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1st Semi-Annual Progress Report for the Former Diamond Rug and Carpet Mills, 4140 US Highway 411, Eton, Murray County, Georgia, HSI#10534

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Michael H. Wilson, SR. PROJECT MANAGER

1ST SEMIANNUAL PROGRESS REPORT FOR THE FORMER DIAMOND RUG AND CARPET MILLS ETON, MURRAY COUNTY, GEORGIA HSI#10534

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October 2012

1ST SEMI-ANNUAL PROGRESS REPORT
FOR THE
FORMER DIAMOND RUG AND CARPET MILLS
4140 US HIGHWAY 411
ETON, MURRAY COUNTY, GEORGIA
HSI#10534

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GAIATECH PROJECT NO. B2618-440-1

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1.0 INTRODUCTION AND BACKGROUND

The subject property is located at 4140 North Highway 411 just north of the city limit in Murray County, Georgia. **Figure 1** illustrates the location of this site. The site is currently used for manufacturing carpet and is presently owned by the Aladdin Manufacturing Division of Mohawk Industries, Inc. (Mohawk).

The property is located within an industrial area on the north side of Eton Georgia. It is bounded on the north by a small tufting operation and undeveloped land, to the east by CSX railroad line that is bounded further to the east by other industrial facilities, to the south by Beaulieau Industries and to the west of US Highway 411 by Superior Carpets. See **Figure 2** for a site layout map.

1.1 SUMMARY OF REGULATORY STATUS

The Site was listed on the on the Georgia Hazardous Site Inventory (HSI) for a release of tetrachloroethene in groundwater at a concentration exceeding a reportable quantity on April 9, 1999. The Site was designated as a Class II site with HSI No. 10534. Since then, numerous site investigation and reporting activities have been conducted by others to further characterize the release.

GaiaTech, Inc. (GaiaTech) was retained by Mohawk to respond to a November 9, 2010 Notice of Deficiency (NOD) letter from the Georgia Environmental Protection Division (GEPD) regarding an Interim Remedial Status Report prepared by Conestoga Rovers in June of 2005. In the letter, the GEPD required additional clarification to the June 2005 report as well as additional sampling to define and characterize the extent of impact of various regulated substances in soil and groundwater.

GaiaTech conducted limited soil and groundwater sampling in November 2011 followed by preparation and submission of a Voluntary Investigation and Remediation Plan (VIRP) Application dated December 14, 2011. The VIRP was submitted in lieu of a Corrective Action Plan, which would have been required under the Georgia Hazardous Site Reponse Program. The VIRP Application was approved by the Georgia EPD on April 12, 2012. The VIRP Approval letter outlined minimum schedule requirements, for assessment and reporting milestones, which are as follows:

- **Semi-annual Progress Reports** – October 12 and April 12 through October 12, 2016;
- **Complete Horizontal Delineation on the Qualifying Property** - Must be demonstrated in the April 12, 2013 Semi-Annual Progress Report (12 months from VIRP Approval);
- **Complete Horizontal Delineation on all Impacted Properties** - Must be demonstrated in the April 12, 2014 Semi-Annual Progress Report (24 months from VIRP Approval);
- **Complete Horizontal and Vertical Delineation, Finalization of Remedial Plan, and a Cost Estimation for Remedial Implementation** - Must be demonstrated in the October 12, 2014 Semi-Annual Progress Report (30 months from VIRP Approval);
- **Submission of Compliance Status Report** – April 12, 2017.

This semi-annual progress report fulfills the first reporting milestone outlined in the schedule requirements in the April 12, 2012 VIRP approval letter and describes actions implemented since VIRP approval.

1.2 REGULATED SUBSTANCES RELEASED AND DELINEATION CRITERIA

The regulated substances detected at the site included chlorinated compounds and their typical breakdown products. These substances were prescribed by EPD in their November 9, 2010 NOD letter. The regulated substances and their respective groundwater delineation criteria are:

Regulated Constituent	CAS Number	Delineation Criteria (μg/l)
1,1-Dichloroethane (1,1-DCA)	75-34-3	4,000
1,2-Dichloroethane (1,2-DCA)	107-06-2	5
1,1-Dichloroethene (1,1-DCE)	75-35-4	7
cis-1,2-Dichloroethene (cis-1,2-DCE)	155-59-2	70
Tetrachloroethene (PCE)	127-18-4	5
Trichloroethene (TCE)	79-01-6	5
1,1,1-Trichloroethane (1,1,1-TCA)	71-55-6	200
1,1,2-Trichlorethane (1,1,2-TCA)	79-00-5	5
Vinyl Chloride (VC)	75-01-4	2

Under the framework of the VIRP approval, the above delineation criteria will have to be met on–property twelve (12) months following VIRP approval, or April 12, 2013.

2.0 ACTIVITIES COMPLETED SINCE VOLUNTARY REMEDIATION PLAN SUBMISSION

Groundwater samples were collected at the property on September 7, 2012. The purpose of the sampling was:

- To obtain current data on the concentration and distribution of the groundwater plume;
- To determine data gaps where additional delineation may be required; and
- To evaluate natural attenuation as a means of corrective action.

In addition to sampling activities, an updated receptor evaluation was conducted to further assess exposure pathways.

2.1 MONITORING WELL GAUGING AND SAMPLING ACTIVITIES

A semi-annual groundwater sampling event was conduct on September 7, 2012 to provide continued data evaluation of the groundwater plume. Samples were collected from the following monitoring wells:

- OW-2
- OW-6
- OW-7
- OW-8D
- OW-9
- MWW-1

Attempts were made to sample monitoring wells OW-1, OW-3, and OW-5 in order to include more data points for use in the evaluation of the horizontal extent of impact. However, monitoring well OW-1 was noted to be obstructed / damaged whereby an obstruction was encountered within the well at a depth of 19.5 feet. The total depth of OW-1, based upon well construction diagrams, is 28 feet from the top of casing. Further, monitoring wells OW-3 and OW-5 were buried under gravel from recent parking lot improvement activities and could not be located at the time the sampling activities were conducted. OW-3 was later determined to be destroyed, while OW-5 was located subsequent to the sampling event. OW-5 will be included in the next sampling event, which is planned as part of horizontal delineation activities prior to the next semi-annual reporting event.

2.1.1 Groundwater Elevation

Water level information from the September 7, 2012 sampling event is summarized on **Table 1**. The water level data was used to determine the volume of water to be purged from each well prior to sample collection, as well as the static groundwater elevation in each well. Individual monitoring well purge volumes were calculated as follows:

Depth of well (ft) - Static water level (ft) = Column of water (ft)

Column of water (linear ft) x 0.17 gallons/ft. x 3 well volumes = Gallons of water to purge

Prior to well purging and sampling, the depth to water in each monitoring well was measured at the marking indication for the top of casing elevation with an electronic water level indicator. Each well measurement was recorded by slowly lowering the indicator probe into the well until the audible and visual signal indicated the static water surface had been reached. Subsequently, the elevation was then recorded to the nearest 0.01 foot. The well data was recorded on field logs which are included in the Monitoring Well Purging & Sampling Information Sheets of **Appendix A**. The groundwater elevation of select monitoring wells were utilized to prepare a potentiometric map of water levels recorded during the September 7, 2012 sampling event. This potentiometric map for the shallow unconfined water table is included as **Figure 3.**

According to potentiometric data, groundwater at the property appears to be flowing to the southeast. The water level elevation data also suggests a separate elevation regime in monitoring wells screened in the deeper water bearing zones. For example, the water level elevation in OW-8D is 734.06 versus the nearest adjacent shallow monitoring well OW-2 with a water level elevation of 757.31. The relationship between the deeper and shallow groundwater flow regimes will be further characterized as the conceptual site model is updated in subsequent semi-annual reporting events.

2.1.2 Well Purging

Well purging and sampling activities were conducted in accordance with the U.S. Environmental Protection Agency (EPA) Science and Ecosystem Support Division (SESD) Operating Procedure (OP) for Groundwater Sampling (SESDPROC-301-R2, October 2011; Sections 3.2.1.1.1 and 3.2.1.1.2). Prior to sample collection, each well was purged via peristaltic pump with the exception of MWW-1, which was purged via stainless steel electric submersible pump with dedicated tubing. The intent was to remove stagnant water from the screened portion of the wells and to allow for the collection of groundwater samples that are representative of the surrounding formation. The pump and discharge tubing or peristaltic suction tubing was slowly lowered into the well, and placed approximately in the center of the measured water column. If the top of the water column interface was discernible during pump deployment, then the pump was lowered a distance of approximately half of the calculated static water column. In the event that the top of the static water column was not discernible during pump deployment, then, upon encountering the bottom of the well, the pump was raised a distance of approximately half of the static water column to position the pump in the middle of the static water column.

The monitoring wells were purged at a low flow rate in an attempt not to evacuate all the water from the wells such that the water column was not purged dry. However, due to drought conditions, many of the monitoring wells were purged dry. During the purging process, the flow was adjusted as necessary to mimic the natural recharge rate of the well in order to minimize aquifer stress. During the well purging process,

discrete samples were collected at pre-determined intervals and analyzed for field parameters which included temperature, pH, specific conductance, turbidity, dissolved oxygen (DO), total dissolved solids (TDS), and oxidation-reduction potential (ORP). The results of these measurements are presented on the Field Water Quality Sampling Forms in **Appendix A**. The wells were purged of a minimum of three well volumes, until the field parameters stabilized, or until the wells were purged dry, whichever occurred first.

During the September 2012 sampling event, monitoring well OW-9 was purged dry likely due to drought conditions. Other monitoring wells exhibited very slow recharge rates. On average, static water levels at the property were over six (6) feet lower than the previous sampling event in March of 2011.

2.1.3 Sampling Procedures

Groundwater sampling was conducted in accordance with procedures outlined in SESD Operating Procedures for Groundwater Sampling (SESDPROC-301-R2, October 2011; Sections 4.3.1.1 and 4.3.1.3). Groundwater samples were collected following well purging and appropriate recharge. Copies of the data recorded during purging activities are included in the Field Water Quality Sampling Forms shown in **Appendix A**.

Where peristaltic pumping was incorporated, the samples were collected via the "straw method" whereby the tubing was allowed to fill with groundwater, the pump was shut off, and the suction portion of the tubing was withdrawn from the well with a thumb placed over the tubing end. The tubing was then withdrawn from the well and then carefully poured into the supplied laboratory containers. The sample collected from MWW-1 was collected directly from the discharge tubing under low flow conditions. The laboratory-supplied sample containers were then carefully filled and labeled. Required sample volumes, types of containers, sample preservatives, and holding times followed guidelines presented in SESD the most current guidelines.

Sample containers were labeled and placed in iced containers for storage to maintain a temperature of 4° C. Chain-of-custody procedures were used to record and document sample times and changes of possession.

2.1.4 Decontamination Procedures

2.1.4.1 Water Level Indicator

Subsequent to measuring groundwater elevations as described above, the electronic water level indicator tape was decontaminated between each monitoring well measurement in accordance with SESDPROC-205-R-2, December 2011, by:

- Alkanox and tap water wash;
- Tap water rinse; and
- Deionized water rinse.

In addition to decontamination procedures, monitoring wells were measured from least to most impacted to minimize any potential cross-contamination issues.

2.1.4.2 Submersible Groundwater Pumps

A submersible pump was utilized solely for monitoring well MWW-1. As the pump was not utilized for any additional monitoring well locations, field decontamination was not necessary.

2.1.5 Analytical Procedures

Analytical parameters included VOCs utilizing EPA Method 8260. In addition, the GEPD had expressed concerns in a meeting on August 25, 2011 and in the VIRP comment letter dated April 12, 2012 that metals mobilization may have occurred as a result of permanganate injections in May 2002 through June of 2004. As such, analysis of inorganic parameters was conducted in monitoring wells OW-2 and MWW-1 during sampling activities conducted on September 7, 2012. Theses samples were specifically analyzed for iron, arsenic, lead, barium, selenium, cadmium, chromium, manganese, and copper.

Select monitoring wells (OW-6 & MWW-1) were sampled for monitored natural attenuation parameter analysis. Specifically, MNA parameters included:

- Light Hydrocarbons (Methane, Ethane, and Ethene);
- Dissolved Hydrogen;
- Ion Scan (NO3, SO4, Cl);
- Sulfide;
- Total Organic Carbon; and
- Ferrous Iron (dissolved).

3.0 CONCEPTUAL SITE MODEL

The Conceptual Site Model (CSM) will be updated and revised as site assessment activities and receptor characterization continue. The following is the updated CSM as of the data available at the time of this report.

3.1 SOIL DATA

The VIRP submitted in December 2011 stated that the concentrations of remaining soils did not exceed the notification concentrations found in Appendix I of the Rules for Hazardous Site Response of Type 1 Risk Reduction Standard. The GEPD disagreed in the VIRP comment letter dated April 12, 2012 (Comment #4) pointing out that soil boring BH-5 exhibited a PCE concentration of 580 μg/kg, which does not meet the Type 1 RRS of 500 μg/kg.

Soil treatment was previously conducted in the area of the former dye sump and gravel drain field. Shallow soils (upper 10 feet) were treated in three phases: the first in December 2002, the second in April 2003, and the third in June 2004. The treatment activities, coupled with natural degradation, appear to have reduced concentrations significantly.

BH-5 was collected on May 14, 2002 and was advanced within the area of the gravel drain field. A soil sample collected at a 2 foot depth interval exhibited a PCE concentration of 0.580 mg/kg. This area was later remediated via soil injection of potassium permanganate in December 2002, April 2003, and June 2004. The concentration of BH-5 indicates that PCE exceeded RRS criteria in May of 2002; however, the sample location was never re-sampled subsequent to the permanganate treatment to verify that the detection had been successfully remediated.

Additional soil sampling is proposed in/around the location of BH-5 to confirm that remedial efforts reduced soil impacts to below the applicable RRS for PCE.

3.2 GROUNDWATER DATA

A total of six (6) groundwater monitoring wells were sampled on September 7, 2012. Samples were analyzed for VOCs via Method 8260, inorganic analysis of select metals via EPA Method 6010, and MNA parameters. The following summarizes analytical findings of the sampling efforts:

3.2.1 Volatile Organic Compounds

Of the six groundwater monitoring wells sampled, three (OW-6, OW-8D, and MWW-1) reported detections of VOCs above the laboratory detection limits. The following is a summary of these detections:

1,1-Dichloroethane (1,1-DCA): 1,1-DCA concentrations were reported in monitoring wells OW-6 at a concentration of 34 μg/l and OW-8D at a concentration of 8.1 μg/l during the September 2012 sampling event. Historically, the most elevated

concentration of 1,1-DCE was reported in monitoring well OW-6 at a concentration of 40 μg/l in December of 2004. Concentrations of 1,1,-DCA have historically fluctuated in OW-6 and decreased in OW-8D. The detection of 8.3 ug/l of 1,1-DCE at OW-8D during the September 2012 event slightly exceeds the Type 1/3 RRS.

The horizontal extent of 1,1-DCA is presented on **Figure 4.**

1,1-Dichloroethene (1,1-DCE): 1,1-DCE concentrations were reported in monitoring wells OW-6 at a concentration of 5 μg/l and OW-8D at a concentration of 8.3 μg/l during the September 2012 sampling event. Historically, the most elevated concentration of 1,1-DCE was reported in monitoring well OW-2 at a concentration of 14 μg/l in May of 2002. Concentrations of 1,1-DCE have been reported below the laboratory detection limits in OW-2 in subsequent sampling events. The Type 1/3 RRS for 1,1,-DCE is 7 μg/kg. Currently, monitoring well OW-8D slightly exceeds the Type 1/3 RRS groundwater criteria for 1,1-DCE of 7 μg/l.

The horizontal extent of 1,1-DCE is presented on **Figure 5.**

Tetrachloroethene (PCE): PCE concentrations were reported in monitoring wells: OW-6 at a concentration of 6.4 μg/l; OW-8D at a concentration of 17 μg/l; and 10 μg/l in monitoring well MWW-1 during the September 2012 sampling event. Historically, the most elevated concentration of PCE was reported in monitoring well OW-1 (the "source area") at a concentration of 96 μg/l in May 2002. Remedial measures involving the injection of potassium permanganate were implemented in the source area and plume footprint in 2002 through 2004. Since that time, the source area concentrations of OW-1 were reduced to 7.8 μg/l as of the last documented sampling event in January 2005. An attempt was made to sample OW-1 during the September 2012 sampling event, however, the water level probe was only able to advance to a depth of 19.5 feet below top of casing due to well damage or an obstruction in the casing. The total depth of OW-1, based upon well construction log information is 28 feet.

Based upon the evaluation of current analytical data, the concentrations of PCE generally have remained stable in OW-6, OW-8D, and MWW-7. The Type 1/3 RRS for PCE is 5 μg/kg. Currently, monitoring well OW-6, OW-8D, and MWW-1 exceed the Type 1/3 RRS groundwater criteria for PCE. The horizontal extent of PCE is presented on **Figure 6.**

All other detections of VOCs were reported below the laboratory detection limits. Analytical data are summarized on **Table 2** while the laboratory analytical data reports and accreditation are provided in **Appendix B**. Analytical data trend graphs are provided in **Appendix C**.

3.2.2 Inorganic Groundwater Data

Analysis of inorganic parameters was conducted in monitoring wells OW-2 and MWW-1 during sampling activities conducted on September 7, 2012. Theses samples were specifically analyzed for iron, arsenic, lead, barium, selenium, cadmium, chromium, manganese, and copper. Of the listed analytes, barium, chromium, and manganese were reported above the laboratory detection limit. The detections of barium and chromium were compared to the Type 1 groundwater residential RRS criteria. Barium and chromium concentrations did not exceed their respective Type 1 groundwater criteria of 2,000 μg/l and 100 μg/l, respectively. Manganese does not currently have a published Type 1 criteria under HSRA. As such, the detections of Manganese were compared to the U.S. Environmental Protection Agency's National Secondary Drinking Water Regulations (NSDWRs or secondary standards). These standards are usually based upon cosmetic or aesthetic characteristics and are usually not enforceable unless state programs choose to include enforcement mechanisms for NSDWRs. The detections of manganese in OW-2 and MWW-1 did not exceed the NSDWR standard of 50 μg/l.

Analytical data for inorganic compounds are summarized in **Table 3** while the laboratory analytical data reports and accreditation are provided in **Appendix B**.

3.2.3 Monitored Natural Attenuation Data

In order to evaluate MNA as an applicable corrective action technology for the property, select monitoring wells (OW-6 & MWW-1) were sampled for limited MNA analysis via fixed-facility analytical testing. Specifically, these limited MNA parameters included:

- Light Hydrocarbons (Methane, Ethane, and Ethene);
- Dissolved Hydrogen;
- Ion Scan (NO3, SO4, Cl);
- Sulfide;
- Total Organic Carbon; and
- Ferrous Iron (dissolved).

In addition, groundwater quality parameters were measured with field instrumentation and included the following:

- pH;
- Temperature;
- Conductivity;
- Dissolved Oxygen; and
- Oxidation –Reduction Potential.

As a preliminary part of the groundwater predictive fate & transport modeling activities, a MNA screening protocol scoring sheet was completed. This scoring sheet utilizes various chemical and geochemical field parameter and inputs to the screening model derived from the analytical testing and/or field measurements above to evaluate

whether or not the Site is conducive for natural attenuation. Based on the inputs, a score is derived indicating the potential or favorability for natural attenuation processes to occur at the Site. The full list of parameters evaluated by the MNA screening model includes:

- Dissolved Oxygen, Nitrate, Iron II, Sulfate, Sulfide, Methane, Oxidation Reduction Potential (ORP), pH, Total Organic Carbon (TOC), Temperature, Carbon Dioxide, Alkalinity, Chloride, Hydrogen, Volatile Fatty Acids, BTEX, PCE, TCE, DCE, VC, DCA, Chloroethane, Ethene/Ethane, Chloroform, and Dichloromethane.

Scoring ranges are as follows:

INTERPRETATION SCORE

Inadequate evidence for anaerobic biodegradation of chlorinated organics =>	0 - 5
Limited evidence for anaerobic biodegradation of chlorinated organics =>	6 - 14
Adequate evidence for anaerobic biodegradation of chlorinated organics =>	15 - 20
Strong evidence for anaerobic biodegradation of chlorinated organics =>	> 20

The resulting score, based on input values, was 12; thus indicating that limited evidence exists for anaerobic biodegradation of chlorinated organics at the site. Future activities will evaluate additional MNA parameters (i.e., volatile fatty acids, hydrogen, carbon dioxide, etc.) to further characterize the MNA potential at the site.

The MNA analytical data are summarized on **Table 4** while the laboratory analytical data reports and accreditation for fixed facility testing are provided in **Appendix B**. The natural attenuation screening protocol inputs and outputs are included as **Appendix D** to this report.

3.3 RECEPTOR SURVEY

3.3.1 Groundwater Pathway

An updated groundwater receptor survey will be conducted in conjunction with groundwater modeling and delineation activities to determine if there are any downgradient drinking water receptors. If no receptors are identified, a hypothetical point of demonstration well 1,000 feet from the delineated groundwater plume will be utilized for groundwater modeling purposes, if applicable.

3.3.2 Surface Water Pathway

Mill Creek is located approximately 1,000 feet east of the site (see Figure 1) and flows in a north-south direction. Topographic gradients in the vicinity of the property slope in a southeasterly direction toward Mill Creek mirroring groundwater flow direction data from site monitoring wells. It would stand to reason that shallow groundwater flow is following surface topography, which would ultimately drain to Mill Creek. Currently, the downgradient edge of the plume is not defined. However, additional groundwater activities will further define the plume edge such that plume migration toward Mill

Creek may be monitored.

3.3.3 Soil Pathway

The VIRP comment letter dated April 12, 2012 indicated that a detection of PCE of 0.580 mg/kg at soil boring BH-5 at 2 feet did not meet any RRS criteria. Additionally, the comment letter further stated that, because the RRS criteria are exceeded, the EPD cannot confirm that the inhalation, ingestion, and dermal contact risks are minimal. However, the area in/around BH-5 was treated with potassium permanganate injections in 2002, 2003, and 2004. Thus, it is likely that this detection of PCE in BH-5 at 2 feet was remediated to below RRS criteria as a result of these remedial efforts.

Additional evaluation of soil concentrations in/around BH-5 will be conducted as part of delineation activities to confirm current concentrations in/around BH-5 and to confirm post-remedial soil concentrations.

3.3.4 Vapor Intrusion Pathway

The only groundwater monitoring well evaluating impacts below building structures was monitoring well OW-6. The concentration of groundwater detected in OW-6 during the September 2012 sampling event were entered into the EPA's Groundwater Concentration to Indoor Air Concentration (GWC-IAC) Calculator Version 2.0, May 2012 RSLs. Evaluating these levels using the OSWER calculator indicates that the shallow groundwater levels of PCE are below the guidance levels using a 1×10^{-5} risk factor based on residential usage. Therefore, the vapor exposure pathway does not pose a significant risk to workers at the site. A copy of the GWC-IAC is included in **Appendix E**.

4.0 PROPOSED INVESTIGATION PLAN

It is the intent of Mohawk to remove the Site from the HSI through implementation of an efficient voluntary remediation plan which is protective of human health and the environment. This section outlines the proposed corrections actions anticipated to satisfy the requirements set forth in the Georgia Voluntary Remediation Program Act.

4.1 ADDITIONAL SOILS ASSESSMENT

Soil treatment was previously conducted in the area of the former dye sump and gravel drain field. Shallow soils (upper 10 feet) were treated in three phases: the first in December 2002, the second in April 2003, and the third in June 2004. The treatments coupled with natural degradation appear to have reduced concentrations significantly.

One soil sample, BH-5, was collected on May 14, 2002. BH-5 was advanced within the area of the gravel drain field and exhibited a PCE concentration of 0.580 mg/kg at a sample collected from 2 feet below land surface. The same area where BH-5 was installed was later remediated via soil injection of potassium permanganate in December 2002, April 2003, and June 2004. The concentration of BH-5 indicates that PCE exceeded RRS criteria I May of 2002, however, the sample location was never re-sampled to verify that the detection had been successfully remediated.

Additional soil sampling is proposed in/around the location of BH-5 to confirm that remedial efforts reduced soil impacts to below the applicable RRS for PCE. Proposed soil confirmatory locations are depicted on **Figure 7**.

4.2 ADDITIONAL GROUNDWATER ASSESSMENT

Groundwater samples were collected from a total of six (6) monitoring wells on September 7, 2012. Specifically, groundwater monitoring wells OW-2, OW-6, OW-7, OW-8D, OW-9, and MWW-1 were sampled. Attempts were made to sample additional monitoring wells however, the wells were either damaged (OW-1), destroyed (OW-3), or could not be located at the time of the site visit due to newly placed gravel (OW-5). The analysis of samples from available monitoring wells revealed data gaps in the horizontal and vertical extent of groundwater impact.

4.2.1 Shallow Groundwater Investigation/Remediation

Additional groundwater delineation is needed:

- north of the former location of OW-3 to define the northern extent of impact; west of OW-6 to define the western extent of impact; and
- southeast of MWW-1 to define the downgradient extent of impact.

Monitoring well OW-5 was found (previously covered with gravel) and will be utilized to define the southern extent of impact.

Figure 7 presents the proposed horizontal groundwater sampling locations.

4.2.2 Deep Groundwater Investigation/Remediation

Presently, monitoring well OW-8D is the deepest well at the VIRP property. The latest round of groundwater samples collected in September 2012 indicates that concentrations in OW-8D are decreasing. Deep groundwater assessment evaluation will continue as the CSM is updated with the goal of vertical delineation within 30 months of VIRP approval, as detailed in the April 12, 2012 schedule.

5.0 PROFESSIONAL CERTIFICATION AND SUMMARY OF HOURS

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

David S. Buchalter, P.E.
Georgia Professional Engineer

A summary of Professional Engineer hours expended as part of the initial application and this semi-annual progress report are included as **Appendix F**.

6.0 SCHEDULE

GaiaTech conducted limited soil and groundwater sampling in November 2011 followed by preparation and submission of a Voluntary Investigation and Remediation Plan (VIRP) Application dated December 14, 2011. The VIRP was submitted in lieu of a Corrective Action Plan, which would have been required under the Georgia Hazardous Site Reponses Program. The VIRP Application was approved by the Georgia EPD on April 12, 2012. The VIRP Approval letter outlined minimum schedule requirements, for assessment and reporting milestones, which are as follows:

- **Semi-annual Progress Reports** – October 12 and April 12 through October 12, 2016;
- **Complete Horizontal Delineation on the Qualifying Property** - Must be demonstrated in the April 12, 2013 Semiannual Progress Report (12 months from VIRP Approval);
- **Complete Horizontal Delineation on all Impacted Properties** - Must be demonstrated in the April 12, 2014 Semiannual Progress Report (24 months from VIRP Approval);
- **Complete Horizontal and Vertical Delineation, Finalization of Remedial Plan, and a Cost Estimation for Remedial Implementation** - Must be demonstrated in the October 12, 2014 Semiannual Progress Report (30 months from VIRP Approval);
- **Submission of Compliance Status Report** – April 12, 2017.

The next semi-annual progress report will demonstrate complete horizontal delineation on property and will be submitted on April 12, 2012.

TABLES

TABLE 1
SUMMARY OF GROUNDWATER ELEVATION DATA

Mohawk Industries
Eton, Georgia
GaiaTech Project No. B2618-440-1

Well I.D.	Date	Top of Casing Elevation (feet)	Total Well Depth (feet)	Screen Interval (feet)	Screened Interval Elevation (feet)	Depth to Groundwater (feet)	Water Level Elevation (feet)
OW-1	03/16/11	775.72	19.50	23 to 28	752.72 to 747.72		775.72
	09/07/12					19.40	756.32
OW-2	03/16/11	775.80	28.00	23 to 28	752.80 to 747.80	14.21	761.59
	09/07/12					18.49	757.31
OW-3	03/16/11	775.46	28.00	23 to 28	752.46 to 747.46	24.11	751.35
	09/07/12					Destroyed	
OW-5	03/16/11	774.56	28.00	23 to 28	751.56 to 746.56	23.21	751.35
	09/07/12					25.91	748.65
OW-6	03/16/11	778.63	42.90	TBD	TBD to 735.73	31.99	746.64
	09/07/12					36.41	742.22
OW-7	03/16/11	TBD	TBD	TBD	TBD to TBD	NS	NS
	09/07/12					19.46	NA
OW-8D	03/16/11	774.88	48.82	TBD	TBD to 726.06	28.60	746.28
	09/07/12					40.82	734.06
OW-9	03/16/11	775.90	28.00	23 to 28	752.90 to 747.90	12.86	763.04
	09/07/12					20.81	755.09
MWW-1	03/16/11	773.35	35.00	20 to 35	753.35 to 738.35	18.48	754.87
	09/07/12					24.43	748.92

NOTES:

TBD - Well construction particulars not available. Additional measures will be implemented to gather data gaps.

NS - Not Sampled.

NA - Not Applicable.

TABLE 2
GROUNDWATER ANALYTICAL SUMMARY - VOLATILE ORGANIC COMPOUNDS

Mohawk Industries
Eton, Georgia
GaiaTech Project No. B2618-440-1

Sample Location	Date Collected	Concentration, ug/l						
		1,1,1-TCA	1,1-DCA	1,1-DCE	cis-1,2-DCE	PCE	TCE	Vinyl Chloride
OW-1	5/21/2002	ND	7.7	**13**	ND	**96**	ND	ND
	2/4/2003	ND	ND	ND	5.8	**66**	ND	ND
	6/25/2003	ND	6.5	ND	ND	**73**	ND	ND
	11/21/2003	ND	ND	ND	5.4	**6.3**	ND	ND
	3/4/2004	ND	ND	ND	14	**17**	ND	ND
	8/13/2004	ND	ND	ND	ND	**73**	ND	ND
	1/28/2005	ND	ND	ND	7.6	**7.8**	ND	ND
	9/7/2012	Well Damaged - Obstruction at 19.5 ft.						
OW-2	5/21/2002	ND	19	**14**	ND	**29**	ND	ND
	2/4/2003	ND	13	ND	ND	ND	ND	ND
	6/25/2003	ND	8	ND	ND	ND	ND	ND
	11/21/2003	ND	ND	ND	ND	ND	ND	ND
	3/4/2004	ND	ND	ND	ND	ND	ND	ND
	8/13/2004	ND	ND	ND	ND	ND	ND	ND
	12/2/2004	ND	12	ND	ND	ND	ND	ND
	3/16/2011	ND	ND	ND	ND	**6**	ND	ND
	9/7/2012	ND	ND	ND	ND	ND	ND	ND
OW-3	5/21/2002	ND	ND	ND	ND	ND	ND	ND
	8/25/2003	ND	ND	ND	ND	ND	ND	ND
	11/21/2003	ND	ND	ND	ND	ND	ND	ND
	3/4/2004	ND	ND	ND	ND	ND	ND	ND
	8/13/2004	ND	ND	ND	ND	ND	ND	ND
	9/7/2012	Well Destroyed						
OW-4	5/21/2002	ND	7.3	ND	ND	**5.5**	ND	ND
	2/4/2003	ND	5.2	ND	ND	**6.7**	ND	ND
	8/13/2004	ND	ND	ND	ND	ND	ND	ND
OW-5	5/21/2002	ND	ND	ND	ND	ND	ND	ND
OW-6	8/13/2004	ND	22	ND	ND	ND	ND	ND
	12/2/2004	ND	40	ND	ND	ND	ND	ND
	3/16/2011	ND	17	6	ND	5	ND	ND
	9/7/2012	ND	34	5	ND	**6.4**	ND	ND
OW-7	8/13/2004	ND	ND	ND	ND	ND	ND	ND
	12/2/2004	ND	ND	ND	ND	ND	ND	ND
	9/7/2012	ND	ND	ND	ND	ND	ND	ND
OW-8D	5/18/2005	ND	13	**8.5**	ND	**6.5**	ND	ND
	3/16/2011	ND	9	**11**	ND	**31**	ND	ND
	9/7/2012	ND	8.1	8.3	ND	**17**	ND	ND
OW-9	5/18/2005	ND	ND	ND	ND	ND	ND	ND
	3/16/2011	ND	ND	ND	ND	ND	ND	ND
	9/7/2012	ND	ND	ND	ND	ND	ND	ND

Notes:
1. ug/l - micrograms per liter
2. ND indicates non-detect.
3. Results shown in bold indicate exceedance of applicable groundwater standards.

TABLE 2
GROUNDWATER ANALYTICAL SUMMARY - VOLATILE ORGANIC COMPOUNDS

Mohawk Industries
Eton, Georgia
GaiaTech Project No. B2618-440-1

Sample Location	Date Collected	Concentration, ug/l						
		1,1,1-TCA	1,1-DCA	1,1-DCE	cis-1,2-DCE	PCE	TCE	Vinyl Chloride
MWW-1	5/31/2002	ND	ND	ND	ND	**32**	ND	ND
	2/4/2003	ND	ND	ND	ND	ND	ND	ND
	6/25/2003	ND	ND	ND	ND	ND	ND	ND
	11/21/2003	ND	ND	ND	ND	ND	ND	ND
	3/4/2004	ND	ND	ND	ND	ND	ND	ND
	8/13/2004	ND	ND	ND	ND	**13**	ND	ND
	12/2/2004	ND	ND	ND	ND	**13**	ND	ND
	3/16/2011	ND	ND	ND	ND	ND	ND	ND
	9/7/2012	ND	ND	ND	ND	**10**	ND	ND

NOTES:
ND - Not detected above laboratory detection limits.

Notes:
1. ug/l - micrograms per liter
2. ND indicates non-detect.
3. Results shown in bold indicate exceedance of applicable groundwater standards.

TABLE 3
GROUNDWATER ANALYTICAL SUMMARY - INORGANIC COMPOUNDS

Mohawk Industries
Eton, Georgia
GaiaTech Project No. B2618-440-1

Monitoring Well ID	Sample Date	Analytical Results (ug/L)								
		Arsenic	Barium	Cadmium	Chromium	Copper	Lead	Selenium	Iron	Manganese
OW-2	9/7/2012	<50	<20	<5	11.5	<10	<10	<20	<100	2.30
MWW-1	9/7/2012	<50	29.2	<5	<10	<10	<10	<20	<100	47

NOTES:

TABLE 4
SUMMMARY OF MONITORED NATURAL ATTENUATION PARAMETERS

Mohawk Industries
Eton, Georgia
GaiaTech Project No. B2618-440-1

Well Number / Sample ID	Date	pH	Temperature (°C)	Dissolved Oxygen (g/L)	Oxidation-Reduction Potential (mV)	Conductivity (ms/cm)	Ethane	Ethene	Methane	Total Organic Carbon	Ferrous Iron	Nitrate	Chloride	Sulfate	Sulfide
		FIELD-MEASURED PARAMETERS					LABORATORY ANALYTICAL RESULTS (mg/L)								
Optimal MNA Range		**5 to 9**	**>20**	**<0.5**	**<50**	**NA**	**>0.1**	**>0.1**	**>0.5**	**>20**	**>1**	**<1**	**2 X BG**	**<20**	**>1**
OW-6	9/1/2011	4.66	27.38	7.47	296	0.036	<9	<7	<4	2.27	<0.1	1.2	2.5	3	<2
MWW-1	9/1/2011	6.45	21.58	6.83	209	0.324	<9	<7	17	1.32	<0.1	0.51	4.8	1.1	<2
AVERAGES		**5.56**	**24.48**	**7.15**	**252.50**	**0.180**	**<9**	**<7**	**17**	**1.795**	**<0.1**	**<2.5**	**3.65**	**2.05**	**<2**

NOTES:

NA - Not Applicable and/or Not Analyzed.
BG - Background.

FIGURES

Scale 1: 24 000
Contour Interval 10 Feet

1 MILE
1000 0 1000 2000 3000 4000 5000 6000 7000 FEET
1 KILOMETER

Quadrangle Location

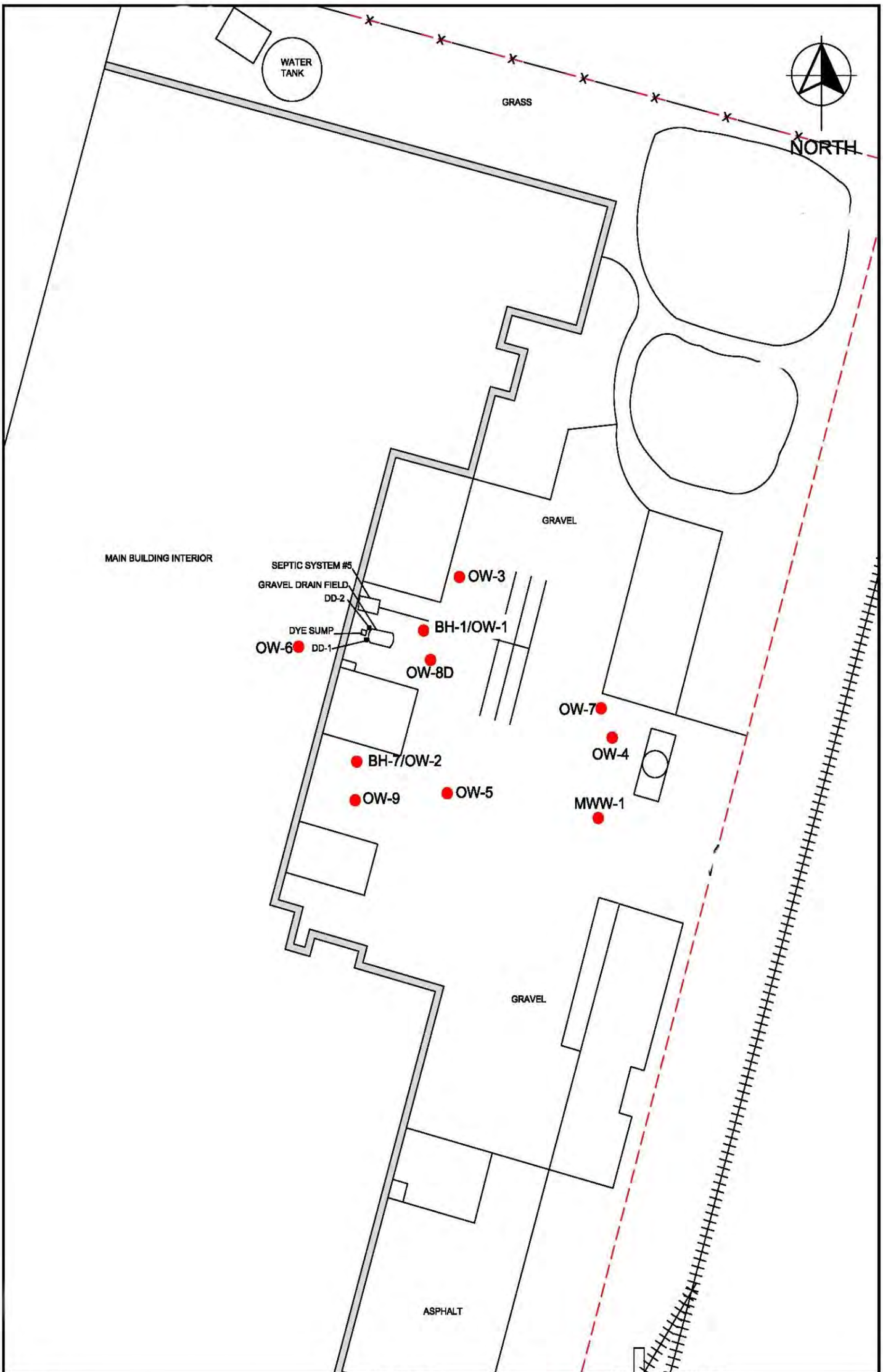
UNITED STATES GEOLOGICAL SURVEY
DEPARTMENT OF THE INTERIOR/USGS
CHATWORTH QUADRANGLE
GEORGIA
7.5 MINUTE SERIES (TOPOGRAPHIC)
1972
PHOTOREVISED 1985

Mohawk Industries, Inc.
Eton, Georgia
Project No. B2618-440-1

Figure 1

Site Location and Topographic Map

GaiaTech



LEGEND

● GROUNDWATER MONITORING WELL

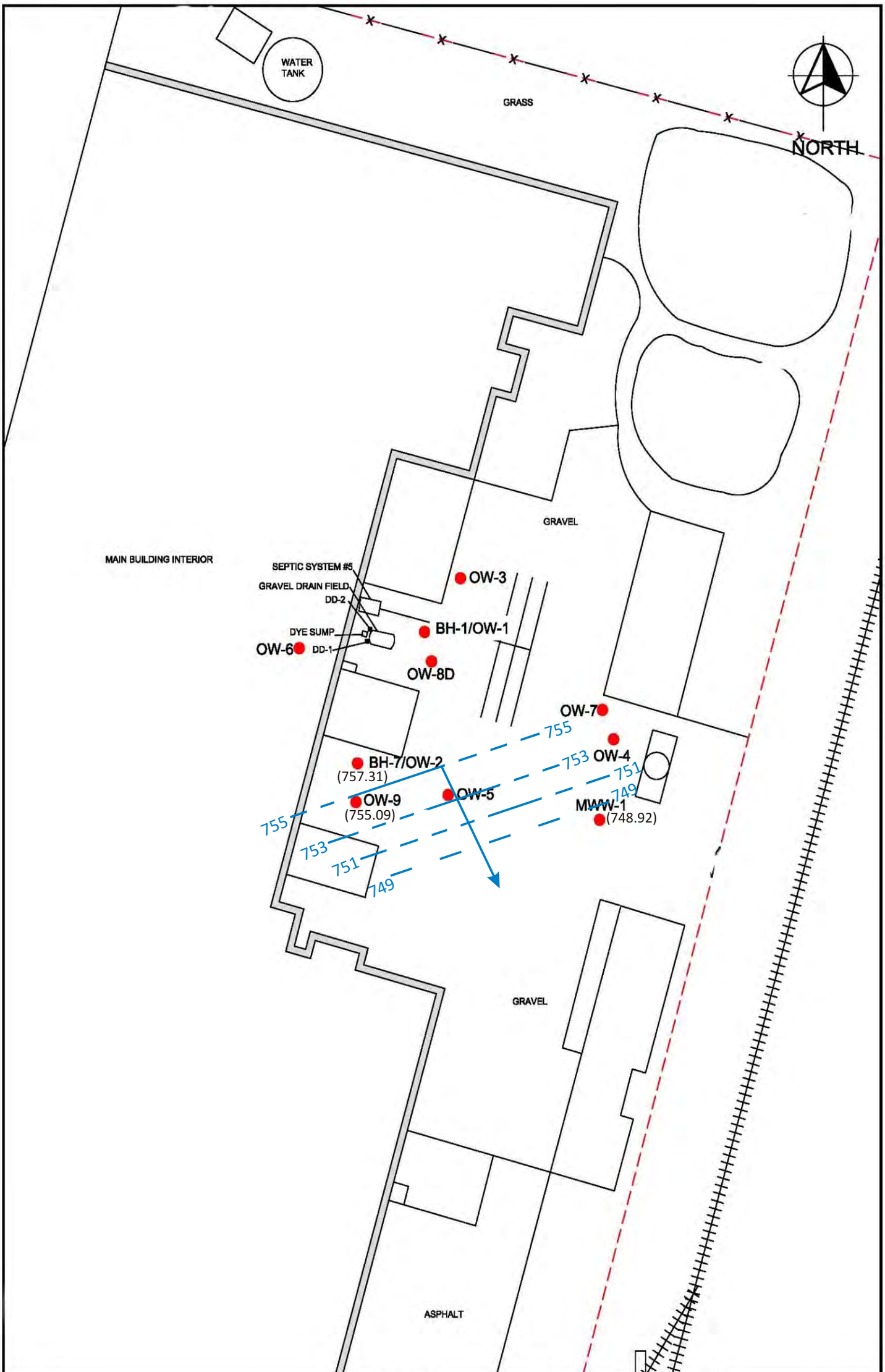
DESCRIPTION:

SITE LAYOUT MAP
MOHAWK INDUSTRIES, INC.
ETON, MURRAY COUNTY, GEORGIA

DRAWN: MHW
SCALE: 1"=50' (APPROX)
DATE: 10/4/12
FILE:

FIGURE: 2

GaiaTech



LEGEND

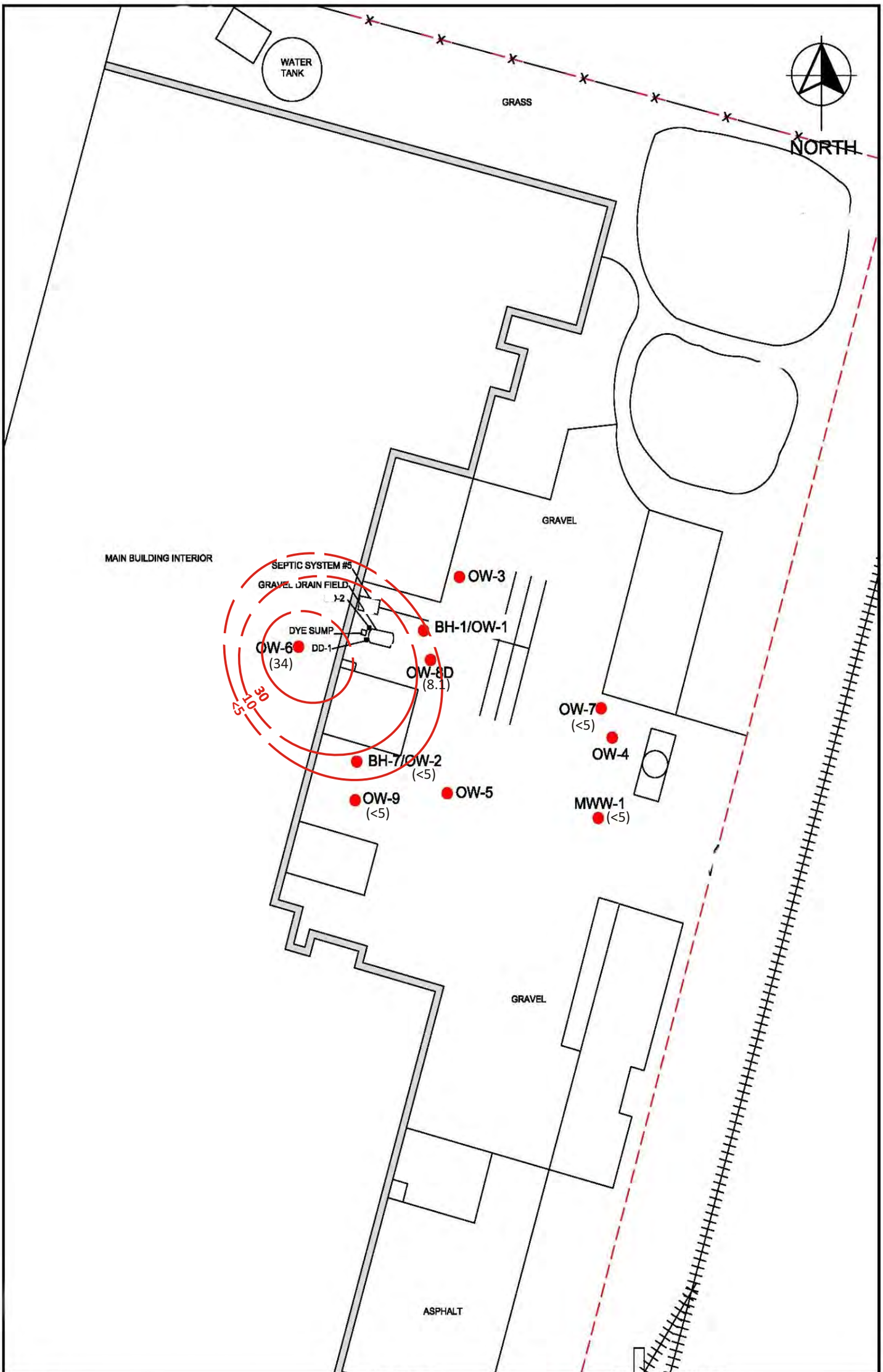
- GROUNDWATER MONITORING WELL
- GROUNDWATER ELEVATION LINE
- (748.92) GROUNDWATER MONITORING WELL ELEVATION

DESCRIPTION:
POTENTIOMETRIC SURFACE MAP (SEPTEMBER 2012)
MOHAWK INDUSTRIES, INC.
ETON, MURRAY COUNTY, GEORGIA

DRAWN: MHW
SCALE: 1"=50' (APPROX)
DATE: 10/4/12
FILE:

FIGURE: 3

GaiaTech



LEGEND

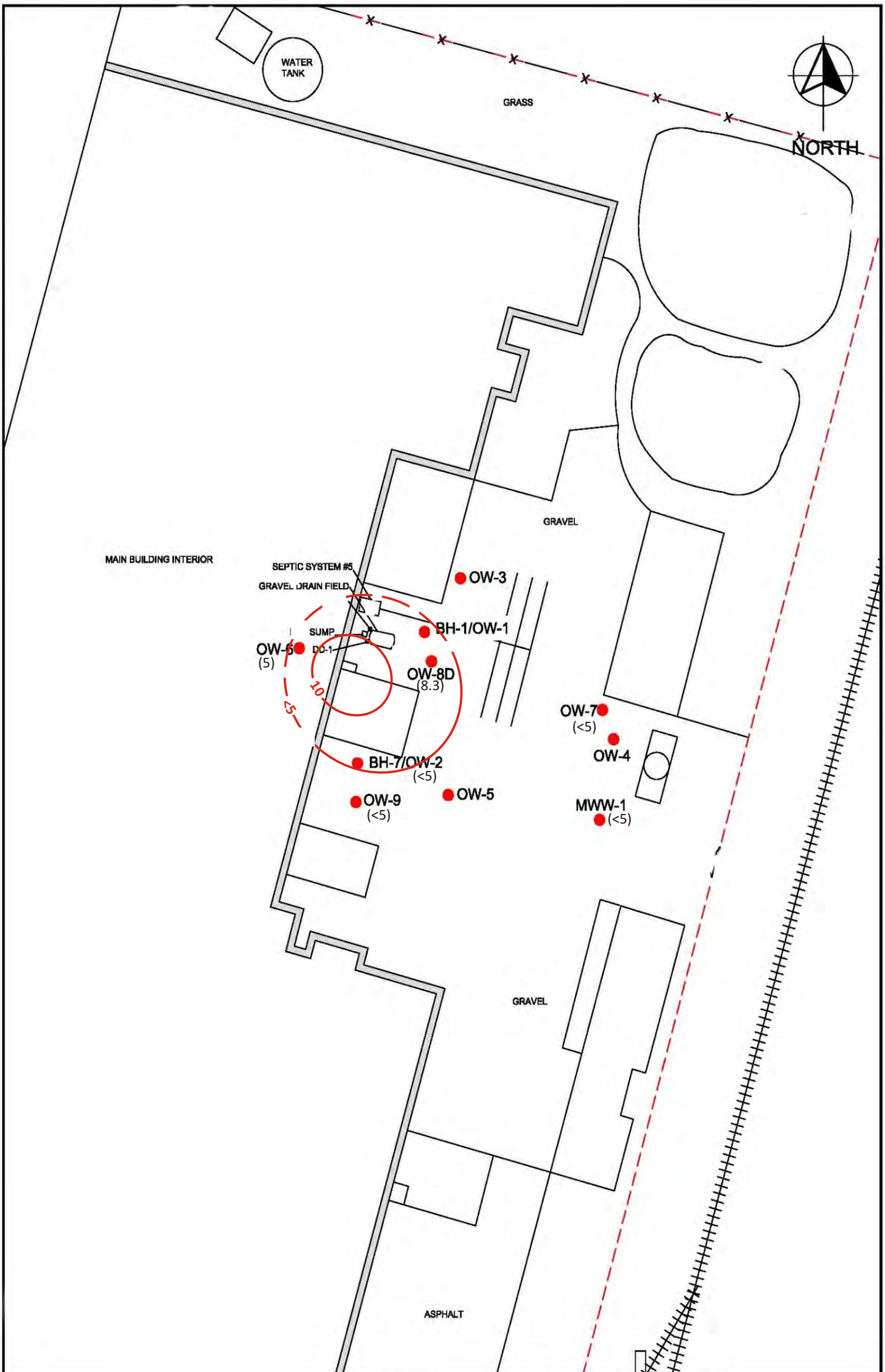
- GROUNDWATER MONITORING WELL
- 1,1-DCA CONTOUR LINE
- (8.1) 1,1-DCA CONCENTRATION IN UG/L

DESCRIPTION:
EXTENT OF 1,1-DICHLOROETHANE IN GROUNDWATER
MOHAWK INDUSTRIES, INC.
ETON, MURRAY COUNTY, GEORGIA

DRAWN: MHW
SCALE: 1"=50' (APPROX)
DATE: 10/4/12
FILE:

FIGURE: 4

GaiaTech



LEGEND

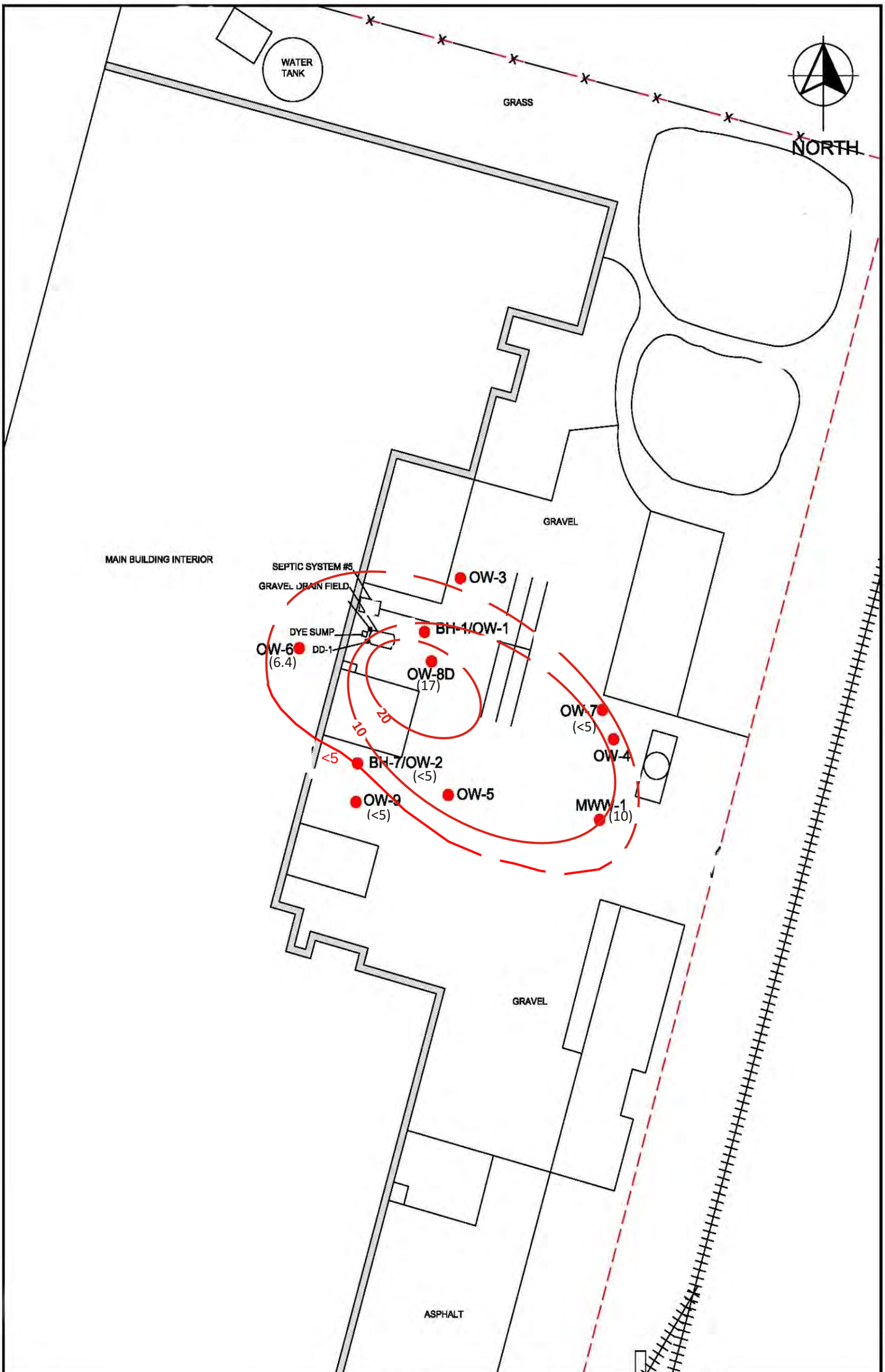
- GROUNDWATER MONITORING WELL
- 1,1-DCE CONTOUR LINE
- (8.3) 1,1-DCE CONCENTRATION IN UG/L

DESCRIPTION:
EXTENT OF 1,1-DICHLOROETHENE IN GROUNDWATER
MOHAWK INDUSTRIES, INC.
ETON, MURRAY COUNTY, GEORGIA

DRAWN: MHW
SCALE: 1"=50' (APPROX)
DATE: 10/4/12
FILE:

FIGURE: 5

GaiaTech



LEGEND

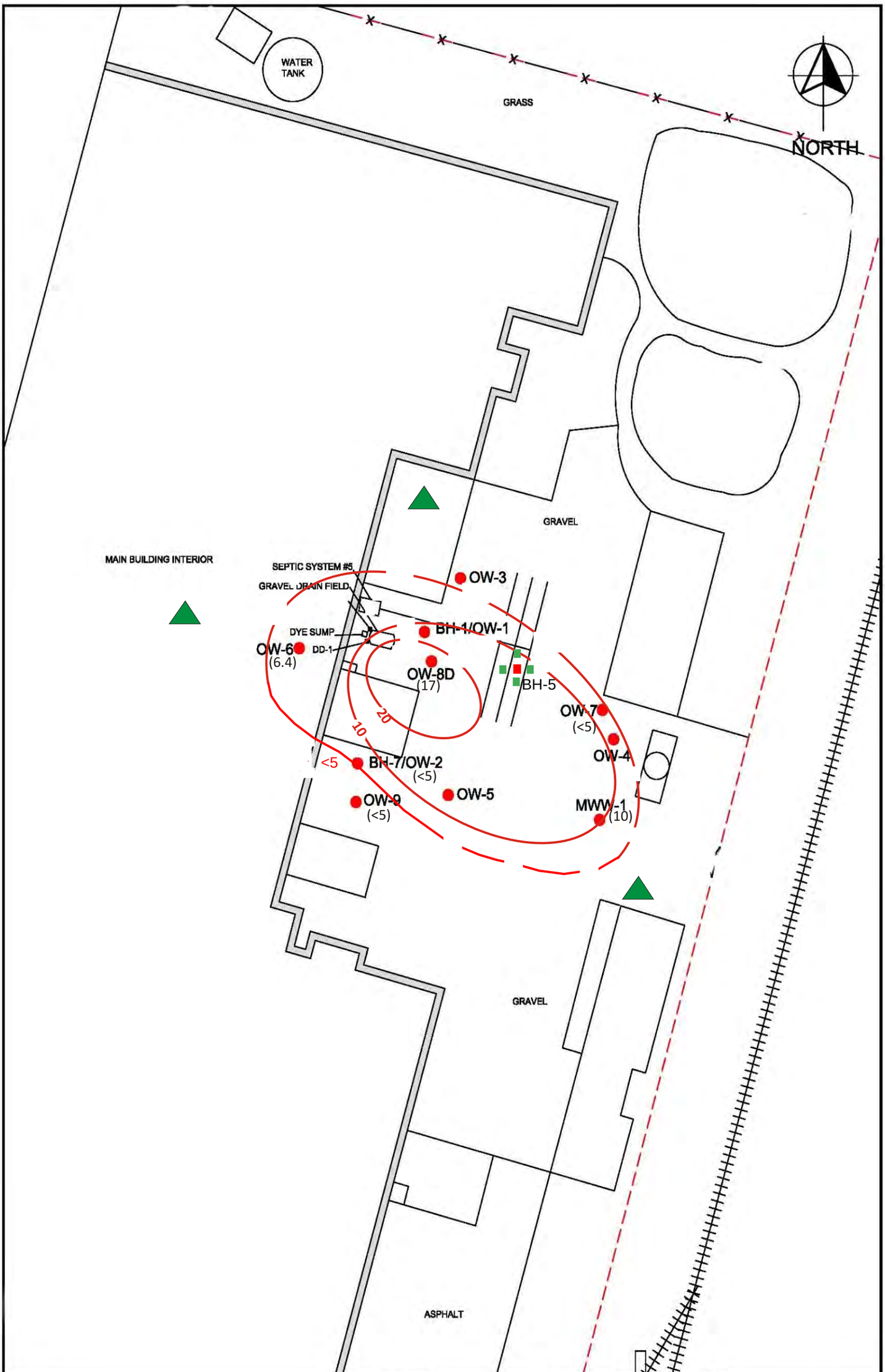
- GROUNDWATER MONITORING WELL
- PCE CONTOUR LINE
- (8.3) PCE CONCENTRATION IN UG/L

DESCRIPTION:
EXTENT OF TETRACHLOROETHENE IN GROUNDWATER
MOHAWK INDUSTRIES, INC.
ETON, MURRAY COUNTY, GEORGIA

DRAWN: MHW
SCALE: 1"=50' (APPROX)
DATE: 10/4/12
FILE:

FIGURE: 6

GaiaTech



LEGEND

PROPOSED HORIZONTAL DELINEATION LOCATION

PCE CONTOUR LINE

(8.3) PCE CONCENTRATION IN UG/L

DESCRIPTION:
PROPOSED HORIZONTAL DELINEATION LOCATIONS
MOHAWK INDUSTRIES, INC.
ETON, MURRAY COUNTY, GEORGIA

DRAWN: MHW
SCALE: 1"=50' (APPROX)
DATE: 10/4/12
FILE:

FIGURE: 7

GaiaTech

APPENDIX A
WATER QUALITY SAMPLING FORMS

Monitoring Well Purging & Sampling Information

Project: Diamond Rug and Carpet Mills (Mohawk) **Project No.:** B2618-440-1 **Date:** 8/7/12

Well Information

Well Identification No: **MWW-1** Location: Eton, Georgia

Well Diameter: 2-Inch Well Construction: Schedule 40 PVC

Total Well Depth from TOC: 35.20 feet

Depth to Water from TOC: **24.43** feet

Length of Static Water Column: 10.77 feet

Well Observations

General Condition of Well: Good General Condition of surrounding area: Good

LNAPL observation: NA Method of measure: NA

Volume of water in well = Height (Ht) of water in well x K

where: K = 0.04 (1-inch well)

0.17 (2-inch well)

0.571 (3-inch well)

0.652 (4-inch well)

Volume of water in well (Ht. x K): **0.43** gallons/linear ft. **1.29** gallons

(1 well volume) (3 well volumes)

Well Purging

Purging method: Peristaltic

Well Volumes	pH	Conductivity (us/cm)	Dissolved Oxygen	Temperature (^{0}C)	ORP	Turbidity (NTUs)
1	6.97	0.559	7.13	22.23	161	>1000
2	6.59	0.442	3.25	21.92	148	639
3	6.38	0.306	4.66	22.82	153	325
4	6.33	0.295	3.72	22.66	180	148
5	6.45	0.324	6.830	21.6	209	7.33
6						
7						

Purged To Dryness:

Sample Information

Method of sampling:

Decontamination procedures: Dedicated, one time use sampling equipment per each well per sampling event. Non-disposal sampling equipment decontaminated per applicable USEPA SESD procedures.

Sample ID	Container	Preservative	Analyses
DRCM-0912-MWW-1	2 - 40 ml	HCL	Method 8260B Volatile Organics
	1-500 ml	HNO3	Select Metals - Iron, Arsenic, Lead, Barium, Selenium, Cadmium, Chromium, Manganese, & Copper
	MNA Parameters	Varies	Light Hydrocarbons (Methane, Ethane, Ethene), Dissolved Hydrogen, Ion Scan (NO3, SO4, CL), Sulfide, Total Organic Carbon, Ferrous Iron (dissolved)

Sample Transport and Preservation: Ice Filled Cooler

Sample Destination: Analytical Environmental Services, Inc. Via: Hand Delivery

Chain of Custody completed: Yes

GaiaTech Personnel: William H. Lucas & Michael H. Wilson

Monitoring Well Purging & Sampling Information

Project: Diamond Rug and Carpet Mills (Mohawk) **Project No.:** B2618-440-1 **Date:** 8/7/12

Well Information

Well Identification No: **OW-1** Location: Eton, Georgia

Well Diameter: 1-Inch Well Construction: Schedule 40 PVC

Total Well Depth from TOC: 28.00 feet

Depth to Water from TOC: **19.40** feet Well Obstruction at 19.5 ft.

Length of Static Water Column: - feet

Well Observations

General Condition of Well: Good General Condition of surrounding area: Good

LNAPL observation: NA Method of measure: NA

Volume of water in well = Height (Ht) of water in well x K

where: K = 0.04 (1-inch well)

0.17 (2-inch well)

0.571 (3-inch well)

0.652 (4-inch well)

Volume of water in well (Ht. x K): gallons/linear ft. gallons

(1 well volume) (3 well volumes)

Well Purging

Purging method: Peristaltic

Well Volumes	pH	Conductivity (us/cm)	Dissolved Oxygen	Temperature (^{0}C)	ORP	Turbidity (NTUs)
1	-	-	-	-	-	-
2						
3						
4						
5						
6						
7						

Purged To Dryness:

Sample Information

Method of sampling:

Decontamination procedures: Dedicated, one time use sampling equipment per each well per sampling event. Non-disposal sampling equipment decontaminated per applicable USEPA SESD procedures.

Sample ID	Container	Preservative	Analyses
DRCM-0912-OW-1	**No Sample**		

Sample Transport and Preservation: Ice Filled Cooler

Sample Destination: Analytical Environmental Services, Inc. Via: Hand Delivery

Chain of Custody completed: Yes

GaiaTech Personnel: William H. Lucas & Michael H. Wilson

Monitoring Well Purging & Sampling Information

Project: Diamond Rug and Carpet Mills (Mohawk) **Project No.:** B2618-440-1 **Date:** 8/7/12

Well Information

Well Identification No: **OW-2** Location: Eton, Georgia

Well Diameter: 1-Inch Well Construction: Schedule 40 PVC

Total Well Depth from TOC: 28.00 feet

Depth to Water from TOC: **18.49** feet

Length of Static Water Column: 9.51 feet

Well Observations

General Condition of Well: Good General Condition of surrounding area: Good

LNAPL observation: NA Method of measure: NA

Volume of water in well = Height (Ht) of water in well x K

where: K = 0.04 (1-inch well)

0.17 (2-inch well)

0.571 (3-inch well)

0.652 (4-inch well)

Volume of water in well (Ht. x K): **0.38** gallons/linear ft. **1.14** gallons

(1 well volume) (3 well volumes)

Well Purging

Purging method: Peristaltic

Well Volumes	pH	Conductivity (us/cm)	Dissolved Oxygen	Temperature (^{0}C)	ORP	Turbidity (NTUs)
1	6.47	0.189	4.45	25.47	235	86.8
2	5.99	0.131	4.28	26.50	261	75.5
3	6.04	0.120	5.02	27.65	258	14.9
4	6.42	0.098	6.24	31.25	239	8.36
5	6.49	0.098	6.420	31.6	236	7.01
6						
7						

Purged To Dryness:

Sample Information

Method of sampling:

Decontamination procedures: Dedicated, one time use sampling equipment per each well per sampling event. Non-disposal sampling equipment decontaminated per applicable USEPA SESD procedures.

Sample ID	Container	Preservative	Analyses
DRCM-0912-OW-2	2 - 40 ml	HCL	Method 8260B Volatile Organics

Sample Transport and Preservation: Ice Filled Cooler

Sample Destination: Analytical Environmental Services, Inc. Via: Hand Delivery

Chain of Custody completed: Yes

GaiaTech Personnel: William H. Lucas & Michael H. Wilson

Monitoring Well Purging & Sampling Information

Project: Diamond Rug and Carpet Mills (Mohawk) | **Project No.:** B2618-440-1 | **Date:** 8/7/12

Well Information

Well Identification No: **OW-3** | Location: Eton, Georgia | *******Well Destroyed*********

Well Diameter: 1-Inch | Well Construction: Schedule 40 PVC

Total Well Depth from TOC: 28.00 feet

Depth to Water from TOC: **NA** feet

Length of Static Water Column: NA feet

Well Observations

General Condition of Well: Good | General Condition of surrounding area: Good

LNAPL observation: NA | Method of measure: NA

Volume of water in well = Height (Ht) of water in well x K

where: K = 0.04 (1-inch well)
0.17 (2-inch well)
0.571 (3-inch well)
0.652 (4-inch well)

Volume of water in well (Ht. x K): gallons/linear ft. (1 well volume) | gallons (3 well volumes)

Well Purging

Purging method: Peristaltic

Well Volumes	pH	Conductivity (us/cm)	Dissolved Oxygen	Temperature (^{0}C)	ORP	Turbidity (NTUs)
1	-	-	-	-	-	-
2						
3						
4						
5						
6						
7						

Purged To Dryness:

Sample Information

Method of sampling:

Decontamination procedures: Dedicated, one time use sampling equipment per each well per sampling event. Non-disposal sampling equipment decontaminated per applicable USEPA SESD procedures.

Sample ID	Container	Preservative	Analyses

Sample Transport and Preservation: Ice Filled Cooler

Sample Destination: Analytical Environmental Services, Inc. | Via: Hand Delivery

Chain of Custody completed: Yes

GaiaTech Personnel: William H. Lucas & Michael H. Wilson

Monitoring Well Purging & Sampling Information

Project: Diamond Rug and Carpet Mills (Mohawk) **Project No.:** B2618-440-1 **Date:** 8/7/12

Well Information

Well Identification No: **OW-7** Location: Eton, Georgia

Well Diameter: 1-Inch Well Construction: Schedule 40 PVC

Total Well Depth from TOC: 28.00 feet

Depth to Water from TOC: **19.46** feet

Length of Static Water Column: 8.54 feet

Well Observations

General Condition of Well: Good General Condition of surrounding area: Good

LNAPL observation: NA Method of measure: NA

Volume of water in well = Height (Ht) of water in well x K

where: K = 0.04 (1-inch well)

0.17 (2-inch well)

0.571 (3-inch well)

0.652 (4-inch well)

Volume of water in well (Ht. x K): **0.34** gallons/linear ft. **1.02** gallons

(1 well volume) (3 well volumes)

Well Purging

Purging method: Peristaltic

Well Volumes	pH	Conductivity (us/cm)	Dissolved Oxygen	Temperature (^{0}C)	ORP	Turbidity (NTUs)
1	5.86	0.358	3.20	24.88	262	56.3
2	5.84	0.357	1.35	22.95	255	43.7
3	5.74	0.320	0.97	22.40	257	37.9
4	5.70	0.294	0.81	21.97	259	34.5
5	5.69	0.301	0.670	21.0	260	31.2
6						
7						

Purged To Dryness:

Sample Information

Method of sampling:

Decontamination procedures: Dedicated, one time use sampling equipment per each well per sampling event. Non-disposal sampling equipment decontaminated per applicable USEPA SESD procedures.

Sample ID	Container	Preservative	Analyses
DRCM-0912-OW-7	2 - 40 ml	HCL	Method 8260B Volatile Organics

Sample Transport and Preservation: Ice Filled Cooler

Sample Destination: Analytical Environmental Services, Inc. Via: Hand Delivery

Chain of Custody completed: Yes

GaiaTech Personnel: William H. Lucas & Michael H. Wilson

Monitoring Well Purging & Sampling Information

Project: Diamond Rug and Carpet Mills (Mohawk) **Project No.:** B2618-440-1 **Date:** 8/7/12

Well Information

Well Identification No: **OW-5** Location: Eton, Georgia ******WELL BURIED - NO SAMPLE*******

Well Diameter: 1-Inch Well Construction: Schedule 40 PVC

Total Well Depth from TOC: 28.00 feet

Depth to Water from TOC: **NA** feet

Length of Static Water Column: NA feet

Well Observations

General Condition of Well: Good General Condition of surrounding area: Good

LNAPL observation: NA Method of measure: NA

Volume of water in well = Height (Ht) of water in well x K

where: K = 0.04 (1-inch well)

0.17 (2-inch well)

0.571 (3-inch well)

0.652 (4-inch well)

Volume of water in well (Ht. x K): gallons/linear ft. gallons

(1 well volume) (3 well volumes)

Well Purging

Purging method: Peristaltic

Well Volumes	pH	Conductivity (us/cm)	Dissolved Oxygen	Temperature (^{0}C)	ORP	Turbidity (NTUs)
1	-	-	-	-	-	-
2						
3						
4						
5						
6						
7						

Purged To Dryness:

Sample Information

Method of sampling:

Decontamination procedures: Dedicated, one time use sampling equipment per each well per sampling event. Non-disposal sampling equipment decontaminated per applicable USEPA SESD procedures.

Sample ID	Container	Preservative	Analyses

Sample Transport and Preservation: Ice Filled Cooler

Sample Destination: Analytical Environmental Services, Inc. Via: Hand Delivery

Chain of Custody completed: Yes

GaiaTech Personnel: William H. Lucas & Michael H. Wilson

Monitoring Well Purging & Sampling Information

Project: Diamond Rug and Carpet Mills (Mohawk) **Project No.:** B2618-440-1 **Date:** 8/7/12

Well Information

Well Identification No: **OW-6** Location: Eton, Georgia

Well Diameter: 2-Inch Well Construction: Schedule 40 PVC

Total Well Depth from TOC: 42.90 feet

Depth to Water from TOC: **36.41** feet

Length of Static Water Column: 6.49 feet

Well Observations

General Condition of Well: Good General Condition of surrounding area: Good

LNAPL observation: NA Method of measure: NA

Volume of water in well = Height (Ht) of water in well x K

where: K = 0.04 (1-inch well)
0.17 (2-inch well)
0.571 (3-inch well)
0.652 (4-inch well)

Volume of water in well (Ht. x K): **0.26** gallons/linear ft. **0.78** gallons
(1 well volume) (3 well volumes)

Well Purging

Purging method: Peristaltic

Well Volumes	pH	Conductivity (us/cm)	Dissolved Oxygen	Temperature (^{0}C)	ORP	Turbidity (NTUs)
1	6.53	0.051	8.86	29.04	197	>1000
2	5.84	0.050	8.70	28.97	221	892
3	5.27	0.048	7.68	28.93	259	824
4	5.02	0.042	7.07	28.85	276	738
5	4.85	0.039	7.34	27.32	286	735
6	4.66	0.036	7.47	27.38	296	732
7						

Purged To Dryness: Low turbidity could not be achieved after 6 well volumes.

Sample Information

Method of sampling:

Decontamination procedures: Dedicated, one time use sampling equipment per each well per sampling event. Non-disposal sampling equipment decontaminated per applicable USEPA SESD procedures.

Sample ID	Container	Preservative	Analyses
DRCM-0912-OW-6	2 - 40 ml	HCL	Method 8260B Volatile Organics
	MNA Parameters	Varies	Light Hydrocarbons (Methane, Ethane, Ethene), Dissolved Hydrogen, Ion Scan (NO3, SO4, CL), Sulfide, Total Organic Carbon, Ferrous Iron (dissolved)

Sample Transport and Preservation: Ice Filled Cooler

Sample Destination: Analytical Environmental Services, Inc. Via: Hand Delivery

Chain of Custody completed: Yes

GaiaTech Personnel: William H. Lucas & Michael H. Wilson

Monitoring Well Purging & Sampling Information

Project: Diamond Rug and Carpet Mills (Mohawk) **Project No.:** B2618-440-1 **Date:** 8/7/12

Well Information

Well Identification No: **OW-9** Location: Eton, Georgia

Well Diameter: 1-Inch Well Construction: Schedule 40 PVC

Total Well Depth from TOC: 28.00 feet

Depth to Water from TOC: **20.81** feet

Length of Static Water Column: 7.19 feet

Well Observations

General Condition of Well: Good General Condition of surrounding area: Good

LNAPL observation: NA Method of measure: NA

Volume of water in well = Height (Ht) of water in well x K

where: K = 0.04 (1-inch well)

0.17 (2-inch well)

0.571 (3-inch well)

0.652 (4-inch well)

Volume of water in well (Ht. x K): **0.29** gallons/linear ft. **0.86** gallons

(1 well volume) (3 well volumes)

Well Purging

Purging method: Peristaltic

Well Volumes	pH	Conductivity (us/cm)	Dissolved Oxygen	Temperature (^{0}C)	ORP	Turbidity (NTUs)
1	6.95	0.371	15.22	24.72	238	>1000
2	6.82	0.361	4.40	23.56	251	325
3						
4						
5						
6						
7						

Purged To Dryness: Purged Dry after 2 well volumes.

Sample Information

Method of sampling:

Decontamination procedures: Dedicated, one time use sampling equipment per each well per sampling event. Non-disposal sampling equipment decontaminated per applicable USEPA SESD procedures.

Sample ID	Container	Preservative	Analyses
DRCM-0912-OW-9	2 - 40 ml	HCL	Method 8260B Volatile Organics
	MNA Parameters	Varies	Light Hydrocarbons (Methane, Ethane, Ethene), Dissolved Hydrogen, Ion Scan (NO3, SO4, CL), Sulfide, Total Organic Carbon, Ferrous Iron (dissolved)

Sample Transport and Preservation: Ice Filled Cooler

Sample Destination: Analytical Environmental Services, Inc. Via: Hand Delivery

Chain of Custody completed: Yes

GaiaTech Personnel: William H. Lucas & Michael H. Wilson

Monitoring Well Purging & Sampling Information

Project: Diamond Rug and Carpet Mills (Mohawk) **Project No.:** B2618-440-1 **Date:** 8/7/12

Well Information

Well Identification No: **OW-8D** Location: Eton, Georgia

Well Diameter: 1-Inch Well Construction: Schedule 40 PVC

Total Well Depth from TOC: 48.82 feet

Depth to Water from TOC: **40.82** feet

Length of Static Water Column: 8.00 feet

Well Observations

General Condition of Well: Good General Condition of surrounding area: Good

LNAPL observation: NA Method of measure: NA

Volume of water in well = Height (Ht) of water in well x K

where: K = 0.04 (1-inch well)

0.17 (2-inch well)

0.571 (3-inch well)

0.652 (4-inch well)

Volume of water in well (Ht. x K): **0.32** gallons/linear ft. **0.96** gallons

(1 well volume) (3 well volumes)

Well Purging

Purging method: Peristaltic

Well Volumes	pH	Conductivity (us/cm)	Dissolved Oxygen	Temperature (^{0}C)	ORP	Turbidity (NTUs)
1	5.49	0.053	15.93	27.42	240	110
2	5.37	0.052	9.91	27.18	249	90.7
3	5.08	0.052	5.17	26.62	271	105
4	4.99	0.055	4.99	25.98	280	21.1
5	5.01	0.056	5.01	25.9	279	27.2
6						
7						

Purged To Dryness: Turbidity of <10 could not be achieved after 5 well volumes.

Sample Information

Method of sampling:

Decontamination procedures: Dedicated, one time use sampling equipment per each well per sampling event. Non-disposal sampling equipment decontaminated per applicable USEPA SESD procedures.

Sample ID	Container	Preservative	Analyses
DRCM-0912-OW-8D	2 - 40 ml	HCL	Method 8260B Volatile Organics

Sample Transport and Preservation: Ice Filled Cooler

Sample Destination: Analytical Environmental Services, Inc. Via: Hand Delivery

Chain of Custody completed: Yes

GaiaTech Personnel: William H. Lucas & Michael H. Wilson

APPENDIX B
LABORATORY ACCREDITATION AND ANALYTICAL DATA REPORT

AES

ANALYTICAL ENVIRONMENTAL SERVICES, INC.

September 14, 2012

Mike Wilson
GaiaTech, Inc.
3343 Peachtree Road, N.E.
Atlanta GA 30326

TEL: (404) 812-0001
FAX: (404) 812-1992

RE: Diamond Rug Carpet Mill

Dear Mike Wilson: Order No: 1209504

Analytical Environmental Services, Inc. received 6 samples on 9/8/2012 9:45:00 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 07/01/12-06/30/13.
-AIHA Certification ID #100671 for Industrial Hygiene samples (Organics, Inorganics), Environmental Lead (Paint, Soil, Dust Wipes, Air), and Environmental Microbiology (Fungal) effective until 09/01/13.

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.

Sharissa Hall
Project Manager

3785 PRESIDENTIAL PARKWAY • ATLANTA, GEORGIA 30340 • TEL: (770) 457-8177 • FAX: (770)457-8188

ANALYTICAL ENVIRONMENTAL SERVICES, INC
3785 Presidential Parkway, Atlanta GA 30340-3704
AES TEL.: (770) 457-8177 / TOLL-FREE (800) 972-4889 / FAX: (770) 457-8188

CHAIN OF CUSTODY

Work Order: 1209564

Date: 9/7/12 Page 1 of 1

COMPANY: GAIATECH, INC.

ADDRESS: 3525 PIEDMONT RD, NE ATLANTA, GA 30305

PHONE: (404) 809-3884

FAX: (404) 812-1992

SAMPLED BY: MHW / WHL

SIGNATURE:

ANALYSIS REQUESTED: VOCS; SELECT METALS; MNA PARAMETERS

Visit our website www.aesatlanta.com to check on the status of your results, place bottle orders, etc.

#	SAMPLE ID	SAMPLED DATE	SAMPLED TIME	Grab	Composite	Matrix (See codes)	VOCS (H+I)	SELECT METALS (N+I)	MNA PARAMETERS (VARIES)	REMARKS	No # of Containers
1	DRCM-0912-MWW1	9/7/12	1145	X		GW	X	X	X	SELECT METALS	9
2	DRCM-0912-OW1	NO SAMPLE								INCLUDE IRON,	—
3	DRCM-0912-OW2	9/7/12	1230	X		GW	X	X		ARSENIC, LEAD,	3
4	DRCM-0912-OW6	9/7/12	1345	X		GW	X		X	BARIUM, SELENIUM	8
5	DRCM-0912-OW7	9/7/12	1545	X		GW	X			CADMIUM, CHROMIUM	2
6	DRCM-0912-OW8D	9/7/12	1700	X		GW	X			MANGANESE	2
7	DRCM-0912-OW9	9/7/12	1900	X		GW	X				2
8										MNA PARAMETERS	
9										INCLUDE HYDROGEN	
10										ION SCAN (NO3, SO4,	
11										CL), SULFIDE, TOC,	
12										FERROUS IRON	
13											
14											

RELINQUISHED BY:	DATE/TIME	RECEIVED BY	DATE/TIME
1: [signature]	9-7-12 2:30	1: [signature]	9/8/12 9:45
2:		2:	
3:		3:	

PROJECT INFORMATION

PROJECT NAME: DIAMOND RUG CARPET MILL

PROJECT #:

SITE ADDRESS: ETON, GA

SEND REPORT TO: MIKE WILSON

INVOICE TO: (IF DIFFERENT FROM ABOVE)

QUOTE #: PO#:

RECEIPT

Total # of Containers: 26

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

SPECIAL INSTRUCTIONS/COMMENTS:

SHIPMENT METHOD

OUT / / VIA:

IN / / VIA:

CLIENT FedEx UPS MAIL COURIER GREYHOUND OTHER

SAMPLES RECEIVED AFTER 5PM OR ON SATURDAY ARE CONSIDERED RECEIVED THE NEXT BUSINESS DAY. IF TURNAROUND TIME IS NOT INDICATED, AES WILL PROCEED WITH STANDARD TAT OF SAMPLES. SAMPLES ARE DISPOSED 30 DAYS AFTER REPORT COMPLETION UNLESS OTHER ARRANGEMENTS ARE MADE.

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

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

White Copy - Original; Yellow Copy - Client

Analytical Environmental Services, Inc

Date: 14-Sep-12

Client: GaiaTech, Inc.
Project: Diamond Rug Carpet Mill
Lab ID: 1209504

Case Narrative

Due to the date and time samples were received, analysis for Nitrate could not be analyzed within the method specified 48 hours hold time. Per Michael Wilson via phone 9/7/2012, the laboratory proceeded with analysis out of hold.

Per Michael Wilson via email 9/11/2012 10:03am, Copper was required for metals samples and Methane, Ethane, and Ethene were required for MNA samples.

Analytical Environmental Services, Inc **Date:** 14-Sep-12

Client:	GaiaTech, Inc.	**Client Sample ID:**	DRCM-0912-MWW1
Project Name:	Diamond Rug Carpet Mill	**Collection Date:**	9/7/2012 11:45:00 AM
Lab ID:	1209504-001	**Matrix:**	Groundwater

Analyses	Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed	Analyst
Total Organic Carbon (TOC) SW9060A								
Organic Carbon, Total	1.32	1.00		mg/L	R228955	1	09/13/2012 16:07	ME
TCL VOLATILE ORGANICS SW8260B				**(SW5030B)**				
1,1,1-Trichloroethane	BRL	5.0		ug/L	166200	1	09/12/2012 18:28	YT
1,1,2,2-Tetrachloroethane	BRL	5.0		ug/L	166200	1	09/12/2012 18:28	YT
1,1,2-Trichloroethane	BRL	5.0		ug/L	166200	1	09/12/2012 18:28	YT
1,1-Dichloroethane	BRL	5.0		ug/L	166200	1	09/12/2012 18:28	YT
1,1-Dichloroethene	BRL	5.0		ug/L	166200	1	09/12/2012 18:28	YT
1,2,4-Trichlorobenzene	BRL	5.0		ug/L	166200	1	09/12/2012 18:28	YT
1,2-Dibromo-3-chloropropane	BRL	5.0		ug/L	166200	1	09/12/2012 18:28	YT
1,2-Dibromoethane	BRL	5.0		ug/L	166200	1	09/12/2012 18:28	YT
1,2-Dichlorobenzene	BRL	5.0		ug/L	166200	1	09/12/2012 18:28	YT
1,2-Dichloroethane	BRL	5.0		ug/L	166200	1	09/12/2012 18:28	YT
1,2-Dichloropropane	BRL	5.0		ug/L	166200	1	09/12/2012 18:28	YT
1,3-Dichlorobenzene	BRL	5.0		ug/L	166200	1	09/12/2012 18:28	YT
1,4-Dichlorobenzene	BRL	5.0		ug/L	166200	1	09/12/2012 18:28	YT
2-Butanone	BRL	50		ug/L	166200	1	09/12/2012 18:28	YT
2-Hexanone	BRL	10		ug/L	166200	1	09/12/2012 18:28	YT
4-Methyl-2-pentanone	BRL	10		ug/L	166200	1	09/12/2012 18:28	YT
Acetone	BRL	50		ug/L	166200	1	09/12/2012 18:28	YT
Benzene	BRL	5.0		ug/L	166200	1	09/12/2012 18:28	YT
Bromodichloromethane	BRL	5.0		ug/L	166200	1	09/12/2012 18:28	YT
Bromoform	BRL	5.0		ug/L	166200	1	09/12/2012 18:28	YT
Bromomethane	BRL	5.0		ug/L	166200	1	09/12/2012 18:28	YT
Carbon disulfide	BRL	5.0		ug/L	166200	1	09/12/2012 18:28	YT
Carbon tetrachloride	BRL	5.0		ug/L	166200	1	09/12/2012 18:28	YT
Chlorobenzene	BRL	5.0		ug/L	166200	1	09/12/2012 18:28	YT
Chloroethane	BRL	10		ug/L	166200	1	09/12/2012 18:28	YT
Chloroform	BRL	5.0		ug/L	166200	1	09/12/2012 18:28	YT
Chloromethane	BRL	10		ug/L	166200	1	09/12/2012 18:28	YT
cis-1,2-Dichloroethene	BRL	5.0		ug/L	166200	1	09/12/2012 18:28	YT
cis-1,3-Dichloropropene	BRL	5.0		ug/L	166200	1	09/12/2012 18:28	YT
Cyclohexane	BRL	5.0		ug/L	166200	1	09/12/2012 18:28	YT
Dibromochloromethane	BRL	5.0		ug/L	166200	1	09/12/2012 18:28	YT
Dichlorodifluoromethane	BRL	10		ug/L	166200	1	09/12/2012 18:28	YT
Ethylbenzene	BRL	5.0		ug/L	166200	1	09/12/2012 18:28	YT
Freon-113	BRL	10		ug/L	166200	1	09/12/2012 18:28	YT
Isopropylbenzene	BRL	5.0		ug/L	166200	1	09/12/2012 18:28	YT
m,p-Xylene	BRL	5.0		ug/L	166200	1	09/12/2012 18:28	YT
Methyl acetate	BRL	5.0		ug/L	166200	1	09/12/2012 18:28	YT
Methyl tert-butyl ether	BRL	5.0		ug/L	166200	1	09/12/2012 18:28	YT

Qualifiers:

*	Value exceeds maximum contaminant level	E	Estimated (value above quantitation range)
BRL	Below reporting limit	S	Spike Recovery outside limits due to matrix
H	Holding times for preparation or analysis exceeded	Narr	See case narrative
N	Analyte not NELAC certified	NC	Not confirmed
B	Analyte detected in the associated method blank	<	Less than Result value
>	Greater than Result value	J	Estimated value detected below Reporting Limit

Analytical Environmental Services, Inc **Date:** 14-Sep-12

Client:	GaiaTech, Inc.	**Client Sample ID:**	DRCM-0912-MWW1
Project Name:	Diamond Rug Carpet Mill	**Collection Date:**	9/7/2012 11:45:00 AM
Lab ID:	1209504-001	**Matrix:**	Groundwater

Analyses	Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed	Analyst
TCL VOLATILE ORGANICS SW8260B					**(SW5030B)**			
Methylcyclohexane	BRL	5.0		ug/L	166200	1	09/12/2012 18:28	YT
Methylene chloride	BRL	5.0		ug/L	166200	1	09/12/2012 18:28	YT
o-Xylene	BRL	5.0		ug/L	166200	1	09/12/2012 18:28	YT
Styrene	BRL	5.0		ug/L	166200	1	09/12/2012 18:28	YT
Tetrachloroethene	10	5.0		ug/L	166200	1	09/12/2012 18:28	YT
Toluene	BRL	5.0		ug/L	166200	1	09/12/2012 18:28	YT
trans-1,2-Dichloroethene	BRL	5.0		ug/L	166200	1	09/12/2012 18:28	YT
trans-1,3-Dichloropropene	BRL	5.0		ug/L	166200	1	09/12/2012 18:28	YT
Trichloroethene	BRL	5.0		ug/L	166200	1	09/12/2012 18:28	YT
Trichlorofluoromethane	BRL	5.0		ug/L	166200	1	09/12/2012 18:28	YT
Vinyl chloride	BRL	2.0		ug/L	166200	1	09/12/2012 18:28	YT
Surr: 4-Bromofluorobenzene	74.8	67.4-123		%REC	166200	1	09/12/2012 18:28	YT
Surr: Dibromofluoromethane	116	75.5-128		%REC	166200	1	09/12/2012 18:28	YT
Surr: Toluene-d8	94.6	70-120		%REC	166200	1	09/12/2012 18:28	YT
Sulfide by SW9030B/9034					**(SW9030B)**			
Sulfide	BRL	2.00		mg/L	166508	1	09/14/2012 11:40	AS
ION SCAN SW9056A								
Chloride	4.8	1.0		mg/L	R228686	1	09/10/2012 12:07	ME
Nitrate	0.51	0.25	H	mg/L	R228686	1	09/10/2012 12:07	ME
Sulfate	1.1	1.0		mg/L	R228686	1	09/10/2012 12:07	ME
GC Analysis of Gaseous Samples SOP-RSK 175					**(RSK175)**			
Ethane	BRL	9		ug/L	166260	1	09/11/2012 12:28	SN
Ethylene	BRL	7		ug/L	166260	1	09/11/2012 12:28	SN
Methane	17	4		ug/L	166260	1	09/11/2012 12:28	SN
Ferrous Iron SM3500-Fe-B								
Iron, as Ferrous (Fe+2)	BRL	0.100		mg/L	R228550	1	09/08/2012 10:30	VS
METALS, TOTAL SW6010C					**(SW3010A)**			
Arsenic	BRL	0.0500		mg/L	166363	1	09/13/2012 15:08	MR
Barium	0.0292	0.0200		mg/L	166363	1	09/13/2012 15:08	MR
Cadmium	BRL	0.0050		mg/L	166363	1	09/13/2012 15:08	MR
Chromium	BRL	0.0100		mg/L	166363	1	09/13/2012 15:08	MR
Copper	BRL	0.0100		mg/L	166363	1	09/13/2012 15:08	MR
Iron	BRL	0.100		mg/L	166363	1	09/13/2012 15:08	MR
Lead	BRL	0.0100		mg/L	166363	1	09/13/2012 15:08	MR
Manganese	0.0466	0.0150		mg/L	166363	1	09/13/2012 15:08	MR
Selenium	BRL	0.0200		mg/L	166363	1	09/13/2012 15:08	MR

Qualifiers:

*	Value exceeds maximum contaminant level	E	Estimated (value above quantitation range)
BRL	Below reporting limit	S	Spike Recovery outside limits due to matrix
H	Holding times for preparation or analysis exceeded	Narr	See case narrative
N	Analyte not NELAC certified	NC	Not confirmed
B	Analyte detected in the associated method blank	<	Less than Result value
>	Greater than Result value	J	Estimated value detected below Reporting Limit

Analytical Environmental Services, Inc **Date:** 14-Sep-12

Client:	GaiaTech, Inc.	**Client Sample ID:**	DRCM-0912-OW2
Project Name:	Diamond Rug Carpet Mill	**Collection Date:**	9/7/2012 12:30:00 PM
Lab ID:	1209504-002	**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	166200	1	09/12/2012 18:58	YT
1,1,2,2-Tetrachloroethane	BRL	5.0		ug/L	166200	1	09/12/2012 18:58	YT
1,1,2-Trichloroethane	BRL	5.0		ug/L	166200	1	09/12/2012 18:58	YT
1,1-Dichloroethane	BRL	5.0		ug/L	166200	1	09/12/2012 18:58	YT
1,1-Dichloroethene	BRL	5.0		ug/L	166200	1	09/12/2012 18:58	YT
1,2,4-Trichlorobenzene	BRL	5.0		ug/L	166200	1	09/12/2012 18:58	YT
1,2-Dibromo-3-chloropropane	BRL	5.0		ug/L	166200	1	09/12/2012 18:58	YT
1,2-Dibromoethane	BRL	5.0		ug/L	166200	1	09/12/2012 18:58	YT
1,2-Dichlorobenzene	BRL	5.0		ug/L	166200	1	09/12/2012 18:58	YT
1,2-Dichloroethane	BRL	5.0		ug/L	166200	1	09/12/2012 18:58	YT
1,2-Dichloropropane	BRL	5.0		ug/L	166200	1	09/12/2012 18:58	YT
1,3-Dichlorobenzene	BRL	5.0		ug/L	166200	1	09/12/2012 18:58	YT
1,4-Dichlorobenzene	BRL	5.0		ug/L	166200	1	09/12/2012 18:58	YT
2-Butanone	BRL	50		ug/L	166200	1	09/12/2012 18:58	YT
2-Hexanone	BRL	10		ug/L	166200	1	09/12/2012 18:58	YT
4-Methyl-2-pentanone	BRL	10		ug/L	166200	1	09/12/2012 18:58	YT
Acetone	BRL	50		ug/L	166200	1	09/12/2012 18:58	YT
Benzene	BRL	5.0		ug/L	166200	1	09/12/2012 18:58	YT
Bromodichloromethane	BRL	5.0		ug/L	166200	1	09/12/2012 18:58	YT
Bromoform	BRL	5.0		ug/L	166200	1	09/12/2012 18:58	YT
Bromomethane	BRL	5.0		ug/L	166200	1	09/12/2012 18:58	YT
Carbon disulfide	BRL	5.0		ug/L	166200	1	09/12/2012 18:58	YT
Carbon tetrachloride	BRL	5.0		ug/L	166200	1	09/12/2012 18:58	YT
Chlorobenzene	BRL	5.0		ug/L	166200	1	09/12/2012 18:58	YT
Chloroethane	BRL	10		ug/L	166200	1	09/12/2012 18:58	YT
Chloroform	BRL	5.0		ug/L	166200	1	09/12/2012 18:58	YT
Chloromethane	BRL	10		ug/L	166200	1	09/12/2012 18:58	YT
cis-1,2-Dichloroethene	BRL	5.0		ug/L	166200	1	09/12/2012 18:58	YT
cis-1,3-Dichloropropene	BRL	5.0		ug/L	166200	1	09/12/2012 18:58	YT
Cyclohexane	BRL	5.0		ug/L	166200	1	09/12/2012 18:58	YT
Dibromochloromethane	BRL	5.0		ug/L	166200	1	09/12/2012 18:58	YT
Dichlorodifluoromethane	BRL	10		ug/L	166200	1	09/12/2012 18:58	YT
Ethylbenzene	BRL	5.0		ug/L	166200	1	09/12/2012 18:58	YT
Freon-113	BRL	10		ug/L	166200	1	09/12/2012 18:58	YT
Isopropylbenzene	BRL	5.0		ug/L	166200	1	09/12/2012 18:58	YT
m,p-Xylene	BRL	5.0		ug/L	166200	1	09/12/2012 18:58	YT
Methyl acetate	BRL	5.0		ug/L	166200	1	09/12/2012 18:58	YT
Methyl tert-butyl ether	BRL	5.0		ug/L	166200	1	09/12/2012 18:58	YT
Methylcyclohexane	BRL	5.0		ug/L	166200	1	09/12/2012 18:58	YT
Methylene chloride	BRL	5.0		ug/L	166200	1	09/12/2012 18:58	YT
o-Xylene	BRL	5.0		ug/L	166200	1	09/12/2012 18:58	YT

Qualifiers:

*	Value exceeds maximum contaminant level	E	Estimated (value above quantitation range)
BRL	Below reporting limit	S	Spike Recovery outside limits due to matrix
H	Holding times for preparation or analysis exceeded	Narr	See case narrative
N	Analyte not NELAC certified	NC	Not confirmed
B	Analyte detected in the associated method blank	<	Less than Result value
>	Greater than Result value	J	Estimated value detected below Reporting Limit

Analytical Environmental Services, Inc **Date:** 14-Sep-12

Client:	GaiaTech, Inc.	**Client Sample ID:**	DRCM-0912-OW2
Project Name:	Diamond Rug Carpet Mill	**Collection Date:**	9/7/2012 12:30:00 PM
Lab ID:	1209504-002	**Matrix:**	Groundwater

Analyses	Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed	Analyst
TCL VOLATILE ORGANICS SW8260B				**(SW5030B)**				
Styrene	BRL	5.0		ug/L	166200	1	09/12/2012 18:58	YT
Tetrachloroethene	BRL	5.0		ug/L	166200	1	09/12/2012 18:58	YT
Toluene	BRL	5.0		ug/L	166200	1	09/12/2012 18:58	YT
trans-1,2-Dichloroethene	BRL	5.0		ug/L	166200	1	09/12/2012 18:58	YT
trans-1,3-Dichloropropene	BRL	5.0		ug/L	166200	1	09/12/2012 18:58	YT
Trichloroethene	BRL	5.0		ug/L	166200	1	09/12/2012 18:58	YT
Trichlorofluoromethane	BRL	5.0		ug/L	166200	1	09/12/2012 18:58	YT
Vinyl chloride	BRL	2.0		ug/L	166200	1	09/12/2012 18:58	YT
Surr: 4-Bromofluorobenzene	74.2	67.4-123		%REC	166200	1	09/12/2012 18:58	YT
Surr: Dibromofluoromethane	118	75.5-128		%REC	166200	1	09/12/2012 18:58	YT
Surr: Toluene-d8	96.7	70-120		%REC	166200	1	09/12/2012 18:58	YT
METALS, TOTAL SW6010C				**(SW3010A)**				
Arsenic	BRL	0.0500		mg/L	166363	1	09/13/2012 15:12	MR
Barium	BRL	0.0200		mg/L	166363	1	09/13/2012 15:12	MR
Cadmium	BRL	0.0050		mg/L	166363	1	09/13/2012 15:12	MR
Chromium	0.0115	0.0100		mg/L	166363	1	09/13/2012 15:12	MR
Copper	BRL	0.0100		mg/L	166363	1	09/13/2012 15:12	MR
Iron	BRL	0.100		mg/L	166363	1	09/13/2012 15:12	MR
Lead	BRL	0.0100		mg/L	166363	1	09/13/2012 15:12	MR
Manganese	2.30	0.0150		mg/L	166363	1	09/13/2012 15:12	MR
Selenium	BRL	0.0200		mg/L	166363	1	09/13/2012 15:12	MR

Qualifiers:

*	Value exceeds maximum contaminant level	E	Estimated (value above quantitation range)
BRL	Below reporting limit	S	Spike Recovery outside limits due to matrix
H	Holding times for preparation or analysis exceeded	Narr	See case narrative
N	Analyte not NELAC certified	NC	Not confirmed
B	Analyte detected in the associated method blank	<	Less than Result value
>	Greater than Result value	J	Estimated value detected below Reporting Limit

Analytical Environmental Services, Inc **Date:** 14-Sep-12

Client:	GaiaTech, Inc.	**Client Sample ID:**	DRCM-0912-OW6
Project Name:	Diamond Rug Carpet Mill	**Collection Date:**	9/7/2012 1:45:00 PM
Lab ID:	1209504-003	**Matrix:**	Groundwater

Analyses	Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed	Analyst
Total Organic Carbon (TOC) SW9060A								
Organic Carbon, Total	2.27	1.00		mg/L	R228955	1	09/13/2012 16:32	ME
TCL VOLATILE ORGANICS SW8260B				**(SW5030B)**				
1,1,1-Trichloroethane	BRL	5.0		ug/L	166200	1	09/12/2012 19:27	YT
1,1,2,2-Tetrachloroethane	BRL	5.0		ug/L	166200	1	09/12/2012 19:27	YT
1,1,2-Trichloroethane	BRL	5.0		ug/L	166200	1	09/12/2012 19:27	YT
1,1-Dichloroethane	34	5.0		ug/L	166200	1	09/12/2012 19:27	YT
1,1-Dichloroethene	5.0	5.0		ug/L	166200	1	09/12/2012 19:27	YT
1,2,4-Trichlorobenzene	BRL	5.0		ug/L	166200	1	09/12/2012 19:27	YT
1,2-Dibromo-3-chloropropane	BRL	5.0		ug/L	166200	1	09/12/2012 19:27	YT
1,2-Dibromoethane	BRL	5.0		ug/L	166200	1	09/12/2012 19:27	YT
1,2-Dichlorobenzene	BRL	5.0		ug/L	166200	1	09/12/2012 19:27	YT
1,2-Dichloroethane	BRL	5.0		ug/L	166200	1	09/12/2012 19:27	YT
1,2-Dichloropropane	BRL	5.0		ug/L	166200	1	09/12/2012 19:27	YT
1,3-Dichlorobenzene	BRL	5.0		ug/L	166200	1	09/12/2012 19:27	YT
1,4-Dichlorobenzene	BRL	5.0		ug/L	166200	1	09/12/2012 19:27	YT
2-Butanone	BRL	50		ug/L	166200	1	09/12/2012 19:27	YT
2-Hexanone	BRL	10		ug/L	166200	1	09/12/2012 19:27	YT
4-Methyl-2-pentanone	BRL	10		ug/L	166200	1	09/12/2012 19:27	YT
Acetone	BRL	50		ug/L	166200	1	09/12/2012 19:27	YT
Benzene	BRL	5.0		ug/L	166200	1	09/12/2012 19:27	YT
Bromodichloromethane	BRL	5.0		ug/L	166200	1	09/12/2012 19:27	YT
Bromoform	BRL	5.0		ug/L	166200	1	09/12/2012 19:27	YT
Bromomethane	BRL	5.0		ug/L	166200	1	09/12/2012 19:27	YT
Carbon disulfide	BRL	5.0		ug/L	166200	1	09/12/2012 19:27	YT
Carbon tetrachloride	BRL	5.0		ug/L	166200	1	09/12/2012 19:27	YT
Chlorobenzene	BRL	5.0		ug/L	166200	1	09/12/2012 19:27	YT
Chloroethane	BRL	10		ug/L	166200	1	09/12/2012 19:27	YT
Chloroform	BRL	5.0		ug/L	166200	1	09/12/2012 19:27	YT
Chloromethane	BRL	10		ug/L	166200	1	09/12/2012 19:27	YT
cis-1,2-Dichloroethene	BRL	5.0		ug/L	166200	1	09/12/2012 19:27	YT
cis-1,3-Dichloropropene	BRL	5.0		ug/L	166200	1	09/12/2012 19:27	YT
Cyclohexane	BRL	5.0		ug/L	166200	1	09/12/2012 19:27	YT
Dibromochloromethane	BRL	5.0		ug/L	166200	1	09/12/2012 19:27	YT
Dichlorodifluoromethane	BRL	10		ug/L	166200	1	09/12/2012 19:27	YT
Ethylbenzene	BRL	5.0		ug/L	166200	1	09/12/2012 19:27	YT
Freon-113	BRL	10		ug/L	166200	1	09/12/2012 19:27	YT
Isopropylbenzene	BRL	5.0		ug/L	166200	1	09/12/2012 19:27	YT
m,p-Xylene	BRL	5.0		ug/L	166200	1	09/12/2012 19:27	YT
Methyl acetate	BRL	5.0		ug/L	166200	1	09/12/2012 19:27	YT
Methyl tert-butyl ether	BRL	5.0		ug/L	166200	1	09/12/2012 19:27	YT

Qualifiers:

*	Value exceeds maximum contaminant level	E	Estimated (value above quantitation range)
BRL	Below reporting limit	S	Spike Recovery outside limits due to matrix
H	Holding times for preparation or analysis exceeded	Narr	See case narrative
N	Analyte not NELAC certified	NC	Not confirmed
B	Analyte detected in the associated method blank	<	Less than Result value
>	Greater than Result value	J	Estimated value detected below Reporting Limit

Analytical Environmental Services, Inc **Date:** 14-Sep-12

Client:	GaiaTech, Inc.	**Client Sample ID:**	DRCM-0912-OW6
Project Name:	Diamond Rug Carpet Mill	**Collection Date:**	9/7/2012 1:45:00 PM
Lab ID:	1209504-003	**Matrix:**	Groundwater

Analyses	Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed	Analyst
TCL VOLATILE ORGANICS SW8260B				**(SW5030B)**				
Methylcyclohexane	BRL	5.0		ug/L	166200	1	09/12/2012 19:27	YT
Methylene chloride	BRL	5.0		ug/L	166200	1	09/12/2012 19:27	YT
o-Xylene	BRL	5.0		ug/L	166200	1	09/12/2012 19:27	YT
Styrene	BRL	5.0		ug/L	166200	1	09/12/2012 19:27	YT
Tetrachloroethene	6.4	5.0		ug/L	166200	1	09/12/2012 19:27	YT
Toluene	BRL	5.0		ug/L	166200	1	09/12/2012 19:27	YT
trans-1,2-Dichloroethene	BRL	5.0		ug/L	166200	1	09/12/2012 19:27	YT
trans-1,3-Dichloropropene	BRL	5.0		ug/L	166200	1	09/12/2012 19:27	YT
Trichloroethene	BRL	5.0		ug/L	166200	1	09/12/2012 19:27	YT
Trichlorofluoromethane	BRL	5.0		ug/L	166200	1	09/12/2012 19:27	YT
Vinyl chloride	BRL	2.0		ug/L	166200	1	09/12/2012 19:27	YT
Surr: 4-Bromofluorobenzene	74.6	67.4-123		%REC	166200	1	09/12/2012 19:27	YT
Surr: Dibromofluoromethane	108	75.5-128		%REC	166200	1	09/12/2012 19:27	YT
Surr: Toluene-d8	97.1	70-120		%REC	166200	1	09/12/2012 19:27	YT
Sulfide by SW9030B/9034				**(SW9030B)**				
Sulfide	BRL	2.00		mg/L	166508	1	09/14/2012 11:40	AS
ION SCAN SW9056A								
Chloride	2.5	1.0		mg/L	R228686	1	09/10/2012 12:22	ME
Nitrate	1.2	0.25	H	mg/L	R228686	1	09/10/2012 12:22	ME
Sulfate	3.0	1.0		mg/L	R228686	1	09/10/2012 12:22	ME
GC Analysis of Gaseous Samples SOP-RSK 175				**(RSK175)**				
Ethane	BRL	9		ug/L	166260	1	09/11/2012 12:33	SN
Ethylene	BRL	7		ug/L	166260	1	09/11/2012 12:33	SN
Methane	BRL	4		ug/L	166260	1	09/11/2012 12:33	SN
Ferrous Iron SM3500-Fe-B								
Iron, as Ferrous (Fe+2)	BRL	0.100		mg/L	R228550	1	09/08/2012 10:30	VS

Qualifiers:

*	Value exceeds maximum contaminant level	E	Estimated (value above quantitation range)
BRL	Below reporting limit	S	Spike Recovery outside limits due to matrix
H	Holding times for preparation or analysis exceeded	Narr	See case narrative
N	Analyte not NELAC certified	NC	Not confirmed
B	Analyte detected in the associated method blank	<	Less than Result value
>	Greater than Result value	J	Estimated value detected below Reporting Limit

Analytical Environmental Services, Inc **Date:** 14-Sep-12

Client:	GaiaTech, Inc.	**Client Sample ID:**	DRCM-0912-OW7
Project Name:	Diamond Rug Carpet Mill	**Collection Date:**	9/7/2012 3:45:00 PM
Lab ID:	1209504-004	**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	166200	1	09/12/2012 19:57	YT
1,1,2,2-Tetrachloroethane	BRL	5.0		ug/L	166200	1	09/12/2012 19:57	YT
1,1,2-Trichloroethane	BRL	5.0		ug/L	166200	1	09/12/2012 19:57	YT
1,1-Dichloroethane	BRL	5.0		ug/L	166200	1	09/12/2012 19:57	YT
1,1-Dichloroethene	BRL	5.0		ug/L	166200	1	09/12/2012 19:57	YT
1,2,4-Trichlorobenzene	BRL	5.0		ug/L	166200	1	09/12/2012 19:57	YT
1,2-Dibromo-3-chloropropane	BRL	5.0		ug/L	166200	1	09/12/2012 19:57	YT
1,2-Dibromoethane	BRL	5.0		ug/L	166200	1	09/12/2012 19:57	YT
1,2-Dichlorobenzene	BRL	5.0		ug/L	166200	1	09/12/2012 19:57	YT
1,2-Dichloroethane	BRL	5.0		ug/L	166200	1	09/12/2012 19:57	YT
1,2-Dichloropropane	BRL	5.0		ug/L	166200	1	09/12/2012 19:57	YT
1,3-Dichlorobenzene	BRL	5.0		ug/L	166200	1	09/12/2012 19:57	YT
1,4-Dichlorobenzene	BRL	5.0		ug/L	166200	1	09/12/2012 19:57	YT
2-Butanone	BRL	50		ug/L	166200	1	09/12/2012 19:57	YT
2-Hexanone	BRL	10		ug/L	166200	1	09/12/2012 19:57	YT
4-Methyl-2-pentanone	BRL	10		ug/L	166200	1	09/12/2012 19:57	YT
Acetone	BRL	50		ug/L	166200	1	09/12/2012 19:57	YT
Benzene	BRL	5.0		ug/L	166200	1	09/12/2012 19:57	YT
Bromodichloromethane	BRL	5.0		ug/L	166200	1	09/12/2012 19:57	YT
Bromoform	BRL	5.0		ug/L	166200	1	09/12/2012 19:57	YT
Bromomethane	BRL	5.0		ug/L	166200	1	09/12/2012 19:57	YT
Carbon disulfide	BRL	5.0		ug/L	166200	1	09/12/2012 19:57	YT
Carbon tetrachloride	BRL	5.0		ug/L	166200	1	09/12/2012 19:57	YT
Chlorobenzene	BRL	5.0		ug/L	166200	1	09/12/2012 19:57	YT
Chloroethane	BRL	10		ug/L	166200	1	09/12/2012 19:57	YT
Chloroform	BRL	5.0		ug/L	166200	1	09/12/2012 19:57	YT
Chloromethane	BRL	10		ug/L	166200	1	09/12/2012 19:57	YT
cis-1,2-Dichloroethene	BRL	5.0		ug/L	166200	1	09/12/2012 19:57	YT
cis-1,3-Dichloropropene	BRL	5.0		ug/L	166200	1	09/12/2012 19:57	YT
Cyclohexane	BRL	5.0		ug/L	166200	1	09/12/2012 19:57	YT
Dibromochloromethane	BRL	5.0		ug/L	166200	1	09/12/2012 19:57	YT
Dichlorodifluoromethane	BRL	10		ug/L	166200	1	09/12/2012 19:57	YT
Ethylbenzene	BRL	5.0		ug/L	166200	1	09/12/2012 19:57	YT
Freon-113	BRL	10		ug/L	166200	1	09/12/2012 19:57	YT
Isopropylbenzene	BRL	5.0		ug/L	166200	1	09/12/2012 19:57	YT
m,p-Xylene	BRL	5.0		ug/L	166200	1	09/12/2012 19:57	YT
Methyl acetate	BRL	5.0		ug/L	166200	1	09/12/2012 19:57	YT
Methyl tert-butyl ether	BRL	5.0		ug/L	166200	1	09/12/2012 19:57	YT
Methylcyclohexane	BRL	5.0		ug/L	166200	1	09/12/2012 19:57	YT
Methylene chloride	BRL	5.0		ug/L	166200	1	09/12/2012 19:57	YT
o-Xylene	BRL	5.0		ug/L	166200	1	09/12/2012 19:57	YT

Qualifiers:

*	Value exceeds maximum contaminant level	E	Estimated (value above quantitation range)
BRL	Below reporting limit	S	Spike Recovery outside limits due to matrix
H	Holding times for preparation or analysis exceeded	Narr	See case narrative
N	Analyte not NELAC certified	NC	Not confirmed
B	Analyte detected in the associated method blank	<	Less than Result value
>	Greater than Result value	J	Estimated value detected below Reporting Limit

Analytical Environmental Services, Inc **Date:** 14-Sep-12

Client:	GaiaTech, Inc.	**Client Sample ID:**	DRCM-0912-OW7
Project Name:	Diamond Rug Carpet Mill	**Collection Date:**	9/7/2012 3:45:00 PM
Lab ID:	1209504-004	**Matrix:**	Groundwater

Analyses	Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed	Analyst
TCL VOLATILE ORGANICS SW8260B				**(SW5030B)**				
Styrene	BRL	5.0		ug/L	166200	1	09/12/2012 19:57	YT
Tetrachloroethene	BRL	5.0		ug/L	166200	1	09/12/2012 19:57	YT
Toluene	BRL	5.0		ug/L	166200	1	09/12/2012 19:57	YT
trans-1,2-Dichloroethene	BRL	5.0		ug/L	166200	1	09/12/2012 19:57	YT
trans-1,3-Dichloropropene	BRL	5.0		ug/L	166200	1	09/12/2012 19:57	YT
Trichloroethene	BRL	5.0		ug/L	166200	1	09/12/2012 19:57	YT
Trichlorofluoromethane	BRL	5.0		ug/L	166200	1	09/12/2012 19:57	YT
Vinyl chloride	BRL	2.0		ug/L	166200	1	09/12/2012 19:57	YT
Surr: 4-Bromofluorobenzene	71.8	67.4-123		%REC	166200	1	09/12/2012 19:57	YT
Surr: Dibromofluoromethane	120	75.5-128		%REC	166200	1	09/12/2012 19:57	YT
Surr: Toluene-d8	98.6	70-120		%REC	166200	1	09/12/2012 19:57	YT

Qualifiers:

*	Value exceeds maximum contaminant level	E	Estimated (value above quantitation range)
BRL	Below reporting limit	S	Spike Recovery outside limits due to matrix
H	Holding times for preparation or analysis exceeded	Narr	See case narrative
N	Analyte not NELAC certified	NC	Not confirmed
B	Analyte detected in the associated method blank	<	Less than Result value
>	Greater than Result value	J	Estimated value detected below Reporting Limit

Analytical Environmental Services, Inc **Date:** 14-Sep-12

Client:	GaiaTech, Inc.	**Client Sample ID:**	DRCM-0912-OW8D
Project Name:	Diamond Rug Carpet Mill	**Collection Date:**	9/7/2012 5:00:00 PM
Lab ID:	1209504-005	**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	166200	1	09/12/2012 20:26	YT
1,1,2,2-Tetrachloroethane	BRL	5.0		ug/L	166200	1	09/12/2012 20:26	YT
1,1,2-Trichloroethane	BRL	5.0		ug/L	166200	1	09/12/2012 20:26	YT
1,1-Dichloroethane	8.1	5.0		ug/L	166200	1	09/12/2012 20:26	YT
1,1-Dichloroethene	8.3	5.0		ug/L	166200	1	09/12/2012 20:26	YT
1,2,4-Trichlorobenzene	BRL	5.0		ug/L	166200	1	09/12/2012 20:26	YT
1,2-Dibromo-3-chloropropane	BRL	5.0		ug/L	166200	1	09/12/2012 20:26	YT
1,2-Dibromoethane	BRL	5.0		ug/L	166200	1	09/12/2012 20:26	YT
1,2-Dichlorobenzene	BRL	5.0		ug/L	166200	1	09/12/2012 20:26	YT
1,2-Dichloroethane	BRL	5.0		ug/L	166200	1	09/12/2012 20:26	YT
1,2-Dichloropropane	BRL	5.0		ug/L	166200	1	09/12/2012 20:26	YT
1,3-Dichlorobenzene	BRL	5.0		ug/L	166200	1	09/12/2012 20:26	YT
1,4-Dichlorobenzene	BRL	5.0		ug/L	166200	1	09/12/2012 20:26	YT
2-Butanone	BRL	50		ug/L	166200	1	09/12/2012 20:26	YT
2-Hexanone	BRL	10		ug/L	166200	1	09/12/2012 20:26	YT
4-Methyl-2-pentanone	BRL	10		ug/L	166200	1	09/12/2012 20:26	YT
Acetone	BRL	50		ug/L	166200	1	09/12/2012 20:26	YT
Benzene	BRL	5.0		ug/L	166200	1	09/12/2012 20:26	YT
Bromodichloromethane	BRL	5.0		ug/L	166200	1	09/12/2012 20:26	YT
Bromoform	BRL	5.0		ug/L	166200	1	09/12/2012 20:26	YT
Bromomethane	BRL	5.0		ug/L	166200	1	09/12/2012 20:26	YT
Carbon disulfide	BRL	5.0		ug/L	166200	1	09/12/2012 20:26	YT
Carbon tetrachloride	BRL	5.0		ug/L	166200	1	09/12/2012 20:26	YT
Chlorobenzene	BRL	5.0		ug/L	166200	1	09/12/2012 20:26	YT
Chloroethane	BRL	10		ug/L	166200	1	09/12/2012 20:26	YT
Chloroform	BRL	5.0		ug/L	166200	1	09/12/2012 20:26	YT
Chloromethane	BRL	10		ug/L	166200	1	09/12/2012 20:26	YT
cis-1,2-Dichloroethene	BRL	5.0		ug/L	166200	1	09/12/2012 20:26	YT
cis-1,3-Dichloropropene	BRL	5.0		ug/L	166200	1	09/12/2012 20:26	YT
Cyclohexane	BRL	5.0		ug/L	166200	1	09/12/2012 20:26	YT
Dibromochloromethane	BRL	5.0		ug/L	166200	1	09/12/2012 20:26	YT
Dichlorodifluoromethane	BRL	10		ug/L	166200	1	09/12/2012 20:26	YT
Ethylbenzene	BRL	5.0		ug/L	166200	1	09/12/2012 20:26	YT
Freon-113	BRL	10		ug/L	166200	1	09/12/2012 20:26	YT
Isopropylbenzene	BRL	5.0		ug/L	166200	1	09/12/2012 20:26	YT
m,p-Xylene	BRL	5.0		ug/L	166200	1	09/12/2012 20:26	YT
Methyl acetate	BRL	5.0		ug/L	166200	1	09/12/2012 20:26	YT
Methyl tert-butyl ether	BRL	5.0		ug/L	166200	1	09/12/2012 20:26	YT
Methylcyclohexane	BRL	5.0		ug/L	166200	1	09/12/2012 20:26	YT
Methylene chloride	BRL	5.0		ug/L	166200	1	09/12/2012 20:26	YT
o-Xylene	BRL	5.0		ug/L	166200	1	09/12/2012 20:26	YT

Qualifiers:

*	Value exceeds maximum contaminant level	E	Estimated (value above quantitation range)
BRL	Below reporting limit	S	Spike Recovery outside limits due to matrix
H	Holding times for preparation or analysis exceeded	Narr	See case narrative
N	Analyte not NELAC certified	NC	Not confirmed
B	Analyte detected in the associated method blank	<	Less than Result value
>	Greater than Result value	J	Estimated value detected below Reporting Limit

Analytical Environmental Services, Inc **Date:** 14-Sep-12

Client:	GaiaTech, Inc.	**Client Sample ID:**	DRCM-0912-OW8D
Project Name:	Diamond Rug Carpet Mill	**Collection Date:**	9/7/2012 5:00:00 PM
Lab ID:	1209504-005	**Matrix:**	Groundwater

Analyses	Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed	Analyst
TCL VOLATILE ORGANICS SW8260B				**(SW5030B)**				
Styrene	BRL	5.0		ug/L	166200	1	09/12/2012 20:26	YT
Tetrachloroethene	17	5.0		ug/L	166200	1	09/12/2012 20:26	YT
Toluene	BRL	5.0		ug/L	166200	1	09/12/2012 20:26	YT
trans-1,2-Dichloroethene	BRL	5.0		ug/L	166200	1	09/12/2012 20:26	YT
trans-1,3-Dichloropropene	BRL	5.0		ug/L	166200	1	09/12/2012 20:26	YT
Trichloroethene	BRL	5.0		ug/L	166200	1	09/12/2012 20:26	YT
Trichlorofluoromethane	BRL	5.0		ug/L	166200	1	09/12/2012 20:26	YT
Vinyl chloride	BRL	2.0		ug/L	166200	1	09/12/2012 20:26	YT
Surr: 4-Bromofluorobenzene	76	67.4-123		%REC	166200	1	09/12/2012 20:26	YT
Surr: Dibromofluoromethane	122	75.5-128		%REC	166200	1	09/12/2012 20:26	YT
Surr: Toluene-d8	100	70-120		%REC	166200	1	09/12/2012 20:26	YT

Qualifiers:

*	Value exceeds maximum contaminant level	E	Estimated (value above quantitation range)
BRL	Below reporting limit	S	Spike Recovery outside limits due to matrix
H	Holding times for preparation or analysis exceeded	Narr	See case narrative
N	Analyte not NELAC certified	NC	Not confirmed
B	Analyte detected in the associated method blank	<	Less than Result value
>	Greater than Result value	J	Estimated value detected below Reporting Limit

Analytical Environmental Services, Inc **Date:** 14-Sep-12

Client:	GaiaTech, Inc.	**Client Sample ID:**	DRCM-0912-OW9
Project Name:	Diamond Rug Carpet Mill	**Collection Date:**	9/7/2012 7:00:00 PM
Lab ID:	1209504-006	**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	166200	1	09/14/2012 11:05	YT
1,1,2,2-Tetrachloroethane	BRL	5.0		ug/L	166200	1	09/14/2012 11:05	YT
1,1,2-Trichloroethane	BRL	5.0		ug/L	166200	1	09/14/2012 11:05	YT
1,1-Dichloroethane	BRL	5.0		ug/L	166200	1	09/14/2012 11:05	YT
1,1-Dichloroethene	BRL	5.0		ug/L	166200	1	09/14/2012 11:05	YT
1,2,4-Trichlorobenzene	BRL	5.0		ug/L	166200	1	09/14/2012 11:05	YT
1,2-Dibromo-3-chloropropane	BRL	5.0		ug/L	166200	1	09/14/2012 11:05	YT
1,2-Dibromoethane	BRL	5.0		ug/L	166200	1	09/14/2012 11:05	YT
1,2-Dichlorobenzene	BRL	5.0		ug/L	166200	1	09/14/2012 11:05	YT
1,2-Dichloroethane	BRL	5.0		ug/L	166200	1	09/14/2012 11:05	YT
1,2-Dichloropropane	BRL	5.0		ug/L	166200	1	09/14/2012 11:05	YT
1,3-Dichlorobenzene	BRL	5.0		ug/L	166200	1	09/14/2012 11:05	YT
1,4-Dichlorobenzene	BRL	5.0		ug/L	166200	1	09/14/2012 11:05	YT
2-Butanone	BRL	50		ug/L	166200	1	09/14/2012 11:05	YT
2-Hexanone	BRL	10		ug/L	166200	1	09/14/2012 11:05	YT
4-Methyl-2-pentanone	BRL	10		ug/L	166200	1	09/14/2012 11:05	YT
Acetone	BRL	50		ug/L	166200	1	09/14/2012 11:05	YT
Benzene	BRL	5.0		ug/L	166200	1	09/14/2012 11:05	YT
Bromodichloromethane	BRL	5.0		ug/L	166200	1	09/14/2012 11:05	YT
Bromoform	BRL	5.0		ug/L	166200	1	09/14/2012 11:05	YT
Bromomethane	BRL	5.0		ug/L	166200	1	09/14/2012 11:05	YT
Carbon disulfide	BRL	5.0		ug/L	166200	1	09/14/2012 11:05	YT
Carbon tetrachloride	BRL	5.0		ug/L	166200	1	09/14/2012 11:05	YT
Chlorobenzene	BRL	5.0		ug/L	166200	1	09/14/2012 11:05	YT
Chloroethane	BRL	10		ug/L	166200	1	09/14/2012 11:05	YT
Chloroform	BRL	5.0		ug/L	166200	1	09/14/2012 11:05	YT
Chloromethane	BRL	10		ug/L	166200	1	09/14/2012 11:05	YT
cis-1,2-Dichloroethene	BRL	5.0		ug/L	166200	1	09/14/2012 11:05	YT
cis-1,3-Dichloropropene	BRL	5.0		ug/L	166200	1	09/14/2012 11:05	YT
Cyclohexane	BRL	5.0		ug/L	166200	1	09/14/2012 11:05	YT
Dibromochloromethane	BRL	5.0		ug/L	166200	1	09/14/2012 11:05	YT
Dichlorodifluoromethane	BRL	10		ug/L	166200	1	09/14/2012 11:05	YT
Ethylbenzene	BRL	5.0		ug/L	166200	1	09/14/2012 11:05	YT
Freon-113	BRL	10		ug/L	166200	1	09/14/2012 11:05	YT
Isopropylbenzene	BRL	5.0		ug/L	166200	1	09/14/2012 11:05	YT
m,p-Xylene	BRL	5.0		ug/L	166200	1	09/14/2012 11:05	YT
Methyl acetate	BRL	5.0		ug/L	166200	1	09/14/2012 11:05	YT
Methyl tert-butyl ether	BRL	5.0		ug/L	166200	1	09/14/2012 11:05	YT
Methylcyclohexane	BRL	5.0		ug/L	166200	1	09/14/2012 11:05	YT
Methylene chloride	BRL	5.0		ug/L	166200	1	09/14/2012 11:05	YT
o-Xylene	BRL	5.0		ug/L	166200	1	09/14/2012 11:05	YT

Qualifiers:

*	Value exceeds maximum contaminant level	E	Estimated (value above quantitation range)
BRL	Below reporting limit	S	Spike Recovery outside limits due to matrix
H	Holding times for preparation or analysis exceeded	Narr	See case narrative
N	Analyte not NELAC certified	NC	Not confirmed
B	Analyte detected in the associated method blank	<	Less than Result value
>	Greater than Result value	J	Estimated value detected below Reporting Limit

Analytical Environmental Services, Inc **Date:** 14-Sep-12

Client:	GaiaTech, Inc.	**Client Sample ID:**	DRCM-0912-OW9
Project Name:	Diamond Rug Carpet Mill	**Collection Date:**	9/7/2012 7:00:00 PM
Lab ID:	1209504-006	**Matrix:**	Groundwater

Analyses	Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed	Analyst
TCL VOLATILE ORGANICS SW8260B				**(SW5030B)**				
Styrene	BRL	5.0		ug/L	166200	1	09/14/2012 11:05	YT
Tetrachloroethene	BRL	5.0		ug/L	166200	1	09/14/2012 11:05	YT
Toluene	BRL	5.0		ug/L	166200	1	09/14/2012 11:05	YT
trans-1,2-Dichloroethene	BRL	5.0		ug/L	166200	1	09/14/2012 11:05	YT
trans-1,3-Dichloropropene	BRL	5.0		ug/L	166200	1	09/14/2012 11:05	YT
Trichloroethene	BRL	5.0		ug/L	166200	1	09/14/2012 11:05	YT
Trichlorofluoromethane	BRL	5.0		ug/L	166200	1	09/14/2012 11:05	YT
Vinyl chloride	BRL	2.0		ug/L	166200	1	09/14/2012 11:05	YT
Surr: 4-Bromofluorobenzene	73.9	67.4-123		%REC	166200	1	09/14/2012 11:05	YT
Surr: Dibromofluoromethane	123	75.5-128		%REC	166200	1	09/14/2012 11:05	YT
Surr: Toluene-d8	95.9	70-120		%REC	166200	1	09/14/2012 11:05	YT

Qualifiers:

*	Value exceeds maximum contaminant level	E	Estimated (value above quantitation range)
BRL	Below reporting limit	S	Spike Recovery outside limits due to matrix
H	Holding times for preparation or analysis exceeded	Narr	See case narrative
N	Analyte not NELAC certified	NC	Not confirmed
B	Analyte detected in the associated method blank	<	Less than Result value
>	Greater than Result value	J	Estimated value detected below Reporting Limit

Analytical Environmental Services, Inc.

Sample/Cooler Receipt Checklist

Client GAIA Work Order Number 1209504

Checklist completed by BMitch 9/8/12
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°C±2)* Yes ✓ No __

Cooler #1 3.3 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 BM

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.

\L\Quality Assurance\Checklists Procedures Sign-Off Templates\Checklists\Sample Receipt Checklists\Sample_Cooler_Receipt_Checklist

Analytical Environmental Services, Inc

Date: 17-Sep-12

Client: GaiaTech, Inc.
Project: Diamond Rug Carpet Mill
Lab Order: 1209504

Dates Report

Lab Sample ID	Client Sample ID	Collection Date	Matrix	Test Name	TCLP Date	Prep Date	Analysis Date
1209504-001A	DRCM-0912-MWW1	9/7/2012 11:45:00AM	Groundwater	TCL VOLATILE ORGANICS		09/08/2012	09/12/2012
1209504-001B	DRCM-0912-MWW1	9/7/2012 11:45:00AM	Groundwater	TOTAL METALS BY ICP		09/13/2012	09/13/2012
1209504-001C	DRCM-0912-MWW1	9/7/2012 11:45:00AM	Groundwater	Total Organic Carbon (TOC)			09/13/2012
1209504-001D	DRCM-0912-MWW1	9/7/2012 11:45:00AM	Groundwater	Sulfide by SW9030/9034		09/14/2012	09/14/2012
1209504-001E	DRCM-0912-MWW1	9/7/2012 11:45:00AM	Groundwater	ION SCAN			09/10/2012
1209504-001F	DRCM-0912-MWW1	9/7/2012 11:45:00AM	Groundwater	Ferrous Iron			09/08/2012
1209504-001G	DRCM-0912-MWW1	9/7/2012 11:45:00AM	Groundwater	GC Analysis of Gaseous Samples		09/11/2012	09/11/2012
1209504-002A	DRCM-0912-OW2	9/7/2012 12:30:00PM	Groundwater	TCL VOLATILE ORGANICS		09/08/2012	09/12/2012
1209504-002B	DRCM-0912-OW2	9/7/2012 12:30:00PM	Groundwater	TOTAL METALS BY ICP		09/13/2012	09/13/2012
1209504-003A	DRCM-0912-OW6	9/7/2012 1:45:00PM	Groundwater	TCL VOLATILE ORGANICS		09/08/2012	09/12/2012
1209504-003B	DRCM-0912-OW6	9/7/2012 1:45:00PM	Groundwater	Total Organic Carbon (TOC)			09/13/2012
1209504-003C	DRCM-0912-OW6	9/7/2012 1:45:00PM	Groundwater	Sulfide by SW9030/9034		09/14/2012	09/14/2012
1209504-003D	DRCM-0912-OW6	9/7/2012 1:45:00PM	Groundwater	ION SCAN			09/10/2012
1209504-003E	DRCM-0912-OW6	9/7/2012 1:45:00PM	Groundwater	Ferrous Iron			09/08/2012
1209504-003F	DRCM-0912-OW6	9/7/2012 1:45:00PM	Groundwater	GC Analysis of Gaseous Samples		09/11/2012	09/11/2012
1209504-004A	DRCM-0912-OW7	9/7/2012 3:45:00PM	Groundwater	TCL VOLATILE ORGANICS		09/08/2012	09/12/2012
1209504-005A	DRCM-0912-OW8D	9/7/2012 5:00:00PM	Groundwater	TCL VOLATILE ORGANICS		09/08/2012	09/12/2012
1209504-006A	DRCM-0912-OW9	9/7/2012 7:00:00PM	Groundwater	TCL VOLATILE ORGANICS		09/08/2012	09/14/2012

Client: GaiaTech, Inc.
Project Name: Diamond Rug Carpet Mill
Workorder: 1209504

ANALYTICAL QC SUMMARY REPORT

BatchID: **166200**

Sample ID: **MB-166200** Client ID: Units: **ug/L** Prep Date: **09/08/2012** Run No: **228547**
SampleType: **MBLK** TestCode: **TCL VOLATILE ORGANICS SW8260B** BatchID: **166200** Analysis Date: **09/08/2012** Seq No: **4783849**

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	0	0	0	0	0	0	0	0	
1,1,2,2-Tetrachloroethane	BRL	5.0	0	0	0	0	0	0	0	0	
1,1,2-Trichloroethane	BRL	5.0	0	0	0	0	0	0	0	0	
1,1-Dichloroethane	BRL	5.0	0	0	0	0	0	0	0	0	
1,1-Dichloroethene	BRL	5.0	0	0	0	0	0	0	0	0	
1,2,4-Trichlorobenzene	BRL	5.0	0	0	0	0	0	0	0	0	
1,2-Dibromo-3-chloropropane	BRL	5.0	0	0	0	0	0	0	0	0	
1,2-Dibromoethane	BRL	5.0	0	0	0	0	0	0	0	0	
1,2-Dichlorobenzene	BRL	5.0	0	0	0	0	0	0	0	0	
1,2-Dichloroethane	BRL	5.0	0	0	0	0	0	0	0	0	
1,2-Dichloropropane	BRL	5.0	0	0	0	0	0	0	0	0	
1,3-Dichlorobenzene	BRL	5.0	0	0	0	0	0	0	0	0	
1,4-Dichlorobenzene	BRL	5.0	0	0	0	0	0	0	0	0	
2-Butanone	BRL	50	0	0	0	0	0	0	0	0	
2-Hexanone	BRL	10	0	0	0	0	0	0	0	0	
4-Methyl-2-pentanone	BRL	10	0	0	0	0	0	0	0	0	
Acetone	BRL	50	0	0	0	0	0	0	0	0	
Benzene	BRL	5.0	0	0	0	0	0	0	0	0	
Bromodichloromethane	BRL	5.0	0	0	0	0	0	0	0	0	
Bromoform	BRL	5.0	0	0	0	0	0	0	0	0	
Bromomethane	BRL	5.0	0	0	0	0	0	0	0	0	
Carbon disulfide	BRL	5.0	0	0	0	0	0	0	0	0	
Carbon tetrachloride	BRL	5.0	0	0	0	0	0	0	0	0	
Chlorobenzene	BRL	5.0	0	0	0	0	0	0	0	0	
Chloroethane	BRL	10	0	0	0	0	0	0	0	0	
Chloroform	BRL	5.0	0	0	0	0	0	0	0	0	
Chloromethane	BRL	10	0	0	0	0	0	0	0	0	

Qualifiers:

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

Client: GaiaTech, Inc.
Project Name: Diamond Rug Carpet Mill
Workorder: 1209504

ANALYTICAL QC SUMMARY REPORT

BatchID: **166200**

Sample ID: **MB-166200** Client ID: Units: **ug/L** Prep Date: **09/08/2012** Run No: **228547**
SampleType: **MBLK** TestCode: **TCL VOLATILE ORGANICS SW8260B** BatchID: **166200** Analysis Date: **09/08/2012** Seq No: **4783849**

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	0	0	0	0	0	0	0	0	
cis-1,3-Dichloropropene	BRL	5.0	0	0	0	0	0	0	0	0	
Cyclohexane	BRL	5.0	0	0	0	0	0	0	0	0	
Dibromochloromethane	BRL	5.0	0	0	0	0	0	0	0	0	
Dichlorodifluoromethane	BRL	10	0	0	0	0	0	0	0	0	
Ethylbenzene	BRL	5.0	0	0	0	0	0	0	0	0	
Freon-113	BRL	10	0	0	0	0	0	0	0	0	
Isopropylbenzene	BRL	5.0	0	0	0	0	0	0	0	0	
m,p-Xylene	BRL	5.0	0	0	0	0	0	0	0	0	
Methyl acetate	BRL	5.0	0	0	0	0	0	0	0	0	
Methyl tert-butyl ether	BRL	5.0	0	0	0	0	0	0	0	0	
Methylcyclohexane	BRL	5.0	0	0	0	0	0	0	0	0	
Methylene chloride	BRL	5.0	0	0	0	0	0	0	0	0	
o-Xylene	BRL	5.0	0	0	0	0	0	0	0	0	
Styrene	BRL	5.0	0	0	0	0	0	0	0	0	
Tetrachloroethene	BRL	5.0	0	0	0	0	0	0	0	0	
Toluene	BRL	5.0	0	0	0	0	0	0	0	0	
trans-1,2-Dichloroethene	BRL	5.0	0	0	0	0	0	0	0	0	
trans-1,3-Dichloropropene	BRL	5.0	0	0	0	0	0	0	0	0	
Trichloroethene	BRL	5.0	0	0	0	0	0	0	0	0	
Trichlorofluoromethane	BRL	5.0	0	0	0	0	0	0	0	0	
Vinyl chloride	BRL	2.0	0	0	0	0	0	0	0	0	
Surr: 4-Bromofluorobenzene	47.41	0	50	0	94.8	67.4	123	0	0	0	
Surr: Dibromofluoromethane	57.00	0	50	0	114	75.5	128	0	0	0	
Surr: Toluene-d8	47.51	0	50	0	95	70	120	0	0	0	

Qualifiers:

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

Client: GaiaTech, Inc.
Project Name: Diamond Rug Carpet Mill
Workorder: 1209504

ANALYTICAL QC SUMMARY REPORT

BatchID: 166200

Sample ID: **LCS-166200** Client ID: Units: **ug/L** Prep Date: **09/08/2012** Run No: **228547**
SampleType: **LCS** TestCode: **TCL VOLATILE ORGANICS SW8260B** BatchID: **166200** Analysis Date: **09/08/2012** Seq No: **4783846**

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
1,1-Dichloroethene	51.96	5.0	50	0	104	60	140	0	0	0	
Benzene	50.94	5.0	50	0	102	70	130	0	0	0	
Chlorobenzene	47.24	5.0	50	0	94.5	70	130	0	0	0	
Toluene	49.79	5.0	50	0	99.6	70	130	0	0	0	
Trichloroethene	52.93	5.0	50	0	106	70	130	0	0	0	
Surr: 4-Bromofluorobenzene	50.46	0	50	0	101	67.4	123	0	0	0	
Surr: Dibromofluoromethane	57.94	0	50	0	116	75.5	128	0	0	0	
Surr: Toluene-d8	48.38	0	50	0	96.8	70	120	0	0	0	

Sample ID: **1209170-002AMS** Client ID: Units: **ug/L** Prep Date: **09/08/2012** Run No: **228575**
SampleType: **MS** TestCode: **TCL VOLATILE ORGANICS SW8260B** BatchID: **166200** Analysis Date: **09/10/2012** Seq No: **4784496**

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
1,1-Dichloroethene	63.78	5.0	50	0	128	50.1	179	0	0	0	
Benzene	62.60	5.0	50	0	125	61.2	150	0	0	0	
Chlorobenzene	58.74	5.0	50	0	117	72.1	140	0	0	0	
Toluene	63.89	5.0	50	0	128	58.7	154	0	0	0	
Trichloroethene	65.26	5.0	50	0	131	68.3	149	0	0	0	
Surr: 4-Bromofluorobenzene	49.30	0	50	0	98.6	67.4	123	0	0	0	
Surr: Dibromofluoromethane	62.09	0	50	0	124	75.5	128	0	0	0	
Surr: Toluene-d8	50.18	0	50	0	100	70	120	0	0	0	

Sample ID: **1209170-002AMSD** Client ID: Units: **ug/L** Prep Date: **09/08/2012** Run No: **228575**
SampleType: **MSD** TestCode: **TCL VOLATILE ORGANICS SW8260B** BatchID: **166200** Analysis Date: **09/10/2012** Seq No: **4784501**

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
1,1-Dichloroethene	57.62	5.0	50	0	115	50.1	179	63.78	10.1	23.3	
Benzene	56.25	5.0	50	0	112	61.2	150	62.60	10.7	19	

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: GaiaTech, Inc.
Project Name: Diamond Rug Carpet Mill
Workorder: 1209504

ANALYTICAL QC SUMMARY REPORT

BatchID: **166200**

Sample ID: **1209170-002AMSD** Client ID: Units: **ug/L** Prep Date: **09/08/2012** Run No: **228575**
SampleType: **MSD** TestCode: **TCL VOLATILE ORGANICS SW8260B** BatchID: **166200** Analysis Date: **09/10/2012** Seq No: **4784501**

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
Chlorobenzene	50.29	5.0	50	0	101	72.1	140	58.74	15.5	21.5	
Toluene	56.35	5.0	50	0	113	58.7	154	63.89	12.5	20	
Trichloroethene	60.82	5.0	50	0	122	68.3	149	65.26	7.04	17.7	
Surr: 4-Bromofluorobenzene	50.63	0	50	0	101	67.4	123	49.30	0	0	
Surr: Dibromofluoromethane	63.61	0	50	0	127	75.5	128	62.09	0	0	
Surr: Toluene-d8	50.12	0	50	0	100	70	120	50.18	0	0	

Qualifiers:

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

Client: GaiaTech, Inc.
Project Name: Diamond Rug Carpet Mill
Workorder: 1209504

ANALYTICAL QC SUMMARY REPORT

BatchID: **166260**

Sample ID: **MB-166260** Client ID: Units: **ug/L** Prep Date: **09/11/2012** Run No: **228669**
SampleType: **MBLK** TestCode: **GC Analysis of Gaseous Samples SOP-RSK 175** BatchID: **166260** Analysis Date: **09/11/2012** Seq No: **4786229**

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
Ethane	BRL	9	0	0	0	0	0	0	0	0	
Ethylene	BRL	7	0	0	0	0	0	0	0	0	
Methane	BRL	4	0	0	0	0	0	0	0	0	

Sample ID: **LCS-166260** Client ID: Units: **ug/L** Prep Date: **09/11/2012** Run No: **228669**
SampleType: **LCS** TestCode: **GC Analysis of Gaseous Samples SOP-RSK 175** BatchID: **166260** Analysis Date: **09/11/2012** Seq No: **4786232**

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
Ethane	145.6	9	200	0	72.8	37.9	115	0	0	0	
Ethylene	94.51	7	200	0	47.3	26.6	115	0	0	0	
Methane	152.2	4	200	0	76.1	38.4	115	0	0	0	

Sample ID: **LCSD-166260** Client ID: Units: **ug/L** Prep Date: **09/11/2012** Run No: **228669**
SampleType: **LCSD** TestCode: **GC Analysis of Gaseous Samples SOP-RSK 175** BatchID: **166260** Analysis Date: **09/11/2012** Seq No: **4786234**

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
Ethane	133.3	9	200	0	66.6	37.9	115	145.6	8.84	20	
Ethylene	86.55	7	200	0	43.3	26.6	115	94.51	8.79	20	
Methane	140.6	4	200	0	70.3	38.4	115	152.2	7.96	20	

Sample ID: **1209282-004BMS** Client ID: Units: **ug/L** Prep Date: **09/11/2012** Run No: **228669**
SampleType: **MS** TestCode: **GC Analysis of Gaseous Samples SOP-RSK 175** BatchID: **166260** Analysis Date: **09/11/2012** Seq No: **4786694**

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
Ethane	124.7	9	200	0	62.4	38.9	115	0	0	0	
Ethylene	81.39	7	200	0	40.7	23.1	115	0	0	0	
Methane	126.3	4	200	0	63.2	38.4	115	0	0	0	

Qualifiers:

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

Client: GaiaTech, Inc.
Project Name: Diamond Rug Carpet Mill
Workorder: 1209504

ANALYTICAL QC SUMMARY REPORT

BatchID: **166260**

Sample ID: **1209282-004BMSD** Client ID: Units: **ug/L** Prep Date: **09/11/2012** Run No: **228669**
SampleType: **MSD** TestCode: **GC Analysis of Gaseous Samples SOP-RSK 175** BatchID: **166260** Analysis Date: **09/11/2012** Seq No: **4786697**

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
Ethane	121.9	9	200	0	60.9	38.9	115	124.7	2.34	20	
Ethylene	79.42	7	200	0	39.7	23.1	115	81.39	2.44	20	
Methane	123.8	4	200	0	61.9	38.4	115	126.3	2	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: GaiaTech, Inc.
Project Name: Diamond Rug Carpet Mill
Workorder: 1209504

ANALYTICAL QC SUMMARY REPORT

BatchID: 166363

Sample ID: **MB-166363** Client ID: Units: **mg/L** Prep Date: **09/13/2012** Run No: **228901**
SampleType: **MBLK** TestCode: **METALS, TOTAL** **SW6010C** BatchID: **166363** Analysis Date: **09/13/2012** Seq No: **4790975**

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
Arsenic	BRL	0.0500	0	0	0	0	0	0	0	0	
Barium	BRL	0.0200	0	0	0	0	0	0	0	0	
Cadmium	BRL	0.0050	0	0	0	0	0	0	0	0	
Chromium	BRL	0.0100	0	0	0	0	0	0	0	0	
Copper	BRL	0.0100	0	0	0	0	0	0	0	0	
Iron	BRL	0.100	0	0	0	0	0	0	0	0	
Lead	BRL	0.0100	0	0	0	0	0	0	0	0	
Manganese	BRL	0.0150	0	0	0	0	0	0	0	0	
Selenium	BRL	0.0200	0	0	0	0	0	0	0	0	

Sample ID: **LCS-166363** Client ID: Units: **mg/L** Prep Date: **09/13/2012** Run No: **228901**
SampleType: **LCS** TestCode: **METALS, TOTAL** **SW6010C** BatchID: **166363** Analysis Date: **09/13/2012** Seq No: **4790974**

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
Arsenic	1.000	0.0500	1	0	100	80	120	0	0	0	
Barium	1.023	0.0200	1	0	102	80	120	0	0	0	
Cadmium	1.028	0.0050	1	0	103	80	120	0	0	0	
Chromium	1.016	0.0100	1	0	102	80	120	0	0	0	
Copper	1.018	0.0100	1	0	102	80	120	0	0	0	
Iron	10.14	0.100	10	0.03010	101	80	120	0	0	0	
Lead	1.020	0.0100	1	0	102	80	120	0	0	0	
Manganese	1.022	0.0150	1	0	102	80	120	0	0	0	
Selenium	1.003	0.0200	1	0.005308	99.7	80	120	0	0	0	

Sample ID: **1209404-001BMS** Client ID: Units: **mg/L** Prep Date: **09/13/2012** Run No: **228901**
SampleType: **MS** TestCode: **METALS, TOTAL** **SW6010C** BatchID: **166363** Analysis Date: **09/13/2012** Seq No: **4790977**

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual

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: GaiaTech, Inc.
Project Name: Diamond Rug Carpet Mill
Workorder: 1209504

ANALYTICAL QC SUMMARY REPORT

BatchID: **166363**

Sample ID: **1209404-001BMS** Client ID: Units: **mg/L** Prep Date: **09/13/2012** Run No: **228901**
SampleType: **MS** TestCode: **METALS, TOTAL** **SW6010C** BatchID: **166363** Analysis Date: **09/13/2012** Seq No: **4790977**

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
Arsenic	0.9928	0.0500	1	0	99.3	75	125	0	0	0	
Barium	1.170	0.0200	1	0.1768	99.3	75	125	0	0	0	
Cadmium	1.011	0.0050	1	0	101	75	125	0	0	0	
Chromium	0.9987	0.0100	1	0.0008050	99.8	75	125	0	0	0	
Copper	1.005	0.0100	1	0.001920	100	75	125	0	0	0	
Iron	9.893	0.100	10	0.02031	98.7	75	125	0	0	0	
Lead	0.9943	0.0100	1	0.002809	99.1	75	125	0	0	0	
Manganese	4.605	0.0150	1	3.837	76.8	75	125	0	0	0	
Selenium	0.9928	0.0200	1	0.006790	98.6	75	125	0	0	0	

Sample ID: **1209404-001BMSD** Client ID: Units: **mg/L** Prep Date: **09/13/2012** Run No: **228901**
SampleType: **MSD** TestCode: **METALS, TOTAL** **SW6010C** BatchID: **166363** Analysis Date: **09/13/2012** Seq No: **4790978**

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
Arsenic	0.9939	0.0500	1	0	99.4	75	125	0.9928	0.11	20	
Barium	1.170	0.0200	1	0.1768	99.3	75	125	1.170	0.011	20	
Cadmium	1.008	0.0050	1	0	101	75	125	1.011	0.277	20	
Chromium	0.9955	0.0100	1	0.0008050	99.5	75	125	0.9987	0.315	20	
Copper	1.002	0.0100	1	0.001920	100	75	125	1.005	0.289	20	
Iron	9.867	0.100	10	0.02031	98.5	75	125	9.893	0.26	20	
Lead	0.9897	0.0100	1	0.002809	98.7	75	125	0.9943	0.465	20	
Manganese	4.649	0.0150	1	3.837	81.2	75	125	4.605	0.95	20	
Selenium	1.002	0.0200	1	0.006790	99.5	75	125	0.9928	0.944	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: GaiaTech, Inc.
Project Name: Diamond Rug Carpet Mill
Workorder: 1209504

ANALYTICAL QC SUMMARY REPORT

BatchID: **166508**

Sample ID: **MB-166508** Client ID: Units: **mg/L** Prep Date: **09/14/2012** Run No: **229032**
SampleType: **MBLK** TestCode: **Sulfide by SW9030B/9034** BatchID: **166508** Analysis Date: **09/14/2012** Seq No: **4793583**

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
Sulfide	BRL	2.00	0	0	0	0	0	0	0	0	

Sample ID: **LCS-166508** Client ID: Units: **mg/L** Prep Date: **09/14/2012** Run No: **229032**
SampleType: **LCS** TestCode: **Sulfide by SW9030B/9034** BatchID: **166508** Analysis Date: **09/14/2012** Seq No: **4793584**

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
Sulfide	328.0	2.00	328	0	100	40	120	0	0	0	

Sample ID: **1209504-001DMS** Client ID: **DRCM-0912-MWW1** Units: **mg/L** Prep Date: **09/14/2012** Run No: **229032**
SampleType: **MS** TestCode: **Sulfide by SW9030B/9034** BatchID: **166508** Analysis Date: **09/14/2012** Seq No: **4793586**

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
Sulfide	32.00	2.00	32.8	0	97.6	66.8	121	0	0	0	

Sample ID: **1209504-001DMSD** Client ID: **DRCM-0912-MWW1** Units: **mg/L** Prep Date: **09/14/2012** Run No: **229032**
SampleType: **MSD** TestCode: **Sulfide by SW9030B/9034** BatchID: **166508** Analysis Date: **09/14/2012** Seq No: **4793587**

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
Sulfide	32.40	2.00	32.8	0	98.8	66.8	121	32.00	1.24	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: GaiaTech, Inc.
Project Name: Diamond Rug Carpet Mill
Workorder: 1209504

ANALYTICAL QC SUMMARY REPORT

BatchID: **R228550**

Sample ID: **MB-R228550** Client ID: Units: **mg/L** Prep Date: Run No: **228550**
SampleType: **MBLK** TestCode: **Ferrous Iron** **SM3500-Fe-B** BatchID: **R228550** Analysis Date: **09/08/2012** Seq No: **4783920**

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
Iron, as Ferrous (Fe+2)	BRL	0.100	0	0	0	0	0	0	0	0	

Sample ID: **LCS-R228550** Client ID: Units: **mg/L** Prep Date: Run No: **228550**
SampleType: **LCS** TestCode: **Ferrous Iron** **SM3500-Fe-B** BatchID: **R228550** Analysis Date: **09/08/2012** Seq No: **4783921**

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
Iron, as Ferrous (Fe+2)	0.5349	0.100	0.5	0	107	85	115	0	0	0	

Sample ID: **1209504-001FMS** Client ID: **DRCM-0912-MWW1** Units: **mg/L** Prep Date: Run No: **228550**
SampleType: **MS** TestCode: **Ferrous Iron** **SM3500-Fe-B** BatchID: **R228550** Analysis Date: **09/08/2012** Seq No: **4783925**

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
Iron, as Ferrous (Fe+2)	0.5090	0.100	0.5	0.08310	85.2	80	120	0	0	0	

Sample ID: **1209504-001FMSD** Client ID: **DRCM-0912-MWW1** Units: **mg/L** Prep Date: Run No: **228550**
SampleType: **MSD** TestCode: **Ferrous Iron** **SM3500-Fe-B** BatchID: **R228550** Analysis Date: **09/08/2012** Seq No: **4783926**

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
Iron, as Ferrous (Fe+2)	0.5177	0.100	0.5	0.08310	86.9	80	120	0.5090	1.69	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: GaiaTech, Inc.
Project Name: Diamond Rug Carpet Mill
Workorder: 1209504

ANALYTICAL QC SUMMARY REPORT

BatchID: R228686

Sample ID: **MB-R228686** Client ID: Units: **mg/L** Prep Date: Run No: **228686**
SampleType: **MBLK** TestCode: **ION SCAN SW9056A** BatchID: **R228686** Analysis Date: **09/10/2012** Seq No: **4786509**

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
Chloride	BRL	1.0	0	0	0	0	0	0	0	0	
Nitrate	BRL	0.25	0	0	0	0	0	0	0	0	
Sulfate	BRL	1.0	0	0	0	0	0	0	0	0	

Sample ID: **LCS-R228686** Client ID: Units: **mg/L** Prep Date: Run No: **228686**
SampleType: **LCS** TestCode: **ION SCAN SW9056A** BatchID: **R228686** Analysis Date: **09/10/2012** Seq No: **4786506**

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
Chloride	4.737	1.0	5	0	94.7	90	110	0	0	0	
Nitrate	4.726	0.25	5	0	94.5	90	110	0	0	0	
Sulfate	23.26	1.0	25	0	93.1	90	110	0	0	0	

Sample ID: **1209504-001EMS** Client ID: **DRCM-0912-MWW1** Units: **mg/L** Prep Date: Run No: **228686**
SampleType: **MS** TestCode: **ION SCAN SW9056A** BatchID: **R228686** Analysis Date: **09/10/2012** Seq No: **4786519**

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
Chloride	8.935	1.0	5	4.804	82.6	90	110	0	0	0	S
Nitrate	5.325	0.25	5	0.5116	96.3	90	110	0	0	0	H
Sulfate	24.03	1.0	25	1.084	91.8	90	110	0	0	0	

Sample ID: **1209504-001EMSD** Client ID: **DRCM-0912-MWW1** Units: **mg/L** Prep Date: Run No: **228686**
SampleType: **MSD** TestCode: **ION SCAN SW9056A** BatchID: **R228686** Analysis Date: **09/10/2012** Seq No: **4786522**

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
Chloride	8.863	1.0	5	4.804	81.2	90	110	8.935	0.805	20	S
Nitrate	5.329	0.25	5	0.5116	96.3	90	110	5.325	0.075	20	H
Sulfate	24.01	1.0	25	1.084	91.7	90	110	24.03	0.083	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: GaiaTech, Inc.
Project Name: Diamond Rug Carpet Mill
Workorder: 1209504

ANALYTICAL QC SUMMARY REPORT

BatchID: **R228955**

Sample ID: **MB-R228955** Client ID: Units: **mg/L** Prep Date: Run No: **228955**
SampleType: **MBLK** TestCode: **Total Organic Carbon (TOC) SW9060A** BatchID: **R228955** Analysis Date: **09/13/2012** Seq No: **4792114**

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
Organic Carbon, Total	BRL	1.00	0	0	0	0	0	0	0	0	

Sample ID: **LCS-R228955** Client ID: Units: **mg/L** Prep Date: Run No: **228955**
SampleType: **LCS** TestCode: **Total Organic Carbon (TOC) SW9060A** BatchID: **R228955** Analysis Date: **09/13/2012** Seq No: **4792096**

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
Organic Carbon, Total	26.52	1.00	25	0	106	90	110	0	0	0	

Sample ID: **1209832-001DMS** Client ID: Units: **mg/L** Prep Date: Run No: **228955**
SampleType: **MS** TestCode: **Total Organic Carbon (TOC) SW9060A** BatchID: **R228955** Analysis Date: **09/13/2012** Seq No: **4792168**

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
Organic Carbon, Total	24.97	1.00	25	0	99.9	80	120	0	0	0	

Sample ID: **1209832-001DMSD** Client ID: Units: **mg/L** Prep Date: Run No: **228955**
SampleType: **MSD** TestCode: **Total Organic Carbon (TOC) SW9060A** BatchID: **R228955** Analysis Date: **09/13/2012** Seq No: **4792200**

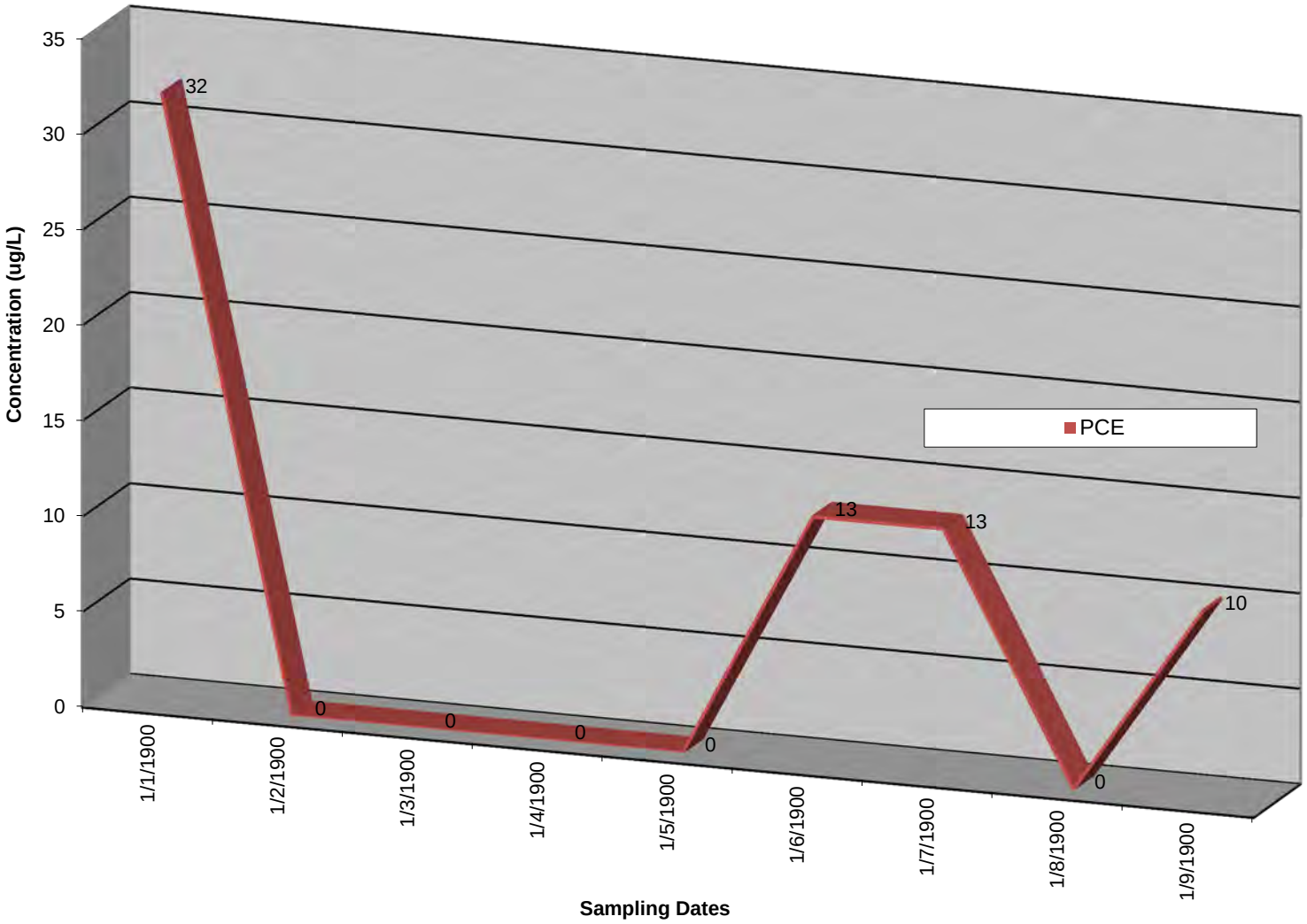
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
Organic Carbon, Total	24.71	1.00	25	0	98.8	80	120	24.97	1.05	20	

Qualifiers:

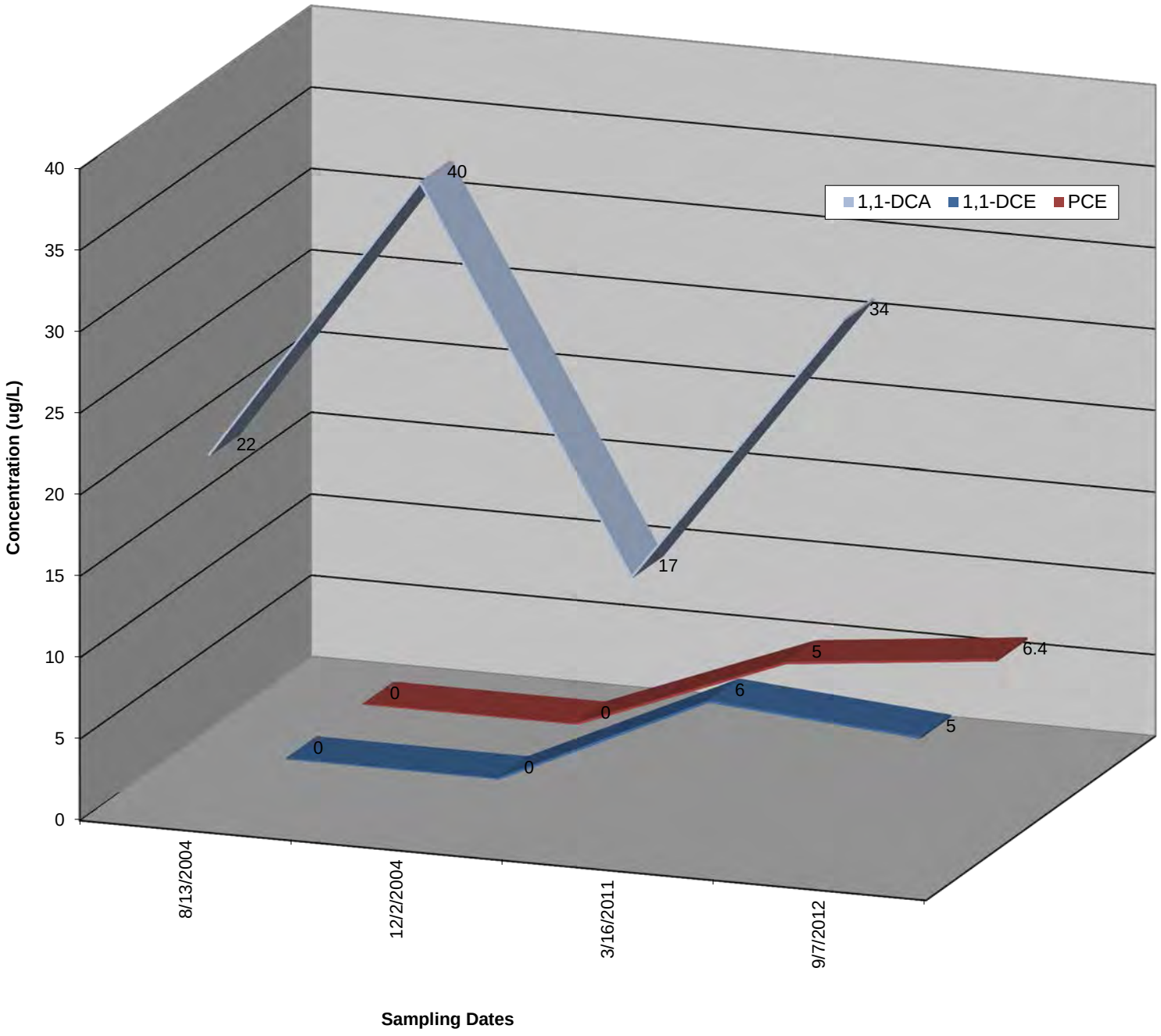
>	Greater than Result value	<	Less than Result value	B	Analyte detected in the associated method blank
BRL	Below reporting limit	E	Estimated (value above quantitation range)	H	Holding times for preparation or analysis exceeded
J	Estimated value detected below Reporting Limit	N	Analyte not NELAC certified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

APPENDIX C
ANALYTICAL DATA TREND GRAPHS

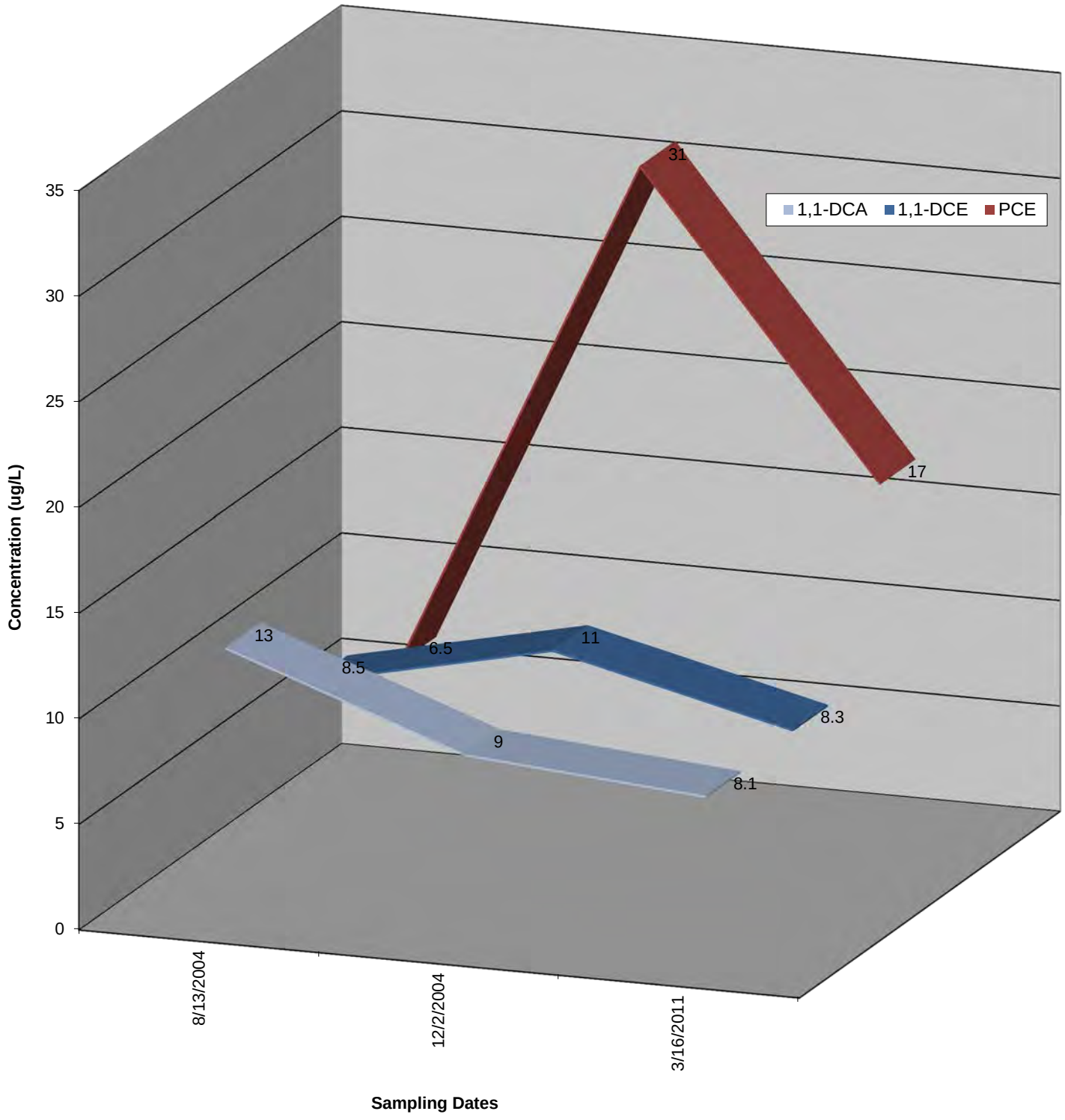
Analytical Data Trend
Monitoring Well MWW-1



Analytical Data Trend
Monitoring Well OW-6



Analytical Data Trend
Monitoring Well OW-8D



APPENDIX D
MNA SCREENING PROTOCOL

Natural Attenuation Screening Protocol

The following is taken from the USEPA protocol (USEPA, 1998). The results of this scoring process have no regulatory significance.

Interpretation	Score
Inadequate evidence for anaerobic biodegradation* of chlorinated organics	0 to 5
Limited evidence for anaerobic biodegradation* of chlorinated organics	6 to 14
Adequate evidence for anaerobic biodegradation* of chlorinated organics	15 to 20
Strong evidence for anaerobic biodegradation* of chlorinated organics	>20

* reductive dechlorination

Score: 12

Scroll to End of Table

Analysis	Concentration in Most Contam. Zone	Interpretation	Yes	No	Points Awarded
Oxygen*	<0.5 mg/L	Tolerated, suppresses the reductive pathway at higher concentrations	○	◉	0
	> 5mg/L	Not tolerated; however, VC may be oxidized aerobically	◉	○	-3
Nitrate*	<1 mg/L	At higher concentrations may compete with reductive pathway	○	◉	0
Iron II*	>1 mg/L	Reductive pathway possible; VC may be oxidized under Fe(III)-reducing conditions	○	◉	0
Sulfate*	<20 mg/L	At higher concentrations may compete with reductive pathway	◉	○	2
Sulfide*	>1 mg/L	Reductive pathway possible	○	◉	0
Methane*	>0.5 mg/L	Ultimate reductive daughter product, VC Accumulates	◉	○	3
Oxidation Reduction Potential* (ORP)	<50 millivolts (mV)	Reductive pathway possible	○	◉	0
	<-100mV	Reductive pathway likely	○	◉	0
pH*	5 < pH < 9	Optimal range for reductive pathway	◉	○	0
TOC	>20 mg/L	Carbon and energy source; drives dechlorination; can be natural or anthropogenic	○	◉	0
Temperature*	>20°C	At T >20°C biochemical process is accelerated	◉	○	1
Carbon Dioxide	>2x background	Ultimate oxidative daughter product	○	◉	0
Alkalinity	>2x background	Results from interaction of carbon dioxide with aquifer minerals	○	◉	0
Chloride*	>2x background	Daughter product of organic chlorine	○	◉	0
Hydrogen	>1 nM	Reductive pathway possible, VC may accumulate	○	○	
Volatile Fatty Acids	>0.1 mg/L	Intermediates resulting from biodegradation of aromatic compounds; carbon and energy source	○	○	
BTEX*	>0.1 mg/L	Carbon and energy source; drives dechlorination	○	◉	0
PCE*		Material released	◉	○	0
TCE*		Daughter product of PCE [a/]	○	◉	0
DCE*		Daughter product of TCE. If cis is greater than 80% of total DCE it is likely a daughter product of TCE[a/]; 1,1-DCE can be a chem. reaction product of TCA	◉	○	2
VC*		Daughter product of DCE[a/]	○	◉	0
1,1,1-Trichloroethane*		Material released	○	◉	0
DCA		Daughter product of TCA under reducing conditions	◉	○	2
Carbon Tetrachloride		Material released	○	◉	0
Chloroethane*		Daughter product of DCA or VC under reducing conditions	○	◉	0
Ethene/Ethane	>0.01 mg/L	Daughter product of VC/ethene	◉	○	2
	>0.1 mg/L	Daughter product of VC/ethene	◉	○	3
Chloroform		Daughter product of Carbon Tetrachloride	○	◉	0
Dichloromethane		Daughter product of Chloroform	○	◉	0

* required analysis.

a/ Points awarded only if it can be shown that the compound is a daughter product (i.e., not a constituent of the source NAPL).

SCORE

Reset

APPENDIX E

EPA GROUNDWATERCONCENTRATION TO INDOOR AIR CONCENTRATION CALCULATOR

OSWER VAPOR INTRUSION ASSESSMENT
Groundwater Concentration to Indoor Air Concentration (GWC-IAC) Calculator Version 2.0, May 2012 RSLs

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

CAS	Chemical Name	Site Groundwater Concentration Cgw (ug/L)	Calculated Indoor Air Concentration Cia (ug/m^3)	VI Carcinogenic Risk CR	VI Hazard HQ	Inhalation Unit Risk IUR (ug/m^3)$^{-1}$	IUR Source*	Reference Concentration RfC (mg/m^3)	RFC Source*	Mutagenic Indicator i
83-32-9	Acenaphthene		--	--	--					
75-07-0	Acetaldehyde		--	--	--	2.20E-06	I	9.00E-03	I	
67-64-1	Acetone		--	--	--			3.10E+01	A	
75-86-5	Acetone Cyanohydrin		--	--	--			6.00E-02	P	
75-05-8	Acetonitrile		--	--	--			6.00E-02	I	
98-86-2	Acetophenone		--	--	--					
107-02-8	Acrolein		--	--	--			2.00E-05	I	
107-13-1	Acrylonitrile		--	--	--	6.80E-05	I	2.00E-03	I	
107-05-1	Allyl Chloride		--	--	--	6.00E-06	CA	1.00E-03	I	
120-12-7	Anthracene		--	--	--					
11104-28-2	Aroclor 1221		--	--	--	5.70E-04	S			
11141-16-5	Aroclor 1232		--	--	--	5.70E-04	S			
103-33-3	Azobenzene		--	--	--	3.10E-05	I			
100-52-7	Benzaldehyde		--	--	--					
71-43-2	Benzene		--	--	--	7.80E-06	I	3.00E-02	I	
108-98-5	Benzenethiol		--	--	--					
98-07-7	Benzotrichloride		--	--	--					
100-44-7	Benzyl Chloride		--	--	--	4.90E-05	CA	1.00E-03	P	
92-52-4	Biphenyl, 1,1'-		--	--	--			4.00E-04	X	
108-60-1	Bis(2-chloro-1-methylethyl) ether		--	--	--	1.00E-05	H			
111-44-4	Bis(2-chloroethyl)ether		--	--	--	3.30E-04	I			
542-88-1	Bis(chloromethyl)ether		--	--	--	6.20E-02	I			
107-04-0	Bromo-2-chloroethane, 1-		--	--	--	6.00E-04	X			
108-86-1	Bromobenzene		--	--	--			6.00E-02	I	
74-97-5	Bromochloromethane		--	--	--			4.00E-02	X	
75-27-4	Bromodichloromethane		--	--	--	3.70E-05	CA			
74-83-9	Bromomethane		--	--	--			5.00E-03	I	
106-99-0	Butadiene, 1,3-		--	--	--	3.00E-05	I	2.00E-03	I	
104-51-8	Butylbenzene, n-		--	--	--					
75-15-0	Carbon Disulfide		--	--	--			7.00E-01	I	
56-23-5	Carbon Tetrachloride		--	--	--	6.00E-06	I	1.00E-01	I	
75-68-3	Chloro-1,1-difluoroethane, 1-		--	--	--			5.00E+01	I	
126-99-8	Chloro-1,3-butadiene, 2-		--	--	--	3.00E-04	I	2.00E-02	I	
107-20-0	Chloroacetaldehyde, 2-		--	--	--					
108-90-7	Chlorobenzene		--	--	--			5.00E-02	P	
98-56-6	Chlorobenzotrifluoride, 4-		--	--	--			3.00E-01	P	
109-69-3	Chlorobutane, 1-		--	--	--					
75-45-6	Chlorodifluoromethane		--	--	--			5.00E+01	I	
67-66-3	Chloroform		--	--	--	2.30E-05	I	9.80E-02	A	
74-87-3	Chloromethane		--	--	--			9.00E-02	I	
107-30-2	Chloromethyl Methyl Ether		--	--	--	6.90E-04	CA			
91-58-7	Chloronaphthalene, Beta-		--	--	--					
95-57-8	Chlorophenol, 2-		--	--	--					
76-06-2	Chloropicrin		--	--	--			4.00E-04	CA	
95-49-8	Chlorotoluene, o-		--	--	--					
106-43-4	Chlorotoluene, p-		--	--	--					
123-73-9	Crotonaldehyde, trans-		--	--	--					
98-82-8	Cumene		--	--	--			4.00E-01	I	
57-12-5	Cyanide (CN-)		--	--	--					
460-19-5	Cyanogen		--	--	--					
506-68-3	Cyanogen Bromide		--	--	--					
506-77-4	Cyanogen Chloride		--	--	--					
110-82-7	Cyclohexane		--	--	--			6.00E+00	I	
132-64-9	Dibenzofuran		--	--	--					

OSWER VAPOR INTRUSION ASSESSMENT
Groundwater Concentration to Indoor Air Concentration (GWC-IAC) Calculator Version 2.0, May 2012 RSLs

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	CAS	Chemical Name	Site Groundwater Concentration Cgw (ug/L)	Calculated Indoor Air Concentration Cia (ug/m^3)	VI Carcinogenic Risk CR	VI Hazard HQ	Inhalation Unit Risk IUR (ug/m^3)$^{-1}$	IUR Source*	Reference Concentration RfC (mg/m^3)	RFC Source*	Mutagenic Indicator i
	96-12-8	Dibromo-3-chloropropane, 1,2-		--	--	--	6.00E-03	P	2.00E-04	I	Mut
	124-48-1	Dibromochloromethane		--	--	--	2.70E-05	CA			
	106-93-4	Dibromoethane, 1,2-		--	--	--	6.00E-04	I	9.00E-03	I	
	74-95-3	Dibromomethane (Methylene Bromide)		--	--	--			4.00E-03	X	
	764-41-0	Dichloro-2-butene, 1,4-		--	--	--	4.20E-03	P			
	1476-11-5	Dichloro-2-butene, cis-1,4-		--	--	--	4.20E-03	P			
	110-57-6	Dichloro-2-butene, trans-1,4-		--	--	--	4.20E-03	P			
	95-50-1	Dichlorobenzene, 1,2-		--	--	--			2.00E-01	H	
	106-46-7	Dichlorobenzene, 1,4-		--	--	--	1.10E-05	CA	8.00E-01	I	
	75-71-8	Dichlorodifluoromethane		--	--	--			1.00E-01	X	
x	75-34-3	Dichloroethane, 1,1-	3.4E+01	7.81E+00	1.0E-06	No RfC	1.60E-06	CA			
	107-06-2	Dichloroethane, 1,2-		--	--	--	2.60E-05	I	7.00E-03	P	
x	75-35-4	Dichloroethylene, 1,1-	5.0E+00	5.33E+00	No IUR	6.1E-03			2.00E-01	I	
	540-59-0	Dichloroethylene, 1,2- (Mixed Isomers)		--	--	--					
	156-59-2	Dichloroethylene, 1,2-cis-		--	--	--					
	156-60-5	Dichloroethylene, 1,2-trans-		--	--	--			6.00E-02	P	
	78-87-5	Dichloropropane, 1,2-		--	--	--	1.00E-05	CA	4.00E-03	I	
	142-28-9	Dichloropropane, 1,3-		--	--	--					
	542-75-6	Dichloropropene, 1,3-		--	--	--	4.00E-06	I	2.00E-02	I	
	77-73-6	Dicyclopentadiene		--	--	--			7.00E-03	P	
	75-37-6	Difluoroethane, 1,1-		--	--	--			4.00E+01	I	
	94-58-6	Dihydrosafrole		--	--	--	1.30E-05	CA			
	108-20-3	Diisopropyl Ether		--	--	--			7.00E-01	P	
	1445-75-6	Diisopropyl Methylphosphonate		--	--	--					
	121-69-7	Dimethylaniline, N,N-		--	--	--					
	120-61-6	Dimethylterephthalate		--	--	--					
	513-37-1	Dimethylvinylchloride		--	--	--	1.30E-05	CA			
	505-29-3	Dithiane, 1,4-		--	--	--					
	106-89-8	Epichlorohydrin		--	--	--	1.20E-06	I	1.00E-03	I	
	106-88-7	Epoxybutane, 1,2-		--	--	--			2.00E-02	I	
	759-94-4	EPTC		--	--	--					
	141-78-6	Ethyl Acetate		--	--	--					
	140-88-5	Ethyl Acrylate		--	--	--					
	75-00-3	Ethyl Chloride		--	--	--			1.00E+01	I	
	60-29-7	Ethyl Ether		--	--	--					
	97-63-2	Ethyl Methacrylate		--	--	--			3.00E-01	P	
	100-41-4	Ethylbenzene		--	--	--	2.50E-06	CA	1.00E+00	I	
	75-21-8	Ethylene Oxide		--	--	--	8.80E-05	CA	3.00E-02	CA	
	151-56-4	Ethyleneimine		--	--	--	1.90E-02	CA			
	86-73-7	Fluorene		--	--	--					
	110-00-9	Furan		--	--	--					
	822-06-0	Hexamethylene Diisocyanate, 1,6-		--	--	--			1.00E-05	I	
	110-54-3	Hexane, N-		--	--	--			7.00E-01	I	
	591-78-6	Hexanone, 2-		--	--	--			3.00E-02	I	
	74-90-8	Hydrogen Cyanide		--	--	--			8.00E-04	I	
	NA (JP-7)	JP-7		No HLC	--	--			3.00E-01	A	
	7439-97-6	Mercury (elemental)		--	--	--			3.00E-04	I	
	126-98-7	Methacrylonitrile		--	--	--			7.00E-04	H	
	79-20-9	Methyl Acetate		--	--	--					
	96-33-3	Methyl Acrylate		--	--	--					
	78-93-3	Methyl Ethyl Ketone (2-Butanone)		--	--	--			5.00E+00	I	
	108-10-1	Methyl Isobutyl Ketone (4-methyl-2-pentanone)		--	--	--			3.00E+00	I	
	624-83-9	Methyl Isocyanate		--	--	--			1.00E-03	CA	
	80-62-6	Methyl Methacrylate		--	--	--			7.00E-01	I	

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	CAS	Chemical Name	Site Groundwater Concentration Cgw (ug/L)	Calculated Indoor Air Concentration Cia (ug/m^3)	VI Carcinogenic Risk CR	VI Hazard HQ	Inhalation Unit Risk IUR ($(ug/m^3)^{-1}$)	IUR Source*	Reference Concentration RfC (mg/m^3)	RFC Source*	Mutagenic Indicator i
	25013-15-4	Methyl Styrene (Mixed Isomers)		--	--	--			4.00E-02	H	
	1634-04-4	Methyl tert-Butyl Ether (MTBE)		--	--	--	2.60E-07	CA	3.00E+00	I	
	75-09-2	Methylene Chloride		--	--	--	1.00E-08	I	6.00E-01	I	Mut
	90-12-0	Methylnaphthalene, 1-		--	--	--					
	91-57-6	Methylnaphthalene, 2-		--	--	--					
	98-83-9	Methylstyrene, Alpha-		--	--	--					
	8012-95-1	Mineral oils		--	--	--					
	64724-95-6	Naphtha, High Flash Aromatic (HFAN)		No HLC	--	--			1.00E-01	P	
	91-20-3	Naphthalene		--	--	--	3.40E-05	CA	3.00E-03	I	
	98-95-3	Nitrobenzene		--	--	--	4.00E-05	I	9.00E-03	I	
	75-52-5	Nitromethane		--	--	--	9.00E-06	P	2.00E-02	P	
	79-46-9	Nitropropane, 2-		--	--	--	2.70E-03	H	2.00E-02	I	
	924-16-3	Nitroso-di-N-butylamine, N-		--	--	--	1.60E-03	I			
	88-72-2	Nitrotoluene, o-		--	--	--					
	111-84-2	Nonane, n-		--	--	--			2.00E-01	P	
	109-66-0	Pentane, n-		--	--	--			1.00E+00	P	
	75-44-5	Phosgene		--	--	--			3.00E-04	I	
	123-38-6	Propionaldehyde		--	--	--			8.00E-03	I	
	103-65-1	Propyl benzene		--	--	--			1.00E+00	X	
	115-07-1	Propylene		--	--	--			3.00E+00	CA	
	75-56-9	Propylene Oxide		--	--	--	3.70E-06	I	3.00E-02	I	
	129-00-0	Pyrene		--	--	--					
	110-86-1	Pyridine		--	--	--					
	100-42-5	Styrene		--	--	--			1.00E+00	I	
	630-20-6	Tetrachloroethane, 1,1,1,2-		--	--	--	7.40E-06	I			
	79-34-5	Tetrachloroethane, 1,1,2,2-		--	--	--	5.80E-05	CA			
x	127-18-4	Tetrachloroethylene	6.4E+00	4.63E+00	9.8E-08	2.6E-02	2.60E-07	I	4.00E-02	I	
	811-97-2	Tetrafluoroethane, 1,1,1,2-		--	--	--			8.00E+01	I	
	109-99-9	Tetrahydrofuran		--	--	--			2.00E+00	I	
	463-56-9	Thiocyanate		--	--	--					
	108-88-3	Toluene		--	--	--			5.00E+00	I	
	76-13-1	Trichloro-1,2,2-trifluoroethane, 1,1,2-		--	--	--			3.00E+01	H	
	87-61-6	Trichlorobenzene, 1,2,3-		--	--	--					
	120-82-1	Trichlorobenzene, 1,2,4-		--	--	--			2.00E-03	P	
	71-55-6	Trichloroethane, 1,1,1-		--	--	--			5.00E+00	I	
	79-00-5	Trichloroethane, 1,1,2-		--	--	--	1.60E-05	I	2.00E-04	X	
	79-01-6	Trichloroethylene		--	--	--	see note	I	2.00E-03	I	TCE
	75-69-4	Trichlorofluoromethane		--	--	--			7.00E-01	H	
	598-77-6	Trichloropropane, 1,1,2-		--	--	--					
	96-18-4	Trichloropropane, 1,2,3-		--	--	--			3.00E-04	I	Mut
	96-19-5	Trichloropropene, 1,2,3-		--	--	--			3.00E-04	P	
	121-44-8	Triethylamine		--	--	--			7.00E-03	I	
	526-73-8	Trimethylbenzene, 1,2,3-		--	--	--			5.00E-03	P	
	95-63-6	Trimethylbenzene, 1,2,4-		--	--	--			7.00E-03	P	
	108-67-8	Trimethylbenzene, 1,3,5-		--	--	--					
	108-05-4	Vinyl Acetate		--	--	--			2.00E-01	I	
	593-60-2	Vinyl Bromide		--	--	--	3.20E-05	H	3.00E-03	I	
	75-01-4	Vinyl Chloride		--	--	--	4.40E-06	I	1.00E-01	I	VC
	108-38-3	Xylene, m-		--	--	--			1.00E-01	S	
	95-47-6	Xylene, o-		--	--	--			1.00E-01	S	
	106-42-3	Xylene, P-		--	--	--			1.00E-01	S	
	1330-20-7	Xylenes		--	--	--			1.00E-01	I	

x

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Groundwater Concentration to Indoor Air Concentration (GWC-IAC) Calculator Version 2.0, May 2012 RSLs

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Target Hazard Quotient for Non-Carcinogens	THQ	1	Enter target hazard quotient for non-carcinogens (for comparison to the calculated VI hazard in column G)
Average Groundwater Temperature (^oC)	Tgw	25	Enter average of the stabilized groundwater temperature to correct Henry's Law Constant for groundwater target concentrations

CAS	Chemical Name	Site Groundwater Concentration Cgw (ug/L)	Calculated Indoor Air Concentration Cia (ug/m^3)	VI Carcinogenic Risk CR	VI Hazard HQ

Inhalation Unit Risk IUR (ug/m^3)$^{-1}$	IUR Source*	Reference Concentration RfC (mg/m^3)	RFC Source*	Mutagenic Indicator i

x **Notes:**
x
x (1) **Inhalation Pathway Exposure Parameters (RME):**

Exposure Scenario	Units	Residential Symbol	Residential Value	Commercial Symbol	Commercial Value	Selected (based on scenario) Symbol	Selected (based on scenario) Value
Averaging time for carcinogens	(yrs)	ATc_R_GW	70	ATc_C_GW	70	ATc_GW	70
Averaging time for non-carcinogens	(yrs)	ATnc_R_GW	30	ATnc_C_GW	25	Atnc_GW	25
Exposure duration	(yrs)	ED_R_GW	30	ED_C_GW	25	ED_GW	25
Exposure frequency	(days/yr)	EF_R_GW	350	EF_C_GW	250	EF_GW	250
Exposure time	(hr/day)	ET_R_GW	24	ET_C_GW	8	ET_GW	8

(2) **Generic Attenuation Factors:**

Source Medium of Vapors		Residential Symbol	Residential Value	Commercial Symbol	Commercial Value	Selected (based on scenario) Symbol	Selected (based on scenario) Value
Groundwater	(-)	AFgw_R_GW	0.001	AFgw_C_GW	0.001	AFgw_GW	0.001
Sub-Slab and Exterior Soil Gas	(-)	AFss_R_GW	0.1	AFss_C_GW	0.1	AFss_GW	0.1

(3) **Formulas**
Cia, target = MIN(Cia,c; Cia,nc)
Cia,c (ug/m3) = TCR x ATc x (365 days/yr) x (24 hrs/day) / (ED x EF x ET x IUR)
Cia,nc (ug/m3) = THQ x ATnc x (365 days/yr) x (24 hrs/day) x RfC x (1000 ug/mg) / (ED x EF x ET)

(4) **Special Case Chemicals**

Trichloroethylene	Residential Symbol	Residential Value	Commercial Symbol	Commercial Value	Selected (based on scenario) Symbol	Selected (based on scenario) Value
	mIURTCE_R_GW	1.00E-06	ıIURTCE_C_GW	0.00E+00	mIURTCE_GW	0.00E+00
	IURTCE_R_GW	3.10E-06	IURTCE_C_GW	4.10E-06	IURTCE_GW	4.10E-06

Mutagenic Chemicals — The exposure durations and age-dependent adjustment factors for mutagenic-mode-of-action are listed in the table below:

Note: This section applies to trichloroethylene and other mutagenic chemicals, but not to vinyl chloride.

Age Cohort	Exposure Duration	Age-dependent adjustment factor
0 - 2 years	2	10
2 - 6 years	4	3
6 - 16 years	10	3
16 - 30 years	14	1

Mutagenic-mode-of-action (MMOA) adjustment factor 25 This factor is used in the equations for mutagenic chemicals.

Vinyl Chloride — See the Navigation Guide equation for Cia,c for vinyl chloride.

Notation:
I = IRIS: EPA Integrated Risk Information System (IRIS). Available online at: http://www.epa.gov/iris/subst/index.html
P = PPRTV. EPA Provisional Peer Reviewed Toxicity Values (PPRTVs). Available online at: http://hhpprtv.ornl.gov/pprtv.shtml
A = Agency for Toxic Substances and Disease Registry (ATSDR) Minimum Risk Levels (MRLs). Available online at: http://www.atsdr.cdc.gov/mrls/index.html
CA = California Environmental Protection Agency/Office of Environmental Health Hazard Assessment assessments. Available online at: http://www.oehha.ca.gov/risk/ChemicalDB/index.asp
H = HEAST. EPA Superfund Health Effects Assessment Summary Tables (HEAST) database. Available online at: http://epa-heast.ornl.gov/heast.shtml
S = See RSL User Guide, Section 5
X = PPRTV Appendix
Mut = Chemical acts according to the mutagenic-mode-of-action, special exposure parameters apply (see footnote (4) above).
VC = Special exposure equation for vinyl chloride applies (see Navigation Guide for equation).
TCE = Special mutagenic and non-mutagenic IURs for trichloroethylene apply (see footnote (4) above).
Yellow highlighting indicates site-specific parameters that may be edited by the user.

OSWER VAPOR INTRUSION ASSESSMENT
Groundwater Concentration to Indoor Air Concentration (GWC-IAC) Calculator Version 2.0, May 2012 RSLs

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

CAS	Chemical Name	Site Groundwater Concentration	Calculated Indoor Air Concentration	VI Carcinogenic Risk	VI Hazard	Inhalation Unit Risk	IUR Source*	Reference Concentration	RFC Source*	Mutagenic Indicator
		Cgw	Cia	CR	HQ	IUR		RfC		
		(ug/L)	(ug/m^3)			(ug/m^3)$^{-1}$		(mg/m^3)		i

x Blue highlighting indicates exposure factors that are based on Risk Assessment Guidance for Superfund (RAGS) or EPA vapor intrusion guidance, which generally should not be changed.
x Pink highlighting indicates VI carcinogenic risk greater than the target risk for carcinogens (TCR) or VI Hazard greater than or equal to the target hazard quotient for non-carcinogens (THQ).

APPENDIX F
SUMMARY OF PROFESSIONAL ENGINEER HOURS

SUMMARY OF PROFESSIONAL ENGINEER HOURS

Mohawk Industries
Eton, Georgia
GaiaTech Project No. B2618-440-1

Quantity	Units	Time Period + Description of Activities	Hours		
					Subtotal
		Limited Soil and Groundwater Sampling (March 2011), Preparation of VIRP Application (December 14, 2011), Review of 1st Semi-Annual Progress Report (October 2012			
27.00	Hours	Sr. Project Manager (David S. Buchalter, P.E.)			27.00

P.E. MONTHLY HOURS TOTAL => 27.00