroethene	<0.005	0.005	0
SB-1	2/20/2013	1	1	Trichloroethene	0.02	0.02	1
SB-1	2/20/2013	2	2	Trichloroethene	<0.006	0.006	0
SB-1	2/20/2013	4	4	Trichloroethene	0.012	0.012	1
SB-2	2/20/2013	1	1	Trichloroethene	<0.0029	0.0029	0
SB-2	2/20/2013	2	2	Trichloroethene	0.011	0.011	1
SB-2	2/20/2013	4	4	Trichloroethene	<0.0029	0.0029	0

Post-Remediation 95% UCLs in Soil

SB-3	2/20/2013	1	1	Trichloroethene	<0.0039	0.0039	0
SB-3	2/20/2013	2	2	Trichloroethene	<0.0031	0.0031	0
SB-3	2/20/2013	4	4	Trichloroethene	<0.004	0.004	0
SB-6	2/20/2013	1	1	Trichloroethene	<0.0031	0.0031	0
SB-6	2/20/2013	2	2	Trichloroethene	<0.0038	0.0038	0
SB-6	2/20/2013	4	4	Trichloroethene	<0.004	0.004	0
SB-7	2/20/2013	1	1	Trichloroethene	<0.0037	0.0037	0
SB-7	2/20/2013	2	2	Trichloroethene	<0.0065	0.0065	0
SB-7	2/20/2013	4	4	Trichloroethene	<0.0036	0.0036	0
SB-8	2/20/2013	1	1	Trichloroethene	0.071	0.071	1
SB-8	2/20/2013	2	2	Trichloroethene	0.18	0.18	1
SB-8	2/20/2013	4	4	Trichloroethene	0.51	0.51	1
SB-9	2/20/2013	1	1	Trichloroethene	0.016	0.016	1
SB-9	2/20/2013	2	2	Trichloroethene	0.065	0.065	1
SB-9	2/20/2013	4	4	Trichloroethene	0.03	0.03	1
SO-2	3/10/2009	1	1	Trichloroethene	<0.0029	0.0029	0
SO-2	3/10/2009	3	3	Trichloroethene	0.11	0.11	1
SO-3R	3/25/2014	4	4	Trichloroethene	1.4	1.4	1
SO-3R	3/25/2014	5	5	Trichloroethene	3.2	3.2	1
SO-4	3/10/2009	1	1	Trichloroethene	1.2	1.2	1
SO-4	3/10/2009	3	3	Trichloroethene	1.6	1.6	1
SO-5	3/10/2009	5	5	Trichloroethene	0.35	0.35	1
SO-5	3/10/2009	9	9	Trichloroethene	<0.0062	0.0062	0
SO-6	3/10/2009	5	5	Trichloroethene	0.089	0.089	1
SO-7	3/10/2009	3	3	Trichloroethene	2.4	2.4	1
SS-AST-1	1/12/2009	1	1	Trichloroethene	0.159	0.159	1
SS-AST-10	7/23/2012	1	1	Trichloroethene	<0.0029	0.0029	0
SS-AST-10	7/23/2012	2	2	Trichloroethene	0.01	0.01	1
SS-AST-11	7/23/2012	1	1	Trichloroethene	0.0061	0.0061	1
SS-AST-11	7/23/2012	2	2	Trichloroethene	0.008	0.008	1
SS-AST-2	1/12/2009	1	1	Trichloroethene	7.75	7.75	1
SS-AST-3	7/23/2012	1	1	Trichloroethene	0.058	0.058	1
SS-AST-3	7/23/2012	2	2	Trichloroethene	0.18	0.18	1
SS-AST-4	7/23/2012	1	1	Trichloroethene	<0.0028	0.0028	0
SS-AST-4	7/23/2012	2	2	Trichloroethene	<0.0033	0.0033	0
SS-AST-7	7/23/2012	1	1	Trichloroethene	0.0096	0.0096	1
SS-AST-7	7/23/2012	2	2	Trichloroethene	0.0086	0.0086	1
SS-AST-8	7/23/2012	1	1	Trichloroethene	58	58	1
SS-AST-8	7/23/2012	2	2	Trichloroethene	13	13	1
SS-BLDG-1	1/12/2009	1	1	Trichloroethene	<0.0024	0.0024	0
SS-BLDG-1	1/12/2009	5	5	Trichloroethene	<0.00284	0.00284	0
SS-BLDG-2	1/12/2009	1	1	Trichloroethene	<0.00349	0.00349	0
SS-BLDG-2	1/12/2009	5	5	Trichloroethene	<0.00268	0.00268	0
SS-BLDG-3	1/12/2009	1	1	Trichloroethene	<0.00301	0.00301	0
SS-BLDG-4	1/12/2009	1	1	Trichloroethene	0.161	0.161	1
SS-BLDG-5	1/12/2009	1	1	Trichloroethene	<0.00247	0.00247	0
SS-BLDG-6	1/12/2009	1	1	Trichloroethene	0.00288	0.00288	1
SS-HA-1	1/12/2009	1	1	Trichloroethene	<0.00284	0.00284	0

Post-Remediation 95% UCLs in Soil

SS-HA-2	1/12/2009	1	1	Trichloroethene	<0.00325	0.00325	0
---------	-----------	---	---	-----------------	----------	---------	---

UCL Statistics for Data Sets with Non-Detects

User Selected Options

Date/Time of Computation	#####
From File	WorkSheet.xls
Full Precision	OFF
Confidence Coefficient	95%
Number of Bootstrap Operations	2000

TCE post-remediation soil

General Statistics

Total Number of Observations	95	Number of Distinct Observations	72
Number of Detects	44	Number of Non-Detects	51
Number of Distinct Detects	40	Number of Distinct Non-Detects	35
Minimum Detect	0.00288	Minimum Non-Detect	0.0017
Maximum Detect	58	Maximum Non-Detect	0.008
Variance Detects	79.18	Percent Non-Detects	53.68%
Mean Detects	2.28	SD Detects	8.899
Median Detects	0.134	CV Detects	3.903
Skewness Detects	6.018	Kurtosis Detects	37.95
Mean of Logged Detects	-2.04	SD of Logged Detects	2.493

Normal GOF Test on Detects Only

Shapiro Wilk Test Statistic	0.276	Shapiro Wilk GOF Test	
5% Shapiro Wilk Critical Value	0.944	Detected Data Not Normal at 5% Significance Level	
Lilliefors Test Statistic	0.399	Lilliefors GOF Test	
5% Lilliefors Critical Value	0.134	Detected Data Not Normal at 5% Significance Level	
Detected Data Not Normal at 5% Significance Level			

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

Mean	1.057	Standard Error of Mean	0.632
SD	6.094	95% KM (BCA) UCL	2.2
95% KM (t) UCL	2.108	95% KM (Percentile Bootstrap) UCL	2.279
95% KM (z) UCL	2.097	95% KM Bootstrap t UCL	6.632
90% KM Chebyshev UCL	2.954	95% KM Chebyshev UCL	3.814
97.5% KM Chebyshev UCL	5.007	99% KM Chebyshev UCL	7.35

Gamma GOF Tests on Detected Observations Only

A-D Test Statistic	3.005	Anderson-Darling GOF Test	
5% A-D Critical Value	0.887	Detected Data Not Gamma Distributed at 5% Significance Level	
K-S Test Statistic	0.189	Kolmogrov-Smirnoff GOF	
5% K-S Critical Value	0.147	Detected Data Not Gamma Distributed at 5% Significance Level	
Detected Data Not Gamma Distributed at 5% Significance Level			

Post-Remediation 95% UCLs in Soil

Gamma Statistics on Detected Data Only

k hat (MLE)	0.248	k star (bias corrected MLE)	0.246
Theta hat (MLE)	9.186	Theta star (bias corrected MLE)	9.252
nu hat (MLE)	21.84	nu star (bias corrected)	21.69
MLE Mean (bias corrected)	2.28	MLE Sd (bias corrected)	4.593

Gamma Kaplan-Meier (KM) Statistics

k hat (KM)	0.0301	nu hat (KM)	5.718
Approximate Chi Square Value (5.72, α)	1.497	Adjusted Chi Square Value (5.72, β)	1.465
95% Gamma Approximate KM-UCL (use w)	4.037	95% Gamma Adjusted KM-UCL (use w)	4.126

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

Gamma ROS Statistics using Imputed Non-Detects

GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs

GROS may not be used when kstar of detected data is small such as < 0.1

For such situations, GROS method tends to yield inflated values of UCLs and BTVs

For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

Minimum	0.00288	Mean	1.061
Maximum	58	Median	0.01
SD	6.125	CV	5.77
k hat (MLE)	0.21	k star (bias corrected MLE)	0.21
Theta hat (MLE)	5.054	Theta star (bias corrected MLE)	5.044
nu hat (MLE)	39.91	nu star (bias corrected)	39.98
MLE Mean (bias corrected)	1.061	MLE Sd (bias corrected)	2.314
		Adjusted Level of Significance (β)	0.0475
Approximate Chi Square Value (39.98, α)	26.49	Adjusted Chi Square Value (39.98, β)	26.32
95% Gamma Approximate UCL (use wh)	1.602	95% Gamma Adjusted UCL (use when)	1.612

Lognormal GOF Test on Detected Observations Only

Shapiro Wilk Test Statistic	0.94	Shapiro Wilk GOF Test	
5% Shapiro Wilk Critical Value	0.944	Detected Data Not Lognormal at 5% Significance Level	
Lilliefors Test Statistic	0.137	Lilliefors GOF Test	
5% Lilliefors Critical Value	0.134	Detected Data Not Lognormal at 5% Significance Level	
Detected Data Not Lognormal at 5% Significance Level			

Lognormal ROS Statistics Using Imputed Non-Detects

Mean in Original Scale	1.056	Mean in Log Scale	-5.565
SD in Original Scale	6.126	SD in Log Scale	3.793
95% t UCL (assumes normality of ROS c)	2.1	95% Percentile Bootstrap UCL	2.244
95% BCA Bootstrap UCL	3.06	95% Bootstrap t UCL	6.48
95% H-UCL (Log ROS)	50.26		

DL/2 Statistics

DL/2 Normal		DL/2 Log-Transformed	
Mean in Original Scale	1.057	Mean in Log Scale	-4.283
SD in Original Scale	6.126	SD in Log Scale	2.701
95% t UCL (Assumes normality)	2.101	95% H-Stat UCL	1.772

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

Nonparametric Distribution Free UCL Statistics

Data do not follow a Discernible Distribution at 5% Significance Level

Suggested UCL to Use

97.5% KM (Chebyshev) UCL	5.007
--------------------------	-------

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.

Recommendations are based upon data size, data distribution, and skewness.

These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).

However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.

Post-Remediation 95% UCLs in Soil

TCA in Solid Aquifer Matrix Post Excavation

Location	Date Sampled	D1	D2	Parameter	Resppm	ValUCL	detect
GP001	8/9/2005	6	8	1,1,1-Trichloroethane	<0.0054	0.0054	0
GP002	8/9/2005	4	6	1,1,1-Trichloroethane	<0.0049	0.0049	0
GP003	8/9/2005	2	4	1,1,1-Trichloroethane	<0.0048	0.0048	0
GP004	8/9/2005	4	6	1,1,1-Trichloroethane	<0.004	0.004	0
GP005	8/9/2005	4	6	1,1,1-Trichloroethane	<0.0045	0.0045	0
GP006	8/9/2005	2	4	1,1,1-Trichloroethane	<0.0046	0.0046	0
GP007	8/9/2005	2	4	1,1,1-Trichloroethane	<0.0045	0.0045	0
GP008	8/9/2005	2	4	1,1,1-Trichloroethane	<0.0054	0.0054	0
GP009	8/10/2005	2	4	1,1,1-Trichloroethane	<0.0043	0.0043	0
GP010	8/10/2005	4	6	1,1,1-Trichloroethane	0.15	0.15	1
GP011	8/10/2005	2	4	1,1,1-Trichloroethane	<0.061	0.061	0
GP012	8/10/2005	4	6	1,1,1-Trichloroethane	0.41	0.41	1
GP013	8/10/2005	4	6	1,1,1-Trichloroethane	<0.0052	0.0052	0
MIP-1	10/16/2008	5	5	1,1,1-Trichloroethane	<0.0067	0.0067	0
MIP-1	10/16/2008	9	9	1,1,1-Trichloroethane	<0.0029	0.0029	0
MIP-12	10/16/2008	12	12	1,1,1-Trichloroethane	0.13	0.13	1
MIP-12	10/16/2008	4	4	1,1,1-Trichloroethane	<0.0069	0.0069	0
MIP-12	10/16/2008	6	6	1,1,1-Trichloroethane	<0.0076	0.0076	0
MIP-13	10/16/2008	1	1	1,1,1-Trichloroethane	<0.0038	0.0038	0
MIP-13	10/16/2008	3	3	1,1,1-Trichloroethane	0.0034	0.0034	1
MIP-13	10/16/2008	6	6	1,1,1-Trichloroethane	0.42	0.42	1
MIP-19	10/16/2008	1	1	1,1,1-Trichloroethane	<0.0059	0.0059	0
MIP-19	10/16/2008	3	3	1,1,1-Trichloroethane	<0.0071	0.0071	0
MIP-5	10/16/2008	3	3	1,1,1-Trichloroethane	<0.0022	0.0022	0
MIP-6	10/16/2008	6	6	1,1,1-Trichloroethane	<0.008	0.008	0
MIP-8	10/16/2008	2	2	1,1,1-Trichloroethane	0.014	0.014	1
MIP-8	10/16/2008	4	4	1,1,1-Trichloroethane	<0.007	0.007	0
MW-10	7/7/2006	5	10	1,1,1-Trichloroethane	<0.005	0.005	0
MW-11	7/6/2006	5	10	1,1,1-Trichloroethane	<0.005	0.005	0
MW-12	7/6/2006	5	10	1,1,1-Trichloroethane	<0.005	0.005	0
MW-13	6/27/2006	13	15	1,1,1-Trichloroethane	<0.005	0.005	0
MW-14	6/27/2006	13	15	1,1,1-Trichloroethane	<0.005	0.005	0
MW-15	6/28/2006	8	10	1,1,1-Trichloroethane	<0.005	0.005	0
MW-16	6/27/2006	8	10	1,1,1-Trichloroethane	<0.005	0.005	0
MW-1D	7/13/2004	8	10	1,1,1-Trichloroethane	<0.0019	0.0019	0
MW-2D	7/13/2004	8	10	1,1,1-Trichloroethane	<0.0017	0.0017	0
MW-3	7/14/2004	8	10	1,1,1-Trichloroethane	0.0312	0.0312	1
MW-3D	7/14/2004	13	15	1,1,1-Trichloroethane	0.416	0.416	1
MW-8	6/27/2006	8	10	1,1,1-Trichloroethane	<0.005	0.005	0
MW-9	6/27/2006	8	10	1,1,1-Trichloroethane	<0.005	0.005	0
SB-1	2/20/2013	1	1	1,1,1-Trichloroethane	<0.0033	0.0033	0
SB-1	2/20/2013	2	2	1,1,1-Trichloroethane	<0.006	0.006	0
SB-1	2/20/2013	4	4	1,1,1-Trichloroethane	<0.0062	0.0062	0
SB-2	2/20/2013	1	1	1,1,1-Trichloroethane	<0.0029	0.0029	0
SB-2	2/20/2013	2	2	1,1,1-Trichloroethane	<0.0029	0.0029	0
SB-2	2/20/2013	4	4	1,1,1-Trichloroethane	<0.0029	0.0029	0

Post-Remediation 95% UCLs in Soil

SB-3	2/20/2013	1	1	1,1,1-Trichloroethane	<0.0039	0.0039	0
SB-3	2/20/2013	2	2	1,1,1-Trichloroethane	<0.0031	0.0031	0
SB-3	2/20/2013	4	4	1,1,1-Trichloroethane	<0.004	0.004	0
SB-6	2/20/2013	1	1	1,1,1-Trichloroethane	<0.0031	0.0031	0
SB-6	2/20/2013	2	2	1,1,1-Trichloroethane	<0.0038	0.0038	0
SB-6	2/20/2013	4	4	1,1,1-Trichloroethane	<0.004	0.004	0
SB-7	2/20/2013	1	1	1,1,1-Trichloroethane	<0.0037	0.0037	0
SB-7	2/20/2013	2	2	1,1,1-Trichloroethane	<0.0065	0.0065	0
SB-7	2/20/2013	4	4	1,1,1-Trichloroethane	<0.0036	0.0036	0
SB-8	2/20/2013	1	1	1,1,1-Trichloroethane	<0.0025	0.0025	0
SB-8	2/20/2013	2	2	1,1,1-Trichloroethane	<0.0028	0.0028	0
SB-8	2/20/2013	4	4	1,1,1-Trichloroethane	<0.18	0.18	0
SB-9	2/20/2013	1	1	1,1,1-Trichloroethane	<0.0036	0.0036	0
SB-9	2/20/2013	2	2	1,1,1-Trichloroethane	<0.0048	0.0048	0
SB-9	2/20/2013	4	4	1,1,1-Trichloroethane	<0.0043	0.0043	0
SO-2	3/10/2009	1	1	1,1,1-Trichloroethane	<0.0029	0.0029	0
SO-2	3/10/2009	3	3	1,1,1-Trichloroethane	0.0064	0.0064	1
SO-3R	3/25/2014	4	4	1,1,1-Trichloroethane	0.0051	0.0051	1
SO-3R	3/25/2014	5	5	1,1,1-Trichloroethane	0.014	0.014	1
SO-4	3/10/2009	1	1	1,1,1-Trichloroethane	<0.0032	0.0032	0
SO-4	3/10/2009	3	3	1,1,1-Trichloroethane	<0.11	0.11	0
SO-5	3/10/2009	5	5	1,1,1-Trichloroethane	0.07	0.07	1
SO-5	3/10/2009	9	9	1,1,1-Trichloroethane	<0.0062	0.0062	0
SO-6	3/10/2009	5	5	1,1,1-Trichloroethane	0.01	0.01	1
SO-7	3/10/2009	3	3	1,1,1-Trichloroethane	0.072	0.072	1
SS-AST-1	1/12/2009	1	1	1,1,1-Trichloroethane	0.0805	0.0805	1
SS-AST-10	7/23/2012	1	1	1,1,1-Trichloroethane	<0.0029	0.0029	0
SS-AST-10	7/23/2012	2	2	1,1,1-Trichloroethane	<0.0033	0.0033	0
SS-AST-11	7/23/2012	1	1	1,1,1-Trichloroethane	<0.0028	0.0028	0
SS-AST-11	7/23/2012	2	2	1,1,1-Trichloroethane	<0.0034	0.0034	0
SS-AST-2	1/12/2009	1	1	1,1,1-Trichloroethane	1.11	1.11	1
SS-AST-3	7/23/2012	1	1	1,1,1-Trichloroethane	<0.003	0.003	0
SS-AST-3	7/23/2012	2	2	1,1,1-Trichloroethane	<0.0032	0.0032	0
SS-AST-4	7/23/2012	1	1	1,1,1-Trichloroethane	<0.0028	0.0028	0
SS-AST-4	7/23/2012	2	2	1,1,1-Trichloroethane	<0.0033	0.0033	0
SS-AST-7	7/23/2012	1	1	1,1,1-Trichloroethane	<0.0027	0.0027	0
SS-AST-7	7/23/2012	2	2	1,1,1-Trichloroethane	<0.0032	0.0032	0
SS-AST-8	7/23/2012	1	1	1,1,1-Trichloroethane	66	66	1
SS-AST-8	7/23/2012	2	2	1,1,1-Trichloroethane	4.7	4.7	1
SS-BLDG-1	1/12/2009	1	1	1,1,1-Trichloroethane	<0.0024	0.0024	0
SS-BLDG-1	1/12/2009	5	5	1,1,1-Trichloroethane	<0.00284	0.00284	0
SS-BLDG-2	1/12/2009	1	1	1,1,1-Trichloroethane	<0.00349	0.00349	0
SS-BLDG-2	1/12/2009	5	5	1,1,1-Trichloroethane	<0.00268	0.00268	0
SS-BLDG-3	1/12/2009	1	1	1,1,1-Trichloroethane	<0.00301	0.00301	0
SS-BLDG-4	1/12/2009	1	1	1,1,1-Trichloroethane	<0.00299	0.00299	0
SS-BLDG-5	1/12/2009	1	1	1,1,1-Trichloroethane	<0.00247	0.00247	0
SS-BLDG-6	1/12/2009	1	1	1,1,1-Trichloroethane	<0.00246	0.00246	0
SS-HA-1	1/12/2009	1	1	1,1,1-Trichloroethane	<0.00284	0.00284	0

Post-Remediation 95% UCLs in Soil

SS-HA-2	1/12/2009	1	1	1,1,1-Trichloroethane	<0.00325	0.00325	0
---------	-----------	---	---	-----------------------	----------	---------	---

UCL Statistics for Data Sets with Non-Detects

User Selected Options

Date/Time of Computation	3/23/2015 15:23
From File	WorkSheet.xls
Full Precision	OFF
Confidence Coefficient	95%
Number of Bootstrap Operations	2000

TCA post-remediation soil

General Statistics

Total Number of Observations	95	Number of Distinct Observations	63
Number of Detects	18	Number of Non-Detects	77
Number of Distinct Detects	17	Number of Distinct Non-Detects	47
Minimum Detect	0.0034	Minimum Non-Detect	0.0017
Maximum Detect	66	Maximum Non-Detect	0.18
Variance Detects	239.9	Percent Non-Detects	81.05%
Mean Detects	4.091	SD Detects	15.49
Median Detects	0.0762	CV Detects	3.786
Skewness Detects	4.208	Kurtosis Detects	17.78
Mean of Logged Detects	-2.287	SD of Logged Detects	2.562

Normal GOF Test on Detects Only

Shapiro Wilk Test Statistic	0.288	Shapiro Wilk GOF Test
5% Shapiro Wilk Critical Value	0.897	Detected Data Not Normal at 5% Significance Level
Lilliefors Test Statistic	0.465	Lilliefors GOF Test
5% Lilliefors Critical Value	0.209	Detected Data Not Normal at 5% Significance Level
Detected Data Not Normal at 5% Significance Level		

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

Mean	0.777	Standard Error of Mean	0.712
SD	6.745	95% KM (BCA) UCL	2.212
95% KM (t) UCL	1.96	95% KM (Percentile Bootstrap) UCL	2.137
95% KM (z) UCL	1.948	95% KM Bootstrap t UCL	44.77
90% KM Chebyshev UCL	2.913	95% KM Chebyshev UCL	3.881
97.5% KM Chebyshev UCL	5.224	99% KM Chebyshev UCL	7.862

Gamma GOF Tests on Detected Observations Only

A-D Test Statistic	2.403	Anderson-Darling GOF Test
5% A-D Critical Value	0.89	Detected Data Not Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.333	Kolmogorov-Smirnov GOF
5% K-S Critical Value	0.226	Detected Data Not Gamma Distributed at 5% Significance Level
Detected Data Not Gamma Distributed at 5% Significance Level		

Post-Remediation 95% UCLs in Soil

Gamma Statistics on Detected Data Only

k hat (MLE)	0.199	k star (bias corrected MLE)	0.203
Theta hat (MLE)	20.53	Theta star (bias corrected MLE)	20.15
nu hat (MLE)	7.173	nu star (bias corrected)	7.311
MLE Mean (bias corrected)	4.091	MLE Sd (bias corrected)	9.079

Gamma Kaplan-Meier (KM) Statistics

k hat (KM)	0.0133	nu hat (KM)	2.519
Approximate Chi Square Value (2.52, α)	0.245	Adjusted Chi Square Value (2.52, β)	0.237
95% Gamma Approximate KM-UCL (use	7.97	95% Gamma Adjusted KM-UCL (use when n<!	8.241

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

Gamma ROS Statistics using Imputed Non-Detects

GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs

GROS may not be used when kstar of detected data is small such as < 0.1

For such situations, GROS method tends to yield inflated values of UCLs and BTVs

For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

Minimum	0.0034	Mean	0.783
Maximum	66	Median	0.01
SD	6.78	CV	8.656
k hat (MLE)	0.189	k star (bias corrected MLE)	0.19
Theta hat (MLE)	4.139	Theta star (bias corrected MLE)	4.116
nu hat (MLE)	35.96	nu star (bias corrected)	36.16
MLE Mean (bias corrected)	0.783	MLE Sd (bias corrected)	1.796
		Adjusted Level of Significance (β)	0.0475
Approximate Chi Square Value (36.16, α)	23.4	Adjusted Chi Square Value (36.16, β)	23.24
95% Gamma Approximate UCL (use whe	1.211	95% Gamma Adjusted UCL (use when n<50)	1.219

Lognormal GOF Test on Detected Observations Only

Shapiro Wilk Test Statistic	0.937	Shapiro Wilk GOF Test	
5% Shapiro Wilk Critical Value	0.897	Detected Data appear Lognormal at 5% Significance Level	
Lilliefors Test Statistic	0.123	Lilliefors GOF Test	
5% Lilliefors Critical Value	0.209	Detected Data appear Lognormal at 5% Significance Level	
Detected Data appear Lognormal at 5% Significance Level			

Lognormal ROS Statistics Using Imputed Non-Detects

Mean in Original Scale	0.775	Mean in Log Scale	-10.2
SD in Original Scale	6.781	SD in Log Scale	4.439
95% t UCL (assumes normality of ROS dæ	1.931	95% Percentile Bootstrap UCL	2.155
95% BCA Bootstrap UCL	3.505	95% Bootstrap t UCL	42.84
95% H-UCL (Log ROS)	15.71		

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

KM Mean (logged)	-5.581	95% H-UCL (KM -Log)	0.0476
KM SD (logged)	1.935	95% Critical H Value (KM-Log)	3.322
KM Standard Error of Mean (logged)	0.205		

DL/2 Statistics

Post-Remediation 95% UCLs in Soil

DL/2 Normal	DL/2 Log-Transformed	
Mean in Original Scale	0.779	Mean in Log Scale -5.393
SD in Original Scale	6.781	SD in Log Scale 1.976
95% t UCL (Assumes normality)	1.934	95% H-Stat UCL 0.0636
DL/2 is not a recommended method, provided for comparisons and historical reasons		

Nonparametric Distribution Free UCL Statistics

Detected Data appear Lognormal Distributed at 5% Significance Level

Suggested UCL to Use

97.5% KM (Chebyshev) UCL 5.224

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.

Recommendations are based upon data size, data distribution, and skewness.

These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).

However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.

Groundwater UCL Calculations - Shallow Monitoring Wells Oct 2010-Aug 2013

Matrix	Location	Date Sampled	Parameter	Result (ppb)	DL	Val	D_Val
Groundwater	MW-10	10/8/2010	1,1,1-Trichloroethane	0	5	5	0
Groundwater	MW-10	2/7/2012	1,1,1-Trichloroethane	0	5	5	0
Groundwater	MW-10	2/6/2013	1,1,1-Trichloroethane	0	5	5	0
Groundwater	MW-11	10/8/2010	1,1,1-Trichloroethane	0	5	5	0
Groundwater	MW-11	2/7/2012	1,1,1-Trichloroethane	0	5	5	0
Groundwater	MW-11	2/5/2013	1,1,1-Trichloroethane	0	5	5	0
Groundwater	MW-12	10/8/2010	1,1,1-Trichloroethane	0	5	5	0
Groundwater	MW-12	2/7/2012	1,1,1-Trichloroethane	0	5	5	0
Groundwater	MW-12	2/5/2013	1,1,1-Trichloroethane	0	5	5	0
Groundwater	MW-13	10/12/2010	1,1,1-Trichloroethane	0	5	5	0
Groundwater	MW-13	2/8/2012	1,1,1-Trichloroethane	0	5	5	0
Groundwater	MW-13	2/5/2013	1,1,1-Trichloroethane	0	5	5	0
Groundwater	MW-14	10/12/2010	1,1,1-Trichloroethane	0	5	5	0
Groundwater	MW-14	2/8/2012	1,1,1-Trichloroethane	0	5	5	0
Groundwater	MW-14	2/5/2013	1,1,1-Trichloroethane	0	5	5	0
Groundwater	MW-15	10/12/2010	1,1,1-Trichloroethane	8.899999619	5	8.899999619	1
Groundwater	MW-15	2/8/2012	1,1,1-Trichloroethane	5.300000191	5	5.300000191	1
Groundwater	MW-15	8/23/2012	1,1,1-Trichloroethane	0	5	5	0
Groundwater	MW-15	2/6/2013	1,1,1-Trichloroethane	0	5	5	0
Groundwater	MW-15	8/6/2013	1,1,1-Trichloroethane	0	5	5	0
Groundwater	MW-15	11/10/2014	1,1,1-Trichloroethane	0	5	5	0
Groundwater	MW-16	10/8/2010	1,1,1-Trichloroethane	0	5	5	0
Groundwater	MW-16	2/8/2012	1,1,1-Trichloroethane	0	5	5	0
Groundwater	MW-16	8/23/2012	1,1,1-Trichloroethane	0	5	5	0
Groundwater	MW-16	2/5/2013	1,1,1-Trichloroethane	0	5	5	0
Groundwater	MW-16	8/5/2013	1,1,1-Trichloroethane	0	5	5	0
Groundwater	MW-16	11/10/2014	1,1,1-Trichloroethane	0	5	5	0
Groundwater	MW-17	10/8/2010	1,1,1-Trichloroethane	0	5	5	0
Groundwater	MW-17	2/7/2012	1,1,1-Trichloroethane	0	5	5	0
Groundwater	MW-17	2/5/2013	1,1,1-Trichloroethane	0	5	5	0
Groundwater	MW-1R	8/23/2012	1,1,1-Trichloroethane	0	5	5	0
Groundwater	MW-1R	2/5/2013	1,1,1-Trichloroethane	0	5	5	0
Groundwater	MW-1R	11/10/2014	1,1,1-Trichloroethane	0	5	5	0
Groundwater	MW-2	10/8/2010	1,1,1-Trichloroethane	0	5	5	0
Groundwater	MW-2	2/8/2012	1,1,1-Trichloroethane	0	5	5	0
Groundwater	MW-2	2/5/2013	1,1,1-Trichloroethane	0	5	5	0
Groundwater	MW-3	10/7/2010	1,1,1-Trichloroethane	590	250	590	1
Groundwater	MW-3	2/9/2012	1,1,1-Trichloroethane	590	5	590	1
Groundwater	MW-3	8/24/2012	1,1,1-Trichloroethane	520	100	520	1
Groundwater	MW-3	2/6/2013	1,1,1-Trichloroethane	460	250	460	1
Groundwater	MW-3	2/6/2013	1,1,1-Trichloroethane	560	100	560	1
Groundwater	MW-3	8/6/2013	1,1,1-Trichloroethane	450	250	450	1
Groundwater	MW-3	8/6/2013	1,1,1-Trichloroethane	470	250	470	1
Groundwater	MW-3	11/11/2014	1,1,1-Trichloroethane	450	5	450	1
Groundwater	MW-4	10/12/2010	1,1,1-Trichloroethane	0	5	5	0
Groundwater	MW-4	2/8/2012	1,1,1-Trichloroethane	0	5	5	0
Groundwater	MW-4	8/23/2012	1,1,1-Trichloroethane	0	5	5	0
Groundwater	MW-4	2/5/2013	1,1,1-Trichloroethane	0	5	5	0
Groundwater	MW-4	8/5/2013	1,1,1-Trichloroethane	0	5	5	0
Groundwater	MW-4	11/11/2014	1,1,1-Trichloroethane	0	5	5	0
Groundwater	MW-5	10/7/2010	1,1,1-Trichloroethane	0	5	5	0
Groundwater	MW-5	2/9/2012	1,1,1-Trichloroethane	0	5	5	0
Groundwater	MW-5	8/23/2012	1,1,1-Trichloroethane	0	5	5	0
Groundwater	MW-5	2/6/2013	1,1,1-Trichloroethane	0	5	5	0
Groundwater	MW-5	8/6/2013	1,1,1-Trichloroethane	6.800000191	5	6.800000191	1
Groundwater	MW-5	11/11/2014	1,1,1-Trichloroethane	0	5	5	0
Groundwater	MW-6	10/8/2010	1,1,1-Trichloroethane	37	5	37	1
Groundwater	MW-6	2/8/2012	1,1,1-Trichloroethane	26	5	26	1
Groundwater	MW-6	2/6/2013	1,1,1-Trichloroethane	22	5	22	1

Groundwater UCL Calculations - Shallow Monitoring Wells Oct 2010-Aug 2013

Groundwater	MW-7	10/8/2010	1,1,1-Trichloroethane	0	5	5	0
Groundwater	MW-7	10/8/2010	1,1,1-Trichloroethane	16	5	16	1
Groundwater	MW-7	2/9/2012	1,1,1-Trichloroethane	0	5	5	0
Groundwater	MW-7	2/6/2013	1,1,1-Trichloroethane	0	5	5	0
Groundwater	MW-8	10/7/2010	1,1,1-Trichloroethane	0	5	5	0
Groundwater	MW-8	2/8/2012	1,1,1-Trichloroethane	0	5	5	0
Groundwater	MW-8	2/5/2013	1,1,1-Trichloroethane	0	5	5	0
Groundwater	MW-9	10/7/2010	1,1,1-Trichloroethane	0	5	5	0
Groundwater	MW-9	2/8/2012	1,1,1-Trichloroethane	0	5	5	0
Groundwater	MW-9	2/5/2013	1,1,1-Trichloroethane	0	5	5	0
Groundwater	MW-10	10/8/2010	cis-1,2-Dichloroethene	16	5	16	1
Groundwater	MW-10	2/7/2012	cis-1,2-Dichloroethene	16	5	16	1
Groundwater	MW-10	2/6/2013	cis-1,2-Dichloroethene	12	5	12	1
Groundwater	MW-11	10/8/2010	cis-1,2-Dichloroethene	6.199999809	5	6.199999809	1
Groundwater	MW-11	2/7/2012	cis-1,2-Dichloroethene	8.800000191	5	8.800000191	1
Groundwater	MW-11	2/5/2013	cis-1,2-Dichloroethene	5.199999809	5	5.199999809	1
Groundwater	MW-11	2/5/2013	cis-1,2-Dichloroethene	8.899999619	5	8.899999619	1
Groundwater	MW-12	10/8/2010	cis-1,2-Dichloroethene	7.599999905	5	7.599999905	1
Groundwater	MW-12	2/7/2012	cis-1,2-Dichloroethene	14	5	14	1
Groundwater	MW-12	2/5/2013	cis-1,2-Dichloroethene	11	5	11	1
Groundwater	MW-13	10/12/2010	cis-1,2-Dichloroethene	0	5	5	0
Groundwater	MW-13	2/8/2012	cis-1,2-Dichloroethene	0	5	5	0
Groundwater	MW-13	2/5/2013	cis-1,2-Dichloroethene	0	5	5	0
Groundwater	MW-14	10/12/2010	cis-1,2-Dichloroethene	0	5	5	0
Groundwater	MW-14	2/8/2012	cis-1,2-Dichloroethene	0	5	5	0
Groundwater	MW-14	2/5/2013	cis-1,2-Dichloroethene	0	5	5	0
Groundwater	MW-15	10/12/2010	cis-1,2-Dichloroethene	22	5	22	1
Groundwater	MW-15	2/8/2012	cis-1,2-Dichloroethene	37	5	37	1
Groundwater	MW-15	8/23/2012	cis-1,2-Dichloroethene	27	5	27	1
Groundwater	MW-15	2/6/2013	cis-1,2-Dichloroethene	29	5	29	1
Groundwater	MW-15	8/6/2013	cis-1,2-Dichloroethene	29	5	29	1
Groundwater	MW-15	11/10/2014	cis-1,2-Dichloroethene	22		22	1
Groundwater	MW-16	10/8/2010	cis-1,2-Dichloroethene	0	5	5	0
Groundwater	MW-16	2/8/2012	cis-1,2-Dichloroethene	0	5	5	0
Groundwater	MW-16	8/23/2012	cis-1,2-Dichloroethene	0	5	5	0
Groundwater	MW-16	2/5/2013	cis-1,2-Dichloroethene	0	5	5	0
Groundwater	MW-16	8/5/2013	cis-1,2-Dichloroethene	0	5	5	0
Groundwater	MW-16	11/10/2014	cis-1,2-Dichloroethene	0	5	5	0
Groundwater	MW-17	10/8/2010	cis-1,2-Dichloroethene	0	5	5	0
Groundwater	MW-17	2/7/2012	cis-1,2-Dichloroethene	0	5	5	0
Groundwater	MW-17	2/5/2013	cis-1,2-Dichloroethene	0	5	5	0
Groundwater	MW-1R	8/23/2012	cis-1,2-Dichloroethene	0	5	5	0
Groundwater	MW-1R	2/5/2013	cis-1,2-Dichloroethene	0	5	5	0
Groundwater	MW-1R	11/10/2014	cis-1,2-Dichloroethene	0	5	5	0
Groundwater	MW-2	10/8/2010	cis-1,2-Dichloroethene	33	5	33	1
Groundwater	MW-2	2/8/2012	cis-1,2-Dichloroethene	6.099999905	5	6.099999905	1
Groundwater	MW-2	2/5/2013	cis-1,2-Dichloroethene	0	5	5	0
Groundwater	MW-3	10/7/2010	cis-1,2-Dichloroethene	1000	250	1000	1
Groundwater	MW-3	2/9/2012	cis-1,2-Dichloroethene	1900	5	1900	1
Groundwater	MW-3	8/24/2012	cis-1,2-Dichloroethene	2900	100	2900	1
Groundwater	MW-3	2/6/2013	cis-1,2-Dichloroethene	1900	250	1900	1
Groundwater	MW-3	2/6/2013	cis-1,2-Dichloroethene	2600	100	2600	1
Groundwater	MW-3	8/6/2013	cis-1,2-Dichloroethene	2300	250	2300	1
Groundwater	MW-3	11/11/2014	cis-1,2-Dichloroethene	2800		2800	1
Groundwater	MW-4	10/12/2010	cis-1,2-Dichloroethene	57	5	57	1
Groundwater	MW-4	2/8/2012	cis-1,2-Dichloroethene	33	5	33	1
Groundwater	MW-4	8/23/2012	cis-1,2-Dichloroethene	12	5	12	1
Groundwater	MW-4	2/5/2013	cis-1,2-Dichloroethene	0	5	5	0
Groundwater	MW-4	8/5/2013	cis-1,2-Dichloroethene	0	5	5	0
Groundwater	MW-4	11/11/2014	cis-1,2-Dichloroethene	0	5	5	0

Groundwater UCL Calculations - Shallow Monitoring Wells Oct 2010-Aug 2013

Groundwater	MW-5	10/7/2010	cis-1,2-Dichloroethene	0	5	5	0
Groundwater	MW-5	2/9/2012	cis-1,2-Dichloroethene	0	5	5	0
Groundwater	MW-5	8/23/2012	cis-1,2-Dichloroethene	0	5	5	0
Groundwater	MW-5	2/6/2013	cis-1,2-Dichloroethene	0	5	5	0
Groundwater	MW-5	8/6/2013	cis-1,2-Dichloroethene	110	5	110	1
Groundwater	MW-5	11/11/2014	cis-1,2-Dichloroethene	40		40	1
Groundwater	MW-6	10/8/2010	cis-1,2-Dichloroethene	5.5	5	5.5	1
Groundwater	MW-6	2/8/2012	cis-1,2-Dichloroethene	6	5	6	1
Groundwater	MW-6	2/6/2013	cis-1,2-Dichloroethene	0	5	5	0
Groundwater	MW-7	10/8/2010	cis-1,2-Dichloroethene	220	100	220	1
Groundwater	MW-7	10/8/2010	cis-1,2-Dichloroethene	240	50	240	1
Groundwater	MW-7	2/9/2012	cis-1,2-Dichloroethene	320	100	320	1
Groundwater	MW-7	2/6/2013	cis-1,2-Dichloroethene	220	100	220	1
Groundwater	MW-8	10/7/2010	cis-1,2-Dichloroethene	0	5	5	0
Groundwater	MW-8	2/8/2012	cis-1,2-Dichloroethene	0	5	5	0
Groundwater	MW-8	2/5/2013	cis-1,2-Dichloroethene	0	5	5	0
Groundwater	MW-9	10/7/2010	cis-1,2-Dichloroethene	0	5	5	0
Groundwater	MW-9	2/8/2012	cis-1,2-Dichloroethene	0	5	5	0
Groundwater	MW-9	2/5/2013	cis-1,2-Dichloroethene	0	5	5	0
Groundwater	MW-10	10/8/2010	Tetrachloroethene	0	5	5	0
Groundwater	MW-10	2/7/2012	Tetrachloroethene	0	5	5	0
Groundwater	MW-10	2/6/2013	Tetrachloroethene	0	5	5	0
Groundwater	MW-11	10/8/2010	Tetrachloroethene	0	5	5	0
Groundwater	MW-11	2/7/2012	Tetrachloroethene	0	5	5	0
Groundwater	MW-11	2/5/2013	Tetrachloroethene	0	5	5	0
Groundwater	MW-12	10/8/2010	Tetrachloroethene	0	5	5	0
Groundwater	MW-12	2/7/2012	Tetrachloroethene	0	5	5	0
Groundwater	MW-12	2/5/2013	Tetrachloroethene	0	5	5	0
Groundwater	MW-13	10/12/2010	Tetrachloroethene	0	5	5	0
Groundwater	MW-13	2/8/2012	Tetrachloroethene	0	5	5	0
Groundwater	MW-13	2/5/2013	Tetrachloroethene	0	5	5	0
Groundwater	MW-14	10/12/2010	Tetrachloroethene	0	5	5	0
Groundwater	MW-14	2/8/2012	Tetrachloroethene	0	5	5	0
Groundwater	MW-14	2/5/2013	Tetrachloroethene	0	5	5	0
Groundwater	MW-15	10/12/2010	Tetrachloroethene	0	5	5	0
Groundwater	MW-15	2/8/2012	Tetrachloroethene	0	5	5	0
Groundwater	MW-15	8/23/2012	Tetrachloroethene	0	5	5	0
Groundwater	MW-15	2/6/2013	Tetrachloroethene	0	5	5	0
Groundwater	MW-15	8/6/2013	Tetrachloroethene	0	5	5	0
Groundwater	MW-15	11/10/2014	Tetrachloroethene	0	5	5	0
Groundwater	MW-16	10/8/2010	Tetrachloroethene	0	5	5	0
Groundwater	MW-16	2/8/2012	Tetrachloroethene	0	5	5	0
Groundwater	MW-16	8/23/2012	Tetrachloroethene	0	5	5	0
Groundwater	MW-16	2/5/2013	Tetrachloroethene	0	5	5	0
Groundwater	MW-16	8/5/2013	Tetrachloroethene	0	5	5	0
Groundwater	MW-16	11/10/2014	Tetrachloroethene	0	5	5	0
Groundwater	MW-17	10/8/2010	Tetrachloroethene	0	5	5	0
Groundwater	MW-17	2/7/2012	Tetrachloroethene	0	5	5	0
Groundwater	MW-17	2/5/2013	Tetrachloroethene	0	5	5	0
Groundwater	MW-1R	8/23/2012	Tetrachloroethene	0	5	5	0
Groundwater	MW-1R	2/5/2013	Tetrachloroethene	0	5	5	0
Groundwater	MW-1R	11/10/2014	Tetrachloroethene	0	5	5	0
Groundwater	MW-2	10/8/2010	Tetrachloroethene	69	5	69	1
Groundwater	MW-2	2/8/2012	Tetrachloroethene	0	5	5	0
Groundwater	MW-2	2/5/2013	Tetrachloroethene	0	5	5	0
Groundwater	MW-3	10/7/2010	Tetrachloroethene	3000	250	3000	1
Groundwater	MW-3	2/9/2012	Tetrachloroethene	3000	5	3000	1
Groundwater	MW-3	8/24/2012	Tetrachloroethene	3400	100	3400	1
Groundwater	MW-3	2/6/2013	Tetrachloroethene	3300	100	3300	1
Groundwater	MW-3	2/6/2013	Tetrachloroethene	3500	250	3500	1

Groundwater	MW-3	8/6/2013	Tetrachloroethene	2900	250	2900	1
Groundwater	MW-3	11/11/2014	Tetrachloroethene	2700		2700	1
Groundwater	MW-4	10/12/2010	Tetrachloroethene	19	5	19	1
Groundwater	MW-4	2/8/2012	Tetrachloroethene	17	5	17	1
Groundwater	MW-4	8/23/2012	Tetrachloroethene	0	5	5	0
Groundwater	MW-4	2/5/2013	Tetrachloroethene	0	5	5	0
Groundwater	MW-4	8/5/2013	Tetrachloroethene	0	5	5	0
Groundwater	MW-4	11/11/2014	Tetrachloroethene	0	5	5	0
Groundwater	MW-5	10/7/2010	Tetrachloroethene	0	5	5	0
Groundwater	MW-5	2/9/2012	Tetrachloroethene	0	5	5	0
Groundwater	MW-5	8/23/2012	Tetrachloroethene	0	5	5	0
Groundwater	MW-5	2/6/2013	Tetrachloroethene	0	5	5	0
Groundwater	MW-5	8/6/2013	Tetrachloroethene	0	5	5	0
Groundwater	MW-5	11/11/2014	Tetrachloroethene	6.4		6.4	1
Groundwater	MW-6	10/8/2010	Tetrachloroethene	0	5	5	0
Groundwater	MW-6	2/8/2012	Tetrachloroethene	0	5	5	0
Groundwater	MW-6	2/6/2013	Tetrachloroethene	0	5	5	0
Groundwater	MW-7	10/8/2010	Tetrachloroethene	1900	50	1900	1
Groundwater	MW-7	10/8/2010	Tetrachloroethene	2200	100	2200	1
Groundwater	MW-7	2/9/2012	Tetrachloroethene	1700	100	1700	1
Groundwater	MW-7	2/6/2013	Tetrachloroethene	2000	100	2000	1
Groundwater	MW-8	10/7/2010	Tetrachloroethene	0	5	5	0
Groundwater	MW-8	2/8/2012	Tetrachloroethene	0	5	5	0
Groundwater	MW-8	2/5/2013	Tetrachloroethene	0	5	5	0
Groundwater	MW-9	10/7/2010	Tetrachloroethene	0	5	5	0
Groundwater	MW-9	2/8/2012	Tetrachloroethene	0	5	5	0
Groundwater	MW-9	2/5/2013	Tetrachloroethene	0	5	5	0
Groundwater	MW-10	10/8/2010	Trichloroethene	93	5	93	1
Groundwater	MW-10	2/7/2012	Trichloroethene	49	5	49	1
Groundwater	MW-10	2/6/2013	Trichloroethene	51	5	51	1
Groundwater	MW-11	10/8/2010	Trichloroethene	0	5	5	0
Groundwater	MW-11	2/7/2012	Trichloroethene	0	5	5	0
Groundwater	MW-11	2/5/2013	Trichloroethene	0	5	5	0
Groundwater	MW-12	10/8/2010	Trichloroethene	6.800000191	5	6.800000191	1
Groundwater	MW-12	2/7/2012	Trichloroethene	9.100000381	5	9.100000381	1
Groundwater	MW-12	2/5/2013	Trichloroethene	11	5	11	1
Groundwater	MW-13	10/12/2010	Trichloroethene	0	5	5	0
Groundwater	MW-13	2/8/2012	Trichloroethene	0	5	5	0
Groundwater	MW-13	2/5/2013	Trichloroethene	0	5	5	0
Groundwater	MW-14	10/12/2010	Trichloroethene	0	5	5	0
Groundwater	MW-14	2/8/2012	Trichloroethene	0	5	5	0
Groundwater	MW-14	2/5/2013	Trichloroethene	0	5	5	0
Groundwater	MW-15	10/12/2010	Trichloroethene	8.899999619	5	8.899999619	1
Groundwater	MW-15	2/8/2012	Trichloroethene	21	5	21	1
Groundwater	MW-15	8/23/2012	Trichloroethene	17	5	17	1
Groundwater	MW-15	2/6/2013	Trichloroethene	20	5	20	1
Groundwater	MW-15	8/6/2013	Trichloroethene	20	5	20	1
Groundwater	MW-15	11/10/2014	Trichloroethene	17		17	1
Groundwater	MW-16	10/8/2010	Trichloroethene	0	5	5	0
Groundwater	MW-16	2/8/2012	Trichloroethene	0	5	5	0
Groundwater	MW-16	8/23/2012	Trichloroethene	0	5	5	0
Groundwater	MW-16	2/5/2013	Trichloroethene	0	5	5	0
Groundwater	MW-16	8/5/2013	Trichloroethene	0	5	5	0
Groundwater	MW-16	11/10/2014	Trichloroethene	0	5	5	0
Groundwater	MW-17	10/8/2010	Trichloroethene	0	5	5	0
Groundwater	MW-17	2/7/2012	Trichloroethene	0	5	5	0
Groundwater	MW-17	2/5/2013	Trichloroethene	0	5	5	0
Groundwater	MW-1R	8/23/2012	Trichloroethene	0	5	5	0
Groundwater	MW-1R	2/5/2013	Trichloroethene	0	5	5	0
Groundwater	MW-1R	11/10/2014	Trichloroethene	0	5	5	0

Groundwater UCL Calculations - Shallow Monitoring Wells Oct 2010-Aug 2013

Groundwater	MW-2	10/8/2010	Trichloroethene	96	5	96	1
Groundwater	MW-2	2/8/2012	Trichloroethene	0	5	5	0
Groundwater	MW-2	2/5/2013	Trichloroethene	0	5	5	0
Groundwater	MW-3	10/7/2010	Trichloroethene	4500	250	4500	1
Groundwater	MW-3	2/9/2012	Trichloroethene	4200	5	4200	1
Groundwater	MW-3	8/24/2012	Trichloroethene	6100	250	6100	1
Groundwater	MW-3	2/6/2013	Trichloroethene	4900	250	4900	1
Groundwater	MW-3	2/6/2013	Trichloroethene	5000	250	5000	1
Groundwater	MW-3	8/6/2013	Trichloroethene	4800	250	4800	1
Groundwater	MW-3	8/6/2013	Trichloroethene	4900	250	4900	1
Groundwater	MW-3	11/11/2014	Trichloroethene	5000		5000	1
Groundwater	MW-4	10/12/2010	Trichloroethene	86	5	86	1
Groundwater	MW-4	2/8/2012	Trichloroethene	41	5	41	1
Groundwater	MW-4	8/23/2012	Trichloroethene	13	5	13	1
Groundwater	MW-4	2/5/2013	Trichloroethene	6.599999905	5	6.599999905	1
Groundwater	MW-4	8/5/2013	Trichloroethene	0	5	5	0
Groundwater	MW-4	11/11/2014	Trichloroethene	0	5	5	0
Groundwater	MW-5	10/7/2010	Trichloroethene	0	5	5	0
Groundwater	MW-5	2/9/2012	Trichloroethene	0	5	5	0
Groundwater	MW-5	8/23/2012	Trichloroethene	0	5	5	0
Groundwater	MW-5	2/6/2013	Trichloroethene	0	5	5	0
Groundwater	MW-5	8/6/2013	Trichloroethene	5.199999809	5	5.199999809	1
Groundwater	MW-5	11/11/2014	Trichloroethene	40		40	1
Groundwater	MW-6	10/8/2010	Trichloroethene	36	5	36	1
Groundwater	MW-6	2/8/2012	Trichloroethene	41	5	41	1
Groundwater	MW-6	2/6/2013	Trichloroethene	48	5	48	1
Groundwater	MW-7	10/8/2010	Trichloroethene	190	100	190	1
Groundwater	MW-7	10/8/2010	Trichloroethene	260	50	260	1
Groundwater	MW-7	2/9/2012	Trichloroethene	230	100	230	1
Groundwater	MW-7	2/6/2013	Trichloroethene	270	100	270	1
Groundwater	MW-8	10/7/2010	Trichloroethene	0	5	5	0
Groundwater	MW-8	2/8/2012	Trichloroethene	0	5	5	0
Groundwater	MW-8	2/5/2013	Trichloroethene	0	5	5	0
Groundwater	MW-9	10/7/2010	Trichloroethene	0	5	5	0
Groundwater	MW-9	2/8/2012	Trichloroethene	0	5	5	0
Groundwater	MW-9	2/5/2013	Trichloroethene	0	5	5	0
Groundwater	MW-10	10/8/2010	Vinyl chloride	0	2	2	0
Groundwater	MW-10	2/7/2012	Vinyl chloride	0	2	2	0
Groundwater	MW-10	2/6/2013	Vinyl chloride	0	2	2	0
Groundwater	MW-11	10/8/2010	Vinyl chloride	0	2	2	0
Groundwater	MW-11	2/7/2012	Vinyl chloride	0	2	2	0
Groundwater	MW-11	2/5/2013	Vinyl chloride	0	2	2	0
Groundwater	MW-12	10/8/2010	Vinyl chloride	0	2	2	0
Groundwater	MW-12	2/7/2012	Vinyl chloride	0	2	2	0
Groundwater	MW-12	2/5/2013	Vinyl chloride	0	2	2	0
Groundwater	MW-13	10/12/2010	Vinyl chloride	0	2	2	0
Groundwater	MW-13	2/8/2012	Vinyl chloride	0	2	2	0
Groundwater	MW-13	2/5/2013	Vinyl chloride	0	2	2	0
Groundwater	MW-14	10/12/2010	Vinyl chloride	0	2	2	0
Groundwater	MW-14	2/8/2012	Vinyl chloride	0	2	2	0
Groundwater	MW-14	2/5/2013	Vinyl chloride	0	2	2	0
Groundwater	MW-15	10/12/2010	Vinyl chloride	5.900000095	2	5.900000095	1
Groundwater	MW-15	2/8/2012	Vinyl chloride	8.199999809	2	8.199999809	1
Groundwater	MW-15	8/23/2012	Vinyl chloride	5.400000095	2	5.400000095	1
Groundwater	MW-15	2/6/2013	Vinyl chloride	8	2	8	1
Groundwater	MW-15	8/6/2013	Vinyl chloride	5.800000191	2	5.800000191	1
Groundwater	MW-15	11/10/2014	Vinyl chloride	4.8		4.8	1
Groundwater	MW-16	10/8/2010	Vinyl chloride	0	2	2	0
Groundwater	MW-16	2/8/2012	Vinyl chloride	0	2	2	0
Groundwater	MW-16	8/23/2012	Vinyl chloride	0	2	2	0

Groundwater UCL Calculations - Shallow Monitoring Wells Oct 2010-Aug 2013

Groundwater	MW-16	2/5/2013	Vinyl chloride	0	2	2	0
Groundwater	MW-16	8/5/2013	Vinyl chloride	0	2	2	0
Groundwater	MW-16	11/10/2014	Vinyl chloride	0	2	2	0
Groundwater	MW-17	10/8/2010	Vinyl chloride	0	2	2	0
Groundwater	MW-17	2/7/2012	Vinyl chloride	0	2	2	0
Groundwater	MW-17	2/5/2013	Vinyl chloride	0	2	2	0
Groundwater	MW-1R	8/23/2012	Vinyl chloride	0	2	2	0
Groundwater	MW-1R	2/5/2013	Vinyl chloride	0	2	2	0
Groundwater	MW-1R	11/10/2014	Vinyl chloride	0	2	2	0
Groundwater	MW-2	10/8/2010	Vinyl chloride	7.5	2	7.5	1
Groundwater	MW-2	2/8/2012	Vinyl chloride	2.5	2	2.5	1
Groundwater	MW-2	2/5/2013	Vinyl chloride	0	2	2	0
Groundwater	MW-3	10/7/2010	Vinyl chloride	110	2	110	1
Groundwater	MW-3	2/9/2012	Vinyl chloride	240	2	240	1
Groundwater	MW-3	8/24/2012	Vinyl chloride	230	40	230	1
Groundwater	MW-3	2/6/2013	Vinyl chloride	200	100	200	1
Groundwater	MW-3	2/6/2013	Vinyl chloride	300	40	300	1
Groundwater	MW-3	8/6/2013	Vinyl chloride	230	100	230	1
Groundwater	MW-3	11/11/2014	Vinyl chloride	400		400	1
Groundwater	MW-4	10/12/2010	Vinyl chloride	59	2	59	1
Groundwater	MW-4	2/8/2012	Vinyl chloride	11	2	11	1
Groundwater	MW-4	8/23/2012	Vinyl chloride	5.800000191	2	5.800000191	1
Groundwater	MW-4	2/5/2013	Vinyl chloride	0	2	2	0
Groundwater	MW-4	8/5/2013	Vinyl chloride	0	2	2	0
Groundwater	MW-4	11/11/2014	Vinyl chloride	0	2	2	0
Groundwater	MW-5	10/7/2010	Vinyl chloride	11	2	11	1
Groundwater	MW-5	2/9/2012	Vinyl chloride	11	2	11	1
Groundwater	MW-5	8/23/2012	Vinyl chloride	4.400000095	2	4.400000095	1
Groundwater	MW-5	2/6/2013	Vinyl chloride	6.400000095	2	6.400000095	1
Groundwater	MW-5	8/6/2013	Vinyl chloride	140	2	140	1
Groundwater	MW-5	11/11/2014	Vinyl chloride	330		330	1
Groundwater	MW-6	10/8/2010	Vinyl chloride	5.599999905	2	5.599999905	1
Groundwater	MW-6	2/8/2012	Vinyl chloride	2.799999952	2	2.799999952	1
Groundwater	MW-6	2/6/2013	Vinyl chloride	0	2	2	0
Groundwater	MW-7	10/8/2010	Vinyl chloride	83	2	83	1
Groundwater	MW-7	10/8/2010	Vinyl chloride	130	2	130	1
Groundwater	MW-7	2/9/2012	Vinyl chloride	150	2	150	1
Groundwater	MW-7	2/6/2013	Vinyl chloride	150	2	150	1
Groundwater	MW-8	10/7/2010	Vinyl chloride	0	2	2	0
Groundwater	MW-8	2/8/2012	Vinyl chloride	0	2	2	0
Groundwater	MW-8	2/5/2013	Vinyl chloride	0	2	2	0
Groundwater	MW-9	10/7/2010	Vinyl chloride	0	2	2	0
Groundwater	MW-9	2/8/2012	Vinyl chloride	0	2	2	0
Groundwater	MW-9	2/5/2013	Vinyl chloride	0	2	2	0

UCL Statistics for Uncensored Full Data Sets

User Selected Options

Date/Time of Computation 3/29/2015 11:59
 From File WorkSheet.xls
 Full Precision OFF
 Confidence Coefficient 95%
 Number of Bootstrap Operations 2000

Val (1,1,1-trichloroethane)

General Statistics

Total Number of Observations 69 Number of Distinct Observations 14
 Number of Missing Observations 0

Minimum	5	Mean	64.96
Maximum	590	Median	5
SD	164	Std. Error of Mean	19.75
Coefficient of Variation	2.53	Skewness	2.519
Normal GOF Test			
Shapiro Wilk Test Statistic	0.4	Shapiro Wilk GOF Test	
5% Shapiro Wilk P Value	0	Data Not Normal at 5% Significance Level	
Lilliefors Test Statistic	0.46	Lilliefors GOF Test	
5% Lilliefors Critical Value	0.11	Data Not Normal at 5% Significance Level	
Data Not Normal at 5% Significance Level			
Assuming Normal Distribution			
95% Normal UCL		95% UCLs (Adjusted for Skewness)	
95% Student's-t UCL	97.9	95% Adjusted-CLT UCL (Chen-1995)	103.8
		95% Modified-t UCL (Johnson-1978)	98.9
Gamma GOF Test			
A-D Test Statistic	19.6	Anderson-Darling Gamma GOF Test	
5% A-D Critical Value	0.85	Data Not Gamma Distributed at 5% Significance Level	
K-S Test Statistic	0.48	Kolmogrov-Smirnoff Gamma GOF Test	
5% K-S Critical Value	0.12	Data Not Gamma Distributed at 5% Significance Level	
Data Not Gamma Distributed at 5% Significance Level			
Gamma Statistics			
k hat (MLE)	0.35	k star (bias corrected MLE)	0.344
Theta hat (MLE)	186	Theta star (bias corrected MLE)	188.8
nu hat (MLE)	48.3	nu star (bias corrected)	47.48
MLE Mean (bias corrected)	65	MLE Sd (bias corrected)	110.7
		Approximate Chi Square Value (0.05)	32.67
Adjusted Level of Significance	0.05	Adjusted Chi Square Value	32.41
Assuming Gamma Distribution			
95% Approximate Gamma UCL (use when n>=50))	94.4	95% Adjusted Gamma UCL (use when n<50)	95.18
Lognormal GOF Test			
Shapiro Wilk Test Statistic	0.46	Shapiro Wilk Lognormal GOF Test	
5% Shapiro Wilk P Value	0	Data Not Lognormal at 5% Significance Level	
Lilliefors Test Statistic	0.45	Lilliefors Lognormal GOF Test	
5% Lilliefors Critical Value	0.11	Data Not Lognormal at 5% Significance Level	
Data Not Lognormal at 5% Significance Level			
Lognormal Statistics			
Minimum of Logged Data	1.61	Mean of logged Data	2.25
Maximum of Logged Data	6.38	SD of logged Data	1.502
Assuming Lognormal Distribution			
95% H-UCL	44.9	90% Chebyshev (MVUE) UCL	49.22
95% Chebyshev (MVUE) UCL	58.7	97.5% Chebyshev (MVUE) UCL	71.81
99% Chebyshev (MVUE) UCL	97.6		
Nonparametric Distribution Free UCL Statistics			
Data do not follow a Discernible Distribution (0.05)			
Nonparametric Distribution Free UCLs			
95% CLT UCL	97.5	95% Jackknife UCL	97.9
95% Standard Bootstrap UCL	96.5	95% Bootstrap-t UCL	110.5
95% Hall's Bootstrap UCL	98.3	95% Percentile Bootstrap UCL	101.2
95% BCA Bootstrap UCL	103		
90% Chebyshev(Mean, Sd) UCL	124	95% Chebyshev(Mean, Sd) UCL	151.1

97.5% Chebyshev(Mean, Sd) UCL	188	99% Chebyshev(Mean, Sd) UCL	261.5
Suggested UCL to Use			
95% Chebyshev (Mean, Sd) UCL	151		
Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL. These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002) and Singh and Singh (2003). However, simulations results will not cover all Real World data sets. For additional insight the user may want to consult a statistician.			
Val (cis-1,2-dichloroethene)			
General Statistics			
Total Number of Observations	69	Number of Distinct Observations	30
		Number of Missing Observations	0
Minimum	5	Mean	248.4
Maximum	2900	Median	5.5
SD	692	Std. Error of Mean	83.29
Coefficient of Variation	2.79	Skewness	2.999
Normal GOF Test			
Shapiro Wilk Test Statistic	0.4	Shapiro Wilk GOF Test	
5% Shapiro Wilk P Value	0	Data Not Normal at 5% Significance Level	
Lilliefors Test Statistic	0.44	Lilliefors GOF Test	
5% Lilliefors Critical Value	0.11	Data Not Normal at 5% Significance Level	
Data Not Normal at 5% Significance Level			
Assuming Normal Distribution			
95% Normal UCL		95% UCLs (Adjusted for Skewness)	
95% Student's-t UCL	387	95% Adjusted-CLT UCL (Chen-1995)	417.5
		95% Modified-t UCL (Johnson-1978)	392.3
Gamma GOF Test			
A-D Test Statistic	13	Anderson-Darling Gamma GOF Test	
5% A-D Critical Value	0.88	Data Not Gamma Distributed at 5% Significance Level	
K-S Test Statistic	0.34	Kolmogrov-Smirnoff Gamma GOF Test	
5% K-S Critical Value	0.12	Data Not Gamma Distributed at 5% Significance Level	
Data Not Gamma Distributed at 5% Significance Level			
Gamma Statistics			
k hat (MLE)	0.27	k star (bias corrected MLE)	0.265
Theta hat (MLE)	932	Theta star (bias corrected MLE)	938.4
nu hat (MLE)	36.8	nu star (bias corrected)	36.53
MLE Mean (bias corrected)	248	MLE Sd (bias corrected)	482.8
		Approximate Chi Square Value (0.05)	23.7
Adjusted Level of Significance	0.05	Adjusted Chi Square Value	23.47
Assuming Gamma Distribution			
95% Approximate Gamma UCL (use when n>=50)	383	95% Adjusted Gamma UCL (use when n<50)	386.5
Lognormal GOF Test			
Shapiro Wilk Test Statistic	0.68	Shapiro Wilk Lognormal GOF Test	
5% Shapiro Wilk P Value	0	Data Not Lognormal at 5% Significance Level	
Lilliefors Test Statistic	0.26	Lilliefors Lognormal GOF Test	
5% Lilliefors Critical Value	0.11	Data Not Lognormal at 5% Significance Level	
Data Not Lognormal at 5% Significance Level			
Lognormal Statistics			
Minimum of Logged Data	1.61	Mean of logged Data	2.879

Maximum of Logged Data	7.97	SD of logged Data	1.943
Assuming Lognormal Distribution			
95% H-UCL	230	90% Chebyshev (MVUE) UCL	224.5
95% Chebyshev (MVUE) UCL	277	97.5% Chebyshev (MVUE) UCL	349.2
99% Chebyshev (MVUE) UCL	492		
Nonparametric Distribution Free UCL Statistics			
Data do not follow a Discernible Distribution (0.05)			
Nonparametric Distribution Free UCLs			
95% CLT UCL	385	95% Jackknife UCL	387.3
95% Standard Bootstrap UCL	381	95% Bootstrap-t UCL	438.8
95% Hall's Bootstrap UCL	389	95% Percentile Bootstrap UCL	391
95% BCA Bootstrap UCL	417		
90% Chebyshev(Mean, Sd) UCL	498	95% Chebyshev(Mean, Sd) UCL	611.4
97.5% Chebyshev(Mean, Sd) UCL	769	99% Chebyshev(Mean, Sd) UCL	1077
Suggested UCL to Use			
95% Chebyshev (Mean, Sd) UCL	611		
Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL. These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002) and Singh and Singh (2003). However, simulations results will not cover all Real World data sets. For additional insight the user may want to consult a statistician.			
Val (tetrachloroethene)			
General Statistics			
Total Number of Observations	68	Number of Distinct Observations	15
		Number of Missing Observations	0
Minimum	5	Mean	440.8
Maximum	3500	Median	5
SD	1026	Std. Error of Mean	124.4
Coefficient of Variation	2.33	Skewness	2.1
Normal GOF Test			
Shapiro Wilk Test Statistic	0.47	Shapiro Wilk GOF Test	
5% Shapiro Wilk P Value	0	Data Not Normal at 5% Significance Level	
Lilliefors Test Statistic	0.48	Lilliefors GOF Test	
5% Lilliefors Critical Value	0.11	Data Not Normal at 5% Significance Level	
Data Not Normal at 5% Significance Level			
Assuming Normal Distribution			
95% Normal UCL		95% UCLs (Adjusted for Skewness)	
95% Student's-t UCL	648	95% Adjusted-CLT UCL (Chen-1995)	679.3
		95% Modified-t UCL (Johnson-1978)	653.6
Gamma GOF Test			
A-D Test Statistic	17.8	Anderson-Darling Gamma GOF Test	
5% A-D Critical Value	0.91	Data Not Gamma Distributed at 5% Significance Level	
K-S Test Statistic	0.48	Kolmogorov-Smirnov Gamma GOF Test	
5% K-S Critical Value	0.12	Data Not Gamma Distributed at 5% Significance Level	
Data Not Gamma Distributed at 5% Significance Level			
Gamma Statistics			
k hat (MLE)	0.22	k star (bias corrected MLE)	0.215
Theta hat (MLE)	2052	Theta star (bias corrected MLE)	2049
nu hat (MLE)	29.2	nu star (bias corrected)	29.27

MLE Mean (bias corrected)	441	MLE Sd (bias corrected)	950.3
		Approximate Chi Square Value (0.05)	17.92
Adjusted Level of Significance	0.05	Adjusted Chi Square Value	17.72
Assuming Gamma Distribution			
95% Approximate Gamma UCL (use when n>=50))	720	95% Adjusted Gamma UCL (use when n<50)	727.9
Lognormal GOF Test			
Shapiro Wilk Test Statistic	0.49	Shapiro Wilk Lognormal GOF Test	
5% Shapiro Wilk P Value	0	Data Not Lognormal at 5% Significance Level	
Lilliefors Test Statistic	0.46	Lilliefors Lognormal GOF Test	
5% Lilliefors Critical Value	0.11	Data Not Lognormal at 5% Significance Level	
Data Not Lognormal at 5% Significance Level			
Lognormal Statistics			
Minimum of Logged Data	1.61	Mean of logged Data	2.702
Maximum of Logged Data	8.16	SD of logged Data	2.321
Assuming Lognormal Distribution			
95% H-UCL	528	90% Chebyshev (MVUE) UCL	453.7
95% Chebyshev (MVUE) UCL	572	97.5% Chebyshev (MVUE) UCL	735.8
99% Chebyshev (MVUE) UCL	1058		
Nonparametric Distribution Free UCL Statistics			
Data do not follow a Discernible Distribution (0.05)			
Nonparametric Distribution Free UCLs			
95% CLT UCL	646	95% Jackknife UCL	648.4
95% Standard Bootstrap UCL	648	95% Bootstrap-t UCL	709.1
95% Hall's Bootstrap UCL	666	95% Percentile Bootstrap UCL	646.7
95% BCA Bootstrap UCL	685		
90% Chebyshev(Mean, Sd) UCL	814	95% Chebyshev(Mean, Sd) UCL	983.2
97.5% Chebyshev(Mean, Sd) UCL	1218	99% Chebyshev(Mean, Sd) UCL	1679
Suggested UCL to Use			
95% Chebyshev (Mean, Sd) UCL	983		

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL. These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002) and Singh and Singh (2003). However, simulations results will not cover all Real World data sets. For additional insight the user may want to consult a statistician.

Val (trichloroethene)

General Statistics			
Total Number of Observations	69	Number of Distinct Observations	30
		Number of Missing Observations	0
Minimum	5	Mean	598
Maximum	6100	Median	5
SD	1589	Std. Error of Mean	191.3
Coefficient of Variation	2.66	Skewness	2.51
Normal GOF Test			
Shapiro Wilk Test Statistic	0.41	Shapiro Wilk GOF Test	
5% Shapiro Wilk P Value	0	Data Not Normal at 5% Significance Level	
Lilliefors Test Statistic	0.47	Lilliefors GOF Test	
5% Lilliefors Critical Value	0.11	Data Not Normal at 5% Significance Level	
Data Not Normal at 5% Significance Level			

Assuming Normal Distribution

95% Normal UCL	95% UCLs (Adjusted for Skewness)	
95% Student's-t UCL	917 95% Adjusted-CLT UCL (Chen-1995)	974.5
	95% Modified-t UCL (Johnson-1978)	926.7

Gamma GOF Test

A-D Test Statistic	13.2 Anderson-Darling Gamma GOF Test	
5% A-D Critical Value	0.9 Data Not Gamma Distributed at 5% Significance Level	
K-S Test Statistic	0.33 Kolmogrov-Smirnoff Gamma GOF Test	
5% K-S Critical Value	0.12 Data Not Gamma Distributed at 5% Significance Level	
Data Not Gamma Distributed at 5% Significance Level		

Gamma Statistics

k hat (MLE)	0.22 k star (bias corrected MLE)	0.222
Theta hat (MLE)	2699 Theta star (bias corrected MLE)	2699
nu hat (MLE)	30.6 nu star (bias corrected)	30.58
MLE Mean (bias corrected)	598 MLE Sd (bias corrected)	1270
	Approximate Chi Square Value (0.05)	18.95
Adjusted Level of Significance	0.05 Adjusted Chi Square Value	18.75

Assuming Gamma Distribution

95% Approximate Gamma UCL (use when n>=50)	965 95% Adjusted Gamma UCL (use when n<50)	975.1
--	--	-------

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.68 Shapiro Wilk Lognormal GOF Test	
5% Shapiro Wilk P Value	0 Data Not Lognormal at 5% Significance Level	
Lilliefors Test Statistic	0.26 Lilliefors Lognormal GOF Test	
5% Lilliefors Critical Value	0.11 Data Not Lognormal at 5% Significance Level	
Data Not Lognormal at 5% Significance Level		

Lognormal Statistics

Minimum of Logged Data	1.61 Mean of logged Data	3.125
Maximum of Logged Data	8.72 SD of logged Data	2.269

Assuming Lognormal Distribution

95% H-UCL	689 90% Chebyshev (MVUE) UCL	609.2
95% Chebyshev (MVUE) UCL	766 97.5% Chebyshev (MVUE) UCL	982.4
99% Chebyshev (MVUE) UCL	1408	

Nonparametric Distribution Free UCL Statistics

Data do not follow a Discernible Distribution (0.05)

Nonparametric Distribution Free UCLs

95% CLT UCL	913 95% Jackknife UCL	917
95% Standard Bootstrap UCL	912 95% Bootstrap-t UCL	1014
95% Hall's Bootstrap UCL	923 95% Percentile Bootstrap UCL	932.7
95% BCA Bootstrap UCL	983	
90% Chebyshev(Mean, Sd) UCL	1172 95% Chebyshev(Mean, Sd) UCL	1432
97.5% Chebyshev(Mean, Sd) UCL	1793 99% Chebyshev(Mean, Sd) UCL	2502

Suggested UCL to Use

95% Chebyshev (Mean, Sd) UCL	1432
------------------------------	------

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL. These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002) and Singh and Singh (2003). However, simulations results will not cover all Real World data sets. For additional insight the user may want to consult a statistician.

Val (vinyl chloride)

General Statistics		
Total Number of Observations	68	Number of Distinct Observations 26
		Number of Missing Observations 0
Minimum	2	Mean 43.15
Maximum	400	Median 2
SD	89.8	Std. Error of Mean 10.89
Coefficient of Variation	2.08	Skewness 2.365
Normal GOF Test		
Shapiro Wilk Test Statistic	0.54	Shapiro Wilk GOF Test
5% Shapiro Wilk P Value	0	Data Not Normal at 5% Significance Level
Lilliefors Test Statistic	0.43	Lilliefors GOF Test
5% Lilliefors Critical Value	0.11	Data Not Normal at 5% Significance Level
Data Not Normal at 5% Significance Level		
Assuming Normal Distribution		
95% Normal UCL		95% UCLs (Adjusted for Skewness)
95% Student's-t UCL	61.3	95% Adjusted-CLT UCL (Chen-1995) 64.4
		95% Modified-t UCL (Johnson-1978) 61.84
Gamma GOF Test		
A-D Test Statistic	11.5	Anderson-Darling Gamma GOF Test
5% A-D Critical Value	0.85	Data Not Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.33	Kolmogrov-Smirnoff Gamma GOF Test
5% K-S Critical Value	0.12	Data Not Gamma Distributed at 5% Significance Level
Data Not Gamma Distributed at 5% Significance Level		
Gamma Statistics		
k hat (MLE)	0.36	k star (bias corrected MLE) 0.349
Theta hat (MLE)	122	Theta star (bias corrected MLE) 123.6
nu hat (MLE)	48.3	nu star (bias corrected) 47.47
MLE Mean (bias corrected)	43.2	MLE Sd (bias corrected) 73.03
		Approximate Chi Square Value (0.05) 32.66
Adjusted Level of Significance	0.05	Adjusted Chi Square Value 32.4
Assuming Gamma Distribution		
95% Approximate Gamma UCL (use when n>=50))	62.7	95% Adjusted Gamma UCL (use when n<50) 63.23
Lognormal GOF Test		
Shapiro Wilk Test Statistic	0.67	Shapiro Wilk Lognormal GOF Test
5% Shapiro Wilk P Value	0	Data Not Lognormal at 5% Significance Level
Lilliefors Test Statistic	0.31	Lilliefors Lognormal GOF Test
5% Lilliefors Critical Value	0.11	Data Not Lognormal at 5% Significance Level
Data Not Lognormal at 5% Significance Level		
Lognormal Statistics		
Minimum of Logged Data	0.69	Mean of logged Data 1.874
Maximum of Logged Data	5.99	SD of logged Data 1.772
Assuming Lognormal Distribution		
95% H-UCL	55.9	90% Chebyshev (MVUE) UCL 57.3
95% Chebyshev (MVUE) UCL	69.8	97.5% Chebyshev (MVUE) UCL 87.22
99% Chebyshev (MVUE) UCL	121	
Nonparametric Distribution Free UCL Statistics		
Data do not follow a Discernible Distribution (0.05)		
Nonparametric Distribution Free UCLs		
95% CLT UCL	61.1	95% Jackknife UCL 61.32

95% Standard Bootstrap UCL	60.8	95% Bootstrap-t UCL	66.73
95% Hall's Bootstrap UCL	64.3	95% Percentile Bootstrap UCL	61.39
95% BCA Bootstrap UCL	64.7		
90% Chebyshev(Mean, Sd) UCL	75.8	95% Chebyshev(Mean, Sd) UCL	90.63
97.5% Chebyshev(Mean, Sd) UCL	111	99% Chebyshev(Mean, Sd) UCL	151.5
Suggested UCL to Use			
95% Chebyshev (Mean, Sd) UCL	90.6		

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL. These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002) and Singh and Singh (2003). However, simulations results will not cover all Real World data sets. For additional insight the user may want to consult a statistician.

Matrix	Location	Date Sampled	Parameter	Result (ppb)	DL	Val	D_Val
Groundwater	MW-10	10/8/2010	Tetrachloroethene	0	5	5	0
Groundwater	MW-10	2/7/2012	Tetrachloroethene	0	5	5	0
Groundwater	MW-10	2/6/2013	Tetrachloroethene	0	5	5	0
Groundwater	MW-11	10/8/2010	Tetrachloroethene	0	5	5	0
Groundwater	MW-11	2/7/2012	Tetrachloroethene	0	5	5	0
Groundwater	MW-11	2/5/2013	Tetrachloroethene	0	5	5	0
Groundwater	MW-12	10/8/2010	Tetrachloroethene	0	5	5	0
Groundwater	MW-12	2/7/2012	Tetrachloroethene	0	5	5	0
Groundwater	MW-12	2/5/2013	Tetrachloroethene	0	5	5	0
Groundwater	MW-13	10/12/2010	Tetrachloroethene	0	5	5	0
Groundwater	MW-13	2/8/2012	Tetrachloroethene	0	5	5	0
Groundwater	MW-13	2/5/2013	Tetrachloroethene	0	5	5	0
Groundwater	MW-14	10/12/2010	Tetrachloroethene	0	5	5	0
Groundwater	MW-14	2/8/2012	Tetrachloroethene	0	5	5	0
Groundwater	MW-14	2/5/2013	Tetrachloroethene	0	5	5	0
Groundwater	MW-15	10/12/2010	Tetrachloroethene	0	5	5	0
Groundwater	MW-15	2/8/2012	Tetrachloroethene	0	5	5	0
Groundwater	MW-15	8/23/2012	Tetrachloroethene	0	5	5	0
Groundwater	MW-15	2/6/2013	Tetrachloroethene	0	5	5	0
Groundwater	MW-15	8/6/2013	Tetrachloroethene	0	5	5	0
Groundwater	MW-15	11/10/2014	Tetrachloroethene	0	5	5	0
Groundwater	MW-16	10/8/2010	Tetrachloroethene	0	5	5	0
Groundwater	MW-16	2/8/2012	Tetrachloroethene	0	5	5	0
Groundwater	MW-16	8/23/2012	Tetrachloroethene	0	5	5	0
Groundwater	MW-16	2/5/2013	Tetrachloroethene	0	5	5	0
Groundwater	MW-16	8/5/2013	Tetrachloroethene	0	5	5	0
Groundwater	MW-16	11/10/2014	Tetrachloroethene	0	5	5	0
Groundwater	MW-17	10/8/2010	Tetrachloroethene	0	5	5	0
Groundwater	MW-17	2/7/2012	Tetrachloroethene	0	5	5	0
Groundwater	MW-17	2/5/2013	Tetrachloroethene	0	5	5	0
Groundwater	MW-1R	8/23/2012	Tetrachloroethene	0	5	5	0
Groundwater	MW-1R	2/5/2013	Tetrachloroethene	0	5	5	0
Groundwater	MW-1R	11/10/2014	Tetrachloroethene	0	5	5	0
Groundwater	MW-2	10/8/2010	Tetrachloroethene	69	5	69	1
Groundwater	MW-2	2/8/2012	Tetrachloroethene	0	5	5	0
Groundwater	MW-2	2/5/2013	Tetrachloroethene	0	5	5	0
Groundwater	MW-4	10/12/2010	Tetrachloroethene	19	5	19	1
Groundwater	MW-4	2/8/2012	Tetrachloroethene	17	5	17	1
Groundwater	MW-4	8/23/2012	Tetrachloroethene	0	5	5	0
Groundwater	MW-4	2/5/2013	Tetrachloroethene	0	5	5	0
Groundwater	MW-4	8/5/2013	Tetrachloroethene	0	5	5	0
Groundwater	MW-4	11/11/2014	Tetrachloroethene	0	5	5	0
Groundwater	MW-5	10/7/2010	Tetrachloroethene	0	5	5	0
Groundwater	MW-5	2/9/2012	Tetrachloroethene	0	5	5	0
Groundwater	MW-5	8/23/2012	Tetrachloroethene	0	5	5	0
Groundwater	MW-5	2/6/2013	Tetrachloroethene	0	5	5	0
Groundwater	MW-5	8/6/2013	Tetrachloroethene	0	5	5	0
Groundwater	MW-5	11/11/2014	Tetrachloroethene	6.4		6.4	1
Groundwater	MW-6	10/8/2010	Tetrachloroethene	0	5	5	0
Groundwater	MW-6	2/8/2012	Tetrachloroethene	0	5	5	0
Groundwater	MW-6	2/6/2013	Tetrachloroethene	0	5	5	0
Groundwater	MW-8	10/7/2010	Tetrachloroethene	0	5	5	0
Groundwater	MW-8	2/8/2012	Tetrachloroethene	0	5	5	0
Groundwater	MW-8	2/5/2013	Tetrachloroethene	0	5	5	0
Groundwater	MW-9	10/7/2010	Tetrachloroethene	0	5	5	0
Groundwater	MW-9	2/8/2012	Tetrachloroethene	0	5	5	0
Groundwater	MW-9	2/5/2013	Tetrachloroethene	0	5	5	0
Groundwater	MW-10	10/8/2010	Trichloroethene	93	5	93	1

Groundwater UCL Calculations - Shallow Monitoring Wells Oct 2010-Aug 2013 - Excluding Wells within the UEC Restricted Area

Groundwater	MW-10	2/7/2012	Trichloroethene	49	5	49	1
Groundwater	MW-10	2/6/2013	Trichloroethene	51	5	51	1
Groundwater	MW-11	10/8/2010	Trichloroethene	0	5	5	0
Groundwater	MW-11	2/7/2012	Trichloroethene	0	5	5	0
Groundwater	MW-11	2/5/2013	Trichloroethene	0	5	5	0
Groundwater	MW-12	10/8/2010	Trichloroethene	6.800000191	5	6.800000191	1
Groundwater	MW-12	2/7/2012	Trichloroethene	9.100000381	5	9.100000381	1
Groundwater	MW-12	2/5/2013	Trichloroethene	11	5	11	1
Groundwater	MW-13	10/12/2010	Trichloroethene	0	5	5	0
Groundwater	MW-13	2/8/2012	Trichloroethene	0	5	5	0
Groundwater	MW-13	2/5/2013	Trichloroethene	0	5	5	0
Groundwater	MW-14	10/12/2010	Trichloroethene	0	5	5	0
Groundwater	MW-14	2/8/2012	Trichloroethene	0	5	5	0
Groundwater	MW-14	2/5/2013	Trichloroethene	0	5	5	0
Groundwater	MW-15	10/12/2010	Trichloroethene	8.899999619	5	8.899999619	1
Groundwater	MW-15	2/8/2012	Trichloroethene	21	5	21	1
Groundwater	MW-15	8/23/2012	Trichloroethene	17	5	17	1
Groundwater	MW-15	2/6/2013	Trichloroethene	20	5	20	1
Groundwater	MW-15	8/6/2013	Trichloroethene	20	5	20	1
Groundwater	MW-15	11/10/2014	Trichloroethene	17		17	1
Groundwater	MW-16	10/8/2010	Trichloroethene	0	5	5	0
Groundwater	MW-16	2/8/2012	Trichloroethene	0	5	5	0
Groundwater	MW-16	8/23/2012	Trichloroethene	0	5	5	0
Groundwater	MW-16	2/5/2013	Trichloroethene	0	5	5	0
Groundwater	MW-16	8/5/2013	Trichloroethene	0	5	5	0
Groundwater	MW-16	11/10/2014	Trichloroethene	0	5	5	0
Groundwater	MW-17	10/8/2010	Trichloroethene	0	5	5	0
Groundwater	MW-17	2/7/2012	Trichloroethene	0	5	5	0
Groundwater	MW-17	2/5/2013	Trichloroethene	0	5	5	0
Groundwater	MW-1R	8/23/2012	Trichloroethene	0	5	5	0
Groundwater	MW-1R	2/5/2013	Trichloroethene	0	5	5	0
Groundwater	MW-1R	11/10/2014	Trichloroethene	0	5	5	0
Groundwater	MW-2	10/8/2010	Trichloroethene	96	5	96	1
Groundwater	MW-2	2/8/2012	Trichloroethene	0	5	5	0
Groundwater	MW-2	2/5/2013	Trichloroethene	0	5	5	0
Groundwater	MW-4	10/12/2010	Trichloroethene	86	5	86	1
Groundwater	MW-4	2/8/2012	Trichloroethene	41	5	41	1
Groundwater	MW-4	8/23/2012	Trichloroethene	13	5	13	1
Groundwater	MW-4	2/5/2013	Trichloroethene	6.599999905	5	6.599999905	1
Groundwater	MW-4	8/5/2013	Trichloroethene	0	5	5	0
Groundwater	MW-4	11/11/2014	Trichloroethene	0	5	5	0
Groundwater	MW-5	10/7/2010	Trichloroethene	0	5	5	0
Groundwater	MW-5	2/9/2012	Trichloroethene	0	5	5	0
Groundwater	MW-5	8/23/2012	Trichloroethene	0	5	5	0
Groundwater	MW-5	2/6/2013	Trichloroethene	0	5	5	0
Groundwater	MW-5	8/6/2013	Trichloroethene	5.199999809	5	5.199999809	1
Groundwater	MW-5	11/11/2014	Trichloroethene	40		40	1
Groundwater	MW-6	10/8/2010	Trichloroethene	36	5	36	1
Groundwater	MW-6	2/8/2012	Trichloroethene	41	5	41	1
Groundwater	MW-6	2/6/2013	Trichloroethene	48	5	48	1
Groundwater	MW-8	10/7/2010	Trichloroethene	0	5	5	0
Groundwater	MW-8	2/8/2012	Trichloroethene	0	5	5	0
Groundwater	MW-8	2/5/2013	Trichloroethene	0	5	5	0
Groundwater	MW-9	10/7/2010	Trichloroethene	0	5	5	0
Groundwater	MW-9	2/8/2012	Trichloroethene	0	5	5	0
Groundwater	MW-9	2/5/2013	Trichloroethene	0	5	5	0

UCL Statistics for Uncensored Full Data Sets

User Selected Options

Date/Time of Computation	4/6/2015 16:01
From File	WorkSheet.xls
Full Precision	OFF
Confidence Coefficient	95%
Number of Bootstrap Operations	2000

Value (tetrachloroethene)

General Statistics

Total Number of Observations	57	Number of Distinct Observations	5
		Number of Missing Observations	0
Minimum	5	Mean	6.604
Maximum	69	Median	5
SD	8.754	Std. Error of Mean	1.159
Coefficient of Variation	1.326	Skewness	6.779

Normal GOF Test

Shapiro Wilk Test Statistic	0.204	Shapiro Wilk GOF Test
5% Shapiro Wilk P Value	0	Data Not Normal at 5% Significance Level
Lilliefors Test Statistic	0.502	Lilliefors GOF Test
5% Lilliefors Critical Value	0.117	Data Not Normal at 5% Significance Level
Data Not Normal at 5% Significance Level		

Assuming Normal Distribution

95% Normal UCL		95% UCLs (Adjusted for Skewness)	
95% Student's-t UCL	8.543	95% Adjusted-CLT UCL (Chen-1995)	9.623
		95% Modified-t UCL (Johnson-1970)	8.716

Gamma GOF Test

A-D Test Statistic	19.37	Anderson-Darling Gamma GOF Test
5% A-D Critical Value	0.758	Data Not Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.529	Kolmogrov-Smirnoff Gamma GOF Test
5% K-S Critical Value	0.119	Data Not Gamma Distributed at 5% Significance Level
Data Not Gamma Distributed at 5% Significance Level		

Gamma Statistics

k hat (MLE)	2.89	k star (bias corrected MLE)	2.749
Theta hat (MLE)	2.285	Theta star (bias corrected MLE)	2.402
nu hat (MLE)	329.4	nu star (bias corrected)	313.4
MLE Mean (bias corrected)	6.604	MLE Sd (bias corrected)	3.983
		Approximate Chi Square Value (0.05)	273.4
Adjusted Level of Significance	0.0458	Adjusted Chi Square Value	272.4

Assuming Gamma Distribution

95% Approximate Gamma UCL (use when n > 100)	7.57	95% Adjusted Gamma UCL (use when n < 100)	7.597
--	------	---	-------

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.264	Shapiro Wilk Lognormal GOF Test
5% Shapiro Wilk P Value	0	Data Not Lognormal at 5% Significance Level
Lilliefors Test Statistic	0.52	Lilliefors Lognormal GOF Test
5% Lilliefors Critical Value	0.117	Data Not Lognormal at 5% Significance Level
Data Not Lognormal at 5% Significance Level		

Lognormal Statistics

Minimum of Logged Data	1.609	Mean of logged Data	1.705
Maximum of Logged Data	4.234	SD of logged Data	0.416

Assuming Lognormal Distribution

95% H-UCL	6.643	90% Chebyshev (MVUE) UCL	7.015
-----------	-------	--------------------------	-------

95% Chebyshev (MVUE) UCL	7.48	97.5% Chebyshev (MVUE) UCL	8.126
99% Chebyshev (MVUE) UCL	9.394		

Nonparametric Distribution Free UCL Statistics
Data do not follow a Discernible Distribution (0.05)

Nonparametric Distribution Free UCLs

95% CLT UCL	8.511	95% Jackknife UCL	8.543
95% Standard Bootstrap UCL	8.469	95% Bootstrap-t UCL	14.28
95% Hall's Bootstrap UCL	14.56	95% Percentile Bootstrap UCL	8.825
95% BCA Bootstrap UCL	10.64		
90% Chebyshev(Mean, Sd) UCL	10.08	95% Chebyshev(Mean, Sd) UCL	11.66
97.5% Chebyshev(Mean, Sd) UCL	13.84	99% Chebyshev(Mean, Sd) UCL	18.14

Suggested UCL to Use

95% Student's-t UCL	8.543	or 95% Modified-t UCL	8.716
---------------------	-------	-----------------------	-------

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL. These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002) and Singh and Singh (2003). However, simulations results will not cover all Real World data sets. For additional insight the user may want to consult a statistician.

Value (trichloroethene)

General Statistics

Total Number of Observations	57	Number of Distinct Observations	20
		Number of Missing Observations	0
Minimum	5	Mean	15.99
Maximum	96	Median	5
SD	22.16	Std. Error of Mean	2.936
Coefficient of Variation	1.386	Skewness	2.425

Normal GOF Test

Shapiro Wilk Test Statistic	0.569	Shapiro Wilk GOF Test	
5% Shapiro Wilk P Value	0	Data Not Normal at 5% Significance Level	
Lilliefors Test Statistic	0.328	Lilliefors GOF Test	
5% Lilliefors Critical Value	0.117	Data Not Normal at 5% Significance Level	
Data Not Normal at 5% Significance Level			

Assuming Normal Distribution

95% Normal UCL		95% UCLs (Adjusted for Skewness)	
95% Student's-t UCL	20.9	95% Adjusted-CLT UCL (Chen-1995)	21.83
		95% Modified-t UCL (Johnson-1979)	21.06

Gamma GOF Test

A-D Test Statistic	8.9	Anderson-Darling Gamma GOF Test	
5% A-D Critical Value	0.779	Data Not Gamma Distributed at 5% Significance Level	
K-S Test Statistic	0.358	Kolmogorov-Smirnov Gamma GOF Test	
5% K-S Critical Value	0.121	Data Not Gamma Distributed at 5% Significance Level	
Data Not Gamma Distributed at 5% Significance Level			

Gamma Statistics

k hat (MLE)	1.019	k star (bias corrected MLE)	0.977
Theta hat (MLE)	15.7	Theta star (bias corrected MLE)	16.37
nu hat (MLE)	116.1	nu star (bias corrected)	111.4
MLE Mean (bias corrected)	15.99	MLE Sd (bias corrected)	16.18
		Approximate Chi Square Value (0.05)	88
Adjusted Level of Significance	0.0458	Adjusted Chi Square Value	87.47

Assuming Gamma Distribution

95% Approximate Gamma UCL (use wher	20.24	95% Adjusted Gamma UCL (use wl	20.36
-------------------------------------	-------	--------------------------------	-------

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.671	Shapiro Wilk Lognormal GOF Test	
5% Shapiro Wilk P Value	5.55E-16	Data Not Lognormal at 5% Significance Level	
Lilliefors Test Statistic	0.356	Lilliefors Lognormal GOF Test	
5% Lilliefors Critical Value	0.117	Data Not Lognormal at 5% Significance Level	

Data Not Lognormal at 5% Significance Level

Lognormal Statistics

Minimum of Logged Data	1.609	Mean of logged Data	2.207
Maximum of Logged Data	4.564	SD of logged Data	0.937

Assuming Lognormal Distribution

95% H-UCL	18.7	90% Chebyshev (MVUE) UCL	19.97
95% Chebyshev (MVUE) UCL	22.7	97.5% Chebyshev (MVUE) UCL	26.49
99% Chebyshev (MVUE) UCL	33.93		

Nonparametric Distribution Free UCL Statistics

Data do not follow a Discernible Distribution (0.05)

Nonparametric Distribution Free UCLs

95% CLT UCL	20.82	95% Jackknife UCL	20.9
95% Standard Bootstrap UCL	20.81	95% Bootstrap-t UCL	21.73
95% Hall's Bootstrap UCL	21.8	95% Percentile Bootstrap UCL	21.09
95% BCA Bootstrap UCL	21.56		
90% Chebyshev(Mean, Sd) UCL	24.8	95% Chebyshev(Mean, Sd) UCL	28.79
97.5% Chebyshev(Mean, Sd) UCL	34.33	99% Chebyshev(Mean, Sd) UCL	45.2

Suggested UCL to Use

95% Chebyshev (Mean, Sd) UCL	28.79
------------------------------	-------

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL

These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002 and Singh and Singh (2003). However, simulations results will not cover all Real World data sets.

For additional insight the user may want to consult a statistician.