



September 2015 Sampling Report

Carroll and Dubies Superfund Site Town of Deerpark, Orange County, New York

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Project No. 104-0012-0300

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1.0 Introduction

This report summarizes the methods and results of a field sampling program performed on September 23 and 24, 2015 at the Carroll and Dubies Superfund Site (Site), Town of Deerpark, Orange County, New York. Monitoring wells OW-2, OW-5, OW-6, OW-8, OW-10R, OW-13R, OW-18, OW-19, OW-21, OW-22, and OW-24 were sampled and samples were collected in Gold Creek at SED-1, SED-2, SW-1, and SW-2. The purpose of this sampling program is to document volatile organic compound (VOC) concentrations in the outwash aquifer, surface water, and sediment at the Site. The field work followed the August 2005 Supplemental Sampling Work Plan (Cardinal Resources LLC [Cardinal Resources], 2005) approved by the United States Environmental Protection Agency (U.S. EPA), and incorporated the recommendations of the *November 2006 Sampling Report* (Cardinal Resources, 2007). The monitoring program reflects a reduced sampling approach, as agreed to in email exchanges with Ms. Maria Jon of U.S. EPA dated August 12, 2015 and September 16, 2015.

1.1 Site Setting

The three-acre Site is located in the Town of Deerpark in Orange County, New York, which is approximately 3,000 feet northeast of the City of Port Jervis, New York (Figure 1). The Site is situated on the northwestern flank of the Neversink Valley. Gold Creek lies approximately 1,500 feet to the east, and the Neversink River is located approximately 2,500 feet beyond Gold Creek.

The Site is underlain by sand and gravel deposits of glacial and glaciofluvial origin. Groundwater monitoring wells on the Site have been completed in the outwash unit, found above a low-permeability till zone that functions as an aquitard. The outwash unit consists of fine to coarse sand with fine to coarse gravel. The direction of groundwater flow is generally toward the southeast.

1.2 Land and Resource Use

Figure 2 shows land use features in the vicinity of the former Carroll and Dubies lagoons. The immediate surrounding area includes undeveloped woodlands to the north; undeveloped woodlands, quarry ponds, and commercial sand and gravel operations to the northeast; the closed City of Port Jervis landfill, the Orange County Transfer Station, and a concrete products company to the south; and a sparsely

vegetated, shale bedrock hillside to the west. In 2004, the City of Port Jervis began a small sand and gravel operation on land it owns, immediately to the southeast of the former lagoons, in the vicinity of OW-5 and OW-6. These conditions have remained stable during the period of site investigation and post-removal monitoring, although truck traffic associated with the sand and gravel operations to the northeast has increased over the past few years. During the September 2015 sampling event, the City of Port Jervis was not actively excavating and screening sand and gravel in the area southeast of OW-5 and OW-6.

1.3 History of Waste Disposal and Contamination

In 1971, the three-acre Carroll and Dubies Site began operating as a disposal facility consisting of a series of lagoons. The majority of wastes disposed in the lagoons were septic waste, municipal sewage sludge, and solid waste. The Site also received liquid industrial wastes from approximately 1971 to 1979.

Over time, waste constituents in the lagoons leached into groundwater and affected the outwash aquifer. VOCs were of particular concern because of their dispersion in the aquifer and relative risk. Benzene, vinyl chloride, and other VOCs were found through a series of investigations to exceed Applicable or Relevant and Appropriate Requirements (ARARs) in Site wells.

1.4 Overview of Remedies

The remedies selected for the Site were defined by two operable units (OU), the waste lagoons themselves, and the impacted groundwater. Remedies were selected and executed to remove wastes from the lagoons, restore the Site to a safe and stable condition, and promote and track improvements in groundwater quality.

1.4.1 OU-1 Remedy

The goals of the OU-1 remedy conducted in 1999 were to prevent further leaching of contaminants into groundwater, and to reduce the risks to potential future workers at the Site who could come in contact with lagoon wastes. The steps in this process were:

- Excavation of all wastes from Lagoons 1, 2, 3, 4, 6, 7, and 8, along with surrounding soils that exceeded specified levels for indicator chemicals.
- Appropriate management of all excavated wastes and soils.

- Placement of imported clean fill in the excavations, followed by grading for drainage control and vegetation.

1.4.2 OU-2 Remedy

The goals of the ongoing OU-2 remedy, which was initiated in 1999, are to allow natural attenuation to reduce or eliminate the risks associated with the ingestion of Site groundwater for future Site workers and to protect Gold Creek from Site-related impacts. A monitoring program was designed to address concerns primarily related to determining whether the source removal was successful and the site was becoming stabilized. The steps in the OU-2 remedy are:

- Execution of a groundwater monitoring program in accordance with Work Plans and other documents prepared for the project and approved by the U.S. EPA.
- With each sampling round, a report is prepared for U.S. EPA that documents the progress made in achieving the remedial goals.

1.5 Overview of 2006 Groundwater Monitoring Program

A supplemental sampling program was initiated in February 2006 in response to the 2005 five-year review. Part of the program was to install two new monitoring wells, OW-24 and OW-25, east and south of OW-2, OW-5, and OW-6 (Figure 3), to determine the extent of the chlorinated VOC plume in the vicinity of OW-2, OW-5, and OW-6. Two existing monitoring wells that were not part of the ongoing groundwater monitoring network, OW-17 and OW-23, downgradient and to the west of OW-2, OW-5, and OW-6, were also redeveloped and sampled.

Groundwater was sampled three more times in 2006: in May, August, and November. The purpose of quarterly sampling of the wells in the vicinity of the chlorinated VOC plume was to evaluate trends through an entire hydrologic cycle. In all four sampling rounds, the results for the chlorinated VOC plume were consistent. Tetrachloroethene (PCE) and trichloroethene (TCE) and their degradation products (chloroethane, 1,2-dichloroethene, and vinyl chloride) were nondetectable in OW-24 and OW-25. In OW-17 and OW-23, chlorinated VOCs were occasionally detected at low, estimated concentrations below the reporting limit, and below state and federal groundwater criteria. Chlorinated VOC impacts at OW-2, OW-5, and OW-6 remained localized.

1.6 Resumption of Annual Monitoring Program

In June 2007, the annual groundwater monitoring program resumed, and continued in 2008, 2009, 2010, and 2011.

1.7 Modified Sampling Frequency

In 2011, a program was initiated to cover the entire hydrologic cycle over the next five-year period through sampling every five quarters. This enhancement to the sampling program was described in a letter to the U.S. EPA dated November 2, 2010. Based on this rotation, the June 2014 (second quarter) sampling round followed five quarters after the February 2013 (first quarter) sampling round. The September 2015 sampling program represents the third quarter in this sequence.

2.0 Groundwater Sample Collection

This section describes methods used to collect groundwater samples for analysis. The results of the groundwater sampling and analysis program are provided in Section 4.0.

2.1 Groundwater Elevations

Groundwater elevations were measured on September 23 and 24 as each well was sampled. The depth to groundwater was measured from the reference point elevation using an electronic water-level meter and recorded on a monitoring well sampling form.

2.2 Wells and Equipment

Dedicated low-flow bladder pumps were used to purge and sample the monitoring well network, with the exception of wells OW-13R, OW-18, OW-19, and OW-24, which were sampled with a portable bladder pump. OW-18 and OW-19 formerly had dedicated bladder pumps but the pumps are no longer operating. OW-13R and OW-24 have always been sampled with a portable bladder pump. The portable bladder pump was decontaminated initially and after sampling each well by:

- Washing with low phosphate detergent and tap water
- Rinsing with tap water
- Rinsing with deionized water
- Air drying

Clean disposable tubing and a clean disposable bladder were used for each well sampled with the bladder pump.

2.3 Well Purging and Sampling

All wells were purged using low-flow techniques (between 100 and 200 milliliters per minute [mL/min]). During purging of each monitoring well, temperature, dissolved oxygen (DO), reduction/oxidation (redox) potential, conductivity, pH, and turbidity were monitored and recorded on field forms in average intervals of 5 minutes.

The groundwater field parameters were measured with a YSI Model 556 MPS-10 multi-parameter unit equipped with a flow-through cell, and a Hanna Turbidity Meter Model

HI98703. All equipment was calibrated prior to use in the field. The goal was to obtain three consecutive readings of the field parameters within the following ranges:

- ± 1.0 degree centigrade ($^{\circ}\text{C}$) for temperature
- ± 10 percent (%) or ± 0.3 milligrams per liter (mg/L) for DO (whichever is greater)
- ± 10 millivolts (mV) for redox potential
- $\pm 3\%$ for conductivity
- ± 0.1 for pH
- $\pm 10\%$ or ± 2 nephelometric turbidity units (NTUs) for turbidity (whichever is greater)

The final stabilized readings prior to sample collection for each of the monitoring wells are provided in Table 1.

Groundwater purged from wells sampled with the bladder pump were initially turbid but cleared with low-flow purging. Groundwater from OW-21 and OW-22, installed into the closed municipal landfill, was odorous. Samples were shipped on ice to TestAmerica Laboratories, North Canton, Ohio on September 25, 2015 for overnight delivery.

3.0 Collection of Surface Water and Sediment Samples

Surface water and sediment samples were collected from two locations along Gold Creek, SED-1/SW-1 (downstream) and SED-2/SW-2 (upstream) (Figure 3). The results from the Gold Creek sampling program are provided in Section 5.0.

3.1 Surface Water Sampling

Surface water samples from SW-1 and SW-2 were collected from Gold Creek at the established locations that have been sampled throughout the OU-2 monitoring period. Samples were collected directly into the VOC sample vials. The sample bottles were labeled appropriately, placed in a cooler, and sent to the laboratory for analysis.

3.2 Sediment Sampling

Two sediment samples were collected from the established locations coinciding with SW-1 and SW-2 (Figure 3), and were designated SED-1 and SED-2. The samples were collected using pre-cleaned stainless-steel spatulas from approximately the upper six inches of submerged sediment near the edge of the creek.

4.0 Groundwater Results

This section describes the results of the September 2015 groundwater sampling event and presents a discussion of site-wide groundwater conditions.

4.1 Groundwater Elevations

The groundwater elevations for this sampling round are presented in Table 2. Associated groundwater elevation contours are shown in Figure 3.

The groundwater elevations in the wells were on the average 0.19 foot lower than observed in June 2014. The direction of groundwater flow toward the southeast and Gold Creek and gradient was about the same. The gradient from OW-15 southwest of the former lagoons to OW-22 in the closed landfill was 0.10 in September 2015. From OW-22 to OW-18, near Gold Creek, the gradient was essentially flat. The steeper gradient on the western side of the site is due to the depth to bedrock along the valley wall. As the depth to bedrock increases towards the valley floor, the thickness of the alluvial fill increases and the groundwater gradient flattens.

4.2 Summary of Groundwater Quality Results

VOCs detected in groundwater analysis in the September 2015 sampling event are presented in Table 3. Laboratory analytical reports, including marked Form Is from the data validation process, are included in Appendix A in hard copy. An electronic copy of the entire data package is also provided. Historical data of detected organic compounds have been combined with the most recent data and are presented in Table B-1, Appendix B. In tables and discussion, the qualifier "J" with a reported concentration means an estimated result, with the analyses positively identified but the numerical value an approximate concentration. The qualifier "U" means that the analysis was not detected above the reported quantitation limit.

Several monitored natural attenuation (MNA) field and laboratory parameters were analyzed in groundwater (Table 4). These parameters are general indicators of geochemical conditions conducive to degradation of chlorinated and other VOCs. Patterns of MNA indicators by area were discussed in detail in the *Supporting Documentation for Five-Year Review* (Cardinal Resources, March 2005), along with an evaluation of how those patterns may relate to contaminant distribution within the groundwater plume.

Seven VOCs were detected in various wells during this sampling event. Five of the VOCs (benzene; chlorobenzene; cis-1,2-dichloroethene; tetrachloroethene; trichloroethene) exceeded regulatory limits. Regulatory exceedances of VOCs in groundwater are reported in Table 5 and plotted in Figure 4.

VOC concentrations in monitoring wells in September 2015 were generally comparable to the 2014 results, and within ranges previously observed. In the remainder of this section, specific groundwater trends and conditions are discussed in greater detail, including:

- Concentration trends for chlorinated VOCs
- Concentration trends for benzene
- Achievement of regulatory limits in monitoring wells
- MNA trends

4.3 Trends for Chlorinated VOCs

The chlorinated VOCs 1,2-dichloroethene, trichloroethene, and tetrachloroethene, are the predominant constituents on the eastern side of the site in OW-2, OW-5, and OW-6 (Figure 4), and are detected in other locations in concentrations below regulatory limits.

Compared to OW-2, OW-5, and OW-6, groundwater on the western side (OW-13R, OW-18, OW-19, OW-21, OW-22) is typically higher in methane, has lower redox (is more reduced), and is more amenable to reductive dechlorination. In these wells, chlorinated VOCs in general showed a downward trend over time once OU-1 actions were complete. For example, while the concentration of chlorinated VOCs was higher in OW-13/OW-13R in 1999-2000 compared to OW-5 (Figure 5), favorable geochemical conditions resulted in a rapid and smooth decline. Chlorinated VOCs have not exceeded criteria at OW-13/13R since 2004. In OW-5, conditions for degradation have been somewhat less favorable and the decline has been slower and more variable (Figure 5).

In OW-2 and OW-6, the rate of decline in chlorinated VOC concentrations has been slowed by unfavorable geochemical conditions. Concentrations appeared to peak in the years following OU-1 actions, and since 2006 concentrations have been flat to gradually declining (Figure 6).

Chlorobenzene is another compound that has exceeded the New York State Standard or Guidance Value (NYSDEC SGV) of 5 ug/L (but not the federal Maximum Contaminant Level [MCL] of 100 ug/L) in groundwater, in OW-18 and OW-19. Chlorobenzene has also on occasion exceeded the SGV in OW-10R and OW-22. The suspected main source of chlorobenzene in groundwater is the historic closed municipal landfill located between OW-10R to the northwest and OW-18 and OW-19 to the south (Figures 2 and 4). OW-22 is midway in between OW-10R and the downgradient monitoring wells. The closed landfill is suspected as the source because of the consistently higher concentrations within or downgradient of the landfill compared to upgradient concentrations, as shown below:

Position Relative to Closed Landfill	Monitoring Well	Chlorobenzene Average ug/L 2008-2015
Upgradient	OW-10R	2.7
Downgradient	OW-18	11.0
Downgradient	OW-19	10.1
Within	OW-22	7.8

4.4 Benzene Concentration Trends

As was described in detail in the *Supporting Documentation for Five-Year Review* (Cardinal Resources, 2005), different VOCs have predominated in different areas downgradient of the former lagoons. Benzene has predominated in several monitoring wells in the southwestern areas of the Site, with historically the highest concentrations observed in OW-10R and OW-13R. In September 2015, the highest benzene concentration was measured in groundwater at OW-13R, at 5.2 micrograms per liter (ug/L), compared to the (MCL) of 5 ug/L; the MCL was exceeded in this monitoring well only. Benzene was below the MCL of 5 ug/L in September 2015 in OW-10R, OW-18, OW-21, and OW-22, although not below the SGV of 1 ug/L.

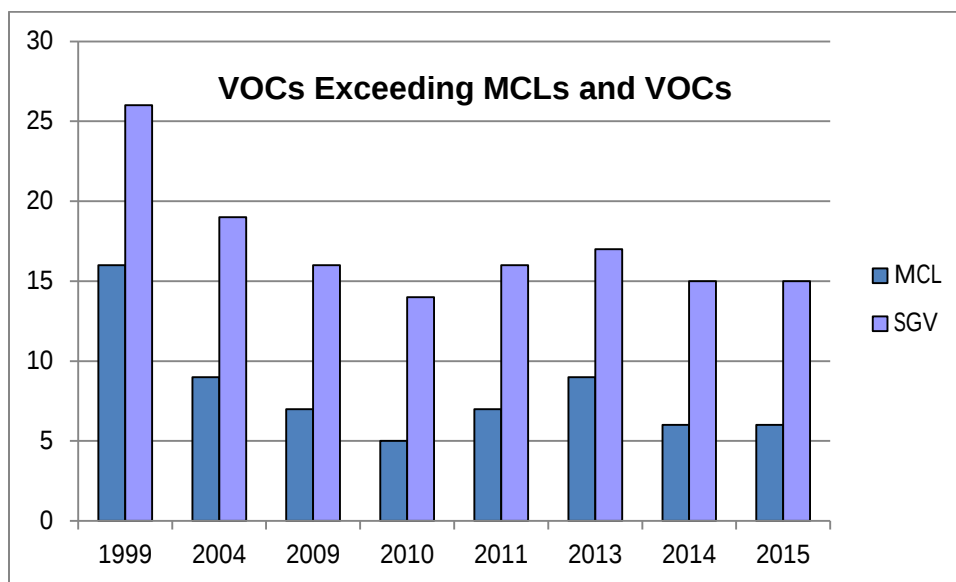
Benzene has exhibited an overall downward trend in OW-13R and OW-22, individual wells with historically high concentrations, as shown in Figure 7. There has also been a

flattening and mass decline of the benzene plume along the groundwater flow path, illustrated in Figure 8. This depiction shows how the benzene concentration in 2000 declined from several hundred ug/L in OW-13/13R, downgradient of the source area, to 5.2 ug/L in 2015. The decline in the benzene concentration in the former source area reflects both degradation and dispersion of benzene within the plume to the south and west toward OW-22. Figure 9 depicts benzene concentrations in groundwater in September 2015.

4.5 Achievement of MCLs and SGVs

Since completion of OU-1 remediation in 1999, some of the MCLs and state groundwater SGVs had been met in groundwater wells downgradient of the former lagoons. Table 5 summarizes these findings through the current sampling round. In 2015, 6 MCLs and 15 SGVs were exceeded within the monitoring network.

From 1999 through 2009 there was a substantial reduction in MCL and SGV exceedances; since 2009, conditions have remained about the same:



4.6 Monitored Natural Attenuation Trends

The number of MNA parameters has been reduced with U.S. EPA approval for this and future sampling rounds. The reduced list shown in Table 4 includes the field parameters dissolved oxygen and redox; and the laboratory parameters ethane, ethane,

and methane. Reduced conditions as indicated by low dissolved oxygen and redox are favorable for reductive dechlorination of chlorinated VOCs. The presence of ethane, ethane, and methane can also be an indicator of the breakdown of chlorinated VOCs. At this site, methane in groundwater is particularly associated with groundwater within or near the historic closed landfill.

The patterns seen in September 2015 are consistent with the observations presented previously, with the areas predicted to be most amenable to degradation of chlorinated VOCs in monitoring wells to the south and west (OW-13R, OW-18, OW-19, OW-21, OW-22). In these wells,

- Methane concentrations of 100 ug/L or greater were observed;
- Low DO and/or redox potential indicating reduced conditions were found; and
- Chlorinated VOCs were not present or present in low concentrations.

By comparison, in OW-2 and OW6, dissolved oxygen and redox were relatively high, methane was not present, and chlorinated VOCs were found in higher concentrations.

5.0 Gold Creek Sampling Results

Refer to Section 3.0 for a description of the methods for surface water and sediment sample collection along the creek. Table 6 provides the results for VOCs detected in surface water and sediment samples collected from two locations along Gold Creek (Figure 3).

The results are arranged in the table from the sampling location furthest downstream (SED-1/SW-1) to the furthest upstream (SED-2/SW-2). These are the established sampling locations that have been used throughout the OU-2 monitoring program.

5.1 Surface Water Results

VOCs were not detected in surface water samples (Table 6). Historic SW-1 and SW-2 sample results are provided in Appendix B, Table B-2.

5.2 Sediment Results

Acetone was detected in the downstream sediment sample SED-1 (160 micrograms per kilogram [ug/kg]) and in the upstream samples SED-2 (170 ug/kg) and SED-2 DUP (260 J ug/kg) during this sampling round (Table 6). Historic SED-1 and SED-2 sample results are provided in Appendix B, Table B-3. Acetone is a common laboratory artifact. Currently neither the National Oceanic and Atmospheric Administration (2008) nor NYSDEC Division of Water (2013) has a guidance value for acetone in freshwater sediments.

5.3 Discussion

The results for the two sampling locations along Gold Creek are consistent with past observations for SED-1/SW-1 and SED-2/SW-2. VOCs were not detected in surface water. Acetone was detected in low concentrations in SED-1. Based on these results, there is no evidence that ecological conditions in Gold Creek are being adversely affected by the Site.

6.0 Data Quality Review

Data quality review was performed on the analytical data package to assure that quality and usability requirements were met.

6.1 Introduction

A Tier II data quality review of the sample data package was completed using U.S. EPA guidelines. The Tier II data evaluation consisted of a review of data package completeness and a quality control (QC) review, as summarized in the QC forms provided by the laboratory, covering:

- Signed transmittal page
- Data package narrative
- Sample transmittal documentation
- Reagent traceability summary
- Standard VOC QC forms for:
 - System monitoring compound (surrogate recovery)
 - Matrix spike/matrix spike duplicate (MS/MSD) recovery
 - Laboratory check samples
 - Method blank summary
 - Instrument performance check
 - Internal standard summary and retention time (RT) summary
 - Initial calibration data
 - Continuing calibration data
- Form Is and raw data for field samples, blanks, laboratory control samples, MS/MSDs
- Copies of logbook pages documenting sample preparation, extract transfer, instruments, and sample tracking
- Holding times
- Form Is and raw data for field and QC samples
- Field duplicates and field, trip, and decontamination blanks.

Checklists documenting the review of laboratory sample delivery group (SDG) are provided in Appendix C.

6.2 Results of Data Review

The hand-marked, qualified Form Is are provided in Appendix A with the laboratory reports. Results in Tables 3, 4, 6, B-1, B-2, and B-3 reflect the qualified data. The data qualifiers are:

- J - The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.
- UJ - The analyte was not detected above the reported quantitation limit, but the reported quantitation limit is approximate.

The data package was complete and appropriately organized, and all relevant supporting information was provided.

6.2.1 Field QC Samples

Sample Collection Blanks: Four blanks related to sample collection (different from the method blanks conducted by the laboratory for internal QA/QC) were analyzed as part of this sampling round, and all were nondetectable at the laboratory reporting limits:

- Field Blank (FB) – 1 and FB – 2: Field blanks are prepared at the sampling site by pouring deionized water provided by the laboratory into laboratory-prepared VOA (volatile organic analyte) bottles, shipping the bottles with field samples, and having the samples analyzed along with field samples. These blanks are used as an indicator of airborne or other type of contamination occurring during the sampling process that could compromise sample quality.
- Trip Blank (TB) – 1: Trip blanks are prepared in the laboratory by pouring deionized water into laboratory-prepared VOA bottles. The filled containers are shipped with the sample containers to the site, remain in the sample coolers throughout the sampling process, are shipped back to the laboratory along with the field samples, and are analyzed along with the field samples. A trip blank is used as an indicator of airborne or other type of contamination that could occur during the shipping process to compromise sample quality.
- Rinsate Pump Blank: This blank was collected to check cleaning methods for the portable bladder pump used to sample several of the monitoring wells, to verify that sampling equipment and methods do not compromise sample quality. The pump was cleaned initially and after sampling four of the wells. After sampling OW-19 and before sampling OW-13R, deionized water was poured through and onto the pump body, then collected in VOA bottles. The samples were then stored, shipped, and analyzed along with the other field samples.

Field Duplicates: Field duplicates were collected for each of the sample types, groundwater, surface water, and sediment. The duplicate samples were:

- OW-5 and OW-5 DUP
- SW-1 and SW-1 DUP
- SED-2 and SED-2 DUP

The field duplicates are checked for relative percent difference (RPD) as:

$$\frac{|A - B| \times 100}{\frac{1}{2} (A + B)}, \quad \text{where A is sample value and B is duplicate value.}$$

The RPD for aqueous samples is to be within 30%, and within 50% for nonaqueous samples. For detectable samples that do not meet the criteria, the “J” qualification indicating estimated results is indicated. The qualification applies to the duplicate sample result only.

For OW-5/OW-5 DUP VOA analysis (three detections), the maximum RPD was 13.3%, so there were no qualifications. For dissolved gas analysis of OW-5 and its duplicate, methane was qualified as J in OW-5 where it was detected, and UJ in OW-5 DUP where it was not detected. For SED-2 and SED-2 DUP (one detection), the RPD was 42%, so there were no qualifications. SW-1/SW-1 DUP were both nondetectable.

Field MS/MSD Samples: Field matrix spike/matrix spike duplicate (MS/MSD) samples were collected for each of the sample types, groundwater, surface water, and sediment. The MS/MSD samples were:

- OW-6 MS/MSD
- SW-2 MS/MSD
- SED-1 MS/MSD

With a matrix spike, a compound of known concentration is added to the sample, and the sample is analyzed. The detected concentration is compared to the amount added. This procedure provides an indication about how the sample matrix (physical/chemical properties inherent to the sample) could affect the ability to detect target compounds.

- For OW-6 MS/MSD, spike recoveries were all within limits, but RPDs were out of limits for two spiked compounds, bromomethane and chloromethane. These compounds were not detected in the unspiked samples. The nondetect results were qualified on the Form I as UJ.

- For SW-2 MS and SW-2 MSD, spike recoveries and RPDs were all within the specified QC limits, therefore there were no qualifications of these samples.
- For SED-1 MS/MSD, spike recoveries were all within the specified QC limits as were RPDs, therefore there were no qualifications of these samples.
- In addition to these samples designated during collection as MS/MSDs, the laboratory also performed MS/MSD analysis on SED-2 DUP. Two compounds not detected in the unspiked sample (styrene; dichlorodifluoromethane) has spike recoveries outside of specified QC limits. The styrene recovery was low, and the Form ! was qualified as UJ. The dichlorodifluoromethane recovery was high, therefore the nondetect result was not qualified.

6.2.2 Data Quality and Usability

Although there were some qualifications as estimated or nondetectable values that resulted from the data quality review process, the analytical results are usable and of acceptable quality; no results have been rejected.

In addition to the qualifications discussed above for field MS/MSDs (OW-6) and field duplicates (OW-5), SED-2 DUP results were qualified as J for the one positive detection (acetone) and UJ for all nondetects, because of an internal standard area response out of limits (low). The sample was re-analyzed with concurring results, so the laboratory reported the original data set.

7.0 Summary and Conclusions

The results of the 2015 sampling program for the Carroll and Dubies Site show:

- Groundwater elevations were lower on average by 0.19 foot, compared to the June 2014 groundwater elevations, and typical of fall groundwater elevations in previous years. The purpose of sampling every fifth quarter beginning in 2013 has been to get an up-to-date look at conditions throughout the hydrologic cycle. For the past four sampling rounds (fourth quarter 2011, first quarter 2013, second quarter 2014, and third quarter 2015) the concentrations of VOCs in groundwater do not appear to be particularly affected by the season.
- Some of the monitoring wells continue to exceed MCLs and SGVs. Benzene exceeded the MCL of 5 ug/L in one monitoring well only during this sampling round, in OW-13R, with a concentration of 5.2 ug/L. The benzene SGV of 1 ug/L was exceeded in an additional four monitoring wells in September 2015.
- In the first ten years following the OU1 waste and soil removal conducted in 1999, VOC concentrations in most monitoring wells substantially declined. Since that time, concentration trends in general have been slowly declining to stable.

The many years of monitoring results demonstrate that natural attenuation is continuing to degrade VOCs, and the rate of degradation is slowing as the concentrations decline. This is the expected result, as the declining contaminant concentrations reduce the driving force for the attenuation processes. The results further demonstrate that Site conditions are stabilizing. In addition, as the rate of attenuation continues to slow, it may be years before MCLs and SGVs are met in all monitoring wells throughout the plume, but Site conditions will continue to be stable.

The OU2 groundwater remediation ROD, written in 1996, stated that natural attenuation of organic contaminants should achieve treatment of groundwater “to below federal drinking water and state groundwater standards through naturally occurring removal processes” and that “groundwater modeling estimated that contaminants would attenuate to these standards within five years of completion of the remedy selected for the lagoons.” The pre-1996 modeling results referenced in the OU2 ROD have not proven out, however, much more is known about natural attenuation trends and benefits than 20 years ago.

With stable to declining groundwater concentrations and institutional controls in place, conditions will continue to be protective of human health and the environment, with no exposure pathways that could result in unacceptable risks.

8.0 References

Cardinal Resources LLC, April 2013, *June 2014 Sampling Report, Carroll and Dubies Superfund Site, Town of Deerpark, Orange County, New York*, Prepared for Kolmar Laboratories, Inc. and Wickhen Products, Inc.

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United States Environmental Protection Agency, 2005, *Five-Year Review Report, Carroll and Dubies Superfund Site, Town of Deerpark, Orange County, New York*, Prepared by U.S. EPA Region 2, New York, New York.

United States Environmental Protection Agency, 1997, Proceedings of the Symposium on Natural Attenuation of Chlorinated Organics in Groundwater, EPA/540/R-97/504, Office of Research and Development, Washington, DC.

Tables

Table 1
Groundwater Field Stabilization Parameters
September 2015
Carroll and Dubies Superfund Site
Town of Deerpark, Orange County, New York

Well ID	Date	Temperature (°C)	Dissolved Oxygen (mg/L)	Redox (mV)	Conductivity (uS/cm)	pH (standard units)	Turbidity (NTUs)
OW-2	09/24/15	10.76	4.80	54.5	161	5.80	0.04
OW-5	09/24/15	11.49	0.48	62.8	261	6.06	0.51
OW-6	09/24/15	10.95	4.88	47.8	102	5.87	0.62
OW-10R	09/24/15	11.87	0.89	13.3	539	6.11	1.53
OW-13R*	09/24/15	12.09	0.33	-1.7	668	6.29	33.5
OW-18*	09/23/15	13.01	0.40	-60.7	623	6.22	45.4
OW-19*	09/23/15	13.84	0.32	-18.3	385	6.00	1.76
OW-21	09/24/15	12.38	0.28	-16.3	494	6.39	0.31
OW-22	09/24/15	12.59	0.37	-46.5	575	6.22	1.32
OW-24*	09/23/15	11.69	2.15	33.6	238	5.59	15.7

Notes:

mg/L = milligrams per liter

mV = millivolts

uS/cm = microSiemens per centimeter

NTU = nephelometric turbidity units

* Sampled with bladder pump

Table 2
Groundwater Elevation Data⁽¹⁾
September 23-24, 2015
Carroll and Dubies Superfund Site
Town of Deerpark, Orange County, New York

Well No.	Top of Casing Elevation	Screened Interval	Depth to Groundwater	Groundwater Elevation
MW-1	469.39	28.5 - 43.5	Not Measured	Not Measured
MW-4	470.13	35.3 - 50.3	Not Measured	Not Measured
OW-2	472.33	30.0 - 47.0	41.46	430.87
OW-3	472.70	30.0 - 46.5	Not Measured	Not Measured
OW-4	473.33	26.5 - 27.5	Not Measured	Not Measured
OW-5	459.85	25.5 - 45.5	29.05	430.80
OW-6	464.40	31.4 - 51.4	33.58	430.82
OW-8	464.63	34.6 - 54.6	33.75	430.88
OW-9	472.91	25.3 - 35.3	31.92	440.99
OW-10R	469.27	29.0 - 39.0	32.04	437.23
OW-13R	457.69	25.0 - 35.0	27.15	430.54
OW-15	472.05	22.0 - 32.0	12.91	459.14
OW-16	453.90	18.0 - 28.0	Not Measured	Not Measured
OW-17	447.18	11.0 - 21.0	15.80	431.38
OW-18	444.57	11.0 - 21.0	14.26	430.31
OW-19	438.69	5.0 - 15.0	8.87	429.82
OW-21	467.46	37.1 - 47.1	37.32	430.14
OW-22	467.10	38.0 - 48.0	36.94	430.16
OW-23	444.73	29.0 - 39.0	14.52	430.21
OW-24	446.77	14.4 - 24.4	16.52	430.25
OW-25	452.47	20.0 - 30.0	Not Measured	Not Measured

⁽¹⁾Data reported in feet; elevations relative - mean sea level; 1988 National Geodetic Vertical Datum.

⁽²⁾Top of casing elevations surveyed by Maser Consulting P.A.

Table 3
Summary of Detected TCL Volatile Organic Compounds in Groundwater (ug/L)
September 2015
Carroll and Dubies Superfund Site
Town of Deerpark, Orange County, New York

Compound	NYSDEC	U.S. EPA	OW-2	OW-5	OW-5-DUP	OW-6	OW-10R	OW-13R
	SGV	MCL	09/24/15	09/24/15	09/24/15	09/24/15	09/24/15	09/24/15
Benzene	1 (S)	5	2.5 U	1.3 U	1.7 U	1.3 U	3.8	5.2
Chlorobenzene	5 (S)*	100	2.5 U	1.3 U	1.7 U	1.3 U	1.3	1.0 U
Chloroethane	5 (S)*	NE	2.5 U	1.3 U	1.7 U	1.3 U	2.7	1.0 U
Cis 1,2-Dichloroethene	5 (S)*	70	54	31	33	15	1.0 U	1.0 U
Dichlorodifluoromethane	5 (S)*	NE	2.5 U	1.3 U	1.7 U	1.3 U	1.7	1.0 U
Tetrachloroethene	5 (S)*	5	74	14	16	38	1.0 U	1.0 U
Trichloroethene	5 (S)*	5	10	4.2	4.5	7.7	1.0 U	1.0 U

Compound	NYSDEC	U.S. EPA	OW-18	OW-19	OW-21	OW-22	OW-24
	SGV	MCL	09/23/15	09/23/15	09/24/15	09/24/15	09/23/15
Benzene	1 (S)	5	3.5	1.0 U	1.4	2.0	1.0 U
Chlorobenzene	5 (S)*	100	14	6.7	1.0 U	4.3	1.0 U
Chloroethane	5 (S)*	NE	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Cis 1,2-Dichloroethene	5 (S)*	70	1.0 U	1.2	1.0 U	1.0 U	1.0 U
1,4-Dichlorobenzene	3 (S)	75	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Tetrachloroethene	5 (S)*	5	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Trichloroethene	5 (S)*	5	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U

Notes:

TCL = Target Compound List

NYSDEC SGV = New York State Department of Environmental Conservation Standards (S) and Guidance (G) Values (V) for groundwater.

U.S. EPA MCL = United States Environmental Protection Agency Maximum Contaminant Level for drinking/groundwater.

U = The analyte was analyzed for, but was not detected above the reported quantitation limit.

* = The principal organic contaminant (POC) standard for groundwater of 5 ug/L applies to this substance.

NE = Not established; no criteria specified

Red = Concentrations detected at or above regulatory limit

Blue = Analyte detected at less than regulatory limit, or analyte detected but no regulatory criteria specified

Table 4
Natural Attenuation Parameters – September 2015
Carroll and Dubies Superfund Site
Town of Deerpark, Orange County, New York

Well ID	Date	Dissolved Oxygen (mg/L)	Ethane (ug/L)	Ethene (ug/L)	Methane (ug/L)	Redox (millivolts)
OW-2	09/24/15	4.80	0.50 U	0.50 U	0.50 U	54.5
OW-5	09/24/15	0.48	0.50 U	0.50 U	0.66 J	62.8
OW-5 Dup	09/24/15	-	0.50 U	0.50 U	0.50 UJ	-
OW-6	09/24/15	4.88	0.50 U	0.50 U	0.50 U	47.8
OW-10R	09/24/15	0.89	0.50 U	0.50 U	1,700	13.3
OW-13R	09/24/15	0.33	0.50 U	0.50 U	370	-1.7
OW-18	09/23/15	0.40	0.50 U	0.50 U	530	-60.7
OW-19	09/23/15	0.32	0.50 U	0.50 U	590	-18.3
OW-21	09/23/15	0.28	0.50 U	0.50 U	100	-16.3
OW-22	09/23/15	0.37	0.50 U	0.50 U	1,600	-46.5
OW-24	09/23/15	2.15	0.50 U	0.50 U	0.50 U	33.6

Notes:

mg/L = milligrams per liter

ug/L = micrograms per liter

U = The analyte was analyzed for, but was not detected above the reported quantitation limit.

J = The analyte was positively identified; the associated numerical value is the approximate concentration of the analyses in the sample.

UJ = The analyte was not detected above the reported quantitation limit, but the reported quantitation limit is approximate.

 = Conditions more favorable to reductive dechlorination

 = Conditions less favorable to reductive dechlorination

Table 5
MCL and SGV Exceedances - 1999, 2004, and 2007 through 2015
Carroll and Dubies Superfund Site
Town of Deerpark, Orange County, New York

Well	Compound	MCL ug/L	SGV ug/L	1999		2004		Jun-07		Jul-08		Jul-09		Jul-10		Oct-11		Feb-13		Jun-14		Sep-15	
				MCL	SGV	MCL	SGV	MCL	SGV	MCL	SGV	MCL	SGV	MCL	SGV	MCL	SGV	MCL	SGV	MCL	SGV	MCL	SGV
OW-2	Benzene	5	1				X																
	Tetrachloroethene (PCE)	5	5	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
	Trichloroethene (TCE)	5	5	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
	1,2-Dichloroethene (1,2-DCE)	70	5	X	X	X	X		X		X		X		X	X	X	X	X		X		X
OW-5	Tetrachloroethene (PCE)	5	5	X	X	X	X															X	X
	Trichloroethene (TCE)	5	5	X	X																		
	1,2-Dichloroethene (1,2-DCE)	70	5		X		X		X		X										X		X
OW-6	Tetrachloroethene (PCE)	5	5	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
	Trichloroethene (TCE)	5	5			X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
	1,2-Dichloroethene	70	5		X		X		X		X		X		X		X		X		X		X
OW-10R ⁽¹⁾	Benzene	5	1	X	X	X	X		X	X	X		X		X		X		X	Dry	Dry		X
	Chlorobenzene	100	5		X												X		X				
	Methylene chloride	5	5	X	X																		
	Toluene	1,000	5		X																		

Table 5
MCL and SGV Exceedances - 1999, 2004, and 2007 through 2015
Carroll and Dubies Superfund Site
Town of Deerpark, Orange County, New York

Well	Compound	MCL ug/L	SGV ug/L	1999		2004		Jun-07		Jul-08		Jul-09		Jul-10		Oct-11		Feb-13		Jun-14		Sep-15	
				MCL	SGV	MCL	SGV	MCL	SGV	MCL	SGV	MCL	SGV	MCL	SGV	MCL	SGV	MCL	SGV	MCL	SGV	MCL	SGV
OW-13 / OW-13R ⁽²⁾	Benzene	5	1	X	X	X	X	X	X	X	X	X	X	X	X			X	X	X	X	X	X
	1,2-Dichloroethene (1,2-DCE)	70	5		X																		
	Methylene chloride	5	5	X	X																		
	Toluene	1,000	5		X																		
	Vinyl chloride	2	2	X	X	X	X																
OW-18	Benzene	5	1		X		X		X		X		X		X		X		X		X		X
	Chlorobenzene	100	5				X		X		X		X		X		X		X		X		X
	Xylenes (total)	10 ⁴	5																				
OW-19	Benzene	5	1	X	X		X		X		X		X		X		X	X	X		X		
	Chlorobenzene	100	5		X		X		X		X		X		X		X		X		X		X
	Chloroethane	NA	5		X																		
	Vinyl chloride	2	2	X	X							X	X			X	X	X	X				
OW-21	Benzene	5	1	X	X		X		X		X		X		X		X		X		X		X
OW-22	Benzene	5	1	X	X		X		X		X	X	X		X	X	X	X	X	X	X		X
	Chlorobenzene	100	5		X		X						X			X		X		X			
	Vinyl chloride	2	2	X	X																		
Total				16	26	9	19	5	15	6	15	7	16	5	14	7	16	9	17	6	15	6	15

Notes:

⁽¹⁾OW-10 was replaced with OW-10R in 2000. OW-10 was abandoned because it was within the OU1 construction area.

⁽²⁾OW-13R was installed in February 2006 to replace OW-13.

Table 6
Detected Volatile Organic Compounds
Surface Water and Sediment Sampling Locations in Gold Creek
September 2015
Carroll and Dubies Superfund Site
Town of Deerpark, Orange County, New York

Location	Sediment Guidance Value	SED-1 / SW-1 (Downstream)			SED-2 / SW-2 (Upstream)		
Sample		SED-1	SW-1	SW-1 DUP	SED-2	SED-2 DUP	SW-2
Constituent	ug/kg	ug/kg	ug/L	ug/L	ug/kg	ug/kg	ug/L
Acetone	Not established ⁽¹⁾	160	10 U	10 U	170	260 J	10 U

Notes:

⁽¹⁾ Not established in NYSDEC Screening and Assessment of Contaminated Sediment document (draft) dated 01/24/2013 or in 2008 National Oceanic and Atmospheric Administration Screening Quick Reference Tables.

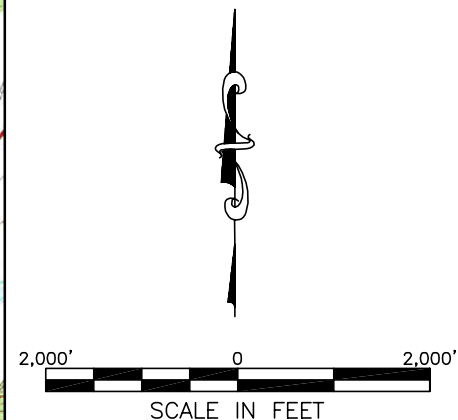
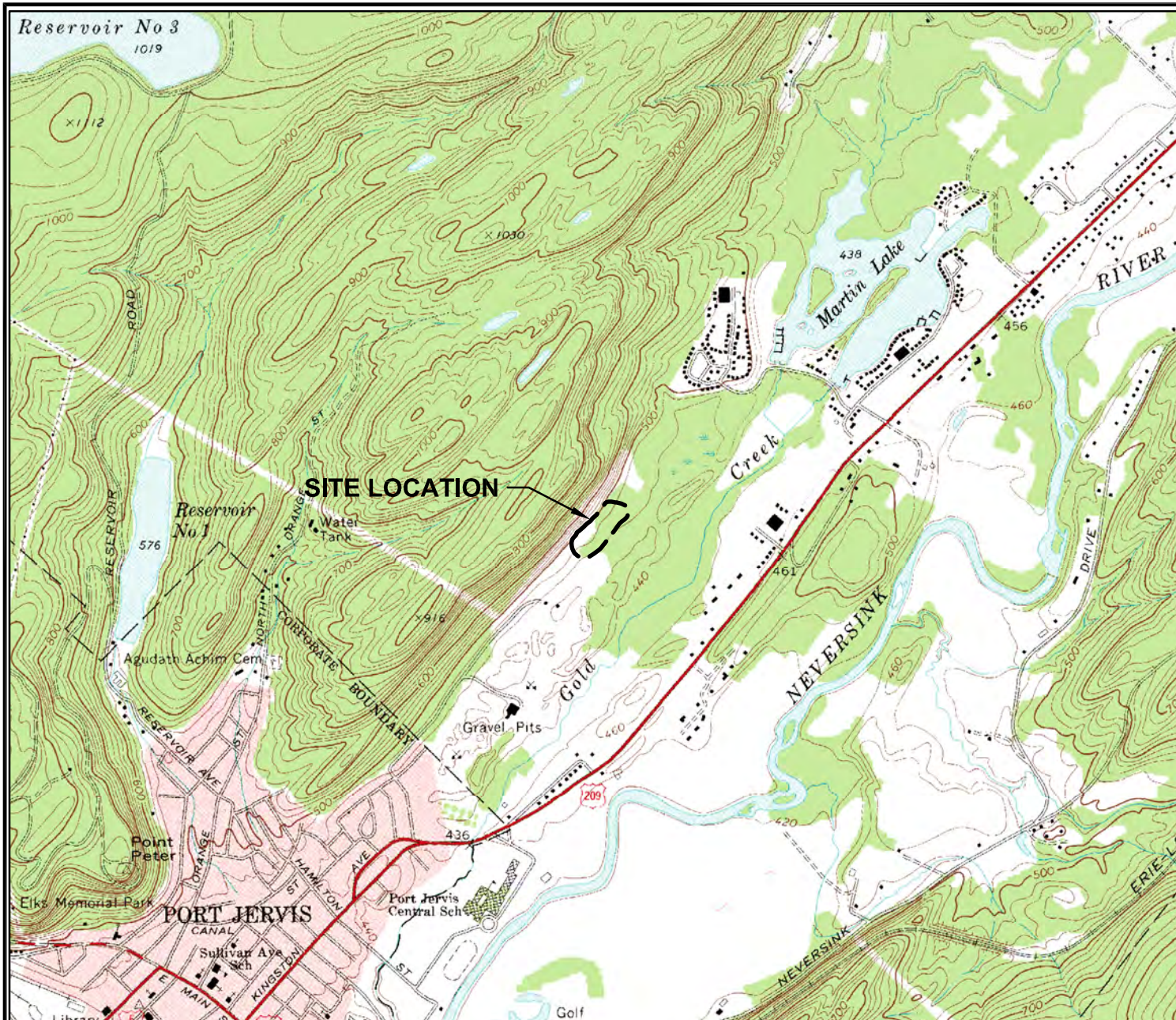
J = Estimated result.

U = The analyte was analyzed for but not detected above the quantitation limit.

UJ = Nondetectable at the reporting limit, but the reporting limit is approximate.

Blue = Detected constituents

Figures



LEGEND:

--- APPROXIMATE
SITE BOUNDARY

SOURCE:
USGS TOPOGRAPHIC QUADRANGLE MAP
PORT JERVIS NORTH, NEW YORK, DATED 1991.



CARROLL AND DUBIES SUPERFUND SITE TOWN OF DEERPARK, ORANGE COUNTY, NEW YORK

105-0035

1									
0	ECM								
NO	DRWN	DATE	REVISION	CHKD	DATE	APPVD	DATE		

FIGURE 1

SITE LOCATION MAP

CADD FILE	9005	SCALE	AS NOTED	CURRENT DATE	03-07-2005
DRAWING NO.	105-0035-0300-01			REVISION	0

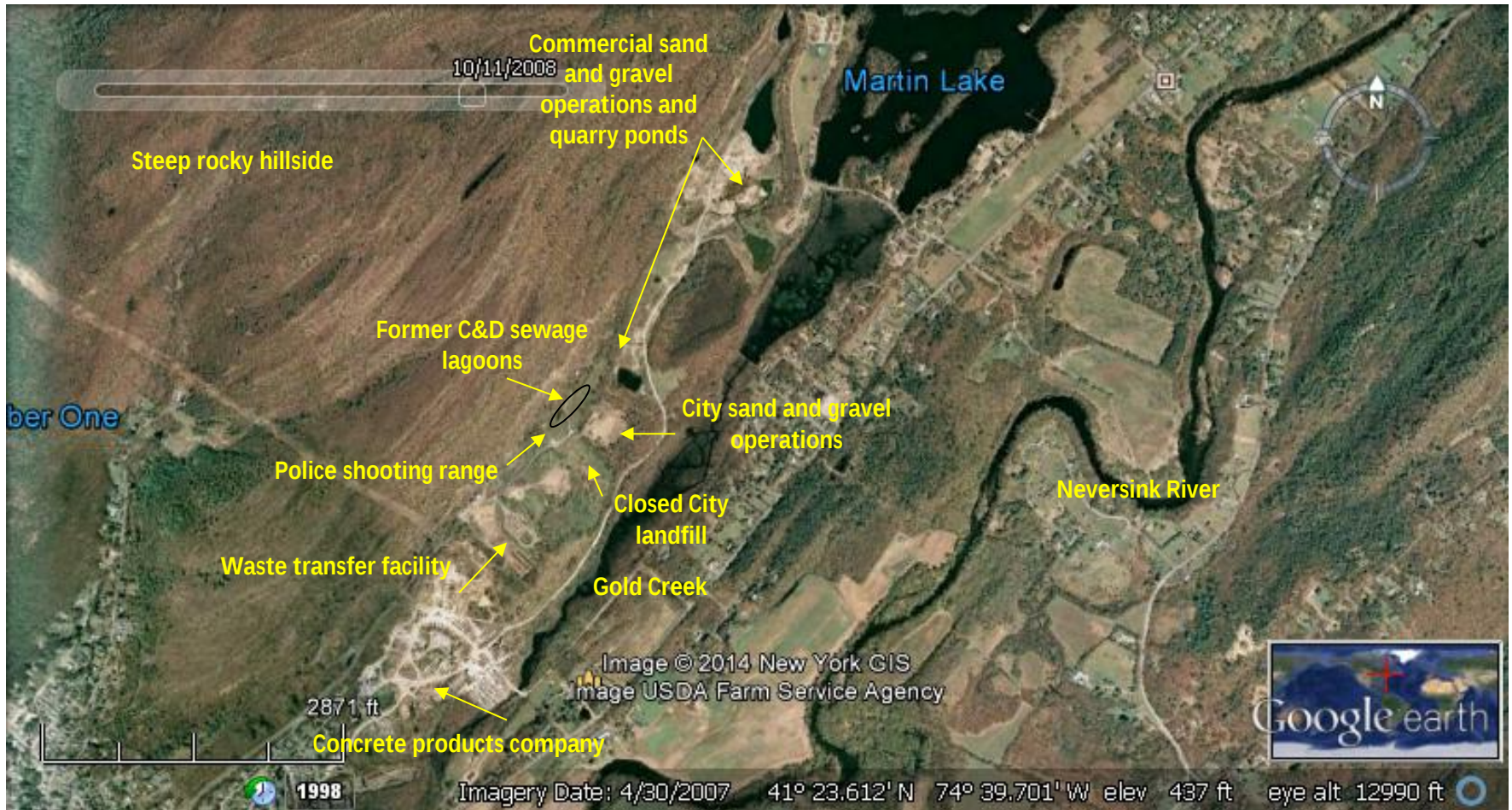
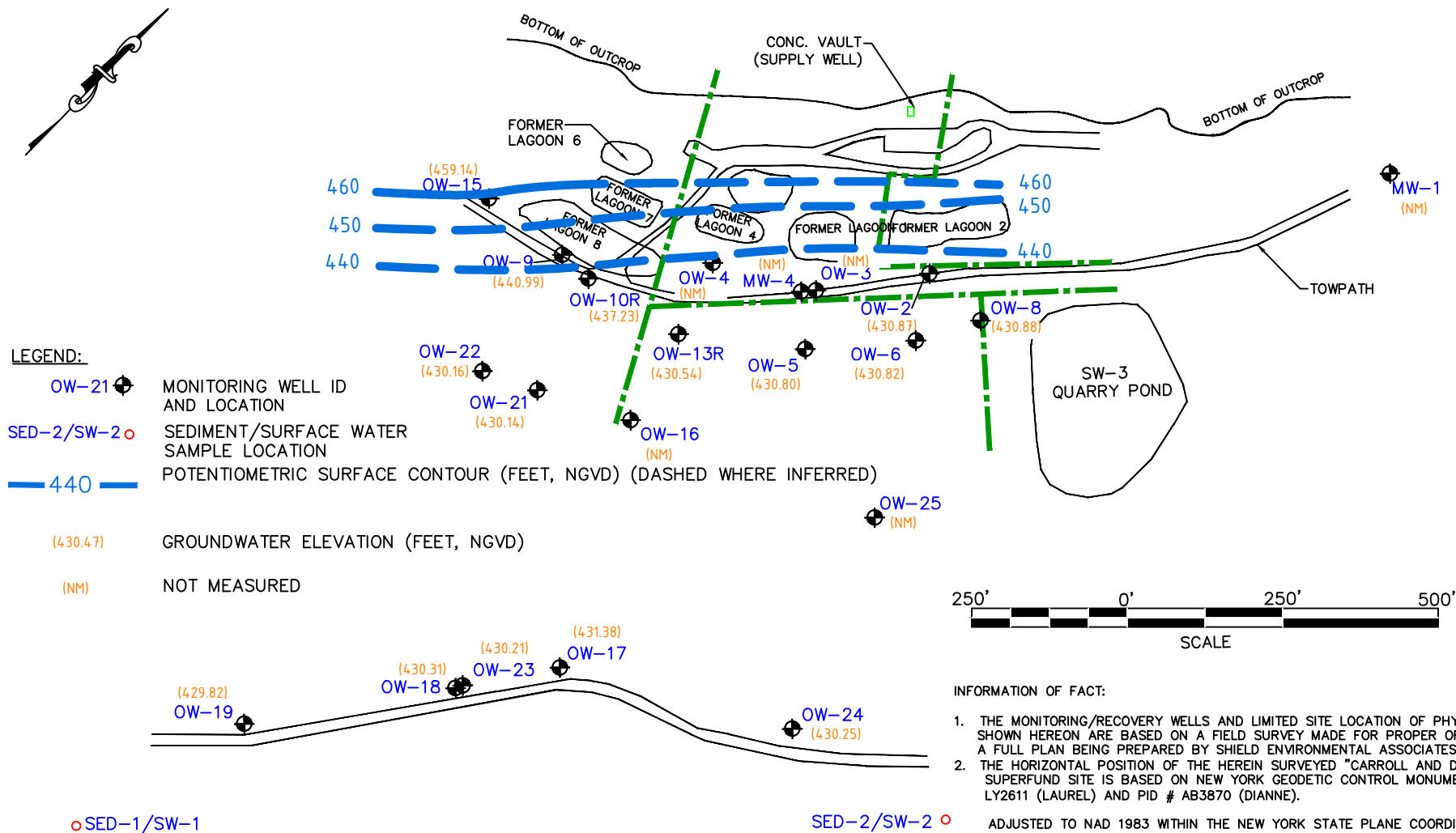


Figure 2
Land and Resource Use
Carroll and Dubies Superfund Site
Town of Deerpark, Orange County, New York



CARROLL AND DUBIES SUPERFUND SITE
TOWN OF DEER PARK, ORANGE COUNTY, NEW YORK
104-0012

FIGURE 3
GROUNDWATER ELEVATION CONTOURS
SEPTEMBER 2015



CURRENT DATE 11-03-15

LK

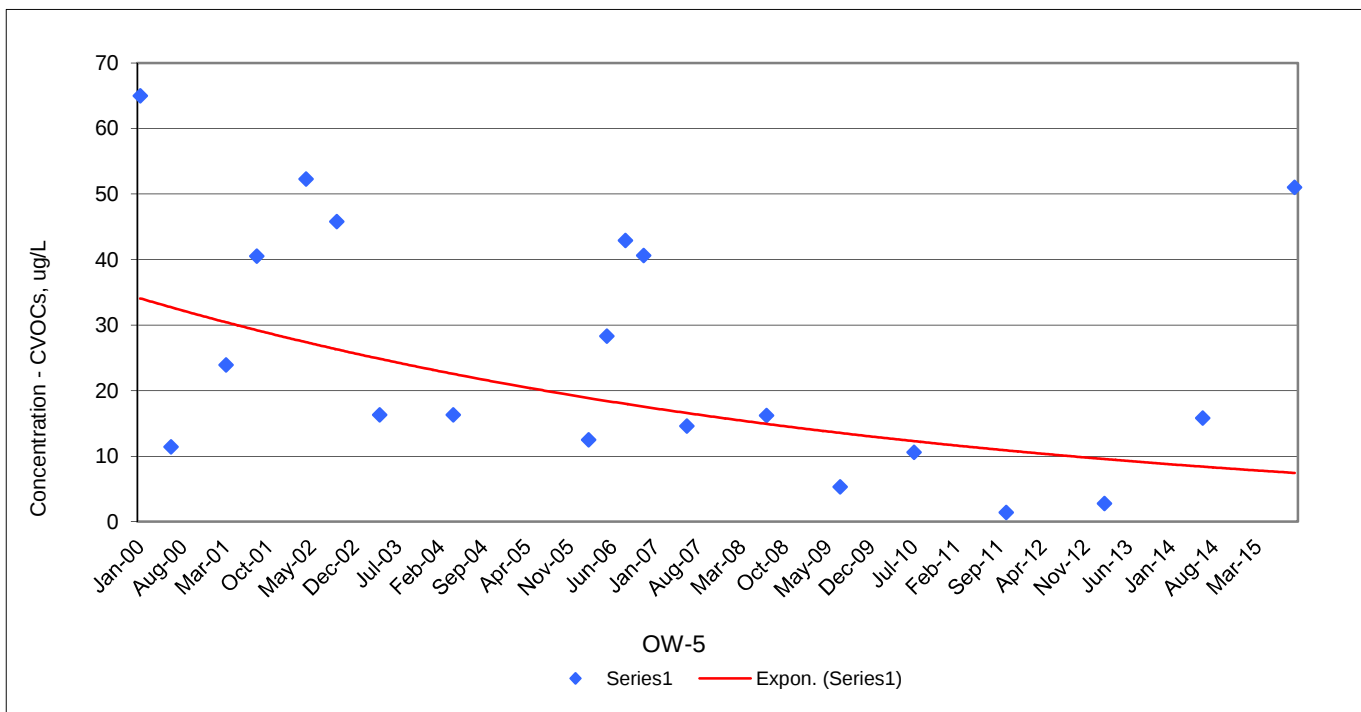
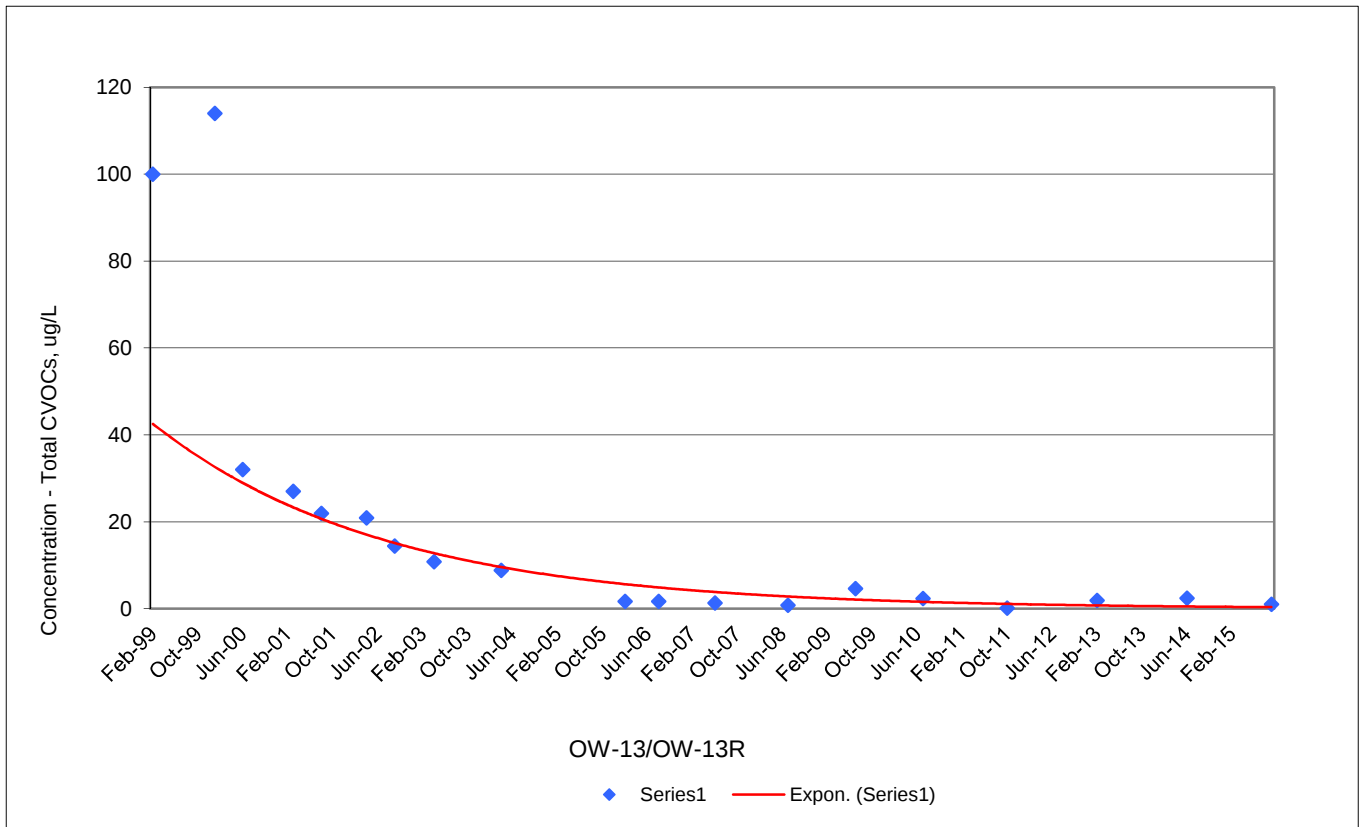
DRAWING NO. 104-0012 - C&D OU2\SEPT 2015

SCALE

AS NOTED

REVISION

Figure 5
Chlorinated VOC⁽¹⁾ Trends in OW-13/13R and OW-5
Pre-Excavation to September 2015



⁽¹⁾Sum of vinyl chloride, 1,2-dichloroethene, trichloroethene, and tetrachloroethene.

Figure 6
Chlorinated VOC⁽¹⁾ Trends in OW-2, OW-5, and OW-6
2006 - 2015

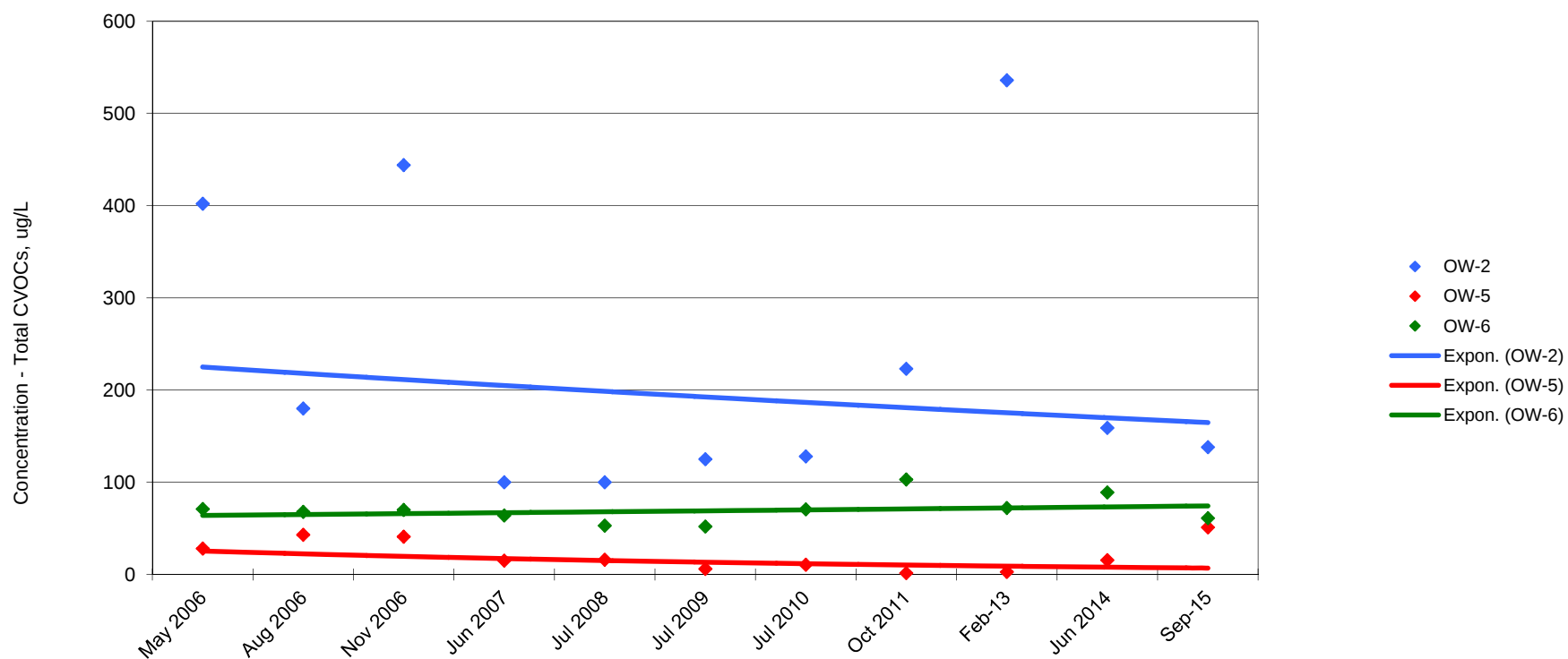


Figure 7
Benzene Concentration Trends in OW-13/OW-13R and OW-22
Pre-Excavation to September 2015

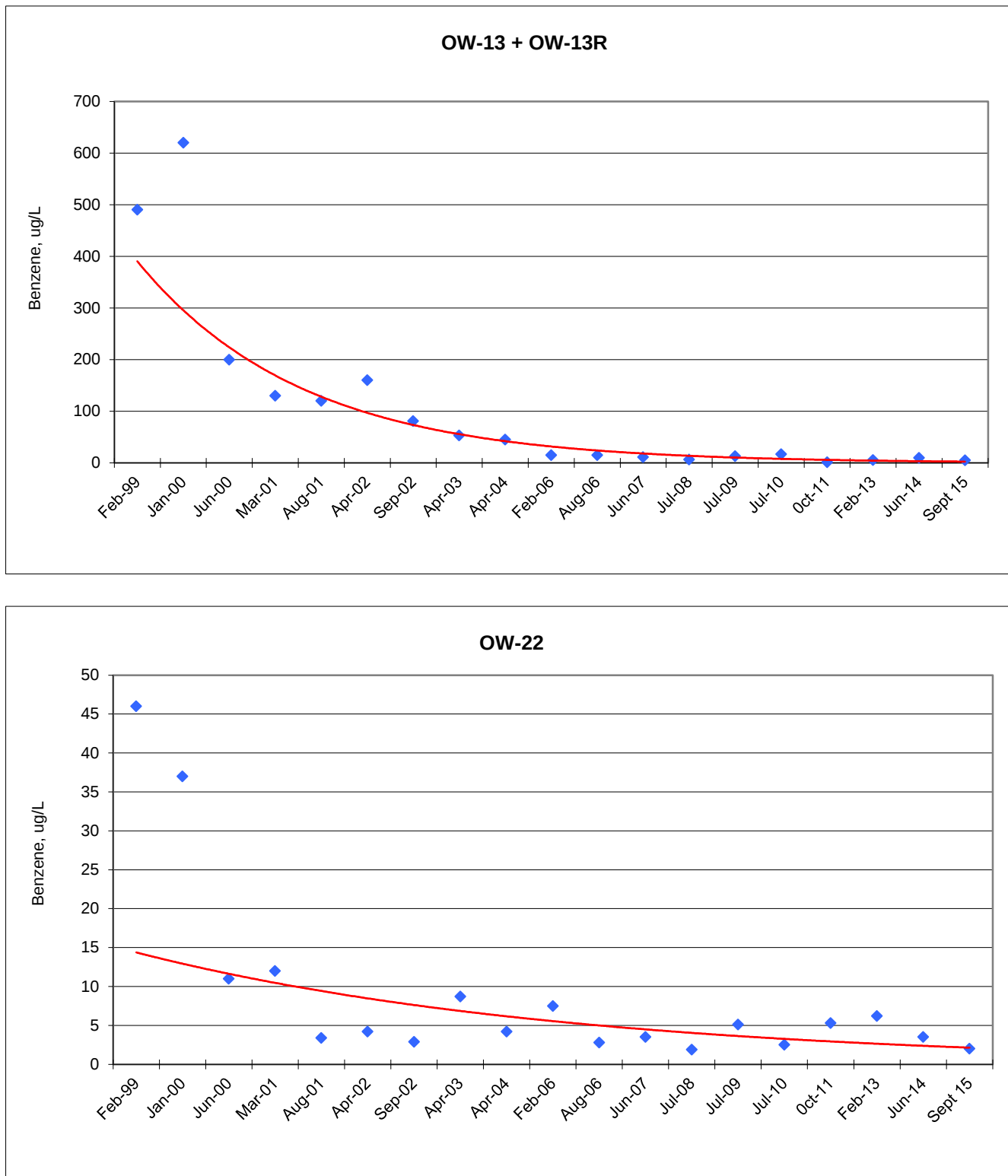
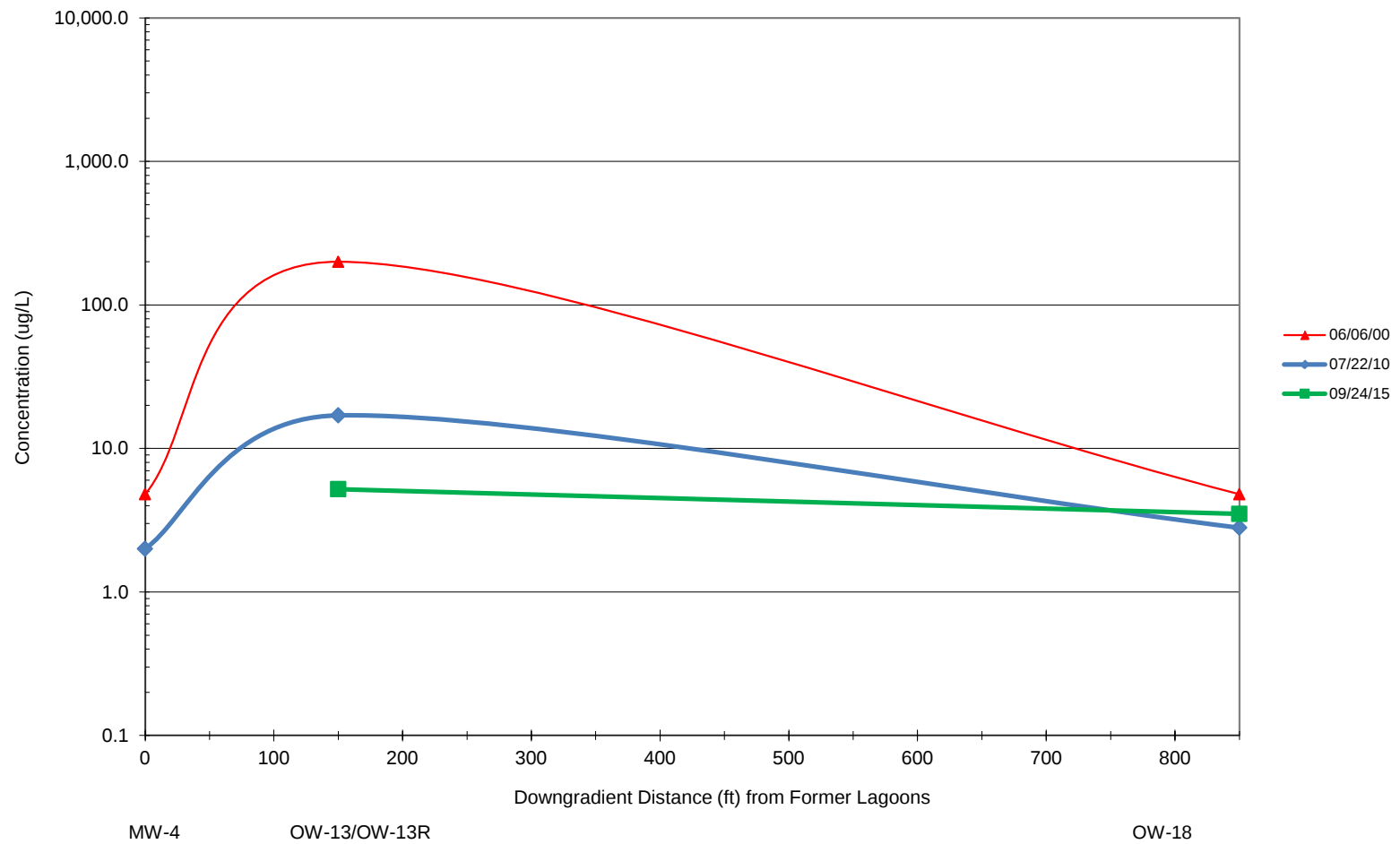
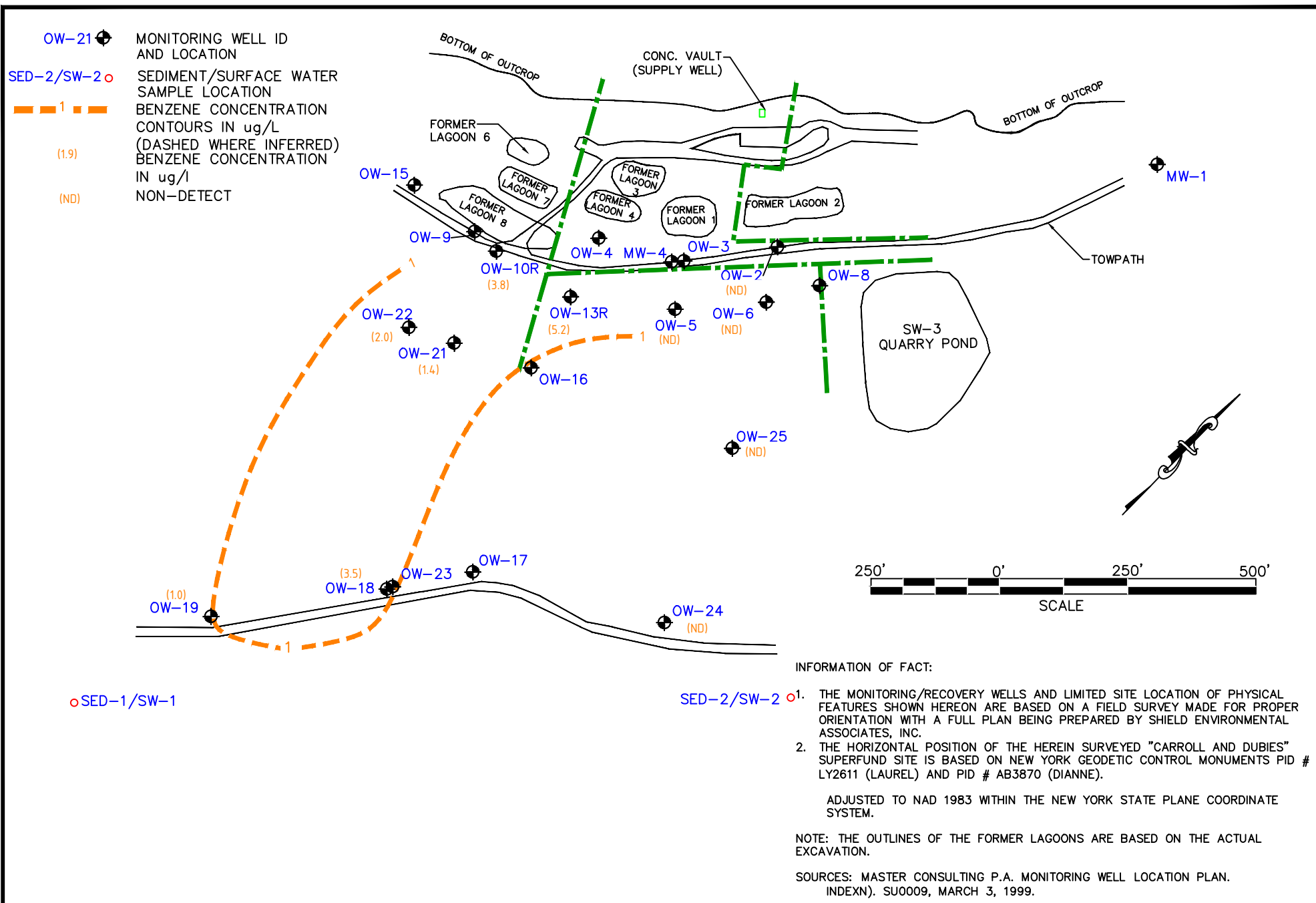


Figure 8
Benzene Concentration Trends Based on Distance from Source



C:\Projects\104-0012\Sep 15\Figure 8 - Benzene with Distance



CARROLL AND DUBIES SUPERFUND SITE
TOWN OF DEER PARK, ORANGE COUNTY, NEW YORK

104-0012

FIGURE 9
BENZENE CONCENTRATIONS
IN GROUNDWATER

SEPTEMBER 2015

CARDINAL

CURRENT DATE 11-03-15

LK

DRAWING NO. 104-0012-0300-09 SEP 15

SCALE

AS NOTED

REVISION

Appendix A
Laboratory Reports with Marked Form Is
From Data Review

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.

TestAmerica Canton

4101 Shuffel Street NW

North Canton, OH 44720

Tel: (330)497-9396

TestAmerica Job ID: 240-55880-1

Client Project/Site: Carroll & Dubies Superfund

Revision: 1

For:

Cardinal Resources

PO BOX D

East Pittsburgh, Pennsylvania 15112

Attn: Barbara Jones



Authorized for release by:

10/9/2015 9:15:12 AM

Nathan Pietras, Project Manager II

(330)966-8296

nathan.pietras@testamericainc.com

LINKS

Review your project
results through

TotalAccess

Have a Question?



Visit us at:

www.testamericainc.com

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

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

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Definitions/Glossary

Client: Cardinal Resources
Project/Site: Carroll & Dubies Superfund

TestAmerica Job ID: 240-55880-1

Qualifiers

GC/MS VOA

Qualifier	Qualifier Description
F2	MS/MSD RPD exceeds control limits
E	Result exceeded calibration range.
*	ISTD response or retention time outside acceptable limits
F1	MS and/or MSD Recovery is outside acceptance limits.
*	LCS or LCSD is outside acceptance limits.

Glossary

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

Case Narrative

Client: Cardinal Resources
Project/Site: Carroll & Dubies Superfund

TestAmerica Job ID: 240-55880-1

Job ID: 240-55880-1

Laboratory: TestAmerica Canton

Narrative

CASE NARRATIVE

Client: Cardinal Resources

Project: Carroll & Dubies Superfund

Report Number: 240-55880-1

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

TestAmerica Canton attests to the validity of the laboratory data generated by TestAmerica facilities reported herein. All analyses performed by TestAmerica facilities were done using established laboratory SOPs that incorporate QA/QC procedures described in the application methods. TestAmerica's operations groups have reviewed the data for compliance with the laboratory QA/QC plan, and data have been found to be compliant with laboratory protocols unless otherwise noted below.

The test results in this report meet all NELAP requirements for parameters for which accreditation is required or available. Any exceptions to NELAP requirements are noted in this report. Pursuant to NELAP, this report may not be reproduced, except in full, without the written approval of the laboratory.

Calculations are performed before rounding to avoid round-off errors in calculated results.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the individual sections below.

All solid sample results are reported on an "as received" basis unless otherwise indicated by the presence of a % solids value in the method header.

This laboratory report is confidential and is intended for the sole use of TestAmerica and its client.

RECEIPT

The samples were received on 09/26/2015; the samples arrived in good condition, properly preserved and on ice. The temperature of the coolers at receipt was 2.1 C.

VOLATILE ORGANIC COMPOUNDS (GCMS)

Samples SED-2 (240-55880-3), SED-2 DUP (240-55880-4) and SED-1 (240-55880-12) were analyzed for volatile organic compounds (GCMS) in accordance with EPA SW-846 Method 8260B. The samples were analyzed on 09/30/2015 and 10/01/2015.

Styrene failed the recovery criteria low for the MS of sample SED-2 DUPMS (240-55880-4) in batch 240-199773. Dichlorodifluoromethane failed the recovery criteria high.

For the MSD of sample SED-2 DUPMSD (240-55880-4) in batch 240-199773, Styrene failed the recovery criteria low. Dichlorodifluoromethane failed the recovery criteria high. Also, 1,2-Dibromo-3-Chloropropane and Methylene Chloride exceeded the RPD limit.

Method(s) 8260B: The laboratory control sample for preparation batch 240-199736 and analytical batch 240-199693 recovered outside control limits for the following analyte(s): Methylene Chloride. Methylene Chloride is a poor performing analyte when analyzed in the lab (due to it being a common lab contaminate); therefore, re-extraction/re-analysis was not performed on these samples SED-1 (240-55880-12), SED-1 (240-55880-12[MS]), SED-1 (240-55880-12[MSD]), (LCS 240-199693/5) and (MB 240-199693/6). These results have been reported and qualified.

Case Narrative

Client: Cardinal Resources
Project/Site: Carroll & Dubies Superfund

TestAmerica Job ID: 240-55880-1

Job ID: 240-55880-1 (Continued)

Laboratory: TestAmerica Canton (Continued)

Method(s) 8260B: The method blank for preparation batch 240-199736 and analytical batch 240-199693 contained Methylene Chloride above the reporting limit (RL). This compound is considered a common laboratory contaminant. The associated sample(s) SED-1 (240-55880-12), SED-1 (240-55880-12[MS]), SED-1 (240-55880-12[MSD]) and (MB 240-199693/6) was not re-extracted and/or re-analyzed because the concentration of the common lab contaminant in the method blank was less than 5 times the RL.

Method(s) 8260A, 8260B: Internal standard (ISTD) response for the following samples was outside control limits: SED-2 DUP (240-55880-4), (240-55880-B-4-B MS) and (240-55880-B-4-C MSD). The sample(s) was re-extracted and/or re-analyzed with concurring results, and the original set of data has been reported.

Method(s) 8260B: The laboratory control sample (LCS) for preparation batch 240-199796 and analytical batch 240-199773 recovered outside control limits for the following analytes: Dichloro-difluoromethane, Chloromethane, Isopropylbenzene, 1,2-Dichloroethane, and Tetrachloroethene. These analytes were biased high in the LCS and were not detected in the associated samples SED-2 DUP (240-55880-4), (LCS 240-199773/5), (MB 240-199773/6), (240-55880-B-4-B MS) and (240-55880-B-4-C MSD); therefore, the data have been reported.

Method(s) 8260A, 8260B: The laboratory control sample (LCS) for batch 199891 recovered outside control limits for the following analytes: 1,2-Dichloroethane, 1,3-Dichlorobenzene, Chloromethane, Dichloro-difluoromethane, Isopropylbenzene and Tetrachloroethene. These analytes were biased high in the LCS and were not detected in the associated samples SED-2 (240-55880-3), (LCS 240-199891/5) and (MB 240-199891/6); therefore, the data have been reported.

Methylene Chloride was detected in method blank MB 240-199693/6 at a level exceeding the reporting limit. If the associated sample reported a result above the MDL and/or RL, the result has been flagged. Acetone was detected in method blank MB 240-199693/6 at a level that was above the method detection limit but below the reporting limit. The value should be considered an estimate, and has been flagged. If the associated sample reported a result above the MDL and/or RL, the result has been flagged. Refer to the QC report for details.

Methylene Chloride failed the recovery criteria high for LCS 240-199693/5.

1,2-Dichloroethane, Chloromethane, Dichlorodifluoromethane, Isopropylbenzene and Tetrachloroethene failed the recovery criteria high for LCS 240-199773/5.

1,2-Dichloroethane, 1,3-Dichlorobenzene, Chloromethane, Dichlorodifluoromethane, Isopropylbenzene and Tetrachloroethene failed the recovery criteria high for LCS 240-199891/5.

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

VOLATILE ORGANIC COMPOUNDS (GCMS)

Samples OW-24 (240-55880-1), SW-2 (240-55880-2), OW-18 (240-55880-5), OW-19 (240-55880-6), OW-13R (240-55880-7), FB-1 (240-55880-8), PUMP RINSATE BLANK (240-55880-9), SW-1 (240-55880-10), SW-1 DUP (240-55880-11), OW-5 (240-55880-13), OW-5 DUP (240-55880-14), OW-6 (240-55880-15), OW-2 (240-55880-16), OW-10R (240-55880-17), OW-22 (240-55880-18), OW-21 (240-55880-19), FB-2 (240-55880-20) and TRIP BLANK 1 (240-55880-21) were analyzed for volatile organic compounds (GCMS) in accordance with EPA SW-846 Method 8260B. The samples were analyzed on 10/01/2015, 10/03/2015, 10/05/2015 and 10/06/2015.

Acetone and Methylene Chloride were detected in method blank MB 240-199815/6, MB 240-200197/6, MB 240-200347/6 at levels that were above the method detection limit but below the reporting limit. The values should be considered estimates, and have been flagged. If the associated sample reported a result above the MDL and/or RL, the result has been flagged.

Bromomethane and Chloromethane exceeded the RPD limit for the MSD of sample OW-6MSD (240-55880-15) in batch 240-200361.

Samples OW-5 (240-55880-13)[1.33X], OW-5 DUP (240-55880-14)[1.67X], OW-6 (240-55880-15)[1.25X] and OW-2 (240-55880-16)[2.5X] required dilution prior to analysis. The reporting limits have been adjusted accordingly.

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

Case Narrative

Client: Cardinal Resources
Project/Site: Carroll & Dubies Superfund

TestAmerica Job ID: 240-55880-1

Job ID: 240-55880-1 (Continued)

Laboratory: TestAmerica Canton (Continued)

DISSOLVED GASES

Samples OW-24 (240-55880-1), OW-18 (240-55880-5), OW-19 (240-55880-6), OW-13R (240-55880-7), OW-5 (240-55880-13), OW-5 DUP (240-55880-14), OW-6 (240-55880-15), OW-2 (240-55880-16), OW-10R (240-55880-17), OW-22 (240-55880-18) and OW-21 (240-55880-19) were analyzed for dissolved gases in accordance with RSK_175. The samples were analyzed on 10/02/2015 and 10/05/2015.

Sample OW-10R (240-55880-17)[2X] required dilution prior to analysis. The reporting limits have been adjusted accordingly.

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

PERCENT SOLIDS

Samples SED-2 (240-55880-3), SED-2 DUP (240-55880-4) and SED-1 (240-55880-12) were analyzed for percent solids in accordance with EPA Method 160.3 MOD. The samples were analyzed on 09/28/2015.

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

Method Summary

Client: Cardinal Resources
Project/Site: Carroll & Dubies Superfund

TestAmerica Job ID: 240-55880-1

Method	Method Description	Protocol	Laboratory
8260B	Volatile Organic Compounds (GC/MS)	SW846	TAL CAN
RSK-175	Dissolved Gases (GC)	RSK	TAL CAN
Moisture	Percent Moisture	EPA	TAL CAN

Protocol References:

EPA = US Environmental Protection Agency

RSK = Sample Prep And Calculations For Dissolved Gas Analysis In Water Samples Using A GC Headspace Equilibration Technique, RSKSOP-175, Rev. 0, 8/11/94, USEPA Research Lab

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

Laboratory References:

TAL CAN = TestAmerica Canton, 4101 Shuffel Street NW, North Canton, OH 44720, TEL (330)497-9396

Sample Summary

Client: Cardinal Resources
Project/Site: Carroll & Dubies Superfund

TestAmerica Job ID: 240-55880-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
240-55880-1	OW-24	Water	09/23/15 11:55	09/26/15 09:45
240-55880-2	SW-2	Water	09/23/15 12:25	09/26/15 09:45
240-55880-3	SED-2	Solid	09/23/15 12:25	09/26/15 09:45
240-55880-4	SED-2 DUP	Solid	09/23/15 12:25	09/26/15 09:45
240-55880-5	OW-18	Water	09/23/15 13:15	09/26/15 09:45
240-55880-6	OW-19	Water	09/23/15 15:55	09/26/15 09:45
240-55880-7	OW-13R	Water	09/23/15 17:40	09/26/15 09:45
240-55880-8	FB-1	Water	09/23/15 16:30	09/26/15 09:45
240-55880-9	PUMP RINSATE BLANK	Water	09/23/15 16:35	09/26/15 09:45
240-55880-10	SW-1	Water	09/24/15 08:50	09/26/15 09:45
240-55880-11	SW-1 DUP	Water	09/24/15 08:50	09/26/15 09:45
240-55880-12	SED-1	Solid	09/24/15 08:50	09/26/15 09:45
240-55880-13	OW-5	Water	09/24/15 10:45	09/26/15 09:45
240-55880-14	OW-5 DUP	Water	09/24/15 10:45	09/26/15 09:45
240-55880-15	OW-6	Water	09/24/15 12:30	09/26/15 09:45
240-55880-16	OW-2	Water	09/24/15 14:15	09/26/15 09:45
240-55880-17	OW-10R	Water	09/24/15 15:35	09/26/15 09:45
240-55880-18	OW-22	Water	09/24/15 17:00	09/26/15 09:45
240-55880-19	OW-21	Water	09/24/15 18:00	09/26/15 09:45
240-55880-20	FB-2	Water	09/24/15 18:30	09/26/15 09:45
240-55880-21	TRIP BLANK 1	Water	09/24/15 18:30	09/26/15 09:45

Detection Summary

Client: Cardinal Resources
Project/Site: Carroll & Dubies Superfund

TestAmerica Job ID: 240-55880-1

Client Sample ID: OW-24

Lab Sample ID: 240-55880-1

No Detections.

Client Sample ID: SW-2

Lab Sample ID: 240-55880-2

No Detections.

Client Sample ID: SED-2

Lab Sample ID: 240-55880-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Acetone	170		150		ug/Kg	1	✱	8260B	Total/NA

Client Sample ID: SED-2 DUP

Lab Sample ID: 240-55880-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Acetone	260		140		ug/Kg	1	✱	8260B	Total/NA

Client Sample ID: OW-18

Lab Sample ID: 240-55880-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Benzene	3.5		1.0		ug/L	1		8260B	Total/NA
Chlorobenzene	14		1.0		ug/L	1		8260B	Total/NA
Methane	530		0.50		ug/L	1		RSK-175	Total/NA

Client Sample ID: OW-19

Lab Sample ID: 240-55880-6

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chlorobenzene	6.7		1.0		ug/L	1		8260B	Total/NA
cis-1,2-Dichloroethene	1.2		1.0		ug/L	1		8260B	Total/NA
Methane	590		0.50		ug/L	1		RSK-175	Total/NA

Client Sample ID: OW-13R

Lab Sample ID: 240-55880-7

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Benzene	5.2		1.0		ug/L	1		8260B	Total/NA
Methane	370		0.50		ug/L	1		RSK-175	Total/NA

Client Sample ID: FB-1

Lab Sample ID: 240-55880-8

No Detections.

Client Sample ID: PUMP RINSATE BLANK

Lab Sample ID: 240-55880-9

No Detections.

Client Sample ID: SW-1

Lab Sample ID: 240-55880-10

No Detections.

Client Sample ID: SW-1 DUP

Lab Sample ID: 240-55880-11

No Detections.

This Detection Summary does not include radiochemical test results.

TestAmerica Canton

Detection Summary

Client: Cardinal Resources
Project/Site: Carroll & Dubies Superfund

TestAmerica Job ID: 240-55880-1

Client Sample ID: SED-1

Lab Sample ID: 240-55880-12

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Acetone	160		150		ug/Kg	1	✱	8260B	Total/NA

Client Sample ID: OW-5

Lab Sample ID: 240-55880-13

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Tetrachloroethene	14		1.3		ug/L	1.33		8260B	Total/NA
Trichloroethene	4.2		1.3		ug/L	1.33		8260B	Total/NA
cis-1,2-Dichloroethene	31		1.3		ug/L	1.33		8260B	Total/NA
Methane	0.66		0.50		ug/L	1		RSK-175	Total/NA

Client Sample ID: OW-5 DUP

Lab Sample ID: 240-55880-14

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Tetrachloroethene	16		1.7		ug/L	1.67		8260B	Total/NA
Trichloroethene	4.5		1.7		ug/L	1.67		8260B	Total/NA
cis-1,2-Dichloroethene	33		1.7		ug/L	1.67		8260B	Total/NA

Client Sample ID: OW-6

Lab Sample ID: 240-55880-15

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Tetrachloroethene	38		1.3		ug/L	1.25		8260B	Total/NA
Trichloroethene	7.7		1.3		ug/L	1.25		8260B	Total/NA
cis-1,2-Dichloroethene	15		1.3		ug/L	1.25		8260B	Total/NA

Client Sample ID: OW-2

Lab Sample ID: 240-55880-16

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Tetrachloroethene	74		2.5		ug/L	2.5		8260B	Total/NA
Trichloroethene	10		2.5		ug/L	2.5		8260B	Total/NA
cis-1,2-Dichloroethene	54		2.5		ug/L	2.5		8260B	Total/NA

Client Sample ID: OW-10R

Lab Sample ID: 240-55880-17

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Benzene	3.8		1.0		ug/L	1		8260B	Total/NA
Chlorobenzene	1.3		1.0		ug/L	1		8260B	Total/NA
Chloroethane	2.7		1.0		ug/L	1		8260B	Total/NA
Dichlorodifluoromethane	1.7		1.0		ug/L	1		8260B	Total/NA
Methane	1700		1.0		ug/L	2		RSK-175	Total/NA

Client Sample ID: OW-22

Lab Sample ID: 240-55880-18

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Benzene	2.0		1.0		ug/L	1		8260B	Total/NA
Chlorobenzene	4.3		1.0		ug/L	1		8260B	Total/NA
Methane	1600		0.50		ug/L	1		RSK-175	Total/NA

Client Sample ID: OW-21

Lab Sample ID: 240-55880-19

This Detection Summary does not include radiochemical test results.

TestAmerica Canton

Detection Summary

Client: Cardinal Resources
Project/Site: Carroll & Dubies Superfund

TestAmerica Job ID: 240-55880-1

Client Sample ID: OW-21 (Continued)

Lab Sample ID: 240-55880-19

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Benzene	1.4		1.0		ug/L	1		8260B	Total/NA
Methane	100		0.50		ug/L	1		RSK-175	Total/NA

Client Sample ID: FB-2

Lab Sample ID: 240-55880-20

No Detections.

Client Sample ID: TRIP BLANK 1

Lab Sample ID: 240-55880-21

No Detections.

This Detection Summary does not include radiochemical test results.

TestAmerica Canton

Client Sample Results

Client: Cardinal Resources
Project/Site: Carroll & Dubies Superfund

TestAmerica Job ID: 240-55880-1

Client Sample ID: OW-24

Date Collected: 09/23/15 11:55

Date Received: 09/26/15 09:45

Lab Sample ID: 240-55880-1

Matrix: Water

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	ND		10		ug/L			10/06/15 15:21	1
Benzene	ND		1.0		ug/L			10/06/15 15:21	1
Dichlorobromomethane	ND		1.0		ug/L			10/06/15 15:21	1
Bromoform	ND		1.0		ug/L			10/06/15 15:21	1
Bromomethane	ND		1.0		ug/L			10/06/15 15:21	1
2-Butanone (MEK)	ND		10		ug/L			10/06/15 15:21	1
Carbon disulfide	ND		1.0		ug/L			10/06/15 15:21	1
Carbon tetrachloride	ND		1.0		ug/L			10/06/15 15:21	1
Chlorobenzene	ND		1.0		ug/L			10/06/15 15:21	1
Chloroethane	ND		1.0		ug/L			10/06/15 15:21	1
Chloroform	ND		1.0		ug/L			10/06/15 15:21	1
Chloromethane	ND		1.0		ug/L			10/06/15 15:21	1
1,1-Dichloroethane	ND		1.0		ug/L			10/06/15 15:21	1
1,2-Dichloroethane	ND		1.0		ug/L			10/06/15 15:21	1
1,1-Dichloroethene	ND		1.0		ug/L			10/06/15 15:21	1
1,2-Dichloropropane	ND		1.0		ug/L			10/06/15 15:21	1
cis-1,3-Dichloropropene	ND		1.0		ug/L			10/06/15 15:21	1
trans-1,3-Dichloropropene	ND		1.0		ug/L			10/06/15 15:21	1
Ethylbenzene	ND		1.0		ug/L			10/06/15 15:21	1
2-Hexanone	ND		10		ug/L			10/06/15 15:21	1
Methylene Chloride	ND		1.0		ug/L			10/06/15 15:21	1
4-Methyl-2-pentanone (MIBK)	ND		10		ug/L			10/06/15 15:21	1
Styrene	ND		1.0		ug/L			10/06/15 15:21	1
1,1,2,2-Tetrachloroethane	ND		1.0		ug/L			10/06/15 15:21	1
Tetrachloroethene	ND		1.0		ug/L			10/06/15 15:21	1
Toluene	ND		1.0		ug/L			10/06/15 15:21	1
Trichloroethene	ND		1.0		ug/L			10/06/15 15:21	1
Vinyl chloride	ND		1.0		ug/L			10/06/15 15:21	1
Xylenes, Total	ND		2.0		ug/L			10/06/15 15:21	1
1,1,1-Trichloroethane	ND		1.0		ug/L			10/06/15 15:21	1
1,1,2-Trichloroethane	ND		1.0		ug/L			10/06/15 15:21	1
Cyclohexane	ND		1.0		ug/L			10/06/15 15:21	1
1,2-Dibromo-3-Chloropropane	ND		2.0		ug/L			10/06/15 15:21	1
Ethylene Dibromide	ND		1.0		ug/L			10/06/15 15:21	1
Dichlorodifluoromethane	ND		1.0		ug/L			10/06/15 15:21	1
cis-1,2-Dichloroethene	ND		1.0		ug/L			10/06/15 15:21	1
trans-1,2-Dichloroethene	ND		1.0		ug/L			10/06/15 15:21	1
Isopropylbenzene	ND		1.0		ug/L			10/06/15 15:21	1
Methyl acetate	ND		10		ug/L			10/06/15 15:21	1
Methyl tert-butyl ether	ND		1.0		ug/L			10/06/15 15:21	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		1.0		ug/L			10/06/15 15:21	1
1,2,4-Trichlorobenzene	ND		1.0		ug/L			10/06/15 15:21	1
1,2-Dichlorobenzene	ND		1.0		ug/L			10/06/15 15:21	1
1,3-Dichlorobenzene	ND		1.0		ug/L			10/06/15 15:21	1
1,4-Dichlorobenzene	ND		1.0		ug/L			10/06/15 15:21	1
Trichlorofluoromethane	ND		1.0		ug/L			10/06/15 15:21	1
Chlorodibromomethane	ND		1.0		ug/L			10/06/15 15:21	1
Methylcyclohexane	ND		1.0		ug/L			10/06/15 15:21	1

TestAmerica Canton

Client Sample Results

Client: Cardinal Resources
Project/Site: Carroll & Dubies Superfund

TestAmerica Job ID: 240-55880-1

Client Sample ID: OW-24

Date Collected: 09/23/15 11:55

Date Received: 09/26/15 09:45

Lab Sample ID: 240-55880-1

Matrix: Water

<i>Surrogate</i>	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>				<i>Prepared</i>	<i>Analyzed</i>	<i>Dil Fac</i>
1,2-Dichloroethane-d4 (Surr)	97		78 - 125					10/06/15 15:21	1
4-Bromofluorobenzene (Surr)	88		61 - 120					10/06/15 15:21	1
Toluene-d8 (Surr)	91		80 - 120					10/06/15 15:21	1
Dibromofluoromethane (Surr)	93		79 - 120					10/06/15 15:21	1

Method: RSK-175 - Dissolved Gases (GC)									
<i>Analyte</i>	<i>Result</i>	<i>Qualifier</i>	<i>RL</i>	<i>MDL</i>	<i>Unit</i>	<i>D</i>	<i>Prepared</i>	<i>Analyzed</i>	<i>Dil Fac</i>
Methane	ND		0.50		ug/L			10/02/15 16:02	1
Ethane	ND		0.50		ug/L			10/02/15 16:02	1
Ethylene	ND		0.50		ug/L			10/02/15 16:02	1

<i>Surrogate</i>	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>				<i>Prepared</i>	<i>Analyzed</i>	<i>Dil Fac</i>
1,1,1-Trifluoroethane	106		66 - 132					10/02/15 16:02	1

TestAmerica Canton

Client Sample Results

Client: Cardinal Resources
Project/Site: Carroll & Dubies Superfund

TestAmerica Job ID: 240-55880-1

Client Sample ID: SW-2
Date Collected: 09/23/15 12:25
Date Received: 09/26/15 09:45

Lab Sample ID: 240-55880-2
Matrix: Water

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	ND		10		ug/L			10/01/15 09:16	1
Benzene	ND		1.0		ug/L			10/01/15 09:16	1
Dichlorobromomethane	ND		1.0		ug/L			10/01/15 09:16	1
Bromoform	ND		1.0		ug/L			10/01/15 09:16	1
Bromomethane	ND		1.0		ug/L			10/01/15 09:16	1
2-Butanone (MEK)	ND		10		ug/L			10/01/15 09:16	1
Carbon disulfide	ND		1.0		ug/L			10/01/15 09:16	1
Carbon tetrachloride	ND		1.0		ug/L			10/01/15 09:16	1
Chlorobenzene	ND		1.0		ug/L			10/01/15 09:16	1
Chloroethane	ND		1.0		ug/L			10/01/15 09:16	1
Chloroform	ND		1.0		ug/L			10/01/15 09:16	1
Chloromethane	ND		1.0		ug/L			10/01/15 09:16	1
1,1-Dichloroethane	ND		1.0		ug/L			10/01/15 09:16	1
1,2-Dichloroethane	ND		1.0		ug/L			10/01/15 09:16	1
1,1-Dichloroethene	ND		1.0		ug/L			10/01/15 09:16	1
1,2-Dichloropropane	ND		1.0		ug/L			10/01/15 09:16	1
cis-1,3-Dichloropropene	ND		1.0		ug/L			10/01/15 09:16	1
trans-1,3-Dichloropropene	ND		1.0		ug/L			10/01/15 09:16	1
Ethylbenzene	ND		1.0		ug/L			10/01/15 09:16	1
2-Hexanone	ND		10		ug/L			10/01/15 09:16	1
Methylene Chloride	ND		1.0		ug/L			10/01/15 09:16	1
4-Methyl-2-pentanone (MIBK)	ND		10		ug/L			10/01/15 09:16	1
Styrene	ND		1.0		ug/L			10/01/15 09:16	1
1,1,2,2-Tetrachloroethane	ND		1.0		ug/L			10/01/15 09:16	1
Tetrachloroethene	ND		1.0		ug/L			10/01/15 09:16	1
Toluene	ND		1.0		ug/L			10/01/15 09:16	1
Trichloroethene	ND		1.0		ug/L			10/01/15 09:16	1
Vinyl chloride	ND		1.0		ug/L			10/01/15 09:16	1
Xylenes, Total	ND		2.0		ug/L			10/01/15 09:16	1
1,1,1-Trichloroethane	ND		1.0		ug/L			10/01/15 09:16	1
1,1,2-Trichloroethane	ND		1.0		ug/L			10/01/15 09:16	1
Cyclohexane	ND		1.0		ug/L			10/01/15 09:16	1
1,2-Dibromo-3-Chloropropane	ND		2.0		ug/L			10/01/15 09:16	1
Ethylene Dibromide	ND		1.0		ug/L			10/01/15 09:16	1
Dichlorodifluoromethane	ND		1.0		ug/L			10/01/15 09:16	1
cis-1,2-Dichloroethene	ND		1.0		ug/L			10/01/15 09:16	1
trans-1,2-Dichloroethene	ND		1.0		ug/L			10/01/15 09:16	1
Isopropylbenzene	ND		1.0		ug/L			10/01/15 09:16	1
Methyl acetate	ND		10		ug/L			10/01/15 09:16	1
Methyl tert-butyl ether	ND		1.0		ug/L			10/01/15 09:16	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		1.0		ug/L			10/01/15 09:16	1
1,2,4-Trichlorobenzene	ND		1.0		ug/L			10/01/15 09:16	1
1,2-Dichlorobenzene	ND		1.0		ug/L			10/01/15 09:16	1
1,3-Dichlorobenzene	ND		1.0		ug/L			10/01/15 09:16	1
1,4-Dichlorobenzene	ND		1.0		ug/L			10/01/15 09:16	1
Trichlorofluoromethane	ND		1.0		ug/L			10/01/15 09:16	1
Chlorodibromomethane	ND		1.0		ug/L			10/01/15 09:16	1
Methylcyclohexane	ND		1.0		ug/L			10/01/15 09:16	1

TestAmerica Canton

Client Sample Results

Client: Cardinal Resources
Project/Site: Carroll & Dubies Superfund

TestAmerica Job ID: 240-55880-1

Client Sample ID: SW-2

Date Collected: 09/23/15 12:25

Date Received: 09/26/15 09:45

Lab Sample ID: 240-55880-2

Matrix: Water

<i>Surrogate</i>	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>	<i>Prepared</i>	<i>Analyzed</i>	<i>Dil Fac</i>
1,2-Dichloroethane-d4 (Surr)	115		78 - 125		10/01/15 09:16	1
4-Bromofluorobenzene (Surr)	74		61 - 120		10/01/15 09:16	1
Toluene-d8 (Surr)	82		80 - 120		10/01/15 09:16	1
Dibromofluoromethane (Surr)	107		79 - 120		10/01/15 09:16	1

Client Sample Results

Client: Cardinal Resources
Project/Site: Carroll & Dubies Superfund

TestAmerica Job ID: 240-55880-1

Client Sample ID: SED-2

Date Collected: 09/23/15 12:25

Date Received: 09/26/15 09:45

Lab Sample ID: 240-55880-3

Matrix: Solid

Percent Solids: 13.6

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	170		150		ug/Kg	☼	10/01/15 13:17	10/01/15 20:13	1
Benzene	ND		37		ug/Kg	☼	10/01/15 13:17	10/01/15 20:13	1
Dichlorobromomethane	ND		37		ug/Kg	☼	10/01/15 13:17	10/01/15 20:13	1
Bromoform	ND		37		ug/Kg	☼	10/01/15 13:17	10/01/15 20:13	1
Bromomethane	ND		37		ug/Kg	☼	10/01/15 13:17	10/01/15 20:13	1
2-Butanone (MEK)	ND		150		ug/Kg	☼	10/01/15 13:17	10/01/15 20:13	1
Carbon disulfide	ND		37		ug/Kg	☼	10/01/15 13:17	10/01/15 20:13	1
Carbon tetrachloride	ND		37		ug/Kg	☼	10/01/15 13:17	10/01/15 20:13	1
Chlorobenzene	ND		37		ug/Kg	☼	10/01/15 13:17	10/01/15 20:13	1
Chloroethane	ND		37		ug/Kg	☼	10/01/15 13:17	10/01/15 20:13	1
Chloroform	ND		37		ug/Kg	☼	10/01/15 13:17	10/01/15 20:13	1
Chloromethane	ND		37		ug/Kg	☼	10/01/15 13:17	10/01/15 20:13	1
1,1-Dichloroethane	ND		37		ug/Kg	☼	10/01/15 13:17	10/01/15 20:13	1
1,2-Dichloroethane	ND		37		ug/Kg	☼	10/01/15 13:17	10/01/15 20:13	1
1,1-Dichloroethene	ND		37		ug/Kg	☼	10/01/15 13:17	10/01/15 20:13	1
1,2-Dichloropropane	ND		37		ug/Kg	☼	10/01/15 13:17	10/01/15 20:13	1
cis-1,3-Dichloropropene	ND		37		ug/Kg	☼	10/01/15 13:17	10/01/15 20:13	1
trans-1,3-Dichloropropene	ND		37		ug/Kg	☼	10/01/15 13:17	10/01/15 20:13	1
Ethylbenzene	ND		37		ug/Kg	☼	10/01/15 13:17	10/01/15 20:13	1
2-Hexanone	ND		150		ug/Kg	☼	10/01/15 13:17	10/01/15 20:13	1
Methylene Chloride	ND		37		ug/Kg	☼	10/01/15 13:17	10/01/15 20:13	1
4-Methyl-2-pentanone (MIBK)	ND		150		ug/Kg	☼	10/01/15 13:17	10/01/15 20:13	1
Styrene	ND		37		ug/Kg	☼	10/01/15 13:17	10/01/15 20:13	1
1,1,2,2-Tetrachloroethane	ND		37		ug/Kg	☼	10/01/15 13:17	10/01/15 20:13	1
Tetrachloroethene	ND		37		ug/Kg	☼	10/01/15 13:17	10/01/15 20:13	1
Toluene	ND		37		ug/Kg	☼	10/01/15 13:17	10/01/15 20:13	1
Trichloroethene	ND		37		ug/Kg	☼	10/01/15 13:17	10/01/15 20:13	1
Vinyl chloride	ND		37		ug/Kg	☼	10/01/15 13:17	10/01/15 20:13	1
Xylenes, Total	ND		73		ug/Kg	☼	10/01/15 13:17	10/01/15 20:13	1
1,1,1-Trichloroethane	ND		37		ug/Kg	☼	10/01/15 13:17	10/01/15 20:13	1
1,1,2-Trichloroethane	ND		37		ug/Kg	☼	10/01/15 13:17	10/01/15 20:13	1
Cyclohexane	ND		73		ug/Kg	☼	10/01/15 13:17	10/01/15 20:13	1
1,2-Dibromo-3-Chloropropane	ND		73		ug/Kg	☼	10/01/15 13:17	10/01/15 20:13	1
Ethylene Dibromide	ND		37		ug/Kg	☼	10/01/15 13:17	10/01/15 20:13	1
Dichlorodifluoromethane	ND		37		ug/Kg	☼	10/01/15 13:17	10/01/15 20:13	1
cis-1,2-Dichloroethene	ND		37		ug/Kg	☼	10/01/15 13:17	10/01/15 20:13	1
trans-1,2-Dichloroethene	ND		37		ug/Kg	☼	10/01/15 13:17	10/01/15 20:13	1
Isopropylbenzene	ND		37		ug/Kg	☼	10/01/15 13:17	10/01/15 20:13	1
Methyl acetate	ND		73		ug/Kg	☼	10/01/15 13:17	10/01/15 20:13	1
Methyl tert-butyl ether	ND		37		ug/Kg	☼	10/01/15 13:17	10/01/15 20:13	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		37		ug/Kg	☼	10/01/15 13:17	10/01/15 20:13	1
1,2,4-Trichlorobenzene	ND		37		ug/Kg	☼	10/01/15 13:17	10/01/15 20:13	1
1,2-Dichlorobenzene	ND		37		ug/Kg	☼	10/01/15 13:17	10/01/15 20:13	1
1,3-Dichlorobenzene	ND		37		ug/Kg	☼	10/01/15 13:17	10/01/15 20:13	1
1,4-Dichlorobenzene	ND		37		ug/Kg	☼	10/01/15 13:17	10/01/15 20:13	1
Trichlorofluoromethane	ND		37		ug/Kg	☼	10/01/15 13:17	10/01/15 20:13	1
Chlorodibromomethane	ND		37		ug/Kg	☼	10/01/15 13:17	10/01/15 20:13	1
Methylcyclohexane	ND		73		ug/Kg	☼	10/01/15 13:17	10/01/15 20:13	1

TestAmerica Canton

Client Sample Results

Client: Cardinal Resources
Project/Site: Carroll & Dubies Superfund

TestAmerica Job ID: 240-55880-1

Client Sample ID: SED-2

Date Collected: 09/23/15 12:25

Date Received: 09/26/15 09:45

Lab Sample ID: 240-55880-3

Matrix: Solid

Percent Solids: 13.6

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	114		58 - 123	10/01/15 13:17	10/01/15 20:13	1
4-Bromofluorobenzene (Surr)	118		52 - 136	10/01/15 13:17	10/01/15 20:13	1
Toluene-d8 (Surr)	112		67 - 125	10/01/15 13:17	10/01/15 20:13	1
Dibromofluoromethane (Surr)	100		37 - 132	10/01/15 13:17	10/01/15 20:13	1

General Chemistry

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	14		0.10		%			09/28/15 16:09	1
Percent Moisture	86		0.10		%			09/28/15 16:09	1

TestAmerica Canton

Client Sample Results

Client: Cardinal Resources
Project/Site: Carroll & Dubies Superfund

TestAmerica Job ID: 240-55880-1

Client Sample ID: SED-2 DUP

Date Collected: 09/23/15 12:25

Date Received: 09/26/15 09:45

Lab Sample ID: 240-55880-4

Matrix: Solid

Percent Solids: 14.0

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	260		140		ug/Kg	☆	09/30/15 14:52	09/30/15 19:51	1
Benzene	ND		35		ug/Kg	☆	09/30/15 14:52	09/30/15 19:51	1
Dichlorobromomethane	ND		35		ug/Kg	☆	09/30/15 14:52	09/30/15 19:51	1
Bromoform	ND		35		ug/Kg	☆	09/30/15 14:52	09/30/15 19:51	1
Bromomethane	ND		35		ug/Kg	☆	09/30/15 14:52	09/30/15 19:51	1
2-Butanone (MEK)	ND		140		ug/Kg	☆	09/30/15 14:52	09/30/15 19:51	1
Carbon disulfide	ND		35		ug/Kg	☆	09/30/15 14:52	09/30/15 19:51	1
Carbon tetrachloride	ND		35		ug/Kg	☆	09/30/15 14:52	09/30/15 19:51	1
Chlorobenzene	ND		35		ug/Kg	☆	09/30/15 14:52	09/30/15 19:51	1
Chloroethane	ND		35		ug/Kg	☆	09/30/15 14:52	09/30/15 19:51	1
Chloroform	ND		35		ug/Kg	☆	09/30/15 14:52	09/30/15 19:51	1
Chloromethane	ND		35		ug/Kg	☆	09/30/15 14:52	09/30/15 19:51	1
1,1-Dichloroethane	ND		35		ug/Kg	☆	09/30/15 14:52	09/30/15 19:51	1
1,2-Dichloroethane	ND		35		ug/Kg	☆	09/30/15 14:52	09/30/15 19:51	1
1,1-Dichloroethene	ND		35		ug/Kg	☆	09/30/15 14:52	09/30/15 19:51	1
1,2-Dichloropropane	ND		35		ug/Kg	☆	09/30/15 14:52	09/30/15 19:51	1
cis-1,3-Dichloropropene	ND		35		ug/Kg	☆	09/30/15 14:52	09/30/15 19:51	1
trans-1,3-Dichloropropene	ND		35		ug/Kg	☆	09/30/15 14:52	09/30/15 19:51	1
Ethylbenzene	ND		35		ug/Kg	☆	09/30/15 14:52	09/30/15 19:51	1
2-Hexanone	ND		140		ug/Kg	☆	09/30/15 14:52	09/30/15 19:51	1
Methylene Chloride	ND	F2	35		ug/Kg	☆	09/30/15 14:52	09/30/15 19:51	1
4-Methyl-2-pentanone (MIBK)	ND		140		ug/Kg	☆	09/30/15 14:52	09/30/15 19:51	1
Styrene	ND	F1	35		ug/Kg	☆	09/30/15 14:52	09/30/15 19:51	1
1,1,2,2-Tetrachloroethane	ND	*	35		ug/Kg	☆	09/30/15 14:52	09/30/15 19:51	1
Tetrachloroethene	ND		35		ug/Kg	☆	09/30/15 14:52	09/30/15 19:51	1
Toluene	ND		35		ug/Kg	☆	09/30/15 14:52	09/30/15 19:51	1
Trichloroethene	ND		35		ug/Kg	☆	09/30/15 14:52	09/30/15 19:51	1
Vinyl chloride	ND		35		ug/Kg	☆	09/30/15 14:52	09/30/15 19:51	1
Xylenes, Total	ND		69		ug/Kg	☆	09/30/15 14:52	09/30/15 19:51	1
1,1,1-Trichloroethane	ND		35		ug/Kg	☆	09/30/15 14:52	09/30/15 19:51	1
1,1,2-Trichloroethane	ND		35		ug/Kg	☆	09/30/15 14:52	09/30/15 19:51	1
Cyclohexane	ND		69		ug/Kg	☆	09/30/15 14:52	09/30/15 19:51	1
1,2-Dibromo-3-Chloropropane	ND	* F2	69		ug/Kg	☆	09/30/15 14:52	09/30/15 19:51	1
Ethylene Dibromide	ND		35		ug/Kg	☆	09/30/15 14:52	09/30/15 19:51	1
Dichlorodifluoromethane	ND	F1	35		ug/Kg	☆	09/30/15 14:52	09/30/15 19:51	1
cis-1,2-Dichloroethene	ND		35		ug/Kg	☆	09/30/15 14:52	09/30/15 19:51	1
trans-1,2-Dichloroethene	ND		35		ug/Kg	☆	09/30/15 14:52	09/30/15 19:51	1
Isopropylbenzene	ND		35		ug/Kg	☆	09/30/15 14:52	09/30/15 19:51	1
Methyl acetate	ND		69		ug/Kg	☆	09/30/15 14:52	09/30/15 19:51	1
Methyl tert-butyl ether	ND		35		ug/Kg	☆	09/30/15 14:52	09/30/15 19:51	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		35		ug/Kg	☆	09/30/15 14:52	09/30/15 19:51	1
1,2,4-Trichlorobenzene	ND	*	35		ug/Kg	☆	09/30/15 14:52	09/30/15 19:51	1
1,2-Dichlorobenzene	ND	*	35		ug/Kg	☆	09/30/15 14:52	09/30/15 19:51	1
1,3-Dichlorobenzene	ND	*	35		ug/Kg	☆	09/30/15 14:52	09/30/15 19:51	1
1,4-Dichlorobenzene	ND	*	35		ug/Kg	☆	09/30/15 14:52	09/30/15 19:51	1
Trichlorofluoromethane	ND		35		ug/Kg	☆	09/30/15 14:52	09/30/15 19:51	1
Chlorodibromomethane	ND		35		ug/Kg	☆	09/30/15 14:52	09/30/15 19:51	1
Methylcyclohexane	ND		69		ug/Kg	☆	09/30/15 14:52	09/30/15 19:51	1

Client Sample Results

Client: Cardinal Resources
Project/Site: Carroll & Dubies Superfund

TestAmerica Job ID: 240-55880-1

Client Sample ID: SED-2 DUP

Lab Sample ID: 240-55880-4

Date Collected: 09/23/15 12:25

Matrix: Solid

Date Received: 09/26/15 09:45

Percent Solids: 14.0

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	114		58 - 123	09/30/15 14:52	09/30/15 19:51	1
4-Bromofluorobenzene (Surr)	109	*	52 - 136	09/30/15 14:52	09/30/15 19:51	1
Toluene-d8 (Surr)	108		67 - 125	09/30/15 14:52	09/30/15 19:51	1
Dibromofluoromethane (Surr)	100		37 - 132	09/30/15 14:52	09/30/15 19:51	1

General Chemistry

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	14		0.10		%			09/28/15 16:09	1
Percent Moisture	86		0.10		%			09/28/15 16:09	1

TestAmerica Canton

Client Sample Results

Client: Cardinal Resources
Project/Site: Carroll & Dubies Superfund

TestAmerica Job ID: 240-55880-1

Client Sample ID: OW-18

Date Collected: 09/23/15 13:15

Date Received: 09/26/15 09:45

Lab Sample ID: 240-55880-5

Matrix: Water

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	ND		10		ug/L			10/03/15 08:58	1
Benzene	3.5		1.0		ug/L			10/03/15 08:58	1
Dichlorobromomethane	ND		1.0		ug/L			10/03/15 08:58	1
Bromoform	ND		1.0		ug/L			10/03/15 08:58	1
Bromomethane	ND		1.0		ug/L			10/03/15 08:58	1
2-Butanone (MEK)	ND		10		ug/L			10/03/15 08:58	1
Carbon disulfide	ND		1.0		ug/L			10/03/15 08:58	1
Carbon tetrachloride	ND		1.0		ug/L			10/03/15 08:58	1
Chlorobenzene	14		1.0		ug/L			10/03/15 08:58	1
Chloroethane	ND		1.0		ug/L			10/03/15 08:58	1
Chloroform	ND		1.0		ug/L			10/03/15 08:58	1
Chloromethane	ND		1.0		ug/L			10/03/15 08:58	1
1,1-Dichloroethane	ND		1.0		ug/L			10/03/15 08:58	1
1,2-Dichloroethane	ND		1.0		ug/L			10/03/15 08:58	1
1,1-Dichloroethene	ND		1.0		ug/L			10/03/15 08:58	1
1,2-Dichloropropane	ND		1.0		ug/L			10/03/15 08:58	1
cis-1,3-Dichloropropene	ND		1.0		ug/L			10/03/15 08:58	1
trans-1,3-Dichloropropene	ND		1.0		ug/L			10/03/15 08:58	1
Ethylbenzene	ND		1.0		ug/L			10/03/15 08:58	1
2-Hexanone	ND		10		ug/L			10/03/15 08:58	1
Methylene Chloride	ND		1.0		ug/L			10/03/15 08:58	1
4-Methyl-2-pentanone (MIBK)	ND		10		ug/L			10/03/15 08:58	1
Styrene	ND		1.0		ug/L			10/03/15 08:58	1
1,1,2,2-Tetrachloroethane	ND		1.0		ug/L			10/03/15 08:58	1
Tetrachloroethene	ND		1.0		ug/L			10/03/15 08:58	1
Toluene	ND		1.0		ug/L			10/03/15 08:58	1
Trichloroethene	ND		1.0		ug/L			10/03/15 08:58	1
Vinyl chloride	ND		1.0		ug/L			10/03/15 08:58	1
Xylenes, Total	ND		2.0		ug/L			10/03/15 08:58	1
1,1,1-Trichloroethane	ND		1.0		ug/L			10/03/15 08:58	1
1,1,2-Trichloroethane	ND		1.0		ug/L			10/03/15 08:58	1
Cyclohexane	ND		1.0		ug/L			10/03/15 08:58	1
1,2-Dibromo-3-Chloropropane	ND		2.0		ug/L			10/03/15 08:58	1
Ethylene Dibromide	ND		1.0		ug/L			10/03/15 08:58	1
Dichlorodifluoromethane	ND		1.0		ug/L			10/03/15 08:58	1
cis-1,2-Dichloroethene	ND		1.0		ug/L			10/03/15 08:58	1
trans-1,2-Dichloroethene	ND		1.0		ug/L			10/03/15 08:58	1
Isopropylbenzene	ND		1.0		ug/L			10/03/15 08:58	1
Methyl acetate	ND		10		ug/L			10/03/15 08:58	1
Methyl tert-butyl ether	ND		1.0		ug/L			10/03/15 08:58	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		1.0		ug/L			10/03/15 08:58	1
1,2,4-Trichlorobenzene	ND		1.0		ug/L			10/03/15 08:58	1
1,2-Dichlorobenzene	ND		1.0		ug/L			10/03/15 08:58	1
1,3-Dichlorobenzene	ND		1.0		ug/L			10/03/15 08:58	1
1,4-Dichlorobenzene	ND		1.0		ug/L			10/03/15 08:58	1
Trichlorofluoromethane	ND		1.0		ug/L			10/03/15 08:58	1
Chlorodibromomethane	ND		1.0		ug/L			10/03/15 08:58	1
Methylcyclohexane	ND		1.0		ug/L			10/03/15 08:58	1

TestAmerica Canton

Client Sample Results

Client: Cardinal Resources
Project/Site: Carroll & Dubies Superfund

TestAmerica Job ID: 240-55880-1

Client Sample ID: OW-18

Date Collected: 09/23/15 13:15

Date Received: 09/26/15 09:45

Lab Sample ID: 240-55880-5

Matrix: Water

<i>Surrogate</i>	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>				<i>Prepared</i>	<i>Analyzed</i>	<i>Dil Fac</i>
1,2-Dichloroethane-d4 (Surr)	107		78 - 125					10/03/15 08:58	1
4-Bromofluorobenzene (Surr)	82		61 - 120					10/03/15 08:58	1
Toluene-d8 (Surr)	82		80 - 120					10/03/15 08:58	1
Dibromofluoromethane (Surr)	99		79 - 120					10/03/15 08:58	1

Method: RSK-175 - Dissolved Gases (GC)									
<i>Analyte</i>	<i>Result</i>	<i>Qualifier</i>	<i>RL</i>	<i>MDL</i>	<i>Unit</i>	<i>D</i>	<i>Prepared</i>	<i>Analyzed</i>	<i>Dil Fac</i>
Methane	530		0.50		ug/L			10/02/15 16:17	1
Ethane	ND		0.50		ug/L			10/02/15 16:17	1
Ethylene	ND		0.50		ug/L			10/02/15 16:17	1

<i>Surrogate</i>	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>				<i>Prepared</i>	<i>Analyzed</i>	<i>Dil Fac</i>
1,1,1-Trifluoroethane	107		66 - 132					10/02/15 16:17	1

Client Sample Results

Client: Cardinal Resources
Project/Site: Carroll & Dubies Superfund

TestAmerica Job ID: 240-55880-1

Client Sample ID: OW-19

Date Collected: 09/23/15 15:55

Date Received: 09/26/15 09:45

Lab Sample ID: 240-55880-6

Matrix: Water

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	ND		10		ug/L			10/03/15 09:20	1
Benzene	ND		1.0		ug/L			10/03/15 09:20	1
Dichlorobromomethane	ND		1.0		ug/L			10/03/15 09:20	1
Bromoform	ND		1.0		ug/L			10/03/15 09:20	1
Bromomethane	ND		1.0		ug/L			10/03/15 09:20	1
2-Butanone (MEK)	ND		10		ug/L			10/03/15 09:20	1
Carbon disulfide	ND		1.0		ug/L			10/03/15 09:20	1
Carbon tetrachloride	ND		1.0		ug/L			10/03/15 09:20	1
Chlorobenzene	6.7		1.0		ug/L			10/03/15 09:20	1
Chloroethane	ND		1.0		ug/L			10/03/15 09:20	1
Chloroform	ND		1.0		ug/L			10/03/15 09:20	1
Chloromethane	ND		1.0		ug/L			10/03/15 09:20	1
1,1-Dichloroethane	ND		1.0		ug/L			10/03/15 09:20	1
1,2-Dichloroethane	ND		1.0		ug/L			10/03/15 09:20	1
1,1-Dichloroethene	ND		1.0		ug/L			10/03/15 09:20	1
1,2-Dichloropropane	ND		1.0		ug/L			10/03/15 09:20	1
cis-1,3-Dichloropropene	ND		1.0		ug/L			10/03/15 09:20	1
trans-1,3-Dichloropropene	ND		1.0		ug/L			10/03/15 09:20	1
Ethylbenzene	ND		1.0		ug/L			10/03/15 09:20	1
2-Hexanone	ND		10		ug/L			10/03/15 09:20	1
Methylene Chloride	ND		1.0		ug/L			10/03/15 09:20	1
4-Methyl-2-pentanone (MIBK)	ND		10		ug/L			10/03/15 09:20	1
Styrene	ND		1.0		ug/L			10/03/15 09:20	1
1,1,2,2-Tetrachloroethane	ND		1.0		ug/L			10/03/15 09:20	1
Tetrachloroethene	ND		1.0		ug/L			10/03/15 09:20	1
Toluene	ND		1.0		ug/L			10/03/15 09:20	1
Trichloroethene	ND		1.0		ug/L			10/03/15 09:20	1
Vinyl chloride	ND		1.0		ug/L			10/03/15 09:20	1
Xylenes, Total	ND		2.0		ug/L			10/03/15 09:20	1
1,1,1-Trichloroethane	ND		1.0		ug/L			10/03/15 09:20	1
1,1,2-Trichloroethane	ND		1.0		ug/L			10/03/15 09:20	1
Cyclohexane	ND		1.0		ug/L			10/03/15 09:20	1
1,2-Dibromo-3-Chloropropane	ND		2.0		ug/L			10/03/15 09:20	1
Ethylene Dibromide	ND		1.0		ug/L			10/03/15 09:20	1
Dichlorodifluoromethane	ND		1.0		ug/L			10/03/15 09:20	1
cis-1,2-Dichloroethene	1.2		1.0		ug/L			10/03/15 09:20	1
trans-1,2-Dichloroethene	ND		1.0		ug/L			10/03/15 09:20	1
Isopropylbenzene	ND		1.0		ug/L			10/03/15 09:20	1
Methyl acetate	ND		10		ug/L			10/03/15 09:20	1
Methyl tert-butyl ether	ND		1.0		ug/L			10/03/15 09:20	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		1.0		ug/L			10/03/15 09:20	1
1,2,4-Trichlorobenzene	ND		1.0		ug/L			10/03/15 09:20	1
1,2-Dichlorobenzene	ND		1.0		ug/L			10/03/15 09:20	1
1,3-Dichlorobenzene	ND		1.0		ug/L			10/03/15 09:20	1
1,4-Dichlorobenzene	ND		1.0		ug/L			10/03/15 09:20	1
Trichlorofluoromethane	ND		1.0		ug/L			10/03/15 09:20	1
Chlorodibromomethane	ND		1.0		ug/L			10/03/15 09:20	1
Methylcyclohexane	ND		1.0		ug/L			10/03/15 09:20	1

TestAmerica Canton

Client Sample Results

Client: Cardinal Resources
Project/Site: Carroll & Dubies Superfund

TestAmerica Job ID: 240-55880-1

Client Sample ID: OW-19

Date Collected: 09/23/15 15:55

Date Received: 09/26/15 09:45

Lab Sample ID: 240-55880-6

Matrix: Water

<i>Surrogate</i>	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>				<i>Prepared</i>	<i>Analyzed</i>	<i>Dil Fac</i>
1,2-Dichloroethane-d4 (Surr)	112		78 - 125					10/03/15 09:20	1
4-Bromofluorobenzene (Surr)	75		61 - 120					10/03/15 09:20	1
Toluene-d8 (Surr)	82		80 - 120					10/03/15 09:20	1
Dibromofluoromethane (Surr)	104		79 - 120					10/03/15 09:20	1

Method: RSK-175 - Dissolved Gases (GC)									
<i>Analyte</i>	<i>Result</i>	<i>Qualifier</i>	<i>RL</i>	<i>MDL</i>	<i>Unit</i>	<i>D</i>	<i>Prepared</i>	<i>Analyzed</i>	<i>Dil Fac</i>
Methane	590		0.50		ug/L	-		10/02/15 16:33	1
Ethane	ND		0.50		ug/L			10/02/15 16:33	1
Ethylene	ND		0.50		ug/L			10/02/15 16:33	1

<i>Surrogate</i>	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>				<i>Prepared</i>	<i>Analyzed</i>	<i>Dil Fac</i>
1,1,1-Trifluoroethane	104		66 - 132					10/02/15 16:33	1

Client Sample Results

Client: Cardinal Resources
Project/Site: Carroll & Dubies Superfund

TestAmerica Job ID: 240-55880-1

Client Sample ID: OW-13R

Date Collected: 09/23/15 17:40

Date Received: 09/26/15 09:45

Lab Sample ID: 240-55880-7

Matrix: Water

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	ND		10		ug/L			10/03/15 09:43	1
Benzene	5.2		1.0		ug/L			10/03/15 09:43	1
Dichlorobromomethane	ND		1.0		ug/L			10/03/15 09:43	1
Bromoform	ND		1.0		ug/L			10/03/15 09:43	1
Bromomethane	ND		1.0		ug/L			10/03/15 09:43	1
2-Butanone (MEK)	ND		10		ug/L			10/03/15 09:43	1
Carbon disulfide	ND		1.0		ug/L			10/03/15 09:43	1
Carbon tetrachloride	ND		1.0		ug/L			10/03/15 09:43	1
Chlorobenzene	ND		1.0		ug/L			10/03/15 09:43	1
Chloroethane	ND		1.0		ug/L			10/03/15 09:43	1
Chloroform	ND		1.0		ug/L			10/03/15 09:43	1
Chloromethane	ND		1.0		ug/L			10/03/15 09:43	1
1,1-Dichloroethane	ND		1.0		ug/L			10/03/15 09:43	1
1,2-Dichloroethane	ND		1.0		ug/L			10/03/15 09:43	1
1,1-Dichloroethene	ND		1.0		ug/L			10/03/15 09:43	1
1,2-Dichloropropane	ND		1.0		ug/L			10/03/15 09:43	1
cis-1,3-Dichloropropene	ND		1.0		ug/L			10/03/15 09:43	1
trans-1,3-Dichloropropene	ND		1.0		ug/L			10/03/15 09:43	1
Ethylbenzene	ND		1.0		ug/L			10/03/15 09:43	1
2-Hexanone	ND		10		ug/L			10/03/15 09:43	1
Methylene Chloride	ND		1.0		ug/L			10/03/15 09:43	1
4-Methyl-2-pentanone (MIBK)	ND		10		ug/L			10/03/15 09:43	1
Styrene	ND		1.0		ug/L			10/03/15 09:43	1
1,1,2,2-Tetrachloroethane	ND		1.0		ug/L			10/03/15 09:43	1
Tetrachloroethene	ND		1.0		ug/L			10/03/15 09:43	1
Toluene	ND		1.0		ug/L			10/03/15 09:43	1
Trichloroethene	ND		1.0		ug/L			10/03/15 09:43	1
Vinyl chloride	ND		1.0		ug/L			10/03/15 09:43	1
Xylenes, Total	ND		2.0		ug/L			10/03/15 09:43	1
1,1,1-Trichloroethane	ND		1.0		ug/L			10/03/15 09:43	1
1,1,2-Trichloroethane	ND		1.0		ug/L			10/03/15 09:43	1
Cyclohexane	ND		1.0		ug/L			10/03/15 09:43	1
1,2-Dibromo-3-Chloropropane	ND		2.0		ug/L			10/03/15 09:43	1
Ethylene Dibromide	ND		1.0		ug/L			10/03/15 09:43	1
Dichlorodifluoromethane	ND		1.0		ug/L			10/03/15 09:43	1
cis-1,2-Dichloroethene	ND		1.0		ug/L			10/03/15 09:43	1
trans-1,2-Dichloroethene	ND		1.0		ug/L			10/03/15 09:43	1
Isopropylbenzene	ND		1.0		ug/L			10/03/15 09:43	1
Methyl acetate	ND		10		ug/L			10/03/15 09:43	1
Methyl tert-butyl ether	ND		1.0		ug/L			10/03/15 09:43	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		1.0		ug/L			10/03/15 09:43	1
1,2,4-Trichlorobenzene	ND		1.0		ug/L			10/03/15 09:43	1
1,2-Dichlorobenzene	ND		1.0		ug/L			10/03/15 09:43	1
1,3-Dichlorobenzene	ND		1.0		ug/L			10/03/15 09:43	1
1,4-Dichlorobenzene	ND		1.0		ug/L			10/03/15 09:43	1
Trichlorofluoromethane	ND		1.0		ug/L			10/03/15 09:43	1
Chlorodibromomethane	ND		1.0		ug/L			10/03/15 09:43	1
Methylcyclohexane	ND		1.0		ug/L			10/03/15 09:43	1

TestAmerica Canton

Client Sample Results

Client: Cardinal Resources
Project/Site: Carroll & Dubies Superfund

TestAmerica Job ID: 240-55880-1

Client Sample ID: OW-13R

Date Collected: 09/23/15 17:40

Date Received: 09/26/15 09:45

Lab Sample ID: 240-55880-7

Matrix: Water

<i>Surrogate</i>	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>				<i>Prepared</i>	<i>Analyzed</i>	<i>Dil Fac</i>
1,2-Dichloroethane-d4 (Surr)	108		78 - 125					10/03/15 09:43	1
4-Bromofluorobenzene (Surr)	75		61 - 120					10/03/15 09:43	1
Toluene-d8 (Surr)	84		80 - 120					10/03/15 09:43	1
Dibromofluoromethane (Surr)	101		79 - 120					10/03/15 09:43	1

Method: RSK-175 - Dissolved Gases (GC)									
<i>Analyte</i>	<i>Result</i>	<i>Qualifier</i>	<i>RL</i>	<i>MDL</i>	<i>Unit</i>	<i>D</i>	<i>Prepared</i>	<i>Analyzed</i>	<i>Dil Fac</i>
Methane	370		0.50		ug/L			10/02/15 16:49	1
Ethane	ND		0.50		ug/L			10/02/15 16:49	1
Ethylene	ND		0.50		ug/L			10/02/15 16:49	1

<i>Surrogate</i>	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>				<i>Prepared</i>	<i>Analyzed</i>	<i>Dil Fac</i>
1,1,1-Trifluoroethane	107		66 - 132					10/02/15 16:49	1

TestAmerica Canton

Client Sample Results

Client: Cardinal Resources
Project/Site: Carroll & Dubies Superfund

TestAmerica Job ID: 240-55880-1

Client Sample ID: FB-1

Date Collected: 09/23/15 16:30

Date Received: 09/26/15 09:45

Lab Sample ID: 240-55880-8

Matrix: Water

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	ND		10		ug/L			10/03/15 10:05	1
Benzene	ND		1.0		ug/L			10/03/15 10:05	1
Dichlorobromomethane	ND		1.0		ug/L			10/03/15 10:05	1
Bromoform	ND		1.0		ug/L			10/03/15 10:05	1
Bromomethane	ND		1.0		ug/L			10/03/15 10:05	1
2-Butanone (MEK)	ND		10		ug/L			10/03/15 10:05	1
Carbon disulfide	ND		1.0		ug/L			10/03/15 10:05	1
Carbon tetrachloride	ND		1.0		ug/L			10/03/15 10:05	1
Chlorobenzene	ND		1.0		ug/L			10/03/15 10:05	1
Chloroethane	ND		1.0		ug/L			10/03/15 10:05	1
Chloroform	ND		1.0		ug/L			10/03/15 10:05	1
Chloromethane	ND		1.0		ug/L			10/03/15 10:05	1
1,1-Dichloroethane	ND		1.0		ug/L			10/03/15 10:05	1
1,2-Dichloroethane	ND		1.0		ug/L			10/03/15 10:05	1
1,1-Dichloroethene	ND		1.0		ug/L			10/03/15 10:05	1
1,2-Dichloropropane	ND		1.0		ug/L			10/03/15 10:05	1
cis-1,3-Dichloropropene	ND		1.0		ug/L			10/03/15 10:05	1
trans-1,3-Dichloropropene	ND		1.0		ug/L			10/03/15 10:05	1
Ethylbenzene	ND		1.0		ug/L			10/03/15 10:05	1
2-Hexanone	ND		10		ug/L			10/03/15 10:05	1
Methylene Chloride	ND		1.0		ug/L			10/03/15 10:05	1
4-Methyl-2-pentanone (MIBK)	ND		10		ug/L			10/03/15 10:05	1
Styrene	ND		1.0		ug/L			10/03/15 10:05	1
1,1,2,2-Tetrachloroethane	ND		1.0		ug/L			10/03/15 10:05	1
Tetrachloroethene	ND		1.0		ug/L			10/03/15 10:05	1
Toluene	ND		1.0		ug/L			10/03/15 10:05	1
Trichloroethene	ND		1.0		ug/L			10/03/15 10:05	1
Vinyl chloride	ND		1.0		ug/L			10/03/15 10:05	1
Xylenes, Total	ND		2.0		ug/L			10/03/15 10:05	1
1,1,1-Trichloroethane	ND		1.0		ug/L			10/03/15 10:05	1
1,1,2-Trichloroethane	ND		1.0		ug/L			10/03/15 10:05	1
Cyclohexane	ND		1.0		ug/L			10/03/15 10:05	1
1,2-Dibromo-3-Chloropropane	ND		2.0		ug/L			10/03/15 10:05	1
Ethylene Dibromide	ND		1.0		ug/L			10/03/15 10:05	1
Dichlorodifluoromethane	ND		1.0		ug/L			10/03/15 10:05	1
cis-1,2-Dichloroethene	ND		1.0		ug/L			10/03/15 10:05	1
trans-1,2-Dichloroethene	ND		1.0		ug/L			10/03/15 10:05	1
Isopropylbenzene	ND		1.0		ug/L			10/03/15 10:05	1
Methyl acetate	ND		10		ug/L			10/03/15 10:05	1
Methyl tert-butyl ether	ND		1.0		ug/L			10/03/15 10:05	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		1.0		ug/L			10/03/15 10:05	1
1,2,4-Trichlorobenzene	ND		1.0		ug/L			10/03/15 10:05	1
1,2-Dichlorobenzene	ND		1.0		ug/L			10/03/15 10:05	1
1,3-Dichlorobenzene	ND		1.0		ug/L			10/03/15 10:05	1
1,4-Dichlorobenzene	ND		1.0		ug/L			10/03/15 10:05	1
Trichlorofluoromethane	ND		1.0		ug/L			10/03/15 10:05	1
Chlorodibromomethane	ND		1.0		ug/L			10/03/15 10:05	1
Methylcyclohexane	ND		1.0		ug/L			10/03/15 10:05	1

TestAmerica Canton

Client Sample Results

Client: Cardinal Resources
Project/Site: Carroll & Dubies Superfund

TestAmerica Job ID: 240-55880-1

Client Sample ID: FB-1

Date Collected: 09/23/15 16:30

Date Received: 09/26/15 09:45

Lab Sample ID: 240-55880-8

Matrix: Water

<i>Surrogate</i>	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>	<i>Prepared</i>	<i>Analyzed</i>	<i>Dil Fac</i>
1,2-Dichloroethane-d4 (Surr)	111		78 - 125		10/03/15 10:05	1
4-Bromofluorobenzene (Surr)	74		61 - 120		10/03/15 10:05	1
Toluene-d8 (Surr)	82		80 - 120		10/03/15 10:05	1
Dibromofluoromethane (Surr)	106		79 - 120		10/03/15 10:05	1

Client Sample Results

Client: Cardinal Resources
Project/Site: Carroll & Dubies Superfund

TestAmerica Job ID: 240-55880-1

Client Sample ID: PUMP RINSATE BLANK

Lab Sample ID: 240-55880-9

Date Collected: 09/23/15 16:35

Matrix: Water

Date Received: 09/26/15 09:45

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	ND		10		ug/L			10/03/15 10:28	1
Benzene	ND		1.0		ug/L			10/03/15 10:28	1
Dichlorobromomethane	ND		1.0		ug/L			10/03/15 10:28	1
Bromoform	ND		1.0		ug/L			10/03/15 10:28	1
Bromomethane	ND		1.0		ug/L			10/03/15 10:28	1
2-Butanone (MEK)	ND		10		ug/L			10/03/15 10:28	1
Carbon disulfide	ND		1.0		ug/L			10/03/15 10:28	1
Carbon tetrachloride	ND		1.0		ug/L			10/03/15 10:28	1
Chlorobenzene	ND		1.0		ug/L			10/03/15 10:28	1
Chloroethane	ND		1.0		ug/L			10/03/15 10:28	1
Chloroform	ND		1.0		ug/L			10/03/15 10:28	1
Chloromethane	ND		1.0		ug/L			10/03/15 10:28	1
1,1-Dichloroethane	ND		1.0		ug/L			10/03/15 10:28	1
1,2-Dichloroethane	ND		1.0		ug/L			10/03/15 10:28	1
1,1-Dichloroethene	ND		1.0		ug/L			10/03/15 10:28	1
1,2-Dichloropropane	ND		1.0		ug/L			10/03/15 10:28	1
cis-1,3-Dichloropropene	ND		1.0		ug/L			10/03/15 10:28	1
trans-1,3-Dichloropropene	ND		1.0		ug/L			10/03/15 10:28	1
Ethylbenzene	ND		1.0		ug/L			10/03/15 10:28	1
2-Hexanone	ND		10		ug/L			10/03/15 10:28	1
Methylene Chloride	ND		1.0		ug/L			10/03/15 10:28	1
4-Methyl-2-pentanone (MIBK)	ND		10		ug/L			10/03/15 10:28	1
Styrene	ND		1.0		ug/L			10/03/15 10:28	1
1,1,2,2-Tetrachloroethane	ND		1.0		ug/L			10/03/15 10:28	1
Tetrachloroethene	ND		1.0		ug/L			10/03/15 10:28	1
Toluene	ND		1.0		ug/L			10/03/15 10:28	1
Trichloroethene	ND		1.0		ug/L			10/03/15 10:28	1
Vinyl chloride	ND		1.0		ug/L			10/03/15 10:28	1
Xylenes, Total	ND		2.0		ug/L			10/03/15 10:28	1
1,1,1-Trichloroethane	ND		1.0		ug/L			10/03/15 10:28	1
1,1,2-Trichloroethane	ND		1.0		ug/L			10/03/15 10:28	1
Cyclohexane	ND		1.0		ug/L			10/03/15 10:28	1
1,2-Dibromo-3-Chloropropane	ND		2.0		ug/L			10/03/15 10:28	1
Ethylene Dibromide	ND		1.0		ug/L			10/03/15 10:28	1
Dichlorodifluoromethane	ND		1.0		ug/L			10/03/15 10:28	1
cis-1,2-Dichloroethene	ND		1.0		ug/L			10/03/15 10:28	1
trans-1,2-Dichloroethene	ND		1.0		ug/L			10/03/15 10:28	1
Isopropylbenzene	ND		1.0		ug/L			10/03/15 10:28	1
Methyl acetate	ND		10		ug/L			10/03/15 10:28	1
Methyl tert-butyl ether	ND		1.0		ug/L			10/03/15 10:28	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		1.0		ug/L			10/03/15 10:28	1
1,2,4-Trichlorobenzene	ND		1.0		ug/L			10/03/15 10:28	1
1,2-Dichlorobenzene	ND		1.0		ug/L			10/03/15 10:28	1
1,3-Dichlorobenzene	ND		1.0		ug/L			10/03/15 10:28	1
1,4-Dichlorobenzene	ND		1.0		ug/L			10/03/15 10:28	1
Trichlorofluoromethane	ND		1.0		ug/L			10/03/15 10:28	1
Chlorodibromomethane	ND		1.0		ug/L			10/03/15 10:28	1
Methylcyclohexane	ND		1.0		ug/L			10/03/15 10:28	1

TestAmerica Canton

Client Sample Results

Client: Cardinal Resources
Project/Site: Carroll & Dubies Superfund

TestAmerica Job ID: 240-55880-1

Client Sample ID: PUMP RINSATE BLANK

Lab Sample ID: 240-55880-9

Date Collected: 09/23/15 16:35

Matrix: Water

Date Received: 09/26/15 09:45

<i>Surrogate</i>	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>	<i>Prepared</i>	<i>Analyzed</i>	<i>Dil Fac</i>
1,2-Dichloroethane-d4 (Surr)	113		78 - 125		10/03/15 10:28	1
4-Bromofluorobenzene (Surr)	71		61 - 120		10/03/15 10:28	1
Toluene-d8 (Surr)	80		80 - 120		10/03/15 10:28	1
Dibromofluoromethane (Surr)	105		79 - 120		10/03/15 10:28	1

Client Sample Results

Client: Cardinal Resources
Project/Site: Carroll & Dubies Superfund

TestAmerica Job ID: 240-55880-1

Client Sample ID: SW-1
Date Collected: 09/24/15 08:50
Date Received: 09/26/15 09:45

Lab Sample ID: 240-55880-10
Matrix: Water

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	ND		10		ug/L			10/03/15 10:51	1
Benzene	ND		1.0		ug/L			10/03/15 10:51	1
Dichlorobromomethane	ND		1.0		ug/L			10/03/15 10:51	1
Bromoform	ND		1.0		ug/L			10/03/15 10:51	1
Bromomethane	ND		1.0		ug/L			10/03/15 10:51	1
2-Butanone (MEK)	ND		10		ug/L			10/03/15 10:51	1
Carbon disulfide	ND		1.0		ug/L			10/03/15 10:51	1
Carbon tetrachloride	ND		1.0		ug/L			10/03/15 10:51	1
Chlorobenzene	ND		1.0		ug/L			10/03/15 10:51	1
Chloroethane	ND		1.0		ug/L			10/03/15 10:51	1
Chloroform	ND		1.0		ug/L			10/03/15 10:51	1
Chloromethane	ND		1.0		ug/L			10/03/15 10:51	1
1,1-Dichloroethane	ND		1.0		ug/L			10/03/15 10:51	1
1,2-Dichloroethane	ND		1.0		ug/L			10/03/15 10:51	1
1,1-Dichloroethene	ND		1.0		ug/L			10/03/15 10:51	1
1,2-Dichloropropane	ND		1.0		ug/L			10/03/15 10:51	1
cis-1,3-Dichloropropene	ND		1.0		ug/L			10/03/15 10:51	1
trans-1,3-Dichloropropene	ND		1.0		ug/L			10/03/15 10:51	1
Ethylbenzene	ND		1.0		ug/L			10/03/15 10:51	1
2-Hexanone	ND		10		ug/L			10/03/15 10:51	1
Methylene Chloride	ND		1.0		ug/L			10/03/15 10:51	1
4-Methyl-2-pentanone (MIBK)	ND		10		ug/L			10/03/15 10:51	1
Styrene	ND		1.0		ug/L			10/03/15 10:51	1
1,1,2,2-Tetrachloroethane	ND		1.0		ug/L			10/03/15 10:51	1
Tetrachloroethene	ND		1.0		ug/L			10/03/15 10:51	1
Toluene	ND		1.0		ug/L			10/03/15 10:51	1
Trichloroethene	ND		1.0		ug/L			10/03/15 10:51	1
Vinyl chloride	ND		1.0		ug/L			10/03/15 10:51	1
Xylenes, Total	ND		2.0		ug/L			10/03/15 10:51	1
1,1,1-Trichloroethane	ND		1.0		ug/L			10/03/15 10:51	1
1,1,2-Trichloroethane	ND		1.0		ug/L			10/03/15 10:51	1
Cyclohexane	ND		1.0		ug/L			10/03/15 10:51	1
1,2-Dibromo-3-Chloropropane	ND		2.0		ug/L			10/03/15 10:51	1
Ethylene Dibromide	ND		1.0		ug/L			10/03/15 10:51	1
Dichlorodifluoromethane	ND		1.0		ug/L			10/03/15 10:51	1
cis-1,2-Dichloroethene	ND		1.0		ug/L			10/03/15 10:51	1
trans-1,2-Dichloroethene	ND		1.0		ug/L			10/03/15 10:51	1
Isopropylbenzene	ND		1.0		ug/L			10/03/15 10:51	1
Methyl acetate	ND		10		ug/L			10/03/15 10:51	1
Methyl tert-butyl ether	ND		1.0		ug/L			10/03/15 10:51	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		1.0		ug/L			10/03/15 10:51	1
1,2,4-Trichlorobenzene	ND		1.0		ug/L			10/03/15 10:51	1
1,2-Dichlorobenzene	ND		1.0		ug/L			10/03/15 10:51	1
1,3-Dichlorobenzene	ND		1.0		ug/L			10/03/15 10:51	1
1,4-Dichlorobenzene	ND		1.0		ug/L			10/03/15 10:51	1
Trichlorofluoromethane	ND		1.0		ug/L			10/03/15 10:51	1
Chlorodibromomethane	ND		1.0		ug/L			10/03/15 10:51	1
Methylcyclohexane	ND		1.0		ug/L			10/03/15 10:51	1

TestAmerica Canton

Client Sample Results

Client: Cardinal Resources
Project/Site: Carroll & Dubies Superfund

TestAmerica Job ID: 240-55880-1

Client Sample ID: SW-1

Date Collected: 09/24/15 08:50

Date Received: 09/26/15 09:45

Lab Sample ID: 240-55880-10

Matrix: Water

<i>Surrogate</i>	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>	<i>Prepared</i>	<i>Analyzed</i>	<i>Dil Fac</i>
1,2-Dichloroethane-d4 (Surr)	113		78 - 125		10/03/15 10:51	1
4-Bromofluorobenzene (Surr)	74		61 - 120		10/03/15 10:51	1
Toluene-d8 (Surr)	80		80 - 120		10/03/15 10:51	1
Dibromofluoromethane (Surr)	107		79 - 120		10/03/15 10:51	1

Client Sample Results

Client: Cardinal Resources
Project/Site: Carroll & Dubies Superfund

TestAmerica Job ID: 240-55880-1

Client Sample ID: SW-1 DUP

Date Collected: 09/24/15 08:50

Date Received: 09/26/15 09:45

Lab Sample ID: 240-55880-11

Matrix: Water

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	ND		10		ug/L			10/03/15 11:13	1
Benzene	ND		1.0		ug/L			10/03/15 11:13	1
Dichlorobromomethane	ND		1.0		ug/L			10/03/15 11:13	1
Bromoform	ND		1.0		ug/L			10/03/15 11:13	1
Bromomethane	ND		1.0		ug/L			10/03/15 11:13	1
2-Butanone (MEK)	ND		10		ug/L			10/03/15 11:13	1
Carbon disulfide	ND		1.0		ug/L			10/03/15 11:13	1
Carbon tetrachloride	ND		1.0		ug/L			10/03/15 11:13	1
Chlorobenzene	ND		1.0		ug/L			10/03/15 11:13	1
Chloroethane	ND		1.0		ug/L			10/03/15 11:13	1
Chloroform	ND		1.0		ug/L			10/03/15 11:13	1
Chloromethane	ND		1.0		ug/L			10/03/15 11:13	1
1,1-Dichloroethane	ND		1.0		ug/L			10/03/15 11:13	1
1,2-Dichloroethane	ND		1.0		ug/L			10/03/15 11:13	1
1,1-Dichloroethene	ND		1.0		ug/L			10/03/15 11:13	1
1,2-Dichloropropane	ND		1.0		ug/L			10/03/15 11:13	1
cis-1,3-Dichloropropene	ND		1.0		ug/L			10/03/15 11:13	1
trans-1,3-Dichloropropene	ND		1.0		ug/L			10/03/15 11:13	1
Ethylbenzene	ND		1.0		ug/L			10/03/15 11:13	1
2-Hexanone	ND		10		ug/L			10/03/15 11:13	1
Methylene Chloride	ND		1.0		ug/L			10/03/15 11:13	1
4-Methyl-2-pentanone (MIBK)	ND		10		ug/L			10/03/15 11:13	1
Styrene	ND		1.0		ug/L			10/03/15 11:13	1
1,1,2,2-Tetrachloroethane	ND		1.0		ug/L			10/03/15 11:13	1
Tetrachloroethene	ND		1.0		ug/L			10/03/15 11:13	1
Toluene	ND		1.0		ug/L			10/03/15 11:13	1
Trichloroethene	ND		1.0		ug/L			10/03/15 11:13	1
Vinyl chloride	ND		1.0		ug/L			10/03/15 11:13	1
Xylenes, Total	ND		2.0		ug/L			10/03/15 11:13	1
1,1,1-Trichloroethane	ND		1.0		ug/L			10/03/15 11:13	1
1,1,2-Trichloroethane	ND		1.0		ug/L			10/03/15 11:13	1
Cyclohexane	ND		1.0		ug/L			10/03/15 11:13	1
1,2-Dibromo-3-Chloropropane	ND		2.0		ug/L			10/03/15 11:13	1
Ethylene Dibromide	ND		1.0		ug/L			10/03/15 11:13	1
Dichlorodifluoromethane	ND		1.0		ug/L			10/03/15 11:13	1
cis-1,2-Dichloroethene	ND		1.0		ug/L			10/03/15 11:13	1
trans-1,2-Dichloroethene	ND		1.0		ug/L			10/03/15 11:13	1
Isopropylbenzene	ND		1.0		ug/L			10/03/15 11:13	1
Methyl acetate	ND		10		ug/L			10/03/15 11:13	1
Methyl tert-butyl ether	ND		1.0		ug/L			10/03/15 11:13	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		1.0		ug/L			10/03/15 11:13	1
1,2,4-Trichlorobenzene	ND		1.0		ug/L			10/03/15 11:13	1
1,2-Dichlorobenzene	ND		1.0		ug/L			10/03/15 11:13	1
1,3-Dichlorobenzene	ND		1.0		ug/L			10/03/15 11:13	1
1,4-Dichlorobenzene	ND		1.0		ug/L			10/03/15 11:13	1
Trichlorofluoromethane	ND		1.0		ug/L			10/03/15 11:13	1
Chlorodibromomethane	ND		1.0		ug/L			10/03/15 11:13	1
Methylcyclohexane	ND		1.0		ug/L			10/03/15 11:13	1

TestAmerica Canton

Client Sample Results

Client: Cardinal Resources
Project/Site: Carroll & Dubies Superfund

TestAmerica Job ID: 240-55880-1

Client Sample ID: SW-1 DUP

Lab Sample ID: 240-55880-11

Date Collected: 09/24/15 08:50

Matrix: Water

Date Received: 09/26/15 09:45

<i>Surrogate</i>	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>	<i>Prepared</i>	<i>Analyzed</i>	<i>Dil Fac</i>
1,2-Dichloroethane-d4 (Surr)	117		78 - 125		10/03/15 11:13	1
4-Bromofluorobenzene (Surr)	70		61 - 120		10/03/15 11:13	1
Toluene-d8 (Surr)	81		80 - 120		10/03/15 11:13	1
Dibromofluoromethane (Surr)	107		79 - 120		10/03/15 11:13	1

Client Sample Results

Client: Cardinal Resources
Project/Site: Carroll & Dubies Superfund

TestAmerica Job ID: 240-55880-1

Client Sample ID: SED-1
Date Collected: 09/24/15 08:50
Date Received: 09/26/15 09:45

Lab Sample ID: 240-55880-12
Matrix: Solid
Percent Solids: 12.3

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	160		150		ug/Kg	☼	09/30/15 10:01	09/30/15 12:53	1
Benzene	ND		37		ug/Kg	☼	09/30/15 10:01	09/30/15 12:53	1
Dichlorobromomethane	ND		37		ug/Kg	☼	09/30/15 10:01	09/30/15 12:53	1
Bromoform	ND		37		ug/Kg	☼	09/30/15 10:01	09/30/15 12:53	1
Bromomethane	ND		37		ug/Kg	☼	09/30/15 10:01	09/30/15 12:53	1
2-Butanone (MEK)	ND		150		ug/Kg	☼	09/30/15 10:01	09/30/15 12:53	1
Carbon disulfide	ND		37		ug/Kg	☼	09/30/15 10:01	09/30/15 12:53	1
Carbon tetrachloride	ND		37		ug/Kg	☼	09/30/15 10:01	09/30/15 12:53	1
Chlorobenzene	ND		37		ug/Kg	☼	09/30/15 10:01	09/30/15 12:53	1
Chloroethane	ND		37		ug/Kg	☼	09/30/15 10:01	09/30/15 12:53	1
Chloroform	ND		37		ug/Kg	☼	09/30/15 10:01	09/30/15 12:53	1
Chloromethane	ND		37		ug/Kg	☼	09/30/15 10:01	09/30/15 12:53	1
1,1-Dichloroethane	ND		37		ug/Kg	☼	09/30/15 10:01	09/30/15 12:53	1
1,2-Dichloroethane	ND		37		ug/Kg	☼	09/30/15 10:01	09/30/15 12:53	1
1,1-Dichloroethene	ND		37		ug/Kg	☼	09/30/15 10:01	09/30/15 12:53	1
1,2-Dichloropropane	ND		37		ug/Kg	☼	09/30/15 10:01	09/30/15 12:53	1
cis-1,3-Dichloropropene	ND		37		ug/Kg	☼	09/30/15 10:01	09/30/15 12:53	1
trans-1,3-Dichloropropene	ND		37		ug/Kg	☼	09/30/15 10:01	09/30/15 12:53	1
Ethylbenzene	ND		37		ug/Kg	☼	09/30/15 10:01	09/30/15 12:53	1
2-Hexanone	ND		150		ug/Kg	☼	09/30/15 10:01	09/30/15 12:53	1
Methylene Chloride	ND		37		ug/Kg	☼	09/30/15 10:01	09/30/15 12:53	1
4-Methyl-2-pentanone (MIBK)	ND		150		ug/Kg	☼	09/30/15 10:01	09/30/15 12:53	1
Styrene	ND		37		ug/Kg	☼	09/30/15 10:01	09/30/15 12:53	1
1,1,2,2-Tetrachloroethane	ND		37		ug/Kg	☼	09/30/15 10:01	09/30/15 12:53	1
Tetrachloroethene	ND		37		ug/Kg	☼	09/30/15 10:01	09/30/15 12:53	1
Toluene	ND		37		ug/Kg	☼	09/30/15 10:01	09/30/15 12:53	1
Trichloroethene	ND		37		ug/Kg	☼	09/30/15 10:01	09/30/15 12:53	1
Vinyl chloride	ND		37		ug/Kg	☼	09/30/15 10:01	09/30/15 12:53	1
Xylenes, Total	ND		74		ug/Kg	☼	09/30/15 10:01	09/30/15 12:53	1
1,1,1-Trichloroethane	ND		37		ug/Kg	☼	09/30/15 10:01	09/30/15 12:53	1
1,1,2-Trichloroethane	ND		37		ug/Kg	☼	09/30/15 10:01	09/30/15 12:53	1
Cyclohexane	ND		74		ug/Kg	☼	09/30/15 10:01	09/30/15 12:53	1
1,2-Dibromo-3-Chloropropane	ND		74		ug/Kg	☼	09/30/15 10:01	09/30/15 12:53	1
Ethylene Dibromide	ND		37		ug/Kg	☼	09/30/15 10:01	09/30/15 12:53	1
Dichlorodifluoromethane	ND		37		ug/Kg	☼	09/30/15 10:01	09/30/15 12:53	1
cis-1,2-Dichloroethene	ND		37		ug/Kg	☼	09/30/15 10:01	09/30/15 12:53	1
trans-1,2-Dichloroethene	ND		37		ug/Kg	☼	09/30/15 10:01	09/30/15 12:53	1
Isopropylbenzene	ND		37		ug/Kg	☼	09/30/15 10:01	09/30/15 12:53	1
Methyl acetate	ND		74		ug/Kg	☼	09/30/15 10:01	09/30/15 12:53	1
Methyl tert-butyl ether	ND		37		ug/Kg	☼	09/30/15 10:01	09/30/15 12:53	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		37		ug/Kg	☼	09/30/15 10:01	09/30/15 12:53	1
1,2,4-Trichlorobenzene	ND		37		ug/Kg	☼	09/30/15 10:01	09/30/15 12:53	1
1,2-Dichlorobenzene	ND		37		ug/Kg	☼	09/30/15 10:01	09/30/15 12:53	1
1,3-Dichlorobenzene	ND		37		ug/Kg	☼	09/30/15 10:01	09/30/15 12:53	1
1,4-Dichlorobenzene	ND		37		ug/Kg	☼	09/30/15 10:01	09/30/15 12:53	1
Trichlorofluoromethane	ND		37		ug/Kg	☼	09/30/15 10:01	09/30/15 12:53	1
Chlorodibromomethane	ND		37		ug/Kg	☼	09/30/15 10:01	09/30/15 12:53	1
Methylcyclohexane	ND		74		ug/Kg	☼	09/30/15 10:01	09/30/15 12:53	1

TestAmerica Canton

Client Sample Results

Client: Cardinal Resources
Project/Site: Carroll & Dubies Superfund

TestAmerica Job ID: 240-55880-1

Client Sample ID: SED-1

Date Collected: 09/24/15 08:50

Date Received: 09/26/15 09:45

Lab Sample ID: 240-55880-12

Matrix: Solid

Percent Solids: 12.3

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	76		58 - 123	09/30/15 10:01	09/30/15 12:53	1
4-Bromofluorobenzene (Surr)	99		52 - 136	09/30/15 10:01	09/30/15 12:53	1
Toluene-d8 (Surr)	96		67 - 125	09/30/15 10:01	09/30/15 12:53	1
Dibromofluoromethane (Surr)	94		37 - 132	09/30/15 10:01	09/30/15 12:53	1

General Chemistry

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	12		0.10		%			09/28/15 16:09	1
Percent Moisture	88		0.10		%			09/28/15 16:09	1

TestAmerica Canton

Client Sample Results

Client: Cardinal Resources
Project/Site: Carroll & Dubies Superfund

TestAmerica Job ID: 240-55880-1

Client Sample ID: OW-5
Date Collected: 09/24/15 10:45
Date Received: 09/26/15 09:45

Lab Sample ID: 240-55880-13
Matrix: Water

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	ND		13		ug/L			10/05/15 17:50	1.33
Benzene	ND		1.3		ug/L			10/05/15 17:50	1.33
Dichlorobromomethane	ND		1.3		ug/L			10/05/15 17:50	1.33
Bromoform	ND		1.3		ug/L			10/05/15 17:50	1.33
Bromomethane	ND		1.3		ug/L			10/05/15 17:50	1.33
2-Butanone (MEK)	ND		13		ug/L			10/05/15 17:50	1.33
Carbon disulfide	ND		1.3		ug/L			10/05/15 17:50	1.33
Carbon tetrachloride	ND		1.3		ug/L			10/05/15 17:50	1.33
Chlorobenzene	ND		1.3		ug/L			10/05/15 17:50	1.33
Chloroethane	ND		1.3		ug/L			10/05/15 17:50	1.33
Chloroform	ND		1.3		ug/L			10/05/15 17:50	1.33
Chloromethane	ND		1.3		ug/L			10/05/15 17:50	1.33
1,1-Dichloroethane	ND		1.3		ug/L			10/05/15 17:50	1.33
1,2-Dichloroethane	ND		1.3		ug/L			10/05/15 17:50	1.33
1,1-Dichloroethene	ND		1.3		ug/L			10/05/15 17:50	1.33
1,2-Dichloropropane	ND		1.3		ug/L			10/05/15 17:50	1.33
cis-1,3-Dichloropropene	ND		1.3		ug/L			10/05/15 17:50	1.33
trans-1,3-Dichloropropene	ND		1.3		ug/L			10/05/15 17:50	1.33
Ethylbenzene	ND		1.3		ug/L			10/05/15 17:50	1.33
2-Hexanone	ND		13		ug/L			10/05/15 17:50	1.33
Methylene Chloride	ND		1.3		ug/L			10/05/15 17:50	1.33
4-Methyl-2-pentanone (MIBK)	ND		13		ug/L			10/05/15 17:50	1.33
Styrene	ND		1.3		ug/L			10/05/15 17:50	1.33
1,1,2,2-Tetrachloroethane	ND		1.3		ug/L			10/05/15 17:50	1.33
Tetrachloroethene	14		1.3		ug/L			10/05/15 17:50	1.33
Toluene	ND		1.3		ug/L			10/05/15 17:50	1.33
Trichloroethene	4.2		1.3		ug/L			10/05/15 17:50	1.33
Vinyl chloride	ND		1.3		ug/L			10/05/15 17:50	1.33
Xylenes, Total	ND		2.7		ug/L			10/05/15 17:50	1.33
1,1,1-Trichloroethane	ND		1.3		ug/L			10/05/15 17:50	1.33
1,1,2-Trichloroethane	ND		1.3		ug/L			10/05/15 17:50	1.33
Cyclohexane	ND		1.3		ug/L			10/05/15 17:50	1.33
1,2-Dibromo-3-Chloropropane	ND		2.7		ug/L			10/05/15 17:50	1.33
Ethylene Dibromide	ND		1.3		ug/L			10/05/15 17:50	1.33
Dichlorodifluoromethane	ND		1.3		ug/L			10/05/15 17:50	1.33
cis-1,2-Dichloroethene	31		1.3		ug/L			10/05/15 17:50	1.33
trans-1,2-Dichloroethene	ND		1.3		ug/L			10/05/15 17:50	1.33
Isopropylbenzene	ND		1.3		ug/L			10/05/15 17:50	1.33
Methyl acetate	ND		13		ug/L			10/05/15 17:50	1.33
Methyl tert-butyl ether	ND		1.3		ug/L			10/05/15 17:50	1.33
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		1.3		ug/L			10/05/15 17:50	1.33
1,2,4-Trichlorobenzene	ND		1.3		ug/L			10/05/15 17:50	1.33
1,2-Dichlorobenzene	ND		1.3		ug/L			10/05/15 17:50	1.33
1,3-Dichlorobenzene	ND		1.3		ug/L			10/05/15 17:50	1.33
1,4-Dichlorobenzene	ND		1.3		ug/L			10/05/15 17:50	1.33
Trichlorofluoromethane	ND		1.3		ug/L			10/05/15 17:50	1.33
Chlorodibromomethane	ND		1.3		ug/L			10/05/15 17:50	1.33
Methylcyclohexane	ND		1.3		ug/L			10/05/15 17:50	1.33

TestAmerica Canton

Client Sample Results

Client: Cardinal Resources
Project/Site: Carroll & Dubies Superfund

TestAmerica Job ID: 240-55880-1

Client Sample ID: OW-5

Lab Sample ID: 240-55880-13

Date Collected: 09/24/15 10:45

Matrix: Water

Date Received: 09/26/15 09:45

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	114		78 - 125		10/05/15 17:50	1.33
4-Bromofluorobenzene (Surr)	75		61 - 120		10/05/15 17:50	1.33
Toluene-d8 (Surr)	82		80 - 120		10/05/15 17:50	1.33
Dibromofluoromethane (Surr)	108		79 - 120		10/05/15 17:50	1.33

Method: RSK-175 - Dissolved Gases (GC)									
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methane	0.66	J	0.50		ug/L	-		10/02/15 17:04	1
Ethane	ND		0.50		ug/L			10/02/15 17:04	1
Ethylene	ND		0.50		ug/L			10/02/15 17:04	1
Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac			
1,1,1-Trifluoroethane	101		66 - 132		10/02/15 17:04	1			

BK19
11/9/2015
Based on
dup. results

TestAmerica Canton

Client Sample Results

Client: Cardinal Resources
Project/Site: Carroll & Dubies Superfund

TestAmerica Job ID: 240-55880-1

Client Sample ID: OW-5 DUP

Date Collected: 09/24/15 10:45

Date Received: 09/26/15 09:45

Lab Sample ID: 240-55880-14

Matrix: Water

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	ND		17		ug/L			10/05/15 18:12	1.67
Benzene	ND		1.7		ug/L			10/05/15 18:12	1.67
Dichlorobromomethane	ND		1.7		ug/L			10/05/15 18:12	1.67
Bromoform	ND		1.7		ug/L			10/05/15 18:12	1.67
Bromomethane	ND		1.7		ug/L			10/05/15 18:12	1.67
2-Butanone (MEK)	ND		17		ug/L			10/05/15 18:12	1.67
Carbon disulfide	ND		1.7		ug/L			10/05/15 18:12	1.67
Carbon tetrachloride	ND		1.7		ug/L			10/05/15 18:12	1.67
Chlorobenzene	ND		1.7		ug/L			10/05/15 18:12	1.67
Chloroethane	ND		1.7		ug/L			10/05/15 18:12	1.67
Chloroform	ND		1.7		ug/L			10/05/15 18:12	1.67
Chloromethane	ND		1.7		ug/L			10/05/15 18:12	1.67
1,1-Dichloroethane	ND		1.7		ug/L			10/05/15 18:12	1.67
1,2-Dichloroethane	ND		1.7		ug/L			10/05/15 18:12	1.67
1,1-Dichloroethene	ND		1.7		ug/L			10/05/15 18:12	1.67
1,2-Dichloropropane	ND		1.7		ug/L			10/05/15 18:12	1.67
cis-1,3-Dichloropropene	ND		1.7		ug/L			10/05/15 18:12	1.67
trans-1,3-Dichloropropene	ND		1.7		ug/L			10/05/15 18:12	1.67
Ethylbenzene	ND		1.7		ug/L			10/05/15 18:12	1.67
2-Hexanone	ND		17		ug/L			10/05/15 18:12	1.67
Methylene Chloride	ND		1.7		ug/L			10/05/15 18:12	1.67
4-Methyl-2-pentanone (MIBK)	ND		17		ug/L			10/05/15 18:12	1.67
Styrene	ND		1.7		ug/L			10/05/15 18:12	1.67
1,1,2,2-Tetrachloroethane	ND		1.7		ug/L			10/05/15 18:12	1.67
Tetrachloroethene	16		1.7		ug/L			10/05/15 18:12	1.67
Toluene	ND		1.7		ug/L			10/05/15 18:12	1.67
Trichloroethene	4.5		1.7		ug/L			10/05/15 18:12	1.67
Vinyl chloride	ND		1.7		ug/L			10/05/15 18:12	1.67
Xylenes, Total	ND		3.3		ug/L			10/05/15 18:12	1.67
1,1,1-Trichloroethane	ND		1.7		ug/L			10/05/15 18:12	1.67
1,1,2-Trichloroethane	ND		1.7		ug/L			10/05/15 18:12	1.67
Cyclohexane	ND		1.7		ug/L			10/05/15 18:12	1.67
1,2-Dibromo-3-Chloropropane	ND		3.3		ug/L			10/05/15 18:12	1.67
Ethylene Dibromide	ND		1.7		ug/L			10/05/15 18:12	1.67
Dichlorodifluoromethane	ND		1.7		ug/L			10/05/15 18:12	1.67
cis-1,2-Dichloroethene	33		1.7		ug/L			10/05/15 18:12	1.67
trans-1,2-Dichloroethene	ND		1.7		ug/L			10/05/15 18:12	1.67
Isopropylbenzene	ND		1.7		ug/L			10/05/15 18:12	1.67
Methyl acetate	ND		17		ug/L			10/05/15 18:12	1.67
Methyl tert-butyl ether	ND		1.7		ug/L			10/05/15 18:12	1.67
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		1.7		ug/L			10/05/15 18:12	1.67
1,2,4-Trichlorobenzene	ND		1.7		ug/L			10/05/15 18:12	1.67
1,2-Dichlorobenzene	ND		1.7		ug/L			10/05/15 18:12	1.67
1,3-Dichlorobenzene	ND		1.7		ug/L			10/05/15 18:12	1.67
1,4-Dichlorobenzene	ND		1.7		ug/L			10/05/15 18:12	1.67
Trichlorofluoromethane	ND		1.7		ug/L			10/05/15 18:12	1.67
Chlorodibromomethane	ND		1.7		ug/L			10/05/15 18:12	1.67
Methylcyclohexane	ND		1.7		ug/L			10/05/15 18:12	1.67

TestAmerica Canton

Client Sample Results

Client: Cardinal Resources
Project/Site: Carroll & Dubies Superfund

TestAmerica Job ID: 240-55880-1

Client Sample ID: OW-5 DUP

Lab Sample ID: 240-55880-14

Date Collected: 09/24/15 10:45

Matrix: Water

Date Received: 09/26/15 09:45

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	113		78 - 125		10/05/15 18:12	1.67
4-Bromofluorobenzene (Surr)	74		61 - 120		10/05/15 18:12	1.67
Toluene-d8 (Surr)	83		80 - 120		10/05/15 18:12	1.67
Dibromofluoromethane (Surr)	107		79 - 120		10/05/15 18:12	1.67

Method: RSK-175 - Dissolved Gases (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methane	ND	UJ	0.50		ug/L			10/02/15 17:20	1
Ethane	ND		0.50		ug/L			10/02/15 17:20	1
Ethylene	ND		0.50		ug/L			10/02/15 17:20	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,1,1-Trifluoroethane	103		66 - 132		10/02/15 17:20	1

11/4/2015
BNJ
Based on
dup results

TestAmerica Canton

Client Sample Results

Client: Cardinal Resources
Project/Site: Carroll & Dubies Superfund

TestAmerica Job ID: 240-55880-1

11/4/2015

Client Sample ID: OW-6

Lab Sample ID: 240-55880-15

Date Collected: 09/24/15 12:30

Matrix: Water

Date Received: 09/26/15 09:45

Method: 8260B - Volatile Organic Compounds (GC/MS)									
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	ND		13		ug/L			10/05/15 15:48	1.25
Benzene	ND		1.3		ug/L			10/05/15 15:48	1.25
Dichlorobromomethane	ND		1.3		ug/L			10/05/15 15:48	1.25
Bromoform	ND		1.3		ug/L			10/05/15 15:48	1.25
Bromomethane	ND	F2	1.3		ug/L			10/05/15 15:48	1.25
2-Butanone (MEK)	ND		13		ug/L			10/05/15 15:48	1.25
Carbon disulfide	ND		1.3		ug/L			10/05/15 15:48	1.25
Carbon tetrachloride	ND		1.3		ug/L			10/05/15 15:48	1.25
Chlorobenzene	ND		1.3		ug/L			10/05/15 15:48	1.25
Chloroethane	ND		1.3		ug/L			10/05/15 15:48	1.25
Chloroform	ND		1.3		ug/L			10/05/15 15:48	1.25
Chloromethane	ND	F2	1.3		ug/L			10/05/15 15:48	1.25
1,1-Dichloroethane	ND		1.3		ug/L			10/05/15 15:48	1.25
1,2-Dichloroethane	ND		1.3		ug/L			10/05/15 15:48	1.25
1,1-Dichloroethene	ND		1.3		ug/L			10/05/15 15:48	1.25
1,2-Dichloropropane	ND		1.3		ug/L			10/05/15 15:48	1.25
cis-1,3-Dichloropropene	ND		1.3		ug/L			10/05/15 15:48	1.25
trans-1,3-Dichloropropene	ND		1.3		ug/L			10/05/15 15:48	1.25
Ethylbenzene	ND		1.3		ug/L			10/05/15 15:48	1.25
2-Hexanone	ND		13		ug/L			10/05/15 15:48	1.25
Methylene Chloride	ND		1.3		ug/L			10/05/15 15:48	1.25
4-Methyl-2-pentanone (MIBK)	ND		13		ug/L			10/05/15 15:48	1.25
Styrene	ND		1.3		ug/L			10/05/15 15:48	1.25
1,1,2,2-Tetrachloroethane	ND		1.3		ug/L			10/05/15 15:48	1.25
Tetrachloroethene	38		1.3		ug/L			10/05/15 15:48	1.25
Toluene	ND		1.3		ug/L			10/05/15 15:48	1.25
Trichloroethene	7.7		1.3		ug/L			10/05/15 15:48	1.25
Vinyl chloride	ND		1.3		ug/L			10/05/15 15:48	1.25
Xylenes, Total	ND		2.5		ug/L			10/05/15 15:48	1.25
1,1,1-Trichloroethane	ND		1.3		ug/L			10/05/15 15:48	1.25
1,1,2-Trichloroethane	ND		1.3		ug/L			10/05/15 15:48	1.25
Cyclohexane	ND		1.3		ug/L			10/05/15 15:48	1.25
1,2-Dibromo-3-Chloropropane	ND		2.5		ug/L			10/05/15 15:48	1.25
Ethylene Dibromide	ND		1.3		ug/L			10/05/15 15:48	1.25
Dichlorodifluoromethane	ND		1.3		ug/L			10/05/15 15:48	1.25
cis-1,2-Dichloroethene	15		1.3		ug/L			10/05/15 15:48	1.25
trans-1,2-Dichloroethene	ND		1.3		ug/L			10/05/15 15:48	1.25
Isopropylbenzene	ND		1.3		ug/L			10/05/15 15:48	1.25
Methyl acetate	ND		13		ug/L			10/05/15 15:48	1.25
Methyl tert-butyl ether	ND		1.3		ug/L			10/05/15 15:48	1.25
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		1.3		ug/L			10/05/15 15:48	1.25
1,2,4-Trichlorobenzene	ND		1.3		ug/L			10/05/15 15:48	1.25
1,2-Dichlorobenzene	ND		1.3		ug/L			10/05/15 15:48	1.25
1,3-Dichlorobenzene	ND		1.3		ug/L			10/05/15 15:48	1.25
1,4-Dichlorobenzene	ND		1.3		ug/L			10/05/15 15:48	1.25
Trichlorofluoromethane	ND		1.3		ug/L			10/05/15 15:48	1.25
Chlorodibromomethane	ND		1.3		ug/L			10/05/15 15:48	1.25
Methylcyclohexane	ND		1.3		ug/L			10/05/15 15:48	1.25

TestAmerica Canton

Client Sample Results

Client: Cardinal Resources
Project/Site: Carroll & Dubies Superfund

TestAmerica Job ID: 240-55880-1

Client Sample ID: OW-6

Date Collected: 09/24/15 12:30

Date Received: 09/26/15 09:45

Lab Sample ID: 240-55880-15

Matrix: Water

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	94		78 - 125		10/05/15 15:48	1.25
4-Bromofluorobenzene (Surr)	87		61 - 120		10/05/15 15:48	1.25
Toluene-d8 (Surr)	88		80 - 120		10/05/15 15:48	1.25
Dibromofluoromethane (Surr)	91		79 - 120		10/05/15 15:48	1.25

Method: RSK-175 - Dissolved Gases (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methane	ND		0.50		ug/L			10/02/15 17:36	1
Ethane	ND		0.50		ug/L			10/02/15 17:36	1
Ethylene	ND		0.50		ug/L			10/02/15 17:36	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,1,1-Trifluoroethane	101		66 - 132		10/02/15 17:36	1

Client Sample Results

Client: Cardinal Resources
Project/Site: Carroll & Dubies Superfund

TestAmerica Job ID: 240-55880-1

Client Sample ID: OW-2
Date Collected: 09/24/15 14:15
Date Received: 09/26/15 09:45

Lab Sample ID: 240-55880-16
Matrix: Water

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	ND		25		ug/L			10/05/15 18:34	2.5
Benzene	ND		2.5		ug/L			10/05/15 18:34	2.5
Dichlorobromomethane	ND		2.5		ug/L			10/05/15 18:34	2.5
Bromoform	ND		2.5		ug/L			10/05/15 18:34	2.5
Bromomethane	ND		2.5		ug/L			10/05/15 18:34	2.5
2-Butanone (MEK)	ND		25		ug/L			10/05/15 18:34	2.5
Carbon disulfide	ND		2.5		ug/L			10/05/15 18:34	2.5
Carbon tetrachloride	ND		2.5		ug/L			10/05/15 18:34	2.5
Chlorobenzene	ND		2.5		ug/L			10/05/15 18:34	2.5
Chloroethane	ND		2.5		ug/L			10/05/15 18:34	2.5
Chloroform	ND		2.5		ug/L			10/05/15 18:34	2.5
Chloromethane	ND		2.5		ug/L			10/05/15 18:34	2.5
1,1-Dichloroethane	ND		2.5		ug/L			10/05/15 18:34	2.5
1,2-Dichloroethane	ND		2.5		ug/L			10/05/15 18:34	2.5
1,1-Dichloroethene	ND		2.5		ug/L			10/05/15 18:34	2.5
1,2-Dichloropropane	ND		2.5		ug/L			10/05/15 18:34	2.5
cis-1,3-Dichloropropene	ND		2.5		ug/L			10/05/15 18:34	2.5
trans-1,3-Dichloropropene	ND		2.5		ug/L			10/05/15 18:34	2.5
Ethylbenzene	ND		2.5		ug/L			10/05/15 18:34	2.5
2-Hexanone	ND		25		ug/L			10/05/15 18:34	2.5
Methylene Chloride	ND		2.5		ug/L			10/05/15 18:34	2.5
4-Methyl-2-pentanone (MIBK)	ND		25		ug/L			10/05/15 18:34	2.5
Styrene	ND		2.5		ug/L			10/05/15 18:34	2.5
1,1,2,2-Tetrachloroethane	ND		2.5		ug/L			10/05/15 18:34	2.5
Tetrachloroethene	74		2.5		ug/L			10/05/15 18:34	2.5
Toluene	ND		2.5		ug/L			10/05/15 18:34	2.5
Trichloroethene	10		2.5		ug/L			10/05/15 18:34	2.5
Vinyl chloride	ND		2.5		ug/L			10/05/15 18:34	2.5
Xylenes, Total	ND		5.0		ug/L			10/05/15 18:34	2.5
1,1,1-Trichloroethane	ND		2.5		ug/L			10/05/15 18:34	2.5
1,1,2-Trichloroethane	ND		2.5		ug/L			10/05/15 18:34	2.5
Cyclohexane	ND		2.5		ug/L			10/05/15 18:34	2.5
1,2-Dibromo-3-Chloropropane	ND		5.0		ug/L			10/05/15 18:34	2.5
Ethylene Dibromide	ND		2.5		ug/L			10/05/15 18:34	2.5
Dichlorodifluoromethane	ND		2.5		ug/L			10/05/15 18:34	2.5
cis-1,2-Dichloroethene	54		2.5		ug/L			10/05/15 18:34	2.5
trans-1,2-Dichloroethene	ND		2.5		ug/L			10/05/15 18:34	2.5
Isopropylbenzene	ND		2.5		ug/L			10/05/15 18:34	2.5
Methyl acetate	ND		25		ug/L			10/05/15 18:34	2.5
Methyl tert-butyl ether	ND		2.5		ug/L			10/05/15 18:34	2.5
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		2.5		ug/L			10/05/15 18:34	2.5
1,2,4-Trichlorobenzene	ND		2.5		ug/L			10/05/15 18:34	2.5
1,2-Dichlorobenzene	ND		2.5		ug/L			10/05/15 18:34	2.5
1,3-Dichlorobenzene	ND		2.5		ug/L			10/05/15 18:34	2.5
1,4-Dichlorobenzene	ND		2.5		ug/L			10/05/15 18:34	2.5
Trichlorofluoromethane	ND		2.5		ug/L			10/05/15 18:34	2.5
Chlorodibromomethane	ND		2.5		ug/L			10/05/15 18:34	2.5
Methylcyclohexane	ND		2.5		ug/L			10/05/15 18:34	2.5

TestAmerica Canton

Client Sample Results

Client: Cardinal Resources
Project/Site: Carroll & Dubies Superfund

TestAmerica Job ID: 240-55880-1

Client Sample ID: OW-2

Date Collected: 09/24/15 14:15

Date Received: 09/26/15 09:45

Lab Sample ID: 240-55880-16

Matrix: Water

<i>Surrogate</i>	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>				<i>Prepared</i>	<i>Analyzed</i>	<i>Dil Fac</i>
1,2-Dichloroethane-d4 (Surr)	114		78 - 125					10/05/15 18:34	2.5
4-Bromofluorobenzene (Surr)	74		61 - 120					10/05/15 18:34	2.5
Toluene-d8 (Surr)	81		80 - 120					10/05/15 18:34	2.5
Dibromofluoromethane (Surr)	107		79 - 120					10/05/15 18:34	2.5

Method: RSK-175 - Dissolved Gases (GC)									
<i>Analyte</i>	<i>Result</i>	<i>Qualifier</i>	<i>RL</i>	<i>MDL</i>	<i>Unit</i>	<i>D</i>	<i>Prepared</i>	<i>Analyzed</i>	<i>Dil Fac</i>
Methane	ND		0.50		ug/L			10/02/15 18:38	1
Ethane	ND		0.50		ug/L			10/02/15 18:38	1
Ethylene	ND		0.50		ug/L			10/02/15 18:38	1

<i>Surrogate</i>	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>				<i>Prepared</i>	<i>Analyzed</i>	<i>Dil Fac</i>
1,1,1-Trifluoroethane	96		66 - 132					10/02/15 18:38	1

TestAmerica Canton

Client Sample Results

Client: Cardinal Resources
Project/Site: Carroll & Dubies Superfund

TestAmerica Job ID: 240-55880-1

Client Sample ID: OW-10R

Date Collected: 09/24/15 15:35

Date Received: 09/26/15 09:45

Lab Sample ID: 240-55880-17

Matrix: Water

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	ND		10		ug/L			10/05/15 14:26	1
Benzene	3.8		1.0		ug/L			10/05/15 14:26	1
Dichlorobromomethane	ND		1.0		ug/L			10/05/15 14:26	1
Bromoform	ND		1.0		ug/L			10/05/15 14:26	1
Bromomethane	ND		1.0		ug/L			10/05/15 14:26	1
2-Butanone (MEK)	ND		10		ug/L			10/05/15 14:26	1
Carbon disulfide	ND		1.0		ug/L			10/05/15 14:26	1
Carbon tetrachloride	ND		1.0		ug/L			10/05/15 14:26	1
Chlorobenzene	1.3		1.0		ug/L			10/05/15 14:26	1
Chloroethane	2.7		1.0		ug/L			10/05/15 14:26	1
Chloroform	ND		1.0		ug/L			10/05/15 14:26	1
Chloromethane	ND		1.0		ug/L			10/05/15 14:26	1
1,1-Dichloroethane	ND		1.0		ug/L			10/05/15 14:26	1
1,2-Dichloroethane	ND		1.0		ug/L			10/05/15 14:26	1
1,1-Dichloroethene	ND		1.0		ug/L			10/05/15 14:26	1
1,2-Dichloropropane	ND		1.0		ug/L			10/05/15 14:26	1
cis-1,3-Dichloropropene	ND		1.0		ug/L			10/05/15 14:26	1
trans-1,3-Dichloropropene	ND		1.0		ug/L			10/05/15 14:26	1
Ethylbenzene	ND		1.0		ug/L			10/05/15 14:26	1
2-Hexanone	ND		10		ug/L			10/05/15 14:26	1
Methylene Chloride	ND		1.0		ug/L			10/05/15 14:26	1
4-Methyl-2-pentanone (MIBK)	ND		10		ug/L			10/05/15 14:26	1
Styrene	ND		1.0		ug/L			10/05/15 14:26	1
1,1,2,2-Tetrachloroethane	ND		1.0		ug/L			10/05/15 14:26	1
Tetrachloroethene	ND		1.0		ug/L			10/05/15 14:26	1
Toluene	ND		1.0		ug/L			10/05/15 14:26	1
Trichloroethene	ND		1.0		ug/L			10/05/15 14:26	1
Vinyl chloride	ND		1.0		ug/L			10/05/15 14:26	1
Xylenes, Total	ND		2.0		ug/L			10/05/15 14:26	1
1,1,1-Trichloroethane	ND		1.0		ug/L			10/05/15 14:26	1
1,1,2-Trichloroethane	ND		1.0		ug/L			10/05/15 14:26	1
Cyclohexane	ND		1.0		ug/L			10/05/15 14:26	1
1,2-Dibromo-3-Chloropropane	ND		2.0		ug/L			10/05/15 14:26	1
Ethylene Dibromide	ND		1.0		ug/L			10/05/15 14:26	1
Dichlorodifluoromethane	1.7		1.0		ug/L			10/05/15 14:26	1
cis-1,2-Dichloroethene	ND		1.0		ug/L			10/05/15 14:26	1
trans-1,2-Dichloroethene	ND		1.0		ug/L			10/05/15 14:26	1
Isopropylbenzene	ND		1.0		ug/L			10/05/15 14:26	1
Methyl acetate	ND		10		ug/L			10/05/15 14:26	1
Methyl tert-butyl ether	ND		1.0		ug/L			10/05/15 14:26	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		1.0		ug/L			10/05/15 14:26	1
1,2,4-Trichlorobenzene	ND		1.0		ug/L			10/05/15 14:26	1
1,2-Dichlorobenzene	ND		1.0		ug/L			10/05/15 14:26	1
1,3-Dichlorobenzene	ND		1.0		ug/L			10/05/15 14:26	1
1,4-Dichlorobenzene	ND		1.0		ug/L			10/05/15 14:26	1
Trichlorofluoromethane	ND		1.0		ug/L			10/05/15 14:26	1
Chlorodibromomethane	ND		1.0		ug/L			10/05/15 14:26	1
Methylcyclohexane	ND		1.0		ug/L			10/05/15 14:26	1

TestAmerica Canton

Client Sample Results

Client: Cardinal Resources
Project/Site: Carroll & Dubies Superfund

TestAmerica Job ID: 240-55880-1

Client Sample ID: OW-10R

Lab Sample ID: 240-55880-17

Date Collected: 09/24/15 15:35

Matrix: Water

Date Received: 09/26/15 09:45

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	105		78 - 125		10/05/15 14:26	1
4-Bromofluorobenzene (Surr)	79		61 - 120		10/05/15 14:26	1
Toluene-d8 (Surr)	80		80 - 120		10/05/15 14:26	1
Dibromofluoromethane (Surr)	104		79 - 120		10/05/15 14:26	1

Method: RSK-175 - Dissolved Gases (GC)									
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methane	1700		1.0		ug/L	-		10/05/15 18:40	2
Ethane	ND		0.50		ug/L			10/02/15 18:54	1
Ethylene	ND		0.50		ug/L			10/02/15 18:54	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,1,1-Trifluoroethane	100		66 - 132		10/02/15 18:54	1
1,1,1-Trifluoroethane	100		66 - 132		10/05/15 18:40	2

Client Sample Results

Client: Cardinal Resources
Project/Site: Carroll & Dubies Superfund

TestAmerica Job ID: 240-55880-1

Client Sample ID: OW-22

Date Collected: 09/24/15 17:00

Date Received: 09/26/15 09:45

Lab Sample ID: 240-55880-18

Matrix: Water

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	ND		10		ug/L			10/03/15 11:58	1
Benzene	2.0		1.0		ug/L			10/03/15 11:58	1
Dichlorobromomethane	ND		1.0		ug/L			10/03/15 11:58	1
Bromoform	ND		1.0		ug/L			10/03/15 11:58	1
Bromomethane	ND		1.0		ug/L			10/03/15 11:58	1
2-Butanone (MEK)	ND		10		ug/L			10/03/15 11:58	1
Carbon disulfide	ND		1.0		ug/L			10/03/15 11:58	1
Carbon tetrachloride	ND		1.0		ug/L			10/03/15 11:58	1
Chlorobenzene	4.3		1.0		ug/L			10/03/15 11:58	1
Chloroethane	ND		1.0		ug/L			10/03/15 11:58	1
Chloroform	ND		1.0		ug/L			10/03/15 11:58	1
Chloromethane	ND		1.0		ug/L			10/03/15 11:58	1
1,1-Dichloroethane	ND		1.0		ug/L			10/03/15 11:58	1
1,2-Dichloroethane	ND		1.0		ug/L			10/03/15 11:58	1
1,1-Dichloroethene	ND		1.0		ug/L			10/03/15 11:58	1
1,2-Dichloropropane	ND		1.0		ug/L			10/03/15 11:58	1
cis-1,3-Dichloropropene	ND		1.0		ug/L			10/03/15 11:58	1
trans-1,3-Dichloropropene	ND		1.0		ug/L			10/03/15 11:58	1
Ethylbenzene	ND		1.0		ug/L			10/03/15 11:58	1
2-Hexanone	ND		10		ug/L			10/03/15 11:58	1
Methylene Chloride	ND		1.0		ug/L			10/03/15 11:58	1
4-Methyl-2-pentanone (MIBK)	ND		10		ug/L			10/03/15 11:58	1
Styrene	ND		1.0		ug/L			10/03/15 11:58	1
1,1,2,2-Tetrachloroethane	ND		1.0		ug/L			10/03/15 11:58	1
Tetrachloroethene	ND		1.0		ug/L			10/03/15 11:58	1
Toluene	ND		1.0		ug/L			10/03/15 11:58	1
Trichloroethene	ND		1.0		ug/L			10/03/15 11:58	1
Vinyl chloride	ND		1.0		ug/L			10/03/15 11:58	1
Xylenes, Total	ND		2.0		ug/L			10/03/15 11:58	1
1,1,1-Trichloroethane	ND		1.0		ug/L			10/03/15 11:58	1
1,1,2-Trichloroethane	ND		1.0		ug/L			10/03/15 11:58	1
Cyclohexane	ND		1.0		ug/L			10/03/15 11:58	1
1,2-Dibromo-3-Chloropropane	ND		2.0		ug/L			10/03/15 11:58	1
Ethylene Dibromide	ND		1.0		ug/L			10/03/15 11:58	1
Dichlorodifluoromethane	ND		1.0		ug/L			10/03/15 11:58	1
cis-1,2-Dichloroethene	ND		1.0		ug/L			10/03/15 11:58	1
trans-1,2-Dichloroethene	ND		1.0		ug/L			10/03/15 11:58	1
Isopropylbenzene	ND		1.0		ug/L			10/03/15 11:58	1
Methyl acetate	ND		10		ug/L			10/03/15 11:58	1
Methyl tert-butyl ether	ND		1.0		ug/L			10/03/15 11:58	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		1.0		ug/L			10/03/15 11:58	1
1,2,4-Trichlorobenzene	ND		1.0		ug/L			10/03/15 11:58	1
1,2-Dichlorobenzene	ND		1.0		ug/L			10/03/15 11:58	1
1,3-Dichlorobenzene	ND		1.0		ug/L			10/03/15 11:58	1
1,4-Dichlorobenzene	ND		1.0		ug/L			10/03/15 11:58	1
Trichlorofluoromethane	ND		1.0		ug/L			10/03/15 11:58	1
Chlorodibromomethane	ND		1.0		ug/L			10/03/15 11:58	1
Methylcyclohexane	ND		1.0		ug/L			10/03/15 11:58	1

TestAmerica Canton

Client Sample Results

Client: Cardinal Resources
Project/Site: Carroll & Dubies Superfund

TestAmerica Job ID: 240-55880-1

Client Sample ID: OW-22

Date Collected: 09/24/15 17:00

Date Received: 09/26/15 09:45

Lab Sample ID: 240-55880-18

Matrix: Water

<i>Surrogate</i>	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>				<i>Prepared</i>	<i>Analyzed</i>	<i>Dil Fac</i>
1,2-Dichloroethane-d4 (Surr)	108		78 - 125					10/03/15 11:58	1
4-Bromofluorobenzene (Surr)	76		61 - 120					10/03/15 11:58	1
Toluene-d8 (Surr)	80		80 - 120					10/03/15 11:58	1
Dibromofluoromethane (Surr)	103		79 - 120					10/03/15 11:58	1

Method: RSK-175 - Dissolved Gases (GC)									
<i>Analyte</i>	<i>Result</i>	<i>Qualifier</i>	<i>RL</i>	<i>MDL</i>	<i>Unit</i>	<i>D</i>	<i>Prepared</i>	<i>Analyzed</i>	<i>Dil Fac</i>
Methane	1600		0.50		ug/L	-		10/02/15 19:09	1
Ethane	ND		0.50		ug/L			10/02/15 19:09	1
Ethylene	ND		0.50		ug/L			10/02/15 19:09	1

<i>Surrogate</i>	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>				<i>Prepared</i>	<i>Analyzed</i>	<i>Dil Fac</i>
1,1,1-Trifluoroethane	97		66 - 132					10/02/15 19:09	1

TestAmerica Canton

Client Sample Results

Client: Cardinal Resources
Project/Site: Carroll & Dubies Superfund

TestAmerica Job ID: 240-55880-1

Client Sample ID: OW-21

Date Collected: 09/24/15 18:00

Date Received: 09/26/15 09:45

Lab Sample ID: 240-55880-19

Matrix: Water

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	ND		10		ug/L			10/03/15 12:21	1
Benzene	1.4		1.0		ug/L			10/03/15 12:21	1
Dichlorobromomethane	ND		1.0		ug/L			10/03/15 12:21	1
Bromoform	ND		1.0		ug/L			10/03/15 12:21	1
Bromomethane	ND		1.0		ug/L			10/03/15 12:21	1
2-Butanone (MEK)	ND		10		ug/L			10/03/15 12:21	1
Carbon disulfide	ND		1.0		ug/L			10/03/15 12:21	1
Carbon tetrachloride	ND		1.0		ug/L			10/03/15 12:21	1
Chlorobenzene	ND		1.0		ug/L			10/03/15 12:21	1
Chloroethane	ND		1.0		ug/L			10/03/15 12:21	1
Chloroform	ND		1.0		ug/L			10/03/15 12:21	1
Chloromethane	ND		1.0		ug/L			10/03/15 12:21	1
1,1-Dichloroethane	ND		1.0		ug/L			10/03/15 12:21	1
1,2-Dichloroethane	ND		1.0		ug/L			10/03/15 12:21	1
1,1-Dichloroethene	ND		1.0		ug/L			10/03/15 12:21	1
1,2-Dichloropropane	ND		1.0		ug/L			10/03/15 12:21	1
cis-1,3-Dichloropropene	ND		1.0		ug/L			10/03/15 12:21	1
trans-1,3-Dichloropropene	ND		1.0		ug/L			10/03/15 12:21	1
Ethylbenzene	ND		1.0		ug/L			10/03/15 12:21	1
2-Hexanone	ND		10		ug/L			10/03/15 12:21	1
Methylene Chloride	ND		1.0		ug/L			10/03/15 12:21	1
4-Methyl-2-pentanone (MIBK)	ND		10		ug/L			10/03/15 12:21	1
Styrene	ND		1.0		ug/L			10/03/15 12:21	1
1,1,2,2-Tetrachloroethane	ND		1.0		ug/L			10/03/15 12:21	1
Tetrachloroethene	ND		1.0		ug/L			10/03/15 12:21	1
Toluene	ND		1.0		ug/L			10/03/15 12:21	1
Trichloroethene	ND		1.0		ug/L			10/03/15 12:21	1
Vinyl chloride	ND		1.0		ug/L			10/03/15 12:21	1
Xylenes, Total	ND		2.0		ug/L			10/03/15 12:21	1
1,1,1-Trichloroethane	ND		1.0		ug/L			10/03/15 12:21	1
1,1,2-Trichloroethane	ND		1.0		ug/L			10/03/15 12:21	1
Cyclohexane	ND		1.0		ug/L			10/03/15 12:21	1
1,2-Dibromo-3-Chloropropane	ND		2.0		ug/L			10/03/15 12:21	1
Ethylene Dibromide	ND		1.0		ug/L			10/03/15 12:21	1
Dichlorodifluoromethane	ND		1.0		ug/L			10/03/15 12:21	1
cis-1,2-Dichloroethene	ND		1.0		ug/L			10/03/15 12:21	1
trans-1,2-Dichloroethene	ND		1.0		ug/L			10/03/15 12:21	1
Isopropylbenzene	ND		1.0		ug/L			10/03/15 12:21	1
Methyl acetate	ND		10		ug/L			10/03/15 12:21	1
Methyl tert-butyl ether	ND		1.0		ug/L			10/03/15 12:21	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		1.0		ug/L			10/03/15 12:21	1
1,2,4-Trichlorobenzene	ND		1.0		ug/L			10/03/15 12:21	1
1,2-Dichlorobenzene	ND		1.0		ug/L			10/03/15 12:21	1
1,3-Dichlorobenzene	ND		1.0		ug/L			10/03/15 12:21	1
1,4-Dichlorobenzene	ND		1.0		ug/L			10/03/15 12:21	1
Trichlorofluoromethane	ND		1.0		ug/L			10/03/15 12:21	1
Chlorodibromomethane	ND		1.0		ug/L			10/03/15 12:21	1
Methylcyclohexane	ND		1.0		ug/L			10/03/15 12:21	1

TestAmerica Canton

Client Sample Results

Client: Cardinal Resources
Project/Site: Carroll & Dubies Superfund

TestAmerica Job ID: 240-55880-1

Client Sample ID: OW-21

Date Collected: 09/24/15 18:00

Date Received: 09/26/15 09:45

Lab Sample ID: 240-55880-19

Matrix: Water

<i>Surrogate</i>	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>				<i>Prepared</i>	<i>Analyzed</i>	<i>Dil Fac</i>
1,2-Dichloroethane-d4 (Surr)	109		78 - 125					10/03/15 12:21	1
4-Bromofluorobenzene (Surr)	73		61 - 120					10/03/15 12:21	1
Toluene-d8 (Surr)	81		80 - 120					10/03/15 12:21	1
Dibromofluoromethane (Surr)	99		79 - 120					10/03/15 12:21	1

Method: RSK-175 - Dissolved Gases (GC)									
<i>Analyte</i>	<i>Result</i>	<i>Qualifier</i>	<i>RL</i>	<i>MDL</i>	<i>Unit</i>	<i>D</i>	<i>Prepared</i>	<i>Analyzed</i>	<i>Dil Fac</i>
Methane	100		0.50		ug/L	-		10/02/15 19:25	1
Ethane	ND		0.50		ug/L			10/02/15 19:25	1
Ethylene	ND		0.50		ug/L			10/02/15 19:25	1

<i>Surrogate</i>	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>				<i>Prepared</i>	<i>Analyzed</i>	<i>Dil Fac</i>
1,1,1-Trifluoroethane	98		66 - 132					10/02/15 19:25	1

TestAmerica Canton

Client Sample Results

Client: Cardinal Resources
Project/Site: Carroll & Dubies Superfund

TestAmerica Job ID: 240-55880-1

Client Sample ID: FB-2

Date Collected: 09/24/15 18:30

Date Received: 09/26/15 09:45

Lab Sample ID: 240-55880-20

Matrix: Water

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	ND		10		ug/L			10/03/15 12:44	1
Benzene	ND		1.0		ug/L			10/03/15 12:44	1
Dichlorobromomethane	ND		1.0		ug/L			10/03/15 12:44	1
Bromoform	ND		1.0		ug/L			10/03/15 12:44	1
Bromomethane	ND		1.0		ug/L			10/03/15 12:44	1
2-Butanone (MEK)	ND		10		ug/L			10/03/15 12:44	1
Carbon disulfide	ND		1.0		ug/L			10/03/15 12:44	1
Carbon tetrachloride	ND		1.0		ug/L			10/03/15 12:44	1
Chlorobenzene	ND		1.0		ug/L			10/03/15 12:44	1
Chloroethane	ND		1.0		ug/L			10/03/15 12:44	1
Chloroform	ND		1.0		ug/L			10/03/15 12:44	1
Chloromethane	ND		1.0		ug/L			10/03/15 12:44	1
1,1-Dichloroethane	ND		1.0		ug/L			10/03/15 12:44	1
1,2-Dichloroethane	ND		1.0		ug/L			10/03/15 12:44	1
1,1-Dichloroethene	ND		1.0		ug/L			10/03/15 12:44	1
1,2-Dichloropropane	ND		1.0		ug/L			10/03/15 12:44	1
cis-1,3-Dichloropropene	ND		1.0		ug/L			10/03/15 12:44	1
trans-1,3-Dichloropropene	ND		1.0		ug/L			10/03/15 12:44	1
Ethylbenzene	ND		1.0		ug/L			10/03/15 12:44	1
2-Hexanone	ND		10		ug/L			10/03/15 12:44	1
Methylene Chloride	ND		1.0		ug/L			10/03/15 12:44	1
4-Methyl-2-pentanone (MIBK)	ND		10		ug/L			10/03/15 12:44	1
Styrene	ND		1.0		ug/L			10/03/15 12:44	1
1,1,2,2-Tetrachloroethane	ND		1.0		ug/L			10/03/15 12:44	1
Tetrachloroethene	ND		1.0		ug/L			10/03/15 12:44	1
Toluene	ND		1.0		ug/L			10/03/15 12:44	1
Trichloroethene	ND		1.0		ug/L			10/03/15 12:44	1
Vinyl chloride	ND		1.0		ug/L			10/03/15 12:44	1
Xylenes, Total	ND		2.0		ug/L			10/03/15 12:44	1
1,1,1-Trichloroethane	ND		1.0		ug/L			10/03/15 12:44	1
1,1,2-Trichloroethane	ND		1.0		ug/L			10/03/15 12:44	1
Cyclohexane	ND		1.0		ug/L			10/03/15 12:44	1
1,2-Dibromo-3-Chloropropane	ND		2.0		ug/L			10/03/15 12:44	1
Ethylene Dibromide	ND		1.0		ug/L			10/03/15 12:44	1
Dichlorodifluoromethane	ND		1.0		ug/L			10/03/15 12:44	1
cis-1,2-Dichloroethene	ND		1.0		ug/L			10/03/15 12:44	1
trans-1,2-Dichloroethene	ND		1.0		ug/L			10/03/15 12:44	1
Isopropylbenzene	ND		1.0		ug/L			10/03/15 12:44	1
Methyl acetate	ND		10		ug/L			10/03/15 12:44	1
Methyl tert-butyl ether	ND		1.0		ug/L			10/03/15 12:44	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		1.0		ug/L			10/03/15 12:44	1
1,2,4-Trichlorobenzene	ND		1.0		ug/L			10/03/15 12:44	1
1,2-Dichlorobenzene	ND		1.0		ug/L			10/03/15 12:44	1
1,3-Dichlorobenzene	ND		1.0		ug/L			10/03/15 12:44	1
1,4-Dichlorobenzene	ND		1.0		ug/L			10/03/15 12:44	1
Trichlorofluoromethane	ND		1.0		ug/L			10/03/15 12:44	1
Chlorodibromomethane	ND		1.0		ug/L			10/03/15 12:44	1
Methylcyclohexane	ND		1.0		ug/L			10/03/15 12:44	1

TestAmerica Canton

Client Sample Results

Client: Cardinal Resources
Project/Site: Carroll & Dubies Superfund

TestAmerica Job ID: 240-55880-1

Client Sample ID: FB-2

Date Collected: 09/24/15 18:30

Date Received: 09/26/15 09:45

Lab Sample ID: 240-55880-20

Matrix: Water

<i>Surrogate</i>	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>	<i>Prepared</i>	<i>Analyzed</i>	<i>Dil Fac</i>
1,2-Dichloroethane-d4 (Surr)	112		78 - 125		10/03/15 12:44	1
4-Bromofluorobenzene (Surr)	73		61 - 120		10/03/15 12:44	1
Toluene-d8 (Surr)	81		80 - 120		10/03/15 12:44	1
Dibromofluoromethane (Surr)	106		79 - 120		10/03/15 12:44	1

Client Sample Results

Client: Cardinal Resources
Project/Site: Carroll & Dubies Superfund

TestAmerica Job ID: 240-55880-1

Client Sample ID: TRIP BLANK 1

Lab Sample ID: 240-55880-21

Date Collected: 09/24/15 18:30

Matrix: Water

Date Received: 09/26/15 09:45

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	ND		10		ug/L			10/03/15 13:06	1
Benzene	ND		1.0		ug/L			10/03/15 13:06	1
Dichlorobromomethane	ND		1.0		ug/L			10/03/15 13:06	1
Bromoform	ND		1.0		ug/L			10/03/15 13:06	1
Bromomethane	ND		1.0		ug/L			10/03/15 13:06	1
2-Butanone (MEK)	ND		10		ug/L			10/03/15 13:06	1
Carbon disulfide	ND		1.0		ug/L			10/03/15 13:06	1
Carbon tetrachloride	ND		1.0		ug/L			10/03/15 13:06	1
Chlorobenzene	ND		1.0		ug/L			10/03/15 13:06	1
Chloroethane	ND		1.0		ug/L			10/03/15 13:06	1
Chloroform	ND		1.0		ug/L			10/03/15 13:06	1
Chloromethane	ND		1.0		ug/L			10/03/15 13:06	1
1,1-Dichloroethane	ND		1.0		ug/L			10/03/15 13:06	1
1,2-Dichloroethane	ND		1.0		ug/L			10/03/15 13:06	1
1,1-Dichloroethene	ND		1.0		ug/L			10/03/15 13:06	1
1,2-Dichloropropane	ND		1.0		ug/L			10/03/15 13:06	1
cis-1,3-Dichloropropene	ND		1.0		ug/L			10/03/15 13:06	1
trans-1,3-Dichloropropene	ND		1.0		ug/L			10/03/15 13:06	1
Ethylbenzene	ND		1.0		ug/L			10/03/15 13:06	1
2-Hexanone	ND		10		ug/L			10/03/15 13:06	1
Methylene Chloride	ND		1.0		ug/L			10/03/15 13:06	1
4-Methyl-2-pentanone (MIBK)	ND		10		ug/L			10/03/15 13:06	1
Styrene	ND		1.0		ug/L			10/03/15 13:06	1
1,1,2,2-Tetrachloroethane	ND		1.0		ug/L			10/03/15 13:06	1
Tetrachloroethene	ND		1.0		ug/L			10/03/15 13:06	1
Toluene	ND		1.0		ug/L			10/03/15 13:06	1
Trichloroethene	ND		1.0		ug/L			10/03/15 13:06	1
Vinyl chloride	ND		1.0		ug/L			10/03/15 13:06	1
Xylenes, Total	ND		2.0		ug/L			10/03/15 13:06	1
1,1,1-Trichloroethane	ND		1.0		ug/L			10/03/15 13:06	1
1,1,2-Trichloroethane	ND		1.0		ug/L			10/03/15 13:06	1
Cyclohexane	ND		1.0		ug/L			10/03/15 13:06	1
1,2-Dibromo-3-Chloropropane	ND		2.0		ug/L			10/03/15 13:06	1
Ethylene Dibromide	ND		1.0		ug/L			10/03/15 13:06	1
Dichlorodifluoromethane	ND		1.0		ug/L			10/03/15 13:06	1
cis-1,2-Dichloroethene	ND		1.0		ug/L			10/03/15 13:06	1
trans-1,2-Dichloroethene	ND		1.0		ug/L			10/03/15 13:06	1
Isopropylbenzene	ND		1.0		ug/L			10/03/15 13:06	1
Methyl acetate	ND		10		ug/L			10/03/15 13:06	1
Methyl tert-butyl ether	ND		1.0		ug/L			10/03/15 13:06	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		1.0		ug/L			10/03/15 13:06	1
1,2,4-Trichlorobenzene	ND		1.0		ug/L			10/03/15 13:06	1
1,2-Dichlorobenzene	ND		1.0		ug/L			10/03/15 13:06	1
1,3-Dichlorobenzene	ND		1.0		ug/L			10/03/15 13:06	1
1,4-Dichlorobenzene	ND		1.0		ug/L			10/03/15 13:06	1
Trichlorofluoromethane	ND		1.0		ug/L			10/03/15 13:06	1
Chlorodibromomethane	ND		1.0		ug/L			10/03/15 13:06	1
Methylcyclohexane	ND		1.0		ug/L			10/03/15 13:06	1

TestAmerica Canton

Client Sample Results

Client: Cardinal Resources
Project/Site: Carroll & Dubies Superfund

TestAmerica Job ID: 240-55880-1

Client Sample ID: TRIP BLANK 1

Lab Sample ID: 240-55880-21

Date Collected: 09/24/15 18:30

Matrix: Water

Date Received: 09/26/15 09:45

<i>Surrogate</i>	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>	<i>Prepared</i>	<i>Analyzed</i>	<i>Dil Fac</i>
1,2-Dichloroethane-d4 (Surr)	111		78 - 125		10/03/15 13:06	1
4-Bromofluorobenzene (Surr)	73		61 - 120		10/03/15 13:06	1
Toluene-d8 (Surr)	82		80 - 120		10/03/15 13:06	1
Dibromofluoromethane (Surr)	105		79 - 120		10/03/15 13:06	1

Surrogate Summary

Client: Cardinal Resources
Project/Site: Carroll & Dubies Superfund

TestAmerica Job ID: 240-55880-1

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

Matrix: Solid

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)			
		12DCE (58-123)	BFB (52-136)	TOL (67-125)	DBFM (37-132)
240-55880-3	SED-2	114	118	112	100
240-55880-4	SED-2 DUP	114	109 *	108	100
240-55880-4 MS	SED-2 DUP	108	114 *	107	101
240-55880-4 MSD	SED-2 DUP	102	120 *	122	102
240-55880-12	SED-1	76	99	96	94
240-55880-12 MS	SED-1	75	101	96	99
240-55880-12 MSD	SED-1	76	105	97	96
LCS 240-199693/5	Lab Control Sample	77	92	96	101
LCS 240-199773/5	Lab Control Sample	107	90	96	101
LCS 240-199891/5	Lab Control Sample	107	95	100	103
MB 240-199693/6	Method Blank	78	95	96	98
MB 240-199773/6	Method Blank	103	84	92	90
MB 240-199891/6	Method Blank	107	87	95	96

Surrogate Legend

12DCE = 1,2-Dichloroethane-d4 (Surr)

BFB = 4-Bromofluorobenzene (Surr)

TOL = Toluene-d8 (Surr)

DBFM = Dibromofluoromethane (Surr)

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

Matrix: Water

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)			
		12DCE (78-125)	BFB (61-120)	TOL (80-120)	DBFM (79-120)
240-55880-1	OW-24	97	88	91	93
240-55880-2	SW-2	115	74	82	107
240-55880-2 MS	SW-2	94	98	94	92
240-55880-2 MSD	SW-2	93	97	93	90
240-55880-5	OW-18	107	82	82	99
240-55880-6	OW-19	112	75	82	104
240-55880-7	OW-13R	108	75	84	101
240-55880-8	FB-1	111	74	82	106
240-55880-9	PUMP RINSATE BLANK	113	71	80	105
240-55880-10	SW-1	113	74	80	107
240-55880-11	SW-1 DUP	117	70	81	107
240-55880-13	OW-5	114	75	82	108
240-55880-14	OW-5 DUP	113	74	83	107
240-55880-15	OW-6	94	87	88	91
240-55880-15 MS	OW-6	88	96	97	90
240-55880-15 MSD	OW-6	90	96	97	92
240-55880-16	OW-2	114	74	81	107
240-55880-17	OW-10R	105	79	80	104
240-55880-18	OW-22	108	76	80	103
240-55880-19	OW-21	109	73	81	99
240-55880-20	FB-2	112	73	81	106
240-55880-21	TRIP BLANK 1	111	73	82	105
LCS 240-199815/4	Lab Control Sample	91	94	93	91

TestAmerica Canton

Surrogate Summary

Client: Cardinal Resources
Project/Site: Carroll & Dubies Superfund

TestAmerica Job ID: 240-55880-1

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

Matrix: Water

Prep Type: Total/NA

Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	12DCE (78-125)	BFB (61-120)	TOL (80-120)	DBFM (79-120)
LCS 240-200197/4	Lab Control Sample	92	96	92	88
LCS 240-200347/4	Lab Control Sample	93	94	91	94
LCS 240-200361/4	Lab Control Sample	91	94	94	94
LCS 240-200531/8	Lab Control Sample	90	97	98	90
MB 240-199815/6	Method Blank	105	72	83	102
MB 240-200197/6	Method Blank	110	72	83	101
MB 240-200347/6	Method Blank	110	78	83	107
MB 240-200361/6	Method Blank	95	86	95	91
MB 240-200531/6	Method Blank	96	86	92	95

Surrogate Legend

12DCE = 1,2-Dichloroethane-d4 (Surr)

BFB = 4-Bromofluorobenzene (Surr)

TOL = Toluene-d8 (Surr)

DBFM = Dibromofluoromethane (Surr)

Method: RSK-175 - Dissolved Gases (GC)

Matrix: Water

Prep Type: Total/NA

Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	Trifluoroethane (66-132)
240-55880-1	OW-24	106
240-55880-5	OW-18	107
240-55880-6	OW-19	104
240-55880-7	OW-13R	107
240-55880-13	OW-5	101
240-55880-14	OW-5 DUP	103
240-55880-15	OW-6	101
240-55880-15 MS	OW-6	97
240-55880-15 MSD	OW-6	95
240-55880-16	OW-2	96
240-55880-17	OW-10R	100
240-55880-17	OW-10R	100
240-55880-18	OW-22	97
240-55880-19	OW-21	98
LCS 240-200095/5	Lab Control Sample	107
LCS 240-200362/5	Lab Control Sample	111
MB 240-200095/4	Method Blank	106
MB 240-200362/4	Method Blank	106

Surrogate Legend

1,1,1-Trifluoroethane = 1,1,1-Trifluoroethane

TestAmerica Canton

QC Sample Results

Client: Cardinal Resources
Project/Site: Carroll & Dubies Superfund

TestAmerica Job ID: 240-55880-1

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

Lab Sample ID: MB 240-199693/6

Matrix: Solid

Analysis Batch: 199693

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	ND		20		ug/Kg			09/30/15 10:45	1
Benzene	ND		5.0		ug/Kg			09/30/15 10:45	1
Dichlorobromomethane	ND		5.0		ug/Kg			09/30/15 10:45	1
Bromoform	ND		5.0		ug/Kg			09/30/15 10:45	1
Bromomethane	ND		5.0		ug/Kg			09/30/15 10:45	1
2-Butanone (MEK)	ND		20		ug/Kg			09/30/15 10:45	1
Carbon disulfide	ND		5.0		ug/Kg			09/30/15 10:45	1
Carbon tetrachloride	ND		5.0		ug/Kg			09/30/15 10:45	1
Chlorobenzene	ND		5.0		ug/Kg			09/30/15 10:45	1
Chloroethane	ND		5.0		ug/Kg			09/30/15 10:45	1
Chloroform	ND		5.0		ug/Kg			09/30/15 10:45	1
Chloromethane	ND		5.0		ug/Kg			09/30/15 10:45	1
1,1-Dichloroethane	ND		5.0		ug/Kg			09/30/15 10:45	1
1,2-Dichloroethane	ND		5.0		ug/Kg			09/30/15 10:45	1
1,1-Dichloroethene	ND		5.0		ug/Kg			09/30/15 10:45	1
1,2-Dichloropropane	ND		5.0		ug/Kg			09/30/15 10:45	1
cis-1,3-Dichloropropene	ND		5.0		ug/Kg			09/30/15 10:45	1
trans-1,3-Dichloropropene	ND		5.0		ug/Kg			09/30/15 10:45	1
Ethylbenzene	ND		5.0		ug/Kg			09/30/15 10:45	1
2-Hexanone	ND		20		ug/Kg			09/30/15 10:45	1
Methylene Chloride	5.34		5.0		ug/Kg			09/30/15 10:45	1
4-Methyl-2-pentanone (MIBK)	ND		20		ug/Kg			09/30/15 10:45	1
Styrene	ND		5.0		ug/Kg			09/30/15 10:45	1
1,1,2,2-Tetrachloroethane	ND		5.0		ug/Kg			09/30/15 10:45	1
Tetrachloroethene	ND		5.0		ug/Kg			09/30/15 10:45	1
Toluene	ND		5.0		ug/Kg			09/30/15 10:45	1
Trichloroethene	ND		5.0		ug/Kg			09/30/15 10:45	1
Vinyl chloride	ND		5.0		ug/Kg			09/30/15 10:45	1
Xylenes, Total	ND		10		ug/Kg			09/30/15 10:45	1
1,1,1-Trichloroethane	ND		5.0		ug/Kg			09/30/15 10:45	1
1,1,2-Trichloroethane	ND		5.0		ug/Kg			09/30/15 10:45	1
Cyclohexane	ND		10		ug/Kg			09/30/15 10:45	1
1,2-Dibromo-3-Chloropropane	ND		10		ug/Kg			09/30/15 10:45	1
Ethylene Dibromide	ND		5.0		ug/Kg			09/30/15 10:45	1
Dichlorodifluoromethane	ND		5.0		ug/Kg			09/30/15 10:45	1
cis-1,2-Dichloroethene	ND		5.0		ug/Kg			09/30/15 10:45	1
trans-1,2-Dichloroethene	ND		5.0		ug/Kg			09/30/15 10:45	1
Isopropylbenzene	ND		5.0		ug/Kg			09/30/15 10:45	1
Methyl acetate	ND		10		ug/Kg			09/30/15 10:45	1
Methyl tert-butyl ether	ND		5.0		ug/Kg			09/30/15 10:45	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		5.0		ug/Kg			09/30/15 10:45	1
1,2,4-Trichlorobenzene	ND		5.0		ug/Kg			09/30/15 10:45	1
1,2-Dichlorobenzene	ND		5.0		ug/Kg			09/30/15 10:45	1
1,3-Dichlorobenzene	ND		5.0		ug/Kg			09/30/15 10:45	1
1,4-Dichlorobenzene	ND		5.0		ug/Kg			09/30/15 10:45	1
Trichlorofluoromethane	ND		5.0		ug/Kg			09/30/15 10:45	1
Chlorodibromomethane	ND		5.0		ug/Kg			09/30/15 10:45	1
Methylcyclohexane	ND		10		ug/Kg			09/30/15 10:45	1

TestAmerica Canton

QC Sample Results

Client: Cardinal Resources
Project/Site: Carroll & Dubies Superfund

TestAmerica Job ID: 240-55880-1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	78		58 - 123		09/30/15 10:45	1
4-Bromofluorobenzene (Surr)	95		52 - 136		09/30/15 10:45	1
Toluene-d8 (Surr)	96		67 - 125		09/30/15 10:45	1
Dibromofluoromethane (Surr)	98		37 - 132		09/30/15 10:45	1

Lab Sample ID: LCS 240-199693/5

Matrix: Solid

Analysis Batch: 199693

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Acetone	40.0	54.3		ug/Kg		136	41 - 137
Benzene	20.0	20.7		ug/Kg		104	79 - 120
Dichlorobromomethane	20.0	17.2		ug/Kg		86	80 - 122
Bromoform	20.0	20.0		ug/Kg		100	62 - 133
Bromomethane	20.0	14.4		ug/Kg		72	42 - 136
2-Butanone (MEK)	40.0	47.6		ug/Kg		119	52 - 131
Carbon disulfide	20.0	20.3		ug/Kg		102	62 - 146
Carbon tetrachloride	20.0	17.7		ug/Kg		89	71 - 129
Chlorobenzene	20.0	20.0		ug/Kg		100	78 - 120
Chloroethane	20.0	15.9		ug/Kg		80	58 - 120
Chloroform	20.0	17.4		ug/Kg		87	77 - 120
Chloromethane	20.0	21.2		ug/Kg		106	50 - 120
1,1-Dichloroethane	20.0	19.4		ug/Kg		97	76 - 120
1,2-Dichloroethane	20.0	17.3		ug/Kg		87	72 - 120
1,1-Dichloroethene	20.0	18.8		ug/Kg		94	75 - 135
1,2-Dichloropropane	20.0	20.3		ug/Kg		101	80 - 120
cis-1,3-Dichloropropene	20.0	20.7		ug/Kg		103	74 - 128
trans-1,3-Dichloropropene	20.0	19.7		ug/Kg		98	73 - 131
Ethylbenzene	20.0	20.3		ug/Kg		102	79 - 120
2-Hexanone	40.0	43.5		ug/Kg		109	64 - 136
Methylene Chloride	20.0	25.5 *		ug/Kg		128	75 - 120
4-Methyl-2-pentanone (MIBK)	40.0	43.6		ug/Kg		109	67 - 135
Styrene	20.0	19.6		ug/Kg		98	80 - 120
1,1,2,2-Tetrachloroethane	20.0	22.1		ug/Kg		110	77 - 123
Tetrachloroethene	20.0	21.7		ug/Kg		108	79 - 120
Toluene	20.0	17.9		ug/Kg		89	75 - 120
Trichloroethene	20.0	20.9		ug/Kg		105	79 - 120
Vinyl chloride	20.0	15.7		ug/Kg		78	57 - 120
Xylenes, Total	40.0	39.8		ug/Kg		100	80 - 120
1,1,1-Trichloroethane	20.0	16.6		ug/Kg		83	77 - 126
1,1,2-Trichloroethane	20.0	18.7		ug/Kg		94	80 - 120
Cyclohexane	20.0	22.1		ug/Kg		111	66 - 120
1,2-Dibromo-3-Chloropropane	20.0	21.0		ug/Kg		105	61 - 132
Ethylene Dibromide	20.0	20.9		ug/Kg		105	80 - 120
Dichlorodifluoromethane	20.0	19.5		ug/Kg		98	26 - 120
cis-1,2-Dichloroethene	20.0	19.7		ug/Kg		99	76 - 120
trans-1,2-Dichloroethene	20.0	21.6		ug/Kg		108	78 - 120
Isopropylbenzene	20.0	19.1		ug/Kg		96	76 - 122
Methyl acetate	100	120		ug/Kg		120	57 - 130
Methyl tert-butyl ether	20.0	18.0		ug/Kg		90	49 - 165
1,1,2-Trichloro-1,2,2-trifluoroethane	20.0	17.7		ug/Kg		88	80 - 138
1,2,4-Trichlorobenzene	20.0	17.2		ug/Kg		86	64 - 124
1,2-Dichlorobenzene	20.0	21.7		ug/Kg		108	76 - 120

TestAmerica Canton

QC Sample Results

Client: Cardinal Resources
Project/Site: Carroll & Dubies Superfund

TestAmerica Job ID: 240-55880-1

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

Lab Sample ID: LCS 240-199693/5

Matrix: Solid

Analysis Batch: 199693

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,3-Dichlorobenzene	20.0	21.2		ug/Kg		106	78 - 120
1,4-Dichlorobenzene	20.0	21.5		ug/Kg		107	75 - 120
Trichlorofluoromethane	20.0	15.9		ug/Kg		80	57 - 146
Chlorodibromomethane	20.0	18.5		ug/Kg		93	72 - 127
Methylcyclohexane	20.0	19.9		ug/Kg		99	70 - 126
m-Xylene & p-Xylene	20.0	19.4		ug/Kg		97	80 - 120
o-Xylene	20.0	20.4		ug/Kg		102	80 - 120

Surrogate	LCS %Recovery	LCS Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	77		58 - 123
4-Bromofluorobenzene (Surr)	92		52 - 136
Toluene-d8 (Surr)	96		67 - 125
Dibromofluoromethane (Surr)	101		37 - 132

Lab Sample ID: 240-55880-12 MS

Matrix: Solid

Analysis Batch: 199693

Client Sample ID: SED-1

Prep Type: Total/NA

Prep Batch: 199736

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Acetone	160		291	412		ug/Kg	☼	88	24 - 140
Benzene	ND		146	104		ug/Kg	☼	71	53 - 120
Dichlorobromomethane	ND		146	63.7		ug/Kg	☼	44	35 - 132
Bromoform	ND		146	46.4		ug/Kg	☼	32	18 - 129
Bromomethane	ND		146	77.0		ug/Kg	☼	53	33 - 130
2-Butanone (MEK)	ND		291	288		ug/Kg	☼	85	30 - 143
Carbon disulfide	ND		146	90.6		ug/Kg	☼	62	20 - 151
Carbon tetrachloride	ND		146	58.1		ug/Kg	☼	40	32 - 137
Chlorobenzene	ND		146	84.0		ug/Kg	☼	58	37 - 120
Chloroethane	ND		146	91.3		ug/Kg	☼	63	45 - 120
Chloroform	ND		146	91.5		ug/Kg	☼	63	53 - 120
Chloromethane	ND		146	114		ug/Kg	☼	78	34 - 120
1,1-Dichloroethane	ND		146	100		ug/Kg	☼	69	54 - 122
1,2-Dichloroethane	ND		146	87.7		ug/Kg	☼	60	49 - 123
1,1-Dichloroethene	ND		146	93.7		ug/Kg	☼	64	49 - 157
1,2-Dichloropropane	ND		146	103		ug/Kg	☼	71	61 - 120
cis-1,3-Dichloropropene	ND		146	72.0		ug/Kg	☼	49	27 - 133
trans-1,3-Dichloropropene	ND		146	69.4		ug/Kg	☼	48	28 - 137
Ethylbenzene	ND		146	85.0		ug/Kg	☼	58	30 - 131
2-Hexanone	ND		291	214		ug/Kg	☼	74	37 - 147
Methylene Chloride	ND		146	139		ug/Kg	☼	75	54 - 120
4-Methyl-2-pentanone (MIBK)	ND		291	222		ug/Kg	☼	76	43 - 147
Styrene	ND		146	46.1		ug/Kg	☼	32	27 - 127
1,1,2,2-Tetrachloroethane	ND		146	96.0		ug/Kg	☼	66	16 - 179
Tetrachloroethene	ND		146	84.2		ug/Kg	☼	58	31 - 135
Toluene	ND		146	84.5		ug/Kg	☼	58	39 - 129
Trichloroethene	ND		146	94.6		ug/Kg	☼	65	10 - 177
Vinyl chloride	ND		146	88.9		ug/Kg	☼	61	42 - 120
Xylenes, Total	ND		291	162		ug/Kg	☼	55	30 - 131

TestAmerica Canton

QC Sample Results

Client: Cardinal Resources
Project/Site: Carroll & Dubies Superfund

TestAmerica Job ID: 240-55880-1

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

Lab Sample ID: 240-55880-12 MS

Matrix: Solid

Analysis Batch: 199693

Client Sample ID: SED-1

Prep Type: Total/NA

Prep Batch: 199736

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
1,1,1-Trichloroethane	ND		146	77.8		ug/Kg	☼	53	51 - 128
1,1,2-Trichloroethane	ND		146	93.3		ug/Kg	☼	64	10 - 166
Cyclohexane	ND		146	90.0		ug/Kg	☼	62	28 - 120
1,2-Dibromo-3-Chloropropane	ND		146	75.8		ug/Kg	☼	52	10 - 153
Ethylene Dibromide	ND		146	99.0		ug/Kg	☼	68	45 - 127
Dichlorodifluoromethane	ND		146	109		ug/Kg	☼	75	17 - 120
cis-1,2-Dichloroethene	ND		146	103		ug/Kg	☼	71	50 - 120
trans-1,2-Dichloroethene	ND		146	105		ug/Kg	☼	72	50 - 123
Isopropylbenzene	ND		146	69.2		ug/Kg	☼	48	21 - 134
Methyl acetate	ND		728	587		ug/Kg	☼	81	33 - 165
Methyl tert-butyl ether	ND		146	99.0		ug/Kg	☼	68	51 - 157
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		146	82.1		ug/Kg	☼	56	50 - 147
1,2,4-Trichlorobenzene	ND		146	ND		ug/Kg	☼	21	10 - 120
1,2-Dichlorobenzene	ND		146	67.7		ug/Kg	☼	46	17 - 122
1,3-Dichlorobenzene	ND		146	69.4		ug/Kg	☼	48	16 - 126
1,4-Dichlorobenzene	ND		146	71.0		ug/Kg	☼	49	15 - 121
Trichlorofluoromethane	ND		146	85.0		ug/Kg	☼	58	36 - 142
Methylcyclohexane	ND		146	ND		ug/Kg	☼	46	20 - 132
m-Xylene & p-Xylene	ND		146	78.2		ug/Kg	☼	54	29 - 131
o-Xylene	ND		146	83.3		ug/Kg	☼	57	29 - 134

Surrogate	MS %Recovery	MS Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	75		58 - 123
4-Bromofluorobenzene (Surr)	101		52 - 136
Toluene-d8 (Surr)	96		67 - 125
Dibromofluoromethane (Surr)	99		37 - 132

Lab Sample ID: 240-55880-12 MSD

Matrix: Solid

Analysis Batch: 199693

Client Sample ID: SED-1

Prep Type: Total/NA

Prep Batch: 199736

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Acetone	160		298	482		ug/Kg	☼	109	24 - 140	16	30
Benzene	ND		149	106		ug/Kg	☼	71	53 - 120	2	30
Dichlorobromomethane	ND		149	62.8		ug/Kg	☼	42	35 - 132	1	30
Bromoform	ND		149	45.6		ug/Kg	☼	31	18 - 129	2	30
Bromomethane	ND		149	74.1		ug/Kg	☼	50	33 - 130	4	30
2-Butanone (MEK)	ND		298	307		ug/Kg	☼	90	30 - 143	6	30
Carbon disulfide	ND		149	86.9		ug/Kg	☼	58	20 - 151	4	30
Carbon tetrachloride	ND		149	55.3		ug/Kg	☼	37	32 - 137	5	30
Chlorobenzene	ND		149	83.0		ug/Kg	☼	56	37 - 120	1	30
Chloroethane	ND		149	86.9		ug/Kg	☼	58	45 - 120	5	30
Chloroform	ND		149	90.2		ug/Kg	☼	60	53 - 120	1	30
Chloromethane	ND		149	106		ug/Kg	☼	71	34 - 120	8	30
1,1-Dichloroethane	ND		149	102		ug/Kg	☼	68	54 - 122	2	30
1,2-Dichloroethane	ND		149	88.7		ug/Kg	☼	59	49 - 123	1	30
1,1-Dichloroethene	ND		149	97.0		ug/Kg	☼	65	49 - 157	3	30

TestAmerica Canton

QC Sample Results

Client: Cardinal Resources
Project/Site: Carroll & Dubies Superfund

TestAmerica Job ID: 240-55880-1

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

Lab Sample ID: 240-55880-12 MSD

Matrix: Solid

Analysis Batch: 199693

Client Sample ID: SED-1

Prep Type: Total/NA

Prep Batch: 199736

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
1,2-Dichloropropane	ND		149	106		ug/Kg	✱	71	61 - 120	3	30
cis-1,3-Dichloropropene	ND		149	68.2		ug/Kg	✱	46	27 - 133	5	30
trans-1,3-Dichloropropene	ND		149	65.7		ug/Kg	✱	44	28 - 137	5	30
Ethylbenzene	ND		149	83.9		ug/Kg	✱	56	30 - 131	1	30
2-Hexanone	ND		298	221		ug/Kg	✱	74	37 - 147	3	30
Methylene Chloride	ND		149	145		ug/Kg	✱	78	54 - 120	4	30
4-Methyl-2-pentanone (MIBK)	ND		298	237		ug/Kg	✱	80	43 - 147	7	30
Styrene	ND		149	46.5		ug/Kg	✱	31	27 - 127	1	30
1,1,2,2-Tetrachloroethane	ND		149	101		ug/Kg	✱	68	16 - 179	5	30
Tetrachloroethene	ND		149	88.1		ug/Kg	✱	59	31 - 135	5	30
Toluene	ND		149	87.5		ug/Kg	✱	59	39 - 129	3	30
Trichloroethene	ND		149	96.7		ug/Kg	✱	65	10 - 177	2	30
Vinyl chloride	ND		149	84.5		ug/Kg	✱	57	42 - 120	5	30
Xylenes, Total	ND		298	165		ug/Kg	✱	55	30 - 131	2	30
1,1,1-Trichloroethane	ND		149	77.1		ug/Kg	✱	52	51 - 128	1	30
1,1,2-Trichloroethane	ND		149	97.7		ug/Kg	✱	66	10 - 166	5	30
Cyclohexane	ND		149	91.1		ug/Kg	✱	61	28 - 120	1	30
1,2-Dibromo-3-Chloropropane	ND		149	79.8		ug/Kg	✱	54	10 - 153	5	30
Ethylene Dibromide	ND		149	99.6		ug/Kg	✱	67	45 - 127	1	30
Dichlorodifluoromethane	ND		149	102		ug/Kg	✱	68	17 - 120	6	30
cis-1,2-Dichloroethene	ND		149	101		ug/Kg	✱	67	50 - 120	3	30
trans-1,2-Dichloroethene	ND		149	104		ug/Kg	✱	70	50 - 123	1	30
Isopropylbenzene	ND		149	69.6		ug/Kg	✱	47	21 - 134	1	30
Methyl acetate	ND		746	591		ug/Kg	✱	79	33 - 165	1	30
Methyl tert-butyl ether	ND		149	99.6		ug/Kg	✱	67	51 - 157	1	30
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		149	82.1		ug/Kg	✱	55	50 - 147	0	30
1,2,4-Trichlorobenzene	ND		149	ND		ug/Kg	✱	19	10 - 120	4	30
1,2-Dichlorobenzene	ND		149	64.0		ug/Kg	✱	43	17 - 122	6	30
1,3-Dichlorobenzene	ND		149	65.7		ug/Kg	✱	44	16 - 126	5	30
1,4-Dichlorobenzene	ND		149	66.5		ug/Kg	✱	45	15 - 121	7	30
Trichlorofluoromethane	ND		149	82.9		ug/Kg	✱	56	36 - 142	3	30
Methylcyclohexane	ND		149	ND		ug/Kg	✱	46	20 - 132	1	30
m-Xylene & p-Xylene	ND		149	80.5		ug/Kg	✱	54	29 - 131	3	30
o-Xylene	ND		149	84.7		ug/Kg	✱	57	29 - 134	2	30

Surrogate	MSD %Recovery	MSD Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	76		58 - 123
4-Bromofluorobenzene (Surr)	105		52 - 136
Toluene-d8 (Surr)	97		67 - 125
Dibromofluoromethane (Surr)	96		37 - 132

Lab Sample ID: MB 240-199773/6

Matrix: Solid

Analysis Batch: 199773

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	ND		20		ug/Kg	-		09/30/15 15:12	1

TestAmerica Canton

QC Sample Results

Client: Cardinal Resources
Project/Site: Carroll & Dubies Superfund

TestAmerica Job ID: 240-55880-1

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

Lab Sample ID: MB 240-199773/6

Matrix: Solid

Analysis Batch: 199773

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		5.0		ug/Kg			09/30/15 15:12	1
Dichlorobromomethane	ND		5.0		ug/Kg			09/30/15 15:12	1
Bromoform	ND		5.0		ug/Kg			09/30/15 15:12	1
Bromomethane	ND		5.0		ug/Kg			09/30/15 15:12	1
2-Butanone (MEK)	ND		20		ug/Kg			09/30/15 15:12	1
Carbon disulfide	ND		5.0		ug/Kg			09/30/15 15:12	1
Carbon tetrachloride	ND		5.0		ug/Kg			09/30/15 15:12	1
Chlorobenzene	ND		5.0		ug/Kg			09/30/15 15:12	1
Chloroethane	ND		5.0		ug/Kg			09/30/15 15:12	1
Chloroform	ND		5.0		ug/Kg			09/30/15 15:12	1
Chloromethane	ND		5.0		ug/Kg			09/30/15 15:12	1
1,1-Dichloroethane	ND		5.0		ug/Kg			09/30/15 15:12	1
1,2-Dichloroethane	ND		5.0		ug/Kg			09/30/15 15:12	1
1,1-Dichloroethene	ND		5.0		ug/Kg			09/30/15 15:12	1
1,2-Dichloropropane	ND		5.0		ug/Kg			09/30/15 15:12	1
cis-1,3-Dichloropropene	ND		5.0		ug/Kg			09/30/15 15:12	1
trans-1,3-Dichloropropene	ND		5.0		ug/Kg			09/30/15 15:12	1
Ethylbenzene	ND		5.0		ug/Kg			09/30/15 15:12	1
2-Hexanone	ND		20		ug/Kg			09/30/15 15:12	1
Methylene Chloride	ND		5.0		ug/Kg			09/30/15 15:12	1
4-Methyl-2-pentanone (MIBK)	ND		20		ug/Kg			09/30/15 15:12	1
Styrene	ND		5.0		ug/Kg			09/30/15 15:12	1
1,1,2,2-Tetrachloroethane	ND		5.0		ug/Kg			09/30/15 15:12	1
Tetrachloroethene	ND		5.0		ug/Kg			09/30/15 15:12	1
Toluene	ND		5.0		ug/Kg			09/30/15 15:12	1
Trichloroethene	ND		5.0		ug/Kg			09/30/15 15:12	1
Vinyl chloride	ND		5.0		ug/Kg			09/30/15 15:12	1
Xylenes, Total	ND		10		ug/Kg			09/30/15 15:12	1
1,1,1-Trichloroethane	ND		5.0		ug/Kg			09/30/15 15:12	1
1,1,2-Trichloroethane	ND		5.0		ug/Kg			09/30/15 15:12	1
Cyclohexane	ND		10		ug/Kg			09/30/15 15:12	1
1,2-Dibromo-3-Chloropropane	ND		10		ug/Kg			09/30/15 15:12	1
Ethylene Dibromide	ND		5.0		ug/Kg			09/30/15 15:12	1
Dichlorodifluoromethane	ND		5.0		ug/Kg			09/30/15 15:12	1
cis-1,2-Dichloroethene	ND		5.0		ug/Kg			09/30/15 15:12	1
trans-1,2-Dichloroethene	ND		5.0		ug/Kg			09/30/15 15:12	1
Isopropylbenzene	ND		5.0		ug/Kg			09/30/15 15:12	1
Methyl acetate	ND		10		ug/Kg			09/30/15 15:12	1
Methyl tert-butyl ether	ND		5.0		ug/Kg			09/30/15 15:12	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		5.0		ug/Kg			09/30/15 15:12	1
1,2,4-Trichlorobenzene	ND		5.0		ug/Kg			09/30/15 15:12	1
1,2-Dichlorobenzene	ND		5.0		ug/Kg			09/30/15 15:12	1
1,3-Dichlorobenzene	ND		5.0		ug/Kg			09/30/15 15:12	1
1,4-Dichlorobenzene	ND		5.0		ug/Kg			09/30/15 15:12	1
Trichlorofluoromethane	ND		5.0		ug/Kg			09/30/15 15:12	1
Chlorodibromomethane	ND		5.0		ug/Kg			09/30/15 15:12	1
Methylcyclohexane	ND		10		ug/Kg			09/30/15 15:12	1

TestAmerica Canton

QC Sample Results

Client: Cardinal Resources
Project/Site: Carroll & Dubies Superfund

TestAmerica Job ID: 240-55880-1

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

Lab Sample ID: MB 240-199773/6

Matrix: Solid

Analysis Batch: 199773

Client Sample ID: Method Blank

Prep Type: Total/NA

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	103		58 - 123		09/30/15 15:12	1
4-Bromofluorobenzene (Surr)	84		52 - 136		09/30/15 15:12	1
Toluene-d8 (Surr)	92		67 - 125		09/30/15 15:12	1
Dibromofluoromethane (Surr)	90		37 - 132		09/30/15 15:12	1

Lab Sample ID: LCS 240-199773/5

Matrix: Solid

Analysis Batch: 199773

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Acetone	40.0	47.5		ug/Kg		119	41 - 137
Benzene	20.0	21.3		ug/Kg		107	79 - 120
Dichlorobromomethane	20.0	19.3		ug/Kg		97	80 - 122
Bromoform	20.0	16.4		ug/Kg		82	62 - 133
Bromomethane	20.0	21.0		ug/Kg		105	42 - 136
2-Butanone (MEK)	40.0	39.8		ug/Kg		99	52 - 131
Carbon disulfide	20.0	14.2		ug/Kg		71	62 - 146
Carbon tetrachloride	20.0	23.8		ug/Kg		119	71 - 129
Chlorobenzene	20.0	23.0		ug/Kg		115	78 - 120
Chloroethane	20.0	21.1		ug/Kg		106	58 - 120
Chloroform	20.0	23.5		ug/Kg		118	77 - 120
Chloromethane	20.0	24.6	*	ug/Kg		123	50 - 120
1,1-Dichloroethane	20.0	21.8		ug/Kg		109	76 - 120
1,2-Dichloroethane	20.0	25.7	*	ug/Kg		129	72 - 120
1,1-Dichloroethene	20.0	19.8		ug/Kg		99	75 - 135
1,2-Dichloropropane	20.0	21.3		ug/Kg		106	80 - 120
cis-1,3-Dichloropropene	20.0	18.5		ug/Kg		93	74 - 128
trans-1,3-Dichloropropene	20.0	20.8		ug/Kg		104	73 - 131
Ethylbenzene	20.0	22.7		ug/Kg		113	79 - 120
2-Hexanone	40.0	44.2		ug/Kg		110	64 - 136
Methylene Chloride	20.0	22.3		ug/Kg		111	75 - 120
4-Methyl-2-pentanone (MIBK)	40.0	44.7		ug/Kg		112	67 - 135
Styrene	20.0	21.7		ug/Kg		108	80 - 120
1,1,2,2-Tetrachloroethane	20.0	21.4		ug/Kg		107	77 - 123
Tetrachloroethene	20.0	25.1	*	ug/Kg		126	79 - 120
Toluene	20.0	22.7		ug/Kg		113	75 - 120
Trichloroethene	20.0	22.7		ug/Kg		114	79 - 120
Vinyl chloride	20.0	21.0		ug/Kg		105	57 - 120
Xylenes, Total	40.0	46.7		ug/Kg		117	80 - 120
1,1,1-Trichloroethane	20.0	24.1		ug/Kg		120	77 - 126
1,1,2-Trichloroethane	20.0	22.7		ug/Kg		114	80 - 120
Cyclohexane	20.0	22.1		ug/Kg		111	66 - 120
1,2-Dibromo-3-Chloropropane	20.0	20.0		ug/Kg		100	61 - 132
Ethylene Dibromide	20.0	22.5		ug/Kg		112	80 - 120
Dichlorodifluoromethane	20.0	28.5	*	ug/Kg		142	26 - 120
cis-1,2-Dichloroethene	20.0	22.0		ug/Kg		110	76 - 120
trans-1,2-Dichloroethene	20.0	21.6		ug/Kg		108	78 - 120
Isopropylbenzene	20.0	24.6	*	ug/Kg		123	76 - 122

TestAmerica Canton

QC Sample Results

Client: Cardinal Resources
Project/Site: Carroll & Dubies Superfund

TestAmerica Job ID: 240-55880-1

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

Lab Sample ID: LCS 240-199773/5

Matrix: Solid

Analysis Batch: 199773

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Methyl acetate	100	109		ug/Kg		109	57 - 130
Methyl tert-butyl ether	20.0	21.0		ug/Kg		105	49 - 165
1,1,2-Trichloro-1,2,2-trifluoroethane	20.0	22.5		ug/Kg		112	80 - 138
1,2,4-Trichlorobenzene	20.0	22.8		ug/Kg		114	64 - 124
1,2-Dichlorobenzene	20.0	23.0		ug/Kg		115	76 - 120
1,3-Dichlorobenzene	20.0	22.8		ug/Kg		114	78 - 120
1,4-Dichlorobenzene	20.0	22.3		ug/Kg		112	75 - 120
Trichlorofluoromethane	20.0	24.5		ug/Kg		123	57 - 146
Chlorodibromomethane	20.0	18.4		ug/Kg		92	72 - 127
Methylcyclohexane	20.0	21.5		ug/Kg		107	70 - 126
m-Xylene & p-Xylene	20.0	22.7		ug/Kg		113	80 - 120
o-Xylene	20.0	24.0		ug/Kg		120	80 - 120

Surrogate	LCS %Recovery	LCS Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	107		58 - 123
4-Bromofluorobenzene (Surr)	90		52 - 136
Toluene-d8 (Surr)	96		67 - 125
Dibromofluoromethane (Surr)	101		37 - 132

Lab Sample ID: 240-55880-4 MS

Matrix: Solid

Analysis Batch: 199773

Client Sample ID: SED-2 DUP

Prep Type: Total/NA

Prep Batch: 199796

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Acetone	260		270	495		ug/Kg	☼	88	24 - 140
Benzene	ND		135	113		ug/Kg	☼	84	53 - 120
Dichlorobromomethane	ND		135	73.7		ug/Kg	☼	55	35 - 132
Bromoform	ND		135	46.9		ug/Kg	☼	35	18 - 129
Bromomethane	ND		135	107		ug/Kg	☼	79	33 - 130
2-Butanone (MEK)	ND		270	268		ug/Kg	☼	73	30 - 143
Carbon disulfide	ND		135	61.0		ug/Kg	☼	45	20 - 151
Carbon tetrachloride	ND		135	107		ug/Kg	☼	79	32 - 137
Chlorobenzene	ND		135	89.0		ug/Kg	☼	66	37 - 120
Chloroethane	ND		135	125		ug/Kg	☼	93	45 - 120
Chloroform	ND		135	127		ug/Kg	☼	94	53 - 120
Chloromethane	ND		135	138		ug/Kg	☼	103	34 - 120
1,1-Dichloroethane	ND		135	123		ug/Kg	☼	91	54 - 122
1,2-Dichloroethane	ND		135	129		ug/Kg	☼	95	49 - 123
1,1-Dichloroethene	ND		135	114		ug/Kg	☼	84	49 - 157
1,2-Dichloropropane	ND		135	113		ug/Kg	☼	83	61 - 120
cis-1,3-Dichloropropene	ND		135	55.6		ug/Kg	☼	41	27 - 133
trans-1,3-Dichloropropene	ND		135	60.0		ug/Kg	☼	44	28 - 137
Ethylbenzene	ND		135	108		ug/Kg	☼	80	30 - 131
2-Hexanone	ND		270	213		ug/Kg	☼	79	37 - 147
Methylene Chloride	ND F2		135	119		ug/Kg	☼	88	54 - 120
4-Methyl-2-pentanone (MIBK)	ND		270	249		ug/Kg	☼	92	43 - 147
Styrene	ND F1		135	ND	F1	ug/Kg	☼	20	27 - 127

TestAmerica Canton

QC Sample Results

Client: Cardinal Resources
Project/Site: Carroll & Dubies Superfund

TestAmerica Job ID: 240-55880-1

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

Lab Sample ID: 240-55880-4 MS

Matrix: Solid

Analysis Batch: 199773

Client Sample ID: SED-2 DUP

Prep Type: Total/NA

Prep Batch: 199796

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
1,1,2,2-Tetrachloroethane	ND	*	135	127	*	ug/Kg	☼	94	16 - 179
Tetrachloroethene	ND		135	128		ug/Kg	☼	95	31 - 135
Toluene	ND		135	130		ug/Kg	☼	94	39 - 129
Trichloroethene	ND		135	110		ug/Kg	☼	82	10 - 177
Vinyl chloride	ND		135	127		ug/Kg	☼	94	42 - 120
Xylenes, Total	ND		270	199		ug/Kg	☼	74	30 - 131
1,1,1-Trichloroethane	ND		135	128		ug/Kg	☼	95	51 - 128
1,1,2-Trichloroethane	ND		135	118		ug/Kg	☼	87	10 - 166
Cyclohexane	ND		135	113		ug/Kg	☼	83	28 - 120
1,2-Dibromo-3-Chloropropane	ND	* F2	135	ND	*	ug/Kg	☼	43	10 - 153
Ethylene Dibromide	ND		135	101		ug/Kg	☼	75	45 - 127
Dichlorodifluoromethane	ND	F1	135	178	F1	ug/Kg	☼	132	17 - 120
cis-1,2-Dichloroethene	ND		135	110		ug/Kg	☼	81	50 - 120
trans-1,2-Dichloroethene	ND		135	112		ug/Kg	☼	83	50 - 123
Isopropylbenzene	ND		135	104		ug/Kg	☼	77	21 - 134
Methyl acetate	ND		675	443		ug/Kg	☼	66	33 - 165
Methyl tert-butyl ether	ND		135	111		ug/Kg	☼	82	51 - 157
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		135	125		ug/Kg	☼	93	50 - 147
1,2,4-Trichlorobenzene	ND	*	135	ND	*	ug/Kg	☼	19	10 - 120
1,2-Dichlorobenzene	ND	*	135	62.0	*	ug/Kg	☼	46	17 - 122
1,3-Dichlorobenzene	ND	*	135	71.2	*	ug/Kg	☼	53	16 - 126
1,4-Dichlorobenzene	ND	*	135	65.2	*	ug/Kg	☼	48	15 - 121
Trichlorofluoromethane	ND		135	159		ug/Kg	☼	118	36 - 142
Chlorodibromomethane	ND		135	62.2		ug/Kg	☼	46	29 - 135
Methylcyclohexane	ND		135	101		ug/Kg	☼	75	20 - 132
m-Xylene & p-Xylene	ND		135	99.1		ug/Kg	☼	73	29 - 131
o-Xylene	ND		135	99.4		ug/Kg	☼	74	29 - 134

Surrogate	MS %Recovery	MS Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	108		58 - 123
4-Bromofluorobenzene (Surr)	114	*	52 - 136
Toluene-d8 (Surr)	107		67 - 125
Dibromofluoromethane (Surr)	101		37 - 132

Lab Sample ID: 240-55880-4 MSD

Matrix: Solid

Analysis Batch: 199773

Client Sample ID: SED-2 DUP

Prep Type: Total/NA

Prep Batch: 199796

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Acetone	260		278	535		ug/Kg	☼	100	24 - 140	8	30
Benzene	ND		139	133		ug/Kg	☼	96	53 - 120	16	30
Dichlorobromomethane	ND		139	73.4		ug/Kg	☼	53	35 - 132	0	30
Bromoform	ND		139	44.9		ug/Kg	☼	32	18 - 129	4	30
Bromomethane	ND		139	120		ug/Kg	☼	86	33 - 130	12	30
2-Butanone (MEK)	ND		278	275		ug/Kg	☼	73	30 - 143	3	30
Carbon disulfide	ND		139	77.8		ug/Kg	☼	56	20 - 151	24	30
Carbon tetrachloride	ND		139	117		ug/Kg	☼	84	32 - 137	9	30

TestAmerica Canton

QC Sample Results

Client: Cardinal Resources
Project/Site: Carroll & Dubies Superfund

TestAmerica Job ID: 240-55880-1

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

Lab Sample ID: 240-55880-4 MSD

Matrix: Solid

Analysis Batch: 199773

Client Sample ID: SED-2 DUP

Prep Type: Total/NA

Prep Batch: 199796

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chlorobenzene	ND		139	110		ug/Kg	☼	79	37 - 120	21	30
Chloroethane	ND		139	168		ug/Kg	☼	120	45 - 120	29	30
Chloroform	ND		139	155		ug/Kg	☼	111	53 - 120	20	30
Chloromethane	ND		139	164		ug/Kg	☼	118	34 - 120	17	30
1,1-Dichloroethane	ND		139	150		ug/Kg	☼	108	54 - 122	20	30
1,2-Dichloroethane	ND		139	148		ug/Kg	☼	106	49 - 123	14	30
1,1-Dichloroethene	ND		139	127		ug/Kg	☼	91	49 - 157	11	30
1,2-Dichloropropane	ND		139	130		ug/Kg	☼	94	61 - 120	15	30
cis-1,3-Dichloropropene	ND		139	53.6		ug/Kg	☼	38	27 - 133	4	30
trans-1,3-Dichloropropene	ND		139	69.8		ug/Kg	☼	50	28 - 137	15	30
Ethylbenzene	ND		139	140		ug/Kg	☼	101	30 - 131	26	30
2-Hexanone	ND		278	239		ug/Kg	☼	86	37 - 147	12	30
Methylene Chloride	ND	F2	139	167	F2	ug/Kg	☼	120	54 - 120	33	30
4-Methyl-2-pentanone (MIBK)	ND		278	288		ug/Kg	☼	103	43 - 147	14	30
Styrene	ND	F1	139	ND	F1	ug/Kg	☼	25	27 - 127	23	30
1,1,2,2-Tetrachloroethane	ND	*	139	153	*	ug/Kg	☼	110	16 - 179	19	30
Tetrachloroethene	ND		139	174		ug/Kg	☼	125	31 - 135	30	30
Toluene	ND		139	167		ug/Kg	☼	118	39 - 129	25	30
Trichloroethene	ND		139	127		ug/Kg	☼	91	10 - 177	14	30
Vinyl chloride	ND		139	157		ug/Kg	☼	113	42 - 120	21	30
Xylenes, Total	ND		278	259		ug/Kg	☼	93	30 - 131	26	30
1,1,1-Trichloroethane	ND		139	163		ug/Kg	☼	117	51 - 128	24	30
1,1,2-Trichloroethane	ND		139	145		ug/Kg	☼	104	10 - 166	21	30
Cyclohexane	ND		139	137		ug/Kg	☼	98	28 - 120	19	30
1,2-Dibromo-3-Chloropropane	ND	* F2	139	78.8	* F2	ug/Kg	☼	57	10 - 153	31	30
Ethylene Dibromide	ND		139	112		ug/Kg	☼	80	45 - 127	10	30
Dichlorodifluoromethane	ND	F1	139	224	F1	ug/Kg	☼	161	17 - 120	23	30
cis-1,2-Dichloroethene	ND		139	140		ug/Kg	☼	100	50 - 120	24	30
trans-1,2-Dichloroethene	ND		139	133		ug/Kg	☼	96	50 - 123	17	30
Isopropylbenzene	ND		139	138		ug/Kg	☼	99	21 - 134	28	30
Methyl acetate	ND		696	400		ug/Kg	☼	58	33 - 165	10	30
Methyl tert-butyl ether	ND		139	127		ug/Kg	☼	91	51 - 157	13	30
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		139	154		ug/Kg	☼	111	50 - 147	21	30
1,2,4-Trichlorobenzene	ND	*	139	ND	*	ug/Kg	☼	23	10 - 120	21	30
1,2-Dichlorobenzene	ND	*	139	79.6	*	ug/Kg	☼	57	17 - 122	25	30
1,3-Dichlorobenzene	ND	*	139	90.8	*	ug/Kg	☼	65	16 - 126	24	30
1,4-Dichlorobenzene	ND	*	139	84.4	*	ug/Kg	☼	61	15 - 121	26	30
Trichlorofluoromethane	ND		139	191		ug/Kg	☼	137	36 - 142	18	30
Chlorodibromomethane	ND		139	64.9		ug/Kg	☼	47	29 - 135	4	30
Methylcyclohexane	ND		139	116		ug/Kg	☼	84	20 - 132	14	30
m-Xylene & p-Xylene	ND		139	132		ug/Kg	☼	95	29 - 131	29	30
o-Xylene	ND		139	127		ug/Kg	☼	92	29 - 134	25	30

Surrogate	MSD %Recovery	MSD Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	102		58 - 123
4-Bromofluorobenzene (Surr)	120	*	52 - 136
Toluene-d8 (Surr)	122		67 - 125

TestAmerica Canton

QC Sample Results

Client: Cardinal Resources
Project/Site: Carroll & Dubies Superfund

TestAmerica Job ID: 240-55880-1

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

Lab Sample ID: 240-55880-4 MSD
Matrix: Solid
Analysis Batch: 199773

Client Sample ID: SED-2 DUP
Prep Type: Total/NA
Prep Batch: 199796

Surrogate	MSD %Recovery	MSD Qualifier	Limits
Dibromofluoromethane (Surr)	102		37 - 132

Lab Sample ID: MB 240-199815/6
Matrix: Water
Analysis Batch: 199815

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	ND		10		ug/L			10/01/15 01:43	1
Benzene	ND		1.0		ug/L			10/01/15 01:43	1
Dichlorobromomethane	ND		1.0		ug/L			10/01/15 01:43	1
Bromoform	ND		1.0		ug/L			10/01/15 01:43	1
Bromomethane	ND		1.0		ug/L			10/01/15 01:43	1
2-Butanone (MEK)	ND		10		ug/L			10/01/15 01:43	1
Carbon disulfide	ND		1.0		ug/L			10/01/15 01:43	1
Carbon tetrachloride	ND		1.0		ug/L			10/01/15 01:43	1
Chlorobenzene	ND		1.0		ug/L			10/01/15 01:43	1
Chloroethane	ND		1.0		ug/L			10/01/15 01:43	1
Chloroform	ND		1.0		ug/L			10/01/15 01:43	1
Chloromethane	ND		1.0		ug/L			10/01/15 01:43	1
1,1-Dichloroethane	ND		1.0		ug/L			10/01/15 01:43	1
1,2-Dichloroethane	ND		1.0		ug/L			10/01/15 01:43	1
1,1-Dichloroethene	ND		1.0		ug/L			10/01/15 01:43	1
1,2-Dichloropropane	ND		1.0		ug/L			10/01/15 01:43	1
cis-1,3-Dichloropropene	ND		1.0		ug/L			10/01/15 01:43	1
trans-1,3-Dichloropropene	ND		1.0		ug/L			10/01/15 01:43	1
Ethylbenzene	ND		1.0		ug/L			10/01/15 01:43	1
2-Hexanone	ND		10		ug/L			10/01/15 01:43	1
Methylene Chloride	ND		1.0		ug/L			10/01/15 01:43	1
4-Methyl-2-pentanone (MIBK)	ND		10		ug/L			10/01/15 01:43	1
Styrene	ND		1.0		ug/L			10/01/15 01:43	1
1,1,2,2-Tetrachloroethane	ND		1.0		ug/L			10/01/15 01:43	1
Tetrachloroethene	ND		1.0		ug/L			10/01/15 01:43	1
Toluene	ND		1.0		ug/L			10/01/15 01:43	1
Trichloroethene	ND		1.0		ug/L			10/01/15 01:43	1
Vinyl chloride	ND		1.0		ug/L			10/01/15 01:43	1
Xylenes, Total	ND		2.0		ug/L			10/01/15 01:43	1
1,1,1-Trichloroethane	ND		1.0		ug/L			10/01/15 01:43	1
1,1,2-Trichloroethane	ND		1.0		ug/L			10/01/15 01:43	1
Cyclohexane	ND		1.0		ug/L			10/01/15 01:43	1
1,2-Dibromo-3-Chloropropane	ND		2.0		ug/L			10/01/15 01:43	1
Ethylene Dibromide	ND		1.0		ug/L			10/01/15 01:43	1
Dichlorodifluoromethane	ND		1.0		ug/L			10/01/15 01:43	1
cis-1,2-Dichloroethene	ND		1.0		ug/L			10/01/15 01:43	1
trans-1,2-Dichloroethene	ND		1.0		ug/L			10/01/15 01:43	1
Isopropylbenzene	ND		1.0		ug/L			10/01/15 01:43	1
Methyl acetate	ND		10		ug/L			10/01/15 01:43	1
Methyl tert-butyl ether	ND		1.0		ug/L			10/01/15 01:43	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		1.0		ug/L			10/01/15 01:43	1

TestAmerica Canton

QC Sample Results

Client: Cardinal Resources
Project/Site: Carroll & Dubies Superfund

TestAmerica Job ID: 240-55880-1

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

Lab Sample ID: MB 240-199815/6

Matrix: Water

Analysis Batch: 199815

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,2,4-Trichlorobenzene	ND		1.0		ug/L			10/01/15 01:43	1
1,2-Dichlorobenzene	ND		1.0		ug/L			10/01/15 01:43	1
1,3-Dichlorobenzene	ND		1.0		ug/L			10/01/15 01:43	1
1,4-Dichlorobenzene	ND		1.0		ug/L			10/01/15 01:43	1
Trichlorofluoromethane	ND		1.0		ug/L			10/01/15 01:43	1
Chlorodibromomethane	ND		1.0		ug/L			10/01/15 01:43	1
Methylcyclohexane	ND		1.0		ug/L			10/01/15 01:43	1
Surrogate	MB %Recovery	MB Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	105		78 - 125					10/01/15 01:43	1
4-Bromofluorobenzene (Surr)	72		61 - 120					10/01/15 01:43	1
Toluene-d8 (Surr)	83		80 - 120					10/01/15 01:43	1
Dibromofluoromethane (Surr)	102		79 - 120					10/01/15 01:43	1

Lab Sample ID: LCS 240-199815/4

Matrix: Water

Analysis Batch: 199815

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Acetone	20.0	17.9		ug/L		89	34 - 148
Benzene	10.0	9.41		ug/L		94	80 - 120
Dichlorobromomethane	10.0	8.93		ug/L		89	80 - 120
Bromoform	10.0	8.90		ug/L		89	56 - 122
Bromomethane	10.0	10.6		ug/L		106	38 - 132
2-Butanone (MEK)	20.0	15.7		ug/L		78	56 - 138
Carbon disulfide	10.0	7.31		ug/L		73	65 - 144
Carbon tetrachloride	10.0	9.75		ug/L		98	77 - 131
Chlorobenzene	10.0	10.3		ug/L		103	80 - 120
Chloroethane	10.0	9.18		ug/L		92	36 - 126
Chloroform	10.0	9.63		ug/L		96	80 - 120
Chloromethane	10.0	9.79		ug/L		98	48 - 133
1,1-Dichloroethane	10.0	9.10		ug/L		91	79 - 125
1,2-Dichloroethane	10.0	10.0		ug/L		100	80 - 120
1,1-Dichloroethene	10.0	8.34		ug/L		83	76 - 124
1,2-Dichloropropane	10.0	9.39		ug/L		94	78 - 124
cis-1,3-Dichloropropene	10.0	8.61		ug/L		86	74 - 126
trans-1,3-Dichloropropene	10.0	9.26		ug/L		93	75 - 131
Ethylbenzene	10.0	10.1		ug/L		101	80 - 120
2-Hexanone	20.0	15.9		ug/L		79	55 - 141
Methylene Chloride	10.0	11.1		ug/L		111	77 - 129
4-Methyl-2-pentanone (MIBK)	20.0	15.3		ug/L		77	64 - 135
Styrene	10.0	10.5		ug/L		105	76 - 122
1,1,2,2-Tetrachloroethane	10.0	8.79		ug/L		88	71 - 123
Tetrachloroethene	10.0	10.3		ug/L		103	78 - 121
Toluene	10.0	10.1		ug/L		101	80 - 120
Trichloroethene	10.0	9.86		ug/L		99	80 - 121
Vinyl chloride	10.0	9.38		ug/L		94	52 - 121
Xylenes, Total	20.0	20.9		ug/L		105	80 - 120

TestAmerica Canton

QC Sample Results

Client: Cardinal Resources
Project/Site: Carroll & Dubies Superfund

TestAmerica Job ID: 240-55880-1

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

Lab Sample ID: LCS 240-199815/4

Matrix: Water

Analysis Batch: 199815

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,1,1-Trichloroethane	10.0	8.99		ug/L		90	77 - 123
1,1,2-Trichloroethane	10.0	10.3		ug/L		103	80 - 120
Cyclohexane	10.0	8.58		ug/L		86	60 - 140
1,2-Dibromo-3-Chloropropane	10.0	7.98		ug/L		80	50 - 132
Ethylene Dibromide	10.0	9.84		ug/L		98	80 - 120
Dichlorodifluoromethane	10.0	11.0		ug/L		110	23 - 136
cis-1,2-Dichloroethene	10.0	9.57		ug/L		96	79 - 120
trans-1,2-Dichloroethene	10.0	9.48		ug/L		95	80 - 124
Isopropylbenzene	10.0	10.3		ug/L		103	77 - 120
Methyl acetate	50.0	44.3		ug/L		89	67 - 131
Methyl tert-butyl ether	10.0	8.07		ug/L		81	69 - 121
1,1,2-Trichloro-1,2,2-trifluoroethane	10.0	10.2		ug/L		102	67 - 138
1,2,4-Trichlorobenzene	10.0	8.22		ug/L		82	61 - 120
1,2-Dichlorobenzene	10.0	10.0		ug/L		100	79 - 120
1,3-Dichlorobenzene	10.0	9.89		ug/L		99	79 - 120
1,4-Dichlorobenzene	10.0	9.82		ug/L		98	79 - 120
Trichlorofluoromethane	10.0	11.3		ug/L		113	61 - 133
Chlorodibromomethane	10.0	9.55		ug/L		95	74 - 120
Methylcyclohexane	10.0	8.03		ug/L		80	61 - 134
m-Xylene & p-Xylene	10.0	10.5		ug/L		105	80 - 120
o-Xylene	10.0	10.4		ug/L		104	80 - 120

Surrogate	LCS %Recovery	LCS Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	91		78 - 125
4-Bromofluorobenzene (Surr)	94		61 - 120
Toluene-d8 (Surr)	93		80 - 120
Dibromofluoromethane (Surr)	91		79 - 120

Lab Sample ID: 240-55880-2 MS

Matrix: Water

Analysis Batch: 199815

Client Sample ID: SW-2

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Acetone	ND		20.0	14.6		ug/L		73	32 - 126
Benzene	ND		10.0	8.50		ug/L		85	73 - 121
Dichlorobromomethane	ND		10.0	8.19		ug/L		82	72 - 120
Bromoform	ND		10.0	8.16		ug/L		82	45 - 121
Bromomethane	ND		10.0	10.6		ug/L		106	26 - 136
2-Butanone (MEK)	ND		20.0	14.2		ug/L		71	49 - 132
Carbon disulfide	ND		10.0	6.92		ug/L		69	54 - 144
Carbon tetrachloride	ND		10.0	8.24		ug/L		82	65 - 129
Chlorobenzene	ND		10.0	9.27		ug/L		93	72 - 120
Chloroethane	ND		10.0	9.32		ug/L		93	27 - 131
Chloroform	ND		10.0	8.91		ug/L		89	73 - 121
Chloromethane	ND		10.0	9.72		ug/L		97	39 - 134
1,1-Dichloroethane	ND		10.0	8.13		ug/L		81	73 - 124
1,2-Dichloroethane	ND		10.0	9.28		ug/L		93	74 - 125

TestAmerica Canton

QC Sample Results

Client: Cardinal Resources
Project/Site: Carroll & Dubies Superfund

TestAmerica Job ID: 240-55880-1

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

Lab Sample ID: 240-55880-2 MS

Matrix: Water

Analysis Batch: 199815

Client Sample ID: SW-2

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
1,1-Dichloroethene	ND		10.0	7.74		ug/L		77	67 - 124
1,2-Dichloropropane	ND		10.0	8.55		ug/L		86	73 - 122
cis-1,3-Dichloropropene	ND		10.0	6.55		ug/L		65	60 - 120
trans-1,3-Dichloropropene	ND		10.0	7.72		ug/L		77	58 - 132
Ethylbenzene	ND		10.0	8.59		ug/L		86	68 - 121
2-Hexanone	ND		20.0	14.2		ug/L		71	49 - 142
Methylene Chloride	ND		10.0	8.98		ug/L		90	70 - 124
4-Methyl-2-pentanone (MIBK)	ND		20.0	12.7		ug/L		63	58 - 136
Styrene	ND		10.0	9.37		ug/L		94	64 - 126
1,1,2,2-Tetrachloroethane	ND		10.0	7.65		ug/L		77	61 - 130
Tetrachloroethene	ND		10.0	9.08		ug/L		91	59 - 125
Toluene	ND		10.0	9.20		ug/L		92	72 - 122
Trichloroethene	ND		10.0	8.78		ug/L		88	61 - 129
Vinyl chloride	ND		10.0	9.36		ug/L		94	44 - 122
Xylenes, Total	ND		20.0	18.6		ug/L		93	67 - 122
1,1,1-Trichloroethane	ND		10.0	7.81		ug/L		78	69 - 122
1,1,2-Trichloroethane	ND		10.0	9.61		ug/L		96	72 - 125
Cyclohexane	ND		10.0	6.28		ug/L		63	41 - 137
1,2-Dibromo-3-Chloropropane	ND		10.0	6.56		ug/L		66	42 - 130
Ethylene Dibromide	ND		10.0	9.18		ug/L		92	69 - 125
Dichlorodifluoromethane	ND		10.0	10.5		ug/L		105	14 - 137
cis-1,2-Dichloroethene	ND		10.0	8.54		ug/L		85	66 - 124
trans-1,2-Dichloroethene	ND		10.0	8.71		ug/L		87	72 - 125
Isopropylbenzene	ND		10.0	8.73		ug/L		87	61 - 122
Methyl acetate	ND		50.0	37.3		ug/L		75	64 - 124
Methyl tert-butyl ether	ND		10.0	7.12		ug/L		71	61 - 121
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		10.0	8.75		ug/L		87	44 - 140
1,2,4-Trichlorobenzene	ND		10.0	6.24		ug/L		62	48 - 120
1,2-Dichlorobenzene	ND		10.0	8.73		ug/L		87	67 - 118
1,3-Dichlorobenzene	ND		10.0	8.46		ug/L		85	65 - 120
1,4-Dichlorobenzene	ND		10.0	8.53		ug/L		85	66 - 120
Trichlorofluoromethane	ND		10.0	11.2		ug/L		112	49 - 133
Chlorodibromomethane	ND		10.0	9.07		ug/L		91	62 - 122
Methylcyclohexane	ND		10.0	5.60		ug/L		56	39 - 135
m-Xylene & p-Xylene	ND		10.0	9.27		ug/L		93	66 - 123
o-Xylene	ND		10.0	9.37		ug/L		94	68 - 121

Surrogate	MS %Recovery	MS Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	94		78 - 125
4-Bromofluorobenzene (Surr)	98		61 - 120
Toluene-d8 (Surr)	94		80 - 120
Dibromofluoromethane (Surr)	92		79 - 120

TestAmerica Canton

QC Sample Results

Client: Cardinal Resources
Project/Site: Carroll & Dubies Superfund

TestAmerica Job ID: 240-55880-1

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

Lab Sample ID: 240-55880-2 MSD

Matrix: Water

Analysis Batch: 199815

Client Sample ID: SW-2

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Acetone	ND		20.0	15.5		ug/L		77	32 - 126	6	28
Benzene	ND		10.0	8.85		ug/L		88	73 - 121	4	13
Dichlorobromomethane	ND		10.0	8.55		ug/L		85	72 - 120	4	19
Bromoform	ND		10.0	8.27		ug/L		83	45 - 121	1	19
Bromomethane	ND		10.0	10.3		ug/L		103	26 - 136	3	35
2-Butanone (MEK)	ND		20.0	15.0		ug/L		75	49 - 132	5	19
Carbon disulfide	ND		10.0	6.86		ug/L		69	54 - 144	1	34
Carbon tetrachloride	ND		10.0	8.56		ug/L		86	65 - 129	4	20
Chlorobenzene	ND		10.0	9.64		ug/L		96	72 - 120	4	15
Chloroethane	ND		10.0	9.47		ug/L		95	27 - 131	2	35
Chloroform	ND		10.0	9.22		ug/L		92	73 - 121	3	17
Chloromethane	ND		10.0	10.1		ug/L		101	39 - 134	4	20
1,1-Dichloroethane	ND		10.0	8.93		ug/L		89	73 - 124	9	14
1,2-Dichloroethane	ND		10.0	9.52		ug/L		95	74 - 125	3	24
1,1-Dichloroethene	ND		10.0	9.21		ug/L		92	67 - 124	17	24
1,2-Dichloropropane	ND		10.0	8.62		ug/L		86	73 - 122	1	15
cis-1,3-Dichloropropene	ND		10.0	7.03		ug/L		70	60 - 120	7	21
trans-1,3-Dichloropropene	ND		10.0	8.38		ug/L		84	58 - 132	8	22
Ethylbenzene	ND		10.0	9.20		ug/L		92	68 - 121	7	16
2-Hexanone	ND		20.0	15.6		ug/L		78	49 - 142	9	27
Methylene Chloride	ND		10.0	9.06		ug/L		91	70 - 124	1	14
4-Methyl-2-pentanone (MIBK)	ND		20.0	14.2		ug/L		71	58 - 136	11	32
Styrene	ND		10.0	9.62		ug/L		96	64 - 126	3	15
1,1,2,2-Tetrachloroethane	ND		10.0	8.06		ug/L		81	61 - 130	5	18
Tetrachloroethene	ND		10.0	9.12		ug/L		91	59 - 125	0	20
Toluene	ND		10.0	9.50		ug/L		95	72 - 122	3	15
Trichloroethene	ND		10.0	9.21		ug/L		92	61 - 129	5	14
Vinyl chloride	ND		10.0	9.43		ug/L		94	44 - 122	1	35
Xylenes, Total	ND		20.0	19.1		ug/L		96	67 - 122	3	14
1,1,1-Trichloroethane	ND		10.0	8.11		ug/L		81	69 - 122	4	14
1,1,2-Trichloroethane	ND		10.0	9.71		ug/L		97	72 - 125	1	19
Cyclohexane	ND		10.0	6.72		ug/L		67	41 - 137	7	35
1,2-Dibromo-3-Chloropropane	ND		10.0	6.92		ug/L		69	42 - 130	5	24
Ethylene Dibromide	ND		10.0	9.60		ug/L		96	69 - 125	4	24
Dichlorodifluoromethane	ND		10.0	10.3		ug/L		103	14 - 137	2	34
cis-1,2-Dichloroethene	ND		10.0	8.85		ug/L		89	66 - 124	4	22
trans-1,2-Dichloroethene	ND		10.0	8.63		ug/L		86	72 - 125	1	25
Isopropylbenzene	ND		10.0	9.10		ug/L		91	61 - 122	4	20
Methyl acetate	ND		50.0	39.2		ug/L		78	64 - 124	5	12
Methyl tert-butyl ether	ND		10.0	7.80		ug/L		78	61 - 121	9	12
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		10.0	8.44		ug/L		84	44 - 140	4	35
1,2,4-Trichlorobenzene	ND		10.0	6.93		ug/L		69	48 - 120	10	28
1,2-Dichlorobenzene	ND		10.0	8.87		ug/L		89	67 - 118	2	15
1,3-Dichlorobenzene	ND		10.0	8.67		ug/L		87	65 - 120	2	15
1,4-Dichlorobenzene	ND		10.0	8.70		ug/L		87	66 - 120	2	16
Trichlorofluoromethane	ND		10.0	10.9		ug/L		109	49 - 133	2	25
Chlorodibromomethane	ND		10.0	9.42		ug/L		94	62 - 122	4	19

TestAmerica Canton

QC Sample Results

Client: Cardinal Resources
Project/Site: Carroll & Dubies Superfund

TestAmerica Job ID: 240-55880-1

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

Lab Sample ID: 240-55880-2 MSD

Matrix: Water

Analysis Batch: 199815

Client Sample ID: SW-2

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Methylcyclohexane	ND		10.0	6.02		ug/L		60	39 - 135	7	35
m-Xylene & p-Xylene	ND		10.0	9.48		ug/L		95	66 - 123	2	15
o-Xylene	ND		10.0	9.64		ug/L		96	68 - 121	3	14

Surrogate	MSD %Recovery	MSD Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	93		78 - 125
4-Bromofluorobenzene (Surr)	97		61 - 120
Toluene-d8 (Surr)	93		80 - 120
Dibromofluoromethane (Surr)	90		79 - 120

Lab Sample ID: MB 240-199891/6

Matrix: Solid

Analysis Batch: 199891

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	ND		20		ug/Kg			10/01/15 10:55	1
Benzene	ND		5.0		ug/Kg			10/01/15 10:55	1
Dichlorobromomethane	ND		5.0		ug/Kg			10/01/15 10:55	1
Bromoform	ND		5.0		ug/Kg			10/01/15 10:55	1
Bromomethane	ND		5.0		ug/Kg			10/01/15 10:55	1
2-Butanone (MEK)	ND		20		ug/Kg			10/01/15 10:55	1
Carbon disulfide	ND		5.0		ug/Kg			10/01/15 10:55	1
Carbon tetrachloride	ND		5.0		ug/Kg			10/01/15 10:55	1
Chlorobenzene	ND		5.0		ug/Kg			10/01/15 10:55	1
Chloroethane	ND		5.0		ug/Kg			10/01/15 10:55	1
Chloroform	ND		5.0		ug/Kg			10/01/15 10:55	1
Chloromethane	ND		5.0		ug/Kg			10/01/15 10:55	1
1,1-Dichloroethane	ND		5.0		ug/Kg			10/01/15 10:55	1
1,2-Dichloroethane	ND		5.0		ug/Kg			10/01/15 10:55	1
1,1-Dichloroethene	ND		5.0		ug/Kg			10/01/15 10:55	1
1,2-Dichloropropane	ND		5.0		ug/Kg			10/01/15 10:55	1
cis-1,3-Dichloropropene	ND		5.0		ug/Kg			10/01/15 10:55	1
trans-1,3-Dichloropropene	ND		5.0		ug/Kg			10/01/15 10:55	1
Ethylbenzene	ND		5.0		ug/Kg			10/01/15 10:55	1
2-Hexanone	ND		20		ug/Kg			10/01/15 10:55	1
Methylene Chloride	ND		5.0		ug/Kg			10/01/15 10:55	1
4-Methyl-2-pentanone (MIBK)	ND		20		ug/Kg			10/01/15 10:55	1
Styrene	ND		5.0		ug/Kg			10/01/15 10:55	1
1,1,2,2-Tetrachloroethane	ND		5.0		ug/Kg			10/01/15 10:55	1
Tetrachloroethene	ND		5.0		ug/Kg			10/01/15 10:55	1
Toluene	ND		5.0		ug/Kg			10/01/15 10:55	1
Trichloroethene	ND		5.0		ug/Kg			10/01/15 10:55	1
Vinyl chloride	ND		5.0		ug/Kg			10/01/15 10:55	1
Xylenes, Total	ND		10		ug/Kg			10/01/15 10:55	1
1,1,1-Trichloroethane	ND		5.0		ug/Kg			10/01/15 10:55	1
1,1,2-Trichloroethane	ND		5.0		ug/Kg			10/01/15 10:55	1
Cyclohexane	ND		10		ug/Kg			10/01/15 10:55	1
1,2-Dibromo-3-Chloropropane	ND		10		ug/Kg			10/01/15 10:55	1

TestAmerica Canton

QC Sample Results

Client: Cardinal Resources
Project/Site: Carroll & Dubies Superfund

TestAmerica Job ID: 240-55880-1

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

Lab Sample ID: MB 240-199891/6

Matrix: Solid

Analysis Batch: 199891

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ethylene Dibromide	ND		5.0		ug/Kg			10/01/15 10:55	1
Dichlorodifluoromethane	ND		5.0		ug/Kg			10/01/15 10:55	1
cis-1,2-Dichloroethene	ND		5.0		ug/Kg			10/01/15 10:55	1
trans-1,2-Dichloroethene	ND		5.0		ug/Kg			10/01/15 10:55	1
Isopropylbenzene	ND		5.0		ug/Kg			10/01/15 10:55	1
Methyl acetate	ND		10		ug/Kg			10/01/15 10:55	1
Methyl tert-butyl ether	ND		5.0		ug/Kg			10/01/15 10:55	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		5.0		ug/Kg			10/01/15 10:55	1
1,2,4-Trichlorobenzene	ND		5.0		ug/Kg			10/01/15 10:55	1
1,2-Dichlorobenzene	ND		5.0		ug/Kg			10/01/15 10:55	1
1,3-Dichlorobenzene	ND		5.0		ug/Kg			10/01/15 10:55	1
1,4-Dichlorobenzene	ND		5.0		ug/Kg			10/01/15 10:55	1
Trichlorofluoromethane	ND		5.0		ug/Kg			10/01/15 10:55	1
Chlorodibromomethane	ND		5.0		ug/Kg			10/01/15 10:55	1
Methylcyclohexane	ND		10		ug/Kg			10/01/15 10:55	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	107		58 - 123		10/01/15 10:55	1
4-Bromofluorobenzene (Surr)	87		52 - 136		10/01/15 10:55	1
Toluene-d8 (Surr)	95		67 - 125		10/01/15 10:55	1
Dibromofluoromethane (Surr)	96		37 - 132		10/01/15 10:55	1

Lab Sample ID: LCS 240-199891/5

Matrix: Solid

Analysis Batch: 199891

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Acetone	40.0	42.4		ug/Kg		106	41 - 137
Benzene	20.0	21.3		ug/Kg		107	79 - 120
Dichlorobromomethane	20.0	20.1		ug/Kg		101	80 - 122
Bromoform	20.0	15.8		ug/Kg		79	62 - 133
Bromomethane	20.0	22.3		ug/Kg		111	42 - 136
2-Butanone (MEK)	40.0	37.3		ug/Kg		93	52 - 131
Carbon disulfide	20.0	13.6		ug/Kg		68	62 - 146
Carbon tetrachloride	20.0	24.0		ug/Kg		120	71 - 129
Chlorobenzene	20.0	22.7		ug/Kg		113	78 - 120
Chloroethane	20.0	21.7		ug/Kg		109	58 - 120
Chloroform	20.0	23.3		ug/Kg		117	77 - 120
Chloromethane	20.0	24.5	*	ug/Kg		122	50 - 120
1,1-Dichloroethane	20.0	21.9		ug/Kg		110	76 - 120
1,2-Dichloroethane	20.0	24.5	*	ug/Kg		123	72 - 120
1,1-Dichloroethene	20.0	16.6		ug/Kg		83	75 - 135
1,2-Dichloropropane	20.0	21.5		ug/Kg		108	80 - 120
cis-1,3-Dichloropropene	20.0	18.7		ug/Kg		93	74 - 128
trans-1,3-Dichloropropene	20.0	20.2		ug/Kg		101	73 - 131
Ethylbenzene	20.0	24.0		ug/Kg		120	79 - 120
2-Hexanone	40.0	41.1		ug/Kg		103	64 - 136
Methylene Chloride	20.0	22.5		ug/Kg		112	75 - 120

TestAmerica Canton

QC Sample Results

Client: Cardinal Resources
Project/Site: Carroll & Dubies Superfund

TestAmerica Job ID: 240-55880-1

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

Lab Sample ID: LCS 240-199891/5

Matrix: Solid

Analysis Batch: 199891

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
4-Methyl-2-pentanone (MIBK)	40.0	42.3		ug/Kg		106	67 - 135
Styrene	20.0	21.8		ug/Kg		109	80 - 120
1,1,2,2-Tetrachloroethane	20.0	21.9		ug/Kg		110	77 - 123
Tetrachloroethene	20.0	24.7	*	ug/Kg		123	79 - 120
Toluene	20.0	22.4		ug/Kg		112	75 - 120
Trichloroethene	20.0	23.1		ug/Kg		116	79 - 120
Vinyl chloride	20.0	22.2		ug/Kg		111	57 - 120
Xylenes, Total	40.0	45.9		ug/Kg		115	80 - 120
1,1,1-Trichloroethane	20.0	24.2		ug/Kg		121	77 - 126
1,1,2-Trichloroethane	20.0	23.4		ug/Kg		117	80 - 120
Cyclohexane	20.0	21.5		ug/Kg		108	66 - 120
1,2-Dibromo-3-Chloropropane	20.0	19.7		ug/Kg		99	61 - 132
Ethylene Dibromide	20.0	22.7		ug/Kg		113	80 - 120
Dichlorodifluoromethane	20.0	28.8	*	ug/Kg		144	26 - 120
cis-1,2-Dichloroethene	20.0	21.1		ug/Kg		106	76 - 120
trans-1,2-Dichloroethene	20.0	21.5		ug/Kg		108	78 - 120
Isopropylbenzene	20.0	24.9	*	ug/Kg		125	76 - 122
Methyl acetate	100	105		ug/Kg		105	57 - 130
Methyl tert-butyl ether	20.0	19.9		ug/Kg		100	49 - 165
1,1,2-Trichloro-1,2,2-trifluoroethane	20.0	21.1		ug/Kg		105	80 - 138
1,2,4-Trichlorobenzene	20.0	23.5		ug/Kg		118	64 - 124
1,2-Dichlorobenzene	20.0	24.1		ug/Kg		120	76 - 120
1,3-Dichlorobenzene	20.0	24.6	*	ug/Kg		123	78 - 120
1,4-Dichlorobenzene	20.0	23.7		ug/Kg		119	75 - 120
Trichlorofluoromethane	20.0	27.3		ug/Kg		137	57 - 146
Chlorodibromomethane	20.0	18.4		ug/Kg		92	72 - 127
Methylcyclohexane	20.0	21.6		ug/Kg		108	70 - 126
m-Xylene & p-Xylene	20.0	22.3		ug/Kg		112	80 - 120
o-Xylene	20.0	23.6		ug/Kg		118	80 - 120

Surrogate	LCS %Recovery	LCS Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	107		58 - 123
4-Bromofluorobenzene (Surr)	95		52 - 136
Toluene-d8 (Surr)	100		67 - 125
Dibromofluoromethane (Surr)	103		37 - 132

Lab Sample ID: MB 240-200197/6

Matrix: Water

Analysis Batch: 200197

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	ND		10		ug/L			10/03/15 06:42	1
Benzene	ND		1.0		ug/L			10/03/15 06:42	1
Dichlorobromomethane	ND		1.0		ug/L			10/03/15 06:42	1
Bromoform	ND		1.0		ug/L			10/03/15 06:42	1
Bromomethane	ND		1.0		ug/L			10/03/15 06:42	1
2-Butanone (MEK)	ND		10		ug/L			10/03/15 06:42	1

TestAmerica Canton

QC Sample Results

Client: Cardinal Resources
Project/Site: Carroll & Dubies Superfund

TestAmerica Job ID: 240-55880-1

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

Lab Sample ID: MB 240-200197/6

Matrix: Water

Analysis Batch: 200197

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Carbon disulfide	ND		1.0		ug/L			10/03/15 06:42	1
Carbon tetrachloride	ND		1.0		ug/L			10/03/15 06:42	1
Chlorobenzene	ND		1.0		ug/L			10/03/15 06:42	1
Chloroethane	ND		1.0		ug/L			10/03/15 06:42	1
Chloroform	ND		1.0		ug/L			10/03/15 06:42	1
Chloromethane	ND		1.0		ug/L			10/03/15 06:42	1
1,1-Dichloroethane	ND		1.0		ug/L			10/03/15 06:42	1
1,2-Dichloroethane	ND		1.0		ug/L			10/03/15 06:42	1
1,1-Dichloroethene	ND		1.0		ug/L			10/03/15 06:42	1
1,2-Dichloropropane	ND		1.0		ug/L			10/03/15 06:42	1
cis-1,3-Dichloropropene	ND		1.0		ug/L			10/03/15 06:42	1
trans-1,3-Dichloropropene	ND		1.0		ug/L			10/03/15 06:42	1
Ethylbenzene	ND		1.0		ug/L			10/03/15 06:42	1
2-Hexanone	ND		10		ug/L			10/03/15 06:42	1
Methylene Chloride	ND		1.0		ug/L			10/03/15 06:42	1
4-Methyl-2-pentanone (MIBK)	ND		10		ug/L			10/03/15 06:42	1
Styrene	ND		1.0		ug/L			10/03/15 06:42	1
1,1,2,2-Tetrachloroethane	ND		1.0		ug/L			10/03/15 06:42	1
Tetrachloroethene	ND		1.0		ug/L			10/03/15 06:42	1
Toluene	ND		1.0		ug/L			10/03/15 06:42	1
Trichloroethene	ND		1.0		ug/L			10/03/15 06:42	1
Vinyl chloride	ND		1.0		ug/L			10/03/15 06:42	1
Xylenes, Total	ND		2.0		ug/L			10/03/15 06:42	1
1,1,1-Trichloroethane	ND		1.0		ug/L			10/03/15 06:42	1
1,1,2-Trichloroethane	ND		1.0		ug/L			10/03/15 06:42	1
Cyclohexane	ND		1.0		ug/L			10/03/15 06:42	1
1,2-Dibromo-3-Chloropropane	ND		2.0		ug/L			10/03/15 06:42	1
Ethylene Dibromide	ND		1.0		ug/L			10/03/15 06:42	1
Dichlorodifluoromethane	ND		1.0		ug/L			10/03/15 06:42	1
cis-1,2-Dichloroethene	ND		1.0		ug/L			10/03/15 06:42	1
trans-1,2-Dichloroethene	ND		1.0		ug/L			10/03/15 06:42	1
Isopropylbenzene	ND		1.0		ug/L			10/03/15 06:42	1
Methyl acetate	ND		10		ug/L			10/03/15 06:42	1
Methyl tert-butyl ether	ND		1.0		ug/L			10/03/15 06:42	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		1.0		ug/L			10/03/15 06:42	1
1,2,4-Trichlorobenzene	ND		1.0		ug/L			10/03/15 06:42	1
1,2-Dichlorobenzene	ND		1.0		ug/L			10/03/15 06:42	1
1,3-Dichlorobenzene	ND		1.0		ug/L			10/03/15 06:42	1
1,4-Dichlorobenzene	ND		1.0		ug/L			10/03/15 06:42	1
Trichlorofluoromethane	ND		1.0		ug/L			10/03/15 06:42	1
Chlorodibromomethane	ND		1.0		ug/L			10/03/15 06:42	1
Methylcyclohexane	ND		1.0		ug/L			10/03/15 06:42	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	110		78 - 125		10/03/15 06:42	1
4-Bromofluorobenzene (Surr)	72		61 - 120		10/03/15 06:42	1
Toluene-d8 (Surr)	83		80 - 120		10/03/15 06:42	1
Dibromofluoromethane (Surr)	101		79 - 120		10/03/15 06:42	1

TestAmerica Canton

QC Sample Results

Client: Cardinal Resources
Project/Site: Carroll & Dubies Superfund

TestAmerica Job ID: 240-55880-1

Lab Sample ID: LCS 240-200197/4

Matrix: Water

Analysis Batch: 200197

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Acetone	20.0	16.5		ug/L		83	34 - 148
Benzene	10.0	8.84		ug/L		88	80 - 120
Dichlorobromomethane	10.0	9.02		ug/L		90	80 - 120
Bromoform	10.0	8.58		ug/L		86	56 - 122
Bromomethane	10.0	10.6		ug/L		106	38 - 132
2-Butanone (MEK)	20.0	14.8		ug/L		74	56 - 138
Carbon disulfide	10.0	7.38		ug/L		74	65 - 144
Carbon tetrachloride	10.0	8.72		ug/L		87	77 - 131
Chlorobenzene	10.0	9.52		ug/L		95	80 - 120
Chloroethane	10.0	8.72		ug/L		87	36 - 126
Chloroform	10.0	9.70		ug/L		97	80 - 120
Chloromethane	10.0	9.69		ug/L		97	48 - 133
1,1-Dichloroethane	10.0	9.22		ug/L		92	79 - 125
1,2-Dichloroethane	10.0	10.1		ug/L		101	80 - 120
1,1-Dichloroethene	10.0	7.75		ug/L		78	76 - 124
1,2-Dichloropropane	10.0	9.23		ug/L		92	78 - 124
cis-1,3-Dichloropropene	10.0	8.25		ug/L		82	74 - 126
trans-1,3-Dichloropropene	10.0	8.94		ug/L		89	75 - 131
Ethylbenzene	10.0	9.04		ug/L		90	80 - 120
2-Hexanone	20.0	14.3		ug/L		72	55 - 141
Methylene Chloride	10.0	10.8		ug/L		108	77 - 129
4-Methyl-2-pentanone (MIBK)	20.0	14.1		ug/L		71	64 - 135
Styrene	10.0	9.60		ug/L		96	76 - 122
1,1,2,2-Tetrachloroethane	10.0	8.06		ug/L		81	71 - 123
Tetrachloroethene	10.0	9.53		ug/L		95	78 - 121
Toluene	10.0	9.32		ug/L		93	80 - 120
Trichloroethene	10.0	9.50		ug/L		95	80 - 121
Vinyl chloride	10.0	9.04		ug/L		90	52 - 121
Xylenes, Total	20.0	19.0		ug/L		95	80 - 120
1,1,1-Trichloroethane	10.0	8.23		ug/L		82	77 - 123
1,1,2-Trichloroethane	10.0	9.60		ug/L		96	80 - 120
Cyclohexane	10.0	8.03		ug/L		80	60 - 140
1,2-Dibromo-3-Chloropropane	10.0	6.96		ug/L		70	50 - 132
Ethylene Dibromide	10.0	9.57		ug/L		96	80 - 120
Dichlorodifluoromethane	10.0	10.7		ug/L		107	23 - 136
cis-1,2-Dichloroethene	10.0	8.96		ug/L		90	79 - 120
trans-1,2-Dichloroethene	10.0	9.28		ug/L		93	80 - 124
Isopropylbenzene	10.0	9.18		ug/L		92	77 - 120
Methyl acetate	50.0	41.7		ug/L		83	67 - 131
Methyl tert-butyl ether	10.0	8.02		ug/L		80	69 - 121
1,1,2-Trichloro-1,2,2-trifluoroethane	10.0	10.3		ug/L		103	67 - 138
1,2,4-Trichlorobenzene	10.0	7.24		ug/L		72	61 - 120
1,2-Dichlorobenzene	10.0	9.26		ug/L		93	79 - 120
1,3-Dichlorobenzene	10.0	9.03		ug/L		90	79 - 120
1,4-Dichlorobenzene	10.0	9.13		ug/L		91	79 - 120
Trichlorofluoromethane	10.0	10.2		ug/L		102	61 - 133
Chlorodibromomethane	10.0	9.59		ug/L		96	74 - 120
Methylcyclohexane	10.0	7.19		ug/L		72	61 - 134
m-Xylene & p-Xylene	10.0	9.59		ug/L		96	80 - 120

TestAmerica Canton

QC Sample Results

Client: Cardinal Resources
Project/Site: Carroll & Dubies Superfund

TestAmerica Job ID: 240-55880-1

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

Lab Sample ID: LCS 240-200197/4

Matrix: Water

Analysis Batch: 200197

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
o-Xylene	10.0	9.45		ug/L		95	80 - 120
Surrogate	LCS %Recovery	LCS Qualifier	Limits				
1,2-Dichloroethane-d4 (Surr)	92		78 - 125				
4-Bromofluorobenzene (Surr)	96		61 - 120				
Toluene-d8 (Surr)	92		80 - 120				
Dibromofluoromethane (Surr)	88		79 - 120				

Lab Sample ID: MB 240-200347/6

Matrix: Water

Analysis Batch: 200347

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	ND		10		ug/L			10/05/15 14:03	1
Benzene	ND		1.0		ug/L			10/05/15 14:03	1
Dichlorobromomethane	ND		1.0		ug/L			10/05/15 14:03	1
Bromoform	ND		1.0		ug/L			10/05/15 14:03	1
Bromomethane	ND		1.0		ug/L			10/05/15 14:03	1
2-Butanone (MEK)	ND		10		ug/L			10/05/15 14:03	1
Carbon disulfide	ND		1.0		ug/L			10/05/15 14:03	1
Carbon tetrachloride	ND		1.0		ug/L			10/05/15 14:03	1
Chlorobenzene	ND		1.0		ug/L			10/05/15 14:03	1
Chloroethane	ND		1.0		ug/L			10/05/15 14:03	1
Chloroform	ND		1.0		ug/L			10/05/15 14:03	1
Chloromethane	ND		1.0		ug/L			10/05/15 14:03	1
1,1-Dichloroethane	ND		1.0		ug/L			10/05/15 14:03	1
1,2-Dichloroethane	ND		1.0		ug/L			10/05/15 14:03	1
1,1-Dichloroethene	ND		1.0		ug/L			10/05/15 14:03	1
1,2-Dichloropropane	ND		1.0		ug/L			10/05/15 14:03	1
cis-1,3-Dichloropropene	ND		1.0		ug/L			10/05/15 14:03	1
trans-1,3-Dichloropropene	ND		1.0		ug/L			10/05/15 14:03	1
Ethylbenzene	ND		1.0		ug/L			10/05/15 14:03	1
2-Hexanone	ND		10		ug/L			10/05/15 14:03	1
Methylene Chloride	ND		1.0		ug/L			10/05/15 14:03	1
4-Methyl-2-pentanone (MIBK)	ND		10		ug/L			10/05/15 14:03	1
Styrene	ND		1.0		ug/L			10/05/15 14:03	1
1,1,2,2-Tetrachloroethane	ND		1.0		ug/L			10/05/15 14:03	1
Tetrachloroethene	ND		1.0		ug/L			10/05/15 14:03	1
Toluene	ND		1.0		ug/L			10/05/15 14:03	1
Trichloroethene	ND		1.0		ug/L			10/05/15 14:03	1
Vinyl chloride	ND		1.0		ug/L			10/05/15 14:03	1
Xylenes, Total	ND		2.0		ug/L			10/05/15 14:03	1
1,1,1-Trichloroethane	ND		1.0		ug/L			10/05/15 14:03	1
1,1,2-Trichloroethane	ND		1.0		ug/L			10/05/15 14:03	1
Cyclohexane	ND		1.0		ug/L			10/05/15 14:03	1
1,2-Dibromo-3-Chloropropane	ND		2.0		ug/L			10/05/15 14:03	1
Ethylene Dibromide	ND		1.0		ug/L			10/05/15 14:03	1
Dichlorodifluoromethane	ND		1.0		ug/L			10/05/15 14:03	1

TestAmerica Canton

QC Sample Results

Client: Cardinal Resources
Project/Site: Carroll & Dubies Superfund

TestAmerica Job ID: 240-55880-1

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

Lab Sample ID: MB 240-200347/6

Matrix: Water

Analysis Batch: 200347

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
cis-1,2-Dichloroethene	ND		1.0		ug/L			10/05/15 14:03	1
trans-1,2-Dichloroethene	ND		1.0		ug/L			10/05/15 14:03	1
Isopropylbenzene	ND		1.0		ug/L			10/05/15 14:03	1
Methyl acetate	ND		10		ug/L			10/05/15 14:03	1
Methyl tert-butyl ether	ND		1.0		ug/L			10/05/15 14:03	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		1.0		ug/L			10/05/15 14:03	1
1,2,4-Trichlorobenzene	ND		1.0		ug/L			10/05/15 14:03	1
1,2-Dichlorobenzene	ND		1.0		ug/L			10/05/15 14:03	1
1,3-Dichlorobenzene	ND		1.0		ug/L			10/05/15 14:03	1
1,4-Dichlorobenzene	ND		1.0		ug/L			10/05/15 14:03	1
Trichlorofluoromethane	ND		1.0		ug/L			10/05/15 14:03	1
Chlorodibromomethane	ND		1.0		ug/L			10/05/15 14:03	1
Methylcyclohexane	ND		1.0		ug/L			10/05/15 14:03	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	110		78 - 125		10/05/15 14:03	1
4-Bromofluorobenzene (Surr)	78		61 - 120		10/05/15 14:03	1
Toluene-d8 (Surr)	83		80 - 120		10/05/15 14:03	1
Dibromofluoromethane (Surr)	107		79 - 120		10/05/15 14:03	1

Lab Sample ID: LCS 240-200347/4

Matrix: Water

Analysis Batch: 200347

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Acetone	20.0	17.8		ug/L		89	34 - 148
Benzene	10.0	8.92		ug/L		89	80 - 120
Dichlorobromomethane	10.0	8.88		ug/L		89	80 - 120
Bromoform	10.0	8.70		ug/L		87	56 - 122
Bromomethane	10.0	9.96		ug/L		100	38 - 132
2-Butanone (MEK)	20.0	16.0		ug/L		80	56 - 138
Carbon disulfide	10.0	6.50		ug/L		65	65 - 144
Carbon tetrachloride	10.0	9.48		ug/L		95	77 - 131
Chlorobenzene	10.0	9.60		ug/L		96	80 - 120
Chloroethane	10.0	8.77		ug/L		88	36 - 126
Chloroform	10.0	9.49		ug/L		95	80 - 120
Chloromethane	10.0	9.74		ug/L		97	48 - 133
1,1-Dichloroethane	10.0	8.50		ug/L		85	79 - 125
1,2-Dichloroethane	10.0	9.74		ug/L		97	80 - 120
1,1-Dichloroethene	10.0	9.51		ug/L		95	76 - 124
1,2-Dichloropropane	10.0	9.04		ug/L		90	78 - 124
cis-1,3-Dichloropropene	10.0	8.68		ug/L		87	74 - 126
trans-1,3-Dichloropropene	10.0	9.03		ug/L		90	75 - 131
Ethylbenzene	10.0	9.35		ug/L		93	80 - 120
2-Hexanone	20.0	15.5		ug/L		77	55 - 141
Methylene Chloride	10.0	10.2		ug/L		102	77 - 129
4-Methyl-2-pentanone (MIBK)	20.0	14.8		ug/L		74	64 - 135
Styrene	10.0	9.98		ug/L		100	76 - 122

TestAmerica Canton

QC Sample Results

Client: Cardinal Resources
Project/Site: Carroll & Dubies Superfund

TestAmerica Job ID: 240-55880-1

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

Lab Sample ID: LCS 240-200347/4

Matrix: Water

Analysis Batch: 200347

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,1,2,2-Tetrachloroethane	10.0	7.78		ug/L		78	71 - 123
Tetrachloroethene	10.0	9.87		ug/L		99	78 - 121
Toluene	10.0	9.18		ug/L		92	80 - 120
Trichloroethene	10.0	9.68		ug/L		97	80 - 121
Vinyl chloride	10.0	9.50		ug/L		95	52 - 121
Xylenes, Total	20.0	19.8		ug/L		99	80 - 120
1,1,1-Trichloroethane	10.0	8.73		ug/L		87	77 - 123
1,1,2-Trichloroethane	10.0	9.09		ug/L		91	80 - 120
Cyclohexane	10.0	8.06		ug/L		81	60 - 140
1,2-Dibromo-3-Chloropropane	10.0	7.33		ug/L		73	50 - 132
Ethylene Dibromide	10.0	9.31		ug/L		93	80 - 120
Dichlorodifluoromethane	10.0	12.0		ug/L		120	23 - 136
cis-1,2-Dichloroethene	10.0	9.18		ug/L		92	79 - 120
trans-1,2-Dichloroethene	10.0	9.41		ug/L		94	80 - 124
Isopropylbenzene	10.0	9.81		ug/L		98	77 - 120
Methyl acetate	50.0	41.3		ug/L		83	67 - 131
Methyl tert-butyl ether	10.0	8.45		ug/L		84	69 - 121
1,1,2-Trichloro-1,2,2-trifluoroethane	10.0	12.5		ug/L		125	67 - 138
1,2,4-Trichlorobenzene	10.0	8.13		ug/L		81	61 - 120
1,2-Dichlorobenzene	10.0	9.48		ug/L		95	79 - 120
1,3-Dichlorobenzene	10.0	9.32		ug/L		93	79 - 120
1,4-Dichlorobenzene	10.0	9.38		ug/L		94	79 - 120
Trichlorofluoromethane	10.0	12.4		ug/L		124	61 - 133
Chlorodibromomethane	10.0	9.36		ug/L		94	74 - 120
Methylcyclohexane	10.0	8.24		ug/L		82	61 - 134
m-Xylene & p-Xylene	10.0	9.92		ug/L		99	80 - 120
o-Xylene	10.0	9.88		ug/L		99	80 - 120

Surrogate	LCS %Recovery	LCS Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	93		78 - 125
4-Bromofluorobenzene (Surr)	94		61 - 120
Toluene-d8 (Surr)	91		80 - 120
Dibromofluoromethane (Surr)	94		79 - 120

Lab Sample ID: MB 240-200361/6

Matrix: Water

Analysis Batch: 200361

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	ND		10		ug/L			10/05/15 15:03	1
Benzene	ND		1.0		ug/L			10/05/15 15:03	1
Dichlorobromomethane	ND		1.0		ug/L			10/05/15 15:03	1
Bromoform	ND		1.0		ug/L			10/05/15 15:03	1
Bromomethane	ND		1.0		ug/L			10/05/15 15:03	1
2-Butanone (MEK)	ND		10		ug/L			10/05/15 15:03	1
Carbon disulfide	ND		1.0		ug/L			10/05/15 15:03	1
Carbon tetrachloride	ND		1.0		ug/L			10/05/15 15:03	1

TestAmerica Canton

QC Sample Results

Client: Cardinal Resources
Project/Site: Carroll & Dubies Superfund

TestAmerica Job ID: 240-55880-1

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

Lab Sample ID: MB 240-200361/6

Matrix: Water

Analysis Batch: 200361

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chlorobenzene	ND		1.0		ug/L			10/05/15 15:03	1
Chloroethane	ND		1.0		ug/L			10/05/15 15:03	1
Chloroform	ND		1.0		ug/L			10/05/15 15:03	1
Chloromethane	ND		1.0		ug/L			10/05/15 15:03	1
1,1-Dichloroethane	ND		1.0		ug/L			10/05/15 15:03	1
1,2-Dichloroethane	ND		1.0		ug/L			10/05/15 15:03	1
1,1-Dichloroethene	ND		1.0		ug/L			10/05/15 15:03	1
1,2-Dichloropropane	ND		1.0		ug/L			10/05/15 15:03	1
cis-1,3-Dichloropropene	ND		1.0		ug/L			10/05/15 15:03	1
trans-1,3-Dichloropropene	ND		1.0		ug/L			10/05/15 15:03	1
Ethylbenzene	ND		1.0		ug/L			10/05/15 15:03	1
2-Hexanone	ND		10		ug/L			10/05/15 15:03	1
Methylene Chloride	ND		1.0		ug/L			10/05/15 15:03	1
4-Methyl-2-pentanone (MIBK)	ND		10		ug/L			10/05/15 15:03	1
Styrene	ND		1.0		ug/L			10/05/15 15:03	1
1,1,2,2-Tetrachloroethane	ND		1.0		ug/L			10/05/15 15:03	1
Tetrachloroethene	ND		1.0		ug/L			10/05/15 15:03	1
Toluene	ND		1.0		ug/L			10/05/15 15:03	1
Trichloroethene	ND		1.0		ug/L			10/05/15 15:03	1
Vinyl chloride	ND		1.0		ug/L			10/05/15 15:03	1
Xylenes, Total	ND		2.0		ug/L			10/05/15 15:03	1
1,1,1-Trichloroethane	ND		1.0		ug/L			10/05/15 15:03	1
1,1,2-Trichloroethane	ND		1.0		ug/L			10/05/15 15:03	1
Cyclohexane	ND		1.0		ug/L			10/05/15 15:03	1
1,2-Dibromo-3-Chloropropane	ND		2.0		ug/L			10/05/15 15:03	1
Ethylene Dibromide	ND		1.0		ug/L			10/05/15 15:03	1
Dichlorodifluoromethane	ND		1.0		ug/L			10/05/15 15:03	1
cis-1,2-Dichloroethene	ND		1.0		ug/L			10/05/15 15:03	1
trans-1,2-Dichloroethene	ND		1.0		ug/L			10/05/15 15:03	1
Isopropylbenzene	ND		1.0		ug/L			10/05/15 15:03	1
Methyl acetate	ND		10		ug/L			10/05/15 15:03	1
Methyl tert-butyl ether	ND		1.0		ug/L			10/05/15 15:03	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		1.0		ug/L			10/05/15 15:03	1
1,2,4-Trichlorobenzene	ND		1.0		ug/L			10/05/15 15:03	1
1,2-Dichlorobenzene	ND		1.0		ug/L			10/05/15 15:03	1
1,3-Dichlorobenzene	ND		1.0		ug/L			10/05/15 15:03	1
1,4-Dichlorobenzene	ND		1.0		ug/L			10/05/15 15:03	1
Trichlorofluoromethane	ND		1.0		ug/L			10/05/15 15:03	1
Chlorodibromomethane	ND		1.0		ug/L			10/05/15 15:03	1
Methylcyclohexane	ND		1.0		ug/L			10/05/15 15:03	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	95		78 - 125		10/05/15 15:03	1
4-Bromofluorobenzene (Surr)	86		61 - 120		10/05/15 15:03	1
Toluene-d8 (Surr)	95		80 - 120		10/05/15 15:03	1
Dibromofluoromethane (Surr)	91		79 - 120		10/05/15 15:03	1

TestAmerica Canton

QC Sample Results

Client: Cardinal Resources
Project/Site: Carroll & Dubies Superfund

TestAmerica Job ID: 240-55880-1

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

Lab Sample ID: LCS 240-200361/4

Matrix: Water

Analysis Batch: 200361

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Acetone	20.0	18.5		ug/L		93	34 - 148
Benzene	10.0	9.78		ug/L		98	80 - 120
Dichlorobromomethane	10.0	9.97		ug/L		100	80 - 120
Bromoform	10.0	9.57		ug/L		96	56 - 122
Bromomethane	10.0	7.64		ug/L		76	38 - 132
2-Butanone (MEK)	20.0	20.5		ug/L		103	56 - 138
Carbon disulfide	10.0	7.80		ug/L		78	65 - 144
Carbon tetrachloride	10.0	9.87		ug/L		99	77 - 131
Chlorobenzene	10.0	9.97		ug/L		100	80 - 120
Chloroethane	10.0	7.34		ug/L		73	36 - 126
Chloroform	10.0	9.95		ug/L		99	80 - 120
Chloromethane	10.0	9.13		ug/L		91	48 - 133
1,1-Dichloroethane	10.0	9.58		ug/L		96	79 - 125
1,2-Dichloroethane	10.0	9.73		ug/L		97	80 - 120
1,1-Dichloroethene	10.0	8.69		ug/L		87	76 - 124
1,2-Dichloropropane	10.0	10.4		ug/L		104	78 - 124
cis-1,3-Dichloropropene	10.0	10.1		ug/L		101	74 - 126
trans-1,3-Dichloropropene	10.0	10.7		ug/L		107	75 - 131
Ethylbenzene	10.0	10.1		ug/L		101	80 - 120
2-Hexanone	20.0	19.8		ug/L		99	55 - 141
Methylene Chloride	10.0	8.67		ug/L		87	77 - 129
4-Methyl-2-pentanone (MIBK)	20.0	21.1		ug/L		105	64 - 135
Styrene	10.0	10.0		ug/L		100	76 - 122
1,1,2,2-Tetrachloroethane	10.0	9.82		ug/L		98	71 - 123
Tetrachloroethene	10.0	10.4		ug/L		104	78 - 121
Toluene	10.0	10.1		ug/L		101	80 - 120
Trichloroethene	10.0	10.6		ug/L		106	80 - 121
Vinyl chloride	10.0	8.93		ug/L		89	52 - 121
Xylenes, Total	20.0	20.7		ug/L		104	80 - 120
1,1,1-Trichloroethane	10.0	9.92		ug/L		99	77 - 123
1,1,2-Trichloroethane	10.0	9.99		ug/L		100	80 - 120
Cyclohexane	10.0	10.1		ug/L		101	60 - 140
1,2-Dibromo-3-Chloropropane	10.0	9.61		ug/L		96	50 - 132
Ethylene Dibromide	10.0	9.86		ug/L		99	80 - 120
Dichlorodifluoromethane	10.0	10.3		ug/L		103	23 - 136
cis-1,2-Dichloroethene	10.0	9.58		ug/L		96	79 - 120
trans-1,2-Dichloroethene	10.0	9.42		ug/L		94	80 - 124
Isopropylbenzene	10.0	10.6		ug/L		106	77 - 120
Methyl acetate	50.0	48.5		ug/L		97	67 - 131
Methyl tert-butyl ether	10.0	9.72		ug/L		97	69 - 121
1,1,2-Trichloro-1,2,2-trifluoroethane	10.0	9.08		ug/L		91	67 - 138
1,2,4-Trichlorobenzene	10.0	9.72		ug/L		97	61 - 120
1,2-Dichlorobenzene	10.0	10.1		ug/L		101	79 - 120
1,3-Dichlorobenzene	10.0	10.1		ug/L		101	79 - 120
1,4-Dichlorobenzene	10.0	10.2		ug/L		102	79 - 120
Trichlorofluoromethane	10.0	9.10		ug/L		91	61 - 133
Chlorodibromomethane	10.0	9.87		ug/L		99	74 - 120

TestAmerica Canton

QC Sample Results

Client: Cardinal Resources
Project/Site: Carroll & Dubies Superfund

TestAmerica Job ID: 240-55880-1

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

Lab Sample ID: LCS 240-200361/4

Matrix: Water

Analysis Batch: 200361

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Methylcyclohexane	10.0	10.6		ug/L		106	61 - 134
m-Xylene & p-Xylene	10.0	10.3		ug/L		103	80 - 120
o-Xylene	10.0	10.4		ug/L		104	80 - 120

Surrogate	LCS %Recovery	LCS Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	91		78 - 125
4-Bromofluorobenzene (Surr)	94		61 - 120
Toluene-d8 (Surr)	94		80 - 120
Dibromofluoromethane (Surr)	94		79 - 120

Lab Sample ID: 240-55880-15 MS

Matrix: Water

Analysis Batch: 200361

Client Sample ID: OW-6

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Acetone	ND		25.0	18.3		ug/L		73	32 - 126
Benzene	ND		12.5	11.7		ug/L		94	73 - 121
Dichlorobromomethane	ND		12.5	12.0		ug/L		96	72 - 120
Bromoform	ND		12.5	11.4		ug/L		91	45 - 121
Bromomethane	ND	F2	12.5	5.56		ug/L		45	26 - 136
2-Butanone (MEK)	ND		25.0	23.0		ug/L		92	49 - 132
Carbon disulfide	ND		12.5	9.05		ug/L		72	54 - 144
Carbon tetrachloride	ND		12.5	11.1		ug/L		89	65 - 129
Chlorobenzene	ND		12.5	12.3		ug/L		99	72 - 120
Chloroethane	ND		12.5	7.44		ug/L		60	27 - 131
Chloroform	ND		12.5	11.9		ug/L		96	73 - 121
Chloromethane	ND	F2	12.5	7.89		ug/L		63	39 - 134
1,1-Dichloroethane	ND		12.5	11.6		ug/L		93	73 - 124
1,2-Dichloroethane	ND		12.5	12.0		ug/L		96	74 - 125
1,1-Dichloroethene	ND		12.5	9.91		ug/L		79	67 - 124
1,2-Dichloropropane	ND		12.5	12.2		ug/L		97	73 - 122
cis-1,3-Dichloropropene	ND		12.5	11.4		ug/L		91	60 - 120
trans-1,3-Dichloropropene	ND		12.5	13.1		ug/L		105	58 - 132
Ethylbenzene	ND		12.5	12.7		ug/L		101	68 - 121
2-Hexanone	ND		25.0	27.1		ug/L		108	49 - 142
Methylene Chloride	ND		12.5	9.89		ug/L		79	70 - 124
4-Methyl-2-pentanone (MIBK)	ND		25.0	26.7		ug/L		107	58 - 136
Styrene	ND		12.5	12.6		ug/L		101	64 - 126
1,1,2,2-Tetrachloroethane	ND		12.5	12.5		ug/L		100	61 - 130
Tetrachloroethene	38		12.5	51.7	E	ug/L		111	59 - 125
Toluene	ND		12.5	12.5		ug/L		100	72 - 122
Trichloroethene	7.7		12.5	19.9		ug/L		98	61 - 129
Vinyl chloride	ND		12.5	10.9		ug/L		87	44 - 122
Xylenes, Total	ND		25.0	25.6		ug/L		102	67 - 122
1,1,1-Trichloroethane	ND		12.5	11.2		ug/L		90	69 - 122
1,1,2-Trichloroethane	ND		12.5	12.4		ug/L		99	72 - 125
Cyclohexane	ND		12.5	11.8		ug/L		95	41 - 137
1,2-Dibromo-3-Chloropropane	ND		12.5	11.4		ug/L		91	42 - 130

TestAmerica Canton

QC Sample Results

Client: Cardinal Resources
Project/Site: Carroll & Dubies Superfund

TestAmerica Job ID: 240-55880-1

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

Lab Sample ID: 240-55880-15 MS

Matrix: Water

Analysis Batch: 200361

Client Sample ID: OW-6

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Ethylene Dibromide	ND		12.5	13.0		ug/L		104	69 - 125
Dichlorodifluoromethane	ND		12.5	12.1		ug/L		97	14 - 137
cis-1,2-Dichloroethene	15		12.5	26.2		ug/L		90	66 - 124
trans-1,2-Dichloroethene	ND		12.5	11.7		ug/L		93	72 - 125
Isopropylbenzene	ND		12.5	13.1		ug/L		105	61 - 122
Methyl acetate	ND		62.5	59.0		ug/L		94	64 - 124
Methyl tert-butyl ether	ND		12.5	11.5		ug/L		92	61 - 121
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		12.5	10.5		ug/L		84	44 - 140
1,2,4-Trichlorobenzene	ND		12.5	10.3		ug/L		82	48 - 120
1,2-Dichlorobenzene	ND		12.5	12.2		ug/L		98	67 - 118
1,3-Dichlorobenzene	ND		12.5	12.6		ug/L		101	65 - 120
1,4-Dichlorobenzene	ND		12.5	12.3		ug/L		98	66 - 120
Trichlorofluoromethane	ND		12.5	8.70		ug/L		70	49 - 133
Chlorodibromomethane	ND		12.5	12.2		ug/L		97	62 - 122
Methylcyclohexane	ND		12.5	12.6		ug/L		101	39 - 135
m-Xylene & p-Xylene	ND		12.5	12.8		ug/L		103	66 - 123
o-Xylene	ND		12.5	12.8		ug/L		103	68 - 121

Surrogate	MS %Recovery	MS Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	88		78 - 125
4-Bromofluorobenzene (Surr)	96		61 - 120
Toluene-d8 (Surr)	97		80 - 120
Dibromofluoromethane (Surr)	90		79 - 120

Lab Sample ID: 240-55880-15 MSD

Matrix: Water

Analysis Batch: 200361

Client Sample ID: OW-6

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Acetone	ND		25.0	20.0		ug/L		80	32 - 126	9	28
Benzene	ND		12.5	12.5		ug/L		100	73 - 121	6	13
Dichlorobromomethane	ND		12.5	12.5		ug/L		100	72 - 120	4	19
Bromoform	ND		12.5	12.7		ug/L		102	45 - 121	11	19
Bromomethane	ND	F2	12.5	10.0	F2	ug/L		80	26 - 136	57	35
2-Butanone (MEK)	ND		25.0	24.1		ug/L		96	49 - 132	5	19
Carbon disulfide	ND		12.5	9.10		ug/L		73	54 - 144	1	34
Carbon tetrachloride	ND		12.5	11.4		ug/L		91	65 - 129	3	20
Chlorobenzene	ND		12.5	13.3		ug/L		106	72 - 120	8	15
Chloroethane	ND		12.5	10.0		ug/L		80	27 - 131	30	35
Chloroform	ND		12.5	12.8		ug/L		102	73 - 121	7	17
Chloromethane	ND	F2	12.5	12.7	F2	ug/L		102	39 - 134	47	20
1,1-Dichloroethane	ND		12.5	12.4		ug/L		99	73 - 124	7	14
1,2-Dichloroethane	ND		12.5	12.8		ug/L		102	74 - 125	6	24
1,1-Dichloroethene	ND		12.5	10.4		ug/L		83	67 - 124	4	24
1,2-Dichloropropane	ND		12.5	12.7		ug/L		102	73 - 122	4	15
cis-1,3-Dichloropropene	ND		12.5	12.7		ug/L		101	60 - 120	11	21
trans-1,3-Dichloropropene	ND		12.5	13.9		ug/L		111	58 - 132	6	22

TestAmerica Canton

QC Sample Results

Client: Cardinal Resources
Project/Site: Carroll & Dubies Superfund

TestAmerica Job ID: 240-55880-1

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

Lab Sample ID: 240-55880-15 MSD

Matrix: Water

Analysis Batch: 200361

Client Sample ID: OW-6

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Ethylbenzene	ND		12.5	13.5		ug/L		108	68 - 121	6	16
2-Hexanone	ND		25.0	28.3		ug/L		113	49 - 142	4	27
Methylene Chloride	ND		12.5	10.8		ug/L		87	70 - 124	9	14
4-Methyl-2-pentanone (MIBK)	ND		25.0	27.1		ug/L		108	58 - 136	1	32
Styrene	ND		12.5	13.6		ug/L		109	64 - 126	8	15
1,1,2,2-Tetrachloroethane	ND		12.5	13.1		ug/L		105	61 - 130	5	18
Tetrachloroethene	38		12.5	52.5	E	ug/L		117	59 - 125	2	20
Toluene	ND		12.5	13.3		ug/L		106	72 - 122	6	15
Trichloroethene	7.7		12.5	20.8		ug/L		105	61 - 129	4	14
Vinyl chloride	ND		12.5	11.7		ug/L		93	44 - 122	7	35
Xylenes, Total	ND		25.0	27.8		ug/L		111	67 - 122	8	14
1,1,1-Trichloroethane	ND		12.5	11.8		ug/L		95	69 - 122	5	14
1,1,2-Trichloroethane	ND		12.5	13.3		ug/L		106	72 - 125	6	19
Cyclohexane	ND		12.5	11.4		ug/L		91	41 - 137	4	35
1,2-Dibromo-3-Chloropropane	ND		12.5	12.3		ug/L		99	42 - 130	7	24
Ethylene Dibromide	ND		12.5	13.7		ug/L		110	69 - 125	5	24
Dichlorodifluoromethane	ND		12.5	12.3		ug/L		98	14 - 137	2	34
cis-1,2-Dichloroethene	15		12.5	28.6		ug/L		110	66 - 124	9	22
trans-1,2-Dichloroethene	ND		12.5	12.0		ug/L		96	72 - 125	3	25
Isopropylbenzene	ND		12.5	14.1		ug/L		112	61 - 122	7	20
Methyl acetate	ND		62.5	61.4		ug/L		98	64 - 124	4	12
Methyl tert-butyl ether	ND		12.5	12.4		ug/L		99	61 - 121	7	12
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		12.5	10.4		ug/L		83	44 - 140	1	35
1,2,4-Trichlorobenzene	ND		12.5	11.7		ug/L		94	48 - 120	13	28
1,2-Dichlorobenzene	ND		12.5	13.4		ug/L		107	67 - 118	10	15
1,3-Dichlorobenzene	ND		12.5	13.8		ug/L		110	65 - 120	9	15
1,4-Dichlorobenzene	ND		12.5	13.7		ug/L		109	66 - 120	11	16
Trichlorofluoromethane	ND		12.5	10.7		ug/L		86	49 - 133	21	25
Chlorodibromomethane	ND		12.5	13.2		ug/L		105	62 - 122	8	19
Methylcyclohexane	ND		12.5	12.0		ug/L		96	39 - 135	5	35
m-Xylene & p-Xylene	ND		12.5	13.9		ug/L		111	66 - 123	8	15
o-Xylene	ND		12.5	13.9		ug/L		111	68 - 121	8	14

Surrogate	MSD %Recovery	MSD Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	90		78 - 125
4-Bromofluorobenzene (Surr)	96		61 - 120
Toluene-d8 (Surr)	97		80 - 120
Dibromofluoromethane (Surr)	92		79 - 120

Lab Sample ID: MB 240-200531/6

Matrix: Water

Analysis Batch: 200531

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	ND		10		ug/L			10/06/15 13:51	1
Benzene	ND		1.0		ug/L			10/06/15 13:51	1
Dichlorobromomethane	ND		1.0		ug/L			10/06/15 13:51	1

TestAmerica Canton

QC Sample Results

Client: Cardinal Resources
Project/Site: Carroll & Dubies Superfund

TestAmerica Job ID: 240-55880-1

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

Lab Sample ID: MB 240-200531/6

Matrix: Water

Analysis Batch: 200531

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Bromoform	ND		1.0		ug/L			10/06/15 13:51	1
Bromomethane	ND		1.0		ug/L			10/06/15 13:51	1
2-Butanone (MEK)	ND		10		ug/L			10/06/15 13:51	1
Carbon disulfide	ND		1.0		ug/L			10/06/15 13:51	1
Carbon tetrachloride	ND		1.0		ug/L			10/06/15 13:51	1
Chlorobenzene	ND		1.0		ug/L			10/06/15 13:51	1
Chloroethane	ND		1.0		ug/L			10/06/15 13:51	1
Chloroform	ND		1.0		ug/L			10/06/15 13:51	1
Chloromethane	ND		1.0		ug/L			10/06/15 13:51	1
1,1-Dichloroethane	ND		1.0		ug/L			10/06/15 13:51	1
1,2-Dichloroethane	ND		1.0		ug/L			10/06/15 13:51	1
1,1-Dichloroethene	ND		1.0		ug/L			10/06/15 13:51	1
1,2-Dichloropropane	ND		1.0		ug/L			10/06/15 13:51	1
cis-1,3-Dichloropropene	ND		1.0		ug/L			10/06/15 13:51	1
trans-1,3-Dichloropropene	ND		1.0		ug/L			10/06/15 13:51	1
Ethylbenzene	ND		1.0		ug/L			10/06/15 13:51	1
2-Hexanone	ND		10		ug/L			10/06/15 13:51	1
Methylene Chloride	ND		1.0		ug/L			10/06/15 13:51	1
4-Methyl-2-pentanone (MIBK)	ND		10		ug/L			10/06/15 13:51	1
Styrene	ND		1.0		ug/L			10/06/15 13:51	1
1,1,2,2-Tetrachloroethane	ND		1.0		ug/L			10/06/15 13:51	1
Tetrachloroethene	ND		1.0		ug/L			10/06/15 13:51	1
Toluene	ND		1.0		ug/L			10/06/15 13:51	1
Trichloroethene	ND		1.0		ug/L			10/06/15 13:51	1
Vinyl chloride	ND		1.0		ug/L			10/06/15 13:51	1
Xylenes, Total	ND		2.0		ug/L			10/06/15 13:51	1
1,1,1-Trichloroethane	ND		1.0		ug/L			10/06/15 13:51	1
1,1,2-Trichloroethane	ND		1.0		ug/L			10/06/15 13:51	1
Cyclohexane	ND		1.0		ug/L			10/06/15 13:51	1
1,2-Dibromo-3-Chloropropane	ND		2.0		ug/L			10/06/15 13:51	1
Ethylene Dibromide	ND		1.0		ug/L			10/06/15 13:51	1
Dichlorodifluoromethane	ND		1.0		ug/L			10/06/15 13:51	1
cis-1,2-Dichloroethene	ND		1.0		ug/L			10/06/15 13:51	1
trans-1,2-Dichloroethene	ND		1.0		ug/L			10/06/15 13:51	1
Isopropylbenzene	ND		1.0		ug/L			10/06/15 13:51	1
Methyl acetate	ND		10		ug/L			10/06/15 13:51	1
Methyl tert-butyl ether	ND		1.0		ug/L			10/06/15 13:51	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		1.0		ug/L			10/06/15 13:51	1
1,2,4-Trichlorobenzene	ND		1.0		ug/L			10/06/15 13:51	1
1,2-Dichlorobenzene	ND		1.0		ug/L			10/06/15 13:51	1
1,3-Dichlorobenzene	ND		1.0		ug/L			10/06/15 13:51	1
1,4-Dichlorobenzene	ND		1.0		ug/L			10/06/15 13:51	1
Trichlorofluoromethane	ND		1.0		ug/L			10/06/15 13:51	1
Chlorodibromomethane	ND		1.0		ug/L			10/06/15 13:51	1
Methylcyclohexane	ND		1.0		ug/L			10/06/15 13:51	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	96		78 - 125		10/06/15 13:51	1

TestAmerica Canton

QC Sample Results

Client: Cardinal Resources
Project/Site: Carroll & Dubies Superfund

TestAmerica Job ID: 240-55880-1

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

Lab Sample ID: MB 240-200531/6

Matrix: Water

Analysis Batch: 200531

Client Sample ID: Method Blank

Prep Type: Total/NA

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	86		61 - 120		10/06/15 13:51	1
Toluene-d8 (Surr)	92		80 - 120		10/06/15 13:51	1
Dibromofluoromethane (Surr)	95		79 - 120		10/06/15 13:51	1

Lab Sample ID: LCS 240-200531/8

Matrix: Water

Analysis Batch: 200531

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Acetone	20.0	15.5		ug/L		78	34 - 148
Benzene	10.0	9.61		ug/L		96	80 - 120
Dichlorobromomethane	10.0	9.72		ug/L		97	80 - 120
Bromoform	10.0	8.94		ug/L		89	56 - 122
Bromomethane	10.0	8.39		ug/L		84	38 - 132
2-Butanone (MEK)	20.0	18.3		ug/L		92	56 - 138
Carbon disulfide	10.0	7.53		ug/L		75	65 - 144
Carbon tetrachloride	10.0	8.99		ug/L		90	77 - 131
Chlorobenzene	10.0	10.5		ug/L		105	80 - 120
Chloroethane	10.0	10.4		ug/L		104	36 - 126
Chloroform	10.0	10.1		ug/L		101	80 - 120
Chloromethane	10.0	9.01		ug/L		90	48 - 133
1,1-Dichloroethane	10.0	9.50		ug/L		95	79 - 125
1,2-Dichloroethane	10.0	9.79		ug/L		98	80 - 120
1,1-Dichloroethene	10.0	7.89		ug/L		79	76 - 124
1,2-Dichloropropane	10.0	10.0		ug/L		100	78 - 124
cis-1,3-Dichloropropene	10.0	9.38		ug/L		94	74 - 126
trans-1,3-Dichloropropene	10.0	9.94		ug/L		99	75 - 131
Ethylbenzene	10.0	10.6		ug/L		106	80 - 120
2-Hexanone	20.0	22.5		ug/L		113	55 - 141
Methylene Chloride	10.0	9.08		ug/L		91	77 - 129
4-Methyl-2-pentanone (MIBK)	20.0	21.3		ug/L		107	64 - 135
Styrene	10.0	10.7		ug/L		107	76 - 122
1,1,2,2-Tetrachloroethane	10.0	10.1		ug/L		101	71 - 123
Tetrachloroethene	10.0	10.5		ug/L		105	78 - 121
Toluene	10.0	10.4		ug/L		104	80 - 120
Trichloroethene	10.0	10.4		ug/L		104	80 - 121
Vinyl chloride	10.0	9.92		ug/L		99	52 - 121
Xylenes, Total	20.0	21.6		ug/L		108	80 - 120
1,1,1-Trichloroethane	10.0	9.46		ug/L		95	77 - 123
1,1,2-Trichloroethane	10.0	10.3		ug/L		103	80 - 120
Cyclohexane	10.0	9.65		ug/L		97	60 - 140
1,2-Dibromo-3-Chloropropane	10.0	8.13		ug/L		81	50 - 132
Ethylene Dibromide	10.0	10.5		ug/L		105	80 - 120
Dichlorodifluoromethane	10.0	10.4		ug/L		104	23 - 136
cis-1,2-Dichloroethene	10.0	9.66		ug/L		97	79 - 120
trans-1,2-Dichloroethene	10.0	9.42		ug/L		94	80 - 124
Isopropylbenzene	10.0	11.3		ug/L		113	77 - 120
Methyl acetate	50.0	47.2		ug/L		94	67 - 131

TestAmerica Canton

QC Sample Results

Client: Cardinal Resources
Project/Site: Carroll & Dubies Superfund

TestAmerica Job ID: 240-55880-1

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

Lab Sample ID: LCS 240-200531/8

Matrix: Water

Analysis Batch: 200531

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Methyl tert-butyl ether	10.0	9.16		ug/L		92	69 - 121
1,1,2-Trichloro-1,2,2-trifluoroethane	10.0	8.90		ug/L		89	67 - 138
1,2,4-Trichlorobenzene	10.0	8.30		ug/L		83	61 - 120
1,2-Dichlorobenzene	10.0	9.96		ug/L		100	79 - 120
1,3-Dichlorobenzene	10.0	10.3		ug/L		103	79 - 120
1,4-Dichlorobenzene	10.0	10.2		ug/L		102	79 - 120
Trichlorofluoromethane	10.0	9.10		ug/L		91	61 - 133
Chlorodibromomethane	10.0	9.60		ug/L		96	74 - 120
Methylcyclohexane	10.0	10.7		ug/L		107	61 - 134
m-Xylene & p-Xylene	10.0	10.8		ug/L		108	80 - 120
o-Xylene	10.0	10.8		ug/L		108	80 - 120

Surrogate	LCS %Recovery	LCS Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	90		78 - 125
4-Bromofluorobenzene (Surr)	97		61 - 120
Toluene-d8 (Surr)	98		80 - 120
Dibromofluoromethane (Surr)	90		79 - 120

Method: RSK-175 - Dissolved Gases (GC)

Lab Sample ID: MB 240-200095/4

Matrix: Water

Analysis Batch: 200095

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methane	ND		0.50		ug/L			10/02/15 15:15	1
Ethane	ND		0.50		ug/L			10/02/15 15:15	1
Ethylene	ND		0.50		ug/L			10/02/15 15:15	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,1,1-Trifluoroethane	106		66 - 132		10/02/15 15:15	1

Lab Sample ID: LCS 240-200095/5

Matrix: Water

Analysis Batch: 200095

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Methane	199	225		ug/L		113	76 - 120
Ethane	374	399		ug/L		107	80 - 120
Ethylene	349	393		ug/L		113	81 - 120

Surrogate	LCS %Recovery	LCS Qualifier	Limits
1,1,1-Trifluoroethane	107		66 - 132

TestAmerica Canton

QC Sample Results

Client: Cardinal Resources
Project/Site: Carroll & Dubies Superfund

TestAmerica Job ID: 240-55880-1

Method: RSK-175 - Dissolved Gases (GC) (Continued)

Lab Sample ID: 240-55880-15 MS

Matrix: Water

Analysis Batch: 200095

Client Sample ID: OW-6

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Methane	ND		199	215		ug/L		108	34 - 153
Ethane	ND		374	381		ug/L		102	61 - 120
Ethylene	ND		349	360		ug/L		103	60 - 120
Surrogate	MS %Recovery	MS Qualifier	Limits						
1,1,1-Trifluoroethane	97		66 - 132						

Lab Sample ID: 240-55880-15 MSD

Matrix: Water

Analysis Batch: 200095

Client Sample ID: OW-6

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Methane	ND		199	218		ug/L		110	34 - 153	1	22
Ethane	ND		374	383		ug/L		102	61 - 120	0	21
Ethylene	ND		349	361		ug/L		103	60 - 120	0	17
Surrogate	MSD %Recovery	MSD Qualifier	Limits								
1,1,1-Trifluoroethane	95		66 - 132								

Lab Sample ID: MB 240-200362/4

Matrix: Water

Analysis Batch: 200362

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methane	ND		0.50		ug/L			10/05/15 15:47	1
Ethane	ND		0.50		ug/L			10/05/15 15:47	1
Ethylene	ND		0.50		ug/L			10/05/15 15:47	1
Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac			
1,1,1-Trifluoroethane	106		66 - 132		10/05/15 15:47	1			

Lab Sample ID: LCS 240-200362/5

Matrix: Water

Analysis Batch: 200362

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Methane	199	221		ug/L		111	76 - 120
Ethane	374	391		ug/L		105	80 - 120
Ethylene	349	386		ug/L		111	81 - 120
Surrogate	LCS %Recovery	LCS Qualifier	Limits				
1,1,1-Trifluoroethane	111		66 - 132				

TestAmerica Canton

QC Sample Results

Client: Cardinal Resources
Project/Site: Carroll & Dubies Superfund

TestAmerica Job ID: 240-55880-1

Method: Moisture - Percent Moisture

Lab Sample ID: 240-55880-12 DU
Matrix: Solid
Analysis Batch: 199388

Client Sample ID: SED-1
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Percent Solids	12		14		%		12	20
Percent Moisture	88		86		%		2	20

QC Association Summary

Client: Cardinal Resources
Project/Site: Carroll & Dubies Superfund

TestAmerica Job ID: 240-55880-1

GC/MS VOA

Analysis Batch: 199693

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-55880-12	SED-1	Total/NA	Solid	8260B	199736
240-55880-12 MS	SED-1	Total/NA	Solid	8260B	199736
240-55880-12 MSD	SED-1	Total/NA	Solid	8260B	199736
LCS 240-199693/5	Lab Control Sample	Total/NA	Solid	8260B	
MB 240-199693/6	Method Blank	Total/NA	Solid	8260B	

Prep Batch: 199736

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-55880-12	SED-1	Total/NA	Solid	5030B	
240-55880-12 MS	SED-1	Total/NA	Solid	5030B	
240-55880-12 MSD	SED-1	Total/NA	Solid	5030B	

Analysis Batch: 199773

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-55880-4	SED-2 DUP	Total/NA	Solid	8260B	199796
240-55880-4 MS	SED-2 DUP	Total/NA	Solid	8260B	199796
240-55880-4 MSD	SED-2 DUP	Total/NA	Solid	8260B	199796
LCS 240-199773/5	Lab Control Sample	Total/NA	Solid	8260B	
MB 240-199773/6	Method Blank	Total/NA	Solid	8260B	

Prep Batch: 199796

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-55880-4	SED-2 DUP	Total/NA	Solid	5030B	
240-55880-4 MS	SED-2 DUP	Total/NA	Solid	5030B	
240-55880-4 MSD	SED-2 DUP	Total/NA	Solid	5030B	

Analysis Batch: 199815

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-55880-2	SW-2	Total/NA	Water	8260B	
240-55880-2 MS	SW-2	Total/NA	Water	8260B	
240-55880-2 MSD	SW-2	Total/NA	Water	8260B	
LCS 240-199815/4	Lab Control Sample	Total/NA	Water	8260B	
MB 240-199815/6	Method Blank	Total/NA	Water	8260B	

Analysis Batch: 199891

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-55880-3	SED-2	Total/NA	Solid	8260B	199974
LCS 240-199891/5	Lab Control Sample	Total/NA	Solid	8260B	
MB 240-199891/6	Method Blank	Total/NA	Solid	8260B	

Prep Batch: 199974

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-55880-3	SED-2	Total/NA	Solid	5030B	

Analysis Batch: 200197

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-55880-5	OW-18	Total/NA	Water	8260B	
240-55880-6	OW-19	Total/NA	Water	8260B	
240-55880-7	OW-13R	Total/NA	Water	8260B	
240-55880-8	FB-1	Total/NA	Water	8260B	
240-55880-9	PUMP RINSATE BLANK	Total/NA	Water	8260B	

TestAmerica Canton

QC Association Summary

Client: Cardinal Resources
Project/Site: Carroll & Dubies Superfund

TestAmerica Job ID: 240-55880-1

GC/MS VOA (Continued)

Analysis Batch: 200197 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-55880-10	SW-1	Total/NA	Water	8260B	
240-55880-11	SW-1 DUP	Total/NA	Water	8260B	
240-55880-18	OW-22	Total/NA	Water	8260B	
240-55880-19	OW-21	Total/NA	Water	8260B	
240-55880-20	FB-2	Total/NA	Water	8260B	
240-55880-21	TRIP BLANK 1	Total/NA	Water	8260B	
LCS 240-200197/4	Lab Control Sample	Total/NA	Water	8260B	
MB 240-200197/6	Method Blank	Total/NA	Water	8260B	

Analysis Batch: 200347

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-55880-13	OW-5	Total/NA	Water	8260B	
240-55880-14	OW-5 DUP	Total/NA	Water	8260B	
240-55880-16	OW-2	Total/NA	Water	8260B	
240-55880-17	OW-10R	Total/NA	Water	8260B	
LCS 240-200347/4	Lab Control Sample	Total/NA	Water	8260B	
MB 240-200347/6	Method Blank	Total/NA	Water	8260B	

Analysis Batch: 200361

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-55880-15	OW-6	Total/NA	Water	8260B	
240-55880-15 MS	OW-6	Total/NA	Water	8260B	
240-55880-15 MSD	OW-6	Total/NA	Water	8260B	
LCS 240-200361/4	Lab Control Sample	Total/NA	Water	8260B	
MB 240-200361/6	Method Blank	Total/NA	Water	8260B	

Analysis Batch: 200531

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-55880-1	OW-24	Total/NA	Water	8260B	
LCS 240-200531/8	Lab Control Sample	Total/NA	Water	8260B	
MB 240-200531/6	Method Blank	Total/NA	Water	8260B	

GC VOA

Analysis Batch: 200095

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-55880-1	OW-24	Total/NA	Water	RSK-175	
240-55880-5	OW-18	Total/NA	Water	RSK-175	
240-55880-6	OW-19	Total/NA	Water	RSK-175	
240-55880-7	OW-13R	Total/NA	Water	RSK-175	
240-55880-13	OW-5	Total/NA	Water	RSK-175	
240-55880-14	OW-5 DUP	Total/NA	Water	RSK-175	
240-55880-15	OW-6	Total/NA	Water	RSK-175	
240-55880-15 MS	OW-6	Total/NA	Water	RSK-175	
240-55880-15 MSD	OW-6	Total/NA	Water	RSK-175	
240-55880-16	OW-2	Total/NA	Water	RSK-175	
240-55880-17	OW-10R	Total/NA	Water	RSK-175	
240-55880-18	OW-22	Total/NA	Water	RSK-175	
240-55880-19	OW-21	Total/NA	Water	RSK-175	
LCS 240-200095/5	Lab Control Sample	Total/NA	Water	RSK-175	

TestAmerica Canton

QC Association Summary

Client: Cardinal Resources
Project/Site: Carroll & Dubies Superfund

TestAmerica Job ID: 240-55880-1

GC VOA (Continued)

Analysis Batch: 200095 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 240-200095/4	Method Blank	Total/NA	Water	RSK-175	

Analysis Batch: 200362

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-55880-17	OW-10R	Total/NA	Water	RSK-175	
LCS 240-200362/5	Lab Control Sample	Total/NA	Water	RSK-175	
MB 240-200362/4	Method Blank	Total/NA	Water	RSK-175	

General Chemistry

Analysis Batch: 199388

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-55880-3	SED-2	Total/NA	Solid	Moisture	
240-55880-4	SED-2 DUP	Total/NA	Solid	Moisture	
240-55880-12	SED-1	Total/NA	Solid	Moisture	
240-55880-12 DU	SED-1	Total/NA	Solid	Moisture	

Lab Chronicle

Client: Cardinal Resources
Project/Site: Carroll & Dubies Superfund

TestAmerica Job ID: 240-55880-1

Client Sample ID: OW-24

Date Collected: 09/23/15 11:55

Date Received: 09/26/15 09:45

Lab Sample ID: 240-55880-1

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	200531	10/06/15 15:21	RJQ	TAL CAN
Total/NA	Analysis	RSK-175		1	200095	10/02/15 16:02	BPM	TAL CAN

Client Sample ID: SW-2

Date Collected: 09/23/15 12:25

Date Received: 09/26/15 09:45

Lab Sample ID: 240-55880-2

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	199815	10/01/15 09:16	LRW	TAL CAN

Client Sample ID: SED-2

Date Collected: 09/23/15 12:25

Date Received: 09/26/15 09:45

Lab Sample ID: 240-55880-3

Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	199388	09/28/15 16:09	BLW	TAL CAN

Client Sample ID: SED-2

Date Collected: 09/23/15 12:25

Date Received: 09/26/15 09:45

Lab Sample ID: 240-55880-3

Matrix: Solid

Percent Solids: 13.6

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5030B			199974	10/01/15 13:17	SAM	TAL CAN
Total/NA	Analysis	8260B		1	199891	10/01/15 20:13	TJL2	TAL CAN

Client Sample ID: SED-2 DUP

Date Collected: 09/23/15 12:25

Date Received: 09/26/15 09:45

Lab Sample ID: 240-55880-4

Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	199388	09/28/15 16:09	BLW	TAL CAN

Client Sample ID: SED-2 DUP

Date Collected: 09/23/15 12:25

Date Received: 09/26/15 09:45

Lab Sample ID: 240-55880-4

Matrix: Solid

Percent Solids: 14.0

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5030B			199796	09/30/15 14:52	SAM	TAL CAN
Total/NA	Analysis	8260B		1	199773	09/30/15 19:51	SAM	TAL CAN

TestAmerica Canton

Lab Chronicle

Client: Cardinal Resources
Project/Site: Carroll & Dubies Superfund

TestAmerica Job ID: 240-55880-1

Client Sample ID: OW-18

Date Collected: 09/23/15 13:15

Date Received: 09/26/15 09:45

Lab Sample ID: 240-55880-5

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	200197	10/03/15 08:58	LRW	TAL CAN
Total/NA	Analysis	RSK-175		1	200095	10/02/15 16:17	BPM	TAL CAN

Client Sample ID: OW-19

Date Collected: 09/23/15 15:55

Date Received: 09/26/15 09:45

Lab Sample ID: 240-55880-6

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	200197	10/03/15 09:20	LRW	TAL CAN
Total/NA	Analysis	RSK-175		1	200095	10/02/15 16:33	BPM	TAL CAN

Client Sample ID: OW-13R

Date Collected: 09/23/15 17:40

Date Received: 09/26/15 09:45

Lab Sample ID: 240-55880-7

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	200197	10/03/15 09:43	LRW	TAL CAN
Total/NA	Analysis	RSK-175		1	200095	10/02/15 16:49	BPM	TAL CAN

Client Sample ID: FB-1

Date Collected: 09/23/15 16:30

Date Received: 09/26/15 09:45

Lab Sample ID: 240-55880-8

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	200197	10/03/15 10:05	LRW	TAL CAN

Client Sample ID: PUMP RINSATE BLANK

Date Collected: 09/23/15 16:35

Date Received: 09/26/15 09:45

Lab Sample ID: 240-55880-9

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	200197	10/03/15 10:28	LRW	TAL CAN

Client Sample ID: SW-1

Date Collected: 09/24/15 08:50

Date Received: 09/26/15 09:45

Lab Sample ID: 240-55880-10

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	200197	10/03/15 10:51	LRW	TAL CAN

TestAmerica Canton

Lab Chronicle

Client: Cardinal Resources
Project/Site: Carroll & Dubies Superfund

TestAmerica Job ID: 240-55880-1

Client Sample ID: SW-1 DUP

Date Collected: 09/24/15 08:50

Date Received: 09/26/15 09:45

Lab Sample ID: 240-55880-11

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	200197	10/03/15 11:13	LRW	TAL CAN

Client Sample ID: SED-1

Date Collected: 09/24/15 08:50

Date Received: 09/26/15 09:45

Lab Sample ID: 240-55880-12

Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	199388	09/28/15 16:09	BLW	TAL CAN

Client Sample ID: SED-1

Date Collected: 09/24/15 08:50

Date Received: 09/26/15 09:45

Lab Sample ID: 240-55880-12

Matrix: Solid

Percent Solids: 12.3

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5030B			199736	09/30/15 10:01	SAM	TAL CAN
Total/NA	Analysis	8260B		1	199693	09/30/15 12:53	SAM	TAL CAN

Client Sample ID: OW-5

Date Collected: 09/24/15 10:45

Date Received: 09/26/15 09:45

Lab Sample ID: 240-55880-13

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1.33	200347	10/05/15 17:50	LRW	TAL CAN
Total/NA	Analysis	RSK-175		1	200095	10/02/15 17:04	BPM	TAL CAN

Client Sample ID: OW-5 DUP

Date Collected: 09/24/15 10:45

Date Received: 09/26/15 09:45

Lab Sample ID: 240-55880-14

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1.67	200347	10/05/15 18:12	LRW	TAL CAN
Total/NA	Analysis	RSK-175		1	200095	10/02/15 17:20	BPM	TAL CAN

Client Sample ID: OW-6

Date Collected: 09/24/15 12:30

Date Received: 09/26/15 09:45

Lab Sample ID: 240-55880-15

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1.25	200361	10/05/15 15:48	RJQ	TAL CAN
Total/NA	Analysis	RSK-175		1	200095	10/02/15 17:36	BPM	TAL CAN

TestAmerica Canton

Lab Chronicle

Client: Cardinal Resources
Project/Site: Carroll & Dubies Superfund

TestAmerica Job ID: 240-55880-1

Client Sample ID: OW-2

Date Collected: 09/24/15 14:15

Date Received: 09/26/15 09:45

Lab Sample ID: 240-55880-16

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		2.5	200347	10/05/15 18:34	LRW	TAL CAN
Total/NA	Analysis	RSK-175		1	200095	10/02/15 18:38	BPM	TAL CAN

Client Sample ID: OW-10R

Date Collected: 09/24/15 15:35

Date Received: 09/26/15 09:45

Lab Sample ID: 240-55880-17

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	200347	10/05/15 14:26	LRW	TAL CAN
Total/NA	Analysis	RSK-175		1	200095	10/02/15 18:54	BPM	TAL CAN
Total/NA	Analysis	RSK-175		2	200362	10/05/15 18:40	BPM	TAL CAN

Client Sample ID: OW-22

Date Collected: 09/24/15 17:00

Date Received: 09/26/15 09:45

Lab Sample ID: 240-55880-18

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	200197	10/03/15 11:58	LRW	TAL CAN
Total/NA	Analysis	RSK-175		1	200095	10/02/15 19:09	BPM	TAL CAN

Client Sample ID: OW-21

Date Collected: 09/24/15 18:00

Date Received: 09/26/15 09:45

Lab Sample ID: 240-55880-19

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	200197	10/03/15 12:21	LRW	TAL CAN
Total/NA	Analysis	RSK-175		1	200095	10/02/15 19:25	BPM	TAL CAN

Client Sample ID: FB-2

Date Collected: 09/24/15 18:30

Date Received: 09/26/15 09:45

Lab Sample ID: 240-55880-20

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	200197	10/03/15 12:44	LRW	TAL CAN

Client Sample ID: TRIP BLANK 1

Date Collected: 09/24/15 18:30

Date Received: 09/26/15 09:45

Lab Sample ID: 240-55880-21

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	200197	10/03/15 13:06	LRW	TAL CAN

TestAmerica Canton

Lab Chronicle

Client: Cardinal Resources
Project/Site: Carroll & Dubies Superfund

TestAmerica Job ID: 240-55880-1

Laboratory References:

TAL CAN = TestAmerica Canton, 4101 Shuffel Street NW, North Canton, OH 44720, TEL (330)497-9396

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Certification Summary

Client: Cardinal Resources
Project/Site: Carroll & Dubies Superfund

TestAmerica Job ID: 240-55880-1

Laboratory: TestAmerica Canton

All certifications held by this laboratory are listed. Not all certifications are applicable to this report.

Authority	Program	EPA Region	Certification ID	Expiration Date
California	NELAP	9	01144CA	06-30-14 *
California	State Program	9	2927	04-30-17
Connecticut	State Program	1	PH-0590	12-31-15
Illinois	NELAP	5	200004	07-31-16
Kansas	NELAP	7	E-10336	01-31-16 *
Kentucky (UST)	State Program	4	58	02-26-16
Kentucky (WW)	State Program	4	98016	12-31-15
L-A-B	DoD ELAP		L2315	07-18-16
Minnesota	NELAP	5	039-999-348	12-31-15
Nevada	State Program	9	OH-000482008A	07-31-16
New Jersey	NELAP	2	OH001	10-30-15 *
New York	NELAP	2	10975	03-31-16
Ohio VAP	State Program	5	CL0024	10-31-15 *
Oregon	NELAP	10	4062	02-23-16
Pennsylvania	NELAP	3	68-00340	08-31-16
Texas	NELAP	6	T104704517-15-5	08-31-16
USDA	Federal		P330-13-00319	11-26-16
Virginia	NELAP	3	460175	09-14-16
Washington	State Program	10	C971	01-12-16
West Virginia DEP	State Program	3	210	12-31-15
Wisconsin	State Program	5	999518190	08-31-16

* Certification renewal pending - certification considered valid.

TestAmerica Canton

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

TestAmerica Laboratories, Inc.

CHAIN OF CUSTODY AND RECEIVING DOCUMENTS



240-55880 Chain of Custody

TestAmerica Canton
4101 Shuffel Street, N. H.
North Canton, OH 44720
Phone: 330.497.9396 Fax: 330.497.2

Shipping Order
30237

Chain of Custody Record
Sub Project # 240068

098133
Page 2 of 4

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING
TestAmerica Laboratories, Inc.
TAL-8210 (07/13)

Company Name: Cardinal Resources Address: 201 PennCenter Blvd Suite 400 City/State/Zip: Pittsburgh, PA 15235 Phone: 412-379-0989 Fax: _____ Project Name: _____ Site: _____ PO # _____		Client Contact Project Manager: Barbara Jones Tel/Fax: cell 412-841-2263 Analysis Turnaround Time ☐ CALENDAR DAYS ☐ WORKING DAYS TAT if different from Below ☐ 2 weeks ☐ 1 week ☐ 2 days ☐ 1 day		Project Manager: Barbara Jones Tel/Fax: cell 412-841-2263 Analysis Turnaround Time ☐ CALENDAR DAYS ☐ WORKING DAYS TAT if different from Below ☐ 2 weeks ☐ 1 week ☐ 2 days ☐ 1 day		Site Contact Lab Contact: Natl Petras Carrier: _____		Date: _____ COC No: _____ COCs: _____									
Sample Identification		Sample Date		Sample Time		Sample Type (C=Comp, G=Grab)		Matrix		# of Cont.		Filtered Sample (Y/N)		Perform MS/MSD (Y/N)		Sample Specific Notes:	
SW-1		9-24-15		8:50		G		H2O		3		✓		✓		RISK-MEE ONLY	
SW-1 Dup		9-24-15		8:50		G		sed		3		✓		✓			
SED-1 SED-1 MS, SED-1		9-24-15		8:50		G		sed		3		✓		✓			
OW-S, OW-S Dup		9-24-15		10:45		G		H2O		12		✓		✓			
OW-6		9-24-15		12:30		G		H2O		6		✓		✓			
OW-6 MS/MSD		9-24-15		12:30		G		H2O		12		✓		✓			
OW-2		9-24-15		14:15		G		H2O		6		✓		✓			
OW-10R		9-24-15		15:35		G		H2O		6		✓		✓			
OW-22		9-24-15		17:00		G		H2O		6		✓		✓			
OW-21		9-24-15		18:00		G		H2O		6		✓		✓			
FB-2		9-24-15		18:30		G		H2O		3		✓		✓			
Trip Blank 1		9-24-15		18:30		-		H2O		2		✓		✓			
Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4= HNO3; 5= NaOH; 6= Other																Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)	
Possible Hazard Identification: Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample.																☐ Return to Client ☒ Disposal by Lab ☐ Archive for _____ Months	
Special Instructions/QC Requirements & Comments:																	
Custody Seals Intact: ☐ Yes ☐ No		Custody Seal No.:		Cooler Temp. (°C): Obs'd: _____		Corr'd: _____		Therm ID No.:									
Relinquished by: Barbara H. Jones		Company: Cardinal Resources		Received by: [Signature]		Company: TACanton		Date/Time: 9/25/15									
Relinquished by:		Company:		Received by:		Company:		Date/Time:									
Relinquished by:		Company:		Received in Laboratory by:		Company:		Date/Time:									

TestAmerica Canton Sample Receipt Form/Narrative

Login #

Canton Facility

Client Cardinal Resources Site Name _____ Cooler unpacked by: _____Cooler Received on 9/26/15 Opened on 9/26/15FedEx: 1st Grd Exp UPS FAS Stetson Client Drop Off TestAmerica Courier Other _____

Receipt After-hours: Drop-off Date/Time _____

Storage Location _____

TestAmerica Cooler # _____ Foam Box Client Cooler Box _____ Other _____Packing material used: Bubble Wrap Foam Plastic Bag None Other _____COOLANT: Wet Ice Blue Ice Dry Ice Water None

1. Cooler temperature upon receipt

IR GUN# A (CF +1.0 °C) Observed Cooler Temp. _____ °C Corrected Cooler Temp. _____ °C

IR GUN# 4 (CF +0.5 °C) Observed Cooler Temp. _____ °C Corrected Cooler Temp. _____ °C

IR GUN# 5 (CF +0.4 °C) Observed Cooler Temp. _____ °C Corrected Cooler Temp. _____ °C

IR GUN# 8 (CF -1.5 °C) Observed Cooler Temp. 3.6 °C Corrected Cooler Temp. 2.1 °C☐ See Multiple Cooler Form2. Were custody seals on the outside of the cooler(s)? If Yes Quantity 1 Yes No-Were custody seals on the outside of the cooler(s) signed & dated? Yes No NA-Were custody seals on the bottle(s) or bottle kits (LLHg/MeHg)? Yes No

3. Shippers' packing slip attached to the cooler(s)?

4. Did custody papers accompany the sample(s)?

5. Were the custody papers relinquished & signed in the appropriate place?

6. Was/were the person(s) who collected the samples clearly identified on the COC?

7. Did all bottles arrive in good condition (Unbroken)?

8. Could all bottle labels be reconciled with the COC?

9. Were correct bottle(s) used for the test(s) indicated?

10. Sufficient quantity received to perform indicated analyses?

11. Were sample(s) at the correct pH upon receipt?

Yes No NA pH Strip Lot# HC554612

12. Were VOAs on the COC?

13. Were air bubbles >6 mm in any VOA vials?

14. Was a trip blank present in the cooler(s)? Trip Blank Lot # _____

Contacted PM _____ Date _____ by _____ via Verbal Voice Mail Other _____

Concerning _____

14. CHAIN OF CUSTODY & SAMPLE DISCREPANCIES

Samples processed by:

Sample: CW-6 1 vial 40ml HCL Braker

15. SAMPLE CONDITION

Sample(s) _____ were received after the recommended holding time had expired.

Sample(s) _____ were received in a broken container.

Sample(s) _____ were received with bubble >6 mm in diameter. (Notify PM)

16. SAMPLE PRESERVATION

Sample(s) _____ were further preserved in the laboratory.

Time preserved: _____ Preservative(s) added/Lot number(s): _____

Appendix B
Historic Sampling Results

Table B-1
Historical Summary of Detected TCL Volatile Organic Compounds in Groundwater (ug/L)
Carroll and Dubies Superfund Site
Town of Deerpark, Orange County, New York

Analyte	Acetone	Benzene	Carbon Disulfide	Carbon Tetrachloride	Chloro-benzene	Chloroethane	Chloroform	Chloromethane	1,1-DCA	1,2-DCA	1,1-DCE	1,2-DCE (total)	Ethylbenzene	2-Hexanone	Methylene Chloride	1,1,2,2-PCA	PCE	Styrene	Toluene	TCE	Vinyl Chloride	Xylenes (total)	
NYSDEC SGV	50 (G)	1 (S)	NA	5 (S)	5 (S)*	5 (S)*	7 (S)	1	5 (S)*	0.6 (S)	5 (S)*	5 (S)*	5 (S)*	50 (G)	5 (S)*	5 (S)*	5 (S)*	5 (S)*	5 (S)*	5 (S)*	2 (S)	5 (S)*	
U.S. EPA MCL	NA	5	NA	5	100	NA	NA	5	NA	5	7	70	700	NA	5	NA	5	100	1,000	5	2	10,000	
Well ID	Date																						
MW-1	03/22/93	NR	0.9 J	NR	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	NR	<0.1 B	<0.5	<0.5	-	<0.5	<0.5	<0.5	<0.5	
	09/26/94	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	NR	<10	<10	<10	-	<10	<10	<10	<10	
	04/20/95	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	-	<10	<10	<10	<10	
	02/18/99	<10	0.66 J	<1.0	<1.0	0.40 J	<2.0	<1.0	<2.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	-	<1.0	<1.0	<2.0	<1.0	
	01/05/00	<10	0.65 J,B	<1.0	<1.0	0.37 J	<2.0	0.083 J	<2.0	<1.0	<1.0	0.22 J	<1.0	0.14 J	<1.0	0.35 J,B	<1.0	<1.0	-	0.097 J	<1.0	<2.0	<1.0
	06/06/00	<10	0.57 J	<1.0	<1.0	0.30 J	<2.0	<1.0	<2.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	-	<1.0	<1.0	<2.0	<1.0	
	03/15/01	10 UJ	0.40 J	<1.0	<1.0	0.38 J	<2.0	<1.0	<2.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	-	<1.0	<1.0	<2.0	<1.0	
	08/29/01	<10	<1.0	<1.0	<1.0	0.32 J	<2.0	<1.0	<2.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	-	<1.0	<1.0	<2.0	<1.0	
	04/25/02	10 U	<1.0	<1.0	<1.0	0.17 J	<2.0	<1.0	<2.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	1.0 U	<1.0	<1.0	-	<1.0	<1.0	<2.0	<1.0
	09/18/02	<10	<1.0	<1.0	<1.0	<1.0	<2.0	<1.0	<2.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	-	<1.0	<1.0	<2.0	<1.0	
	04/09/03	<10	<1.0	<1.0	<1.0	<1.0	<2.0	<1.0	<2.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	-	<1.0	<1.0	<2.0	<1.0	
	04/25/04	<10	<1.0	<1.0	<1.0	<1.0	<2.0	<1.0	<2.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	-	<1.0	<1.0	<2.0	1.0	
	02/15/06	10 U	1.0 U	1.0 U	1.0 U	1.0 U	2.0 U	1.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U	10 U	1.0 U	1.0 U	1.0 U	1.0 U	-	1.0 U	1.0 U	2.0 U	1.0 U
	08/30/06	10 U	1.0 U	1.0 U	1.0 U	1.0 U	2.0 U	1.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U	10 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	2.0 U	1.0 U	
	06/13/07	10 U	1.0 U	1.0 U	1.0 U	1.0 U	2.0 U	1.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U	10 U	1.0 UJ	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	2.0 U	1.0 U	
	07/24/08	10 U	1.0 U	1.0 U	1.0 U	1.0 U	2.0 U	1.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	2.0 U	1.0 U	
	07/14/09	10 U	1.0 U	1.0 U	1.0 U	1.0 U	2.0 U	1.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	10 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	2.0 U	1.0 U	
	07/21/10	10 U	1.0 U	1.0 U	1.0 U	1.0 U	2.0 UJ	1.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	10 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	2.0 U	1.0 U	
	10/13/11	10 U	1.0 U	1.0 U	1.0 U	1.0 U	2.0 U	1.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	2.0 U	
	MW-4	03/24/93	NR	18 J	NR	<0.5	0.4 J	<0.5	<0.5	<0.5	<0.5	<0.5	0.3 J	<0.5	NR	<4.1 B,J	<0.5	<0.5	-	0.1 J	<0.5	<0.5	<0.5
09/26/94		<10	11	<10	<1.0	<10	<10	<10	<10	<10	<10	<10	<10	NR	<10	<10	<10	-	<10	<10	<10	<10	
04/24/95		<10	15	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	-	<10	<10	<10	<10	
02/18/99		<10	5.7	<1.0	<1.0	0.20 J	<2.0	<1.0	<2.0	<1.0	<0.1	<1.0	9.8	<1.0	<10	<1.0	0.16 J	-	0.16 J	0.20 J	<2.0	<1.0	
01/05/00		<10	6.9 B	<1.0	<1.0	0.26 J	<2.0	<1.0	<2.0	0.13 J	<1.0	0.45 J	3.3	<1.0	<10	0.11 J,B	<1.0	<1.0	-	0.090 J	0.15 J	0.30 J	<1.0
06/06/00		<10	4.8	<1.0	<1.0	0.20 J	<2.0	<1.0	<2.0	0.11 J	<1.0	<1.0	3.8	<1.0	<10	<1.0	<1.0	0.30 J	-	<1.0	<1.0	0.18 J	<1.0
03/14/01		<10	3.6	<1.0	<1.0	<1.0	<2.0	<1.0	<2.0	<1.0	<1.0	<1.0	3.2	<1.0	<10	<1.0	<1.0	0.66 J	-	<1.0	0.42 J	<2.0	<1.0
08/29/01		<10	12	<1.0	<1.0	0.21 J	<2.0	<1.0	0.26 J	<1.0	<1.0	<1.0	1.5	<1.0	<10	<1.0	<1.0	<1.0	-	<1.0	<1.0	<2.0	<1.0
04/25/02		<10	10	<1.0	<1.0	0.21 J	<2.0	<1.0	<2.0	<1.0	<1.0	<1.0	1.2	<1.0	<10	1.0 U	<1.0	<1.0	-	<1.0	<1.0	<2.0	<1.0
09/18/02		<10	7.8	<1.0	<1.0	<1.0	<2.0	<1.0	<2.0	<1.0	<1.0	<1.0	1.0	<1.0	<10	<1.0	<1.0	<1.0	-	<1.0	<1.0	<2.0	<1.0
04/09/03		<10	2.2	<1.0	<1.0	<1.0	<2.0	<1.0	<2.0	<1.0	<1.0	<1.0	0.84 J	<1.0	<10	<1.0	<1.0	<1.0	-	<1.0	<1.0	<2.0	<1.0
04/26/04		10 U	2.5	<1.0	<1.0	<1.0	<2.0	<1.0	<2.0	<1.0	<1.0	<1.0	0.50 J	<1.0	<10	<1.0	<1.0	0.72 J	-	<1.0	<1.0	<2.0	<1.0
02/15/06		10 U	3.8	1.0 U	1.0 U	1.0 U	2.0 U	1.0 U	2.0 U	1.0 U	1.0 U	1.0 U	0.53 J	1.0 U	10 U	1.0 U	1.0 U	0.33 J	-	1.0 U	1.0 U	2.0 U	1.0 U
08/29/06		10 U	9.1	1.0 U	1.0 U	1.0 U	2.0 U	1.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	10 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	2.0 U	1.0 U	
06/13/07		10 U	7.1	1.0 U	1.0 U	1.0 U	2.0 U	1.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	10 U	1.0 UJ	1.0 U	0.26 J	1.0 U	1.0 U	2.0 U	1.0 U	
07/24/08		10 U	4.4	1.0 U	1.0 U	1.0 U	2.0 U	1.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U	0.48 J	10 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	0.28 J	2.0 U	1.0 U
07/16/09		10 U	1.2	1.0 U	1.0 U	1.0 U	2.0 U	1.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	10 U	1.0 U	1.0 U	0.34 J	1.0 U	1.0 U	1.0 U	2.0 U	1.0 U
07/20/10		10 U	2.0	1.0 U	1.0 U	1.0 U	2.0 U	1.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	10 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	2.0 U	1.0 U	
10/13/11		10 U	1.1	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	2.0 U	
02/08/13		10 U	1.2	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	2.0 U	
06/11/14	25 U	1.2	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	10 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	2.0 U		

Table B-1
Historical Summary of Detected TCL Volatile Organic Compounds in Groundwater (ug/L)
Carroll and Dubies Superfund Site
Town of Deerpark, Orange County, New York

Analyte		Acetone	Benzene	Carbon Disulfide	Carbon Tetrachloride	Chloro-benzene	Chloroethane	Chloroform	Chloromethane	1,1-DCA	1,2-DCA	1,1-DCE	1,2-DCE (total)	Ethylbenzene	2-Hexanone	Methylene Chloride	1,1,2,2-PCA	PCE	Styrene	Toluene	TCE	Vinyl Chloride	Xylenes (total)
NYSDEC SGV		50 (G)	1 (S)	NA	5 (S)	5 (S)*	5 (S)*	7 (S)	1	5 (S)*	0.6 (S)	5 (S)*	5 (S)*	5 (S)*	50 (G)	5 (S)*	5 (S)*	5 (S)*	5 (S)*	5 (S)*	5 (S)*	2 (S)	5 (S)*
U.S. EPA MCL		NA	5	NA	5	100	NA	NA	5	NA	5	7	70	700	NA	5	NA	5	100	1,000	5	2	10,000
Well ID	Date																						
OW-2	03/23/93	NR	<0.5	NR	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	55	<0.5	NR	<1.3 B	<0.5	50	-	<0.5	22	<0.5	<0.5
	09/23/94	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	130	<10	NR	<10	<10	100	-	<10	24	<10	<10
	04/23/95	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	85	<10	<10	<10	<10	76	-	<10	22	<10	<10
	02/17/99	<50	<5.0	<5.0	<5.0	<5.0	<10	<5.0	<10	<5.0	<5.0	<5.0	130	<5.0	<50	3.6 J,B	<5.0	86	-	<5.0	22	<10	<5.0
	01/05/00	<10	0.46 J	<5.0	<5.0	<5.0	<10	<5.0	<10	<5.0	<5.0	<5.0	150	<5.0	<50	<5.0	<5.0	80	-	<5.0	21	0.72 J	<5.0
	06/06/00	<33	<3.3	<3.3	<3.3	<3.3	<6.7	<3.3	<6.7	<3.3	<3.3	<3.3	99	<3.3	<33	<3.3	<3.3	80	-	<3.3	19	<6.7	<3.3
	03/15/01	<100	<10	<10	<10	<10	<20	<10	<20	<10	<10	<10	310	<10	<100	4.6 J	<10	160	-	<10	32	<20	<10
	08/29/01	<25	<2.5	<2.5	<2.5	<2.5	<5.0	<2.5	<5.0	<2.5	<2.5	<2.5	69	<2.5	<25	<2.5	<2.5	61	-	<2.5	15	<5.0	<2.5
	04/25/02	<25	<2.5	<2.5	<2.5	<2.5	<5.0	<2.5	<5.0	<2.5	<2.5	<2.5	81	<2.5	<25	1.2 U	<2.5	60	-	<2.5	18	0.95 J	<2.5
	09/18/02	<29	<2.9	<2.9	<2.9	<2.9	<5.7	<2.9	<5.7	<2.9	<2.9	<2.9	85	<2.9	<29	<2.9	<2.9	68	-	<2.9	18	<5.7	<2.9
	04/09/03	<120	<12	<12	<12	<12	<25	<12	<25	<12	<12	<12	290	<12	<120	<12	<12	160	-	<12	29	<25	<12
	04/26/04	10 U	1.5 J	<6.7	<6.7	<6.7	<13	<6.7	<13	<6.7	<6.7	<6.7	170	<6.7	<67	<6.7	<6.7	110	-	1.3 J	22	<13	<6.7
	02/15/06	40 U	4.0 U	4.0 U	4.0 U	4.0 U	8.0 U	4.0 U	8.0 U	4.0 U	4.0 U	4.0 U	150	4.0 U	40 U	4.0 U	4.0 U	120	-	4.0 U	20	8.0 U	4.0 U
	05/23/06	80 U	8.0 U	8.0 U	8.0 U	8.0 U	16 U	8.0 U	16 U	8.0 U	8.0 U	8.0 U	250	8.0 U	80 U	8.0 U	8.0 U	130	8.0 U	8.0 U	22	16 U	8.0 U
	08/30/06	25 U	2.5 U	2.5 U	2.5 U	2.5 U	5.0 U	2.5 U	5.0 U	2.5 U	2.5 U	2.5 U	74	2.5 U	25 U	2.5 U	2.5 U	90	2.5 U	2.5 U	16	5.0 U	2.5 U
	11/29/06	120 U	12 U	12 U	12 U	12 U	25 U	12 U	25 U	12 U	12 U	12 U	280	12 U	120 U	12 U	12 U	140	12 U	12 U	24	25 U	12 U
	06/13/07	20 U	2.0 U	2.0 U	2.0 U	2.0 U	4.0 U	2.0 U	4.0 U	2.0 U	2.0 U	2.0 U	36	2.0 U	20 U	2.0 U	2.0 U	52	2.0 U	2.0 U	12	4.0 U	2.0 U
	07/24/08	20 U	2.0 U	2.0 U	2.0 U	2.0 U	4.0 U	2.0 U	4.0 U	2.0 U	2.0 U	2.0 U	30	0.96 J	20 U	2.0 U	2.0 U	59	2.0 U	2.0 U	11	4.0 U	1.1 J
	07/16/09	25 U	2.5 U	2.5 U	2.5 U	2.5 U	5.0 U	2.5 U	5.0 U	2.5 U	2.5 U	2.5 U	53	2.5 U	25 U	2.5 U	2.5 U	62	2.5 U	2.5 U	9.7	5.0 U	2.5 U
	07/21/10	10 U	1.0 U	1.0 U	1.0 U	1.0 U	2.0 U	1.0 U	2.0 U	1.0 U	1.0 U	1.0 U	39	1.0 U	10 U	1.0 U	1.0 U	77	1.0 U	1.0 U	12	2.0 U	1.0 U
	10/13/11	25 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	98	2.5 U	2.5 U	2.5 U	2.5 U	110	2.5 U	2.5 U	15	2.5 U	5.0 U
	02/06/13	100 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	330	10 U	10 U	10 U	10 U	180	10 U	10 U	26	10 U	20 U
	06/11/14	25 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	54	1.0 U	10 U	5.0 U	1.0 U	94	1.0 U	1.0 U	11	1.0 U	2.0 U
	09/24/15	25 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	54	2.5 U	25 U	2.5 U	2.5 U	74	2.5 U	2.5 U	10	2.5 U	5.0 U
OW-5	03/23/93	NR	<3.0 J	NR	<0.5	0.1 J	<0.5	<0.5	<1.3	<0.5	<0.6	<0.5	8.0 R	<0.5	NR	<3.8	<0.6	1.0	-	<0.5	<1.3	1.8	<0.6
	09/29/94	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	19	<10	NR	<10	<10	<10	-	<10	<10	<10	<10
	04/25/95	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	7 J	<10	<10	<10	<10	<10	-	<10	<10	<10	<10
	02/18/99	<17	0.67 J	<1.7	<1.7	0.20 J	<3.3	<1.7	<3.3	<1.7	<1.0	<1.7	33	<1.7	<17	1.3 J,B	<1.0	7.8	-	<1.7	5.4	<3.3	<1.7
	01/06/00	1.3 J	0.66 J	<1.0	<1.0	0.29 J	<2.0	<1.0	<2.0	<1.0	<1.0	<1.0	0.20 J	<1.0	<10	0.25 J,B	<1.0	18	-	0.041 J	9.0	0.26 J	<1.0
	06/07/00	<10	0.91 J	<1.0	<1.0	0.19 J	<2.0	<1.0	<2.0	<1.0	<1.0	<1.0	7.3	<1.0	<10	<1.0	<1.0	2.4	-	<1.0	1.7	<2.0	<1.0
	03/14/01	<10	0.46 J	<1.0	<1.0	<1.0	<2.0	<1.0	<2.0	<1.0	<1.0	<1.0	14	<1.0	<10	<1.0	<1.0	6.2	-	<1.0	3.7	<2.0	<1.0
	08/29/01	<12	<1.2	<1.2	<1.2	0.21 J	<2.5	<1.2	<2.5	<1.2	<1.2	<1.2	29	<1.2	<12	<1.2	<1.2	7.0	-	<1.2	4.5	<2.5	<1.2
	04/24/02	14 U	0.35 J	<1.4	<1.4	0.20 J	<2.9	<1.4	<2.9	<1.4	<1.4	<1.4	37	<1.4	<14	1.4 U	<1.4	10	-	<1.4	5.3	<2.9	<1.4
	09/19/02	<10	<1.0	<1.0	<1.0	<1.0	<2.0	<1.0	<2.0	<1.0	<1.0	<1.0	31	<1.0	<10	<1.0	<1.0	9.5	-	<1.0	5.3	<2.0	<1.0
	04/10/03	<10	<1.0	<1.0	<1.0	<1.0	<2.0	<1.0	<2.0	<1.0	<1.0	<1.0	7.8	<1.0	<10	<1.0	<1.0	5.5	-	<1.0	3	<2.0	<1.0
	04/25/04	<10	0.38 J	<1.0	<1.0	<1.0	<2.0	<1.0	<2.0	<1.0	<1.0	<1.0	8.6	<1.0	<10	<1.0	<1.0	5.2	-	<1.0	2.5	<2.0	<1.0
	02/16/06	10 U	1.0 U	1.0 U	1.0 U	1.0 U	2.0 U	1.0 U	2.0 U	1.0 U	1.0 U	1.0 U	6.2	1.0 U	10 U	1.0 U	1.0 U	4.3	-	1.0 U	2.0	2.0 U	1.0 U
	05/23/06	10 U	0.69 J	1.0 U	1.0 U	1.0 U	2.0 U	1.0 U	2.0 U	1.0 U	1.0 U	1.0 U	20	1.0 U	10 U	1.0 U	1.0 U	5.7	1.0 U	1.0 U	2.6	0.27 J	1.0 U
	08/29/06	14 U	1.4 U	1.4 U	1.4 U	1.4 U	2.9 U	1.4 U	2.9 U	1.4 U	1.4 U	1.4 U	34	1.4 U	14 U	1.4 U	1.4 U	6.1	1.4 U	1.4 U	2.8 J	0.82 J	1.4 U
	11/29/06	10 U	0.26 J	1.0 U	1.0 U	1.0 U	2.0 U	1.0 U	2.0 U	1.0 U	1.0 U	1.0 U	30	1.0 U	10 U	1.0 U	1.0 U	7.1	1.0 U	1.0 U	3.5	2.0 U	1.0 U
	06/12/07	10 U	1.0 U	1.0 U	1.0 U	1.0 U	2.0 U	1.0 U	2.0 U	1.0 U	1.0 U	1.0 U	8.7	1.0 U	10 U	1.0 U	1.0 U	4.0	1.0 U	1.0 U	1.9	2.0 U	1.0 U
	07/23/08	1.0 U	0.53 J	1.0 U	1.0 U	1.0 U	2.0 U	1.0 U	2.0 U	1.0 U	1.0 U	1.0 U	10	1.0 U	1.0 U	1.0 U	1.0 U	4.4	1.0 U	1.0 U	1.8	0.28 J	1.0 U
	07/14/09	10 U	1.0 U	1.0 U	1.0 U	1.0 U	2.0 U	1.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	10 U	1.0 U	1.0 U	3.7	1.0 U	1.0 U	1.5	2.0 U	1.0 U
	07/21/10	10 U	0.37 J	1.0 U	1.0 U	1.0 U	2.0 U	1.0 U	2.0 U	1.0 U	1.0 U	1.0 U	4.8	1.0 U	10 U	1.0 U	1.0 U	4.2	1.0 U	1.0 U	1.6	2.0 U	1.0 U

Table B-1
Historical Summary of Detected TCL Volatile Organic Compounds in Groundwater (ug/L)
Carroll and Dubies Superfund Site
Town of Deerpark, Orange County, New York

Analyte	Acetone	Benzene	Carbon Disulfide	Carbon Tetrachloride	Chloro-benzene	Chloroethane	Chloroform	Chloromethane	1,1-DCA	1,2-DCA	1,1-DCE	1,2-DCE (total)	Ethylbenzene	2-Hexanone	Methylene Chloride	1,1,2,2-PCA	PCE	Styrene	Toluene	TCE	Vinyl Chloride	Xylenes (total)	
NYSDEC SGV	50 (G)	1 (S)	NA	5 (S)	5 (S)*	5 (S)*	7 (S)	1	5 (S)*	0.6 (S)	5 (S)*	5 (S)*	5 (S)*	50 (G)	5 (S)*	5 (S)*	5 (S)*	5 (S)*	5 (S)*	5 (S)*	2 (S)	5 (S)*	
U.S. EPA MCL	NA	5	NA	5	100	NA	NA	5	NA	5	7	70	700	NA	5	NA	5	100	1,000	5	2	10,000	
Well ID	Date																						
OW-5	10/13/11	10 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.4	1.0 U	1.0 U	1.0 U	1.0 U	2.0 U
	02/06/13	10 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.3	1.0 U	1.0 U	1.0 U	1.0 U	1.5	1.0 U	1.0 U	1.0 U	1.0 U	2.0 U	
	06/11/14	25 U	0.32 J	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	10	1.0 U	10 U	5.0 U	1.0 U	4.0	1.0 U	1.0 U	1.5	1.0 U	2.0 U	
	09/24/15	13 U/17 U	1.3 U/1.7 U	1.3 U/1.7 U	1.3 U/1.7 U	1.3 U/1.7 U	1.3 U/1.7 U	1.3 U/1.7 U	1.3 U/1.7 U	1.3 U/1.7 U	1.3 U/1.7 U	31/33	1.3 U/1.7 U	13 U/17 U	1.3 U/1.7 U	1.3 U/1.7 U	14/16	1.3 U/1.7 U	1.3 U/1.7 U	4.2/4.5	1.3 U/1.7 U	2.7 U/3.3 U	
OW-6	03/23/93	NR	<1.3 J	NR	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.1 J	<1.3 J	<0.5	NR	<0.7 J,B	<0.5	13	-	<0.5	<2.9	1.1	<0.5	
	09/27/94	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	4 J	<10	NR	<10	<10	17	-	<10	6.0 J	<10	<10	
	04/23/95	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	19	-	<10	5.0 J	<10	<10	
	02/18/99	<10	<10	<10	<10	<10	<2.0	<10	<2.0	<10	<10	7.8	<10	<10	3.7 B	<10	20	-	<10	4.6	<2.0	<10	
	01/06/00	1.4 J	0.19 J,B	0.58 J	<10	<10	<2.0	<10	0.17 J	<10	<10	0.28 J	5.1	<10	<10	0.26 J,B	<10	21	-	<10	4.6	<2.0	<10
	06/07/00	<10	<10	<10	<10	<10	<2.0	<10	<2.0	<10	<10	2.2	<10	<10	<10	<10	14	-	<10	2.6	<2.0	<10	
	03/15/01	<10	<10	<10	<10	<10	<2.0	<10	<2.0	<10	<10	6.9	<10	<10	<10	<10	19	-	<10	3.9	<2.0	<10	
	08/29/01	<10	<10	<10	<10	<10	<2.0	<10	<2.0	<10	<10	6.7	<10	<10	<10	<10	12	-	<10	2.3	<2.0	<10	
	04/24/02	10 U	<10	<10	<10	<10	<2.0	<10	<2.0	<10	<10	4.7	<10	<10	1.1 U	<10	12	-	<10	2.9	<2.0	<10	
	09/19/02	<10	<10	<10	<10	<10	<2.0	<10	<2.0	<10	<10	7.8	<10	<10	<10	<10	15	-	<10	3.9	<2.0	<10	
	04/09/03	<10	<10	<10	<10	<10	<2.0	<10	<2.0	<10	<10	21	<10	<10	0.34 J	<10	28	-	<10	6.8	<2.0	<10	
	04/25/04	<10	<10	<10	<10	<10	<2.0	<10	<2.0	<10	<10	21	<10	<10	<10	<10	32	-	<10	6.3	<2.0	<10	
	02/16/06	17 U	1.7 U	1.7 U	1.7 U	1.7 U	3.3 U	1.7 U	3.3 U	1.7 U	1.7 U	19	1.7 U	17 U	1.7 U	1.7 U	39	-	1.7 U	7.9	3.3 U	1.7 U	
	05/23/06	17 U	1.7 U	1.7 U	1.7 U	1.7 U	3.3 U	1.7 U	3.3 U	1.7 U	1.7 U	24	1.7 U	17 U	1.7 U	1.7 U	39	1.7 U	1.7 U	7.8	3.3 U	1.7 U	
	08/31/06	14 U	1.4 U	1.4 U	1.4 U	1.4 U	2.9 U	1.4 U	2.9 U	1.4 U	1.4 U	20	1.4 U	14 U	1.4 U	1.4 U	40	1.4 U	1.4 U	7.7	2.9 U	1.4 U	
	11/29/06	17 U	1.7 U	1.7 U	1.7 U	1.7 U	3.3 U	1.7 U	3.3 U	1.7 U	1.7 U	20	1.7 U	17 U	0.75 J	1.7 U	41	1.7 U	1.7 U	8.6	3.3 U	1.7 U	
	06/12/07	10 U	1.0 U	1.0 U	1.0 U	1.0 U	2.0 U	1.0 U	2.0 U	1.0 U	1.0 U	19	1.0 U	10 U	1.0 U	1.0 U	36	1.0 U	1.0 U	9.0	2.0 U	1.0 U	
	07/23/08	10 U	1.0 U	1.0 U	1.0 U	1.0 U	2.0 U	1.0 U	2.0 U	1.0 U	1.0 U	16	1.0 U	10 U	1.0 U	1.0 U	31	1.0 U	1.0 U	6.3	2.0 U	1.0 U	
	07/14/09	10 U	1.0 U	1.0 U	1.0 U	1.0 U	2.0 U	1.0 U	2.0 U	1.0 U	1.0 U	16	1.0 U	10 U	1.0 U	1.0 U	30	1.0 U	1.0 U	5.5	2.0 U	1.0 U	
	07/21/10	10 U	1.0 U	1.0 U	1.0 U	1.0 U	2.0 U	1.0 U	0.31 J	1.0 U	1.0 U	20	1.0 U	10 U	1.0 U	1.0 U	42	1.0 U	1.0 U	8.6	2.0 U	1.0 U	
	10/13/11	17 U	1.7 U	1.7 U	1.7 U	1.7 U	1.7 U	1.7 U	1.7 U	1.7 U	1.7 U	40	1.7 U	1.7 U	1.7 U	1.7 U	52	1.7 U	1.7 U	11	1.7 U	3.3 U	
	02/06/13	13 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	19	1.3 U	1.3 U	1.3 U	1.3 U	44	1.3 U	1.3 U	8.9	1.3 U	2.5 U	
	06/11/14	25 U	1.0 U	2.0	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	17	1.0 U	10 U	5.0 U	1.0 U	62	1.0 U	1.0 U	10	1.0 U	2.0 U	
	09/24/15	13 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	15	1.3 U	13 U	1.3 U	1.3 U	38	1.3 U	1.3 U	7.7	1.3 U	2.5 U	
OW-8	03/23/93	NR	<0.5	NR	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	NR	<0.8 B	<0.5	<0.5	-	<0.5	<0.5	<0.5	<0.5	
	09/26/94	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	NR	<10	<10	<10	-	<10	<10	<10	<10	
	04/20/95	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	-	<10	<10	<10	<10	
	02/18/99	<10	0.32 J	0.17 J	<10	<10	<2.0	<10	<2.0	<10	<10	<10	<10	<10	0.32 J	<10	0.17 J	-	<10	<10	<2.0	<10	
	01/06/00	<10	0.49 J	<10	<10	0.37 J	<2.0	0.083 J	<2.0	<10	<10	0.22 J	<10	0.14 J	<10	0.35 J,B	<10	<10	-	0.097 J	<10	<2.0	<10
	06/07/00	<10	<10	<10	<10	<10	<2.0	<10	<2.0	<10	<10	<10	<10	<10	<10	<10	<10	-	<10	<10	<2.0	<10	
	03/15/01	<10	<10	<10	<10	<10	<2.0	<10	<2.0	<10	<10	<10	<10	<10	<10	<10	<10	-	<10	<10	<2.0	<10	
	08/29/01	<10	0.20 J	<10	<10	<10	<2.0	<10	<2.0	<10	<10	<10	<10	<10	<10	<10	<10	-	<10	<10	<2.0	<10	
	04/24/02	10 U	0.20 J	<10	<10	<10	<2.0	<10	<2.0	<10	<10	<10	<10	<10	1.0 U	<10	<10	-	<10	<10	<2.0	<10	
	09/19/02	<10	<10	<10	<10	<10	<2.0	<10	<2.0	<10	<10	<10	<10	<10	<10	<10	<10	-	<10	<10	<2.0	<10	
	04/09/03	<10	<10	<10	<10	<10	<2.0	<10	<2.0	<10	<10	<10	<10	<10	<10	<10	<10	-	<10	<10	<2.0	<10	
	04/25/04	<10	<10	<10	<10	<10	<2.0	<10	<2.0	<10	<10	<10	<10	<10	<10	<10	<10	-	<10	<10	<2.0	<10	
	02/16/06	10 U	1.0 U	1.0 U	1.0 U	1.0 U	2.0 U	1.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U	10 U	1.0 U	1.0 U	1.0 U	-	1.0 U	1.0 U	2.0 U	1.0 U	
	08/31/06	10 U	1.0 U	1.0 U	1.0 U	1.0 U	2.0 U	1.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U	10 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	2.0 U	1.0 U	
	06/12/07	10 U	1.0 U	1.0 U	1.0 U	1.0 U	2.0 U	1.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U	10 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	2.0 U	1.0 U	
	07/23/08	10 U	1.0 U	1.0 U	1.0 U	1.0 U	2.0 U	1.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U	10 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	2.0 U	1.0 U	
	07/14/09	10 U	1.0 U	1.0 U	1.0 U	1.0 U	2.0 U	1.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U	10 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	2.0 U	1.0 U	

Table B-1
Historical Summary of Detected TCL Volatile Organic Compounds in Groundwater (ug/L)
Carroll and Dubies Superfund Site
Town of Deerpark, Orange County, New York

Analyte		Acetone	Benzene	Carbon Disulfide	Carbon Tetrachloride	Chloro-benzene	Chloroethane	Chloroform	Chloromethane	1,1-DCA	1,2-DCA	1,1-DCE	1,2-DCE (total)	Ethylbenzene	2-Hexanone	Methylene Chloride	1,1,2,2-PCA	PCE	Styrene	Toluene	TCE	Vinyl Chloride	Xylenes (total)
NYSDEC SGV		50 (G)	1 (S)	NA	5 (S)	5 (S)*	5 (S)*	7 (S)	1	5 (S)*	0.6 (S)	5 (S)*	5 (S)*	5 (S)*	50 (G)	5 (S)*	5 (S)*	5 (S)*	5 (S)*	5 (S)*	5 (S)*	2 (S)	5 (S)*
U.S. EPA MCL		NA	5	NA	5	100	NA	NA	5	NA	5	7	70	700	NA	5	NA	5	100	1,000	5	2	10,000
Well ID	Date																						
OW-8	07/20/10	10 U	1.0 U	1.0 U	1.0 U	1.0 U	2.0 U	1.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	10 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	2.0 U	1.0 U
	10/13/11	10 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	2.0 U
	02/06/13	10 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	2.0 U
OW-10	10/29/93	NR	37	NR	<1.0	<1.0	<1.0	1.3	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	NR	2.9 B	<1.0	<1.0	-	0.5 J	<1.0	<1.0	<1.0
	09/25/94	68	1,100	<10	<10	4 J	<10	<10	<10	<10	<10	<10	<10	9 J	NR	<10	<10	<10	-	8 J	<10	<10	53
	04/27/95	<50	2,600	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	-	<50	<50	<50	30 J
	02/16/99	<2,000	1,900	<200	<200	23 J	<400	<200	<400	<200	<200	<200	<200	<200	<2,000	100 J,B	<200	<200	-	25 J	<200	<400	<200
	01/07/00	610	400	<17	<17	3.6 J,B	<33	<17	<33	<17	<17	<17	<17	4.3 J	<170	<17	<17	<17	-	8.5 J	<17	10 J	6.2 J
OW-10R	06/06/00	<50	130 J	<5.0	<5.0	3.0 J	<10	<5.0	<10	<5.0	<5.0	<5.0	<5.0	2.2 J	<50	<5.0	<5.0	<5.0	-	0.52 J	<5.0	2.2 J	<5.0
	03/14/01	<10	35	<1.0	<1.0	3.6	0.80 J	<1.0	<2.0	<1.0	<1.0	<1.0	1.0	0.89 J	<10	<1.0	<1.0	<1.0	-	0.44 J	<1.0	2.4	<1.0
	08/29/01	<20	55	<2.0	<2.0	1.4 J	1.1 J	<2.0	<4.0	<2.0	<2.0	<1.0	3.5	<1.0	<20	<1.0	<2.0	<2.0	-	<1.0	<2.0	9.5	<2.0
	04/25/02	<10	30	<1.0	<1.0	4.0	2.8	<1.0	<2.0	<1.0	<1.0	<1.0	2.7	2.0 U	<10	1.2 U	<1.0	<1.0	-	1.0 U	<1.0	4.5	1.0 U
	09/19/02	<10	17	<1.0	<1.0	2.9	1.3 J	<1.0	<2.0	<1.0	<1.0	<1.0	1.5	0.91 J	<10	<1.0	<1.0	<1.0	-	0.39 J	<1.0	6.3	<1.0
	04/09/03	<10	6.8	<1.0	<1.0	3.1	0.54 J	<1.0	<2.0	<1.0	<1.0	<1.0	<1.0	<1.0	<10	0.43 J	<1.0	<1.0	-	<1.0	<1.0	0.72 J	<1.0
	04/26/04	<10	8.1	<1.0	<1.0	2.2	0.80 J	<1.0	<2.0	<1.0	<1.0	<1.0	0.57 J	0.22 J	<10	1.0 U	<1.0	<1.0	-	0.27 J	<1.0	0.99 J	<1.0
	02/15/06	10 U	3.2	1.0 U	1.0 U	1.4	0.52 J	1.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	10 U	1.0 U	1.0 U	1.0 U	-	1.0 U	1.0 U	0.47 J	1.3 U
	08/29/06	10 U	9.9	1.0 U	1.0 U	1.4	0.92 J	1.0 U	0.20 J	1.0 U	1.0 U	1.0 U	0.59 J	0.25 J	10 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.7 J	1.0 U
	06/13/07	10 U	4.7	1.0 U	1.0 U	1.4	0.94 J	1.0 U	2.0 U	1.0 U	1.0 U	1.0 U	0.47 J	1.0 U	10 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	0.89 J	1.0 U
	07/22/08	10 U	5.7	1.0 U	1.0 U	0.71 J	0.48 J	1.0 U	2.0 U	1.0 U	1.0 U	1.0 U	0.46 J	1.0 U	10 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	0.80 J	1.0 U
	07/15/09	10 U	2.7	1.0 U	1.0 U	2.3	0.62 J	1.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	10 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	0.33 J	1.0 U
	07/20/10	10 U	4.6	1.0 U	1.0 U	0.88 J	0.87 J	1.0 U	2.0 U	1.0 U	1.0 U	1.0 U	0.39 J	1.0 U	10 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	0.66 J	1.0 U
	10/13/11	10 U	2.4	1.0 U	1.0 U	5.1	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	2.0 U
	02/08/13	10 U	2.8	1.0 U	1.0 U	6.0	1.3	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	2.0 U
	09/24/15	10 U	3.8	1.0 U	1.0 U	1.3	2.7	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	10 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	2.0 U
OW-13	10/28/93	NR	230	NR	<1.0	<1.0	<1.0	<1.0	<1.0	0.4 J	<1.0	<1.0	12	0.2 J	NR	1.2 J,B	<1.0	<1.0	-	4.8	0.9 J	<1.0	0.8 J
	09/29/94	<10	40	<10	<10	<10	<10	<10	<10	<10	<10	<10	6 J	<10	NR	<10	<10	<10	-	<10	<10	9 J	<10
	04/25/95	<10	350	<10	<10	<10	<10	<10	<10	<10	<10	<10	20	<10	<10	<10	<10	<10	-	<10	<10	34	<10
	02/16/99	<330	490	<33	<33	<33	<67	<33	<67	<33	<33	<33	52	<33	<330	18 J,B	<33	<33	-	7.6 J	<33	48 J	<33
	01/06/00	<200	620	<20	<20	<20	<40	3.5 J,B	<40	<20	<20	<20	56	2.3 J	<200	<20	<20	<20	-	2.7 J,B	1.3 J	58	<20
	06/07/00	<83	200	<8.3	<8.3	0.84 J	<17	<8.3	<17	<8.3	<8.3	<8.3	15	5.5 J	<83	<8.3	<8.3	<8.3	-	<8.3	<8.3	17	<8.3
	03/14/01	<50	130	<5.0	<5.0	<5.0	<10	<5.0	<10	<5.0	<5.0	<5.0	15	4.0 J	<50	3.0 J	<5.0	<5.0	-	<5.0	<5.0	12	<5.0
	08/29/01	<62	120	<6.2	<6.2	<6.2	<12	<6.2	<12	<6.2	<6.2	<6.2	12	<6.2	<62	<6.2	<6.2	<6.2	-	<6.2	1.1 J	9.9 J	<6.2
	04/24/02	<56	160	<5.6	<5.6	<5.6	<11	<5.6	<11	<5.6	<5.6	<5.6	11	<5.6	<56	<5.6	<5.6	<5.6	-	5.6 U	1.2 J	9.9 J	<5.6
	09/19/02	<33	81	<3.3	<3.3	<3.3	<6.7	<3.3	<6.7	<3.3	<3.3	<3.3	8.5	1.8 J	24 J	<3.3	<3.3	<3.3	-	<3.3	<3.3	5.9 J	<3.3
	04/10/03	<25	53	<2.5	<2.5	<2.5	<5.0	<2.5	<5.0	<2.5	<2.5	<2.5	5.9	1.6 J	<25	<2.5	<2.5	<2.5	-	<2.5	<2.5	4.9 J	<2.5
	04/25/04	<17	45	<1.7	<1.7	0.38 J	<3.3	<1.7	<3.3	<1.7	<1.7	<1.7	4.9	1.0 J	<17	<1.7	<1.7	<1.7	-	0.31 J	0.67 J	3.2 J	<1.7
OW-13R	02/20/06	10 U	15	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	2.0 U	1.0 U	1.0 U	1.0 U	0.60 J	1.0 U	10 U	1.0 U	1.0 U	1.0 U	-	0.29 J	1.0 U	1.1 J	1.0 U
	08/29/06	10 U	15	1.0 U	1.0 U	1.0 U	2.0 U	1.0 U	2.0 U	1.0 U	1.0 U	1.0 U	0.40 J	1.0 U	10 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.3 J	1.0 U
	06/12/07	10 U	11	1.0 U	1.0 U	1.0 U	2.0 U	1.0 U	2.0 U	1.0 U	1.0 U	1.0 U	0.42 J	1.0 U	10 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	0.86 J	1.0 U
	07/22/08	10 U/10 U	6.5 J/6.8 J	1.0 U/1.0 U	1.0 U/1.0 U	1.0 U/1.0 U	2.0 U/2.0 U	1.0 U/1.0 U	2.0 U/2.0 U	1.0 U/1.0 U	1.0 U/1.0 U	1.0 U/1.0 U	1.0 U/1.0 U	1.0 U/1.0 U	10 U/10 U	1.0 U/1.0 U	1.0 U/1.0 U	1.0 U/1.0 U	1.0 U/1.0 U	1.0 U/1.0 U	1.0 U/1.0 U	0.70 J/0.70 J	1.0 U/1.0 U
	07/14/09	10 U/10 U	13/12	1.0 U/1.0 U	1.0 U/1.0 U	1.0 U/1.0 U	2.0 U/2.0 U	1.0 U/1.0 U	2.0 U/2.0 U	1.0 U/1.0 U	1.0 U/1.0 U	1.0 U/1.0 U	2.4/2.3	1.0 U/1.0 U	10 U/10 U	1.0 U/1.0 U	1.0 U/1.0 U	1.0 U/1.0 U	1.0 U/1.0 U	1.0 U/1.0 U	1.0 U/1.0 U	0.64 J/0.63 J	1.6 J/1.6 J
	07/21/10	10 U/10 U/10 U	17/17	1.0 U/1.0 U	1.0 U/1.0 U	1.0 U/1.0 U	2.0 U/2.0 U	1.0 U/1.0 U	2.0 U/2.0 U	1.0 U/1.0 U	1.0 U/1.0 U	1.0 U/1.0 U	0.70 J/0.78 J	1.0 U/1.0 U	10 U/10 U	1.0 U/1.0 U	1.0 U/1.0 U	1.0 U/1.0 U	1.0 U/1.0 U	1.0 U/1.0 U	1.0 U/1.0 U	0.35 J/0.35 J	1.2 J/1.2 J
	10/13/11	10 U/10 U	1.0 U/1.3 J	1.0 U/1.0 U	1.0 U/1.0 U	1.0 U/1.0 U	1.0 U/1.0 U	1.0 U/1.0 U	1.0 U/1.0 U	1.0 U/1.0 U	1.0 U/1.0 U	1.0 U/1.0 U	1.0 U/1.0 U	1.0 U/1.0 U	10 U/10 U	1.0 U/1.0 U	1.0 U/1.0 U	1.0 U/1.0 U	1.0 U/1.0 U	1.0 U/1.0 U	1.0 U/1.0 U	1.0 U/1.0 U	2.0 U/2.0 U
	02/08/13	10 U/10 U	5.4/5.0	1.0 U/1.0 U	1.0 U/1.0 U	1.0 U/1.0 U	1.0 U/1.0 U	1.0 U/1.0 U	1.0 U/1.0 U	1.0 U/1.0 U	1.0 U/1.0 U	1.0 U/1.0 U	1.9/1.8	1.0 U/1.0 U	10 U/10 U	1.0 U/1.0 U	1.0 U/1.0 U	1.0 U/1.0 U	1.0 U/1.0 U	1.0 U/1.0 U	1.0 U/1.0 U	1.0 U/1.0 U	2.0 U/2.0 U
	06/11/14	25 U/25 U	9.8/10	1.0 U/1.0 U	1.0 U/1.0 U	1.0 U/1.0 U	1.0 U/1.0 U	1.0 U/1.0 U	1.0 U/1.0 U	1.0 U/1.0 U	1.0 U/1.0 U	1.0 U/1.0 U	0.47 J/0.47 J	1.0 U/1.0 U	10 U/10 U	5.0 U/5.0 U	1.0 U/1.0 U	1.0 U/1.0 U	1.0 U/1.0 U	1.0 U/1.0 U	1.0 U/1.0 U	0.22 J/0.24 J	0.80 J/0.97 J
	09/23/15	10 U	5.2	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	10 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	2.0 U

Table B-1
Historical Summary of Detected TCL Volatile Organic Compounds in Groundwater (ug/L)
Carroll and Dubies Superfund Site
Town of Deerpark, Orange County, New York

Analyte		Acetone	Benzene	Carbon Disulfide	Carbon Tetrachloride	Chloro-benzene	Chloroethane	Chloroform	Chloromethane	1,1-DCA	1,2-DCA	1,1-DCE	1,2-DCE (total)	Ethylbenzene	2-Hexanone	Methylene Chloride	1,1,2,2-PCA	PCE	Styrene	Toluene	TCE	Vinyl Chloride	Xylenes (total)
NYSDEC SGV		50 (G)	1 (S)	NA	5 (S)	5 (S)*	5 (S)*	7 (S)	1	5 (S)*	0.6 (S)	5 (S)*	5 (S)*	5 (S)*	50 (G)	5 (S)*	5 (S)*	5 (S)*	5 (S)*	5 (S)*	5 (S)*	2 (S)	5 (S)*
U.S. EPA MCL		NA	5	NA	5	100	NA	NA	5	NA	5	7	70	700	NA	5	NA	5	100	1,000	5	2	10,000
Well ID	Date																						
OW-15	09/24/94	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	NR	<10	<10	<10	-	<10	<10	<10	<10
	04/26/95	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	-	<10	<10	<10	<10
	02/16/99	<10	1.1	<1.0	<1.0	0.52 J	<2.0	<1.0	<2.0	0.25 J	<1.0	<1.0	0.38 J	<1.0	<1.0	<1.0	<1.0	<1.0	-	<1.0	<1.0	1.5 J	<1.0
	01/07/00	1.3 J	1.0 B	0.92 J	<1.0	0.64 J	<2.0	<1.0	<2.0	0.31 J	<1.0	0.57 J	<1.0	<1.0	<1.0	0.35 J,B	0.15 J,B	<1.0	-	0.074 J	<1.0	1.4 J	<1.0
	06/06/00	<10	0.91 J	<1.0	<1.0	0.60 J	<2.0	<1.0	<2.0	0.28 J	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	-	<1.0	<1.0	1.0 J	<1.0
	03/14/01	<10	1.2	<1.0	<1.0	0.67 J	<2.0	<1.0	<2.0	<1.0	<1.0	<1.0	0.37 J	<1.0	<1.0	<1.0	<1.0	<1.0	-	<1.0	<1.0	1.1 J	<1.0
	08/28/01	2.2 J,B	0.61 J	<1.0	<1.0	0.35 J	<2.0	<1.0	<2.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	-	<1.0	<1.0	0.52 J	<1.0
	04/25/02	<10	0.99 J	<1.0	<1.0	0.47 J	<2.0	<1.0	<2.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	1.0 U	<1.0	<1.0	-	<1.0	<1.0	0.91 J	<1.0
	09/18/02	<10	0.69 J	<1.0	<1.0	0.43 J	<2.0	<1.0	<2.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	-	<1.0	<1.0	<2.0	<1.0
	04/08/03	<10	1.2	<1.0	<1.0	0.67 J	<2.0	<1.0	<2.0	0.33 J	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	-	<1.0	<1.0	<1.0 J	<1.0
	04/23/04	<10	1.2	<1.0	<1.0	0.67 J	<2.0	<1.0	<2.0	0.29 J	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	-	<1.0	<1.0	0.90 J	<1.0
	02/15/06	10 U	0.88 J	1.0 U	1.0 U	0.53 J	2.0 U	1.0 U	2.0 U	0.24 J	1.0 U	1.0 U	1.0 U	1.0 U	10 U	1.0 U	1.0 U	1.0 U	-	1.0 U	1.0 U	0.73 J	1.3 U
	08/29/06	10 U	0.78 J	1.0 U	1.0 U	0.51 J	2.0 U	1.0 U	0.37 J	0.22 J	1.0 U	1.0 U	1.0 U	1.0 U	10 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	0.82 J	1.0 U
OW-16	09/24/94	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	NR	<10	<10	<10	-	<10	<10	<10	<10
	04/26/95	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	-	<10	<10	<10	<10
	02/17/99	<10	<1.0	<1.0	<1.0	<1.0	<2.0	<1.0	<2.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	-	<1.0	<1.0	<2.0	<1.0
	01/06/00	1.4 J	0.082 J,B	<1.0	<1.0	<1.0	<2.0	<1.0	<2.0	<1.0	<1.0	0.61 J	<1.0	<1.0	<1.0	0.30 J,B	<1.0	<1.0	-	<1.0	<1.0	<2.0	<1.0
	06/07/00	<10	<1.0	<1.0	<1.0	<1.0	<2.0	<1.0	<2.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	-	<1.0	<1.0	<2.0	<1.0
	03/14/01	<10	<1.0	<1.0	<1.0	<1.0	<2.0	<1.0	<2.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	-	<1.0	<1.0	<2.0	<1.0
	08/28/01	<10	<1.0	<1.0	<1.0	<1.0	<2.0	<1.0	<2.0	<1.0	<1.0	0.36 J	<1.0	<1.0	<1.0	0.80 J	<1.0	<1.0	-	<1.0	<1.0	<2.0	<1.0
	04/24/02	10 U	<1.0	<1.0	<1.0	<1.0	<2.0	<1.0	<2.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	1.9 U	<1.0	<1.0	-	<1.0	<1.0	<2.0	<1.0
	09/19/02	<10	<1.0	<1.0	<1.0	<1.0	<2.0	<1.0	<2.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	-	<1.0	<1.0	<2.0	<1.0
	04/10/03	<10	<1.0	<1.0	<1.0	<1.0	<2.0	<1.0	<2.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	-	<1.0	<1.0	<2.0	<1.0
	04/25/04	<10	<1.0	<1.0	<1.0	<1.0	<2.0	<1.0	<2.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	-	<1.0	<1.0	<2.0	<1.0
	02/17/06	10 U	1.0 U	1.0 U	1.0 U	1.0 U	2.0 U	1.0 U	2.0 U	1.0 U	1.0 U	1.0 U	0.37 J	1.0 U	10 U	1.0 U	1.0 U	1.0 U	-	1.0 U	1.0 U	2.0 U	1.0 U
	08/31/06	10 U	1.0 U	1.0 U	1.0 U	1.0 U	2.0 U	1.0 U	2.0 U	1.0 U	1.0 U	1.0 U	0.35 J	1.0 U	10 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	2.0 U	1.0 U
OW-17	02/20/06	10 U	1.0 U	1.0 U	1.0 U	1.0 U	2.0 U	1.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	10 U	1.0 U	1.0 U	1.0 U	-	1.0 U	1.0 U	2.0 U	1.0 U
	05/24/06	10 U	1.0 U	1.0 U	1.0 U	1.0 U	2.0 U	1.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	10 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	2.0 U	1.0 U
	08/30/06	10 U	1.0 U	1.0 U	1.0 U	1.0 U	2.0 U	1.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	10 U	1.0 U	1.0 U	0.20 J	1.0 U	1.0 U	1.0 U	2.0 U	1.0 U
	11/30/06	10 U	1.0 U	1.0 U	1.0 U	1.0 U	2.0 U	1.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	10 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	2.0 U	1.0 U

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Carroll and Dubies Superfund Site
Town of Deerpark, Orange County, New York

Analyte		Acetone	Benzene	Carbon Disulfide	Carbon Tetrachloride	Chloro-benzene	Chloroethane	Chloroform	Chloromethane	1,1-DCA	1,2-DCA	1,1-DCE	1,2-DCE (total)	Ethylbenzene	2-Hexanone	Methylene Chloride	1,1,2,2-PCA	PCE	Styrene	Toluene	TCE	Vinyl Chloride	Xylenes (total)
NYSDEC SGV		50 (G)	1 (S)	NA	5 (S)	5 (S)*	5 (S)*	7 (S)	1	5 (S)*	0.6 (S)	5 (S)*	5 (S)*	5 (S)*	50 (G)	5 (S)*	5 (S)*	5 (S)*	5 (S)*	5 (S)*	5 (S)*	2 (S)	5 (S)*
U.S. EPA MCL		NA	5	NA	5	100	NA	NA	5	NA	5	7	70	700	NA	5	NA	5	100	1,000	5	2	10,000
Well ID	Date																						
OW-18	09/23/94	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	NR	<10	<10	<10	-	<10	<10	<10	<10
	04/29/95	<10	12	<10	<10	10 J	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	-	1 J	<10	<10	29
	02/17/99	<17	4.7	<1.7	<1.7	3.4	1.0 J	<1.7	<3.3	<1.7	<1.7	<1.7	0.54 J	<1.7	<17	1.0 J,B	<1.7	<1.7	-	<1.7	<1.7	<3.3	1.1 J
	01/07/00	2.7 J	5.6 B	1.0	<1.0	4.5	3.0	<1.0	<2.0	0.66 J	<1.0	0.29 J	<1.0	<1.0	<10	0.40 J,B	<1.0	<1.0	-	0.22 J	0.14 J	0.29 J	1.8
	06/08/00	<10	4.8	<1.0	<1.0	4.6	1.3 J	<1.0	<2.0	0.24 J	<1.0	<1.0	<1.0	<1.0	<10	<1.0	<1.0	<1.0	-	<1.0	<1.0	<2.0	<1.0
	03/16/01	10 UJ	3.1	<1.0	<1.0	3.0	<2.0	<1.0	<2.0	<1.0	<1.0	<1.0	0.38 J	<1.0	<10	<1.0	<1.0	<1.0	-	<1.0	<1.0	<2.0	1.4
	08/28/01	2.3 J,B	2.4 J	<1.0	<1.0	3.6 J	<2.0	<1.0	<2.0	0.18 J	<1.0	<1.0	0.38 J	<1.0	<10	<1.0	<1.0	<1.0	-	<1.0	<1.0	<2.0	1.3 J
	04/24/02	10 U	1.5	<1.0	<1.0	4.3	<2.0	<1.0	<2.0	<1.0	<1.0	<1.0	0.28 J	<1.0	<10	1.6 U	<1.0	<1.0	-	1.0 U	<1.0	<2.0	1.7
	09/17/02	<10	2.9	<1.0	<1.0	5.5	1.3 J	<1.0	<2.0	0.36 J	<1.0	<1.0	<1.0	<1.0	<10	<1.0	<1.0	<1.0	-	<1.0	<1.0	<2.0	2.0
	04/08/03	2.6 J	2.9	<1.0	<1.0	5.6	1.2 J	<1.0	<2.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	-	<1.0	<1.0	<2.0	1.2
	04/23/04	10 U	3.3	<1.0	<1.0	7.3	0.74 J	<1.0	<2.0	<1.0	<1.0	<1.0	<1.0	<1.0	<10	<1.0	<1.0	<1.0	-	<1.0	<1.0	<2.0	1.2
	02/17/06	10 U	5.1	1.0 U	1.0 U	10	3.2	1.0 U	2.0 U	1.6	1.0 U	1.0 U	1.0 U	1.0 U	10 U	1.0 U	1.0 U	1.0 U	-	0.49 J	1.0 U	2.0 U	10
	08/30/06	10 U	3.7	1.0 U	1.0 U	7.8	0.91 J	1.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	10 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	2.0 U	1.0 U	
	06/14/07	10 U	1.2	1.0 U	1.0 U	6.5	0.46 J	1.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	10 U	1.0 UJ	1.0 U	1.0 U	1.0 U	1.0 U	2.0 U	1.0 U	
	07/22/08	10 U	1.5	1.0 U	1.0 U	6.9	0.40 J	1.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	10 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	2.0 U	1.0 U	
	07/16/09	10 U	2.3	1.0 U	1.0 U	9.6	2.0 U	1.0 U	2.0 U	1.0 U	1.0 U	1.0 U	0.34 J	1.0 U	10 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	2.0 U	1.0 U	
	07/22/10	1.6 J	2.8	1.0 U	1.0 U	11	0.41 J	1.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	10 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	2.0 U	0.63 J	
	10/13/11	10 U	3.7	1.0 U	1.0 U	8.7	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	10 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.5	2.0 U
	02/07/13	10 U	5.1	1.0 U	1.0 U	11	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.1	2.0 U
	06/11/14	25 U	3.2	1.0 U	1.0 U	16	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	0.32 J	1.0 U	10 U	5.0 U	1.0 U	1.0 U	1.0 U	0.29 J	1.0 U	1.0 U	2.0 U
	09/23/15	10 U	3.5	1.0 U	1.0 U	14	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	10 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	2.0 U	2.0 U
OW-19	09/27/94	<10	10 J	<10	<10	5 J	15	<10	<10	<10	<10	<10	<10	<10	NR	<10	<10	<10	-	<10	<10	<10	<10
	04/28/95	<10	8 J	<10	<10	6 J	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	-	<10	<10	<10	<10
	02/17/99	<10	5.8	<1.0	<1.0	7.1	6.1	<1.0	<2.0	0.27 J	<1.0	<1.0	3.3	<1.0	<10	0.16 J,B	<1.0	<1.0	-	0.16 J	0.14 J	10	<1.0
	01/05/00	0.94 J	3.7 B	<1.0	<1.0	10	2.7	<1.0	<2.0	0.16 J	0.27 J	<1.0	1.5	<1.0	<10	0.25 J,B	<1.0	<1.0	-	0.15 J	0.15 J	2.1	<1.0
	06/08/00	<10	2.3	<1.0	<1.0	5.2	1.9 J	<1.0	<2.0	<1.0	<1.0	<1.0	1.0	<1.0	<10	<1.0	<1.0	<1.0	-	<1.0	<1.0	<2.0	<1.0
	03/16/01	10 UJ	1.7	<1.0	<1.0	3.8	1.4 J	<1.0	<2.0	<1.0	<1.0	<1.0	0.96 J	<1.0	<10	<1.0	<1.0	<1.0	-	<1.0	<1.0	1.3 J	<1.0
	08/28/01	2.7 J,B	1.9 J	<1.0	<1.0	7.2 J	0.92 J	<1.0	<2.0	<1.0	<1.0	0.35 J	0.46 J	<1.0	<10	<1.0	<1.0	<1.0	-	<1.0	<1.0	<2.0	<1.0
	04/23/02	10 U	1.3	<1.0	<1.0	6.5	0.71 J	<1.0	<2.0	<1.0	<1.0	<1.0	0.43 J	<1.0	<10	1.0 U	<1.0	<1.0	-	<1.0	<1.0	<2.0	<1.0
	09/17/02	<10	0.64 J	<1.0	<1.0	4.9	0.73 J	<1.0	<2.0	<1.0	<1.0	<1.0	<1.0	<1.0	<10	<1.0	<1.0	<1.0	-	<1.0	<1.0	<2.0	<1.0
	04/08/03	2.5 J	3	<1.0	<1.0	4.9	1.7 J	<1.0	<2.0	<1.0	<1.0	<1.0	0.81 J	<1.0	<10	<1.0	<1.0	<1.0	-	<1.0	<1.0	0.68 J	<1.0
	04/24/04	10 U	2.1	<1.0	<1.0	6	1.3 J	<1.0	<2.0	<1.0	<1.0	<1.0	0.58 J	<1.0	<10	<1.0	<1.0	<1.0	-	<1.0	<1.0	0.56 J	<1.0
	02/17/06	10 U	3.4	1.0 U	1.0 U	5.6	1.9 J	1.0 U	<2.0	1.0 U	1.0 U	1.0 U	1.3	1.0 U	10 U	1.0 U	1.0 U	1.0 U	-	1.0 U	1.0 U	2.9	1.0 U
	08/31/06	3.1 J	3.3	1.0 U	1.0 U	13	1.8 J	1.0 U	2.0 U	1.0 U	1.0 U	1.0 U	0.85 J	1.0 U	10 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	4.1	1.0 U
	06/14/07	10 U	2.1	1.0 U	1.0 U	8.8 J	1.3 J	1.0 U	2.0 U	1.0 U	1.0 U	1.0 U	0.73 J	1.0 U	10 U	1.0 UJ	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	0.87 J	1.0 U
	07/22/08	10 U	1.4	1.0 U	1.0 U	11	0.91 J	1.0 U	2.0 U	1.0 U	1.0 U	1.0 U	0.49 J	1.0 U	10 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	0.62 J	1.0 U
	07/15/09	10 U	1.9	1.0 U	1.0 U	7.9	1.0 J	1.0 U	2.0 U	1.0 U	1.0 U	1.0 U	0.94 J	1.0 U	10 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	2.1	1.0 U
	07/22/10	1.3 J	1.2	1.0 U	1.0 U	11	0.85 J	1.0 U	2.0 U	1.0 U	1.0 U	1.0 U	0.65 J	1.0 U	10 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	0.63 J	1.0 U
	10/13/11	10 U	3	1.0 U	1.0 U	8.4	1.4	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.6	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	3.3	2.0 U
	02/07/13	10 U	2.5	1.0 U	1.0 U	14	1.2	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.1	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	3.1	2.0 U
	06/11/14	25 U	1.4	1.0 U	1.0 U	12	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.5	1.0 U	10 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.5	2.0 U
	09/23/15	10 U	1.0 U	1.0 U	1.0 U	6.7	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.2	1.0 U	10 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	2.0 U

Table B-1
Historical Summary of Detected TCL Volatile Organic Compounds in Groundwater (ug/L)
Carroll and Dubies Superfund Site
Town of Deerpark, Orange County, New York

Analyte		Acetone	Benzene	Carbon Disulfide	Carbon Tetrachloride	Chloro-benzene	Chloroethane	Chloroform	Chloromethane	1,1-DCA	1,2-DCA	1,1-DCE	1,2-DCE (total)	Ethylbenzene	2-Hexanone	Methylene Chloride	1,1,2,2-PCA	PCE	Styrene	Toluene	TCE	Vinyl Chloride	Xylenes (total)
NYSDEC SGV		50 (G)	1 (S)	NA	5 (S)	5 (S)*	5 (S)*	7 (S)	1	5 (S)*	0.6 (S)	5 (S)*	5 (S)*	5 (S)*	50 (G)	5 (S)*	5 (S)*	5 (S)*	5 (S)*	5 (S)*	5 (S)*	2 (S)	5 (S)*
U.S. EPA MCL		NA	5	NA	5	100	NA	NA	5	NA	5	7	70	700	NA	5	NA	5	100	1,000	5	2	10,000
Well ID	Date																						
OW-21	09/22/94	6 J	5 J	<10	<10	<10	<10	10 J	<10	<10	<10	<10	<10	<10	NR	<10	<10	<10	-	<10	<10	<10	<10
	04/29/95	<10	8 J	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	-	<10	<10	<10	<10
	02/16/99	<10	5.8	<10	<10	0.11 J	<20	<10	<20	<10	<10	<10	0.26 J	<10	<10	<10	<10	<10	-	<10	<10	0.89 J	<10
	01/04/00	<10	3.8 B	<10	<10	<10	<20	<10	<20	0.11 J	<10	<10	<10	<10	<10	0.10 J,B	<10	<10	-	0.055 J	<10	0.46 J	<10
	06/07/00	<10	5.4	<10	<10	<10	<20	<10	<20	<10	<10	<10	<10	<10	<10	<10	<10	<10	-	<10	<10	0.54 J	<10
	03/13/01	10 UJ	4.5	<10	<10	<10	<20	<10	<20	<10	<10	<10	<10	<10	<10	<10	<10	<10	-	<10	<10	0.70 J	<10
	08/30/01	10 U	3.2	<10	<10	<10	<20	<10	<20	<10	<10	<10	<10	<10	<10	0.38 J	<10	<10	-	<10	<10	0.25 J	<10
	04/25/02	<10	2.4	<10	<10	<10	<20	<10	<20	<10	<10	<10	<10	<10	<10	10 U	<10	<10	-	<10	<10	0.33 J	<10
	09/18/02	<10	2.5	<10	<10	<10	<20	<10	<20	<10	<10	<10	<10	<10	<10	<10	<10	<10	-	<10	<10	0.39 J	<10
	04/09/03	<10	3.7	<10	<10	<10	<20	<10	5.5	<10	<10	<10	<10	<10	<10	0.51 J	<10	<10	-	<10	<10	0.88 J	<10
	04/24/04	<10	2.9	<10	<10	<10	<20	<10	<20	<10	<10	<10	<10	<10	<10	<10	<10	<10	-	<10	<10	0.56 J	<10
	02/16/06	10 U	3.0	10 U	10 U	10 U	20 U	10 U	20 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	-	10 U	10 U	0.52 J	10 U
	08/29/06	10 U	2.4	10 U	10 U	10 U	20 U	10 U	0.27 J	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	0.83 J	10 U
	06/13/07	10 U	2.1	10 U	10 U	10 U	20 U	10 U	20 U	10 U	10 U	10 U	10 U	10 U	10 U	10 UJ	10 U	10 U	10 U	10 U	10 U	0.67 J	10 U
	07/23/08	10 U	1.8	10 U	10 U	10 U	<20	10 U	20 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	0.74 J	10 U
	07/15/09	10 U	2.1	10 U	10 U	10 U	20 U	10 U	20 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	0.80 J	10 U
	07/20/10	10 U	1.9	10 U	10 U	10 U	20 U	10 U	20 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	0.71 J	10 U
	10/13/11	10 U	2.2	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	20 U
	02/08/13	10 U	2.0	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	20 U
	06/10/14	25 U	1.8	0.98 J	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	0.27 J	10 U	10 U	50 U	10 U	10 U	10 U	10 U	10 U	0.78 J	20 U
	09/24/15	10 U	1.4	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	20 U
OW-22	09/24/94	<10	100	<10	<10	9 J	<10	<10	<10	<10	<10	<10	<10	<10	NR	<10	<10	<10	-	<10	<10	<10	5 J
	04/28/95	<10	48	<10	<10	10 J	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	-	1 J	<10	<10	<10
	02/17/99	<25	46	<2.5	<2.5	8.0	<5.0	<2.5	<5.0	<2.5	<2.5	<2.5	2.4 J	<2.5	<2.5	1.1 J,B	<2.5	<2.5	-	0.87 J	<2.5	4.2 J	3.5
	01/04/00	1.5 J	37 B	0.41 J	<1.2	5.8	<2.5	<1.2	<2.5	0.21 J	<1.2	<1.2	<1.2	0.098 J	<1.2	0.23 J,B	<1.2	<1.2	-	0.58 J	0.073 J	1.5 J	1.7
	06/07/00	<10	11	<10	<10	5.8	<20	<10	<20	<10	<10	<10	<10	<10	<10	<10	<10	<10	-	<10	<10	<10	1.4
	03/13/01	10 UJ	12	<10	<10	8.2	<20	<10	<20	<10	<10	<10	0.70 J	<10	<10	<10	<10	<10	-	0.56 J	<10	0.76 J	1.9
	08/30/01	10 U	3.4	<10	<10	4.6	<20	0.34 J	<20	<10	<10	<10	0.36 J	<10	<10	0.36 J	<10	<10	-	0.45 J	<10	<20	1.7
	04/25/02	<10	4.2	<10	<10	3.7	<20	<10	<20	<10	0.29 J	<10	<10	<10	<10	1.2 U	<10	<10	-	10 U	<10	0.39 J	2.7 U
	09/18/02	<10	2.9	<10	<10	4.2	<20	<10	<20	<10	<10	<10	<10	<10	<10	<10	<10	<10	-	<10	<10	<20	1.8
	04/09/03	<10	8.7	<10	<10	8.5	0.66 J	<10	<20	<10	<10	<10	<10	<10	<10	0.40 J,B	<10	<10	-	<10	<10	0.56 J	1.6
	04/24/04	10 U	4.2	<10	<10	5.9	0.24 J	<10	<20	<10	<10	<10	<10	<10	<10	<10	<10	<10	-	0.23 J	<10	0.32 J	1.1
	02/16/06	10 U	7.5	10 U	10 U	11	0.31 J	10 U	20 U	10 U	10 U	10 U	0.59 J	10 U	<10	0.59 J	10 U	10 U	-	0.26 J	10 U	0.29 J	1.0
	08/31/06	10 U	2.8	10 U	10 U	5.3	20 U	10 U	20 U	10 U	10 U	10 U	0.37 J	10 U	10 U	10 U	10 U	10 U	10 U	0.24 J	10 U	0.41 J	1.1
	06/14/07	10 U	3.5	10 U	10 U	4.8	0.26 J	10 U	20 U	10 U	10 U	10 U	0.50 J	10 U	10 U	10 UJ	10 U	10 U	10 U	0.21 J	10 U	0.37 J	0.76 J
	07/23/08	10 U	1.9	10 U	10 U	4.6	20 U	10 U	20 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	0.17 J	10 U	0.32 J	0.66 J
	07/15/09	10 U	5.1	10 U	10 U	7.8	0.34 J	10 U	20 U	10 U	10 U	10 U	0.53 J	10 U	10 U	10 U	10 U	10 U	10 U	0.19 J	10 U	0.35 J	1.0 U
	07/20/10	10 U	2.5	10 U	10 U	4.5	20 U	10 U	20 U	10 U	10 U	10 U	0.38 J	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	0.26 J	0.64 J
	10/13/11	10 U	5.3	10 U	10 U	18	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	20 U
	02/08/13	10 U	6.2	10 U	10 U	9.3	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	20 U
	06/10/14	25 U	3.5	10 U	10 U	5.9	10 U	10 U	10 U	10 U	10 U	10 U	0.41 J	10 U	10 U	50 U	10 U	10 U	10 U	10 U	10 U	0.37 J	0.39 J
	09/24/15	10 U	2.0	10 U	10 U	4.3	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	20 U

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Carroll and Dubies Superfund Site
Town of Deerpark, Orange County, New York

Analyte		Acetone	Benzene	Carbon Disulfide	Carbon Tetrachloride	Chloro-benzene	Chloroethane	Chloroform	Chloromethane	1,1-DCA	1,2-DCA	1,1-DCE	1,2-DCE (total)	Ethylbenzene	2-Hexanone	Methylene Chloride	1,1,2,2-PCA	PCE	Styrene	Toluene	TCE	Vinyl Chloride	Xylenes (total)
NYSDEC SGV		50 (G)	1 (S)	NA	5 (S)	5 (S)*	5 (S)*	7 (S)	1	5 (S)*	0.6 (S)	5 (S)*	5 (S)*	5 (S)*	50 (G)	5 (S)*	5 (S)*	5 (S)*	5 (S)*	5 (S)*	5 (S)*	2 (S)	5 (S)*
U.S. EPA MCL		NA	5	NA	5	100	NA	NA	5	NA	5	7	70	700	NA	5	NA	5	100	1,000	5	2	10,000
Well ID	Date																						
OW-23	02/17/06	10 U	0.38 J	1.0 U	1.0 U	1.0 U	0.31 J	1.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	10 U	1.0 U	1.0 U	1.0 U	-	1.0 U	1.0 U	0.66 J	1.0 U
	05/23/06	10 U	1.0 U	1.0 U	1.0 U	1.0 U	0.31 J	1.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	10 U	1.0 U	1.0 U	1.0 U	0.44 J	1.0 U	1.0 U	0.39 J	1.0 U
	08/30/06	10 U	1.0 U	1.0 U	1.0 U	1.0 U	2.0 U	1.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	10 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	0.42 J	1.0 U
	11/30/06	10 U	0.23 J	1.0 U	1.0 U	1.0 U	0.27 J	1.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	10 U	1.0 U	1.0 U	1.0 U	1.0 U	0.22 J	1.0 U	0.51 J	1.0 U
OW-24	02/20/06	10 U	1.0 U	1.0 U	1.0 U	1.0 U	2.0 U	1.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	10 U	1.0 U	1.0 U	1.0 U	-	0.22 J	1.0 U	2.0 U	<1.0
	05/24/06	10 U	1.0 U	1.0 U	1.0 U	1.0 U	2.0 U	1.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	10 U	1.0 U	1.0 U	1.0 U	0.45 J	1.0 U	1.0 U	2.0 U	1.0 U
	08/30/06	10 U	1.0 U	1.0 U	1.0 U	1.0 U	2.0 U	1.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	10 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	2.0 U	1.0 U
	11/29/06	10 U	1.0 U	1.0 U	1.0 U	1.0 U	2.0 U	1.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	10 U	3.6 U	1.0 U	1.0 U	1.0 U	0.18 J	1.0 U	2.0 U	1.0 U
	07/22/10	10 U	1.0 U	1.0 U	1.0 U	1.0 U	2.0 U	1.0 U	0.47 J	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	10 U	3.6 U	1.0 U	1.0 U	1.0 U	0.18 J	1.0 U	2.0 U	1.0 U
	10/13/11	10 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	2.0 U
	02/07/13	10 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	2.0 U
	09/23/15	10 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	10 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	2.0 U
OW-25	02/20/06	10 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	10 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	2.0 U
	05/23/06	10 U	1.0 U	1.0 U	1.0 U	1.0 U	2.0 U	1.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	10 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	2.0 U	1.0 U
	08/31/06	10 U	1.0 U	1.0 U	1.0 U	1.0 U	2.0 U	1.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	10 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	2.0 U	1.0 U
	11/29/06	10 U	1.0 U	1.0 U	1.0 U	1.0 U	2.0 U	1.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	10 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	2.0 U	1.0 U
	06/12/07	10 U	1.0 U	1.0 U	1.0 U	1.0 U	2.0 U	1.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	10 U	1.0 UJ	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	2.0 U	1.0 U
	07/23/08	10 U	1.0 U	1.0 U	1.0 U	1.0 U	2.0 U	1.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	10 U	1.0 UJ	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	2.0 U	1.0 U
	07/16/09	10 U	1.0 U	1.0 U	1.0 U	1.0 U	2.0 U	1.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	10 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	2.0 U	1.0 U
	07/22/10	10 U	1.0 U	1.0 U	1.0 U	1.0 U	2.0 U	1.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	10 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	2.0 U	1.0 U
	10/13/11	10 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	2.0 U
	02/07/13	10 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	2.0 U

Notes:

TCL = Target Compound List

NYSDEC SGV = New York State Department of Environmental Conservation Standards (S) and Guidance (G) Values for groundwater

U.S. EPA MCL = United States Environmental Protection Agency Maximum Contaminant Level for drinking/groundwater

* = The principal organic contaminant (POC) standard for groundwater of 5 ug/L applies to this substance.

U (DATA VALIDATION QUALIFIER) = The analyte was analyzed for, but was not detected above the reported sample quantitation limit.

< = Analyte not detected at reporting limit

B = Method blank contamination. The associated method blank contains the target analyte at a reportable level.

Red = Concentrations detected at or above regulatory limit

Blue = Analyte detected at less than regulatory limit, or analyte detected but no regulatory criteria specified

UJ = (DATA VALIDATION QUALIFIER) = Analyte not detected above the reporting limit; however, the reporting limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.

Pre-1999 data from RETEC 1995

Pre-1999 analysis performed by Method 8240

1999 and later analyses performed by Method 8260B

NA = Not applicable; no criteria specified

NR = Analyte not reported

R = Data rejected during validation

J = Estimated result; result is less than reporting limit.

Table B-2
Historical Summary of Detected TCL Volatile and Semivolatile Organic Compounds in Surface Water (ug/L)
Carroll and Dubies Superfund Site
Town of Deerpark, Orange County, New York

Analyte		Acetone	Benzene	2-Butanone	Chloroethane	1,2-Dichloroethane	1,2-Dichloroethene (total)	Methylene Chloride	Toluene	Vinyl Chloride	Di-n-butyl phthalate
NYSDEC SGV		50 (G)	1 (S)	NE	5 (S)*	0.6 (S)	5 (S)*	5 (S)*	5 (S)*	2 (S)	50 (S)
U.S. EPA MCL		NE	5	NE	NE	5	70	5	1,000	2	NE
Sample ID	Date	VOCs									SVOCs
SW-1 / Duplicate (Down-stream)	02/18/99	10 U	1.0 U	10 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U	2.0 U	10 U
	01/04/00	10 U	0.19 J,B	10 U	0.85 J	1.0 U	1.0 U	0.15 J,B	1.0 U	0.99 J	10 U
	06/08/00	10 U	1.0 U	10 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U	2.0 U	10 U
	03/15/01	10 U	1.0 U	10 U	0.97 J	0.61 J	0.39 J	1.0 U	1.0 U	0.52 J	10 U
	08/28/01	10 U	1.0 U	10 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U	2.0 U	10 U
	04/23/02	10 U	1.0 U	0.60 J	2.0 U	1.0 U	1.0 U	1.5 U	1.0 U	2.0 U	NA
	09/17/02	10 U	1.0 U	10 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U	2.0 U	NA
	04/08/03	10 U	1.0 U	10 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U	2.0 U	NA
	04/23/04	10 U	1.0 U	10 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U	2.0 U	NA
	02/18/06	10 U / 21 U	1.0 U / 1.0 U	10 U / 10 U	0.37 J / 2.0 U	1.0 U / 1.0 U	1.0 U / 1.0 U	1.0 U / 1.0 U	1.0 U / 1.0 U	0.34 J / 0.29 J	NA / NA
	06/14/07	10 U / 10 U	1.0 U / 1.0 U	10 U / 10 U	2.0 U / 2.0 U	1.0 U / 1.0 U	1.0 U / 1.0 U	1.0 U / 1.0 U	1.0 U / 1.0 U	2.0 U / 2.0 U	NA / NA
	07/24/08	10 U / 10 U	1.0 U / 1.0 U	10 U / 10 U	2.0 U / 2.0 U	1.0 U / 1.0 U	1.0 U / 1.0 U	1.0 U / 1.0 U	1.0 U / 1.0 U	2.0 U / 2.0 U	NA / NA
	07/15/09	10 U / 10 U	1.0 U / 1.0 U	10 U / 10 U	2.0 U / 2.0 U	1.0 U / 1.0 U	1.0 U / 1.0 U	1.0 U / 1.0 U	1.0 U / 1.0 U	2.0 U / 2.0 U	NA / NA
	07/22/10	10 U / 10 U	1.0 U / 1.0 U	10 U / 10 U	2.0 U / 2.0 U	1.0 U / 1.0 U	1.0 U / 1.0 U	1.0 U / 1.0 U	1.0 U / 1.0 U	2.0 U / 2.0 U	NA / NA
	10/13/11	10 U/10 U	1.0 U/1.0 U	10 U/10 U	1.0 U/1.0 U	1.0 U/1.0 U	1.0 U/1.0 U	1.0 U/1.0 U	1.0 U/1.0 U	1.0 U/1.0 U	NA / NA
	02/05/13	10 U/10 U	1.0 U/1.0 U	10 U/10 U	1.0 U/1.0 U	1.0 U/1.0 U	1.0 U/1.0 U	1.0 U/1.0 U	1.0 U/1.0 U	1.0 U/1.0 U	NA / NA
	09/23/15	10 U/10 U	1.0 U/1.0 U	10 U/10 U	1.0 U/1.0 U	1.0 U/1.0 U	1.0 U/1.0 U	1.0 U/1.0 U	1.0 U/1.0 U	1.0 U/1.0 U	NA / NA

Notes:

TCL = Target Compound List

NE = Not established; no criteria specified.

NA = Not analyzed

NYSDEC SGV = New York State Department of Environmental Conservation Standards (S) and Guidance (G) values for groundwater.

* = The principal organic contaminant (POC) standard for groundwater of 5 ug/L applies to this substance.

U.S. EPA MCL = United States Environmental Protection Agency Maximum Contaminant Level for drinking/groundwater.

J = Estimated result; result is less than reporting limit.

B = Method blank contamination. The associated method blank contains the target analyte at a reportable level.

U (DATA VALIDATION QUALIFIER) = The analyte was analyzed for, but was not detected above the reported sample quantitation limit.

Blue = Analyte detected at less than regulatory limit, or analyte detected but no regulatory criteria specified.

Red = Analyte detected at or above SGV or MCL.

Table B-2
Historical Summary of Detected TCL Volatile and Semivolatile Organic Compounds in Surface Water (ug/L)
Carroll and Dubies Superfund Site
Town of Deerpark, Orange County, New York

Analyte		Acetone	Benzene	2-Butanone	Chloroethane	1,2-Dichloro-ethane	1,2-Dichloro-ethene (total)	Methylene Chloride	Toluene	Vinyl Chloride	Di-n-butyl phthalate
NYSDEC SGV		50 (G)	1 (S)	NE	5 (S)*	0.6 (S)	5 (S)*	5 (S)*	5 (S)*	2 (S)	50 (S)
U.S. EPA MCL		NE	5	NE	NE	5	70	5	1,000	2	NE
Sample ID	Date	VOCs									SVOCs
SW-2 / Duplicate (Upstream)	02/18/99	10 U	1.0 U	10 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U	2.0 U	10 U
	01/04/00	10 U	1.0 U	10 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U	2.0 U	10 U
	06/08/00	10 U	1.0 U	10 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U	2.0 U	10 U
	08/28/01	10 U / 10 U	1.0 U / 1.0 U	10 U / 10 U	2.0 U / 2.0 U	1.0 U / 1.0 U	1.0 U / 1.0 U	1.0 U / 1.0 U	1.0 U / 1.0 U	2.0 U / 2.0 U	10 U
	04/23/02	10 U / 10 U	1.0 U / 1.0 U	10 U / 10 U	2.0 U / 2.0 U	1.0 U / 1.0 U	1.0 U / 1.0 U	1.2 U / 1.0 U	1.0 U / 1.0 U	2.0 U / 2.0 U	0.77 J / 10 U
	04/23/03	10 U / 10 U	1.0 U / 1.0 U	10 U / 10 U	2.0 U / 2.0 U	1.0 U / 1.0 U	1.0 U / 1.0 U	1.0 U / 1.0 U	1.0 U / 1.0 U	2.0 U / 2.0 U	NA
	04/23/04	10 U / 10 U	1.0 U / 1.0 U	10 U / 10 U	2.0 U / 2.0 U	1.0 U / 1.0 U	1.0 U / 1.0 U	1.0 U / 1.0 U	1.0 U / 1.0 U	2.0 U / 2.0 U	NA
	04/23/05	10 U / 10 U	1.0 U / 1.0 U	10 U / 10 U	2.0 U / 2.0 U	1.0 U / 1.0 U	1.0 U / 1.0 U	1.0 U / 1.0 U	1.0 U / 1.0 U	2.0 U / 2.0 U	NA
	03/15/01	10 U	1.0 U	10 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U	2.0 U	10 U
	02/18/06	10 U	1.0 U	10 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U	0.53 J	NA
	06/14/07	10 U	1.0 U	10 U	2.0 U	1.0 U	1.0 U	0.21 J	1.0 U	2.0 U	NA
	07/24/08	10 U	1.0 U	10 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U	2.0 U	NA
	07/15/09	10 U	1.0 U	10 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U	2.0 U	NA
	07/22/10	10 U	1.0 U	10 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U	2.0 U	NA
	10/13/11	10 U	1.0 U	10 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	NA
	02/05/13	10 U	1.0 U	10 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	NA
	09/23/15	10 U	1.0 U	10 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	NA

Notes:

TCL = Target Compound List

NE = Not established; no criteria specified.

NA = Not analyzed

NYSDEC SGV = New York State Department of Environmental Conservation Standards (S) and Guidance (G) values for groundwater.

* = The principal organic contaminant (POC) standard for groundwater of 5 ug/L applies to this substance.

U.S. EPA MCL = United States Environmental Protection Agency Maximum Contaminant Level for drinking/groundwater.

J = Estimated result; result is less than reporting limit.

B = Method blank contamination. The associated method blank contains the target analyte at a reportable level.

U (DATA VALIDATION QUALIFIER) = The analyte was analyzed for, but was not detected above the reported sample quantitation limit.

Blue = Analyte detected at less than regulatory limit, or analyte detected but no regulatory criteria specified.

Red = Analyte detected at or above SGV or MCL.

Table B-3
Historical Summary of Detected TCL Volatile and Semivolatile Organic Compounds in Sediment (ug/kg)
Carroll and Dubies Superfund Site
Town of Deerpark, Orange County, New York

Analyte		Acetone	Benzene	2-Butanone	Carbon Disulfide	Chlorobenzene	Chloroform	1,2-Dichloroethane	1,2-Dichloroethene (total)	Methylene Chloride	Toluene	Trichloroethene	Vinyl Chloride	bis(2-Ethylhexyl)phthalate	Di-n-butylphthalate	4-Methylphenol
Sample ID	Date	VOCs												SVOCs		
SED 1/Duplicate (Downstream)	09/27/94	58	ND	20 U	NA	ND	ND	ND	ND	ND	ND	ND	20 U	ND	190 J,B	ND
	02/18/99	28 U	6.9 U	28 U	6.9 U	6.9 U	6.9 U	6.9 U	6.9 U	6.9 U	6.9 U	6.9 U	14 U	450 U	77 J	450 U
	01/04/00	370	31 U	82 J	31 U	31 U	31 U	31 U	31 U	31 U	31 U	31 U	6.9 J	2,000 UJ / 1,400 UJ	2,000 UJ / 1,400 UJ	2,000 UJ / 1,400 UJ
	06/08/00	60 JB	13 U	17 J	13 U	13 U	13 U	13 U	13 U	13 U	13 U	13 U	27 U	590 J	880 U	880 U
	03/15/01	55 J	16 U	62 U	16 U	16 U	16 U	16 U	16 U	16 U	16 U	16 U	31 U	1,000 U	1,000 U	1,000 U
	08/28/01	27 J	2.1 J	9.4 J	12 U	12 U	12 U	12 U	4.6 J	12 U	1.3 J	12 U	24 U	790 U	790 U	790 U
	04/23/02	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R
	09/17/02	180 BJ	2.7 J	58 J	3.5 J	17 U	17 U	17 U	2.1 J	17 U	54 J	17 U	34 UJ	NA	NA	NA
	04/08/03	110 J	3.4 J	34 J	21 UJ	21 U	21 U	21 U	5.7 J	21 U	21 U	21 U	3.0 J	NA	NA	NA
	04/23/04	28 J,FB,TB	10 U	7.2 J	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	20 U	NA	NA	NA
	02/18/06	460 U / 180 U	11 U / 9.1 U	130 U / 54 U	11 U / 9.1 U	11 U / 9.1 U	11 U / 9.1 U	11 U / 9.1 U	11 U / 9.1 U	11 U / 9.1 U	1.2 J / 0.95 J	1.9 J / 9.1 U	23 U / 18 U	NA	NA	NA
	06/14/07	60 J / 18 J	12 U / 12 U	18 J / 6.9 J	0.62 J / 0.76 J	12 U / 12 U	12 U / 12 U	12 U / 12 U	12 U / 12 U	12 U / 12 U	12 U / 12 U	12 U / 12 U	24 U / 24 U	NA / NA	NA / NA	NA / NA
	07/24/08	24 U / 26 U	6.1 U / 6.5 U	2.9 J / 5.9 J	6.1 U / 6.5 U	6.1 U / 6.5 U	6.1 U / 6.5 U	6.1 U / 6.5 U	6.1 U / 6.5 U	6.1 U / 6.5 U	6.1 U / 6.5 U	6.1 U / 6.5 U	12 U / 13 U	NA / NA	NA / NA	NA / NA
	07/15/09	940 J / 300 J	13 J / 5.6 J	230 J / 96 J	17 J / 8.2 J	5.9 J / 3.2 J	25 U / 21 U	1.7 J / 21 U	12 J / 5.9 J	9.7 J / 21 U	3.1 J1.3 J	25 U / 21 U	8.7 J / 4.5 J	NA / NA	NA / NA	NA / NA
	07/22/10	45 J / 85 J	7.3 U / 15 U	29 U / 62 U	7.3 U / 15 U	7.3 U / 15 U	7.3 U / 15 U	7.3 U / 15 U	7.3 U / 15 U	7.9 J / 7.3 U	7.3 U / 15 U	7.3 U / 15 U	7.3 U / 15 U	NA / NA	NA / NA	NA / NA
	10/13/11	34 U / 33 U	8.6 U / 8.1 U	34 U / 33 U	8.6 U / 8.1 U	8.6 U / 8.1 U	8.6 U / 8.1 U	8.6 U / 8.1 U	8.6 U / 8.1 U	8.6 U / 8.1 U	8.6 U / 8.1 U	8.6 U / 8.1 U	8.6 U / 8.1 U	NA / NA	NA / NA	NA / NA
	02/05/13	72 J / 56 J	11 UJ / 11 UJ	43 UJ / 43 UJ	11 UJ / 11 UJ	11 UJ / 11 UJ	11 UJ / 11 UJ	11 UJ / 11 UJ	11 UJ / 11 UJ	11 UJ / 11 UJ	11 UJ / 11 UJ	11 UJ / 11 UJ	11 UJ / 11 UJ	NA / NA	NA / NA	NA / NA
	09/23/15	160	37 U	150 U	37 U	37 U	37 U	37 U	37 U	37 U	37 U	37 U	37 U	NA	NA	NA
SED-2/Duplicate (Upstream)	09/27/97	76	ND	23 U	NA	ND	ND	ND	ND	ND	ND	ND	23 U	ND	220 J,B	ND
	02/18/99	140 JB	44 U	50 J	44 U	44 U	44 U	44 U	44 U	44 U	44 U	44 U	88 U	2,900 U	370 J	2,900 U
	01/04/00	180 J / 190 U	55 U / 47 U	220 U / 190 U	55 U / 47 U	55 U / 47 U	55 U / 47 U	55 U / 47 U	55 U / 47 U	55 U / 47 U	55 U / 47 U	55 U / 47 U	110 U / 94 U	3,600 U / 3,100 U	3,600 U / 3,100 U	3,600 U / 3,100 U
	06/08/00	150 J / 160 U	46 U / 41 U	49 J / 160 U	46 U / 41 U	46 U / 41 U	46 U / 41 U	46 U / 41 U	46 U / 41 U	46 U / 41 U	13 J / 41 U	46 U / 41 U	91 U / 81 U	2,900 J / 1,500 J	3,000 U / 2,700 U	480 J,# / 2,700 U
	03/15/01	36 UJ / 69 UJ	17 UJ / 17 UJ	70 UJ / 69 UJ	17 U / 17 U	17 U / 17 U	17 U / 17 U	17 U / 17 U	17 UJ / 17 UJ	17 UJ / 17 UJ	17 UJ / 17 UJ	17 U / 17 U	35 UJ / 35 UJ	1,200 U / 1,100 U	1,200 U / 1,100 U	1,200 U / 1,100 U
	08/28/01	44 J / 22 J	16 U / 13 U	14 J / 7.6 J	16 U / 13 U	16 U / 13 U	16 U / 13 U	16 U / 13 U	16 U / 13 U	16 U / 13 U	16 U / 13 U	16 U / 13 U	32 U / 25 U	1,100 U / 830 U	1,100 U / 830 U	1,100 U / 830 U
	04/23/02	63 J / 85 UJ	30 UJ / 21 UJ	21 J / 85 UJ	30 UJ / 21 UJ	30 UJ / 21 UJ	30 UJ / 21 UJ	30 UJ / 21 UJ	30 UJ / 21 UJ	30 UJ / 21 UJ	30 UJ / 21 UJ	30 UJ / 21 UJ	59 UJ / 42 UJ	2,000 UJ / 1,400 UJ	2,000 UJ / 1,400 UJ	2,000 UJ / 1,400 UJ
	09/17/02	40 B / 29 JB	9.6 U / 9.3 U		9.6 U / 9.3 U	9.6 U / 9.3 U	9.6 U / 9.3 U	9.6 U / 9.3 U	9.6 U / 9.3 U	9.6 U / 9.3 U	1.0 J / 0.91 J	9.6 U / 9.3 U	19 U / 19 U	NA	NA	NA
	04/08/03	79 J / 27 J	41 U / 44 U	21 J / 180 U	41 U / 44 U	41 U / 44 U	41 U / 44 U	41 U / 44 U	41 U / 44 U	41 U / 44 U	41 U / 44 U	41 U / 44 U	83 U / 88 U	NA	NA	NA
	04/23/04	38 J,FB / 53 U	14 U / 13 U	12 J / 53 U	14 U / 13 U	14 U / 13 U	14 U / 13 U	14 U / 13 U	14 U / 13 U	14 U / 13 U	14 U / 13 U	14 U / 13 U	28 U / 27 U	NA	NA	NA
	02/18/06	110 U	16 U	65 U	1.8 J	16 U	16 U	16 U	16 U	16 U	2.1 J	16 U	32 U	NA	NA	NA
	06/14/07	76 J	15 U	18 J	1.2 J	15 U	15 U	15 U	15 U	15 U	5.5 J	15 U	30 U	NA	NA	NA
	07/24/08	78 UJ	10 U	19 J	10 U	10 U	10 U	10 U	10 U	10 U	0.90 J	10 U	20 U	NA	NA	NA
	07/15/09	110 UJ	28 UJ	110 UJ	28 UJ	28 UJ	1.6 J	28 UJ	28 UJ	8.6 J	34 J	28 UJ	56 UJ	NA	NA	NA
	07/22/10	89 J	16 U	65 U	16 UJ	16 U	16 U	16 U	16 U	18 J	16 UJ	16 U	16 U	NA	NA	NA
	10/13/11	47 UJ	12 UJ	47 UJ	12 UJ	12 UJ	12 UJ	12 UJ	12 UJ	13 J	12 UJ	12 UJ	12 UJ	NA	NA	NA
	02/05/13	150 UJ	38 UJ	150 UJ	38 UJ	38 UJ	38 UJ	38 UJ	38 UJ	38 UJ	38 UJ	38 UJ	38 UJ	NA	NA	NA
	09/23/15	170 / 260 J	37 U / 35 UJ	150 U / 140 UJ	37 U / 35 UJ	37 U / 35 UJ	37 U / 35 UJ	37 U / 35 UJ	37 U / 35 UJ	37 U / 35 UJ	37 U / 35 UJ	37 U / 35 UJ	37 U / 35 UJ	NA /NA	NA /NA	NA /NA

Table B-3
Historical Summary of Detected TCL Volatile and Semivolatile Organic Compounds in Sediment (ug/kg)
Carroll and Dubies Superfund Site
Town of Deerpark, Orange County, New York

Notes:

TCL = Target Compound List

ND = Not detected at reporting limit prior to 06/08/00.

< = Not detected at the method detection limit.

B = Method blank contamination. The associated method blank contains the analyte at a reportable level.

R (DATA VALIDATION QUALIFIER) = The sample results are rejected due to serious deficiencies in the ability to analyze the sample and meet QC criteria. The presence or absence of the analyte cannot be verified.

= This value represents a probable combination of 3-methylphenol (m-cresol) and 6-methylphenol (p-cresol).

UJ (DATA VALIDATION QUALIFIER) = Analyte not detected above the reporting limit; however, the reporting limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.

Methylene chloride (2.6 ug/kg J, FB, TB) was detected in SED-1 during 4/04 sampling round.

NA = Not analyzed

J = Estimated result; result is less than method reporting limit

TB = Detected in trip blank

FB = Detected in field blank

Appendix C
Data Quality Review - Checklists

Tier II
VOA Organic Data Review Summary

SDG No./Matrix: <u>240-55880-1, water and sediment</u>			Completion Date: <u>11-04-2015</u>		
Project No.: <u>104-0012</u>			Reviewer: <u>Barbara Jones</u>		
Laboratory: <u>TestAmerica, North Canton, OH</u>					
Review Criteria	Data Qualified Yes / No	Samples Qualified			
1. Data completeness	No	The complete data package (967 pages) was provided in electronic format.			
2. Preservation/holding time	No	All VOA samples were analyzed within the required holding times.			
3. GC/MS tuning – Form V	No	Form Vs provided for four instruments and all samples. BFB mass spectrum met relative abundance criteria in all cases.			
4. Calibration:					
4A – Initial – Form VI	No	Form VIs for four instruments provided, along with backup information; multiple calibration levels.			
4B – Continuing – Form VII	No	Form VIIs provided for four instruments provided, showing % D and ave. RRF.			
5. Blanks:					
5A - Laboratory blanks – Form IV	No	Three solid and five water lab blanks (method blank or MB). One of three solid MBs for SED-1 samples had methylene chloride above the reporting limit, but sample not qualified because compound was nondetectable. For water MBs, there were no detects above the reporting levels.			
5B - Trip blanks/Field blanks	No	One TB, 2 FB – no detects			
5C - Equipment rinsates	No	Pump rinsate blank – no detects			
6. Surrogate recovery – Form II	No	All surrogate recoveries were within QC limits.			
7. Lab-control sample – Form III	No	Five water LCS and three solids LCS. Recoveries were high for some compounds, but within limits for which qualifications for detects or nondetects are not required.			
8. Matrix spike/matrix spike duplicates – Form III	Yes	OW-6 qualified for two nondetect compounds as UJ because of low RPDs; SED-2 DUP qualified as UJ for one nondetect compound because of low spike recovery.			
9. Field duplicates	No	Three field duplicates all within RPD limits.			
10. Internal standards performance - Form VIII	Yes	SED-2 DUP internal standard area response was outside of limits (low). Nondetects qualified as UJ, detect (acetone) qualified as J for estimated. The sample was re-analyzed with concurring results.			

11.	Compound quantitation and reporting	No	Spot check: Rounding on OW-24 ok; dilution correction ok on OW-5 DUP
12.	Tentatively identified compounds	NA	TIC reporting not required for this project.

Tier II
RSK Method Dissolved Gases

SDG No./Matrix: <u>Groundwater – 240-55880-1</u>		Completion Date: <u>11/04/2015</u>
Project No.: <u>104-0012</u>		Reviewer: <u>Barbara Jones</u>
Laboratory: <u>TestAmerica, North Canton, OH</u>		
Review Criteria	Data Qualified Yes / No	Samples Qualified
1. Data completeness	No	RSK information is part of total SDG package (electronic format).
2. Preservation/holding time	No	Holding times were met.
3. Analytical Sequence – Form VIII	No	Form shows that field and QC samples were properly bracketed with initial and continuing calibration runs.
4. Calibration:		
4A – Initial – Form VI	No	Four-level initial calibration for methane, ethane, ethane, and other dissolved gases
4B – Continuing - Form VII	No	Continuing cal forms show %D and retention times ok.
5. Blanks:		
5A - Laboratory blanks – Form IV		Two method blanks; both MBs ND
5B - Trip blanks	NA	TB and FBs not analyzed for RSK, only VOAs
5C - Equipment rinsates	NA	Pump rinsate blank not analyzed for RSK, only VOAs.
6. Surrogate recovery – Form II	No	TFE recovery within limits for samples, blanks, LCS, MS/MSD
7. Lab control sample – Form III	No	Two LCS samples, recoveries within limits
8. Matrix spike/matrix spike duplicates – Form III	No	MS/MSD recoveries and RPDs within QC limits.
9. Field duplicates	Yes	For OW-5 and OW-5 DUP, one result is slightly above RL of 0.50 ug/L, with a result of 0.66 ug/L, and duplicate is ND. Detected result qualified as J, nondetect as UJ.
10. Compound quantitation and reporting	No	Spot check 2X dilution result for OW10R and ok. On-column result x 2 yields reported result.
11. Tentatively identified compounds	NA	Not applicable for these samples